Expanding the Scope of Harm: Understanding Different Modalities of Violence Against Civilians in South Sudan

Angela Garvey

BA, MPP

School of Law and Government, Dublin City University

A dissertation submitted in fulfilment of the requirement for the degree of Doctor of Philosophy

Supervisor: Dr Walt Kilroy

School of Law and Government, Dublin City University

External Supervisor: Dr Caitriona Dowd

School of Politics and International Relations, University College Dublin

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Dedicated to Molly, the heart of our home

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List of abbreviations

ACLED – Armed Conflict Location and Event Dataset

ARCSS – Agreement on the Resolution of the Conflict in South Sudan

ELF – Ethnolinguistic Fractionalisation

EPR – Ethnic Power Relations

FAO – Food and Agriculture Organisation

GDELT – Global Database of Events, Language, and Tone

GIS – Geographic Information System

HDX – Humanitarian Data Exchange

HSBA – Human Security Baseline Assessment

ICEWS – Integrated Crisis Early Warning System

IDP – Internally Displaced Person

IHL – International Humanitarian Law

IOM – International Organisation for Migration

JEM – Justice and Equality Movement

KEDS – Kansas Event Data System

MAAPSS – Mapping Actors and Alliances Project in South Sudan

NAS – National Salvation Front

NGO – Non-government Organisation

RPA – Robotic Process Automation

SPLA/M – Sudan People's Liberation Army/Movement

SPLM-IO – Sudan People's Liberation Movement – In Opposition

SPLM-N – Sudan People's Liberation Movement – North

UN – United Nations

UNHCR – United Nations High Commissioner for Refugees

UNMISS – United Nations Mission in South Sudan

VAC – Violence Against Civilians

VIIRS – Visible Infrared Imaging Radiometer Suite

ZINB – Zero-Inflated Negative Binomial model

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Abstract

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Recent civil wars have witnessed a myriad of risks for civilian populations, including attacks against civilians and civilian objects. In spite of the significant risk and long-term human security impacts of attacks on important civilian resources, attacks against civilian objects remain comparatively understudied. This thesis explores the relationship between different modalities of violence against civilians in civil war. It focuses on two categories of violence – 1) violence that attacks civilian bodies, including both lethal attacks and non-lethal attacks, referred to as primary modalities of violence against civilians, and 2) violence that attacks civilian objects, subsequently denying civilians access to important resources and possibly leading to physical harm, referred to as secondary modalities of violence against civilians. To compare these categories of violence, the author developed a framework of violence against civilians and subsequently developed a conflict event dataset on violence against civilian objects through a novel, semi-automated approach using robotic process automation for the identification, collection, and transformation of event data not currently available through existing datasets. Using the South Sudanese civil war as a case study, this thesis identifies important divergences in patterns of modalities of violence against civilians and their relationship to armed actor competition and ethnic identity, highlighting the significance of examining harm beyond violence directed at civilian bodies.

1. Introduction

‘[Violence] has been less fighting between the forces than targeted killings of civilians who could not flee, and massive looting and destruction. The attacks have left destroyed, largely deserted towns dotted with the bodies of women, children, and men, and have resulted in mass displacement and hunger.’

Daniel Bekele, Human Rights Watch Africa Director

A growing body of evidence shows that violence against civilians in civil wars has not only persisted but intensified in recent years, with rising levels of violence and a broad range of harms inflicted. An assessment of the last five years indicates that global conflict, including civil wars, has nearly doubled, with increases in violence against civilians and sustained risk to civilian populations from bombings and incursions (Raleigh et al., 2010). As conflicts persist around the world, the civilian burden of political violence continues to worsen with increases in civilian targeting and the lethality of violence (Lay, 2023). Furthermore, the risks of violence go beyond the targeting of civilians themselves. Examination of the risks to healthcare in conflict identify an ‘epidemic of violence,’ recording incidents of attacks higher than ever before (SHCC, 2024). Similarly, conflict remains the primary driver of increasing food crises (GNAF, 2025) with incidents attacking food and food systems having the greatest effect on subsequent crisis (Dowd, 2023).

These patterns of violence and scope of harm were particularly exemplified during the South Sudanese civil war. During the war, high levels of violence against civilians put the safety of millions at risk, both from attacks on civilians themselves and attacks on important resources. The destruction of civilian objects presented immediate physical harm and contributed to hunger and mass displacement across South Sudan

(Buchanan, 2018; Ensor, 2022; Jordan, 2018). Violence targeting agricultural resources – burning crops, stealing livestock, disrupting agricultural cycles through violence – led to acute food insecurity throughout the civil war, with destruction of agricultural land resulting in disrupted production and met only half of the country's need for staple products (Human Rights Watch, 2015; IPC, 2019; OCHA, 2021; Olsen et al., 2021). Attacks on healthcare facilities diminished the capacity to provide immediate care and long-term capacity for treatment as malnutrition and disease spread (Biwott et al., 2019; Crombé and Kuper, 2019; Green, 2014). Humanitarian agencies were deliberately targeted, resulting in looted food stores and inability to access affected populations (Yayboke, 2018). These attacks against civilian objects contributed to millions fleeing their homes, leading to approximately 4 million displaced persons, one third of the population at the height to the civil war (IOM, 2017). Ultimately, these attacks against civilian objects spurred the collapse of food systems and severely restricted humanitarian access, resulting in food insecurity for 7 million South Sudanese and the declaration of famine in parts of Unity State – a distressing outcome of the deliberate targeting of the resources civilians depend on (Devi, 2017; OCHA, 2018).

The international community has stated firmly that it seeks to tackle these harmful and complex risks. International humanitarian law (IHL) codifies the right to safety of the civilian population in times of conflict (International Committee of the Red Cross, 1977a, 1977b, 1950) and has been built upon to develop protection norms which state when, in the face of violations of these laws, the international community would intervene to stop violence (Kurtz and Rotmann, 2016; Percy and Sandholtz, 2022; Welsh, 2019). As policymakers and practitioners continue to design and implement interventions to stop violence against civilians and protect the civilian

population in times of conflict, scholars work to examine evidence of when, where, and – crucially – why violence against civilians occurs and under what conflict conditions.

Civilian harm can take a variety of forms. While the majority of casualties in civil wars are civilian (Holt and Berkman, 2006; Kilroy et al., 2024; Williams, 2013), the majority of these deaths do not result in injuries sustained from violent conflict but rather its subsequent effects – disease, malnutrition, and other health risks (Jawad et al., 2020). Efforts to address and prevent civilian harm, along with analyses of that harm, have predominantly focused on violence against civilian bodies despite the enormous risk presented by these subsequent risks. An expanded focus on the harm civilians face in conflict environments, particularly one that considers the risk beyond violence directed at civilian bodies, provides important space for discussing the greater spectrum of violence civilians face in civil wars and working towards better protection from that violence. This subsequently enables a more disaggregated lens to study violence and facilitates the examination of potential strategic logics of violence against civilians across different repertoires of violence that more fully captures how civilians experience and are harmed by conflict.

1.1 Violence against civilians

Research on violence against civilians has evolved significantly in recent decades. In the first half of the twentieth century, scholars focused more on understanding the onset of conflict rather than the violence that occurred during war (Valentino, 2014). As the academic focus shifted to examine phenomena including mass killing and genocide, political scientists often viewed violence against civilians through a Clausewitzian lens – violence against civilians was byproduct of war, whereby civilians are the unintended but unavoidable collateral damage of armed

conflict (Clausewitz, 1832; Conway-Lanz, 2006; Shapiro, 2005). In the 1990s, however, a narrative began to emerge that violence against civilians could be deliberate, rather than accidental. As the international community was shocked by the civilian atrocities committed in Rwanda and across the Balkans, scholars and political leaders began to focus greater attention on the deliberate targeting of civilians in conflict, pointing initially to a narrative of ancient hatreds that drove spikes in violence (Kaplan, 2005; Sadowski, 1998; Valentino, 2014). This explanation seemed to align with violent civil wars escalating in a post-Cold War era, in which extreme levels of violence were perpetrated along perceived ethnic lines (Kaplan, 2005).

At the turn of the century, a new research focus emerged of understanding the causes of violence against civilians. Qualitative research emerged that challenged the narrative of ancient, entrenched hatreds, demonstrating that large scale violence can be purposeful and occurs when political elites exploit the divisions between communities (Gagnon Jr, 1994; Human Rights Watch, 1995). Identifying a strategic logic behind violence against civilians spurred further research on the drivers of violence, enabled by the expansion of conflict event data (Azam and Hoeffler, 2002; Kalyvas, 2006; Sullivan, 2012; Wood, 2010).

Research on violence against civilians began to grow rapidly, turning to a variety of empirical sources that facilitated analysis of subnational variation in patterns of violence (Eck, 2012; Hoover Green, 2017; Kalyvas and Kocher, 2009; Schwartz and Straus, 2018). As described in greater detail in the literature review, scholars began to identify and debate drivers of violence against civilians, including targeting civilians as an armed actor's base of support (Fjelde and Hultman, 2014; Hultman, 2008; Valentino et al., 2004); increased levels of competition between armed actors, including state, rebel, and militia organisations (Boyle, 2009; Herreros and Criado, 2009; Raleigh,

2012; Zech and Kelly, 2015); and a communication tool to signal strength and resolve to civilians and other armed actors (Boyle, 2009; Dowd, 2015; Hoffman and McCormick, 2004; Zech and Kelly, 2015). Research similarly sought to distinguish various forms of violence – from contexts in which armed actors employ violence against civilians or strategically avoid it (restraint) (Stanton, 2016; Straus, 2012); lethal and non-lethal forms of violence (Eck, 2012); and violence that targets individuals (selective), based on a group identity (collective), and violence that is not directed towards any particular individual or group (indiscriminate) (Balcells and Stanton, 2021; Hultman, 2014; Kalyvas, 2006; Littman and Paluck, 2015).

Despite extensive studies on different aspects of violence against civilians (Abbs et al., 2020; Cohen and Nordås, 2015; Di Salvatore, 2016; Kalyvas, 2006; Raleigh, 2012; Welsh, 2023; Wood and Kathman, 2015), a specific subset of violence against civilians – violence that attacks civilian objects – is relatively understudied and warrants greater examination. An expanded focus on violence against civilians through attacks on civilian objects can provide a more complete understanding of the risks civilians face in civil war. However, analysis of the determinants of violence against civilians and its variation remain predominantly focused on violence directed at civilian bodies (Balcells, 2017; Di Salvatore, 2016; Fjelde and Hultman, 2014; Kalyvas, 2006; Welsh, 2023; Wood and Kathman, 2015). How these forms of violence may differ in varying conflict environments is not fully understood, leaving both an empirical and theoretical gap in our understanding of violence directed at civilian objects. Addressing this gap is pivotal because while collection efforts of conflict event data have grown exponentially, these growing initiatives have as yet failed to account for a phenomenon that makes up an important part of how civilians experience conflict and suffer harm

from it. As a result, these efforts that seek to document and examine contextual factors in a granular way are incomplete and this thesis fills an important gap in these efforts.

1.2 Research question

To address this gap, this thesis examines two categories of violence against civilians – primary and secondary modalities of violence against civilians. Primary modalities of violence against civilians refers to violence that attacks civilian bodies, including both lethal and non-lethal violence, and secondary modalities of violence against civilians refer to violence that attacks civilian objects, subsequently denying civilians access to important resources and possibly causing physical harm. To understand how these categories of violence may vary, I ask: what contextual factors shape variation in patterns of primary and secondary modalities of violence against civilians? To examine the relationship between violence and these contextual factors, this research includes three sub-questions:

a) What are the patterns of secondary modalities of violence against civilians in a given case, and how do they diverge from primary modalities?

b) How does the relationship between armed actor competition and primary and secondary modalities of violence against civilians differ?

c) How does the relationship between ethnic identity and primary and secondary modalities of violence against civilians differ?

1.3 Case selection

This thesis focuses on a single case study of the South Sudanese civil war in the years 2013-2022. Just two years after South Sudan's independence, the country fell into a civil war, returning to long-standing grievances and ethnic tensions that were left

unresolved by the independence movement and Comprehensive Peace Agreement signed in 2005 (Garang, 2020; Young, 2019). Political tensions began again in 2013 and erupted into civil war in December 2013 as President Salva Kiir accused Vice President Riek Machar of an attempted coup d'état, sparking violence between soldiers from the Dinka ethnic group which were loyal to Kiir and soldiers from the Nuer ethnic group that were loyal to Machar (Johnson, 2014). After this violence erupted in Juba, ethnic Nuer loyal to Machar formed the Sudan People's Liberation Movement-In Opposition (SPLM-IO) and violence between military forces and the newly formed opposition quickly spread to outside of Juba to Jonglei, Unity, and Upper Nile states (Madut, 2020). In spite of an initial peace agreement signed in August 2015, fighting between the military and SPLM-IO again broke out in July 2016, renewing violent conflict, deepening the humanitarian crisis, and spreading violence across the Equatorias (Pinaud, 2022). Again in 2018, both conflict sides were able to sign a peace agreement (Mamdani, 2018) and subsequently form a Revitalised Transitional Government of National Unity in 2020 (Vhumbunu, 2020), reinstating Vice President Machar. In spite of this, violence between armed actors and against civilians continued at sustained levels through 2022 (Chagutah, 2023; Pur, 2022; United Nations, 2022).

South Sudan represents an extreme case (Gerring, 2008) in the understanding of primary and secondary modalities of violence against civilians in civil war. Over the course of the civil war, the South Sudanese people have suffered from violence in a variety of forms. Reporting sources have provided evidence of widespread violence against civilians, starting as early as the hours and days following the declaration of the attempted coup d'état (Bureau of Democracy, Human Rights, and Labor, 2014; Henry, 2014; UNMISS, 2014) and continuing through each year of the civil war (Pedneault, 2017; UNMISS, 2023; U.S. Department of State, 2023). This reporting speaks to

potential trends of interest for this research. First, both categories of violence (primary and secondary modalities of violence against civilians) are reported throughout these various sources in different contexts, against different groups, and across various parts of the country (Human Rights Watch, 2014a, 2016). Second, secondary modalities of violence against civilians are a common form of violence in this war, with scorched earth tactics of burning, looting, and large-scale property destruction carried out by multiple armed actors during the war, in what often appears to be retaliatory patterns (Human Rights Watch, 2014b). The identification of these potential patterns makes South Sudan an ideal case for hypothesis-testing on the distinctions between primary and secondary modalities of violence (Gerring, 2008).

There are several factors, including the contestation of central or national level political power (Arnold and LeRiche, 2013; Johnson, 2014), a history of recurrent violent conflict that created long-standing grievances that shape the dynamics and mobilisation for violence (Arnold and LeRiche, 2013; Jok and Hutchinson, 1999; Nyaba, 2019); evidence of ethnic-based violence (Garang, 2020; Johnson, 2014; Pedneault, 2017; Raleigh et al., 2010); and a severity of civil war in resource-constrained settings that precipitate acute food insecurity and famine (Devi, 2017; O'Driscoll, 2018; Olsen et al., 2021), which shaped the South Sudanese civil war. While many of these factors appear in other contemporary civil wars in the region (Ahmed, 2024; Akande and Gillard, 2019; Bapolisi et al., 2021; Bitenga Alexandre et al., 2021; Medani, 2024; Olanrewaju and Balana, 2023; Tuki, 2025), the case of South Sudan is not universally representative. As a result, the conclusions of this analysis will be able to speak to the patterns of primary and secondary modalities of violence against civilians in civil wars, including the South Sudanese civil war and cases with these similar contours (Gerring, 2009). This research serves as a basis to test theories of

primary and secondary modalities of violence against civilians in civil wars, demonstrating the value of distinguishing between categories of violence against civilians and opening space for future research to tests these findings cross-nationally.

1.4 Research design and methods

The research design of this thesis is broken into two parts – methodology of data generation and methodology of data analysis. Following the identification of a gap in coded data on secondary modalities of violence against civilians, I developed a data collection methodology to generate a quantitative, event-based dataset on this category of violence. The data source was news and nonprofit reporting from open access sources. Building on a growing subfield of automated data collection (Boschee et al., 2012; Leetaru and Schrodt, 2013; Schrodt et al., 2014; Ward et al., 2013a), the methodology employed a hybrid or semi-automated approach to data collection (Croicu and Weidmann, 2015; Nardulli et al., 2015), which combines the efficiencies of automated processes with the necessity of researcher oversight and decision-making (Raleigh and Kishi, 2023). This novel methodology utilised Robotic Process Automation (RPA), an emerging software technology with effective use cases for data collection and extraction in information-dense industries (Bellinga et al., 2022; Eulerich et al., 2022; Houy et al., 2019; Huang and Vasarhelyi, 2019; Moffitt et al., 2018; Sreekrishna and Jacob, 2023; Urbach et al., 2021) to identify, extract, and code unstructured text data from news and nonprofit reporting to produce a spatiotemporal event dataset on secondary modalities of violence against civilians.

This dataset was subsequently analysed in comparison to event data on primary modalities of violence against civilians sourced from the Armed Conflict Location and Event Dataset (ACLED) (Raleigh et al., 2010). To provide a comprehensive

understanding of the dynamics and factors driving violence against civilians, this analysis employs a mixed-methods approach that integrates quantitative regression analysis with qualitative case studies. The first component, regression analysis, is run using Zero-Inflated Negative Binomial Regression (ZINB) models. ZINB is appropriate for this analysis due to the nature of the dependent variable— that count data on events of violence against civilians that are characterised by overdispersion and an excess of zero observations. Zeros result from two processes – first, structural conditions where events are unlikely to occur, including areas sparsely populated by civilians (Schutte, 2017; Welsh, 2023); and second, occurrences in low-probability contexts such as in a conflict environment with lower levels of competition (Dorff et al., 2023; Gibilisco et al., 2022; Wood and Kathman, 2015). The model includes both mechanisms by combining a zero-inflation process with a negative binomial distribution for overdispersed counts and is therefore well-suited to test the above hypothesis (Bagozzi, 2015; Koren and Bagozzi, 2017).

Subsequently, the regression analysis is complemented by subnational case study analysis. While recognising the value of data as empirical evidence of observable patterns, there are limitations on the ability to understand causal relationships from observational data on violence (Bell-Martin and Marston Jr, 2021; Gibilisco and Steinberg, 2023; Miller et al., 2022; Nunes et al., 2025; Weidmann, 2016). Working within these limitations, I employ qualitative approaches of observation that can improve the alignment of theories and empirics with the complexities of violence during civil war. The subnational case studies provide a structured way to assess how the patterns identified in the regression analysis manifest in distinct conflict environments. By analysing armed actor behaviour within each setting, the case studies

offer insight into how armed actor competition and subnational variation in ethnic identity composition contribute to different outcomes of violence against civilians.

1.5 Core argument

This thesis examines violence against civilians by armed actors in civil war, taking the South Sudanese civil war in the years 2013-2022 as a case study. This focuses specifically on violence occurring during civil wars. There are important differences between civil wars and interstate conflict that limit theorisation on the nature of violence specifically to civil wars. In civil wars, subnational compositions of civilian populations have shown to be an important determinant of violence against civilians (Balcells, 2017; Di Salvatore, 2016; Fjelde and Hultman, 2014; Hultman, 2008; Kalyvas, 2006; Lis et al., 2021; Sullivan, 2012). In comparison, interstate wars are less likely to have a strong connection between armed actors and civilian populations as perceptions of affiliation or constituency are likely to be more homogenised, with armed actors viewing the civilian population of an opposing state as a singular, collective entity which represents the national will (Biddle, 2005; Gray, 2007; Overy, 1997; Pape, 1996).

The scope of violence considered in this thesis is limited to physical forms of violence, specifically the use of force to inflict harm which includes both violence against civilian bodies – referred to as primary modalities of violence against civilians – and violence against civilian objects which subsequently deny civilians access to important resources and can possibly lead to physical harm – referred to as secondary modalities of violence against civilians. Primary modalities of violence against civilians represent more direct forms of violence as the use of force is against civilians themselves. Conversely, secondary modalities of violence against civilians represent

less direct forms of violence as the use of force is against a civilian object which – although less direct – still has the capacity to cause physical harm for civilians.

Central to this thesis and its expanded scope of violence against civilians is the concept of secondary modalities of violence against civilians. This concept is a valuable addition to existing definitions of violence against civilians and can further analysis of the impact of civil war on the safety of civilian populations. This concept builds on the term of objects indispensable for survival, outlined in the Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II). However, it differs from this existing framing of objects indispensable for survival in two important respects. First, the concept of secondary modalities of violence against civilians includes attacks against civilian objects which go beyond those important resources explicitly cited in the concept of objects indispensable for survival, as the use of 'such as' language suggests that this is not an exhaustive list. This interpretation aligns with existing research which draws on other components of international human rights law to interpret this concept (Akande and Gillard, 2019; Coco et al., 2019; D'Alessandra and Gillett, 2019; Pilloud et al., 1987). This framework extends the interpretation of the concept of objects indispensable for survival to include acts which use force to damage or deny access to foodstuffs, agricultural areas, crops, livestock, drinking water installations, irrigation infrastructure as well as clothing, bedding, shelter and medical supplies.

Second, central to the concept of objects indispensable for survival is the need to prove both the indispensability of an object and the intention of starvation of the civilian population through the attack on the object. While these thresholds to prove intentionality or indispensability are central to determining criminal accountability

(Global Rights Compliance, 2019), the interest of this thesis is in understanding patterns of violence against civilians, which is not limited to those acts of violence attacking civilian objects which seek to starve civilians or attack exclusively those objects without which a civilian would certainly or immediately die.

Despite a predominant focus on modalities of violence against civilians that target civilian bodies (Balcells, 2017; Di Salvatore, 2016; Fjelde and Hultman, 2014; Kalyvas, 2006; Sullivan, 2012; Welsh, 2023; Wood and Kathman, 2015), extant research suggests that primary and secondary modalities of violence against civilians differ in substantive ways. Based on the nature and target of these events, I argue that primary and secondary modalities of violence against civilians may serve different strategic functions as armed actors pursue their aims and response to shifts in the conflict environment. In particular, consideration of existing scholarship on the use of violence against civilians as a communication tool (Bloom, 2005; Boyle, 2009; Dowd, 2019; Kydd and Walter, 2006) and as a method to target and punish an opponent's based of support (Fjelde and Hultman, 2014; Hultman, 2008; Sullivan, 2012) indicates that these categories of violence against civilians may be meaningfully distinct in their use by armed actors.

In highly fragmented environments with multiple armed actors vying for primacy in a competitive political market and seeking dominance over opponents, armed actors may use violence against civilians as a test of militancy (Bloom, 2005), specifically seeking to 'outbid' and 'outflank' other armed actors in the conflict environment (Boyle, 2009). The more spectacular the modality of violence, the more the armed actor is able to reap the benefits of political salience over opponents (Bloom, 2005). While there are various tactics of violence against civilian populations, the most intense and spectacular garner the most press and public attention (Bloom, 2005). By

their nature, events of secondary modalities of violence against civilians present less immediate, visible human suffering than modalities of violence with target civilians themselves. These non-fatal events are comparatively undervalued in their newsworthiness (Croicu and Eck, 2022) and would therefore serve as a less effective communication tool in highly saturated conflict environments as compared to primary modalities of violence against civilians.

Furthermore, case studies from civil wars including Guatemala (Jonas, 2012), Sudan (Vehnämäki, 2006), Iraq, and Syria (Jaafar et al., 2022) present evidence that scorched earth tactics – particularly attacks against agricultural and water resources – were used extensively as a tool to target and punish civilian populations that were perceived to support or sympathise with opposition forces. This suggests that the nature of secondary modalities of violence against civilians may possibly serve as a tool under a different strategic logic for armed actors. Because attacking important resources such as food, water infrastructure, and humanitarian installations denies multiple civilians access to resources in a single event, the use of secondary modalities of violence against civilians may serve as a strategy to inflict harm on perceived opponents on a collective scale (Boyle, 2009; Fjelde et al., 2016; Fjelde and Hultman, 2014; Hultman, 2008), distinguishing it from primary modalities of violence against civilians.

1.6 Key findings

This thesis has three key findings: empirical evidence presented on secondary modalities of violence against civilians, connections between armed actor competition and primary and secondary modalities of violence, and connections between ethnic identity composition and primary and secondary modalities of violence.

First, I focus on the empirics of secondary modalities of violence against civilians. The original data collection effort of this thesis demonstrates three key findings. First, that as research on patterns of civil war expand, new conflict event data can be sourced from open access, unstructured text data. For data on secondary modalities of violence against civilians, this drew on news and nonprofit reporting sources. Second, a process for coding this unstructured data into a quantitative dataset can be designed to include innovative approaches that combine manual and automated techniques. And third, the dataset generated from this process presents empirical evidence which suggests that these patterns diverge from those of primary modalities of violence against civilians in meaningful ways. Data on secondary modalities of violence against civilians was shown to vary across time, space, and armed actor as compared to other categories of violences, suggesting that these two categories may be viewed by armed actors as able to serve different strategic functions in different conflict contexts. This variation and potential motivations behind this violence are then subsequently explored to understand how the relationship among armed actors and between armed actors and civilians is connected to violence against civilians.

Subsequently, I explore this connection between armed actors and with civilian populations. First, to understand how conflict dynamics between armed actors shape violence, I examine the use of primary and secondary violence against civilians in the context of armed actor competition. Second, to understand how the relationship between armed actors and civilian populations shape violence, I examine the relationship between armed actors and their perceived civilian constituencies to identify how subnational variation in ethnic composition can differentially affect primary and secondary modalities of violence against civilians.

The findings of the analysis of armed actor competition and violence against civilians demonstrate a divergence between primary and secondary modalities of violence centred around the connection to armed actor competition in terms of presence, fluctuations, and levels of violence against civilians by rival armed actors. I find that the relationship between measures of armed actor competition and different modalities of violence against civilians is not uniform. The statistical analysis revealed a meaningful pattern – increases in all three measures of armed actor competition are matched by increases in primary modalities of violence against civilians. Illustrative case study evidence from Juba in 2016 further supports this theory of armed actor presence, fluctuations, and rival violence against civilians being associated with higher levels of primary modalities of violence against civilians. In this case, the highest levels of primary modalities of violence against civilians seen in the civil war occurred in a highly saturated conflict environment with multiple armed actors present from both conflict sides.

Regression models also identify a positive association between use of secondary modalities of violence against civilians by rival armed actors and greater use of this same violence by opponents in response. Unlike primary modalities of violence against civilians, the only measure of armed actor competition that was positively associated with higher levels of secondary modalities of violence against civilians is rival violence against civilians. Illustrative case study evidence from Rubkona in 2014 further supports this theory of rival use of violence against civilians driving secondary modalities of violence against civilians. In this case, violence against civilians was carried out by both government and opposition armed actors as each conflict side vied to dominate the strategically significant location, creating a positive feedback loop of violence against civilians as each side (re)gained control.

Similarly, the findings of the analysis of ethnic identity and violence against civilians demonstrate a divergence between primary and secondary modalities of violence centred around minority ethnic compositions – where an armed actor's perceived ethnic constituency is a minority – and majority ethnic compositions – where an armed actor's perceived ethnic constituency is a majority. I find that subnational composition of ethnic identity is associated with distinct patterns between the two categories of violence. Regression models find a strong connection between areas where an armed actor's ethnic constituency is a majority and higher levels of primary modalities of violence against civilians. Illustrative case study evidence from Rubkona in 2014 further supports this theory of armed actors carrying out greater levels of primary modalities of violence against civilians where their perceived ethnic constituency is a majority. In this case, in a majority Dinka inhabited area, government armed actors targeted an ethnic minority – Nuer – where the government sought to consolidate a majority for its ethnic constituency while contestation between Dinka and Nuer communities continued in other parts of Unity State. Similarly, the regression analysis finds a strong connection between areas where an armed actor's perceived ethnic constituency is a minority and higher levels of secondary modalities of violence against civilians. Illustrative case study evidence from Bor South in 2014 further supports this theory of armed actors carrying out greater levels of secondary modalities of violence against civilians where an armed actor's ethnic constituency is a minority. In this case, opposition armed forces whose ethnic constituency was a minority targeted its opponent's ethnic constituency – Dinka – which held a majority in the area.

The results of both analyses demonstrate clear distinctions between primary and secondary modalities of violence against civilians – both in the context of ethnic identity and armed actor competition – during the South Sudanese civil war. Rather

than serving as a proxy for other modalities of violence against civilians, occurrence of secondary modalities of violence against civilians is shown to differ in substantive ways from primary modalities of violence against civilians. These results demonstrate the validity of secondary modalities of violence against civilians as a distinct category of violence and that the occurrence of secondary modalities of violence against civilians meaningfully differs from those of primary modalities of violence against civilians, both in the case of the South Sudanese civil war and other cases with similar patterns of recurrent conflict and ethnically motivated violence. This opens space for future research to better understand variation in repertoires of violence through cross-national analysis.

1.7 Research contributions

As the previous sections have shown, the risks civilians face in civil war are complex and vast. While research on violence against civilians has expanded considerably in recent decades, there is a continued focus on violence against civilians directed at civilian bodies. As a result, questions on the influence of contextual factors on violence against civilians directed at civilian objects remain understudied. This thesis responds to this gap by introducing a framework of primary and secondary modalities of violence against civilians. By expanding the scope of violence against civilians to consider violence against civilian objects, it becomes possible to identify divergences in patterns of violence and understand how contextual factors are connected to different modalities of violence against civilians. As such, this thesis makes five contributions – conceptual, analytical, methodological, empirical, and applied.

First, with the introduction of a novel framework distinguishing modalities of violence against civilians, this thesis makes a *conceptual* contribution to research on violence against civilians. This novel conceptualisation of violence against civilians aims to overcome the compartmentalisation of research on various modalities of violence against civilians and identify divergences in these different categories of violence. The theoretical framework categorises modalities of violence against civilians into two groups – primary modalities of violence against civilians and secondary modalities of violence against civilians which examine attacks against civilian bodies and civilian objects, respectively. Scholars have recognised that the vast majority of casualties in civil wars are civilian (Holt and Berkman, 2006; Kilroy et al., 2024; Williams, 2013). However, the majority of these deaths do not result in injuries sustained from violent conflict but rather its subsequent effects – disease, malnutrition, and other health risks (Jawad et al., 2020). Consideration of attacks against civilian objects which are central to supporting the safety and wellbeing of civilians are therefore crucial to understanding the full scope of risk and conflict-related deaths of civilian populations.

The creation of this framework and the addition of the concept of secondary modalities of violence against civilians makes two contributions to scholarship on violence against civilians. First, this expanded scope allows scholars to examine a comparatively understudied subsection of violence against civilians – attacks against civilian objects which can lead to physical harm. This allows scholars to understand patterns of violence that can have severe downstream outcomes for civilian populations. Second, the creation of this framework facilitates the comparison of primary and secondary modalities of violence against civilians, allowing scholars to identify variation in how contextual factors are associated with different modalities of

violence. This enables scholars to identify when and where the risks posed by shifts in contextual factors will differ between categories of violence against civilians and disaggregate potential strategic logics of violence against civilians for armed actors between targeting civilians themselves and objects that are important to their safety and wellbeing. The validity of this concept of secondary modalities of violence against civilians as distinct from other forms of violence is subsequently tested in the analysis of this thesis.

Second, through the analysis of the connections between two contextual factors – armed actor competition and ethnic identity – and primary and secondary modalities of violence against civilians, this thesis makes an *analytical* contribution to research. This thesis furthers existing debates on the strategic logic of violence against civilians. Both analysis chapters have sought to understand patterns of violence between two categories – primary and secondary modalities of violence against civilians – in the context of differing contextual factors. The first analysis examines the relationship between armed actor competition and violence against civilians, and the second analysis examines the relationship between ethnic identity and violence against civilians. These analyses make two important contributions to existing research on violence against civilians – first, they advance discussions on sub-national contextual factors and analysis of violence against civilians more specifically, adding to the growing research on how armed actor relationships with civilian populations (ethnic identity) and other actors (armed actor competition) vary over time and space. Second, they identify a distinction between the two categories of violence, pointing to the value of future research that considers a broader scope of modalities of violence.

Third, with the original data collection effort detailed below, this thesis makes an *empirical* contribution to research on violence against civilians. The dataset provides

complete and systematically collected event data on secondary modalities of violence against civilians, filling a gap in our understanding of modalities of violence against civilians which target civilian objects. In particular, the original data collection of events of secondary modalities of violence against civilians provides spatiotemporal information on the date (day, month, and year), location (state, county, town, latitude, and longitude), and armed actors involved in the event. The structure of the event data as transformed from unstructured text data into data with coded variables on time, location, armed actors, and metadata make two important contributions. First, they provide a dataset with comprehensive coverage of the full duration of a civil war, allowing for analysis of subnational patterns of violence in response to variation in contextual factors to test theories of violence against civilians. Second, the structure of the data ensures compatibility with existing datasets on primary modalities of violence against civilians, enabling an analysis of patterns of violence across time and space and possible divergences between different modalities of violence against civilians.

Fourth, through the development of a data collection methodology that demonstrates the utility of semi-automated data collection approaches in the generation of conflict event data, this thesis makes a *methodological* contribution to research utilising conflict event data. This effort combines computational methods of automated data collection with human coding to identify, review, and code unstructured text data across a variety of sources to develop a comprehensive dataset of events of secondary modalities of violence against civilians. The methodology of data collection separates tasks into cognitive tasks that require researcher decision-making and repetitive, rule-based tasks which are completed using Robotic Process Automation (RPA) software. This innovative and hybrid approach to data collection responds to criticisms levied against automated approaches which struggle to effectively interpret text and include

sufficient levels of oversight (Miller et al., 2022; Raleigh and Kishi, 2023). By departing from traditional automation approaches (Jovanović et al., 2018; Penttinen et al., 2018) in favour of RPA, distinct components requiring researcher oversight and decision-making could be integrated into the methodology across the various steps of the data collection process (Hofmann et al., 2020; Van der Aalst et al., 2018; Wewerka and Reichert, 2020). The data collection methodology demonstrates the capacity of hybrid or semi-automated approaches to incorporate technologies that increase data collection ability at scale while addressing concerns about the accuracy of results without sufficient researcher oversight.

Fifth, this thesis makes an *applied* contribution to policy and implementation debates on interventions to prevent and reduce violence against civilians. As the international community seeks to improve its commitment to protecting civilians in contexts of civil war (DPKO, 2020; Johnson, 2018; Kilroy et al., 2024), the empirical evidence presented in this thesis underscores the value of examining threats of physical violence beyond the risks to civilians themselves. The findings of this analysis demonstrate that secondary modalities of violence against civilians contribute significantly – and differently – to the threats of physical violence that protection of civilians seeks to prevent. As interventions to prevent and reduce violence against civilians continue to implement policy guidance and conduct assessments of threat and risk (DPKO, 2020), careful consideration of divergences in primary and secondary modalities of violence against civilians in country and sub-national specific contexts will better enable effective implementation of protection interventions.

1.8 Thesis outline

This thesis begins with a literature review. Chapter 2 discusses the evolution and debates within existing research on violence against civilians. It highlights the evolution of research in this field, expanding our understanding of violence against civilians as a form of violence with strategic logic for armed actors, varying at the subnational level. In alignment with research developments to understand violence at the micro level, it details the debate of factors driving violence, including armed actor type, relationship to civilian populations, and modalities of violence.

Next is the theoretical framework of primary and secondary modalities of violence against civilians. This framework expands the focus of violence against civilians beyond attacks against civilian bodies to consider the risk of physical harm presented by attacks against civilian objects. Chapter 3 details the theoretical assumptions and central terms of the framework, then outlines scope and categories of violence, presents the origins of the framework, and finally presents the concepts of primary and secondary modalities of violence against civilians.

Following the establishment of a framework of two categories of violence against civilians, Chapter 4 details the process of data collection for the composite, geo-referenced event dataset used in the subsequent analysis chapters of this thesis. This chapter first discusses the availability of event data – identifying existing sources of event data on primary modalities of violence against civilians and highlighting a gap in quantitative event data on secondary modalities of violence against civilians. It then presents the methodology for data collection on secondary modalities of violence against civilians using a novel, semi-automated approach the combines researcher oversight and intervention with the use of Robotic Process Automation software.

Chapters 5 and 6 then utilise the dataset developed through the methodology described above to conduct mixed method analyses of violence against civilians. Chapter 5 explores the relationship between armed actor competition and violence against civilians. This chapter uses a mixed methods approach to assess the relationship between three measures of armed actor competition – armed actor presence, fluctuations in armed actor presence, and use of violence against civilians by rival armed actors – and primary and secondary modalities of violence against civilians. The results of the regression and subnational case study analyses build on scholarly debate around the relationship between armed actor competition and violence, demonstrating important divergences between the relationship of different forms of armed actor competition and primary and secondary modalities of violence against civilians.

Chapter 6 explores the relationship between ethnic identity and violence against civilians. Building on existing literature which highlights the salience of ethnic composition at the subnational level, this chapter utilises regression models and qualitative case study analyses to understand the relationship between ethnic identity composition and primary and secondary modalities of violence against civilians, examining majority and minority compositions of armed actor ethnic constituencies. The results of the mixed methods analysis make novel empirical and theoretical contributions to research on violence against civilian objects by identifying important divergences in patterns of violence between primary and secondary modalities of violence against civilians.

The conclusion in chapter 7 is divided into five sections. First, a summary is presented of the key findings of the two analytical chapters examining the relationship between two contextual factors and violence against civilians – armed actor competition and ethnic identity. Second, I discuss the conceptual, analytical, empirical,

methodological, and applied contributions of this thesis. Next, the limitations of the research are considered. Finally, potential avenues for further research are offered, including a discussion of expansion of the scope of violence against civilians to better capture civilian risk through attacks against civilian objects.

2. Literature Review

Civil wars continue to present great risks to physical safety and wellbeing for civilian populations. Since 1989, an estimated one million civilians have been killed in attacks during armed conflict across the globe, with the majority of deaths occurring during civil wars (Pettersson and Öberg, 2020). But these risks do not end with direct deaths. Untold numbers of survivors of this kind of political violence have been injured, displaced, and lost homes, livelihoods, and health (Ghobarah et al., 2003). While civilian casualties and harm occur in all civil wars, patterns of violence against civilians are shown to vary across conflicts and sub-nationally across the space and time of a single civil war (Balcells and Stanton, 2021), highlighting the need to examine drivers of this violence to comprehensively understand the risks civilians face in civil war.

This chapter presents a review of existing literature on violence against civilians in civil war. It lays out current theories on the drivers of violence by armed actors, addressing three main areas of research. First, it describes how violence against civilians can have a strategic logic for armed actors, allowing armed actors to communicate with other armed actors and civilian populations through violent means. This section details how subnational variation in contextual factors impact this strategic logic, focusing first on existing scholarship on structural and group-level determinants of violence against civilians before turning to micro-level patterns of ethnic identity and armed actor competition. Next, it details existing scholarship and debates on how the type of armed actor can impact the use of violence against civilians, focusing on violence against civilians by state armed actors, state-affiliated armed actors, and non-state armed actors. Finally, the chapter provides an overview of the forms that violence against civilians can take, focusing first on violence against civilian bodies, and then

turning to a comparatively understudied area of violence against civilians – violence against civilian objects.

2.1 Explaining violence against civilians

Existing research has developed a range of explanations for why armed actors target civilians, reflecting the complexity and multidimensional nature of violence against civilians in civil war. Researchers have identified patterns of violence against civilians associated with structural conditions of civil war and group-level determinants of violence while others have argued for a more disaggregated focus on contextual factors that shift across space and time, underscoring that violence against civilians can emerge from strategic and contextual logics that differ between and within armed actors and vary alongside shifts in the conflict environment. Despite a wealth of theory and evidence, the literature of violence against civilians in civil war remains contested. Within a focus on subnational contextual factors, some studies emphasise interactions between armed actors (Dowd, 2019; Raleigh, 2012; Raleigh and Choi, 2017; Welsh, 2023; Wood and Kathman, 2015), while others focus on social and identity-based divisions that shape the relationship between armed actors and civilian populations (Di Salvatore et al., 2022; Fjelde et al., 2016; Fjelde and Hultman, 2014; Hultman, 2007; Sullivan, 2012). This section details the structural, group-level, and subnational contextual factors scholars have highlighted as drivers of violence against civilians, considering where debate on these drivers remains and situating the focus of subsequent analysis within these debates.

Scholars have attributed patterns of violence against civilians to *structural conditions* of civil war, including regime type, state capacity, and technologies of rebellion. When considering regime type, scholar have identified higher levels of

violence against civilians under autocratic governments (Eck and Hultman, 2007) and lower levels of violence against civilians in democracies as structural characteristics and normative orientation in democracies make governments less likely to engage in violence (Rummel, 1995). Empirical evidence, however, indicates that democracies have higher rates of violence against civilians (Valentino et al., 2004; Wood, 2010) and that democratic governments do not limit violence against civilians by non-state armed actors (Eck and Hultman, 2007). Similarly, research has identified a connection between state weakness and violence against civilians – while some scholars argue that weak states do not have the capacity to prevent violence (Englehart, 2009), other scholars have found that violence more frequently occurs in states with large and technologically sophisticated militaries (Hendrix and Young, 2014). Duration of conflict has also shown to positively correlate with increased violence against civilians both at the level of group strategy and individual opportunistic behaviour. Valentino, Huth and Croco (2006) show how this goes beyond simply a larger opportunity to commit violence highlighting that there are a different set of incentives facing armed actors in longer wars – there is more incentive to attack the long-term production capacity of their opponent's base of support. This is also the case for individual combatants. Those combatants which have been fighting in a conflict longer were shown to have committed more acts of opportunistic violence against civilians even as it meant disregarding the orders of superiors (Manekin, 2013).

Furthermore, empirical evidence has demonstrated that technologies of rebellion, including conventional warfare, guerrilla warfare, or low-technology systemic warfare, is a fundamental characteristic of civil wars and a key determinant of violence against civilians (Kalyvas and Balcells, 2010). Conventional warfare is defined by the presence of two militaries who are in violent conflict with one another

with the conflict zones being clearly delineated by frontlines; by contrast, guerrilla warfare or irregular warfare blurs these lines and allows for partial control of territories (Kalyvas and Balcells, 2010). In this environment, rebel groups commit seemingly random attacks against opposition forces and rely on civilian populations as a source of resources, a source of recruit, and as a way to hide from the opposition (Kalyvas and Balcells, 2010). Irregular wars are uniquely dependent on civilian behaviour (Balcells and Kalyvas, 2014) and the danger of irregular warfare is that it blurs the lines between combatant and non-combatant, creating increased incentives to target civilian populations as a means to weaken insurgents (Kaldor, 2013; Thompson, 2014). Despite the significant risks posed to civilians in irregular civil wars, Krcmaric (2018) finds that the onset of mass killing is more likely to occur during conventional wars. Given the ongoing debate present on these structural factors, it is likely that high levels of violence against civilians are possible across multiple structural conditions – autocracy and democracy, weak and strong states, conventional and irregular warfare – and its use is conditioned by additional factors.

Moving beyond structural conditions which can shape violence, scholars have also considered *group-level determinants* of violence against civilians, including armed actor capacity, organisational socialisation, external support, and ideology. In examining the relationship between military strength and violence against civilians, scholars have found that weaker armed actors have an incentive to attack civilians because they lack the capacity to entice civilian loyalty by other means (Wood, 2010; Wood et al., 2012). Scholars have expanded this claim, focusing not just on relative military capacity, drawing on evidence that suggests that armed actors carry out less violence against civilians when they have access to greater economic resources (Lis et al., 2021; Schneider et al., 2012) and more violence when they lack the resources

necessary for survival (Koren and Bagozzi, 2017). However, these mirrored 'losing' and 'winning' arguments (Raleigh and Choi, 2017) are not without debate. Some research has found that under highly fragmented conflict environments, armed actors with greater comparative military strength carry out higher levels of violence against civilians (Dowd, 2019) and that resource-rich armed actors have greater capacity and incentive to higher levels of violence in civil wars (Collier et al., 2009; Collier and Hoeffler, 2007; Weinstein, 2006).

Furthermore, current research on group-level characteristics has focused on the impact of external intervention and foreign support on the levels of violence against civilians. Scholars have theorised that when armed actors receive funding from foreign entities, it reduces the need to protect or collaborate with civil populations because the need to collect resources from the civilian population is diminished (Salehyan et al., 2014). While this would suggest that civil wars with foreign support would see higher levels of violence against civilians, some evidence suggests that material support from external entities is associated with higher levels of violence against civilians (Wood, 2010), while other scholarship found that external support must be disaggregated, as some forms of material support were associated with a decrease in violence against civilians (Tansu Tunç et al., 2024).

Finally, many scholars have examined the relationship between internal ideological and institutional structures, arguing that violence against civilians by armed actors is conditioned by how organisations govern combatant behaviour, including political education, discipline, and mobilisation against a perceived common enemy (Ahmadov and Hughes, 2020; Green, 2018; Maynard, 2015; Sanín and Wood, 2014; Stanton, 2016). Some scholars find that stronger ideological teaching and institutional control within armed actors leads combatants to exercise restraint against civilians

(Ahmadov and Hughes, 2020; Green, 2018; Hoover Green, 2017; Humphreys and Weinstein, 2006; Thaler, 2012) while others argue that these group level characteristics also justify or spur violence against civilians (Maynard, 2015, 2014).

While some scholars of violence against civilians have argued that violence against civilians is shaped less by strategic conditions, than by internal, group-level determinants (Green, 2018), a newer focus is emerging that challenges these ideological and group-level drivers of violence against civilians. Scholars have demonstrated empirically that violence against civilians by armed actors, despite being aligned ideologically, varies significantly across and within armed actors, challenging group-based explanations (Dowd, 2019). Scholars have highlighted that the frequency and intensity of violence changes throughout a civil war (Raleigh and Choi, 2017; Schincariol et al., 2025) and that local contexts provide the greatest insight into temporal and geographic variations in violence (Bencherif et al., 2023). Contextual factors are not fixed over time and space – both the relationship of armed actors with civilian populations and with other armed actors are dynamic and fluid (Dowd, 2024). As a result, this work focuses on contextual factors that vary sub-nationally as possible drivers of violence against civilians.

While a range of contextual factors have been shown to influence patterns of violence against civilians, these factors form a part of two interconnected relational dimensions – the relationships among armed actors and the relationships between armed actors and civilian populations. From the first lens, violence against civilians emerges from strategic interactions in multi-actor environments. From the other, violence emerges as armed actors use, depend on, and seek to control civilian populations. These two forces represent distinct yet often interrelated dynamics that drive violence against civilians by armed actors. This thesis focuses on one component

of each of these relational dimensions – armed actor competition and ethnic identity. Concentrating on competition and ethnic identity allows for a precise examination of how these dimensions – the relationship between armed actors and the relationship with civilian populations – shape patterns of violence. In the sections below, I explore extant literature on these two factors. First, the connection between levels of armed actor competition and increases in violence against civilians is considered. Second, the connection between ethnic identity is examined, including different compositions of ethnic identity within the civilian population, and the occurrence of violence against civilians.

2.1.1 Armed actor competition

The connection between competition and violence can be grounded in a strategic logic that violence against civilians can be a means for armed actors to realise their goals. From this perspective, violence against civilians by armed actors can hold a strategic function and its use can vary with changes in the subnational environment, including competition among armed actors (Welsh, 2023). Scholars argue that armed actors can make decisions about the use of violence seeking to maximise opportunities to obtain political power or relevance (Fjelde and Nilsson, 2012). How armed actors pursue this aim of political power and relevance is shown to vary over time and space (Fjelde and Nilsson, 2012; Weinstein, 2006; Wood, 2003). Armed actors can use violence against civilians as a means to achieve this objective and improve their position in the conflict environment in which they operate, varying depending on location and the conditions under which the armed actor is operating (Polo, 2020; Welsh, 2023; Wood, 2010).

In conflict environments with high levels of or increases in armed actor competition, violence against civilians serves a strategic communication function for armed actors. Scholars have highlighted how violence against civilians can be a tool to attract attention and communicate the group's strength and resolve to keep fighting (Boyle, 2009; Hoffman and McCormick, 2004; Kydd and Walter, 2006). Furthermore, violence can be a tool for political bargaining (Bloom, 2005; Nygård and Weintraub, 2015; Phillips, 2019), imposing political or military costs on opponents (Hultman, 2007), and demonstrating political significance to extract concessions (De Waal, 2014). This communication function can be directed to other armed actors operating in the conflict environment, including opposing armed actors, as well as to civilian populations whose loyalty armed actors may seek (Wood and Kathman, 2015). In highly competitive conflict environments, armed actors seek to compete for a population's loyalty in a process called outbidding whereby armed actors increase the frequency and intensity of violence against civilians in an attempt to compete for public support and demonstrate resolve and capacity (Boyle, 2009; Kydd and Walter, 2006). This outbidding can also seek to communicate with other armed actors. In a competitive conflict environment, armed actors use violence against civilians to indicate their primacy over other actors in the space (Dowd, 2019).

Armed actor competition has been examined in different ways. Scholars have analysed competition as a measure of armed actors present in an area (Dowd, 2024, 2019; Farrell, 2020; Findley and Young, 2012; Phillips, 2015; Welsh, 2023), finding empirical evidence that suggests there will be higher levels of violence against civilians in environments with greater numbers of armed actors present, conditioned on specific contexts on factors including territorial control (Welsh, 2023), entrance into new territory (Dowd, 2024), and relative strength of the armed actor (Dowd, 2019).

However, other researchers have argued that a count of armed actors in an area is insufficient to capture dynamics of armed actor competition, examining instead fluctuations in armed actor presence. Armed actor competition, as measured by fluctuations in the number of armed actors present in an area, is also shown to produce spikes in civilian targeting (Raleigh and Choi, 2017; Wood and Kathman, 2015), suggesting that violence against civilians is not constant but varies with shifts in the competitive landscape.

Finally, current scholarship has highlighted that armed actor competition can go beyond the presence of or changes in armed actors in a conflict environment, pointing to the salience of the behaviour of armed actors in this shared space. Violence against civilians by one armed actor can lead to further violence against civilians by other armed actors. Empirical evidence demonstrates that armed actors can become trapped in spirals of violence, where violence against civilians by one armed actor triggers retaliatory violence by an opposing armed actor (Coleman et al., 2007; Raleigh and Choi, 2017). Similarly, Lis et al., (2021) find that violence by one non-state actor tends to spread to other non-state actors that are geographically proximate. When one actor targets civilians, it can not only achieve its immediate strategic goals but also possibly set off a chain reaction, prompting other actors to respond with similar or escalated violence. The result is a cyclical pattern of violence against civilians, where each act of violence feeds into further aggression, trapping civilians in a persistent and escalating cycle of harm.

2.1.2 Ethnic identity

The connection between the ethnic identity of civilian populations and violence against civilians has received significant scholarly attention and is the source of

continued debate. Several cross-national studies have found little evidence of a connection between ethnic identity and violence against civilians. In a cross-national study of all wars between 1945 and 2000, authors Valentino, Huth, and Balch-Lindasy (2004) find that wars with contestation along ethnic lines were not more likely to escalate to large-scale violence against civilians than political or ideological conflicts. Similarly, Valentino et al. (2006, p. 340) reject the argument that ethnicity 'barbarises warfare' and instead find that violence against civilians serves as a 'calculated military strategy designed to achieve victory by coercing the adversary or by undermining the war-related productive capacity of his civilian population.' Similarly, Wood (2010) found limited support that ethnic identity lead to increases in lethal violence against civilians by rebel armed actors. Furthermore, other empirical evidence found a negative correlation between ethnic identity and violence against civilians, suggesting the higher levels of ethnic fractionalisation lead to lower levels of violence against civilians (Azam and Hoeffler, 2002; Kim, 2010; Querido, 2009).

In contrast, several qualitative and single case studies highlight important connections between ethnic identity and violence against civilians. Horowitz (1985) emphasises that armed actors and their civilian constituencies are often mobilised along ethnic lines, finding more violence in societies where a large ethnic minority faces an ethnic majority. Other researchers have similarly underscored the significance of ethnic identity of civilian populations for violence against civilians because violence can serve as a tool to reshape ethnic settlements (Posen, 1993) to create ethnically homogeneous territories (Kaldor, 2013) or to weaken an opposing armed actor through attacks against their ethnic constituency (Fjelde and Hultman, 2014).

Research that identifies a connection between ethnic identity and violence against civilians points to a fundamental connection between armed actors and violence

against civilians. Armed actors frequently draw on civilian support along ethnic lines (Cederman et al., 2010; Fearon, 2008; Wucherpfennig et al., 2011) and because ethnic identity is more difficult for individuals to disguise than other characteristics such as political party affiliation, armed actors view members of their ethnic constituencies as supporters (Kaufmann, 1996) and the ethnic constituencies of opposing armed actors as enemies, providing a criterion for exercising restraint or targeting civilians (Fjelde and Hultman, 2014).

Research on ethnic identity and violence against civilians has continued to develop and examine empirical evidence at the subnational levels, examining specifically how ethnic composition at the micro level alters patterns of violence against civilians. One area of focus of ethnic composition has been dominant versus minority compositions. In contexts where an armed actor's ethnic constituency is the majority, scholars argue that the armed actor will exercise restraint since collaboration with and support from civilian populations represent a valuable resource and communication structure (Fjelde and Hultman, 2014; Humphreys and Weinstein, 2006; Kaufmann, 1996). While armed actors are shown to avoid violence against civilians in these conflict environments, there may remain incentives to attack civilians in conflict environments dominated by an armed actor's own ethnic constituency. Aligned with the research of Posen (1993) and Kaldor (2013) which point towards violence against civilians as a tool of territorial control, a quantitative case study of the Bosnian civil war found that the presence of local minorities within territories controlled by an the ethnic majority of an opposing armed actor is associated with more violence, aligning with a pattern of displacement to consolidate territorial control (Di Salvatore, 2016). In contexts where an armed actors opposing ethnic constituency dominates, scholars have identified empirical evidence from a case study of the Guatemalan civil war (Sullivan,

2012) demonstrating violence against civilians is more likely the higher the percentage of the opposing ethnic constituency in an area.

Beyond arguments about the strategic logic of violence against civilians in dominant and minority ethnic compositions, scholars have also considered polarised contexts. Earlier work exploring the relationship between ethnic identity and violence focused on ethnic fractionalisation, frequently relying on the ethnolinguistic fractionalisation (ELF) index based on data from Mira (1964) which gives the probability that two randomly selected individuals in a country are from different ethnolinguistic groups. Scholars examining ethnic identity through this lens have found that more ethnically fractionalised areas do not experience higher levels of violence against civilians (Kim, 2010) nor the onset of civil war more broadly (Fearon and Laitin, 2003). Critiques of this perspective argue that the focus on ethnic fractionalisation understates the significance of ethnic identity as it does not correctly identify the causal mechanism. Rather than focus on fractionalisation, scholars have turned to the salience of polarisation (Montalvo and Reynal-Querol, 2005). While a positive relationship between ethnic fractionalisation and violence would imply that the more ethnic groups there are, the higher probability of violence against civilians, a focus on polarisation argues that violence against civilians will be highest in contexts where a smaller number of groups at or close to parity are in competition with one another (Collier and Hoeffler, 2004; Horowitz, 1985).

Significant debate remains, however, around the impact of ethnic polarisation on levels of violence against civilians. While some research has found that violence increases in an ethnically polarised context because small levels of violence can tilt the local balance of power (Markussen and Mbuvi, 2011; Ottmann, 2017; Wimmer and Miner, 2020), cross-national research on pre-election violence contests this by

demonstrating that armed actors have incentives to use violence in either dominant or minority environments rather than polarised contexts (Wahman and Goldring, 2020).

2.2 Perpetrators of violence against civilians

Extant literature highlights how violence against civilians can shift based on the nature or affiliation of an armed actor. Research often portrays government actors as the greatest perpetrators of violence against civilians, responsible for the majority of mass killings and the use of indiscriminate, widespread violence (Davenport, 2007; Downes, 2011, 2007; Kalyvas, 2006; Lyall, 2009; Rangazas, 2025; Valentino, 2000; Valentino et al., 2004). Research also identifies an increased use of government-affiliated armed actors, also referred to as pro-government militias and paramilitaries that can alter the structure, oversight, and culpability for violence by state armed actors (Cohen and Nordås, 2015; Mitchell et al., 2014; Raleigh and Kishi, 2020; Üngör, 2020). Similarly, scholars have identified ways in which violence against civilians differs between state and non-state armed actors including the nature and location of contestation (Bagozzi et al., 2017; Eck and Hultman, 2007) and behaviour constraints in pursuit of legitimacy (De la Calle, 2017). In spite of these distinctions, more recent empirical evidence complicates the argument that armed actor typology, like other group-level determinants of violence against civilians, drives observed patterns of violence. Instead, observed patterns of violence indicate that distinctions between state and non-state armed actors do not hold when controlling for variation in contextual factors (Hicks et al., 2011; Kalyvas, 2006; Lis et al., 2021).

2.2.1 Violence against civilians by state-based armed actors

Violence against civilians is seen as a common tactic for state-based actors to disrupt the connection between opposing armed actors and the civilian populations which provide them support. This is particularly salient when government forces are combating rebel groups (also referred to as insurgencies) as these opposing actors often do not have access to the same resources as state-based actors and therefore rely heavily on the support of civilians (Balcells and Kalyvas, 2014; Merom, 2003; Valentino et al., 2004). This is depicted as 'draining the sea' of the civilian population so the 'fish' (opposing armed actors) cannot survive – an effort to attack civilian populations in order to deny opponents a base of support (Valentino, Huth and Balch-Lindsay, 2004 p. 375). In the case study of the Guatemalan civil war, Schwartz and Straus (2018) found that state actors most commonly described civilian populations as loyal to rebel forces. This assumption on the part of governments presents a significant risk to civilians because it opens nearly any civilian to speculation, leading to increases in violence against civilians where government forces suspect civilian collaboration with or support of opposing armed actors (Kalyvas and Kocher, 2009). In line with this logic, violence against civilians by state armed actors has often been described as widespread and indiscriminate (Davenport, 2007; Downes, 2011, 2007; Kalyvas, 2006; Lyall, 2009; Rangazas, 2025; Valentino, 2000; Valentino et al., 2004). In this context, violence against civilians by state-based actors is viewed as an alternative to traditional warfare; by harming civilians, government forces are effectively fighting against their opponents (Valentino et al., 2004). Empirical evidence of violence against civilians by state armed actors characterises governments as carrying out higher levels of violence against civilians, particularly high-intensity lethal violence (Eck and Hultman, 2007; Lis et al., 2021; Valentino, 2000).

State actors can also include armed actors affiliated with a government, including pro-government militias and paramilitaries. These entities are supported or co-opted by the incumbent government to fight on its behalf (Üngör, 2020). The presence of these government-affiliated armed actors has risen in recent years, including their participation in violence against civilians (Raleigh and Kishi, 2020). An important consequence of the increased presence of and violence by these armed actors is higher numbers of unidentified armed actors killing civilians (Raleigh, 2012), a pattern that may be advantageous to avoid culpability. A global dataset of armed group violence revealed that the presence of pro-government militias increases the likelihood of repression and human rights violations (Mitchell et al., 2014). As researchers began to examine the behaviour of these armed actors, two theories began to develop around their use of violence against civilians. First, scholars argued that governments seek to delegate violence to the government-affiliated armed actors to avoid being held responsible for the worst abuses against civilian populations (Alvarez, 2006; Mitchell et al., 2014; Ron, 2000). Second, rather than being able to dictate the behaviour of these armed actors, scholars have argued that these groups are often pre-formed when hired or co-opted by governments and already have their own motivations and agendas; therefore, incumbents have less direct control over their actions (Mitchell et al., 2014). As governments have less control over combatant behaviour, this opens the possibility for more opportunistic violence (Hoover Green, 2016).

As research on these militias has grown, arguments on the high-violence nature of government-affiliated armed actors have been questioned. Deliberate government outsourcing of violence against civilians is not common, and militias are not found to carry out atrocities when government forces refrain from violence (Cohen and Nordås, 2015; Stanton, 2015). This argument is supported by data on pro-government militias

across Africa – national level political fragmentation, diffuse opposition threats, recruitment practices, and state-based training better account for patterns of pro-government militias activities than the desire to delegate violence to preserve reputation (Cohen and Nordås, 2015; Raleigh and Kishi, 2020). The connection of these armed actors to the government does not provide additional incentives for violence against civilians, rather pro-government militias – like other types of armed actors – vary in their use of violence against civilians aligned with shifts in contextual factors (Cohen and Nordås, 2015; Raleigh and Kishi, 2020). Furthermore, these armed actors are not a monolith – the relationship between governments and government-affiliated armed actors can shift depending on what how forces are recruited and what subset of the population they represent (Üngör, 2020).

2.2.2 Violence against civilians by non-state armed actors – a meaningful distinction?

Existing research on violence against civilians has identified several distinctions between violence carried out by state and non-state armed actors. This includes distinctions around selective versus indiscriminate violence (Kalyvas, 2006; Kalyvas and Kocher, 2009), the nature of contestation in the civil war (Eck and Hultman, 2007), distinct incentives around control and legitimacy (De la Calle, 2017), and geographic differences in targeting of civilians (Bagozzi et al., 2017). In his examination of the Greek Civil War, Kalyvas (2006) found that non-state armed actors carried out greater levels of selective violence – violence which targets a specific individual – as compared to state armed actors which lacked sufficient information and as a result carried out indiscriminate violence. Furthermore, an examination of violence against civilians by non-state armed actors in civil wars between 1989 and 2004 demonstrated that non-

state armed actors carry out the highest levels of violence against civilians during wars in which there is contestation of a particular territory, as opposed to contestation of government power (Eck and Hultman, 2007). Additionally, examination of political violence in Peru demonstrated that non-state armed actors are constrained by a need for legitimacy that is not inherent for non-state armed actors – in areas where these armed actors exercise less control, they exercise restraint against civilian populations to maintain legitimacy (De la Calle, 2017). Finally, non-state armed actors are shown to frequently target civilians in rural, agricultural regions, as they are often comparatively resource poor and use violence as a means to separate civilians from their lands and food resources (Bagozzi et al., 2017).

While the research presented above suggests a distinction between state and non-state armed actors in their incentives for violence against civilians, this group-level determinant has been subject to debate. Empirical evidence from both case study and cross-national research finds that there is not a substantive difference in the occurrence of violence against civilians by state versus non-state armed actors. Kalyvas (2006) challenges perceptions that governments have a much higher propensity to commit violence against civilians, demonstrating that overall levels of violence against civilians were equally divided between state and non-state armed actors. Similarly, analysis of violence against civilians in Africa (1992-2010) found that when controlling for conflict duration and scale, violence against civilians by state and non-state armed actors did not differ (Hicks et al., 2011; Lis et al., 2021). Rather than the influence of a fixed typology of armed actors, these results speak again to the salience of subnational variation in contextual factors as drivers of patterns of violence against civilians.

2.3 Modalities of violence against civilians

Violence against civilians can take many forms. These various modalities of violence against civilians have received differing levels of focus in existing scholarship. First, extant research has directed substantial focus to lethal violence against civilians, examining both high-intensity violence such as mass killings and genocide and low-intensity violence shown to be more pervasive in civil wars. Additionally, while lethal violence is often the most visible and most documented from of violence against civilians (Croicu and Eck, 2022), scholars have continued to examine the dynamics and patterns of non-lethal forms of violence, including non-lethal attacks, sexual violence, and abductions, highlighting strategic motivations and variation in the use of these modalities of violence. Finally, existing literature has predominantly focused on modalities of violence against civilians that use force to attack and harm civilian bodies. However, this chapter also examines literature that explores the drivers of violence against civilian objects, acknowledging that these less direct modalities of violence still have the capacity to cause physical harm.

2.3.1 Lethal violence against civilians

Extant research has sought to distinguish among forms of violence against civilians (Balcells, 2017; Green, 2018; Gutiérrez-Sanín and Wood, 2017; Stanton, 2016). However, a predominant focus on violence against civilians remains on lethal forms of violence, including killing, massacres, and research on terrorist attacks occurring during civil war (Balcells and Stanton, 2021; Eck and Hultman, 2007; Hoffman and McCormick, 2004; Kim, 2010; Kydd and Walter, 2006; Polo and Gleditsch, 2016; Stanton, 2013; Valentino et al., 2004). Within the literature on lethal violence against civilians, scholars have identified important distinctions. This includes

the proximity of violence to civilians – indirect violence against civilians utilises heavy weapons that enable armed actors to attack at a greater distance to civilians while direct violence against civilians involves the use of small weapons where armed actors carry out violence face-to-face (Balcells, 2017). This also includes a significant body of work which examines the targeting dimension of violence. In some cases, armed actors target specific individuals, referred to as selective violence (Kalyvas, 2006). In other cases, armed actors target civilians based on a group-level identity such as perceived ethnic, religious, or political affiliation, referred to as categorial violence (Fortna et al., 2018; Goodwin, 2006), collective targeting (Steele, 2017), or group-selective violence (Straus, 2015).

Empirical evidence on lethal violence against civilians points to an important pattern for research on violence against civilians more broadly. While significant scholarly attention has been paid to high-intensity lethal violence, including genocide (Anderton and Carter, 2015; Harff, 2017; Jonas, 2012; Kuper, 1981; Straus, 2015; Vehnämäki, 2006) and mass killings (Butcher et al., 2020; Kim, 2010; Krcmaric, 2018; Querido, 2009; Schneider et al., 2012; Valentino et al., 2004), availability of event data on lethal violence has grown considerably and cross-national analysis of violence against civilians during civil war has generated two important insights. First, while relatively few armed actors engage in short periods of high-intensity, highly fatal violence, a much larger number of armed actors undertake fairly consistent levels of low-intensity violence (Eck and Hultman, 2007). Second, factors that are central to predicting high-intensity lethal violence (Harff, 2017) do not have the same explanatory power for predicting the incidence of the more commonly occurring periods of low-intensity violence (Eck and Hultman, 2007). While specific to lethal violence, these findings demonstrate a divergence in strategic logic when examining a different focus

of lethal violence and point to the value of expanding our analytical lens to consider wider forms of violence against civilians.

2.3.2 Non-lethal violence against civilians

Violence against civilians can also take non-lethal forms. This can include those attacks which do not cause enough physical harm to be lethal, as well as other forms a violence such as conflict-related sexual violence and abductions. While observed patterns of violence have indicated that non-lethal violence, including abductions and sexual violence to be opportunistic (Kjeksrud et al., 2016; Wood, 2006), growing research on non-lethal violence against civilians has highlighted further motivations for its use. In the case on abductions, scholars have highlighted how armed actors use non-lethal violence to improve their bargaining position (Badalič, 2019; Mostert et al., 2025) and to generate income (Cigar, 2012). This form of violence has been used by armed actors to target specific subsections of the civilian population based on their perceived affiliation as well as indiscriminate targeting of civilians, focusing on leverage in pursuit of strategic objectives over specific civilian characteristics (Badalič, 2019).

Similarly, when examining conflict-related sexual violence, extant research demonstrates that sexual violence against civilians by armed actors can serve as part of initiation and group cohesion (Nordås and Cohen, 2021), as a reward or compensation from an armed actor to a combatant (Wood, 2014), and as a strategic tool used by commanders to realise conflict goals (Skjelsbæk, 2001). Another key determinant of sexual violence in civil war is the relative strength of armed actors' opponents. Rebel groups are more likely to commit acts of sexual violence the more support government forces have and conversely government actors are more likely to commit acts of sexual

violence the more support rebel groups receive (Johansson and Sarwari, 2019). And when state actors are threatened by the presence or activity of an opposing group, they are more likely to tolerate or even encourage some amount of sexual violence against suspected insurgent supporters (Wood, 2006). Both state and non-state actors are constrained by norms of behaviour internal to the group and the external pressure of accountability to authorities (Wood, 2006). However, sexual violence is most often reported to be committed by state actors (Cohen and Nordås, 2014). This is an example of a subtype of violence against civilians that has been usefully examined in dedicated analyses, similar to how I examine violence against civilian objects as a subset of violence against civilians, detailed below.

2.3.3 Violence against civilian objects

While violence against civilian objects has received less scholarly attention than other modalities of violence including lethal and non-lethal violence against civilians described above, violence against civilian objects can also present a risk to the physical safety and wellbeing of civilian populations. Civilian objects are most often described as those objects which are not military objects (Balcells and Stanton, 2021; de Mulinen, 2002; UN General Assembly, 1998). As described in Article 52 of Protocol I Additional to the Geneva Conventions, military objects refer to objects concerned with military objectives, attacks against which can offer military advantage over an opponent (International Committee of the Red Cross, 1977a). Conversely, civilian objects refer to all other objects which do not have military objects (International Committee of the Red Cross, 1977a). These civilian objects can include hospitals, homes, and important infrastructure such as food and water (Hathaway et al., 2024; International Committee of the Red Cross, 1977a).

Wars have increasingly seen the targeting of what has been termed ‘dual-use’ objects, a concept which lacks a universal and fixed definition (Sánchez-Cobaleda, 2022) but which generally refers to civilian objects which are subsequently utilised for military objectives (Capone, 2025; Hathaway et al., 2024). In regards to potentially dual-use objects, Protocol I states firmly that ‘in case of doubt whether an object which is normally dedicated to civilian purposes … is being used to make an effective contribution to military action, it shall be presumed not to be so used’ (International Committee of the Red Cross, 1977a). In alignment with this legal framing, this research presumes that where insufficient information is available to determine the use of an object, civilian objects will be presumed to serve ‘civilian’ objectives. The focus of this thesis is on violence against civilians. As such, where subsequent analysis may consider an attack against a potential but undetermined dual use object, such an attack retains the capacity to cause physical harm to civilians and will therefore remain within the scope of violence considered in this research.

To date, violence against civilian objects has not frequently been considered under the definition of violence against civilians, although analysis of the field of conflict research suggests that attacks against civilians themselves and attacks against civilian objects could begin to fall within this concept (Balcells and Stanton, 2021). Extant research examining violence against civilian objects points to important divergences with the broader study of violence against civilians. Cross-national and case study analysis indicate increased use of violence against civilian objects in recent years during violent conflicts around the world, with armed actors disregarding international law that protects against such attacks (Cavaliere et al., 2021; Hägerdal, 2020; Sowers and Weinthal, 2021). Violence that attacks civilian objects like housing,

infrastructure, and important resources such as agriculture or healthcare facilities has the capacity to cause physical harm to civilian populations.

When considering the role of technological capacity in analysis of violence against civilian objects, emerging research has highlighted that technological advancements in warfare capacity and weaponry in recent years present great threats to civilians across various modalities of violence (Albrecht and Vorrath, 2025; Riebe and Reuter, 2024). Drawing on research on lethal violence, this could suggest that armed actors have the capacity to inflict harm with heavy weaponry at a greater distance from civilian populations (Balcells, 2017), potentially expanding the geographic scope or scale of the harm civilians face. However, analysis of global trends in violence against healthcare facilities demonstrates that this subcategory of violence against civilian objects is most frequently carried out by small scale weapons, not heavy machinery (Tekin and Öcal, 2023). This suggest that these attacks – and potentially other forms of violence – are carried out by a wide range of armed actors in a variety of conflict contexts, not limited to high levels of military capacity or access to heavy weaponry. As a result, these forms of violence present a risk to the physical safety and wellbeing of civilian populations across varying conflict environments, representing patterns of both high and low-intensity violence.

A specific subset of attacks against civilian objects is considered in literature on critical infrastructure. Although there is not a single, unified definition of the term among national standards and academic sources (Newbill, 2019; Smith and Wilson, 2023), the term critical infrastructure has emerged as states increasingly focus on the security of key resources and functions. Critical infrastructure generally refers to the physical structures that provide services estimated to be essential for health, safety, security, and the well-being of civilian populations (Bobrowsky, 2013; European

Union, 2008). In the context of critical infrastructure under threat from violent conflict, this often focuses on sectors including health, agriculture, energy, transportation, and urban or housing structures (Mitoulis et al., 2023). While attacks against critical infrastructure have not been directly considered as a subset of violence against civilians in extant literature, analysis of these attacks against civilian objects can provide insights into patterns of harm civilians face. Case study evidence demonstrates that violence against critical infrastructure varies across time, space, and perpetrator with patterns of violence suggesting strategic intent on the part of armed actors.

Drawing on event data from attacks against critical infrastructure in Syria, scholars have demonstrated spatiotemporal variation in violence, underscoring that Syrian and Russian government forces were primarily responsible for the majority of attacks against healthcare infrastructure and highlighting patterns of violence that suggest deliberate targeting rather than collateral impact (Muzzall et al., 2021; Wille and Weir, 2020). Further research on the Syrian Civil War, explored the relationship between lethal violence against civilians and attacks on healthcare specifically (Ri et al., 2019). This study sought to evaluate the utility of examining attacks on healthcare infrastructure as a proxy for violence against civilians. The results found divergences in the patterns of violence – using lethal violence against civilians as the only indicator would suggest that Syria became less dangerous for civilians over time, a misleading pattern when considering attacks on healthcare facilities (Ri et al., 2019).

Similarly, case study evidence from Yemen shows a significant temporal shift in violence against critical infrastructure – after the 2011 popular uprising, non-state armed actors began to target the energy sector; subsequently, after the entrance of the Saudi-led coalition in 2015, the occurrence and intensity of violence against critical infrastructure, particularly associated with agriculture, fisheries and health, increased

significantly (Sowers and Weinthal, 2021). Furthermore, case studies from civil wars including Guatemala (Jonas, 2012), Sudan (Vehnämäki, 2006), Iraq, and Syria (Jaafar et al., 2022) present evidence that scorched earth tactics – particularly those targeting agricultural and water infrastructure – were used extensively as a tool to target and punish civilian populations that were perceived to support or sympathise with opposition forces. Finally, analysis of attacks against critical infrastructure in the West Bank and Gaza Strip demonstrated damage to essential infrastructure, with agriculture as the most targeted sector, suggesting an effort to undermine livelihoods and the security of food systems (Weinthal and Sowers, 2019).

Examination of these individual contexts suggests three important points. First, observed patterns of violence demonstrate variation in attacks against critical infrastructure by armed actors across space and time. These patterns were observed across multiple civil wars and across different infrastructure sectors. These patterns demonstrate alignment with extant research on other forms of violence against civilians which indicate that the frequency and intensity of violence varies across space and time, with localised contextual factors providing the greatest insight into temporal and geographic variations (Bencherif et al., 2023; Dowd, 2019; Raleigh and Choi, 2017; Schincariol et al., 2025). As with lethal and non-lethal violence against civilians, subsequent analysis focuses on contextual factors that vary sub-nationally as possible drivers of violence against civilian objects.

Second, observed patterns of violence suggest that armed actors may view attacks against critical infrastructure as strategic in civil wars. Empirical evidence suggests that these attacks – like other forms of violence against civilians – can be seen by armed actors as a tool to harm or communicate with civilian populations, demonstrating that armed actors recognise these objects as ‘critical’ and see a strategic

logic in attacking them. This includes the use of attacks against critical infrastructure to punish civilians for support of opposing armed actors (Crawford, 2014; Jaafar et al., 2022; Jonas, 2012; Thomas, 2006; Vehnämäki, 2006; Warden, 1998) and to disrupt food systems, livelihoods, and healthcare (Ri et al., 2019; Weinthal and Sowers, 2019). Much of this evidence remains specific to individual cases (Muzzall et al., 2021; Sowers and Weinthal, 2021; Weinthal and Sowers, 2019; Wille and Weir, 2020) or particular critical infrastructure sectors (Cavaliere et al., 2021; DeSimone, 2020, 2020; Ri et al., 2019; Tekin and Öcal, 2023), leaving space to further examine drivers of violence against civilian objects beyond those specific to critical infrastructure.

Third, case study evidence of critical infrastructure indicates that violence against civilian objects does not follow the same patterns as other forms of violence. An examination of attacks on healthcare and lethal violence against civilians revealed that these forms of violence did not follow the same temporal patterns – where one measure might have indicated that the risks to civilian safety and wellbeing were diminishing over the duration of the Syrian civil war, the other indicated an increase in violence and heightened risks for civilian populations (Ri et al., 2019). In addition to the two observations above – subnational spatiotemporal variation in violence against critical infrastructure and use of these attacks by armed actors suggesting strategic use – evidence pointing to a potential divergence in patterns of violence against civilians opens space for important discussion about the scope of violence against civilians and a disaggregated assessment of its drivers.

2.4 Conclusion

This chapter has discussed existing theories and empirical evidence presented of the drivers of violence against civilians. It began by detailing existing theories on

structural and group-level characteristics that can impact violence against civilians. However, subsequent research detailed in this chapter demonstrated that subnational contextual factors, as opposed to group-level or structural factors, can provide the greatest insight into observed variation in violence against civilians. This strategic function is explored in greater details along two key contextual factors – armed actor competition and ethnic identity. Extant research highlights how higher levels of armed actor competition, including the presence and increases in armed actors in a conflict environment as well as use of violence against civilians by other armed actors, can increase the occurrence of violence against civilians. Similarly, scholars have identified how different subnational ethnic identity compositions can impact how civilians are targeted based on group-level identity and perceived support of armed actors.

The final section of the chapter then details the dynamics and observed patterns of different modalities of violence against civilians, disaggregating by lethal violence, non-lethal violence, and violence against civilian objects. Existing literature has predominantly focused on violence against civilian bodies when examining the causes of violence against civilians. This chapter and the subsequent analyses of this thesis have sought to fill this gap by expanding the scope of violence against civilians. This chapter then presented research that focuses on violence against civilian objects, drawing on literature on attacks against critical infrastructure to demonstrate the importance of considering additional forms of violence that present risks to civilian populations. This research on violence against civilian objects identifies three key observations. First, observed patterns of violence against civilian objects vary by time, space, and armed actor. Second, like other modalities of violence against civilians, observed patterns of attacks against civilian objects suggested a strategic logic of violence, with armed actors deliberately targeting ‘critical’ resources. Third, these

observed patterns are shown to differ from other events of violence against civilians, suggesting that not all modalities of violence against civilians follow the same patterns and could have distinct associations with different contextual factors.

This body of research remains currently compartmentalised to specific case studies or particular sectors of interest, presenting a gap in comprehensive evaluation of patterns of violence against civilian objects. Furthermore, the inclusion of existing scholarship on violence against civilian objects broadens the scope of what scholars have previously considered as violence against civilians, including both attacks against civilian bodies and civilian objects. In such complex environments, violence against civilians, and subsequently, any efforts to prevent such violence and protect civilians cannot be exclusively centred around civilian bodies. Losing access to important resources and infrastructure that maintain the physical well-being of civilians through violence by armed actors presents a significant risk in conflict contexts. For this reason, the subsequent theoretical framework of this thesis structures an examination of multiple forms of violence against civilians, including both violence that is directed at civilian bodies and violence that is directed at civilian objects.

Three important conclusions follow from this literature review. First is the capacity of subnational contextual factors to explain the observed variation in violence against civilians across space, time, and armed actor. Second is the empirical evidence which demonstrates the significant risk to civilian safety and physical wellbeing presented by attacks against civilian objects. And finally, is the variation in observed patterns of violence against civilian objects versus other modalities of violence against civilians, providing an initial indication that these forms of violence may present different associations with contextual factors.

These strands of research, however, present important gaps that this thesis seeks to fill. First, while there is strong empirical evidence which demonstrates the relationship between subnational contextual factors and variation in violence against civilians, these theories are as yet untested on modalities of violence against civilians which target civilian objects. As such, the focus of this thesis on violence against civilians builds upon this existing body of research in two ways. First, it expands the scope of violence against civilians to consider the occurrence of multiple modalities of violence against civilians. And second, it considers how this expanded scope of violence, when disaggregated, may present different relationships to important contextual factors, including the relationship among armed actors and between armed actors and civilian populations.

3. Theoretical Framework

This theoretical framework introduces a novel characterisation of violence against civilians in civil war that aims to overcome the compartmentalisation of research on various modalities of violence against civilians and identify variation in these different categories of violence. Where the gaps in understanding of violence against civilians and reasons to extend the scope of violence against civilians have been detailed in the previous chapter, this chapter focuses on the theoretical framework which enables this expanded scope, detailing its conceptualisation and analytical purpose. The framework of primary and secondary modalities of violence against civilians makes it possible to analyse modalities of violence against civilians beyond those directed at civilian bodies. Developing these two categories of violence against civilians provides a more comprehensive picture of the risks civilians face in civil war, as both attacks against civilian bodies and civilian objects have the capacity to cause physical harm. This framework helps resolve compartmentalisation of research on various modalities of violence against civilians and enables assessment of variation in these categories of violence. Considering a broader scope of violence and framing primary and secondary modalities of violence against civilians as distinct categories facilitates analysis of how contextual factors may have distinct connections to different categories of violence against civilians. This allows the application of this framework to support better policy formation and interventions to prevent violence against civilians in civil wars.

This chapter is broken into four main sections. The first section outlines the theoretical foundations of this thesis, building on structural realist theory of international relations to apply rationalist perspectives of the behaviour of armed actors in civil war and the logical and strategic underpinnings of violence. The second section

discusses the central terms of this framework – violence, civil war, civilian, and armed actor, considering how these concepts have been defined in extant research, where they are fuzzy or contested, and how they are defined for this framework. Next, the third section details the scope of violence against civilians considered in this thesis and introduces a novel framework of violence against civilians of two categories of violence – primary and secondary modalities of violence against civilians. The fourth section offers a conclusion, summarising the framework presented and its subsequent application.

3.1 Theoretical foundations

The theoretical framework of this thesis makes an important assumption about the nature of violence and the behaviour of armed actors during civil war – that armed actors can use violence, and violence against civilians specifically, strategically in pursuit of group-level aims. This assumption is informed by structural realist theory of international relations. In the context of international relations, scholars have argued that the absence of a central authority compels individual states to prioritise survival, using power as a means of security (Glaser, 2010; Jervis, 1999; Waltz, 1979). From this perspective, states – and entities seeking power more generally – act offensively in contexts of anarchy, using violence as a means of coercion to maximise power relative to others (Mearsheimer, 2003) such that even defensive and self-preservation motives can produce violent behaviour (Jervis, 1978).

This theory of self-preservation under contexts lacking a central power or authority can be applied to the behaviour of armed actors in civil war. When central authority breaks down, as in the case of civil war, a security dilemma exists whereby armed actors face the same incentives as an anarchic international system – they cannot

rely on external protection and, as a result, resort to violence as a means to secure their safety, reproducing at the national or subnational level the logic of self-help or self-preservation of structural realist theory (Lake, 2017; Walter and Snyder, 1999). Building on this realist framework, scholars have demonstrated that armed actors can deploy violence strategically rather than purely randomly or emotionally, changing their use of violence at the local level based on shifts in contextual factors such as control of territory, resources, and power relative to other armed actors (Kalyvas, 2006; Weinstein, 2006; Wood, 2010). This connects structural realist perspectives of the international order to rationalist applications (Fearon, 1995) in civil war – the logic of self-preservation in an anarchic system persists at the substate level, impacting the behaviour of conflict parties. This theoretical foundation frames violence against civilians as potentially strategic, indicating a patterned and purposeful nature of violence in civil war.

It is important to note that this thesis does not presume that strategic behaviour centred around group-level aims is a singular explanation of violence. Documented patterns of other drivers of violence, including habituation (Anderton and Ryan, 2016), opportunistic violence (Manekin, 2013), and revenge (Boyle, 2010; Souleimanov et al., 2023) occur during civil war alongside patterns of violence driven by strategic behaviour. Instead, this thesis takes a cautiously positivist approach to observing patterns of violence against civilians – that it is possible to test explanatory associations or causal relationships of the strategic nature of violence against civilians through quantitative approaches, connecting theories of the drivers of armed actor behaviour to observable patterns and measurable data (Kincaid, 1998; Park et al., 2020). While recognising the value of data as empirical evidence of observable patterns, there are limitations on the ability to understand causal relationships from observational data on

violence (Bell-Martin and Marston Jr, 2021; Gibilisco and Steinberg, 2023; Miller et al., 2022; Nunes et al., 2025; Weidmann, 2016). Working within these limitations, I employ qualitative and quantitative approaches of observation that can improve the alignment of theories and empirics with the complexities of violence during civil war, enhancing understanding of causes, consequences, and subsequent implications for policymakers and practitioners (Thaler, 2017).

3.2 Central terms

This thesis examines patterns of violence against civilians carried out by armed actors during civil war. There are important differences between civil wars and interstate conflict that limit theorisation on the nature of violence specifically to civil wars. In civil wars, subnational compositions of civilian populations have shown to be an important determinant of violence against civilians (Balcells, 2017; Di Salvatore, 2016; Fjelde and Hultman, 2014; Hultman, 2008; Kalyvas, 2006; Lis et al., 2021; Sullivan, 2012). In comparison, interstate wars are less likely to have a strong connection between armed actors and civilian populations as perceptions of affiliation or constituency are likely to be more homogenised, whereby armed actors perceive the civilian population of an opposing state as a singular, collective entity, representing the national will (Biddle, 2005; Gray, 2007; Overy, 1997; Pape, 1996). In this section, each of these elements is broken into its component parts – defining the concepts of violence, civil war, civilian, and armed actor. Because many of the terms at the heart of this thesis are essentially contested (Collier, 2008; Gallie, 1956), I discuss how these terms have evolved and been defined in extant literature, their scope for this thesis, and where information availability impacts the measurement of these contested and fuzzy concepts.

3.2.1 Violence

Violence is a concept central to this research and to the field of peace studies more broadly. Since the emergence of peace research in the mid twentieth century, including subfields of armed conflict and conflict resolution, scholars have sought to understand violence as a concept antithetical to peace (Thee, 1983). Although violence may seem like a straightforward concept, it is complex and at times broadly defined. Scholars have emphasised that violence is a social phenomenon which can be defined beyond physical violence to include forms of violence that are not visibly manifest (Nordstrom and Martin, 1992). This includes systemically functional violence which preserves the social order and dysfunctional violence which destroys it (Friedrich, 1972; Sorel, 1921), structural violence which manifests as social and economic oppression (Galtung, 1969; Galtung and Höivik, 1971), and psychological forms of violence which lead to mental anguish (Bourdieu, 2020). Scholars recognise the connection between these forms of violence rooted in the socioeconomic structure of society. Such forms of structural violence as poverty, hunger, and avoidable disease cause significant human suffering and loss of life and are frequently the source of grievances which can spur the onset of physical forms of violent conflict (Collier and Hoeffler, 2004; Thee, 1983).

Scholars examining violence against civilians in civil war have often taken a narrower view, focusing predominantly on physical forms of violence (Balcells, 2017; Hultman, 2014; Kalyvas, 2006; Raleigh, 2012; Stanton, 2016). From this lens, violence has been defined as 'the deliberate infliction of harm on people' (Kalyvas, 2006 p.19) and 'the use of force [to] harm or damage' (Balcells and Stanton, 2021, p. 47). Many scholars focusing on violence against civilians recognise a variety in repertoires of

violence, including murder, looting, arson, kidnapping, and torture, but choose to focus on intentional lethal violence (Balcells, 2017; Hultman, 2008, 2008; Kalyvas, 2006; Wood, 2010). While lethal violence represents an unambiguous measure of violence (Kalyvas, 2006; Spierenburg, 1996) and one that is frequently an indicator in quantitative studies (Balcells and Stanton, 2021), choosing lethal violence as a measure of physical forms of violence may not always be a reliable measure (Greenhill and Andreas, 2011; Seybolt et al., 2013) and obscures other forms of violence that may follow different patterns.

The scope of violence considered in this thesis aligns with the narrowed focus of conflict scholars on physical forms of violence, specifically the use of force to inflict harm. As detailed further in subsequent sections of this theoretical framework, the use of force to inflict harm includes forms of violence that use force against civilian themselves and violence that employs the use of force against civilians through intermediate means of damage or harm to civilian objects.

It is important to also note what this focus subsequently excludes. This thesis focuses on violence as the use of force to inflict harm. As rich body of scholarship has gone beyond this focus to consider the impacts of this violence. Of significance to civilian populations and of particular relevance to the violence observed during the South Sudanese civil war, violence against civilians – specifically violence targeting or occurring in food and food systems – has a direct impact of subsequent food crisis (Dowd, 2023). Similarly, violence against civilians can spur large-scale displacement, both as an intended consequence of violence by armed actors and as a byproduct of proximity to short-term and long-term cycles of violence whereby civilians choose to seek safety elsewhere (Balcells and Steele, 2016; Lichtenheld, 2020; Schincariol and Chadefaux, 2025; Steele, 2017; Xue et al., 2025). While the outcomes of violence are

significant and warrant their own focus, this thesis focuses on the occurrence of violence itself. Aligned with this, scholars have also highlighted that the threat of violence – actual or perceived – can have important effects on the behaviour of civilian populations (Danneman and Ritter, 2014; Kalyvas, 2006; Koning, 2019; Schincariol and Chadefaux, 2025; Williams et al., 2018). While the threat or anticipation of violence can be important to the lived experience of civilians in civil wars, this thesis focuses specifically on realised violence.

3.2.2 Civil war

This thesis focuses on violence against civilians by armed actors which takes place during civil war. The concept of civil war has received significant scholarly attention and varying definitions as scholars have sought to measure and gather data on civil wars. Despite multiple scholars and data projects offering definitions of the concept of civil war, there is some uniformity across these definitions. A civil war consistently includes four components – a what, who, where, and why. First, it includes a '*what*' – a conflict (Collier and Hoeffler, 2004), armed conflict (Leitenberg, 2006; Regan, 1996; Small and Singer, 1982), violent conflict, armed combat (Kalyvas, 2006), or contested incompatibility (Gleditsch et al., 2002). Second, is the '*who*' – the national government (Small and Singer, 1982), two parties (at least one of which is the government) (Gleditsch et al., 2002), the government and one or more organised (Fearon and Laitin, 2003) or identifiable (Leitenberg, 2006) rebel group (Collier and Hoeffler, 2004), or the central government and organised internal opposition forces (Regan, 1996). And third is a '*where*' – within the boundaries of a recognised sovereign entity (Kalyvas, 2006), metropole (Small and Singer, 1982), (single) state (Gleditsch et al., 2002; Leitenberg, 2006; Regan, 1996), or country (Fearon and Laitin, 2003).

Finally, a civil war contains a '*why*' – to take control of the government or a region or to change government policy (Collier and Hoeffler, 2004), concerns the government or territory (Gleditsch et al., 2002), challenging the governments hold on power (Leitenberg, 2006), political, ethnic, or ideological causes (Regan, 1996), or no specific aim (Kalyvas, 2006; Small and Singer, 1982).

In addition to a framing of civil war as a violent conflict (what) fought between a government and at least one opposing force (who) within the bounds of a country (where) with some form of contestation of power (why), scholars have also frequently measured this concept by setting thresholds on levels of violence, including 1,000 deaths (Small and Singer, 1982), 1,000 combat-related deaths (Collier and Hoeffler, 2004), 1,000 combated-related deaths where the weaker party is able to inflict at least 100 deaths (Fearon and Laitin, 2003), at least 25 battle-related deaths per calendar year (Gleditsch et al., 2002), or at least 200 fatalities (Leitenberg, 2006) to distinguish civil wars from other forms of violent conflict (Sambanis, 2004). Scholars have also argued that it may not be possible to arrive at an operationalisation of the concept of civil war without setting somewhat arbitrary thresholds (Sambanis, 2004). Furthermore, these thresholds may not be reliable measures. Multiple scholars have highlighted that fatality data is not consistently reliable (Greenhill and Andreas, 2011; Lacina and Gleditsch, 2005), raising concerns that the process of information generation shapes observed data patterns (Price and Ball, 2014), that observed measures of fatalities may not represent the true pattern or count (Ball and Price, 2019), and that fatality measures can become politicised and affect accuracy (Seybolt et al., 2013).

As a result, this work aligns with the shared framing among scholars of civil war as a violent conflict between the government and at least one opposing armed actor in a country that contests power. However, it does not set limitations on this concept in

terms of thresholds of violence or explicit statements of goals or motivations of the opposition. Furthermore, establishing a concept of civil war does not make a distinct typology of civil war as separate from other forms of political violence such as to categorise an event of violence as civil war as opposed to or inherently distinct from events of 'other' forms of violence (e.g. state-based repression, terrorism, communal violence, or opportunistic looting) (Sambanis, 2004; Tilly, 2003). This thesis focuses on violence against civilians during civil war, considering a range of forms of violence that occur in the context of civil war, not limited to those related to direct military contestation.

This thesis focuses specifically on civil war, as opposed to interstate war. In the analyses of this thesis, the hypothesised relationships between contextual factors and violence against civilians are tested by exploring both the relationship between armed actors and between armed actors and civilian populations, examining how subnational shifts in these dynamics can influence patterns of violence against civilians. There are important differences between civil wars and interstate conflict that limit theorisation on the nature of violence to civil wars.

Subnational compositions of civilian populations have shown to be an important determinant of violence against civilians (Balcells, 2017; Di Salvatore, 2016; Fjelde and Hultman, 2014; Hultman, 2008; Kalyvas, 2006; Lis et al., 2021; Sullivan, 2012). In civil wars, armed actors often have a connection to subsets of the civilian population as either perceived or real constituencies (Fjelde and Hultman, 2014; Ottmann, 2017; Wood, 2010). These civilian constituencies represent an enormous resource for armed actors as civilians can offer support through vital information, movement through territory, and access to important resources (Arjona et al., 2015; Humphreys and Weinstein, 2006; Kalyvas, 2006; Weinstein, 2006; Wood, 2003). Local level variation

in the composition of civilian populations and their (perceived) support of armed actors, such as ethnic identity, is shown to drive violence against civilians (Di Salvatore, 2016). In comparison, interstate wars are less likely to have this connection between armed actors and civilian populations as perceptions of affiliation or constituency are likely to be more homogenised. Scholars examining dynamics of violence in interstate wars have frequently described the perceptions of armed actors that the civilian population of an opposing state is a singular, collective entity, representing the national will (Biddle, 2005; Gray, 2007; Overy, 1997; Pape, 1996). As this thesis looks to test how subnational variation in contextual factors – including the connection between armed actors and civilian populations – is connected to violence against civilians, the generalisation of theories tested is limited to civil wars where armed actors have a demonstrated connection to subsets of the civilian population.

3.2.3 Civilian

During civil wars, groups are frequently divided into a binary – combatants and civilians. The concept of civilians is rooted in international humanitarian law (IHL) which aims to enshrine the right to safety held by individuals or groups not taking part in hostilities during war. The concept of civilians is defined in Article 50 of the Protocol I Additional to the Geneva Conventions, stating:

> 'A civilian is any person who does not belong to one of the categories of persons referred to in Article 4 A (1), (2), (3) and (6) of the Third Convention and in Article 43 of this Protocol. In case of doubt whether a person is a civilian, that person shall be considered to be a civilian.' (International Committee of the Red Cross, 1977a)

This article defines civilians by what they are not – organised armed forces or groups that are parties to a conflict (Article 43) or prisoners of war that are members of armed forces (Article 4A (1)), members of other militias or resistance movements (Article 4A (2)), members of government armed forces (Article 4A (3)), or individuals who spontaneously take up arms to resistant invading forces (International Committee of the Red Cross, 1977a, 1949). This offers three key features that comprise the concept of civilians – they are an individual (or group) that is not a member of an armed actor, they are not armed, and when there is uncertainty of their status, they should be treated as civilians. As a result of their civilian status, individual civilians and civilian populations enjoy protection from dangers of military operations – in both international (Article 51, Protocol I) and non-international (Article 13, Protocol II) violent conflicts, IHL states that civilians will not be the object of attacks (International Committee of the Red Cross, 1977a, 1977b).

The distinction between these two groups, however, is often difficult to specify. While international law clearly defines civilians through their exclusion from armed actor membership and the use of arms, scholars have grappled with fuzzy boundaries between these concepts. In some instances, a civilian is considered to be anyone who is not a full-time member of an armed actor (Kalyvas, 2006, p. 100), meaning collaboration with armed actors can be viewed on a spectrum and individuals that may retain some aspect of membership to or participation in the activities of armed actors, can still be viewed as civilians. In other cases, civilian is a mutually exclusive category whereby a civilian is viewed as a non-combatant and combatants are defined as ‘soldiers who are in charge of a weapon or an individual who works in a job related the actor’s military endeavour’, requiring complete exclusion from the activities of armed actors (Balcells, 2017, p. 20). By this definition, all individuals who participate in any

amount of violence as part of an armed organisation do not receive the label ‘civilian.’ Similarly, the distinction between civilian objects and those objects which can be used for military objectives have become increasingly difficult to separate. Wars have increasingly seen the targeting of what has been termed ‘dual-use’ objects, a concept which lacks a universal and fixed definition (Sánchez-Cobaleda, 2022) but which generally refers to civilian objects which are subsequently utilised for military objectives (Capone, 2025; Hathaway et al., 2024).

When operationalising the concept of civilians or civilian objects, limited access to information for researchers can hinder measurement. Some scholars have sought to address these limitations by using proxy measurements, including in the case of determining the status of an individual as a civilian. Those individuals found to be unarmed at the time they experienced the act of violence by an armed actor based on reported data are deemed a civilian (Raleigh et al., 2010; Schneider and Bussmann, 2013). This approach is mirrored in international humanitarian law’s determination of civilian objects which states clearly that where there is doubt of whether an object which is normally dedicated to civilian purposes is being used for military purposes, it should be presumed to be for non-military objectives (International Committee of the Red Cross, 1977a). In instances where more information is unavailable to determine the status of the individual, this proxy for civilian status will be accepted. Similarly, where subsequent analysis may consider an attack against a presumed dual use object, such an attack retains the capacity to cause physical harm to civilians and will therefore remain within the scope of violence considered in this research.

3.2.4 Armed actor

During civil war, violence can be directed from a number of sources – from individuals to spontaneously formed groups like rioters, to formal, organised entities like military forces. However, the focus of this thesis is violence against civilians carried out by armed actors. The concept of an armed actor encompasses a number of violent actors with different structures, goals, and affiliations. This term is at times fuzzy, making distinctions between armed actors and civilians seeking self-protection (Krause, 2018; Krause et al., 2025) difficult. In an effort to distinguish armed actors from other entities present in civil war, scholars have commonly described armed actors as organised entities which use force or engage in armed combat in pursuit of political aims (ACLED, 2023a; Cunningham et al., 2016; Hoover Green, 2016; Jo, 2015; Staniland, 2018; Weinstein, 2006). While the use of force or combat in pursuit of political aims may appear straightforward, armed actors have fought in civil wars for a myriad of reasons beyond political motivations, including differences of ethnicity or religion (Kalyvas, 2006), plain power grabbing (Collier and Hoeffler, 1999), and instances where the armed actor has no discernible political agenda (e.g. the Lord's Resistance Army) (International Crisis Group, 2004). For this thesis, armed actors are considered to be all organised, armed entities that use force or engage in combat, without placing a threshold for explicit use of violence for political means or aims.

Within the umbrella of armed actors, this thesis makes reference to a number of subtypes. First, the term non-state armed actor refers to a subset of armed actors who are unaffiliated with the government (Berti, 2018; Cremaschi et al., 2020; Nyseth Brehm et al., 2021; Villa et al., 2021). Non-state armed actors are organised, autonomous, nonstate groups who rely on violence or the threat of violence to achieve their objectives (Cunningham et al., 2016; Thompson, 2014). However, not all non-

state actors seek to remove the current government from power (Petrasek, 2000). Groups with that specific political aim form a subset of non-state armed actors which are often labelled rebels and insurgents (Shultz and Dew, 2009) while other non-state armed actors are structured in support of or comprised of localised groups such as ethnic or community militias (Aliyev and Souleimanov, 2019; Krause, 2018; Krause et al., 2025). Remaining actors maintain some connection to the government. State actors are militaries controlled by the current government (Thompson, 2014) whereas state-affiliated actors, also referred to as progovernment militias and paramilitaries, are armed actors with an affiliation to the state where the state exercises partial control or influence over the actor (Abbs et al., 2020; Jentzsch et al., 2015; Mitchell et al., 2014; Raleigh and Kishi, 2020). While this research may make reference to armed actor subtypes, the term armed actor is used to reference all organised armed entities, including state-based, state-affiliated, and non-state armed actors.

While this thesis focuses on violence by organised armed actors, it is important to acknowledge information limitations that can impact measurement. Data and reporting information available on violence during civil war is inherently difficult to gather and represents an incomplete universe of information (Hoover Green and Cohen, 2021; Miller et al., 2022). As such, it may not be possible to identify a name or structure of an armed actor with an event of violence. While some researchers choose to retain only information on violent events that can be tied to a named armed actor (Sundberg and Melander, 2013), other scholars seek to measure a broader spectrum of violence and retain information on violent events where incomplete information is available (ACLED, 2023a; Eck, 2012). Furthermore, armed actors may benefit from anonymity and information gaps as they avoid accountability for violence (Cohen and Nordås, 2015; Raleigh, 2012). This thesis is therefore interested in considering patterns

of violence carried out by unidentified armed actors and armed actors for which only partial information is available.

3.3 Scope of violence against civilians

Violence against civilians in civil war is a topic that has received significant attention from researchers seeking to understand the logic behind its use and how the decision to use violence is influenced by differing conflict contexts. Many authors have sought to define what violence against civilians is and what forms it can take. Kalyvas posits that physical violence against civilians can take many forms, including 'pillage, robbery, vandalism, arson, forcible displacement, kidnapping, hostage taking, detention, beating, torture, mutilation, rape and desecration of dead bodies' (Kalyvas, 2006, p. 20). Similarly, Balcells offers a myriad of examples, citing 'sexual violence, mutilation, torture, forced labour, displacement, [and] marginalisation,' as some of the many forms that violence against civilians can take (Balcells, 2017, p. 20). Many other scholars of violence against civilians have echoed this diversity of violence, acknowledging that civilians experience violence through a multitude of modalities with differing lethality (Stanton, 2013) and different ways to realise harm, including through directing violence at civilians and civilian objects (Balcells and Stanton, 2021).

Unfortunately, many of these broad definitions are operationalised into a more narrow scope, focusing on lethal attacks against civilians (Balcells, 2017; Bussmann, 2015; Cremaschi et al., 2020; Eck and Hultman, 2007; Fjelde and Hultman, 2014; Herreros and Criado, 2009; Kalyvas, 2006; Schutte, 2017; Schwartz and Straus, 2018; Stanton, 2013; Wood, 2010). While other research focuses on non-lethal violence against civilians, (Badalič, 2019; Cohen and Nordås, 2015, 2014; Johansson and Sarwari, 2019; Mostert et al., 2025), the focus remains on violence against civilians that

targets civilian bodies and therefore considers an insufficient scope of violence faced by civilians in civil war. This thesis will focus on multiple forms of violence against civilians, including both violence that is directed at the civilian bodies and violence that is directed at civilian objects. This research seeks to open space to analyse a greater diversity of violence against civilians.

3.3.1 Introducing a novel framework

Despite the narrowed scope of violence considered in this thesis – violence against civilians carried out by armed actors through the use of force – this subset of violence can still take on a myriad of forms. In order to assess the variation in these various modalities of violence against civilians, this work presents a novel framework on violence against civilians. Working from the concept of violence against civilians as acts that use force to harm or damage civilians or civilian objects, the framework categorises modalities of violence against civilians into two groups – primary and secondary modalities of violence against civilians. Primary modalities of violence against civilians are violence that attacks civilian bodies, including both lethal attacks and non-lethal attacks. Secondary modalities of violence against civilians are violence that attacks civilian objects, subsequently denying civilians access to important resources and possibly causing physical harm. In this second category of violence, the armed actor carries out a given action where the object of that action is not a civilian; however, the act of violence denies civilians access to an important resource and can lead to physical harm.

This distinction of primary versus secondary modalities of violence refers to the immediacy of harm as opposed to a hierarchy of the intensity of violence. Primary modalities of violence against civilians represent more direct forms of violence as the

use of force is against civilians themselves. Conversely, secondary modalities of violence against civilians represent less direct forms of violence as the use of force is against a civilian object which can subsequently lead to the physical harm of civilians. Table 1 below provides a summary of this framework.

Table 1 – Framework of violence against civilians

Category of Violence	*Definition*
Primary Modalities of violence against civilians	Acts which use force to harm civilian bodies, including both lethal and non-lethal violence
Secondary Modalities of violence against civilians	Acts which use force to damage or deny access to civilian objects which can subsequently lead to physical harm

Both of these concepts, civilians and civilian objects, are defined by international humanitarian law (International Committee of the Red Cross, 1950; UN General Assembly, 1998). IHL that has sought to codify the rights to safety of civilians and civilian objects, providing a key terminological resource in the construction of this framework. The following subsections describe how each category of violence is defined in greater detail and how the measurement of these concepts builds upon or departs from definitions established by international humanitarian law.

3.3.2 Defining primary modalities of violence against civilians

The first term of this novel framework of violence against civilians is primary modalities of violence against civilians. At the centre of this category of violence is the concept of a civilian. As discussed in the preceding section, the concept of a civilian or the civilian population comes from international humanitarian law which outlines the protections of individuals or groups not taking part in violent conflict. Chief among

these is the protection against the use of violence by armed actors that attack or physically harm civilians. This is explicitly stated in the Protocol II Additional to the Geneva Conventions, Article 13:

> 'The civilian population and individual civilians shall enjoy general protection against the dangers arising from military operations. To give effect to this protection, the following rules shall be observed in all circumstances. The civilian population as such, as well as individual civilians, shall not be the object of attack. Acts or threats of violence the primary purpose of which is to spread terror among the civilian population are prohibited. Civilians shall enjoy the protection afforded by this Part, unless and for such time as they take a direct part in hostilities.' (International Committee of the Red Cross, 1977b)

This provision underscores important components of the definition of primary modalities of violence against civilians – the use of violence by armed actors to attack civilian bodies. These acts of violence to attack civilians are at the centre of primary modalities of violence against civilians. As stated previously, these acts of violence are not limited by lethal violence and the IHL provision above similarly sets no limiting description on the intensity of the attack that civilians are protected from. As such, this framework considers primary modalities of violence against civilians to refer to acts which use force to attack civilian bodies.

This definition has three important implications. First is the exclusion of non-physical and unrealised violence against civilians. The concept of primary modalities of violence against civilians includes only the use of force by armed actors to attack civilian bodies, indicating that only physical violence and realised violence is considered in the definition. This necessarily excludes psychological forms of violence

during wartime that significant empirical evidence demonstrates can have a profound and lasting impact on civilian populations (Bierman and Kelty, 2014; Glover, 1942, 1941; Hanson and Vogel, 2012; Murphy, 1977; Musisi and Kinyanda, 2020; Priebe et al., 2012) and unrealised violence, including threats of future violence by armed actors and fear of future violence on the part of civilians, which can have important effects of civilian perceptions of safety and risk, potentially shaping civilian behaviour in civil wars (Azam and Hoeffler, 2002; Boyle, 2009; Koning, 2019; Lichtenheld, 2020; Steele, 2017, 2009; Williams et al., 2018).

Second, the concept of primary modalities of violence against civilians focuses on the event of violence itself and not the outcome or subsequent effects of the violence. Taking for example, patterns of displacement among the civilian population, which can occur as an intended consequence and a byproduct of proximity to violence (Balcells and Steele, 2016; Lichtenheld, 2020; Schincariol and Chadefaux, 2025; Steele, 2017; Xue et al., 2025) – the concept of primary modalities of violence against civilians focuses on the event of violence itself and does not seek to quantify the size of the effect that this violence has on outcomes such as displacement. This would therefore similarly exclude the long-term impacts of non-lethal violence on health and livelihood as well as the impacts of fatal violence on surrounding individuals (Alburez-Gutierrez et al., 2024; Kobeissi et al., 2023; Vesco et al., 2025).

Finally, the definition of primary modalities of violence against civilians is not limited to a particular threshold of violence. As a result, varying levels of intensity are captured within this concept – both a mass killing and a non-lethal injury to a single individual can fall within this concept. Considering this heterogeneity of violence within a single definition has been a criticism of work that seeks to define violence against civilians beyond lethal violence (Eck, 2012). A comprehensive understanding of

patterns of primary modalities of violence against civilians will therefore require consideration of both the occurrence of violence and its intensity the subsequent analyses of this thesis.

3.3.3 Defining secondary modalities of violence against civilians

Central to this thesis, and in particular to the original data collection effort detailed in the subsequent data collection methodology chapter, is the concept of secondary modalities of violence against civilians which examines violence against civilian objects. This framework is specifically interested in civilian objects whose destruction or denial of access to have the capacity to cause physical harm. The concept of violence against civilian objects is a valuable addition to existing definitions of violence against civilians and can further analysis of the impact of civil war on the safety of civilian populations. This concept builds on international humanitarian law which outlines protection against objects indispensable for survival of the civilian population, as stated in the Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II) –

> 'Starvation of civilians as a method of combat is prohibited. It is therefore prohibited to attack, destroy, remove or render useless, for that purpose, objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock, drinking water installations and supplies and irrigation works' (International Committee of the Red Cross, 1977, Article 14).

The concept of secondary modalities of violence against civilians, however, differs from objects indispensable for survival in two important respects. First, the concept of secondary modalities of violence against civilians goes beyond those resources explicitly cited in the concept of objects indispensable for survival – food agricultural areas, livestock, water, and irrigation resources. The use of the language 'such as' suggests that this is not an exhaustive list. This interpretation aligns with existing research which draws on other components of IHL to interpret this concept (Akande and Gillard, 2019; Coco et al., 2019; D'Alessandra and Gillett, 2019; Pilloud et al., 1987). Akande and Gillard (2019) highlight that the provision surrounding humanitarian relief operations (Article 69 of Protocol I) is strikingly similar to Article 14 of Protocol II. The former provision refers explicitly to food and medicines as well as 'clothing, bedding, means of shelter, and other supplies essential to the survival of the civilian population' as objects provided by humanitarian relief efforts (International Committee of the Red Cross, 1977a). Akande and Gillard (2019) argue that the word 'other' in this provision clearly indicates that clothing, bedding, and means of shelter are considered to be objects indispensable to the survival of the civilian population. Other scholars have echoed this interpretation, citing objects connected to clothing, shelter, and medical supplies as objects indispensable to the survival of the civilian population (Coco et al., 2019; Pilloud et al., 1987; Ventura, 2019). This research therefore extends the interpretation of the concept of objects indispensable for survival, aligning with legal scholars that the 'such as' language of Article 14 extends the scope of objects indispensable for survival to include objects beyond those explicitly stated.

Second, central to the concept of objects indispensable for survival is the need to prove both the indispensability of an object and the intention of starvation of the civilian population through the attack on the object. While these thresholds to prove

intentionality or indispensability are central to determining criminal accountability (Global Rights Compliance, 2019), the interest of this research is in understanding patterns of violence against civilians, which is not limited to those acts of violence attacking civilian objects which seek to starve civilians or attack exclusively those objects without which a civilian would certainly or immediately die. For example, a violent attack in which armed actors stole food before burning dozens of homes in villages across Unity State may not have been carried out with the specific intent to starve or destroy the last food and shelter available to the population. However, these forms of violence have the capacity to cause physical harm and remain of interest to this research.

As such, this framework refers to secondary modalities of violence against civilians as the use force to attack civilian objects, whose destruction or denial of access to have the capacity to cause physical harm. This includes, foodstuffs, agricultural areas, crops, livestock, drinking water installations, irrigation infrastructure, clothing, bedding, shelter and medical supplies.

This definition creates two important implications for analysis of this concept. First, the concept of secondary modalities of violence against civilians does not include all civilian objects, only those whose destruction or denial of access to have the capacity to cause physical harm. This necessarily excludes attacks against objects of cultural and religious significance which also receive protection under international humanitarian law (International Committee of the Red Cross, 1977a, 1977b). The destruction of objects of cultural and religious significance are often targeted during wartime, with empirical evidence demonstrating that these attacks can be used intentionally as a method of symbolic violence meant to erase the memory or identity of a group, including as part of ethnic cleansing (Francioni and Lenzerini, 2017;

Gerstenblith, 2015; Kahsay et al., 2024; Rose, 2007; Špadina, 2019). Such violence, therefore, can have a strong communicative capacity, warranting further study especially in the context of ethnically motivated conflict but remains outside the scope of this framework.

Second, similarly to primary modalities of violence against civilians, this concept focuses on the occurrence of violence and not its outcomes. As a result, the concept of secondary modalities of violence against civilians does not seek to prove or measure the effect of harm on civilian populations. While the effect of such violence on measures of physical safety and wellbeing such as food security or health is the topic of vital research deepening understanding of the effect of violence during war (Afzal and Jafar, 2019; Dowd, 2023), causal linkages or the quantification of harm as a result of acts of violence is beyond the scope of the framework.

3.4 Conclusion

This chapter introduces a novel characterisation of violence against civilians that aims to overcome the compartmentalisation of research on various modalities of violence against civilians. This framework rests on a central assumption that armed actors can use violence against civilians strategically in pursuit of group-level aims, informed by structural realism and its rationalist application on violence in civil war that armed actors use violence as a means to maximise relative power in contexts where a central power or authority has collapsed. Furthermore, this chapter highlighted a positivist approach to research – that this strategic behaviour can be observed through patterns in empirical evidence, with important limitations to its explanatory power.

The framework builds on the concepts of violence, civil war, civilian, and armed actor to examine the use of force against civilians to cause harm by organised,

armed entities during violent conflict between the government and at least one opposing armed actor in a country that contests power. The framework expands the scope of violence against civilians to consider acts that use force to harm both civilians and civilian objects. This framework focuses on two categories of violence – 1) violence that attacks civilian bodies referred to as primary modalities of violence against civilians, and 2) violence that attacks civilian objects, subsequently denying civilians access to important resources and possibly causing physical harm, referred to as secondary modalities of violence against civilians.

The distinction of the object of an act of violence – civilian or civilian object – has important implications. While primary modalities of violence against civilians can result in more immediate harm to civilians, secondary modalities of violence against civilians attack important resources shared by many civilians so while any physical harm caused may be less immediate, the scale of or capacity for harm may shift. The subsequent chapters detail the approach to data collection for these categories of violence and analyse how the occurrence of primary and secondary modalities of violence against civilians varies in differing conflict contexts.

4. Data Collection Methodology

This research explores the relationship between different modalities of violence used against civilians in civil war. It focuses on two categories of violence – 1) violence that attacks civilian bodies, referred to as primary modalities of violence against civilians, and 2) violence that attacks civilian objects, referred to as secondary modalities of violence against civilians. This novel characterisation of violence against civilians aims to overcome the compartmentalisation of research on various modalities of violence against civilians and identify divergences in these different categories of violence.

To analyse the relationship between these two categories of violence, this thesis presents a novel approach to collection of conflict event data. To fill the identified gap in conflict event data on secondary modalities of violence against civilians, this thesis carries out an original data collection effort to identify and code data on secondary modalities of violence against civilians. The data collection takes a semi-automated approach, combining researcher-led elements with automation of repetitive, rule-based tasks. For its automated components, the methodology utilises Robotic Process Automation (RPA) software to create automated processes which identify, collect, and transform conflict event data from news and other reporting sources into a quantitative event dataset on secondary modalities of violence against civilians.

This chapter is organised into nine main sections. This begins with a description of the case selected – the South Sudanese civil war. The second section provides an overview of the availability of conflict event data on primary and secondary modalities of violence against civilians, followed by sections which detail the use of automation for data collection and the suitability of robotic process automation for this research. The fifth section describes the methodology for data collection, including event

specification, data collection, data exploration and manual review, and data transformation. The next section then provides descriptive statistics and data visualisations which present an initial comparison of primary and secondary modalities of violence against civilians. The next three sections detail the ethical implications of desk research based on conflict event data, biases in data, and limitations of the data collection approach and subsequent analyses.

4.1 Case selection

This research analyses the relationship between primary and secondary modalities of violence against civilians through a single case study of the South Sudanese civil war. This period begins in December 2013 when President Salva Kiir declared that he had successfully deterred an attempted coup d'état led by vice President Riek Machar, sparking ethnically-motivated attacks that developed into a full-scale civil war (Johnson, 2014). The end of the violence caused by the civil war is much less clear cut. The end of the civil war could be marked by the signing of the peace agreement in September 2018 (Mamdani, 2018) or similarly by the signing of the Revitalised Transitional Government of National Unity, reinstating Machar as Vice President in February 2020 (Vhumbunu, 2020). However, a surge in post-peace agreement violence has occurred in South Sudan with a spike in violence against civilians through 2022 (Chagutah, 2023; Pur, 2022; United Nations, 2022). To capture patterns of post-peace agreement violence, the timeline of this case study will extend beyond the signing of the Government of National Unity agreement to include continued violence through the end of 2022.

South Sudan represents an extreme case (Gerring, 2008) in the understanding of primary and secondary modalities of violence against civilians in civil war. Over the

course of this conflict, the South Sudanese people have suffered from violence in a variety of forms. Reporting sources have provided evidence of widespread violence against civilians, starting as early as the hours and days following the declaration of the attempted coup d'état (Bureau of Democracy, Human Rights, and Labor, 2014; Henry, 2014; UNMISS, 2014) and continuing through each year of the civil war (Pedneault, 2017; UNMISS, 2023; U.S. Department of State, 2023). This reporting speaks to potential trends of interest for this research. First, both categories of violence (primary and secondary modalities of violence against civilians) are reported throughout these various sources in different contexts, against different groups, and across various parts of the country (Human Rights Watch, 2016, 2014a). Second, secondary modalities of violence against civilians are a common form of violence in this war, with scorched earth tactics of burning, looting, and large-scale property destruction carried out by multiple armed actors during the war, in what often appears to be retaliatory patterns (Human Rights Watch, 2014b). The identification of these potential patterns makes South Sudan an ideal case for hypothesis-testing on the relationship between primary and secondary modalities of violence (Gerring, 2008).

This case selection follows well-established selection approaches within the field. Micro-level conflict analysis using conflict event data is a growing approach among conflict scholars in the evaluation of violence against civilians (Balcells and Stanton, 2021). This includes micro-level analysis of violence against civilians using South Sudan as a case study, with research focusing on sexual violence against women and girls (Ellsberg et al., 2020; Luedke and Logan, 2018), the connections between communal conflict and national-level politically motivated violence (Krause, 2019; Wild et al., 2018), and the impact of political rivalry and weak institutions on civilian targeting (Brosché and Höglund, 2016; Nyadera, 2018).

While micro-level analysis of violence against civilians has also expanded with cross-national studies (Dowd, 2019; Fjelde and Hultman, 2014; Raleigh and Choi, 2017), this research focuses on a single case study as a result of two important data constraints. First, the lack of systematically collected data on secondary modalities of violence necessitates an original data collection effort which in turn puts constraints on the capacity of an individual researcher to consider a large-N or cross-national study. Second, this thesis is limited by the language capabilities of the sole researcher. In order to review primary source data, this case study must also demonstrate comprehensive reporting in English across a variety of sources, not just international news reports. Data mapping of existing conflict event data sources detailed below demonstrates that news reporting at the local, national, and international levels in South Sudan is frequently available in English (Raleigh et al., 2010) with similarly extensive reporting from governmental and non-profit sources at the international level available in English.

4.2 Data

This research focuses on primary and secondary modalities of violence against civilians. The relationship between these two categories of violence is assessed through analysis of a single case study using conflict event data. In line with a trend towards micro-level analysis among conflict scholars (Balcells and Stanton, 2021), this approach to measuring conflict relies on news reporting to generate granular data on geographic and temporal elements of conflict to assess subnational trends (Weidmann, 2015). This granularity offers the opportunity for researchers to disaggregate conflict trends to identify single instances of actions taken in conflict contexts.

Data collection on conflict event data has expanded considerably in recent decades. There is an enormous breadth of data across a variety of formats. The next sections focus specifically on sources of conflict event data that collect information on primary and secondary modalities of violence against civilians that are used in this thesis, including information on the definitions used, how these definitions do or do not align with this research, and their suitability for this analysis. Figure 1 below visualises the combination of data sources that are included in the dataset of primary and secondary modalities of violence against civilians that are used in this analysis. It includes both an existing dataset and data that is available as unstructured text data through news reporting sources which are subsequently coded to form a composite dataset.

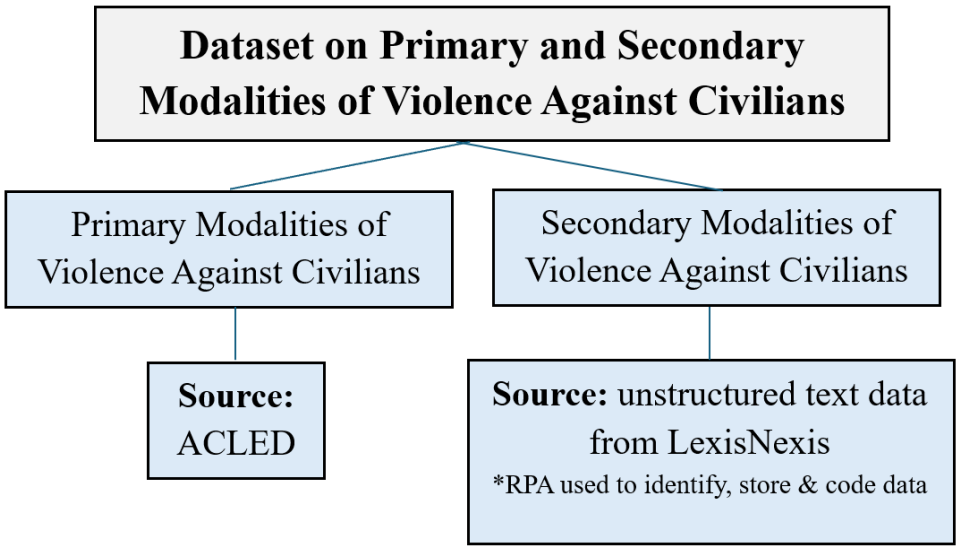


Figure 1 – Data sources on primary and secondary modalities of violence against civilians

4.2.1 Data on primary modalities of violence against civilians

Event data on primary modalities of violence against civilians are drawn from ACLED. The database collects data on the locations, dates, actors, fatalities, and types

of all reported political violence globally (Raleigh et al., 2010). Conflict event data through ACLED is publicly available, routinely updated, and can be downloaded through the website's user interface to a variety of spreadsheet formats. Data on violence against civilians is systematically collected by ACLED on political violence and protest events including battles, explosions/remote violence, violence against civilians, protests, and riots (Raleigh et al., 2010). The dataset defines violence against civilians as 'violent events where an organised armed actor deliberately inflicts violence upon unarmed non-combatants' including attacks, sexual violence, and abduction/forced disappearance (ACLED, 2021 p. 19).

ACLED also collects data on secondary modalities of violence against civilians under the strategic development category, recording events of looting and property destruction under the definition 'when organised armed groups engage in looting or seizing goods or property other than weapons or weapon systems' (ACLED, 2021, p. 17). However, ACLED highlights that these strategic development events vary significantly among conflicts and are not systematically collected (ACLED, 2019). As a comparison to the original dataset detailed in subsequent sections of this chapter, between December 2013-2022, ACLED collected 181 events of secondary modalities of violence against civilians under the Strategic Developments, Looting/Property Destruction subcategory. Figure 2 below shows a map of events of secondary modalities of violence against civilians generated through the original data collection effort of this thesis and strategic developments as reported by ACLED, indicating with the size of the circles mapped the quantity of events that occurred in a specific location. While the geographic spread of event data appear similar between ACLED and the original data collection effort, Figure 2 demonstrates clearly that these events are

currently undercounted by ACLED. For this reason, the ACLED dataset is best positioned to provide detail on only primary modalities of violence against civilians.

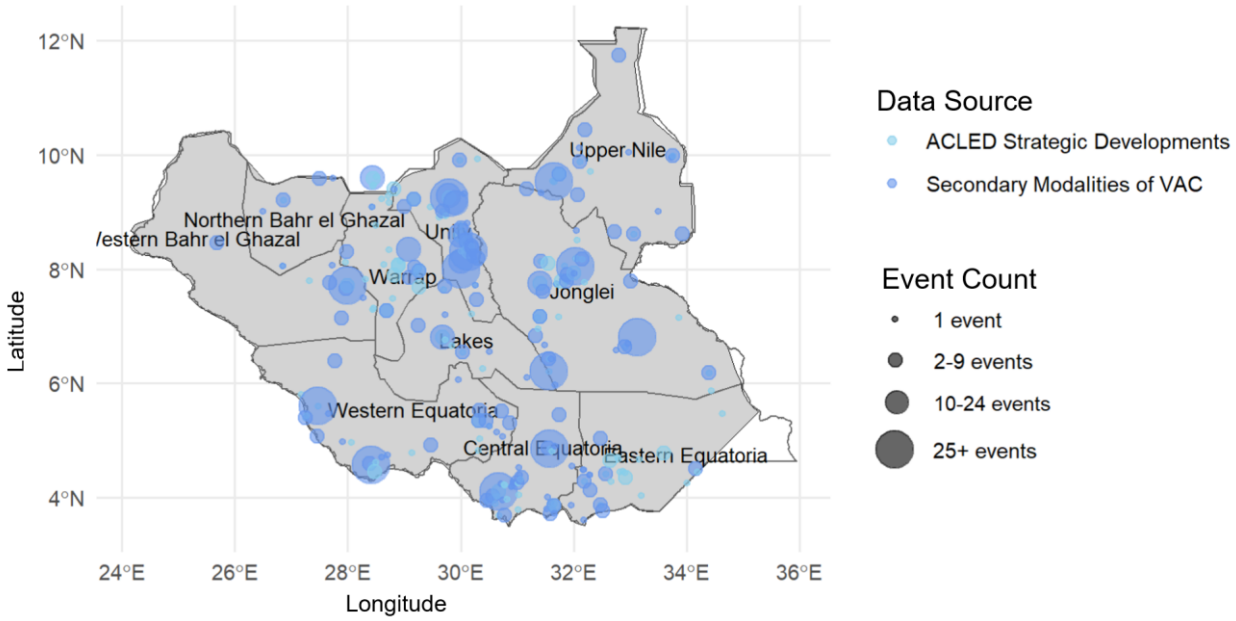


Figure 2 – Comparing ACLED strategic developments and original data

ACLED has been used as a data source for a variety of research projects on political violence, civil war, and violence against civilians. Of particular relevance to this work, this has included research that has used ACLED data to develop a composite dataset, focusing on a subset of secondary modalities of violence against civilians, (Sowers and Weinthal, 2021); research that has assessed the impact of armed actor competition (Dorff et al., 2023; Dowd, 2019; Raleigh and Choi, 2017; Raleigh and Kishi, 2020; Welsh, 2023); and research exploring the relationship between ethnic identity and violence against civilians (Gershman and Ameesh, 2025; Jabateh, 2023; Tuki, 2025).

It is important to note, however, that some criticism remains about the use of ACLED data. In particular, researchers have identified concerns over inconsistent quality control across regions, vague definitions of actors and events, reliance on media

reporting prone to bias, and imprecise geolocation and timing of events (Eck, 2012). In response, ACLED has taken a number of steps to improve methodological rigor, including refining its codebook to more clearly define event and actor categories (ACLED, 2023a), expanding and systematising sourcing through local-language media, NGO reports, and field-based partnerships (ACLED, 2023a), introducing metadata on the precision of geolocation and event timing (ACLED, 2023b), and adopting a 'living dataset' model (ACLED, 2025). While challenges of media bias and verification remain inherent to event data collection (Hollenbach and Pierskalla, 2017; Miller et al., 2022; Price and Ball, 2014; Weidmann, 2016), these reforms have strengthened the reliability and usability of ACLED data. This is an essential development as ACLED remains the leading dataset for non-fatal event data on violence against civilians (Eck, 2012) and event data from partially-identified and unidentified armed actors, which can play an important role in the dynamics of violence against civilians (Raleigh, 2012).

4.2.2 Data on secondary modalities of violence against civilians

As a novel focus in research on violence against civilians, event data on secondary modalities of violence against civilians is not widely available. As part of the development of this data collection methodology, a data mapping of sources of qualitative and quantitative data on violence against civilians was completed. The results of this data mapping can be found in Appendix A, indicating the sources available, what they capture, and their suitability for this analysis. This process revealed that data on primary modalities of violence against civilians is more comprehensively collected than secondary modalities of violence against civilians. However, data on secondary modalities of violence against civilians is available in qualitative, non-coded formats in the form of news reporting. Any effort to synthesise

this text-based data will require identifying instances of secondary modalities of violence against civilians, storing the text as data, and coding the data into a format that enables comparison with other datasets. Subsequent analysis in this research requires a high level of granularity of conflict event data, including information on the date, location, and description of the event. As detailed below, this research carries out an original data collection effort to develop a dataset of spatiotemporal event data on secondary modalities of violence against civilians. The methodology does not include collection of primary source data but rather identifies, reviews, and codes existing data across a variety of sources to develop a comprehensive dataset.

4.3 The case for automation in conflict event data

Approaches to conflict event dataset generation are often divided into two categories – manual and automated approaches. While manually coded datasets are currently the dominant approach to conflict event data generation (Butcher et al., 2020; LaFree and Dugan, 2007; Raleigh et al., 2010; Sundberg and Melander, 2013), the use of automation for data coding and dataset generation has garnered significant attention in the field of conflict event data. Machine coding of event data from news sources has been used to develop datasets including International Crisis Early Warning System (ICEWS), Global Data on Events Language and Tone (GDELT), and the Phoenix event dataset, which have underscored the value of automation-based methods for real-time and large-scale event coding (Beieler, 2016; Leetaru and Schrodt, 2013; Schrodt, 2012, 2010; Ward et al., 2013b).

The most frequent approach for current automated event data collection efforts is to utilise the Conflict and Mediation Event Observations (CAMEO) coding scheme, a hierarchical ontology of categories subdivided into event types that enable the

analysis of political interactions including violent conflict (Schrodt et al., 2008). However, the system which codes events has evolved over time and datasets. The Textual Analysis By Augmented Replacement Instructions (TABARI) is the automated event data coder utilised for GDELT (Leetaru and Schrodt, 2013). TABARI parses news articles into CAMEO-coded events by tokenising texts and matching verb patterns against CAMEO dictionaries to extract structured events (Leetaru and Schrodt, 2013). However, in comparison to other CAMEO-based automated datasets, TABARI-generated data are considered unrefined, failing to sufficiently deduplicate data which results in significant overcounting (Ward et al., 2013b). Systems such as SERIF for ICEWS (Schrodt, 2010) and Python Engine for Text Resolution And Related Coding Hierarchy (PETRARCH) for Phoenix (Beieler, 2016) have improved on previous systems, enabling more advanced analysis of the syntactic structure of sentences. In spite of these advances, each of these databases represent traditional automation which focuses on back-end software, developing its own structure, features, and automation approach (Jovanović et al., 2018). Traditional automation is sometimes also referred to as 'heavyweight IT' as it often requires the development, maintenance, or integration of large systems for use, remaining fully automated without the ability to integrate human-driven tasks into the system (Penttinen et al., 2018, p. 5).

There are several clear benefits to the use of automation for dataset generation. Automation removes many of the time constraints created by human users. Because less human-driven tasks are involved in the generation of data, automation-generated datasets can facilitate the study of areas of event data that were previously limited by time, funding, or human researcher limitations (Schrodt, 2012). However, there remain concerns about the use of automation in dataset generation. Conflict scholars argue that automated data collection processes have little to no oversight or review process

(Raleigh and Kishi, 2023) and can erroneously count conflict events in a dataset because the automation process was incapable of effectively interpreting the context of the report or the use of figurative language (Miller et al., 2022). Without assurance that data is correctly identified and coded, concerns around the accuracy of automation-generated data can continue to outweigh the gains in efficiency that automation offers.

4.4 Robotic Process Automation

Robotic process automation is an emerging software technology that allows the user to build, run, and manage software robots that can carry out actions traditionally completed by a human user (Syed et al., 2020). RPA software is not a standalone system – it sits on top of existing software or systems, such as a webpage, and emulates the actions of a human user (e.g. move and click the mouse; copy, paste, and write characters) (Penttinen et al., 2018; Tripathi, 2018). To date, RPA has been applied most in business contexts because it offers organisations increased efficiency and reduced cost by automating high-volume, repetitive tasks (Enríquez et al., 2020; Moffitt et al., 2018).

RPA presents effective use cases for data extraction and data transformation – the two uses of RPA for this research – in information-dense industries. RPA software has been utilised to automate data extraction of trade tax information in the public administration sector (Houy et al., 2019), data query, extraction, and transformation to connected software/systems for audits and invoicing (Bellinga et al., 2022; Eulerich et al., 2022; Huang and Vasarhelyi, 2019; Moffitt et al., 2018; Urbach et al., 2021), and data extraction of quantitative information from the unstructured data to inform patient care in healthcare settings (Sreekrishna and Jacob, 2023). RPA use cases demonstrate that this software is best suited for tasks that are rule-based, repetitive, and high volume

(Hofmann et al., 2020; Van der Aalst et al., 2018; Wewerka and Reichert, 2020). Conversely, RPA software is not well suited for complex processes that require analysis and decision-making (Palaniappan, 2024). When exceptions to ruled-based processes occur, manual review is required to determine the cause and correct the automation approach, where possible (Syed et al., 2020). As such, RPA software can be most efficient and collect and produce quality data when selected to automate the appropriate tasks. With the outstanding need for cognitive functions, RPA software is a complement to, not a replacement for, researcher-led processes in data collection and production.

In addition to the suitability for the kinds of tasks undertaken in this data collection, the structure of RPA software provides a unique advantage in the field of automation. RPA software sits on top of existing software and systems, interacting with them in a way that mimics the human user (Penttinen et al., 2018). This structure requires the human user to develop step-by-step workflows to carry out any task in the process of data collection, review, and coding (Tripathi, 2018). This workflow is visible to the user, can be shared to enable process transparency, and can be adjusted at any point to correct for errors (Ketkar and Gawade, 2021). This is the key benefit to robotic process automation – researcher oversight, intervention, and review is possible and adjustments to the data collection processes are easy to make and document (Asatiani et al., 2023; Syed et al., 2020; Wróblewska et al., 2018). The RPA software selected for this dataset is UiPath, a free, open-access software capable of carrying out data extraction and data transformation from unstructured text data (Asatiani et al., 2023; Penttinen et al., 2018; Tripathi, 2018; Willcocks, 2020).

4.5 Methodology for dataset generation

This dataset includes geo-referenced event data on secondary modalities of violence against civilians during the South Sudanese civil war in the period between December 2013 and December 2022. This data was collected from unstructured text data sources, reviewed, and coded into a quantitative dataset using a semi-automated approach which combines researcher oversight and RPA software. The methodology can be broken down into four steps – a) event specification: designing a framework of secondary modalities of violence against civilians, b) data collection: drawing a corpus of articles from a news aggregation database, c) data exploration and manual review: evaluating the data and determining inclusion, (d) data transformation: extracting unstructured text data and coding into its component parts. Table 2 below details this process further, indicating which components were manual and which were completed using an RPA workflow. A total of five RPA workflows were utilised in this methodology.

Table 2 – Process overview

Phase	*Process description*	*Automated vs. manual*
1. Event specification	1. Assess framework of secondary modalities of violence against civilians and determine the event type of interest.	Manual
2. Data collection	2.1 Gather unstructured text data on events of secondary modalities of violence against civilians using Boolean Search String.	Manual
	2.2 Reformat articles downloaded from LexisNexis from Word Documents to Text files (.txt) to remove additional formatting and facilitate data extraction (RPA workflow 1).	Automated
	2.3 Extract text snippets from articles that contain a key word identified in the search string (RPA workflow 2).	Automated
3. Data exploration and manual review	3.1 Develop a bank of exemplars through manual review which describe the event of interest.	Manual
	3.2 Extract text snippets which contain an exemplar (RPA workflow 3).	Automated
4. Data transformation	4.1 Subdivide text files into component parts and extract corresponding to metadata of interest (article title, source, publisher, and article text) (RPA workflow 4).	Automated
	4.2 Develop token lists through manual review that correspond to variables of interest (location – state, county and town; date – day, month, year; and armed actor involved).	Manual
	4.3 Extract tokens from text snippets containing exemplars (RPA workflow 5).	Automated
	4.4 Compile metadata and token extractions into single data file. Manually review each event, de-duplicate events, and manually code information gaps where possible.	Manual

4.5.1 Event specification

The first step of the data collection process was specifying which events constituted secondary modalities of violence against civilians. This begins by

establishing the *concept* of secondary modalities of violence against civilians, then determining the *measurement* of this concept, and finally the *operationalisation* of the concept for data collection.

First, as outlined in the theoretical framework chapter, the *concept* secondary modalities of violence against civilians refers to acts which use force to damage or deny access to civilian objects which can subsequently lead to physical harm. This concept of secondary modalities of violence against civilians builds on international humanitarian law which outlines protection against objects indispensable for survival of the civilian population. As stated in the Protocol Additional to the Geneva Conventions (Protocol II) – 'It is therefore prohibited to attack, destroy, remove or render useless, for that purpose, objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock, drinking water installations and supplies and irrigation works' (International Committee of the Red Cross, 1977, Article 14).

The concept of secondary modalities of violence against civilians differs from IHL in two important respects. First, the concept of secondary modalities of violence against civilians goes beyond those resources explicitly cited in the concept of objects indispensable for survival – food agricultural areas, livestock, water, and irrigation resources. The use of the language 'such as' suggests that this is not an exhaustive list and the theoretical framework of this thesis aligns with legal scholars that the 'such as' language of Article 14 extends the scope of objects indispensable for survival to include objects beyond those explicitly stated (International Committee of the Red Cross, 1977b). Second, central to the concept of objects indispensable for survival is the need to prove both the indispensability of an object and the intention of starvation of the civilian population through the attack on the object. While these thresholds to prove

intentionality or indispensability are central to determining criminal accountability (Global Rights Compliance, 2019), events of secondary modalities of violence against civilians are not limited to those acts of violence attacking civilian objects which seek to starve civilians or attack exclusively those objects without which a civilian would certainly or immediately die.

Second, as a result of the definition of secondary modalities of violence against civilians, the *measure* included two components. First, the use of force against civilian objects and second, the objects themselves. The objects within the scope of secondary modalities of violence against civilians whose destruction or denial of access to can potentially lead to physical harm are foodstuffs, agricultural areas, bedding, clothing, crops, livestock, drinking water installations, irrigation infrastructure, medical supplies, and shelter.

Finally, the measure above was *operationalised* for data collection. The terms cited in the preceding paragraph form the basis for determining inclusion in the dataset, but greater specificity was needed to execute the data collection. To be captured as a potential event of interest, reporting language needed to include a reference to violence (verb term) carried out against a civilian object (object term). Given that reporting sources likely do not use the exact language of IHL, the ten objects are included in the key search terms of the data collection along with their synonyms (e.g. references to 'shelter' also include the search terms dwelling, home, house, hut, residence, shack, and tent). This helps to ensure that the subsequent data collection phase captures the broadest range of reporting on these events and subsequently prevents the exclusion of instances of secondary modalities of violence against civilians in the dataset.

In addition to synonyms of these ten objects cited within the concept's measurement, the search terms also include terms that indirectly refer to these objects.

The first of these is the inclusion of the concept of objects indispensable to survival to capture broader references to these objects where a specific object is not specified. Second, the term humanitarian is included to capture violence directed at humanitarian installations. As highlighted in Article 69 of Protocol I of the Geneva Conventions, humanitarian organisations are tasked with providing civilians with objects indispensable for survival (International Committee of the Red Cross, 1977b). To capture all events that use force to destroy or impede access to civilian objects, attacks on humanitarian installations are included. Finally, terms that refer to larger or community-level objects are also included (e.g. city, community, town, and village). A table which visualises the concept, measure, and operationalisation of secondary modalities of violence against civilians can be found in Appendix B.

4.5.2 Data collection

Phase 2.1 began by drawing unstructured text data from the news aggregation database LexisNexis (also referred to as Nexis Advance) which offers approximately 40,000 news sources from 200 countries, including national, regional, international, and non-profit sources (LexisNexis, 2023). Articles were drawn from the database by applying two filters to LexisNexis' user interface – first, a date range of December 1, 2013 to December 31, 2022 and second, the Boolean Search String shown in Table 3. The Boolean search string combined the verb and object term components of events of secondary modalities of violence against civilians, identifying articles that a) referenced South Sudan and b) contained at least one verb term and one object term within 20 words of each other. This includes terms containing an asterisk, as shown below, to denote multiple variations of a word (e.g. attack* = attacked, attacks, etc.). This search isolated an initial body of 67,870 potentially relevant articles. Retrieval of the initial

body of 67,870 articles was completed manually through the download feature of LexisNexis' user interface as it is prohibited to access any information in LexisNexis through automated means (LexisNexis, 2023).

Table 3 – Data collection parameters

Verb term	Attack, destroy, remove or render useless
Object term	Foodstuffs, agricultural areas, crops, livestock, drinking water installations, irrigation infrastructure, clothing, bedding, shelter, and medical supplies
Search string	"South Sudan*" w/150 (ambush* or attack* or bomb* or burn* or damag* or depriv* or destr* or harm or harmed or harms or harming or imped* or loot* or obstruct* or shell or shells or shelled or shelling or shoot* or shot or starv*) w/20 (agricultur* or bed or beds or bedding or cities or city or clinic* or clothes or clothing or communit* or crop* or dwell* or farm* or food* or garden* or "health center*" or "health centre*" or "health post" or herd* or home or homes or hospital* or hous* or humanitari* or hut or huts or irrig* or livestock or medical or "object* indispensable for survival" or plantation* or provision or provisions or ranch* or ration or rations or residence* or shack* or sustenance or tent or tents or tented or town* or village* or water*)
Operators	Near (e.g. within 150 words = w/150; within 20 word = w/20)
Date range	December 1, 2013 – December 31, 2022
Language	English
Source	LexisNexis

Following the identification of these articles, each was downloaded into a Microsoft Word file. To remove extraneous formatting (fonts, images, icons, etc.) and standardise each article, I developed and deployed the first of five RPA workflows to convert each article from a Word document to a text file (.txt) (Phase 2.2).

Subsequently, using the second RPA workflow, the text snippets containing the verb and object terms combinations were extracted from these text files and exported into a spreadsheet, producing a total of 164,418 text snippets (Phase 2.3).

4.5.3 Data exploration and manual review

The third phase of data collection focused on filtering the volume of collected data and determining inclusion for coding. The goal of this process was to more accurately specify the ways in which events and their component parts were articulated in the unstructured text data. This is carried out through a process referred to as text chunking whereby unstructured text is converted into meaningful units (Dozza et al., 2013), a process used for data extraction from news reporting and other information-rich, text-based data fields (Ahmad et al., 2020; Song et al., 2005; Zhang et al., 2002). For this data, the meaningful unit is the phrase or sentence in an article that specifically describes the event of interest.

The process of text chunking (Phase 3.1) began by reviewing the text chunks extracted during the data collection phase. Using a sample of 3,000 text chunks, I carried out a two-step manual review process – first, determine if the text chunk contained an event of violence attacking civilian objects and second, if such an event is included, identify the shortest phrase that described the event, which represents the meaningful unit – referred to as exemplars (e.g. 'houses were burned' or 'hospital was looted'). This manual review produced a bank of 573 exemplars. The third RPA workflow (Phase 3.2) was developed and deployed to assess text snippets against the manually generated exemplars. The workflow searched each text snippet for the presence of an exemplar and produced a spreadsheet of 14,571 unique text chunks that contained an exemplar. Finally, each text chunk was reviewed and eliminated if it did

not contain an event of violence attacking civilian objects. The completion of this manual review process resulted in a total of 3,786 text chunks that would be coded in the subsequent phase.

4.5.4 Data transformation

The final phase of dataset generation is data transformation. This process converts conflict event data from unstructured text data (currently formatted as a text chunk of an article) into its component variable parts – metadata from the article (article title, publication source, publication date, and text from the body of the article) and event information contained in the text chunk on the date, location, actor involved. This is done through a series of data extraction steps. First, the fourth RPA workflow extracts the metadata from each article (Phase 4.1). To correctly extract the metadata, this RPA workflow was designed to extract based on location. Because the articles had been converted into text files and made uniform, metadata appeared in the same location in each file (e.g. the title appears in the first line of text).

Second, the fifth RPA workflow extracts information from each text chunk on the date, location, and armed actor involved. To correctly extract event data variables, data was extracted based on tokens. Tokenisation is a component of natural language processing which breaks down texts into smaller units, including words, phrases, or characters (Michelbacher, 2013; Vijayarani and Janani, 2016). Sets of token lists were developed (Phase 4.2). Time tokens capture data on the day, month, and year of the event; location tokens capture data on the state, county, and town; and armed actor tokens capture data on the names of armed actors that perpetrated the violent event. Each token list was inputted into the RPA workflow, identifying and extracting the

tokens that appeared in the text, and outputting them into a spreadsheet format (Phase 4.3).

Third, large news coverage of conflict events can lead to event record duplication, necessitating a de-duplication process to maintain dataset accuracy (Örs et al., 2020; Zavarella et al., 2020). While an initial review was able to remove identical text chunks, a second round of manual review was completed to help to ensure that different reporting language was not describing events occurring at the same time and place. Finally, upon completion of the automated data extraction and manual de-duplication, a final round of manual coding and data cleaning was completed to manually code any information gaps where possible and include measures of date and time precision (Phase 4.4).

4.6 Composite dataset descriptive statistics

This section describes the results of the data collection detailed above through descriptive statistics and data visualisation. The first component of this description is a discussion of the distinctions between the two components of the dataset – event data on primary and secondary modalities of violence against civilians. This includes differences in the size and precision of the two datasets. The second subsection provides detail on the temporal and geographic distribution of the two categories of violence, highlighting where distinctions between primary and secondary modalities of violence against civilians occur which are explored further in the subsequent two chapters of this thesis.

4.6.1 Comparing dataset size and precision

Following the completion of the original data collection effort which generated a dataset of secondary modalities of violence against civilians, the two components of the composite dataset can be compared. Table 4 below summarises the data contained in the composite dataset which contains event data on primary modalities of violence against civilians, drawn from ACLED (Raleigh et al., 2010) and secondary modalities of violence against civilians, generated through the semi-automated data collection methodology described in preceding sections of this thesis. The table shows the number of recorded events disaggregated by event type and sub-event type. The count of recorded events is considerably higher for primary modalities of violence against civilians, with a predominant focus on attacks against civilians (comprising 76 percent of reported events). As discussed in greater detail in the section below on bias in event data, secondary modalities of violence against civilians are likely to be comparatively less newsworthy than primary modalities of violence against civilians as they do not target civilians directly (Croicu and Eck, 2022; Tai and Chang, 2002). As both components of this composite dataset draw on news reporting as primary sources, a lower volume of reported information on secondary modalities of violence against civilians aligns with these potential biases. Recognising this limitation, subsequent analysis utilises quantitative and qualitative methods that enable within-category comparison.

It is important to note that events of primary and secondary modalities of violence against civilians can be recorded at the same time, carried out by the same armed actor. For example, if an armed actor enters a given village and both burns homes and attacks civilians in the same day, these are counted as distinct events. The subsequent analyses of this thesis test if there are meaningful distinctions between these

categories of violence. As such, they are counted as co-occurring but distinct events rather than a single event.

Table 4 – Count of recorded events by event type and subevent type

Event Type	Event Subtype	Count of Recorded Events
Primary VAC	Attacks	2,799
	Sexual Violence	325
	Abduction/Forced Disappearance	302
	Total	3,426
Secondary VAC	Attacks on Civilian Property	746
	Attacks on Communal Objects	338
	Total	1,084
All Events	Total	4,510

Measures of precision are included in both components of the dataset. For both primary and secondary modalities of violence against civilians, time precision refers to the level of detail available about when an event occurred, with '1' representing the highest level of precision (specific date reported), '2' representing a moderate level of precision (reporting proximate to a rough date or time period), and '3' indicating that an event took place sometime within a month. Specifically for data on secondary modalities of violence against civilians, time precision coding extends ACLED's precision codes (ACLED, 2023a) two steps further to include a time precision code '4' for events where source material indicates they took place in a range of months, such as a given season, and a time precision code '5' for events where source material indicates that an event occurred in a given year but provides no additional detail. Where temporal analysis is conducted in subsequent chapters, only data with a time precision of '3' or lower are included.

For both primary and secondary modalities of violence against civilians, geo-precision refers to the level of detail available about where an event occurred. As above, geo-precision codes 1-3 align with ACLED's spatial precision (ACLED, 2023a). If the source material indicates a specific location or coordinates are available, a geo-precision code '1' is recorded. If the source material indicates either a) the specific county in which an event took place or b) indicated that an event took place in a small part of a region or mentions a general area that can be identified as located within a county but is not sufficiently detailed to indicate a precise location, a geo-precision code '2' is recorded. If the source material mentions a larger region, the closest natural location or provincial capital is used, and a geo-precision code '3' is recorded. Spatial precision coding for secondary modalities of violence against civilians extends ACLED's precision codes one step further to include a geo-precision code '4' for events where source material indicates they took place in South Sudan, but no further geographic information is available. Where spatial analysis is conducted in subsequent chapters, only data with a geo precision of '3' or lower are included. A complete description of coding decisions and event definitions is available in the codebook for dataset generation found in Appendix C of this thesis.

Table 5 compares the precision of both categories of violence. The precision of both temporal and geographic information is on average lower for the second category of violence, with a greater difference in temporal precision (a difference of 1.08) as compared to geo-precision (0.06). This difference is in part driven by divergences in coding procedure – data collection on secondary modalities of violence against civilians includes a score of '4' for geo-precision and '4' and '5' for temporal precision while ACLED stops at '3.' A total of 30 events of secondary modalities of violence against civilians (2.8 percent of events) has a geo-precision measure higher than '3'

while 196 events of secondary modalities of violence against civilians (18 percent of events) has a time precision measure higher than '3.' The greater difference in temporal precision for primary modalities of violence against civilians as compared to secondary modalities of violence against civilians suggests a greater focus on reporting that an event occurred rather than the specificity of when this event occurred. Recognising this lower level of geo-precision and time precision for secondary modalities of violence against civilians, subsequent analysis selects units of measure that are sufficiently granular to test theories of violence without requiring the exclusion of large portions of the dataset.

Table 5 – Summary statistics of time and geo-precision

	Primary VAC	*Secondary VAC*	*Primary VAC*	*Secondary VAC*
	Time Precision		**Geo-Precision**	
Mean	1.39	2.34	1.59	1.63
Median	1	3	2	1
Mode	1	1	2	1
Standard Deviation	0.66	1.21	0.53	0.87
Minimum	1	1	1	1
Maximum	3	4	3	4
Count	3,426	1,084	3,426	1,084

4.6.1 Descriptive statistics

This subsection provides an initial comparison between events of primary and secondary modalities of violence against civilians, including disaggregation of the dataset state, quarter, proportion of events, and a national level map of events. Table 6 shows the distribution of recorded events of primary and secondary modalities of violence against civilians across the largest geographic administrative unit – the state,

including the 10 states of South Sudan and the disputed Abyei region along the border of Sudan and South Sudan.

Table 6 – Primary and secondary VAC by state

State	All VAC	Primary VAC	Secondary VAC
Unknown (South Sudan)	30	0 *(0%)*	30 *(100%)*
Abyei	132	110 *(83%)*	22 *(17%)*
Central Equatoria	966	816 *(84%)*	150 *(16%)*
Eastern Equatoria	361	321 *(89%)*	40 *(11%)*
Jonglei	701	502 *(72%)*	199 *(28%)*
Lakes	355	334 *(94%)*	21 *(6%)*
Northern Bahr El Ghazal	57	49 *(86%)*	8 *(14%)*
Unity	661	387 *(59%)*	274 *(41%)*
Upper Nile	291	202 *(69%)*	89 *(31%)*
Warrap	288	236 *(82%)*	52 *(18%)*
Western Bahr El Ghazal	239	183 *(77%)*	56 *(23%)*
Western Equatoria	429	286 *(67%)*	143 *(33%)*
Total	**4510**	**3426**	**1084**

Colour in the table provides a scale of the event count – the lightest shade of green indicates a lower number of recorded events and the darkest shade of green highlights where the greatest number of recorded events occurred by state. This table indicates some initial divergences in geographic patterns of violence against civilians. While the greatest concentration of primary modalities of violence against civilians was in Central Equatoria, Jonglei, and Lakes states, this occurred in Unity, Jonglei, and Central Equatoria states for secondary modalities of violence against civilians. This indicates some similarity in the location of violence, with high levels of primary and secondary modalities of violence against civilians in Central Equatoria (where the capital Juba is located) and Jonglei but suggests that the geographic distribution of

primary and secondary modalities of violence against civilians is not uniform. Similar differences can be found when comparing states with the lowest levels of primary modalities of violence against civilians (Primary VAC) (Northern Bahr El Ghazal, Abyei, and Western Bahr El Ghazal) and secondary modalities of violence against civilians (Secondary VAC) (Northern Bahr El Ghazal, Abyei, and Lakes), with some clustering of areas of low levels of violence against civilians but distinctions in the geographical distribution between the two categories of violence. These patterns are further visualised in Figure 3 below, which shows a bar chart of primary and secondary modalities of violence against civilians by state.

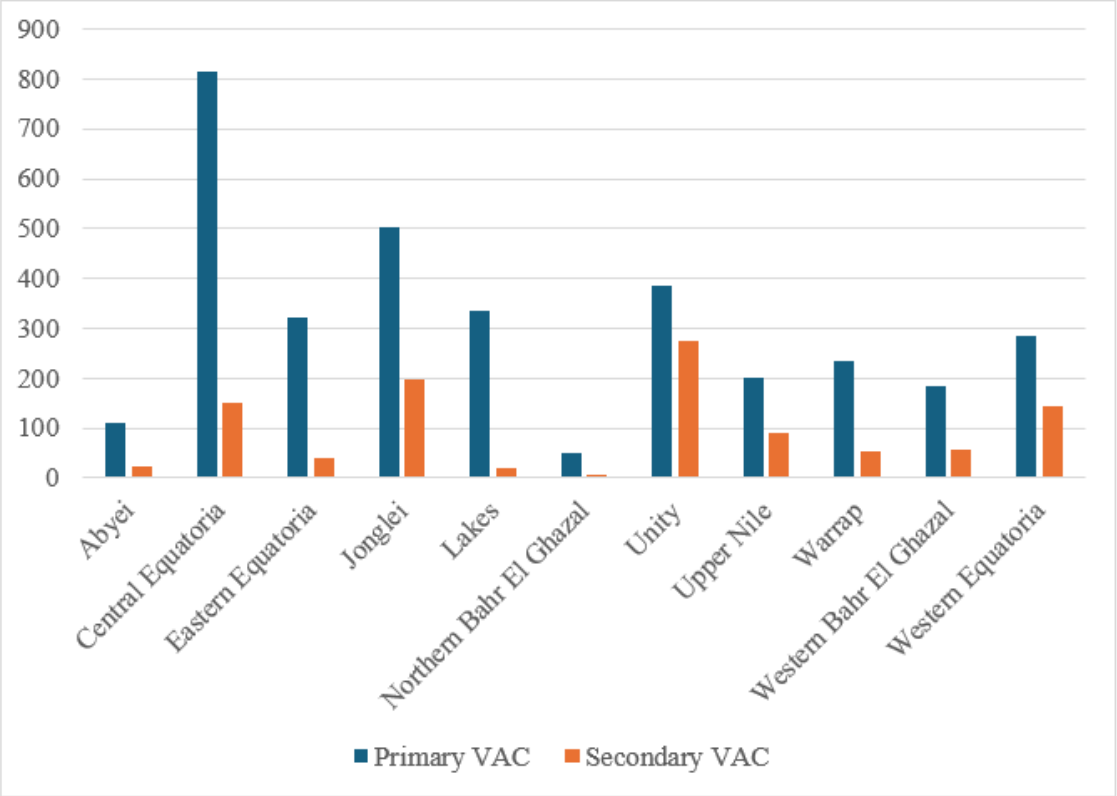


Figure 3 – Primary and secondary VAC by state

These distinctions can also be seen when mapping the occurrence of events by latitude and longitude. Figure 4 below shows a map of events of primary and secondary

modalities of violence against civilians, indicating with the size of the circles mapped the quantity of events that occurred in a specific location. This map was generated using the latitude and longitude of event data with a geo-precision of '1' or '2.' These events where then mapped in R against the administrative boundary shapefiles of the largest administrative unit (state) (IMWG et al., 2024). As initially indicated in the table above, this map shows a concentration of events of secondary modalities of violence against civilians in locations across Unity and Jonglei states, while larger concentrations of events of primary modalities of violence against civilians are found across Warrap, Lakes, and Central and Eastern Equatoria. While there are distinctions in the geographic distribution of violence against civilians, it is clear that there are multiple locations where violence was particularly intense and primary and secondary modalities of violence against civilians co-occurred.

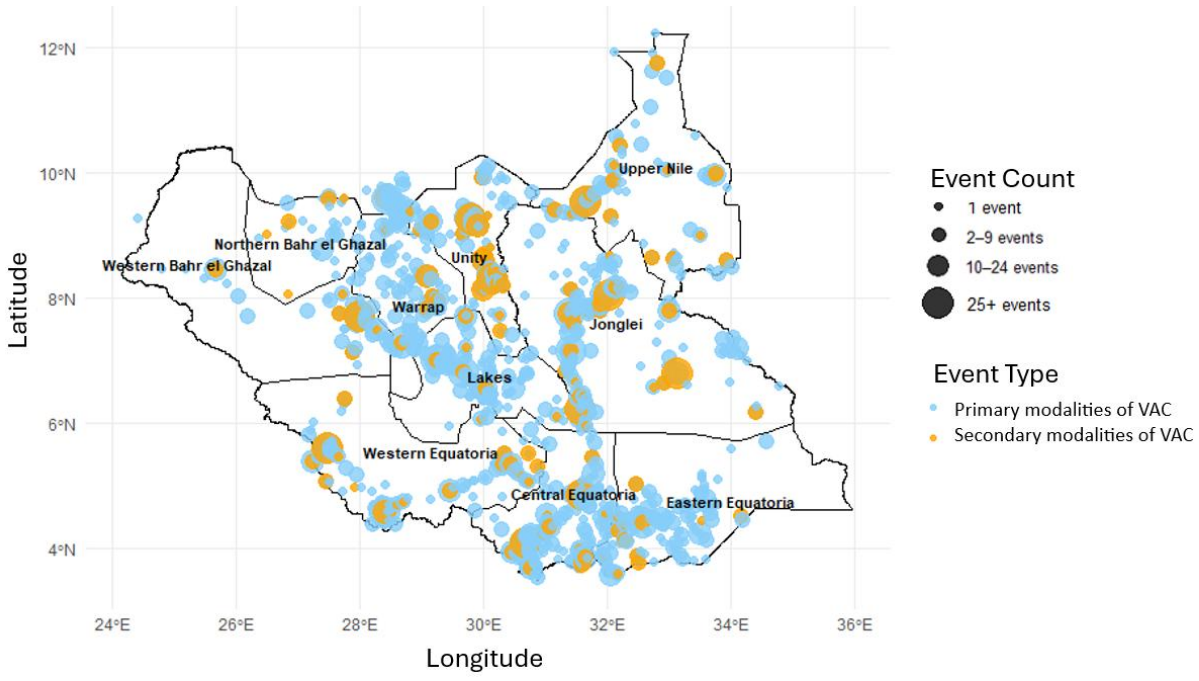


Figure 4 – Map of events of primary and secondary modalities of VAC

Figure 5 shows of recorded events of primary and secondary modalities of violence against civilians over time. This graph was developed by aggregating event data by month and visualising the count of events per month, disaggregated by primary and secondary modalities of violence against civilians, using Tableau. The two trend lines indicate the number of recorded events for each category of violence, aggregated by month. The data visualisation shows that primary and secondary modalities of violence exhibit similar increases in the frequency of events, sharing five of the six largest spikes in recorded events (2013, 2015 (2 spikes), 2016, 2017, and 2021). However, national level patterns of violence between the two categories do diverge during certain periods, notably at the end of 2015 and the beginning of 2021.

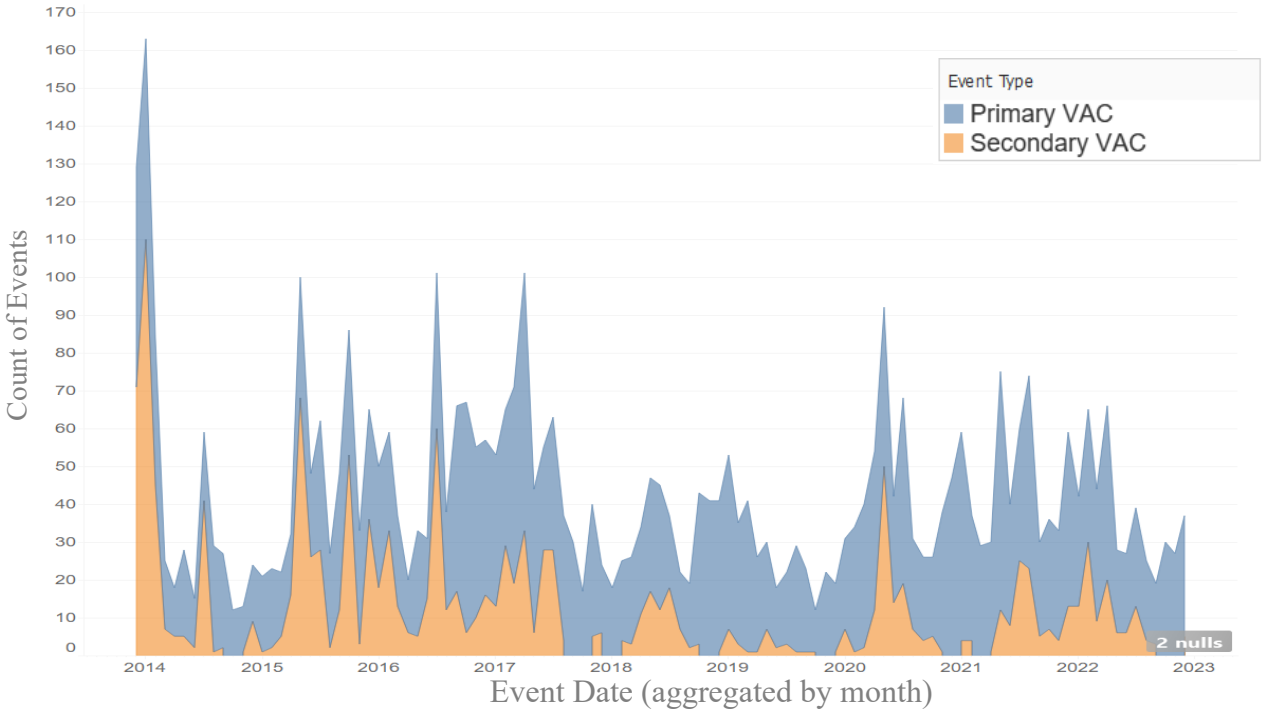


Figure 5 – Reported events of primary and secondary VAC over conflict duration

Figure 6 disaggregates the dispersion of recorded events over time to show the proportion of primary and secondary VAC that occurred in each quarter. This graph was

developed by aggregating event data by quarter and visualising the proportion of total recorded events of violence against civilians, split between primary and secondary modalities of violence against civilians, using Tableau. Because the absolute number of recorded primary VAC events exceeds secondary VAC considerably, 3426 as compared to 1084, recorded events of primary VAC would be expected to take up the greatest proportion of events throughout the civil war. However, there are several instances during the South Sudanese civil war when secondary VAC accounts for up 50 percent (or greater) of the recorded events – 2013 Q4, 2014 Q1, 2015 Q2, and 2015 Q4, underscoring again that the occurrence of primary and secondary modalities of violence against civilians is not uniform. These shifts in the proportion of primary and secondary modalities of violence against civilians over the timespan of the civil war may serve as an initial indication that armed actors may carry out different modalities of violence as conflict environments shift.

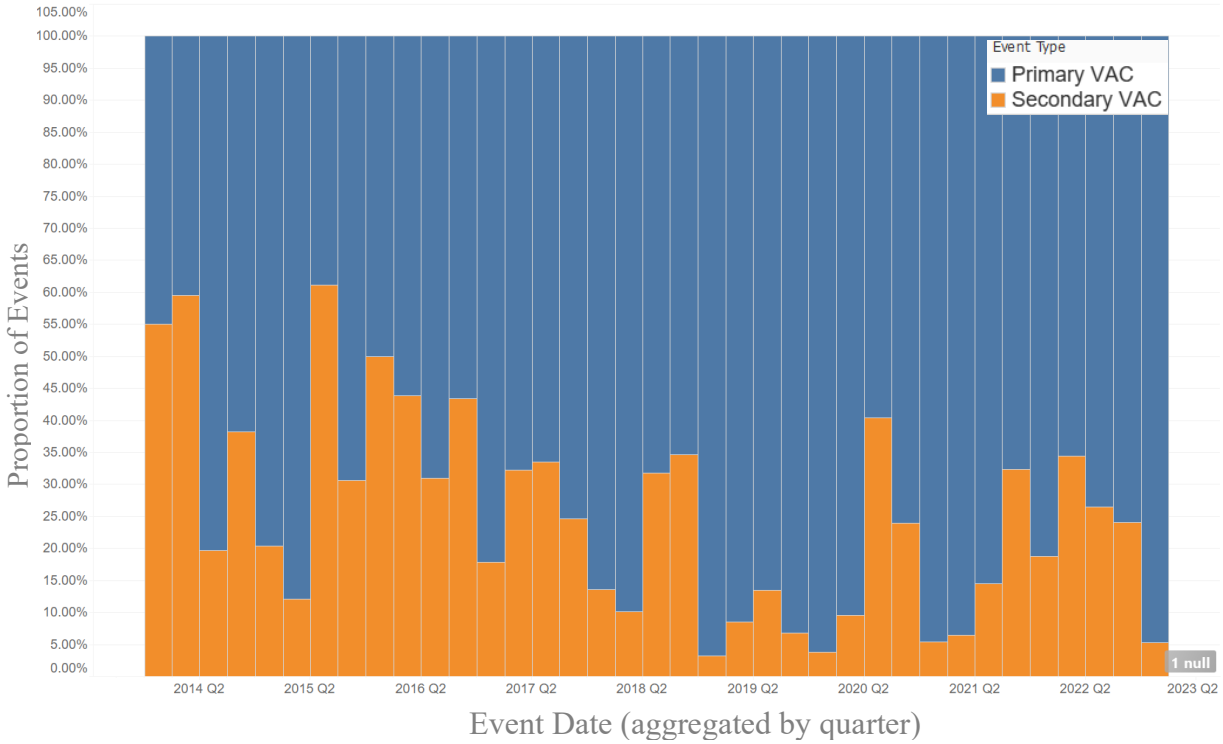


Figure 6 – Proportion of reported events of primary and secondary VAC by quarter

These descriptive statistics and data visualisations show macro-level trends of violence against civilians. They point to the potential diversion in patterns between the two categories of violence, with observed differences in the geographic and temporal dispersion of events. These patterns are explored in greater detail in the subsequent chapters of this work, examining the distinct relationship between subnational contextual factors on the occurrence of primary and secondary modalities of violence against civilians.

4.7 Ethics

Desk research based on conflict event data does not engage directly with research participants. While this approach avoids placing additional emotional strain on those that have experienced violence, there are still important ethical challenges presented by desk research using event data on violent conflict. Ethical concerns related to desk research using conflict event data can be broken down into two groups – first, before use by the researcher when data is being gathered by primary sources and second, after use when data and research conclusions are shared.

In the extraction of primary source data, consideration of research participants is essential. Desk research on conflict event data does not have direct research participants and as a result, is not typically subject to university internal review boards (Hoover Green and Cohen, 2021). However, meeting the standards set forth by university ethnics review boards can still be insufficient in work with vulnerable populations (Subotić, 2021). In particular, who is considered a research participant can be much broader than those individuals who engaged directly with researchers or reporters collecting data. There are potential 'unintended research participants' of this analysis – individuals that are not directly participants but could be negatively affected

by the research process, publication, or access of data (Brigden and Gohdes, 2020, p. 256). Conflict event data rely principally on news outlet reporting and aggregate conflict data into incident lists (Lacina and Gleditsch, 2005; Raleigh et al., 2010; Salehyan et al., 2012), a best practice for collection of granular event data (Davenport and Moore, 2015). Unfortunately, it is not possible to fully know if journalistic sources collect information from human subjects ethically. This has been a documented issue in political violence reporting (Hoover Green and Cohen, 2021).

Similarly, there are multiple ethical considerations that involve the impact of conflict event data, including immediate and long-term concerns as well as the commitment to do no harm. This thesis does not collect any personally identifying information and the data does not link individual responses (as they are not collected) with participants' identity. However, there is a risk that this data in a wider conflict event data environment could facilitate the de-anonymisation of data, posing a danger to research participants and the broader group of unintended research participants identified above (Krystalli, 2018). Concerns over the impact that data may have on research participants or the communities they represent does not end at the time that research is published. Parkinson and Wood (2015) highlight that while data may present minimal risk at the time of collection or research dissemination, it cannot be assumed that this context will remain constant in the future, suggesting that in uncertain information environments it may be best practice to avoid sharing data that can lead to individual identification regardless of present circumstances.

In the context of South Sudan where security concerns have been persisting for decades, it will be even more salient to think about the long-term impacts of this data being publicly available. At the time of writing this, violence has risen, including violence against civilians, and the UN peacekeeping mission in South Sudan has raised

concerns about a return to civil war (Mishra, 2025; United Nations, 2025). With a history and current context of instability, this research will limit the distribution of the dataset generated for this thesis and ensure that any future dissemination strategy prioritises the safety of the broader research participant community.

Do no harm remains a fundamental tenet of this research. It would be illogical and unethical to conduct research on harm to civilians if the research itself can cause further harm. As such, this research includes parameters to mitigate any harm from the data analysis and distribution of its findings. This includes critically evaluating subsequent analyses to ensure that they are unlikely to mislead any relevant stakeholders about patterns of violence, implications of the research, or uncertainties about findings, including individual research subjects or the communities they represent, networks of victim communities and their advocates, local, national, or international humanitarian actors or policy communities, or fellow researchers (Hoover Green and Cohen, 2021). This risk includes highlighting patterns that emerge from data which unintentionally substantiate a certain political perspective (Hoover Green and Cohen, 2021). To this end, this research ensures transparency about source data and data collection processes, iteratively builds a dataset in a way that allows for oversight in the automation process, considers carefully the limitations of this analysis, and limits dissemination of data where necessary.

4.8 Bias in data

There is bias present in conflict event data that impact both existing and original data sources in this research. Media reports have become an important data source for large data collection efforts on violence despite well-known coverage biases in reporting, including two key biases. First, a description bias, whereby events are

portrayed differently depending on the reporting sources, and second, a selection bias in which media outlets choose what to report on, having greater interest in certain topics over others (Earl et al., 2004; Weidmann, 2016). These forms of reporting bias are not uniformly present across all conflicts so there is similarly no uniform way to determine the extent of reporting bias, requiring strong contextual knowledge of reporting sources and mechanisms on the ground for producing violence (Hollenbach and Pierskalla, 2017). In particular, international and foreign media sources are vulnerable to bias and are unreliable as a sole source of conflict event data. Foreign media sources regularly produce stories that are more aligned to reader interest rather than the occurrence of conflict (Tai and Chang, 2002) and changes to conflict environments often influence the ability of journalists to report in a consistent manner (Dorff et al., 2023).

Reporting bias can significantly impact the data produced and are often influenced by trends unrelated to the phenomenon of interest. Research groups that specialise in the collection of political violence data have indicated that there is not a single reliable source (Price and Ball, 2014). For this reason, this research uses information from a variety of sources at the international, national, and local level to generate the most reliable information on true conflict trends. This approach mirrors ACLED's sourcing strategy which aims to draw on a variety of source types, particularly local and subnational sources, to increase data reliability and quality control and reduce bias (ACLED, 2024).

Bias in conflict event reporting results in measurement error in the data it subsequently produces. This can occur in three ways: omission, where insufficient attention to or coverage of violence results in events that did occur not being covered or captured by the data; inflation, where excessive reports, including duplicate reports or

the inclusion of non-events is reported or captured in the data; and misrepresentation, where events are captured that are based on incorrectly reported information which is often a concern when relying on sources that have a high mistake rate or when the research team is unable to triangulate reporting or sources to confirm the accuracy of the information (Miller et al., 2022). Inflation is particularly a concern in the area of automation of data collection and generation where unmonitored coding procedures inaccurately capture the scale, context of an event, or meaning of the reporting language used (Raleigh and Kishi, 2023). To mitigate this bias, the data collection methodology of this research takes a semi-automated approach that includes researcher oversight in coding practices.

This research takes several steps to emulate best practices that address bias in event data and work to maintain internal reliability and external validity. First, to address any uncertainty in data and data sources, this chapter transparently details the primary data sources and the process of generating data (Chaudhry, 2019; Clark and Sikkink, 2013). Second, this chapter and data collection codebook located in the appendices explicitly articulate the coding practices and decisions of the dataset, and clearly describe its parameters for inclusion and exclusion, including how data collection protocols were designed to capture relevant events (Davenport and Moore, 2015; Miller et al., 2022; Salehyan, 2015). Third, in the subsequent section, this research acknowledges the limitations of this thesis and where biases persist (Miller et al., 2022), including limitations around sourcing language (Raleigh et al., 2023) and how any unresolved biases impact conclusions and inferences drawn from the dataset (Hoover Green and Cohen, 2021).

4.9 Limitations

There are several limitations to this research that are important to highlight. This includes limitations posed by the design, case selection, and data of this thesis that will have implications for the conclusions of this analysis.

First, there are limitations to an analytical approach based on conflict event data. While the coding of conflict information into descriptive and spatiotemporal variables is essential to facilitate quantitative analysis, instances of violence are reduced from a richer context to variables and numbers. As such, the conflict event dataset developed for this research cannot speak to the lived experiences of civilians nor properly represent the pain and suffering that violence has inflicted at the individual or group level (Pérouse de Montclos, 2016). Furthermore, the conflict event data included in the dataset of this thesis does not represent the full universe of primary and secondary modalities of violence against civilians that occurred during the South Sudanese civil war. This, like all conflict event datasets, is a sample of conflict events.

As discussed in the bias section of this chapter, this conflict event dataset relies on reporting of conflict events. Data can only be included in this analysis if it was first reported. With quantitative research based on conflict event data, there remains a risk of false precision – although numerical estimates of hard to measure phenomena may appear to be more rigorous than qualitative descriptions (Hoover Green and Cohen, 2021), quantitative data on conflict events will never capture all instances of violence and will never randomly sample the full universe of violence. Steps to mitigate the bias present in the data have been taken and quantitative analysis is complemented by qualitative case study description of subnational patterns. However, in line with best practices from other research groups, including the Uppsala Conflict Data Program and Human Rights Data Analysis Group (Human Rights Data Analysis Group, 2023;

Uppsala University, 2023), this research includes an explicit acknowledgement of the risk of false precision and the data collection limitations of this research.

Second, due to the researcher constraints for data collection highlighted in the case selection section of this chapter, this research analyses a single case study which is limited by the language capabilities of the sole researcher. In order to review primary source data, the case study must demonstrate comprehensive reporting in English across a variety of sources, not just international news reports. Data mapping of existing conflict event data sources demonstrates that news reporting at the local, national, and international levels in South Sudan is frequently available in English (Raleigh et al., 2010) with similarly extensive reporting from governmental and non-profit sources at the international level available in English.

Furthermore, while a single case study design presents advantages to internal validity, there are limits to the external validity of the analysis (Halperin and Heath, 2020). South Sudan is an extreme case (Gerring, 2008) for the study of primary and secondary modalities of violence against civilians because preliminary data and extensive reporting indicated high use of various modalities of violence across the geographic scope and timeline of the civil war. However, the South Sudanese civil war is not necessarily representative of other civil wars. While the case selection of an extreme case is well-suited for the hypothesis-testing, it also limits the generalisability of the findings, providing only conditional evidence that the causal mechanisms identified are relevant to other cases of civil war (Gerring, 2008).

There are several factors, including the contestation of central or national level political power (Arnold and LeRiche, 2013; Johnson, 2014), a history of recurrent violent conflict that created long-standing grievances that shape the dynamics and mobilisation for violence (Arnold and LeRiche, 2013; Jok and Hutchinson, 1999;

Nyaba, 2019); evidence of ethnic-based violence (Garang, 2020; Johnson, 2014; Pedneault, 2017; Raleigh et al., 2010); and a severity of civil war in resource-constrained settings that could precipitate acute food insecurity and famine (Devi, 2017; O'Driscoll, 2018; Olsen et al., 2021), which shaped the South Sudanese civil war. While many of these factors appear in other contemporary civil wars in the region (Ahmed, 2024; Akande and Gillard, 2019; Bapolisi et al., 2021; Bitenga Alexandre et al., 2021; Medani, 2024; Olanrewaju and Balana, 2023; Tuki, 2025), the case of South Sudan is not universally representative. As a result, the conclusions of this analysis will be able to speak to the patterns of primary and secondary modalities of violence against civilians in civil wars, including the South Sudanese civil war and cases with these similar contours (Gerring, 2009). This research serves as a basis to test theories of primary and secondary modalities of violence against civilians in civil wars, demonstrating the value of distinguishing between categories of violence against civilians and opening space for future research to test these findings cross-nationally.

Third, as discussed in the bias section of this chapter, this data collection draws on existing news reporting sources that can be biased towards providing news coverage on topics that are deemed newsworthy (Tai and Chang, 2002; Dorff et al., 2022). It is possible that primary modalities of violence against civilians can be deemed as more newsworthy than secondary modalities of violence, especially when attacks against civilian objects occur on a small scale (e.g. the murder of a civilian as compared to the destruction of a single home). While some research is emerging that explores other sources of information on violence against civilian objects that would not suffer from newsworthiness bias, including satellite data and nighttime lights (Bara and Sticher, 2025; Dietrich et al., 2025; Sticher et al., 2024), these data projects remain, at present, in an exploratory stage. While the potential impact of selection bias within news

reporting cannot be fully eliminated, this research has taken mitigation steps by including event scale. The event scale measure indicates if an event of secondary modalities of violence against civilians was an attack on a single civilian object (1), an attack on multiple objects in a single location (e.g. multiple houses in a town burned) (2), or an attack across multiple locations without precise information om the number or location of events (e.g. multiple nearby villages were burned) (3). The inclusion of this measure facilitates a comparison of intensity of violence between primary and secondary modalities of violence against civilians where a raw count may not be sufficient comparison.

4.10 Conclusion

This chapter presented the data collection methodology of a composite dataset on primary and secondary modalities of violence against civilians. The methodology developed a composite dataset of event data on primary and secondary modalities of violence against civilians, including information on including date, location, description of the event, and actor involved. The methodology focused on the identified gap in conflict event data on secondary modalities of violence against civilians, detailing the processes of an original data collection effort to identify and code data on secondary modalities of violence against civilians. The original data collection effort of this thesis utilised a semi-automated approach, combining researcher-led processes with automation of repetitive, rule-based tasks through RPA software. This approach builds on existing work of automated data collection in conflict event data, diverting from dominant approaches in automation. First, this methodology eliminates the binary between manual and automated approaches, offering a hybrid approach that combines the accuracy of researcher-led oversight with the efficiency of automated approaches.

Second, the technology used in this methodology moves away from traditional automation software which are complex, standalone systems to a robotic process automation software that is better structured to integrate human-led processes with automated workflows.

Following the completion of this data collection effort, the chapter provided a comparison of the two components of the dataset, comparing first the size and precision of data on primary and secondary modalities of violence against civilians and subsequently offering descriptive statistics and data visualisations that show the geographic and temporal distributions of recorded events. This initial comparison of primary and secondary modalities of violence against civilians indicates that these two categories of violence diverge over time and space, suggesting that the occurrence of violence against civilians is not uniform. How and why these divergences occur is explored in greater detail in the two subsequent chapters of this thesis.

5. Violence Against Civilians and Armed Actor Competition

Recent conflicts such as the South Sudanese civil war have witnessed numerous risks for civilians, with violent political contestation between armed actors resulting in the loss of safety and security for civilian populations. Over the course of the civil war, the South Sudanese people have suffered from violence in a variety of forms. Extensive reporting on the civil war repeatedly highlighted the targeting of civilian populations in varying conflict environments, against different groups, and across conflict hotspots, including high levels of secondary modalities of violence against civilians such as scorched earth tactics of burning, looting, and large-scale property destruction (Bureau of Democracy, Human Rights, and Labor, 2014; Henry, 2014; Human Rights Watch, 2016, 2014b, 2014a; Pedneault, 2017; UNMISS, 2023, 2014; U.S. Department of State, 2023). In spite of the significant risk and long-term human security impacts of attacks on important civilian infrastructure and resources, these modalities of violence against civilians remain comparatively understudied.

Building on the framework presented in chapter 3, this analysis distinguishes between two categories of violence – primary modalities of violence against civilians and secondary modalities of violence against civilians. The findings demonstrate a divergence between the two categories of violence and a connection between armed actor competition and the use of different modalities of violence. In areas with high levels of armed actor competition, armed actors are more likely to carry out violence against civilians. However, the relationship between measures of armed actor competition and different modalities of violence against civilians is not uniform. When considering only primary modalities of violence against civilians, armed actor presence, fluctuations, and use of rival violence against civilians have a significant impact on violence. When considering secondary modalities of violence against

civilians, highly fragmented or saturated conflict environments and increases to armed actor presence over time are not positively associated with violence. Instead, the use of violence against civilians by opposing armed actors has a significant association with violence.

To provide a comprehensive understanding of the dynamics driving violence against civilians, this analysis employs a mixed-methods approach that integrates quantitative regression analysis with qualitative case studies. First, I demonstrate that contexts of armed actor competition have a distinct relationship between primary and secondary modalities of violence against civilians through quantitative models using a single case study – the South Sudanese civil war. Second, I demonstrate how these patterns manifest at the subnational level in key cases of Juba and Rubkona. This chapter is broken into seven sections. Section 1 outlines existing scholarship on armed actor competition and primary modalities of violence against civilians; Section 2 presents the theoretical overview and hypotheses; Section 3 presents the research design; followed by measurement of independent and dependent variables in Section 4; Section 5 details the regression results and Section 6 describes the results of the robustness tests which further strengthen these findings; Section 7 provides a detailed discussion of subnational cases studies, and a conclusion in Section 8.

5.1 Armed actor competition and violence against civilians

The dynamics of civil war are complex, with violence against civilians as a critical consequence of competition among armed actors. The connection between competition and violence against civilians draws on a strategic logic that violence against civilians can be a means for armed actors to realise their goals. From this perspective, violence against civilians by armed actors can vary with changes in the

subnational to competition in the conflict environment (Welsh, 2023). Scholars argue that armed actors use violence to maximise opportunities to obtain political power or relevance (Fjelde and Nilsson, 2012). How armed actors pursue this aim of political power and relevance is shown to vary over time and space (Fjelde and Nilsson, 2012; Weinstein, 2006; Wood, 2003). Armed actors can use violence against civilians as a means to achieve this objective and improve their position in the conflict environment in which they operate (Polo, 2020; Welsh, 2023; Wood, 2010).

In conflict environments with high levels of or increases in armed actor competition, violence against civilians can serve a strategic communication function for armed actors. Scholars have highlighted how violence against civilians can be a tool to attract attention and communicate the strength of the actor and its resolve to keep fighting (Boyle, 2009; Hoffman and McCormick, 2004; Kydd and Walter, 2006). Furthermore, violence can be a tool for political bargaining (Bloom, 2005; Nygård and Weintraub, 2015; Phillips, 2019), imposing political or military costs on opponents (Hultman, 2007), and demonstrating political significance to extract concessions (De Waal, 2014). This communication function can be directed to other armed actors operating in the conflict environment, including opposing armed actors, as well as to civilian populations whose loyalty armed actors may seek (Wood and Kathman, 2015). In highly competitive conflict environments, armed actors seek compete for a population's loyalty in a process called outbidding whereby armed actors increase the frequency and intensity of violence against civilians in an attempt to compete for public support and demonstrate resolve and capacity (Boyle, 2009; Kydd and Walter, 2006). This outbidding can also seek to communicate with other armed actors. In a competitive conflict environment, armed actors use violence against civilians to indicate their primacy over other actors in the space (Dowd, 2019).

Existing literature highlights how violence against civilians can be directly influenced by the level of competition among armed actors (Boyle, 2009; Dowd, 2024, 2019; Raleigh, 2012; Raleigh and Choi, 2017; Welsh, 2023; Wood and Kathman, 2015). Three key mechanisms underscore this relationship. First, high levels of armed actor presence lead to increased violence against civilians (Dowd, 2024, 2019; Welsh, 2023). In areas where large numbers of armed actors are active, violence against civilians tends to escalate. When multiple armed actors vie for control over the same territory or population, they often resort to violence against civilians as a means of communicating and bargaining (Boyle, 2009; Jongman, 2017; Kydd and Walter, 2006; Schelling, 2008). Civilians may be targeted to impose military costs on opponents (Hultman, 2008), increase the armed actor's political relevance to extract concessions (De Waal, 2014), and to communicate the armed actor's capacity and resolve to continue fighting (Hoffman and McCormick, 2004). The logic here is rooted in the strategic utility of violence against civilians – in a highly competitive environment, harming civilians can serve as a tool to communicate and shift the balance of power among armed actors (Raleigh, 2012).

Second, fluctuations in competition produce spikes in civilian targeting (Wood and Kathman, 2015). The intensity of violence against civilians is not constant but varies with shifts in the competitive landscape. Increased presence of armed actors in a conflict environment is shown to lead to spikes in civilian targeting in subsequent months (Raleigh and Choi, 2017). And third, violence against civilians leads to retaliatory violence. Armed actors can become trapped in spirals of violence, where violence against civilians by one armed actor triggers retaliatory violence by others (Coleman et al., 2007; Raleigh and Choi, 2017). When one actor targets civilians, it not only achieves its immediate strategic goals but also sets off a chain reaction, prompting

other actors to respond with similar or escalated violence. The result is a cyclical pattern of violence against civilians, where each act of violence feeds into further aggression, trapping civilians in a persistent and escalating cycle of harm.

In summary, there is strong evidence of the relationship between competition and violence against civilians, highlighting how increases in armed actor competition are positively associated with increases in violence against civilians through presence of multiple armed actors in a conflict environment, fluctuations in armed actor presence over time, and retaliatory violence between opponents. However, current research on the spatiotemporal dynamics of violence against civilians has focused on primary modalities of violence against civilians (Dowd, 2024, 2019; Findley and Young, 2015; Welsh, 2023). While this approach has demonstrated a clear impact of competition on armed actor use of violence against civilians with strong argumentation of the role of violence against civilians as a means of communication (Boyle, 2009; Jongman, 2017; Kydd and Walter, 2006; Schelling, 2008), research has under-considered this communication mechanism and the signalling power of attacks on civilian objects. While the long term and wider-spread impacts of attacks on vital objects and infrastructure is well documented (Afzal and Jafar, 2019; Dowd et al., 2024; Muriuki et al., 2023; Oladayo, 2019), the relationship between armed actor competition and these modalities of violence is as yet untested.

5.2 Theoretical overview and hypotheses

The previous section has illustrated a focus of the effect of armed actor competition on primary modalities of violence against civilians. Increases in armed actor competition are shown to drive incentives for armed actors to employ higher levels of violence against civilians. This includes high levels of armed actor presence

(Dowd, 2019; Dowd et al., 2024; Welsh, 2023), increases in presence over time (Wood and Kathman, 2015), and use of violence by rival actors (Raleigh and Choi, 2017). However, there is a gap in knowledge of how dynamics of armed actor competition impact secondary modalities of violence against civilians. Drawing on research on multiple modalities of violence against civilians, I argue that patterns of primary modalities of violence against civilians differ from secondary modalities of violence.

First, I turn to the relationship between armed actor presence and its fluctuations on secondary modalities of violence against civilians. Extensive research has explored the communication and signalling capacity of violence against civilians in competitive conflict environments. This includes the use of violence against civilians to signal strength and to impose military costs on opponents (Hultman, 2008), to increase the political relevance in a competitive market, enabling armed actors to better extract concessions (De Waal, 2014), and to demonstrate the armed actor's capacity and resolve to continue fighting (Hoffman and McCormick, 2004). In highly fragmented environments with multiple armed actors vying for primacy in a competitive political market and seeking dominance over opponents, armed actors use violence against civilians as a test of militancy (Bloom, 2005), specifically seeking to 'outbid' and 'outflank' other armed actors in the conflict environment (Boyle, 2009). The more spectacular the modality of violence, the more the armed actor is able to reap the benefits of political salience over opponents (Bloom, 2005). While there are various tactics of violence against civilian populations, the most intense and spectacular garner the most press and public attention (Bloom, 2005). By their nature, events of secondary modalities of violence against civilians present less immediate, visible human suffering than modalities of violence with target civilians themselves. These events are comparatively undervalued in their newsworthiness (Croicu and Eck, 2022) and would

therefore serve as a less effective communication tool in highly saturated conflict environments. As a result, I expect secondary modalities of violence against civilians to be less affected by high number of or large shifts in armed actor presence in a conflict environment as compared with primary modalities of violence against civilians.

H1: The occurrence of primary modalities of violence against civilians is positively associated with all measures of armed actor competition.

Second, I consider the connection between use of secondary modalities of violence against civilians by rival armed actors and a resulting increase in the use of violence by their opponents. This mechanism whereby an opposing conflict side's actions against civilians increase acts by the other side has been described as counter retribution or 'tit for tat' (Raleigh and Choi, 2017) and the nature of escalation and intractability of violence is understood through a positive feedback loop – even a slight provocation through violence against civilians can be met with full retaliation (Coleman, 2007). The gap in knowledge, then, is why these patterns of tit-for-tat violence might differ between primary modalities of violence against civilians and secondary modalities of violence against civilians.

Existing scholarship highlights how violence against civilians increases in contexts with high competition, in particular where multiple armed actors engage in profit-seeking behaviour to control available resources (Kathman and Wood, 2016). When faced with active rivalry – opposing armed actors seeking to extract from the same resource pool, armed actors have incentives to secure greater control over local resources (Metelits, 2009). As opposed to primary modalities of violence against civilians which creates a mediating link as a coercive tactic to influence behaviour

around access to these resources, secondary modalities of violence against civilians are a direct link between armed actor aims – controlling or denying opponents resources – and the resources themselves. Therefore, the positive feedback loop which traps rival armed actors in spirals of violence may have a greater impact on modalities of violence directed at civilian objects. Furthermore, many armed actors across low and middle-income countries lack the resource capacity for consistent supply chains to their troops, leading them to live off of the land and resources available where they are present (Koren and Bagozzi, 2017, 2016). As such, civilian objects like food, water, and medicine can become important resources to control. In these contexts, secondary modalities of violence against civilians may not have the communication capacity of other modalities of violence, but attacks directed against civilian objects may have a stronger effect in provoking a retaliatory response for opposing armed actors. As a result, I expect the positive feedback loop of secondary modalities of violence against civilians by rivals to be associated with further violence by its opponent more than that of primary modalities of violence against civilians.

In summary, existing scholarship points to a potential divergence in the outcomes of primary modalities of violence against civilians and secondary modalities of violence against civilians in conflict environments experiencing competition among armed actors, rooted in the capacity of secondary modalities of violence against civilians as a means of communication and an incentive to respond to rival behaviour.

H2: The occurrence of secondary modalities of violence against civilians is positively associated with the use of violence against civilians by rival armed actors, but not with greater numbers of or increases in armed actors in the same conflict environment.

Finally, these hypotheses posit that armed actors shift their targeting of civilians based on group-level strategic incentives associated with variation in armed actor competition. This does not presume that all armed actors adhere to a group-level strategic logic in all instances of violence. Instead, I expect that a general pattern of targeting reveals these tendencies towards group-level strategic incentives even when other explanations such as habituation, opportunistic violence, or revenge are present (Anderton and Ryan, 2016; Boyle, 2010; Manekin, 2013; Souleimanov et al., 2023).

5.3 Research design

I test these hypotheses on data on violence against civilians drawn from a composite dataset of geo-referenced event data. There are two components to this dataset. First, events of primary modalities of violence against civilians which is drawn from ACLED (Raleigh et al., 2010) and second, events of secondary modalities of violence against civilians which was generated through the original data collection effort detailed in the data collection methodology chapter of this thesis. Similarly to data on the dependent variables, data on armed actor competition is available through two sources. First, ACLED, which provides event data on primary modalities of violence against civilians as well as event data on battles and remote violence which facilitate the measurement of armed actor presence and changes in that presence over time (Raleigh et al., 2010). Second, the dataset on secondary modalities of violence against civilians generated as a component of this thesis further supplements data on armed actor presence and provides data on violence against civilians.

The case study selected is the South Sudanese civil war. This period begins in December 2013 when clashes between factions within the South Sudanese military sparked violence in Juba that developed into a full-scale civil war (Johnson, 2014). This

period ends in December 2022, extending beyond the formation of the Revitalised Transitional Government of National Unity (Vhumbunu, 2020) to include the surge in post-peace agreement violence which occurred in South Sudan through 2022 (Chagutah, 2023; Pur, 2022; United Nations, 2022).

The unit of analysis is the armed actor-admin2-year. Taking one of the below case studies as an example, this unit of analysis would be the South Sudanese military-Juba County-2016. Admin2 refers to the sub-national administrative unit – county in the case of South Sudan. This covers a total land area of 642,476 square kilometres, with an average county size of 8,133 square kilometres and population size of approximately 144,000 people based on population counts at the beginning of the civil war (FAO, 2025; WHO, 2024). Using administrative units is the most appropriate for this analysis and its source data. Event data on violence against civilians comes from reporting sources which often lack precise location information (Weidmann, 2016). While approaches using reporting-based data for fine-grained analyses such as grid cells can overestimate the precision of local information (Weidmann, 2015), administrative boundaries, such as states and counties are easily identifiable, have clear geographic boundaries, and align with how events are typically reported (Tollefsen et al., 2012). Furthermore, this level of disaggregation allows for a greater degree of spatial precision than the Admin1 (state) level, which for South Sudan represents an administrative unit that is approximately eight times larger than the Admin2 (county) level. The analysis covers 79 Admin 2 units, including 78 counties within South Sudan and the disputed Abyei region. This excludes any admin2-year units in which no armed actor was active as the aim of this research is to understand how the presence of armed actor(s) in the conflict environment affects behaviour. This follows similar research in counting only active periods (Asal et al., 2015; Dowd, 2024, 2019). This results in a

dataset with a total of 5,056 actor-admin2-year observations, covering recorded activity by the eight most active armed actors in South Sudan between December 2013 and December 2022 – the South Sudanese military and police forces, the Sudan People's Liberation Movement-In Opposition, the National Salvation Front, and the Misseriya, Murle, Nuer, and Rek ethnic militias.

The models are run using Zero-Inflated Negative Binomial Regression (ZINB). ZINB is appropriate for this analysis due to the nature of the dependent variable – count data on events of violence against civilians are characterised by overdispersion and an excess of zero observations. Extant literature suggests that zeros result from two processes – first, structural conditions where events are unlikely to occur, including areas sparsely populated by civilians (Schutte, 2017; Welsh, 2023); and second, occurrences of violence against civilians in contexts with a low probably of such violence such as in a conflict environment with lower levels of competition (Dorff et al., 2023; Gibilisco et al., 2022; Wood and Kathman, 2015). The model includes both mechanisms by combining a zero-inflation process with a negative binomial distribution for overdispersed counts and is therefore well-suited to test the above hypothesis (Bagozzi, 2015; Koren and Bagozzi, 2017).

5.4 Independent and dependent variables

The dependent variables are the count of all, primary, and secondary modalities of violence against civilians by each armed actor per admin 2 per year, respectively *(All VAC, 1 VAC* and *2 VAC)*. Primary modalities of violence against civilians events are events of violence against civilians which based on the operational definitions created by ACLED (Raleigh et al., 2010) and secondary modalities of violence against civilians

events of violence against civilians which target civilian objects and are based on the operational definitions detailed in the methodology chapter of this research.

Independent variables capture the three mechanisms of competition that are associated with increases in violence against civilians – high levels of armed actor presence, fluctuations in armed actor presence, and use of violence against civilians by opponents. First, *Armed Actor Presence* measures the discrete count of armed actors active in the same administrative unit in the same year. Second, *Armed Actor Fluctuations* captures the changes in armed actor presence, measuring the change in number of armed actors present in the same administrative unit between the current and previous year. Third, to capture the use of violence against civilians by rival armed actors, *Rival All VAC, Rival 1 VAC* and *Rival 2 VAC* measure the count of events of all violence against civilians, primary modalities of violence against civilians, and secondary modalities of violence against civilians, respectively, carried out by opposing armed actors in the same administrative unit in the same year. Each of these measures is calculated based on a composite dataset of ACLED event data and data on secondary modalities of violence against civilians which includes both events of violence against civilians and other violent events carried out by armed actors captured through ACLED data (Raleigh et al., 2010).

Control variables are included to control for other explanations of violence against civilians, including *Conflict Duration* to capture the number of years since the start of the civil war (Manekin, 2013; Valentino et al., 2006). A dichotomous measure of *Conflict Presence* captures where an admin2 unit has experienced a violent event between two or more armed actors in the same year to account for the increased likelihood that non-combatants can be harmed during incidents of fighting (Welsh, 2023; Wood and Kathman, 2015). To account for temporal dependence (Dowd, 2019;

Welsh, 2023), the model includes a control variable of events of all violence against civilians, primary modalities of violence against civilians, and secondary modalities of violence against civilians, respectively, carried out by the same group in the previous year *(Time-lagged All VAC, Time-lagged 1 VAC,* and *Time-lagged 2 VAC)*.

Finally, two control variables are included to adjust for the influence of population size and wealth levels on the occurrence of violent events (Buhaug et al., 2011). *Log Population Count* captures a logarithmic measure of the population count per admin2 unit which is captured by WorldPop and available through AidData GeoQuery (Goodman et al., 2019; WorldPop, 2024). As part of its methodology for South Sudan, World Pop incorporates displacement data from the IOM displacement tracking matrix and UNHCR refugee numbers and locations to account for migration patterns in annualised data (Jordan, 2018; WorldPop, 2024). A county-level measure of *Economic Development* is also included to control for the influence of wealth levels. This measure uses a proxy of VIIRS nighttime light levels, tracking annual measures of the levels of light emitted by human settlements in each county (Elvidge et al., 2017) which is shown to serve as a proxy for indicators of economic development (Andries et al., 2023) and provides data that is sufficiently granular to capture the outputs of economic activity and not just capture the presence of populations (Chen and Nordhaus, 2015, 2019; Gibson et al., 2021). This data collected by the Earth Observation Group and is available through AidData GeoQuery (Goodman et al., 2019). All variable definitions and a description of how they were calculated are available in the codebook for armed actor competition regression models in Appendix E of this thesis. Table 7 below shows the descriptive statistics of the independent, dependent, and control variables.

Table 7 – Descriptive statistics

Variable	Mean	Standard Deviation	Min	Max
1 VAC Count	0.21	1.31	0	34
2 VAC Count	0.08	0.79	0	34
All VAC Count	0.29	1.84	0	43
Armed Actor Presence	5.10	3.76	1	20
Armed Actor Fluctuations	0.37	3.67	-15	16
Rival 1 VAC	0.97	3.15	0	39
Rival 2 VAC	0.36	1.78	0	34
Rival All VAC	1.33	4.34	0	56
Time lagged 1 VAC	0.20	1.26	0	34
Time lagged 2 VAC	0.07	0.78	0	34
Time lagged All VAC	0.27	1.79	0	43
Conflict Duration	4.50	2.87	0	9
Log Population Count	5.12	0.33	4.09	6.13
Poverty Measure	0.00	0.01	0	0.12
Conflict Presence	0.66	0.47	0	1

Focusing in particular on the *Armed actor presence, Armed actor fluctuations, and Rival violence against civilians (All VAC, 1 VAC and 2 VAC)* independent variables, Figure 7 below visualises the distribution of each variable, with the Y axis indicating the value of each variable (either the count of armed actors, the change in armed actors present in a conflict environment form one year to the next, or the count of events of violence against civilians). Similar to the dependent variables which demonstrate an excess of zeros, the majority of these variables have a strong, positive skew towards a smaller number of high values (either presence of/changes in armed actors or count of events). The variable *Armed actor fluctuation,* however, which can take on both positive (indicating that armed actors entered the conflict space) or negative (indicating that armed actors left the conflict space) values and has a more even distribution which centres on an average of approximately zero. The variable with

the largest range is *Rival All VAC* which is a combined measure counting all events of violence against civilians by all rival armed actors in a given county-year.

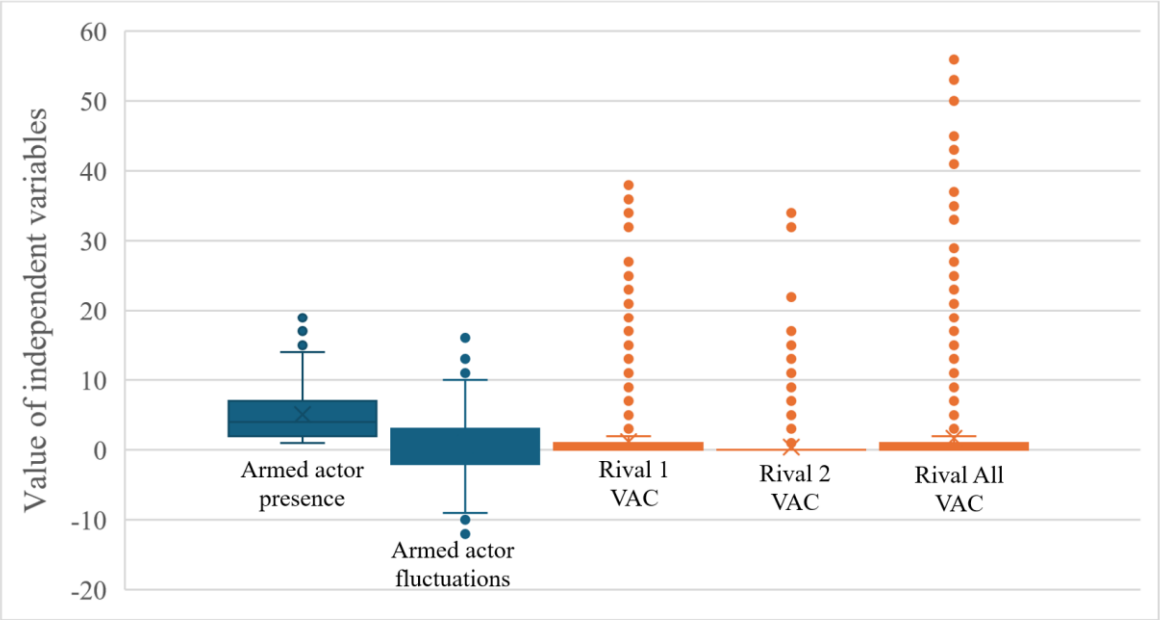


Figure 7 – Box plot of independent variables

5.5 Results

Table 8 provides a summary of the results, summarising the direction of the relationships between the independent variables – armed actor presence, armed actor fluctuations, and rival violence against civilians – and the dependent variables – primary and secondary modalities of violence against civilians. These relationships are further visualised in Figure 8 below which shows the direction, size, and significance of the coefficients of the three independent variables. The figure is colour-coded to indicate where the regression model identified the variable as statistically significant (blue) and not statistically significant (grey), highlighting clearly the divergence in the relationship between measures of armed actor competition and primary and secondary modalities of violence against civilians. Table 9 below provides greater details, outlining the model specifics for each of the four models.

Table 8 – Results summary

	Armed actor presence	Armed actor fluctuations	Rival VAC
1 VAC	+	+	+
2 VAC	*Nul*	*Nul*	+

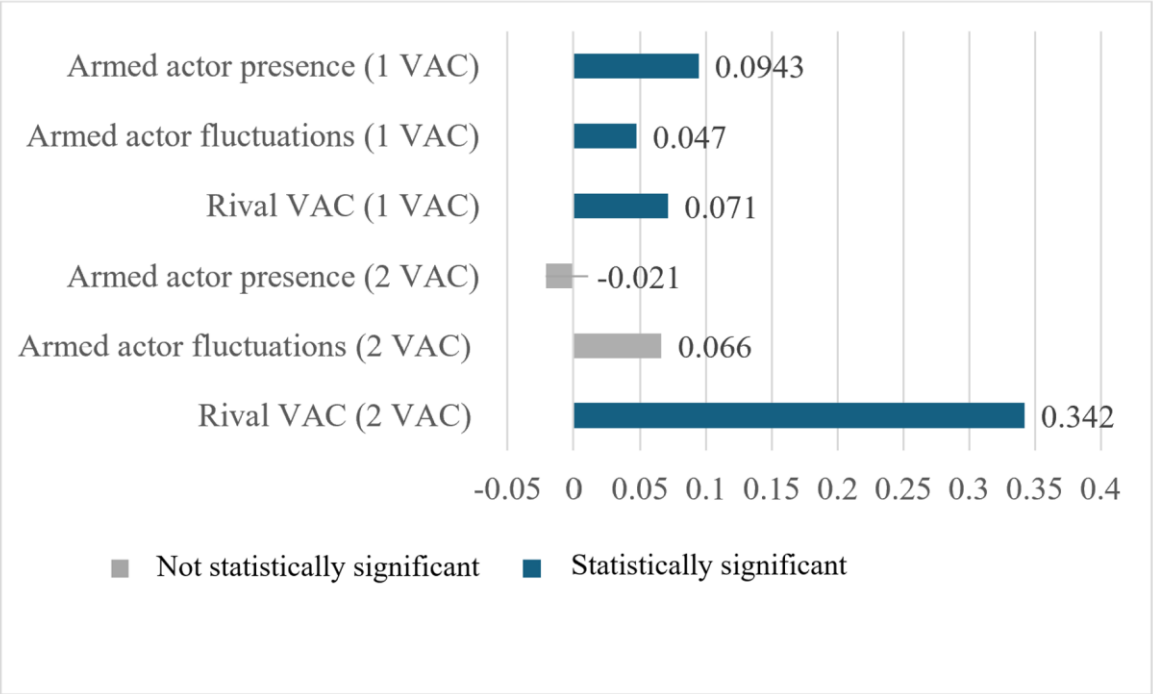


Figure 8 – Bar chart of armed actor competition coefficients

Model 1 serves as a reference group as it tests whether all forms of violence against civilians increase with competition between armed actors. *Armed actor presence* is positive and statistically significant at the level p =< 0.001. Furthermore, increases in the number of armed actors present from the previous year and use of violence against civilians by rival armed actors are similarly statistically significant and positive. As all three measures of armed actor competition are statistically significant and positive, this supports the argument put forth in existing literature that armed actor

competition is likely to be positively associated with increased violence against civilians.

These results shift in Models 2 and 3 – when disaggregating by category of violence against civilians, the association with different measures of armed actor competition diverge. Model 2 tests Hypothesis 1, that armed actors will engage in more 1 VAC where there are high levels of armed actor competition. Results of Model 2 show that there is the statistically significant and positive relationship between the three measures of competition – *Armed actor presence*, *Armed actor fluctuations*, and *Rival VAC* – and primary modalities of violence against civilians. Model 3 tests Hypothesis 2, that armed actors will engage in more 2 VAC where violence against civilians is carried out by rival armed actors. *Rival VAC* is positive and statistically significant at the p =< 0.001 while presence and fluctuations of armed actors are not significant for secondary modalities of violence against civilians. These results lend support to Hypothesis 2 – armed actors engage in more secondary modalities of violence against civilians where rival armed actors also carry out this violence. In addition to the divergence in statistical significance for measures of armed actor competition between 1 VAC and 2 VAC, there are important differences in the relationship with *Rival VAC.* The use of violence against civilians by rival armed actors was a statistically significant predictor of both 1 VAC and 2 VAC. However, the magnitude of the effect was considerably larger for secondary modalities of violence against civilians ($\beta = 0.342$) than for primary modalities of violence against civilians ($\beta = 0.074$), indicating that increases in *Rival VAC* are more strongly associated with 2 VAC than with 1 VAC.

Across all three models, time-lagged VAC is consistently positive and significant, indicating that the use of violence against civilians by the armed actor in the previous year was a strong and positive predictor of violence in the current year.

However, while the use of violence against civilians exhibits temporal persistence that is internal to armed actors, model results indicate that proximity to and behaviour of other armed actors in the conflict environment – controlling for a range of other factors – are also positively associated with violence against civilians.

Table 9: Zero-inflated negative binomial regression results

Variable	Model 1: All VAC	Model 2: 1 VAC	Model 3: 2 VAC
Count Model			
Armed Actor Presence	0.077***	0.0943***	-0.021
	(0.022)	(0.022)	(0.043)
Actor Fluctuations	0.053**	0.047**	0.066
	(0.018)	(0.018)	(0.037)
Rival VAC	0.074***	0.071***	0.342***
	(0.014)	(0.02)	(0.073)
Conflict Duration	-0.012	0.012	-0.054
	(0.021)	(0.022)	(0.044)
Time-lagged VAC	0.552***	0.648***	0.861***
	(0.056)	(0.069)	(0.199)
Poverty Measure	1.529	0.455	1.977
	(4.781)	(4.704)	(9.536)
Zero-Inflation Model			
Population Count	-4.423*	-3.42	-1.145
	(1.584)	(1.119)	(1.410)
Conflict Presence	-8.503	-2.547	-12.595
	(40.141)	(0.772)	(60.948)

ZINB regression. Standard error in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

5.6 Robustness tests

Eight alternative specifications were made to test the robustness of these findings. First, measures of armed actor competition are adjusted to account for the presence of unidentified armed actors. Models 1-3 above included only information on identifiable armed actors. However, unidentified armed actors can account for a significant proportion of violence. Being unidentified when attacking civilian bodies or objects can be a strategy to distance armed actors from criticism while still targeting the civilian population (Raleigh, 2012). In the case of South Sudan, approximately one third of violence against civilians – 1 VAC and 2 VAC – is carried out by an unidentified armed actor. Models are re-run recalculating *Armed actor presence* and *Armed actor fluctuations* to include unidentified armed actors in the count of and changes to armed actor presence. Results can be found in Table A2 of the appendix. All three measures of armed actor competition remain positive and statistically significant for the count of All VAC and 1 VAC and *Rival VAC* remains positive and statistically significant for 2 VAC, without notable shifts in the coefficients. This suggests that the presence and fluctuations of unidentified armed actors in a conflict environment does not have a substantial connection to violence against civilians.

Second, while the unidentified nature of these armed actors does not allow us to determine any allegiances or affiliation, unidentified armed actors are being increasingly contracted by both government and opposition armed actors (Raleigh, 2012) and may still participate in rivalry and retaliatory behaviour against opponents. As such, a further sensitivity test was carried out to include the use of violence against civilians by unidentified armed actors in the measure of *Rival VAC.* Results are shown in Table A3 of the appendix. The association between *Rival VAC* and All VAC, 1 VAC, and 2 VAC remain positive and statistically significant, while the coefficients are

somewhat smaller. This indicates that violence against civilians carried out by unidentified armed actors does not appear to be further connected to increases in violence against civilians by other armed actors. As above, this suggests that patterns of armed actor competition observed are not substantially altered when considering the inclusion of unidentified armed actors.

Third, the temporal aggregation of events is adjusted to test the sensitivity of findings to the unit of measure. Because the previous armed actor-admin2-year unit of analysis could smooth out short-term fluctuations and obscure meaningful variations in the timing of events and measures of competition, models are adjusted and rerun aggregating events to the armed actor-admin2-quarter. The results are shown in Table A4 of the appendix. The findings hold at both the yearly and quarterly levels, with only slight variation. All three measures of armed actor competition remain positive and statistically significant for the count of All VAC and 1 VAC and *Rival VAC* remains positive and statistically significant for 2 VAC, without notable shifts in the coefficients. However, when examining the relationship between competition and 2 VAC at a quarterly frequency, *Armed Actor Presence* has a moderate, statistically significant, and positive association with 2 VAC while the strongest association of secondary modalities of violence against civilians remains *Rival VAC*, suggesting that dynamics of armed actor competition may have short-term effects but remain largely consistent with yearly patterns.

Fourth, a set of three armed-actor specific tests are conducted. First, a test is carried out examining the exclusion of subunit and factional variation in armed actors. When analysing conflict event data aggregated to the armed actor level, including or excluding splinter factions and subunits can influence the interpretation of the results. In Models 1-3, events attributed to factions and subunits are excluded. While this

isolates the core behaviour of the armed actor, it may overlook relevant activity that contributes to competition dynamics or variation in data classification based on varying levels of source information specificity. Models are rerun to include the subunits of the military and police forces and factions of the SPLM-IO and NAS. Results shown in Table A5 and are consistent with base models. The final two tests turn to the National Salvation Front. The NAS first appears in 2017, while other armed actors included in this analysis participated in the civil war since its inception. In the first four years of the civil war, the opposition movement experienced greater unification behind the SPLM-IO but when Thomas Cirillo defected from the military to form the NAS, opposition support, particularly in the Equatoria region, fractured between the two armed actors (Boswell, 2021). Because the staggered entry of the NAS could influence estimates, the models are first rerun excluding the NAS and considering only those armed actors that have been active during the entire period of study. Then models are rerun including all armed actors and an additional measure of the number of years the armed actor has been active in the civil war. In both models, shown in Table A6 and A7, respectively, results remain consistent with base models.

Fifth, models are re-run with fixed effects to account for potential temporal and armed actor-specific influences. Armed actor fixed effects are added to hold constant the features of individual armed actors and year fixed effects are included for each year in the dataset – ten years in total – to account for changes over time, including, for example, changes in conflict dynamics which could impact the competitive landscape and salience of armed actors and introduce nonrandom effects over time. The results shown in Table A8 below are consistent with base models.

Sixth, as conflict dynamics are complex and proximate shifts may intersect with local patterns of competition, armed actor presence, fluctuations, and rival violence in

neighbouring areas may impact outcomes of violence against civilians. Although more distant, the presence and behaviour of armed actors in neighbouring counties could impact the decision-making of armed actors to employ violence against civilians. To account for this, models are re-run with a spatial temporal lag which accounts for each measure of armed actor competition in geographically contiguous counties in the same year. Results can be found in table A9 of the appendix. All three measures of armed actor competition remain positive and statistically significant for the count of All VAC and 1 VAC and rival violence against civilians remains positive and statistically significant for 2 VAC. The behaviour of armed actors in proximate conflict environments has almost no relationship with any category of violence against civilians, except for a small but negative relationship between armed actor presence in neighbouring counties and primary modalities of violence against civilians. This provides further support to the argument that local contexts provide the greatest insight into temporal and geographic variations in violence (Bencherif et al., 2023; Dowd, 2024, 2019; Raleigh and Choi, 2017).

Seventh, a placebo test was also conducted by running the base models with shuffled values for measure of Rival All VAC, Rival 1 VAC, and Rival 2 VAC. This robustness test helps determine if the observed effects are driven by the proximity of violence against civilians carried out by rival armed actors or random noise. The results are shown in Table A10 of the appendix. Across all three models, there is no statistically significant relationship between the rival violence occurring in a randomly assigned county and the occurrence of violence against civilians. A lack of significant results in the placebo tests suggests the relationships observed in the analysis are unlikely to be spurious.

Finally, models are re-run with standard errors clustered by county. Because measures of armed actor competition and other shocks can spread throughout the geographic unit of measure – the county – and create a dependence across nearby observations of violence against civilians, a robustness test is included which clusters the standard errors at the county level and thereby acknowledges that events of violence against civilians may not occur as fully independent observations. Results are shown in Table A11 of the appendix. The direction and significance of all three measures of armed actor competition hold across all three models, with the exception of model two where the significance of rival primary modalities of violence against civilians drops to the $p < 0.1$ level, suggesting that the findings are robust to within-county dependence.

5.7 The case of Juba and Rubkona

The findings from the regression analysis above highlight trends across a wide range of subnational contexts in which armed actors were active during the South Sudanese civil war. A closer analysis of subnational conflict contexts also demonstrates strong support for trends of primary and secondary modalities of violence against civilians. Together, the findings from quantitative and qualitative analyses highlight armed actor choice of employing different modalities of violence against civilians in contexts of armed actor competition. Specifically, the regression results indicated a positive and significant relationship between armed actor presence, armed actor fluctuations, and rival violence against civilians and primary modalities of violence against civilians while finding a positive and significant relationship between only rival violence against civilians and secondary modalities of violence against civilians.

This analysis draws on multiple sources to add qualitative detail to the event data used in the regression models. First, this analysis draws on the short descriptive

note available for each ACLED coded event which summarises key details from the source report and provides a short narrative of the incident (Raleigh et al., 2010). These notes contain on average 31 words, providing additional description to analyse patterns of violence in greater detail (Kishi et al., 2019). Second, this analysis draws on the reporting source of events of secondary modalities of violence against civilians which is captured as a component of the semi-automated data collection process. Finally, the analysis builds on descriptive information available from the composite dataset and considers qualitative sources of nonprofit reporting, including UN reports and reports from human rights organisations such as Human Rights Watch and the Centre for Civilians in Conflict.

The qualitative component of this chapter examines two case studies that were central locations and time periods during the civil war. The cases were selected to represent varying levels of intensity, both in terms of armed actor competition and violence against civilians. These cases represent a) a high presence conflict environment where violence against civilians is carried out predominantly by government forces (Juba, 2016) and b) a conflict environment with moderate levels of armed actor presence and fluctuations but high levels of rival violence, leading to comparatively moderate to high levels of violence against civilians (Rubkona, 2014). These cases provide a structured way to assess how the patterns identified in the regression analysis manifest in distinct conflict environments. By analysing armed actor interactions within each setting, the case studies offer insight into how the presence and fluctuation of armed actors, as well as the role of VAC carried out by opposing armed actors, contribute to different outcomes of violence against civilians. Table 10 below summarises the independent and dependent variables for each case study on a scalar measure of low, moderate, and high.

Table 10: Case study independent and dependent variables by scalar measure

	Independent Variables			Dependent Variables	
	Armed Actor Presence	Armed Actor Fluctuations	Rival VAC	1 VAC	2 VAC
Juba (2016)	High	Low	Low	High	Moderate
Rubkona (2014)	Moderate	Moderate	High	Moderate	High

Juba (2016) – In 2016, Juba became the epicentre of renewed and intense fighting during the South Sudanese civil war. Despite the signing of the Agreement on the Resolution of the Conflict in South Sudan (ARCSS) in August 2015, violence again erupted between government and opposition forces (Onapa, 2019). The return of Vice President Riek Machar and approximately 1,300 SPLM-IO troops to Juba in April 2016 placed opposing forces in close proximity, rising tensions between the government and opposition forces which planned to integrate under the peace agreement (Al Jazeera, 2016). Violence peaked in early and mid-July with battles between the military forces of South Sudan and the SPLM-IO and violence against civilians rising to some of the highest levels seen throughout the civil war.

Levels of armed actor competition during this period varied. Armed actor presence was high, with a total of 16 armed actors present, including the military and police forces of South Sudan, the SPLM-IO, and Bari, Bor, Mundari, and Nuer ethnic militias. By comparison, armed actor fluctuations were low, with a total of two armed actors leaving the conflict environment between 2015 and 2016. This measure aligns with broader patterns in the conflict environment as Juba experienced high levels of violence and armed actor presence, leading to the signing of a subsequently spoiled ARCSS in 2015 (Onapa, 2019). Finally, Juba experienced low levels of Rival VAC in 2016. While violence was carried out by both conflict sides, violence against civilians

was carried out disproportionately by government actors. Violence against civilians by government actors accounted for 94 percent of reported violence attributable to an armed actor. By comparison, opposition forces carried out very few events of violence – only one event of 1 VAC and one event of 2 VAC during this period. Approximately half of all violence against civilians, however, could not be attributed to an identifiable armed actor.

Based on these measures of armed actor competition, I would expect to see relatively high levels of primary modalities of violence against civilians but comparatively lower levels of secondary modalities of violence against civilians. This pattern aligns with observed conflict actors in Juba in 2016 which experienced high levels of armed actor presence, which the regression analysis showed to be strongly associated with increased levels of primary modalities of violence against civilians. When it comes to secondary modalities of violence against civilians, however, the regression analysis did not identify an association between armed actor presence and secondary modalities of violence against civilians and its strongest predictor – Rival VAC – was comparatively low during this period. As a result, even though violence between armed actors and against civilian bodies experienced a significant spike during this period, secondary modalities of violence against civilians is expected to remain lower. These expectations are borne out in reported violence. For primary modalities of violence against civilians, Juba experienced the highest levels of 1 VAC of any admin2-year unit during the civil war, with a total of 80 recorded events. Secondary modalities of violence against civilians were more moderate during 2016, with a total of 22 recorded events. Figure 9 below visualises the count of observed events of violence against civilians in Juba in 2016.

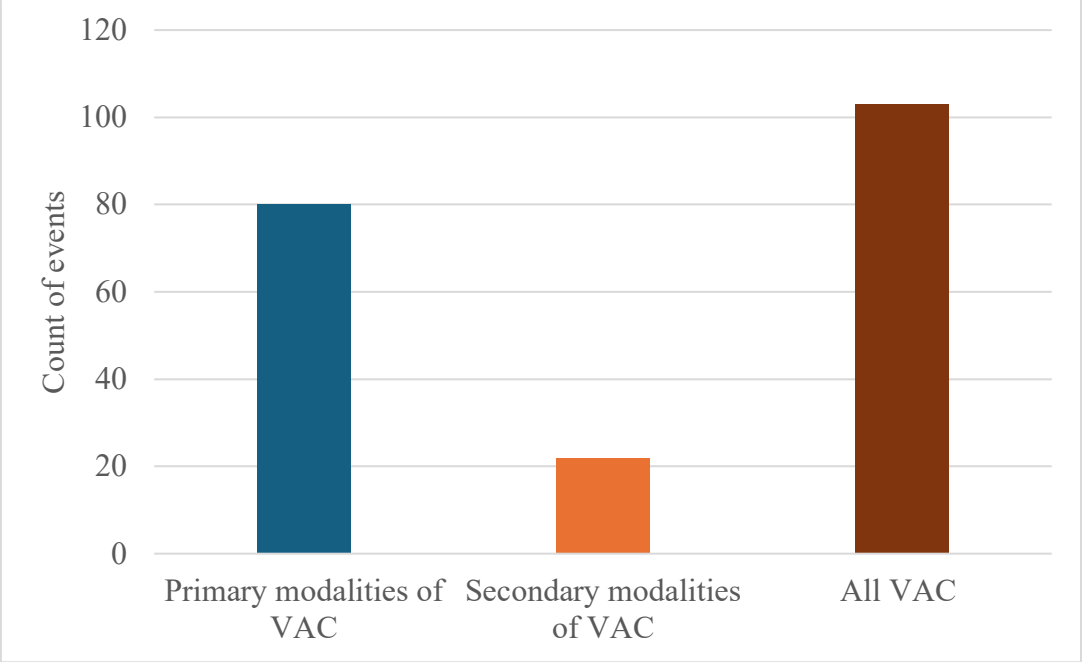


Figure 9 – Violence against civilians in Juba in 2016

For primary modalities of violence against civilians, Juba in 2016 represents the highest number of recorded events for any admin2-year unit during the civil war (Raleigh et al., 2010). The city of Juba and its surrounding areas witnessed waves of ambushes, killings, and kidnappings predominantly by the military forces of South Sudan that occurred throughout the year but peaked beginning on July 8 when renewed fighting between government forces and the SPLM-IO began in Juba (Spink and Wells, 2016). Civilians were repeatedly targeted – killed in their homes following armed clashes, attacked while traveling on major roads, and killed in marketplaces and other communal spaces, with an estimated 192 fatalities in 2016 (Raleigh et al., 2010). In addition to significant attacks in the city of Juba, armed ambushes along the Juba-Yei and Juba-Nimule roads became routine, with vehicles set ablaze and passengers abducted or killed, frequently by unidentified armed actors (Raleigh et al., 2010). Aid workers and humanitarian organisations were subjected to widespread abuse, such as

killings, beatings, and detention, including the death of two UN peacekeepers during a three-day attack on the UN House compound (Cammaert, 2016).

Sexual violence was a defining feature of this period (UNMISS, 2016). Military forces of South Sudan committed mass rapes, particularly targeting displaced women and girls traveling between markets and the UN Protection of Civilians sites in the Jebel area of Juba (Spink and Wells, 2016). Spikes in this violence included the July attack on the Terrain Hotel, where military forces executed a Nuer journalist and raped international aid workers (Spink and Wells, 2016). Similar incidents of rape, torture, and killings took place across the city of Juba, often reported to be ethnically targeted against Nuer civilians (Cammaert, 2016). Outside of the city, government forces targeted civilians in settlements like Lobonok and Wonduruba, framing violence as a response to the SPLM-IO insurgency (Raleigh et al., 2010). As described in the independent special investigation into the violence in Juba (Cammaert, 2016), the renewed presence of the SPLM-IO in Juba was a driving factor in the resumption of hostilities between conflict sides and an increased risk of the civilian population to violence against civilians by government forces, aligning strongly with the expected results of the regression analysis.

For secondary modalities of violence against civilians, civilians frequently had their homes and shops looted, often immediately following armed clashes between government and opposition forces (Raleigh et al., 2010). Reports indicate that like in December 2013, military forces went house to house, looting and destroying homes, targeting in particular the homes of Nuer and Equatorian civilians, though the scale of these attacks was described as smaller than during the outbreak of the civil war (Spink and Wells, 2016). For example, in the areas of Thongpiny and Mangaten in Juba city, military forces on foot and in vehicles looted homes following armed clashes, forcing

civilians to flee to the nearby UN base (Raleigh et al., 2010). Humanitarian installations and important communal resources also came under attack during this period. In addition to attacks on the UN House compound and the Tongping UN base which rendered multiple building damaged or destroyed, the World Food Programme and Food and Agriculture Organisation warehouses were looted by government forces over the course of several weeks, resulting in a loss of 29 million USD worth of food, equipment, and agricultural supplies (Cammaert, 2016).

In 2016, Juba witnessed moderate levels of 2 VAC as compared to other county-year units. With secondary modalities of violence against civilians carried out predominantly by government forces, rival use of violence against civilians – the strong association of 2 VAC – was low. These moderate levels of 2 VAC were higher than expected based on measures of armed actor competition. It is likely that two additional factors contributed to these higher-than-expected levels. First, time-lagged 2 VAC as a statistically significant and positive association with 2 VAC, with moderate levels of secondary modalities of violence against civilians in 2015 contributing to this increase. Second, a significant portion of reported 2 VAC in 2016 was carried out by unidentified armed actors. This includes reports of looting along major access roads to Juba in which the actor was unconfirmed, but government forces accused the opposition (Raleigh et al., 2010). The pattern of 2 VAC along the periphery responding to 2 VAC by government forces predominantly in Juba city suggests a pattern of retaliatory violence between government forces and unidentified armed actors, potentially driving violence to levels higher than expected by the regression model.

Rubkona (2014) – In 2014, as the South Sudanese civil war was just beginning, Rubkona county became a battleground between government and opposition forces,

particularly in the twin towns of Bentiu and Rubkona. Shortly after fighting began in Juba in December 2013, the Sudan People's Liberation Army Division 4 based in Bentiu splintered into competing factions, resulting in heavy fighting in which the state capital changed hands multiple times (Small Arms Survey, 2015). Armed clashes began early in the year and then spiked again in April and June-August as opposition forces pushed to capture and control the area, mirrored by periods of high violence against civilians committed by both conflict sides (Raleigh et al., 2010).

Levels of armed actor competition during this period varied. Armed actor presence was comparatively moderate, with a total of 13 armed actors present. This included government and government affiliated armed actors – comprised of the military forces of South Sudan and several pro-government militias such as the Justice and Equality Movement, Sudan People's Liberation Movement-North (SPLM-N), and the South Sudan Liberation Movement/Army – and opposing armed actors, including the SPLM-IO supported by the White Army and Nuer Ethnic militias. Armed actor fluctuations were moderate, with a total of 5 armed actors entering the conflict environment since the civil war broke out in December 2013. Finally, Rubkona experienced high levels of Rival VAC in 2014. Violence against civilians was carried out by both conflict sides, with government forces committing approximately 61 percent and opposition forces 39 percent of violence attributable to an armed actor. A small portion – approximately 15 percent – of all reported violence against civilians could not be attributed to a specific armed actor. Figure 10 below visualises the proportion of violence against civilians carried about by rival armed actors, indicating the count of events of primary and secondary modalities of violence against civilians by government, opposition, and unidentified armed actors.

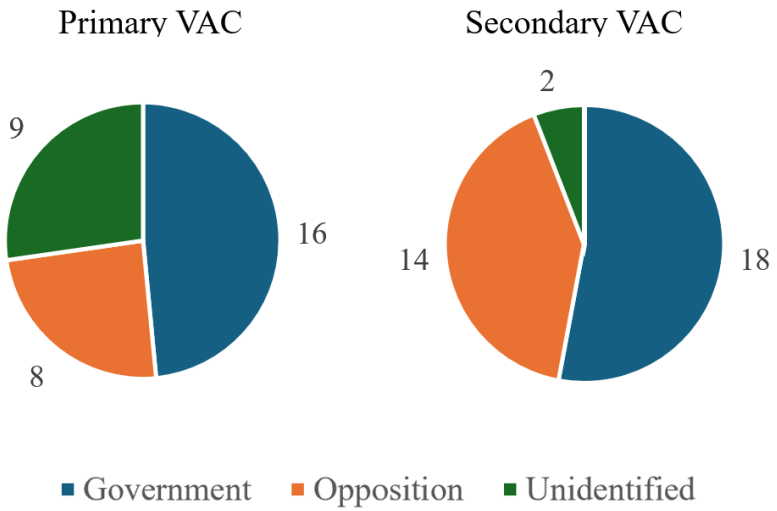


Figure 10 – Proportion of rival violence against civilians in Rubkona in 2014

Based on these measures of armed actor competition, I would expect to see relatively moderate levels of primary modalities of violence against civilians but comparatively higher levels of secondary modalities of violence against civilians. Rubkona in 2014 had moderate levels of armed actor presence and armed actor fluctuations, which the regression analysis showed to be strongly associated with increased levels of primary modalities of violence against civilians. When it comes to secondary modalities of violence against civilians, however, neither armed actor presence nor armed actor fluctuations was shown to have a meaningful association with secondary modalities of violence against civilians and its strongest predictor – Rival VAC – was comparatively high during this period. As a result, secondary modalities of violence against civilians are expected to be comparatively higher than primary modalities of violence against civilians during this period. These expectations are borne out in reported violence. For primary modalities of violence against civilians, Rubkona experienced moderate levels of 1 VAC as compared to other admin2-year units, with a total of 33 recorded events. Secondary modalities of violence against civilians were

comparatively high during 2014, with a total of 34 recorded events, the third highest of any county-year during the civil war.

For primary modalities of violence against civilians, Rubkona in 2014 represents moderate levels of violence. As the civil war spread to Rubkona county, both government and opposition forces carried out violence against civilians, with attacks and executions spiking in January and February as conflict sides competed to dominate the area (UNMISS, 2015). After opposition forces captured Bentiu in April, reports documented a two-day spike in fatal violence that was often carried out along ethnic lines (Raleigh et al., 2010). These killings targeted groups perceived as loyal to the government, including Dinka, Nuer that did not support the opposition, and members of the Fur community associated with the JEM (UNMISS, 2015). Mass graves in Rubkona, Bentiu, and the oilfields elsewhere in Unity state confirmed this large-scale, ethnically motivated violence (Craze et al., 2016). As the year went on, clashes also spilled over into the UNMISS base area. Government and allied forces shot at people near the compound which at the time of the attack, housed predominantly Nuer IDPs (UN Security Council, 2019). By the second half of the year, reports continued to emerge of civilians being killed by both government and opposition forces, including those actors which entered the conflict in 2014 (Human Rights Watch, 2014b; Raleigh et al., 2010), including militias such as the JEM and White Army which provided additional support to opposing conflict sides continually vying for control of a strategically significant location (Elamin, 2020a; Small Arms Survey, 2015). Here, reports of this violence indicated that the strong presence of government and opposition forces as well as the entrance of militias providing additional support drove the use of primary modalities of violence against civilians by both conflict sides (Craze et al.,

2016; Human Rights Watch, 2014b), aligning strongly with the expected results of the regression analysis.

For secondary modalities of violence against civilians, Rubkona experienced some of the highest levels of violence throughout the civil war. When government troops entered Rubkona and Bentiu in mid-January, Rubkona and part of Bentiu were almost completely burned to the ground (UNMISS, 2014), leaving blackened structures dotting the town where the main market and surrounding neighbourhoods once were (Wheeler, 2014). Similarly, when opposition fighters captured Bentiu in April 2014, they engaged in widespread looting and destructions across the town – civilian's homes and shops were stripped, and the market was ransacked, often along with massacres that targeted people based on ethnicity (UNMISS, 2014). In rural areas, government-affiliated armed actors carried out cattle raids, killing dozens of herders and stealing hundreds of animals from communities perceived to be in support of the opposition (Raleigh et al., 2010). And as government forces moved east and south out of the main towns of Rubkona and Bentiu, evidence demonstrated that government forces and its allies burned multiple villages and towns, targeting locations where they clashed with and contested control of opposition forces (UNMISS, 2014).

Humanitarian facilities were also looted and supplies critical for displaced populations were taken or destroyed. When government troops, reinforced by JEM fighters, recaptured Rubkona and Bentiu, they too engaged in systematic looting – humanitarian compounds and warehouses were stripped, with looted goods carried off by government soldiers (Raleigh et al., 2010). Secondary modalities of violence against civilians were repeatedly reported immediately after one conflict side captured or retook parts of the county (Raleigh et al., 2010; UNMISS, 2015; Wheeler, 2014). Furthermore, the extensive looting and destruction of civilian property was reportedly

carried out along ethnic lines, indicating that secondary modalities of violence against civilians were not simply opportunistic during periods of control but part of patterns of retaliatory violence in which armed actors targeted civilians based on their perceived affiliation (UNMISS, 2014). This pattern of cyclical looting and destruction by opposing conflict sides aligns strongly with the results of the regression model in which high levels of Rival 2 VAC spurred high levels of 2 VAC.

5.8 Conclusion

This analysis has sought to further examine the distinction between two categories of violence – primary modalities of violence against civilians and secondary modalities of violence against civilians. The findings demonstrate a divergence between the two categories centred around the relationship with armed actor competition in terms of presence, fluctuations, and levels of violence against civilians by rival armed actors. First, I find that levels of violence against civilians are conditioned by the conflict environment in which armed actors operate. In areas with high numbers of active armed actors, increases in armed actors over time, and use of violence against civilians by rival armed actors, armed actors are more likely to carry out violence against civilians. Second, I find that the relationship between measures of armed actor competition and different modalities of violence against civilians is not uniform. When considering only primary modalities of violence against civilians, armed actor presence, fluctuations, and use of rival violence against civilians have a significant and positive association with violence. When considering secondary modalities of violence against civilians, highly fragmented conflict environments with high numbers of armed actors present and increases to armed actor presence over time are not positively associated with more violence. Instead, the use of violence against civilians by

opposing armed actors is positively associated with violence. This is further supported by the case study analyses. Juba in 2016 demonstrates a case of high levels of armed actor presence driving high levels of primary modalities of violence against civilians. In Rubkona in 2014, high levels of violence against civilians by rival armed actors was associated with higher levels of secondary modalities of violence against civilians.

The results of the regression models and patterns observed in the case study analysis suggest armed actors use primary modalities of violence against civilians in contexts where there are large numbers of or increases in the presence of other armed actors, indicating that these modalities of violence can represent more visible forms of harm and can potentially serve as a strong communication tool for armed actors. These observations also suggest that armed actors use secondary modalities of violence against civilians in contexts where there is use of these modalities of violence by rival armed actors, creating positive feedback loops of further violence which can be tied to the salience of local resources in highly competitive environments.

These findings demonstrate clear distinctions between primary and secondary modalities of violence against civilians in the context of differing levels of armed actor competition during the South Sudanese civil war, suggesting that armed actors may view these categories of violence as tools that are useful in different strategic contexts. These findings underscore that rather than serving as a proxy for other modalities of violence against civilians, the occurrence of secondary modalities of violence against civilians is shown to differ in substantive ways from primary modalities of violence against civilians. These results highlight the significance of secondary modalities of violence against civilians, warranting further research on different modalities of violence against civilians beyond a single case study to understand connections

between contextual factors and modalities of violence against civilians beyond risks to civilian bodies.

6. Violence Against Civilians and Ethnic Identity

The South Sudanese civil war witnessed a myriad of risks for civilian populations, with reporting frequently identifying patterns of civilian targeting along ethnic lines. Since the earliest days of the conflict, descriptions of violence highlighted repeated targeting of civilian populations, beginning with intense violence against Nuer civilians in Juba 2013, and subsequently a deepening of the Dinka-Nuer cleavage across conflict hotspots including Bor and Bentiu. These reports pointed to not just lethal violence against civilians based on identity, but widespread violence against civilian objects, with scorched earth tactics of burning, looting, and large-scale property destruction (Bureau of Democracy, Human Rights, and Labor, 2014; Henry, 2014; Human Rights Watch, 2016, 2014b, 2014a; Pedneault, 2017; UNMISS, 2023, 2014; U.S. Department of State, 2023). In spite of the significant risk and long-term human security impacts of attacks on important civilian infrastructure and resources, these modalities of violence against civilians – and how they maybe be impacted by subnational ethnic identity compositions – remain comparatively understudied.

Building on the framework presented in chapter 3, this analysis distinguishes between two categories of violence – primary modalities of violence against civilians and secondary modalities of violence against civilians. The findings demonstrate a divergence between the two categories of violence associated with variation in subnational ethnic identity composition. Specifically, two ethnic identity compositions are considered – areas in which the perceived ethnic constituency of a conflict side is a majority and areas in which the perceived ethnic constituency of a conflict side is a minority. In contexts where the perceived ethnic constituency of the conflict side – whether this is government armed actors or opposition armed actors – is a minority, results indicated lower levels of primary modalities of violence against civilians and

higher levels of secondary modalities of violence against civilians. In contexts where the perceived ethnic constituency of the conflict side is a majority, results indicated higher levels of primary modalities of violence against civilians and lower levels of secondary modalities of violence against civilians.

To provide a comprehensive understanding of the dynamics driving violence against civilians, this analysis employs a mixed-methods approach that integrates quantitative regression analysis with qualitative case studies. First, I demonstrate how subnational variation in ethnic identity compositions have distinct connections to primary and secondary modalities of violence against civilians through quantitative models using a single case study – the South Sudanese civil war. Second, I demonstrate how these patterns manifest at the subnational level in key cases of Bor South and Rubkona. This chapter is broken into nine sections. Section 1 details patterns of violence against civilians and ethnic identity in South Sudan while Section 2 outlines existing scholarship on armed actor competition and primary modalities of violence against civilians; Section 3 presents the theoretical overview and hypotheses; Section 4 presents the research design; followed by measurement of independent and dependent variables in Section 5; Section 6 details the regression results and Section 7 details the robustness tests; Section 8 provides a detailed discussion of subnational cases studies, and a conclusion in Section 9.

6.1 Ethnic identity and violence in South Sudan

When the world's youngest nation dove into civil war shortly after independence, the outbreak of violence and targeting civilians based on ethnic identity brought to the surface tensions that remained unresolved by the hard-fought independence movement (Young, 2019). These patterns of violence confirmed fears

that ethnic tensions from political grievances and previous violent conflict remained unresolved (Garang, 2020). Ethnically motivated conflict and violence have been a central element of South Sudan's pre- and post-independence history. During the colonial period, political elites sought to marginalise ethnic groups in South Sudan, excluding them from political and economic power that was concentrated among the ruling Arab minority and militarising ethnic identities, particularly for Dinka and Nuer groups (Jok and Hutchinson, 1999). In response, the Sudan People's Liberation Army/Movement (SPLA/M) successfully realised a liberation movement over the course of the two-decade Sudanese Civil War that empowered marginalised ethnic groups in the South under a unified armed struggle (Madut, 2020).

Following the Comprehensive Peace Agreement (2005) and independence (2011), many people in the country, including among some political leadership, sought further unification and access to national platforms across ethnic groups (Jok, 2011). Instead, long-standing fear remained that some ethnic groups were retaining a greater role in the SPLA/M than others and rather than forming a cohesive military, some factions retained their weapons fearing that historical local conflicts could resurface (Madut, 2020). When politically motivated violence began again in 2013, leaders were able to return to already established methods of marginalisation, mobilisation, and ultimately, violence (Nyaba, 2019). This process of ethnic mobilisation and ethnically targeted violence against civilians highlighted that for South Sudan, and other countries for which access to political power can be mediated by ethnic identity, the outbreak of violent conflict places significant risks on civilian populations.

During the South Sudanese civil war, observed patterns of violence illustrate this connection between ethnic identity composition and violence against civilians. A rich body of work underscores how violence against civilians was carried out based on

ethnic identity throughout the South Sudanese civil war (Bureau of Democracy, Human Rights, and Labor, 2014; Chagutah, 2023; Human Rights Council, 2018, 2017, 2016; Johnson, 2014). Violence against civilians was often deeply rooted in ethnic identity, with targeted attacks primarily between the Dinka and Nuer communities but expanding later in the war to include groups perceived to be rebel supporters (Human Rights Watch, 2017, 2015, 2014b). These attacks included brutal forms of violence such as mass murder, sexual violence, the looting of property, and attacks on food resources (Devi, 2017; Human Rights Watch, 2015, 2014a). Property destruction and scorched earth tactics were also common, further driving fear among civilian populations (Anei et al., 2019; Jok, 2021).

Although South Sudan has a long history of violent conflict occurring along ethnic lines (Garang, 2020; Jok and Hutchinson, 1999; Madut, 2020), it is important to dispel the myth that the violence described above is the result of entrenched, ancient hatreds (Valentino, 2014) in which violence and cruelty between ethnic groups is considered the result of a pre-modern or uncivilised society which is accustomed to violence and cruelty – a rhetoric used in historical and ongoing descriptions of violence in South Sudan (Beshir, 1968; Idris, 2024; Ludwig, 1938; MacMichael, 2011). Instead, evidence points to violence against civilians as not solely ethnically motivated, but a lens used by political elites to manipulate perception and mobilise populations to serve their own aims (Idris, 2024, 2019; Pinaud, 2022). This leveraging of ethnic loyalties allowed leaders to turn differences among ethnic groups into tools of division that ultimately intensified violence, exacerbating existing grievances and creating cycles of recurrent targeting of civilians (Kindersley and Rolandsen, 2019; Madut, 2020; Nyaba, 2019).

This process of politicisation of ethnic identity and mobilisation towards violence can be seen as an active accelerant of violence. In December 2013, Dinka members of the military were mobilised in large-scale violence targeting Nuer civilians in Juba, carrying out extrajudicial killings of over one thousand Nuer civilians (Raleigh et al., 2010). To legitimise and galvanise this violence, President Kiir gave a public address on December 16, invoking intercommunal violence that occurred in Bor in 1991, which resulted in a massacre of Bor Dinka and simultaneously accused Vice President Machar of an attempted coup, further accelerating violence against Nuer civilians which had already begun that morning (Pinaud, 2022). Such language was similarly used to mobilise fighters along ethnic lines and justify both responses to this violence and further violence by government forces as the civil war spread to locations including Rubkona, Bor South, Malakal, and Leer (Human Rights Watch, 2014b; Madut, 2020; Pinaud, 2022). Similarly, these patterns can also be observed across different modalities of violence against civilians. Leaders have politicised cattle raiding, a longstanding practice among pastoralists in South Sudan, which was historically controlled and limited by cultural authorities, strategically manipulating local conflicts between ethnic groups to mobilise herders for political violence (Wild et al., 2018). Empirical evidence also demonstrates widespread conflict-related sexual violence, with scholars arguing that the scale and targeting of this violence indicates the use of sexual violence in the process of ethnic cleansing (Luedke and Logan, 2018; Pinaud, 2020).

6.2 Ethnic identity and violence against civilians

The case of the South Sudanese civil war aligns strongly with existing research on the relationship between ethnic identity and violence against civilians. A rich body

of literature discusses the impact of ethnic composition. Early research on the connection between conflict and ethnic identity concludes that ethnically heterogeneous countries are not more likely to experience civil war (Fearon and Laitin, 2003). Studies that specifically examine ethnic composition and violence against civilians have identified a negative correlation between ethnic fractionalisation and violence against civilians (Azam and Hoeffler, 2002; Kim, 2010; Querido, 2009) and similarly found no relationship between wars fought along ethnic lines and higher levels of violence against civilians (Valentino et al., 2006, 2004; Wood, 2010). These studies which focus on the heterogeneity or levels of ethnic diversity within a country fail to consider societal division – the degree to which the population of a country is divided into two or more opposing groups – which can increase the risk of civil war more the presence of many ethnic groups (Montalvo and Reynal-Querol, 2005).

In contrast to these studies, research has highlighted connections between ethnic identity and violence against civilians – emphasising that armed actors and their civilian constituencies are often mobilised along ethnic lines, finding more violence in societies where a large ethnic minority faces an ethnic majority (Horowitz, 1985) and underscoring the significance of ethnic identity of civilian populations for violence against civilians because violence can serve as a tool to reshape ethnic settlements (Posen, 1993) to create ethnically homogeneous territories (Kaldor, 2013) or to weaken an opposing armed actor through attacks against their ethnic constituency (Fjelde and Hultman, 2014). Research that identifies a connection between ethnic identity and violence against civilians points to a fundamental connection between armed actors and civilians. Armed actors frequently draw on civilian support along ethnic lines, often referred to as their constituencies (Cederman et al., 2010; Fearon, 2008; Ottmann, 2017; Wucherpfennig et al., 2011) and because ethnic identity is more difficult for

individuals to disguise than other characteristics such as political party affiliation, armed actors can view members of their ethnic constituencies as supporters (Kaufmann, 1996) and the ethnic constituencies of opposing armed actors as enemies, providing a criterion for exercising restraint or targeting civilians (Fjelde and Hultman, 2014).

Research on ethnic composition and violence against civilians has continued to examine empirical evidence at the subnational levels, identifying contexts where ethnic composition at the micro level altered patterns of violence against civilians. These compositions are tied to an ethnic group's connection with a particular armed actor or conflict side. An ethnic constituency encompasses the parts of a civilian population from which a conflict side is formed or for which a conflict side claims to fight, often forming out of shared political grievances which can facilitate mobilisation during times of violent conflict (Denny and Walter, 2014; Horowitz, 1985; Kaufmann, 1996; Ottmann, 2017; Wucherpfennig et al., 2012). These ties between civilian populations and conflict sides often occur along ethnic lines (Humphreys and Weinstein, 2006) and these ties produce incentives for the opposing conflict side to engage in targeting of civilians that are perceived to form part of this constituency (Fjelde and Hultman, 2014). Because these ethnic constituencies form out of group-level identities, they do not necessarily reflect individual support or preferences, indicating instead a perceived affiliation.

In contexts where an armed actor's ethnic constituency is the majority, scholars argue that the armed actor will exercise restraint since collaboration with and support from civilian populations represent a valuable resource and communication structure (Fjelde and Hultman, 2014; Humphreys and Weinstein, 2006). However, this research does not sufficiently consider the heterogeneity that may be present even in areas with

an ethnic majority. While armed actors are shown to avoid violence against civilians in these conflict environments, a quantitative case study of the Bosnian civil war found that the presence of local minorities within territories controlled by an the ethnic majority is associated with more violence, aligning with a pattern of displacement to consolidate territorial control (Di Salvatore, 2016). This case study remains aligned with cross-national research which finds that armed actors exercise restraint against their own ethnic minority (Fjelde and Hultman, 2014) but identifies the importance in considering localised ethnic identity compositions as a risk to civilian populations remains even in contexts of an ethnic majority (Di Salvatore, 2016; Melander, 2007). In contexts where an armed actors opposing ethnic constituency dominates (and their own is consequently a minority), empirical evidence demonstrates that violence against civilians increases where opposing ethnic constituencies are present. This includes research on the Guatemalan civil war (Sullivan, 2012) and cross-national research of African conflicts between 1989 and 2009 (Fjelde and Hultman, 2014).

Existing scholarship on ethnic identity points first to a fundamental connection between civilian constituencies and the conflict sides which they are perceived to represent (Cederman et al., 2010; Fjelde and Hultman, 2014; Ottmann, 2017; Wucherpfennig et al., 2012) and second to a variation in the occurrence of violence against civilians based on subnational compositions of ethnic identity. This includes restraint where the ethnic constituency of a conflict side is a majority (Fjelde and Hultman, 2014), the targeting of the opposing minority ethnic constituency present among an ethnic majority (Di Salvatore, 2016; Melander, 2007), and the targeting of locations where an opponent's ethnic constituency dominates (Fjelde and Hultman, 2014; Sullivan, 2012). However, these studies have focused exclusively on primary modalities of violence against civilians with a predominant focus on lethal violence (Di

Salvatore, 2016; Fjelde and Hultman, 2014; Sullivan, 2012). The next section discusses how extant scholarship may provide insights into the relationship between ethnic identity and primary and secondary modalities of violence against civilians.

6.3 Theoretical overview and hypotheses

The previous section has illustrated a focus among current research on the effect of subnational ethnic identity compositions on violence against civilians. Where the perceived ethnic constituency of the conflict side – whether government or opposition armed actors – is the majority, restraint is exercised towards that majority but may target minority populations if present (Di Salvatore, 2016; Fjelde and Hultman, 2014; Humphreys and Weinstein, 2006); and where the ethnic constituency is a minority, armed actors carry out higher levels of violence against civilians to target the perceived ethnic constituency of the opposing conflict side (Fjelde and Hultman, 2014; Schwartz and Straus, 2018). However, there is a gap in our knowledge of how variation in subnational ethnic identity composition impacts secondary modalities of violence against civilians. Drawing on research on multiple modalities of violence against civilians, I argue that patterns of primary modalities of violence against civilians differ from secondary modalities of violence and that patterns of violence indicate that armed actors view these categories of violence as tools that are useful in different strategic contexts.

First, I turn to the connection between primary modalities of violence against civilians and the targeting of opposing minority ethnic constituencies. Extant research has highlighted that although armed actors do not typically target their own ethnic constituency, violence against civilians does occur in areas where an armed actor's ethnic constituency is the majority – targeting the opposing ethnic minority present as a

tool to displace the minority population, establishing ethnic homogeneity and greater control over the area (Di Salvatore, 2016). Scholars posit that in order to induce immediate flight or removal of the target population from the area, the most intense or violent actions are required, including high-fatality lethal violence, sexual abuse, torture, imprisonment, and forced disappearance, (Di Salvatore, 2016; Melander, 2007). These findings align strongly with the definition of primary modalities of violence against civilians, suggesting that the intensity and immediacy of primary modalities of violence against civilians could serve as a tool for armed actors to expel civilian populations from a given area. I therefore expect primary modalities of violence against civilians will occur more in areas where the ethnic constituency of the conflict side is the majority, providing a tool for armed actors to target and potentially displace an opposing minority population.

H1: Where the ethnic constituency of the conflict side is a majority, armed actors that form part of that conflict side will carry out higher levels of primary modalities of violence against civilians and lower levels of secondary modalities of violence against civilians.

Next, I examine the occurrence of secondary modalities of violence against civilians in connection with ethnic identity. While research has not explicitly considered the connection between secondary modalities of violence against civilians and ethnic identity, existing literature has focused on subsets of this violence, examining attacks on agricultural and water resources. Case studies from civil wars including Guatemala (Jonas, 2012), Sudan (Vehnämäki, 2006), Iraq, and Syria (Jaafar et al., 2022) present evidence that scorched earth tactics – particularly those targeting

agricultural and water resources – were used extensively as a tool to target and punish ethnic groups that were perceived to support or sympathise with opposition forces. This suggests that the nature of secondary modalities of violence against civilians may present a different strategic logic for armed actors.

Because attacking vital resources such as food, water infrastructure, and humanitarian installations denies multiple civilians access to resources in a single event, the use of secondary modalities of violence against civilians may serve as a strategy to inflict harm on perceived opponents on a collective scale (Boyle, 2009; Fjelde et al., 2016; Fjelde and Hultman, 2014; Hultman, 2008). Armed actors may target civilian objects whose destruction can cause physical harm as opportunities to signal to opposing armed actors and more collectively punish ethnic constituencies they perceive to be aligned with opponents. I therefore expect secondary modalities of violence against civilians will occur more in areas where the ethnic constituency of the conflict side is the minority, providing a tool for armed actors to target the majority population present – the opponent's ethnic constituency.

H2: Where the ethnic constituency of the conflict side is a minority, armed actors that form part of that conflict side will carry out lower levels of primary modalities of violence against civilians and higher levels of secondary modalities of violence against civilians.

Finally, this theory posits that armed actors shift their targeting of civilians based on group-level strategic incentives associated with ethnic identity composition. It is important to note that this does not presume that all actors adhere to this strategic behaviour in all instances of violence. However, I expect that the general pattern of

targeting reveals these tendencies towards group-level strategic incentives even when other explanations such as habituation, opportunistic violence, or revenge are present (Anderton and Ryan, 2016; Boyle, 2010; Manekin, 2013; Souleimanov et al., 2023).

6.4 Research design

I test these hypotheses on a composite dataset of geo-referenced event data. One component of this dataset – events of primary modalities of violence against civilians – is drawn from ACLED (Raleigh et al., 2010). The other component – events of secondary modalities of violence against civilians – is drawn from a dataset generated through a semi-automated coding process of news and nonprofit reporting.

The geographical settlement patterns of ethnic groups are provided by the Ethnic Power Relations Dataset Family. First, the EPR Core dataset identifies all politically relevant ethnic groups and their access to state power (Vogt et al., 2015); second, the ACD2EPR dataset links opposition armed actors to politically relevant ethnic groups (Wucherpfennig et al., 2012); and third, the GeoEPR dataset provides geospatial information about settlement patterns of politically relevant ethnic groups through ethnic group polygons in a GIS shapefile format (Wucherpfennig et al., 2011). The EPR Core dataset confirms the politically dominant and government-affiliated status of the Dinka ethnic group while the ACD2EPR dataset identifies affiliations between Nuer, Murle, Anyunak groups and opposition armed actors. This research goes beyond comparing government and rebel use of violence against civilians (Fjelde and Hultman, 2014) to consider the larger network of the conflict dyad, including government, government-affiliated, opposition, and opposition-affiliated armed actors. It is important to note that there are ethnic groups present in South Sudan that do not have affiliation to the government or opposition, including Azande, Bari, Didinga,

Mundari, Shilluk, and Toposa ethnic groups. While these groups are not affiliated to a conflict side, their presence is considered in the measurement of majority and minority ethnic compositions.

The unit of analysis is the conflict side-admin2-year. Taking the case studies below as an example, this unit of analysis would be Opposition-Bor South County-2014 or Government-Rubkona County-2014. Conflict side includes government or opposition armed actors. This distinction between conflict side captures the affiliation of an armed actor to a respective ethnic constituency, rather than a test of the effect of a particular armed actor typology on patterns of violence. Information on armed actor affiliation to each conflict side is available through the Small Arms Survey which conducted a Mapping Actors and Alliances Project in South Sudan (MAAPSS) as part of its Human Security Baseline Assessment (HSBA) (Boswell, 2019; Small Arms Survey, 2014). In the case of South Sudan, the government conflict side includes state-based actors – the South Sudanese military and police, including subdivisions of these groups (e.g. Military Forces of South Sudan: Special Forces) and pro-government and Dinka ethnic militias. The opposition conflict side is comprised of a heterogenous group of opposition forces and affiliated ethnic militias, including the Sudan People's Liberation Movement-In Opposition (SPLM-IO), National Salvation Front (NAS), White Army, Arrow Boys Militia, Nuer Ethnic Militia, and Murle Ethnic Militia. Other armed actors active during the civil war that do not have an affiliation to a conflict side are excluded from this analysis.

The case selected for this analysis is the South Sudanese civil war. This period begins in December 2013 when clashes between factions within the South Sudanese military sparked violence in Juba that developed into a full-scale civil war (Johnson, 2014). This period ends in December 2022, extending beyond the formation of the

Revitalised Transitional Government of National Unity (Vhumbunu, 2020) to include the surge in post-peace agreement violence which occurred in South Sudan through 2022 (Chagutah, 2023; Pur, 2022; United Nations, 2022).

Data are assigned to the Admin2 unit. Admin2 refers to second-order sub-national administrative units – the county in the case of South Sudan. This covers a total land area of 642,476 square kilometres, with an average county size of 8,133 square kilometres and an average state size of 63,193 square kilometres (FAO, 2025). Using administrative units is the most appropriate for this analysis and its source data. Event data on primary and secondary modalities of violence against civilians comes from news and nonprofit reporting sources, which often lack precise location information (Weidmann, 2016). While approaches using reporting-based data for fine-grained analyses such as grid cells overestimate the precision of local information (Weidmann, 2015), administrative boundaries, such as states and counties, are easily identifiable, have clear geographic boundaries, and align with how events are typically reported (Tollefsen et al., 2012). This level of disaggregation allows for a greater degree of spatial precision than the Admin1 (state) level. The analysis covers 79 Admin 2 units, including 78 counties within South Sudan and the disputed Abyei region. Since my theory considers violence against civilians as distinct to other forms of violence in a conflict environment, with the potential for distinct motivations and strategic incentives, I choose to retain all admin2 units throughout the observed time period. This results in a dataset with a total of 1,560 conflict side-admin2-year observations, covering all recorded activity by government and opposition conflict sides in South Sudan between December 2013 and December 2022, inclusive.

The models are run using Zero-Inflated Negative Binomial Regression (ZINB). The ZINB regression model is appropriate for this analysis due to the nature of the

dependent variable – count data on events of violence against civilians that are characterised by overdispersion and an excess of zero observations. The theoretical framework suggests that zeros result from two distinct processes – first, structural conditions where violence against civilians does not occur, including areas where violent conflict has not occurred (Schutte, 2017; Welsh, 2023); and second, occurrences of violence against civilians in contexts with a low probably of such violence such as in a geographic area inhabited by a conflict side's own ethnic constituency where there is an theoretical expectation that an armed actor would exercise restraint against this civilian population (Fjelde and Hultman, 2014). The model includes both mechanisms by combining a zero-inflation process with a negative binomial distribution for overdispersed counts and is therefore well-suited to test the above hypothesis (Bagozzi, 2015; Koren and Bagozzi, 2017).

6.5 Independent and dependent variables

The dependent variables are the count of primary modalities of violence against civilians and secondary modalities of violence against civilians, respectively, by each conflict side per admin 2 *(1 VAC* and *2 VAC)*. Primary modalities of violence against civilians events are based on the operational definitions created by ACLED (Raleigh et al., 2010) and secondary modalities of violence against civilians events are based on the operational definitions detailed in the methodology chapter of this thesis.

The independent variables are dichotomous measures indicating if the conflict side's perceived ethnic constituency is the majority in a given admin2 unit (*Ethnic Majority*) and if the conflict side's perceived ethnic constituency is the minority in a given admin2 unit (*Ethnic Minority).* This measure of majority or minority also takes into account the presence of unaffiliated ethnic groups in an area. For example,

approximately 90 percent of Juba County is inhabited by the Bari ethnic group which is not affiliated to the government or opposition. As a result, both conflict side's ethnic constituency is a minority in the county. Subnational administrative boundary data are provided by the South Sudan Information Management Working Group available through the Humanitarian Data Exchange platform (HDX, 2020; IMWG et al., 2024). Affiliation and geographic location of ethnic groups is determined based on politically relevant ethnic groups identified in the Ethnic Power Relations Dataset Family (Vogt et al., 2015; Wucherpfennig et al., 2011). The EPR Core dataset identifies the politically dominant and government-affiliated status of the Dinka ethnic group and the ACD2EPR dataset identifies affiliations of Nuer, Murle, Anyunak ethnic groups to opposition armed actors (Vogt et al., 2015; Wucherpfennig et al., 2011).A spatial join was carried out between the ethnic group and administrative boundary shape files to identify where the admin2 units overlap with ethnic group polygons, calculating the percentage of the total space of an admin2 unit that is occupied by a given group. The calculation allows for the overlap of ethnic groups in a given admin2 unit. However, in most instances, geographic settlement patterns do not overlap – in only 4 of the 80 administrative units (Awerial, Bor South, Canal/Pigi, and Duk) does cumulative overlap cover more area than the county itself. An ethnic group is considered a minority in a county when it occupies less than 25 percent of the territory and is considered a majority when it occupies greater than 65 percent of the territory.

Control variables are included to control for other explanations of violence against civilians. To account for temporal dependence (Dowd, 2019; Welsh, 2023), the model also includes a time-lagged measure of the events of primary and secondary modalities of violence against civilians, respectively, measuring the count of events of primary and secondary modalities of violence against civilians carried out by the same

conflict side in the same admin2 unit in the previous year *(Time-lagged 1 VAC* and *Time-lagged 2 VAC)*. A dichotomous measure of *Conflict Presence* is included to capture where a given admin2 unit has experienced a violent event between two or more armed actors in the same year, since incidents of fighting increase the likelihood that civilians will be harmed (Welsh, 2023; Wood, 2010; Wood and Kathman, 2015). Similarly, a dichotomous categorical variable is included to account for *Conflict Side* to capture if a given event is carried out by the conflict side (government or opposition). This distinction captures the affiliation of an armed actor to its perceived ethnic constituency.

Additionally, a control is included for the total number of events of violence against civilians (*All VAC Count)* to account for the baseline levels of violence against civilians by a conflict side in a given admin2-year. This allows the models to isolate the factors that shape the specific category of violence that occurs, rather than the occurrence of violence against civilians overall. Finally, a control is included to adjust for the influence of wealth levels on the occurrence of violent events (Buhaug et al., 2011). A county-level measure of *Economic Development* is also included to control for the potential influence of wealth levels. This measure uses a proxy of VIIRS nighttime light levels, tracking annual measures of the levels of light emitted by human settlements in each county (Elvidge et al., 2017) which is shown to serve as a proxy for indicators of economic development (Andries et al., 2023) and provides data that is sufficiently granular to capture the outputs of economic activity and not just capture the presence of populations (Chen and Nordhaus, 2015, 2019; Gibson et al., 2021). This data collected by the Earth Observation Group and is available through AidData GeoQuery (Goodman et al., 2019). All variable definitions and a description of how they were calculated is available in the codebook for ethnic identity regression models

in Appendix G of this thesis. Table 11 below shows the descriptive statistics of the independent, dependent, and control variables.

Table 11 – Descriptive statistics

	Mean	Standard Deviation	Min	Max
1 VAC	1.06	3	0	38
2 VAC	0.34	1.66	0	34
Ethnic Majority	0.25	0.43	0	1
Ethnic Minority	0.57	0.5	0	1
Conflict Presence	0.66	0.47	0	1
Conflict Side* (categorical)	0.5	0.5	0	1
All VAC Count	1.4	4.06	0	51
Time lagged 1 VAC	1.01	2.95	0	38
Time lagged 2 VAC	0.32	1.64	0	34
Economic Development	0	0.01	0	0.12

Focusing in particular on the *Majority* and *Minority* independent variables, Figure 11 below visualises the count of counties that represent either an ethnic majority or an ethnic minority for the respective conflict side. For the government, a total of 24 counties represent an ethnic majority for their perceived ethnic constituency – a larger number than the opposition. This is consistent with ethnic identity data on South Sudan as the Dinka ethnic group – which is the perceived ethnic constituency of the government (Vogt et al., 2015; Wucherpfennig et al., 2011) – is the largest ethnic group in the country, comprising 26 percent of the total population as reported by the Comprehensive Peace Agreement (Madut, 2020). Furthermore, the figure below demonstrates that more counties represent an ethnic minority for both conflict sides, again consistent with ethnic identity data which indicates that no single ethnic group comprises the majority of the population (Madut, 2020). While there are ethnic groups

affiliated to both conflict sides, there remain other ethnic groups in the country, including a large population of Equatorians (Azande, Bari, Didinga, Mundari, and Toposa ethnic groups) which are not considered to represent the ethnic constituency of either conflict side (Vogt et al., 2015; Wucherpfennig et al., 2011).

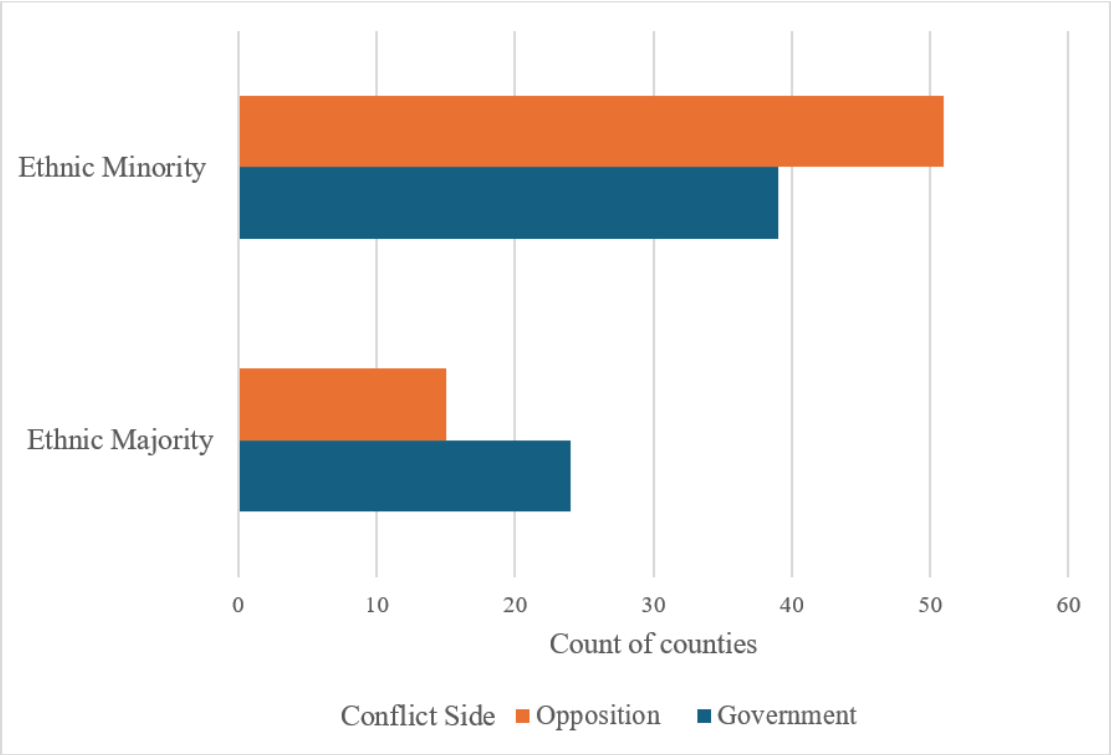


Figure 11 – Chart of ethnic majority and minority counties by conflict side

6.6 Results

Table 12 summarises the direction of the relationships between the independent variables – minority and majority ethnic constituency compositions – and the dependent variables – primary and secondary modalities of violence against civilians. These relationships are further visualised in Figure 12 below which shows the direction, size, and significance of the coefficients of the two independent variables, highlighting clearly the divergence in the relationship between ethnic constituency compositions and primary and secondary modalities of violence against civilians. Table

13 below provides greater details, outlining the model specifics for each of the four models.

Table 12 – Results summary

	Armed actor's ethnic constituency is a minority	Armed actor's ethnic constituency is a majority
1 VAC	-	+
2 VAC	+	(-)

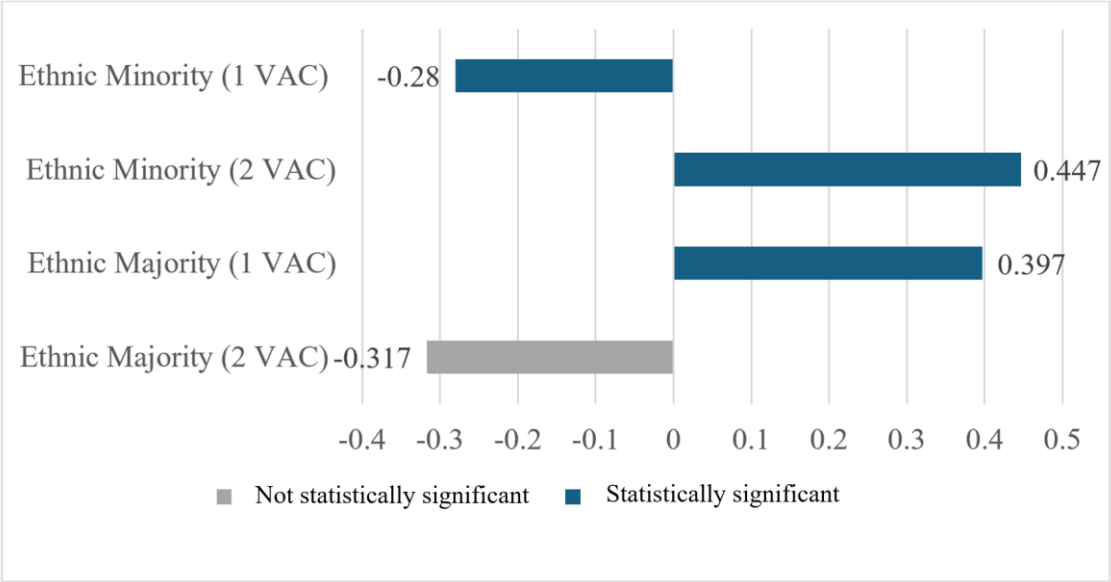


Figure 12 – Bar chart of ethnic identity coefficients

Models 1 and 2 test Hypothesis 1, that where the ethnic constituency of the conflict side is a minority, armed actors that form part of that conflict side will carry out lower levels of 1 VAC and higher levels of 2 VAC. The results of Model 1 show a statistically significant and negative relationship between minority ethnic identity composition and primary modalities of violence against civilians. Model 2 shows a statistically significant and positive relationship between minority ethnic identity composition and secondary modalities of violence against civilians. These results are consistent with Hypothesis 1 – that where the ethnic constituency of the conflict side is

a minority, armed actors that form part of that conflict side will carry out lower levels of primary modalities of violence against civilians and higher levels of secondary modalities of violence against civilians.

Models 3 and 4 test Hypothesis 2, that where the ethnic constituency of the conflict side is a majority, armed actors will carry out higher levels of 1 VAC and lower levels of 2 VAC. The results of Model 3 show a statistically significant and positive relationship between majority ethnic identity composition and primary modalities of violence against civilians. Model 4 shows a negative but not statistically significant ($p=0.149$) relationship between majority ethnic identity composition and secondary modalities of violence against civilians, aligning in direction with theoretical expectations and in magnitude in comparison with other models. Majority ethnic identity composition is statistically significant and positive for primary modalities of violence against civilians but has a negative but not statistically significant association with secondary modalities of violence against civilians ($p=0.149$). The results are consistent with hypothesised direction but provide only partial support for Hypothesis 2 – that where the ethnic constituency of a conflict side is a majority, armed actors that form part of that conflict side will carry out higher levels of primary modalities of violence against civilians and lower levels of secondary modalities of violence against civilians.

Across all four models, the binary measure of conflict side is not statistically significant, indicating that there is no systematic difference of this group level determinant – government and government affiliated-armed actors versus opposition and opposition-affiliated armed actors – in the occurrence of primary or secondary modalities of violence against civilians. Finally, models controlled for the presence of violent conflict between two or more armed actors in the same county and year as

incidents of fighting increases the likelihood that civilians will be harmed (Welsh, 2023; Wood, 2010; Wood and Kathman, 2015). However, across all models, conflict presence is not statistically significant, indicating that risks to civilians remain beyond the locations of battles between armed actors.

Table 13 – Zero-inflated negative binomial regression results

Variable	**Model 1:** 1 VAC	**Model 2:** 2 VAC	**Model 3:** 1 VAC	**Model 4:** 2 VAC
Count Model				
Ethnic Minority	-0.28**	0.447*	-	-
	(0.085)	(0.193)		
Ethnic Majority	-	-	0.397***	-0.317
			(0.095)	(0.220)
Time-lagged VAC	0.033*	0.077	0.030*	0.078
	(0.014)	(0.041)	(0.013)	(0.042)
Economic Development	4.28	4.044	4.681	4.681
	(3.30)	(7.013)	(3.273)	(7.035)
Conflict Side	0.068	-0.337	0.057	-0.322
	(0.089)	(0.191)	(0.088)	(0.191)
All VAC Count	0.257***	0.290***	0.250***	0.296***
	(0.018)	(0.030)	(0.018)	(0.031)
Zero-Inflation Model				
Conflict Presence	-13.561	-14.343	-13.968	-13.405
	(54.231)	(105.248)	(66.653)	(65.822)

ZINB regression. Standard error in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

6.7 Robustness tests

Seven alternative specifications were made to test the robustness of these findings. First, models are re-run replacing the count of 1 VAC and 2 VAC events with the sum of reported VAC fatalities and sum of 2 VAC event scale. This tests how the

models perform when measuring the intensity rather than frequency of violence against civilians. Results can be found in Table A12 of the appendix. Both *Ethnic Minority* and *Ethnic Majority* maintain their direction with only moderate changes to statistical significance. For primary modalities of violence against civilians, minority ethnic identity composition remains negative and statistically significant at the p =<0.1 level and majority ethnic identity composition remains positive but statistical significance is lowered to a p-vale = 0.113. For secondary modalities of violence against civilians, minority ethnic identity composition remains positive and statistically significant, and majority ethnic identity composition remains positive and becomes statistically significant at the p =< 0.05 level. Furthermore, when examining intensity of violence against civilians, *Conflict Side* – a categorical measure of whether an armed actor is affiliated to the government or the opposition – is statistically significant and negative for primary modalities of violence against civilians. The categorical control variable is coded as government (0) and opposition (1), indicating that for fatalities from primary modalities of violence against civilians, opposition armed actors carried out a significantly lower amount. This aligns with existing scholarship which indicates that, on average, government armed actors are more lethal than non-state armed actors (Eck and Hultman, 2007).

Second, additional models were run to re-estimate the measures of ethnic identity composition. Models 1-4 measured ethnic identity composition as a binary, denoting whether an armed actor's ethnic constituency was a majority in a given county (yes/no) and whether an armed actor's ethnic constituency was a minority in a given county. Two additional models were run assessing connection between ethnic identity compositions and primary and secondary modalities of violence against civilians, respectively, using a more granular measure which captures continuous ethnic shares –

the percentage of a given county that is inhabited by the armed actor's ethnic constituency. Results can be found in Table A13 of appendix F. In both models, the association of *Continuous ethnic shares* align with theoretical expectations and statistical significance corresponds to the results of Models 1-4. For primary modalities of violence against civilians, as the percentage of a county that is inhabited by the ethnic constituency of an armed actor increases, the occurrence of primary modalities of violence against civilians increases. This aligns with expectations that armed actors carry out greater levels of primary modalities of violence against civilians where they are seeking to target an ethnic minority. For secondary modalities of violence against civilians, as the percentage of a county that is inhabited by the ethnic constituency of an armed actor increases, the occurrence of secondary modalities of violence against civilians decreases. This aligns with expectations that armed actors carry out less secondary modalities of violence against civilians where there is a large presence of their ethnic constituency.

Third, additional models were run to account for the effect of polarised ethnic identity composition. Models 1-4 above included only information on minority and majority ethnic identity compositions. However, there remains some debate about the impact of polarised contexts. While some scholars have found that this increases the likelihood of violence (Markussen and Mbuvi, 2011; Ottmann, 2017; Wimmer and Miner, 2020), others have argued that there is lower incentive for violence in polarised contexts (Wahman and Goldring, 2020). Two additional models were run assessing the relationship between polarised ethnic identity compositions and primary and secondary modalities of violence against civilians, respectively. Results can be found in Table A14 of appendix F. In both models, polarisation has a negative but not statistically significant association with violence against civilians, aligning with research that

theorises that the greatest incentives for violence exist in minority and majority contexts (Wahman and Goldring, 2020).

Fourth, alternative specifications for ethnic affiliation were tested. The models above considered ethnic affiliation based on the ACD2EPR dataset (Wucherpfennig et al., 2011), where the Dinka ethnic group was affiliated with the government and the Nuer, Murle, and Anyunak groups were affiliated with the opposition. Qualitative evidence of the South Sudanese civil war, however, indicates that after the first two years of the war, the Dinka-Nuer ethnic cleavage expanded and government forces also targeted Equatorian groups along ethnic lines, perceiving them to be affiliated with the opposition (Human Rights Watch, 2017; Pinaud, 2022). To test for this, ethnic identity compositions for the opposition are adjusted from 2015 onward to include Equatorian ethnic groups – Azande, Bari, Didinga, Mundari, and Toposa. Results are shown in Table A15 of the appendix. The association of *Ethnic Minority* and *Ethnic Majority* with violence against civilians maintain their direction and statistical significance across all models.

Fifth, the models are rerun to account for violence against civilians in the political power centre of the country. Juba was the location of some of the highest levels of violence against civilians during the civil war, witnessing the targeting of Nuer civilians in December 2013 and the largest spike in violence during the civil war in July 2016 (Raleigh et al., 2010). To account for the potential influence of this contested seat of power between President Salva Kiir and Vice President Riek Machar and their respective forces, models are rerun with a dummy variable for Juba County (*Capital*). The results are shown in table A16 of the appendix. The findings hold when controlling for the influence of the capital city, indicating that while Juba is the political centre of the country, violence against civilians is not inherently more likely in Juba

than in other counties. Both *Ethnic Minority* and *Ethnic Majority* hold their direction, statistical significance, and size of the coefficients.

Sixth, models are re-run with fixed effects to account for potential temporal and geographic influences. Year fixed effects are included for all ten years in the dataset to account for changes over time and county fixed effects are included to account for time-invariant differences in the conflict environment such as long-standing political significance which may influence armed actors beyond local competitive dynamics exclusively. The results shown in Table A17 of the appendix are largely consistent with base models – majority and minority ethnic identity compositions for 1 VAC majority ethnic composition for 2 VAC maintain their direction and statistical significance. Minority ethnic composition for 2 VAC retains its sign but loses statistical significance.

Finally, models are re-run with standard errors clustered by county. Because conflict factors can be shared across the geographic unit of measure – the county – and create a dependence across nearby observations of violence against civilians, a robustness test is included which clusters the standard errors at the county level and thereby acknowledges that events of violence against civilians may not occur as fully independent observations. Results are shown in Table A18 of the appendix. The direction and significance of ethnic identity composition remain the same across all four models, suggesting that the findings are robust to within-county dependence.

6.8 The case of Bor South and Rubkona

The results of the regression analysis above highlight trends across conflict environments in which ethnic identity composition correlate with violence. The subnational analysis of conflict contexts detailed below similarly demonstrates strong support for the patterns of violence against civilians identified in the regression models.

Combined, the findings from the regression models above and case study analyses below highlight a distinction in the relationship between ethnic identity and primary and secondary modalities of violence against civilians. Specifically, the regression results indicated an inverse relationship – a minority ethnic composition is associated with l*ower* levels of primary modalities of violence against civilians and *higher* levels of secondary modalities of violence against civilians and a majority ethnic composition is associated with *higher* levels of primary modalities of violence against civilians and *lower* levels of secondary modalities of violence against civilians.

This analysis draws on the multiple sources to provide qualitative detail to the event data used in the regression models. First, this analysis draws on the short descriptive note available for each ACLED coded event which summarises key details from the source report and provides a short narrative of the incident (Raleigh et al., 2010). These notes contain on average 31 words, providing additional description to analyse patterns of violence in greater detail (Kishi et al., 2019). Second, this analysis draws on the source report on events of secondary modalities of violence against civilians which is captured as a component of the semi-automated data collection process. Finally, the analysis builds on descriptive information available from the composite dataset and considers qualitative sources of nonprofit reporting, including UN reports and reports from human rights organisations such as Human Rights Watch.

The qualitative component of this chapter examines two case studies that represent distinct ethnic identity compositions. The cases were selected to represent varying levels of intensity of violence against civilians as well as ethnic constituency affiliation for respective conflict sides. These cases represent a) a conflict environment in which opposition armed actors carry out low levels of primary modalities of violence against civilians and high levels of secondary modalities of violence against civilians in

a location where their ethnic constituency is the minority (Bor South, 2013-2014) and b) a conflict environment in which government and government-affiliated armed actors carry out moderate levels of primary modalities of violence against civilians and high levels of secondary modalities of violence against civilians in a location where their ethnic constituency is the majority (Rubkona, 2014). These cases assess how the patterns identified in the regression analysis play out at the subnational level. By analysing ethnic identity composition within each conflict setting, this qualitative analysis offers insight into how ethnic identity composition is associated with outcomes of primary and secondary modalities of violence against civilians. Table 14 below summarises the independent and dependent variables for each case study on a scalar measure of low, moderate and high.

Table 14: Case study independent and dependent variables by scalar measure

	Independent Variable		Dependent Variable	
	Ethnic Majority	Ethnic Minority	1 VAC	2 VAC
Bor South (2013-2014) – Opposition	No	Yes	Low	High
Rubkona (2014) – Government	Yes	No	Moderate	High

Bor South (2014 – 2013) – Bor South is located in the south-western corner of Jonglei State. Bor Town, which is both the county headquarters and the capital of Jonglei State, is located along the Nile River, representing a regional economic hub that sits on a critical transport corridor between Juba and Jonglei (Elamin, 2020b). Figure 13 below shows a map of the ethnic identity composition of Bor South County. The map was developed by combining the administrative boundaries available from the South Sudan

Information Management Working Group (HDX, 2020; IMWG et al., 2024) and the geographic location of ethnic groups available through the EPR dataset family (Vogt et al., 2015). Based on data from the GeoEPR dataset, ethnic groups in South Sudan represent regional settlement patterns, a definition which indicates that ethnic groups reside in regions that are easily distinguishable on a map in a spatially contiguous region in which a predominant share of group members reside (Wucherpfennig et al., 2011). The two respective shapefiles were visualised together using R. Bor South County is located within the circle.

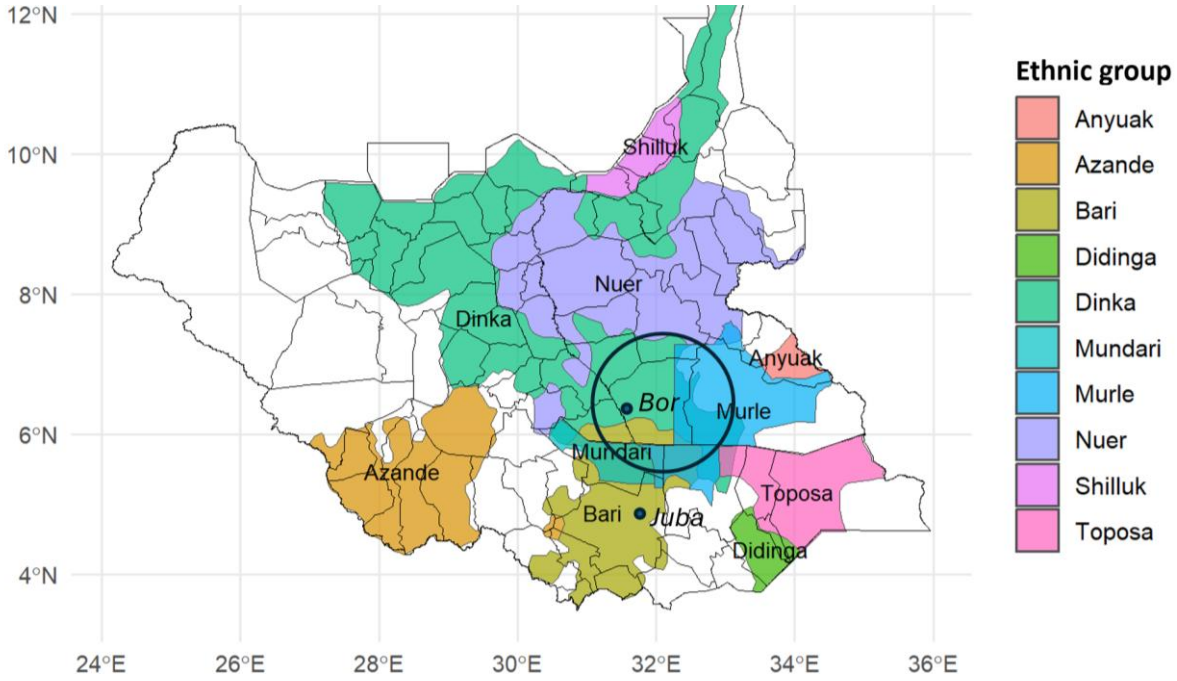


Figure 13 – Map of ethnic identity composition of Bor South County

Bor South County is predominantly inhabited by the government-affiliated Dinka ethnic group, comprising 75 percent of the area and dominating the western region of the county, where the county headquarters and state capital Bor Town is located (Elamin, 2020b; Vogt et al., 2015; Wucherpfennig et al., 2011). The another 25 percent of the county is inhabited by the opposition-affiliated Murle ethnic group in the eastern part of the county which connects to Pibor county to the east, the largest

population centre for the Murle group (Vogt et al., 2015; Wucherpfennig et al., 2011). While Bor County is a predominantly Dinka inhabited county, other parts of Jonglei state, directly north of Bor South have a much larger presence of Nuer. As such, Bor South, and Bor Town in particular, represented a Dinka stronghold and a significant location as a regional political centre and an access point from the capital to other parts of the state (Elamin, 2020b; Wheeler, 2014). As violence broke out in Juba in 2013 with reports of military forces targeting Nuer, opposition forces turned to Bor South (Johnson, 2016).

Based on this ethnic identity composition, I would expect to see relatively low levels of primary modalities of violence against civilians but comparatively higher levels of secondary modalities of violence against civilians by opposition forces which are affiliated with the ethnic minority in the county. Bor South represented an area in which the perceived ethnic constituency of opposition armed actors was a minority in the county, which the regression analysis showed to be strongly associated with lower levels of primary modalities of violence against civilians. When it comes to secondary modalities of violence against civilians, however, an ethnic minority composition was strongly associated with higher levels of secondary modalities of violence against civilians. As a result, secondary modalities of violence against civilians are expected to be comparatively higher than primary modalities of violence against civilians during this period. These expectations are borne out in reported violence. For primary modalities of violence against civilians, Bor South experienced low levels of 1 VAC as compared to other admin2-year units, with a total of 4 recorded events in 2013 and 4 recorded events in 2014. Secondary modalities of violence against civilians were comparatively high, with a total of 12 recorded events in 2013 and 12 recorded events in 2014, the fifth highest of any conflict side-county-year.

For primary modalities of violence against civilians, opposition armed actors carried out low levels of violence in Bor South between December 2013 and December 2014. As the civil war spread, opposition forces targeted the county that they saw as a stronghold of government support (Adow, 2013). During the outbreak and escalation of violence beginning in December 2013, opposition forces were implicated in eight events of primary modalities of violence against civilians, four occurring in December 2013 and four occurring between January and February 2014 (Raleigh et al., 2010). Following the outbreak of violence in mid-December, opposition forces, including the newly forming SPLM-IO with the support of the White Army and Nuer ethnic militias attacked civilians on four separate days that resulted in a total of 27 fatalities (Raleigh et al., 2010; Wheeler, 2014).

The deadliest of these attacks occurred on December 21 where approximately 21 Dinka civilians where targeted and killed at the Bor Town port while trying to escape (Human Rights Watch, 2014c). This event in particular underscores the ethnically motivated nature of the targeting. While the protection of civilians site that opened in Bor housed predominately Nuer civilians (UNMISS, 2015), Dinka seeking refuge from violence often fled elsewhere, including the Nile River Islands (Elamin, 2020b), enabling the sorting and easier identification of civilians at locations such as the Bor port. Between January and February, opposition forces again attacked civilians across four days. The deadliest of these attacks occurred on January 19, just after government forces had recaptured Bor Town (Raleigh et al., 2010). In this attack, forces loyal to the mutineer Peter Gadet attacked and killed civilians across Bor Town – killing patients at Bor Hospital and attacking civilians in a church, including women and clergy members (Raleigh et al., 2010). Here, opposition armed actors targeted members of the ethnic majority – Dinka. It appears that while opposition armed actors

had incentives to and did attack their opponents civilian base of support in both 2013 and 2014 (Human Rights Watch, 2014c; UNMISS, 2015), they carried out comparatively low levels of primary modalities of violence against civilians, as compared to other conflict side-admin2-year units that recorded as many as 38 events of violence. This ethnically motivated but lower levels of targeting align strongly with the expected results of the regression analysis.

For secondary modalities of violence against civilians, opposition actors carried out comparatively high levels of violence against civilians. Between 2013 and 2014, opposition armed actors were responsible for 24 events of secondary modalities of violence against civilians. In December, as opposition forces clashed with the South Sudanese military, the SPLM-IO, supported by the White Army and Nuer ethnic militias, looted extensively – markets, homes, humanitarian agencies, and medical supplies from hospitals were looted and, in a large fire, the town's main market was burned to the ground (Human Rights Watch, 2014b). As opposition forces attempted to wrest control of Bor Town from government forces, they also destroyed three villages surrounding the town. In January – especially in the first two weeks, these patterns continued, with additional medical resources from an estimated 14 pharmacies looted and three medical centres burned, more homes destroyed, and livestock stolen (Wheeler, 2014). Upon visiting Bor town in the aftermath of this violence, this scale of destruction led Assistant Secretary-General for Human Rights Ivan Šimonovic to describe Bor as a ghost town (United Nations, 2014).

These patterns of secondary modalities of violence against civilians by opposition forces continued through January and into February, with further reports of destruction centred around Bor Town (UNMISS, 2015; Wheeler, 2014). Violence that occurred in the first half of January is indicative of patterns of collective punishment

against the Dinka civilian population. By early January, government forces had left Bor and would not be able to successfully recapture it until weeks later (Raleigh et al., 2010). In this time, opposition forces had no direct military objective as they moved through the town – the extensive destruction, including the burning of the main market and dozens of civilian homes is a demonstration of violence as a direct communication between opposition armed actors and the Dinka civilian population (Wheeler, 2014). This pattern of destruction and looting targeting a majority Dinka community, particularly in periods without direct military engagement, aligns strongly with the results of the regression model – suggesting a pattern of secondary modalities of violence against civilians as a tool to communicate with and collectively punish those civilian populations perceived to be affiliated with government armed actors.

Rubkona (2014) – Rubkona County is located in the north of Unity State with its northernmost point bordering Sudan to the north (Elamin, 2020a). The state capital, Bentiu, is located in Rubkona county along the banks of the Bahr el Ghazal River, just southeast of Rubkona Town, to which Bentiu is connected via a bridge (The New Humanitarian, 2006). Rubkona county represented a strategically significant location – control of the capital of Unity State would solidify control over oilfields in the county as well as threaten the SLPM-IO's most important supply corridor (Small Arms Survey, 2015). Armed clashes began early in the year and then spiked again in April and June-August as government forces fought to maintain control over the area. Figure 14 below shows a map of the ethnic identity composition of Rubkona county. Similarly to the map above, the figure was developed by combining the administrative boundaries (HDX, 2020; IMWG et al., 2024) with the geographic location of ethnic groups (Vogt et al., 2015), indicating their regional settlement patterns, a definition which indicates

that ethnic groups reside in regions that are easily distinguishable on a map in a spatially contiguous region in which a predominant share of group members reside (Wucherpfennig et al., 2011) across South Sudan. The two respective shapefiles were mapped using R. Rubkona County is located within the circle.

Rubkona County is predominantly inhabited by the government-affiliated Dinka ethnic group, comprising 99 percent of the area (Vogt et al., 2015; Wucherpfennig et al., 2011). The twin towns of Rubkona and Bentiu are located on the easternmost part of the county, proximate to other parts of Unity State which are predominantly Nuer inhabited (Elamin, 2020a). As such, Rubkona County, and Bentiu in particular, represented an opportunity for government forces to attack and displace the periphery, weakening a Nuer stronghold elsewhere in the state which would subsequently fall under government attack (Human Rights Watch, 2015; Small Arms Survey, 2015). As the civil war erupted in late 2013, government forces appeared to mirror violence against Nuer in Juba, spreading violence to parts of Unity State (Pinaud, 2022).

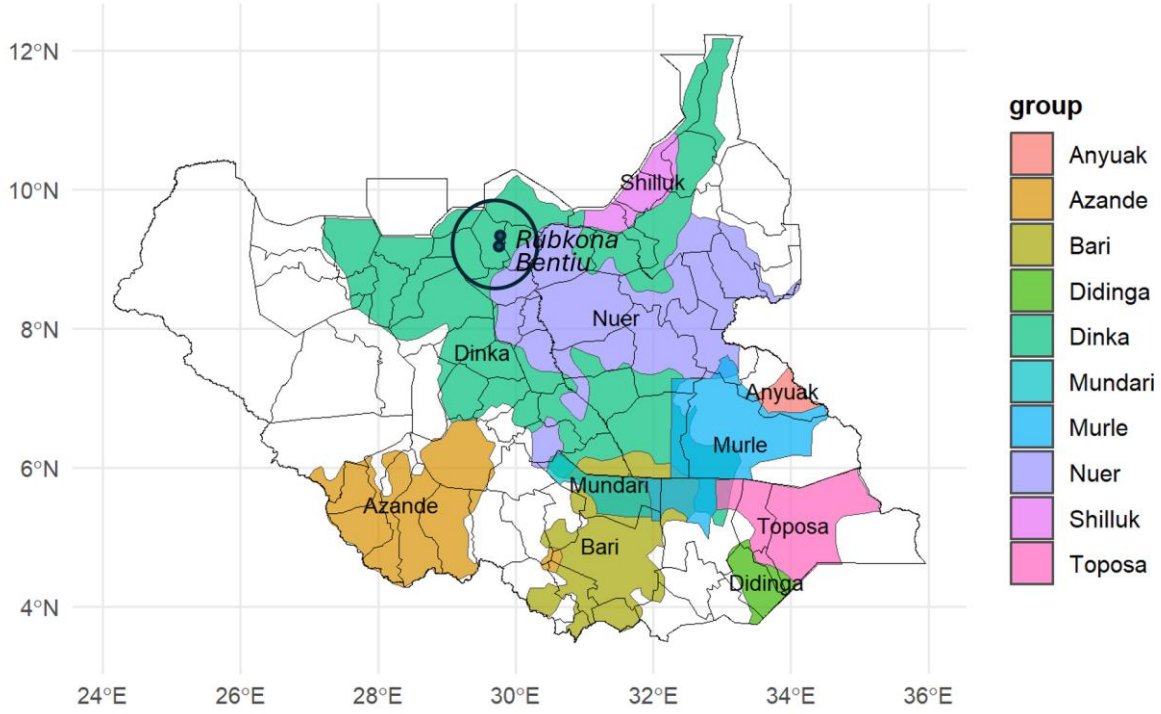


Figure 14 – Map of ethnic identity composition of Rubkona County

Based on ethnic identity composition, I would expect to see relatively high levels of primary modalities of violence against civilians and comparatively moderate levels of secondary modalities of violence against civilians. Rubkona represented an ethnic majority for government and government-affiliated armed actors, which the regression analysis showed to be strongly associated with higher levels of primary modalities of violence against civilians. When it comes to secondary modalities of violence against civilians, however, an ethnic majority was negatively associated with violence but not statistically significant. As a result, secondary modalities of violence against civilians are expected be comparatively moderate, as an ethnic majority composition does not have a statistically significant relationship. For primary modalities of violence against civilians, Rubkona experienced moderate levels of 1 VAC, with a total of 16 recorded events by government and government-affiliated armed actors in 2014. As compared to other conflict side-county-year units, Rubkona in 2014 recorded the twelfth highest level of primary modalities of violence against civilians. Secondary modalities of violence against civilians were comparatively high, with a total of 18 recorded events by government and government-affiliated armed actors, the second highest of any conflict side-county-year.

For primary modalities of violence against civilians, Rubkona in 2014 represents moderate levels of violence. As the civil war spread to Rubkona county, government and government-affiliated forces were implicated in violence against civilians with a spike between January and March, including an attack on the Bentiu UN protection of civilians site by military forces, JEM fighters, and Dinka ethnic militias, resulting in an estimated 36 deaths (Raleigh et al., 2010; UNMISS, 2015). At the time of the attack, the site housed predominantly Nuer IDPs (UN Security Council, 2019). Outside of the base, multiple reports submitted to UN human rights experts

indicated that government forces targeted Nuer civilians, carrying out extrajudicial killings across Rubkona, Bentiu, and Unity oil fields that resulted 135 fatalities and burials in mass graves (Raleigh et al., 2010). As government forces entered Rubkona in mid-January, reports emerged of government soldiers targeting Nuer civilians, identifying them based on traditional scarification, and burning at least five people alive in their homes (Human Rights Watch, 2014b). During this period, Human Rights Watch (2014a) reported that the majority of the civilian population of Rubkona and Bentiu fled, and government forces targeted the remaining civilian population with lethal violence. In April, opposition forces had gained control of Bentiu. As government forces launched a campaign to retake the town in May and then again in August, violence against civilians again spiked – Pakur village near Bentiu was attacked in an episode of high-fatality violence (Raleigh et al., 2010); JEM fighters were accused of repeated instances of rape and murder (Human Rights Watch, 2014b; UNMISS, 2015); and government forces again opened fire into the air near the UN Bentiu base, subsequently assaulting UN staff and killing presumed Nuer civilians as they attempted to flee (Wheeler, 2014). Many witnesses reported that they had seen bodies left in various neighborhoods in Bentiu following the recapture of the town (Human Rights Watch, 2014b).

During this period, Bentiu and the surrounding areas of Rubkona County experienced a spike in displacement. At its height in 2014, the Bentiu UN PoC site housed 47,000 civilians and became the largest IDP camp in the country (Loewenstein, 2015). It appears that these displacement patterns were centred around Rubkona and the surrounding areas and driven by the localised violence, as other PoC sites in the country, such as those located in Upper Nile and Eastern Equatoria states, were experiencing decreases in IDP presence (Dujarric, 2014; FEWS NET, 2014;

Loewenstein, 2015). Here, patterns of observed violence indicate that in a Dinka majority county, government and government-affiliated forces targeted Nuer civilians that were living in the periphery of a larger Nuer stronghold in Unity state. The primary modalities of violence against civilians by government forces may have served to disrupt and displace Nuer populations, as government forces subsequently launched a large-scale military campaign in other parts of Unity state. This military campaign, peaking in 2015, reported extensive violence against civilians, with further targeting of Nuer civilians (Human Rights Watch, 2015). While observed levels of primary modalities of violence against civilians only reach comparatively moderate levels, the patterns of violence by government forces seeking to displace Nuer civilians aligns strongly with theoretical assumptions of the patterns of violence.

For secondary modalities of violence against civilians, Rubkona experienced the second highest levels of violence throughout the civil war. When government troops, reinforced by JEM fighters, entered Rubkona and Bentiu between January 10 and 12, Rubkona and part of Bentiu were almost completely burned down (UNMISS, 2014). This included large-scale damage of civilian resources – almost the entirety of the Rubkona market and neighbourhoods around the market were burned, leaving mostly blackened structures in the town (Wheeler, 2014). In rural areas, government armed actors carried out cattle raids, stealing hundreds of animals from communities linked to the opposition (Raleigh et al., 2010). As government forces moved east and south out of Rubkona and Bentiu, reports emerged that military forces and its allies burned multiple villages and towns as they targeted locations controlled by opposition forces (UNMISS, 2014).

Furthermore, the extensive looting and destruction of civilian property was reportedly carried out along ethnic lines, suggesting that secondary modalities of

violence against civilians were not simply opportunistic during periods of control but part of patterns to target civilians of a particular ethnic group (UNMISS, 2014). However, these results of high levels of secondary modalities of violence against civilians are higher than expected based on the regression models which demonstrated a negative but not statistically significant relationship between ethnic minority and 2 VAC. As demonstrated in the previous analysis chapter, Rubkona experienced cycles of secondary modalities of violence against civilians by rival conflict sides. As opposition armed actors also had incentives to target a Dinka majority in Rubkona county, this positive feedback loop of secondary modalities of violence may have contributed to the observed levels of violence higher than predicted by the regression model.

6.9 Conclusion

This analysis has sought to understand patterns of violence between two categories – primary and secondary modalities of violence against civilians. Regression analysis findings demonstrate a divergence between primary and secondary modalities of violence against civilians in connection to the ethnic constituency present in a conflict environment. First, I find that where the ethnic constituency of the conflict side is a minority, there are lower levels of primary modalities of violence against civilian and higher levels of secondary modalities of violence against civilians. Second, I find that where the ethnic constituency of the conflict side is a majority, there are higher levels of primary modalities of violence against civilians and lower levels of secondary modalities of violence against civilians. This is further supported by the case study analyses. Bor South in 2013-2014 demonstrates a case of opposition armed actors targeting an ethnic majority (Dinka) where their ethnic constituency was a minority, carrying out lower levels of primary modalities of violence against civilians and higher

levels of secondary modalities of violence against civilians. In Rubkona in 2014, government armed actors targeted an ethnic minority (Nuer) where their ethnic constituency was a majority, carrying out moderate levels of primary modalities of violence against civilians and high levels of secondary modalities of violence against civilians.

The results of the regression models and patterns observed in the case study analysis suggest armed actors use primary modalities of violence against civilians most in contexts where their ethnic constituency is a majority, targeting the ethnic minority present, potentially as a tool of displacement of the minority in pursuit of ethnic homogeneity in the area. Conversely, these observations suggest that armed actors use secondary modalities of violence against civilians most in contexts where their ethnic constituency is the minority, collectively targeting the majority ethnic constituency present with modalities of violence that can cause more widespread harm.

These findings demonstrate clear distinctions between patterns of primary and secondary modalities of violence against civilians in the context of the geographic dispersion of ethnic groups during the South Sudanese civil war, suggesting that armed actors may view these categories of violence as tools that are useful in different strategic contexts. As with the findings of the previous analysis chapter, these findings underscore that secondary modalities of violence against civilians do not simply serve as a proxy for other modalities of violence. The occurrence of secondary modalities of violence against civilians is shown to differ in substantive ways from primary modalities of violence, serving as a tool to collectively target civilian populations and possibly cause widespread harm as important resources are attacked and destroyed. These results highlight the variation in violence against civilians, creating opportunity for further research on a broader scope of violence against civilians to understand

connections between contextual factors and modalities of violence against civilians beyond risks to civilian bodies.

7. Conclusion

While the majority of casualties in civil wars are civilian (Holt and Berkman, 2006; Kilroy et al., 2024; Williams, 2013), the vast majority of these deaths do not result in injuries sustained from violent conflict but rather its subsequent effects – disease, malnutrition, and other health risks (Jawad et al., 2020). Consideration of the kinds of violence that drive these subsequent effects – attacks against civilian objects which are central to supporting the safety and wellbeing of civilians – are therefore crucial to understanding the full scope of risk and conflict-related deaths of civilian populations. Despite extensive studies on different aspects of violence against civilians (Abbs et al., 2020; Cohen and Nordås, 2015; Di Salvatore, 2016; Kalyvas, 2006; Raleigh, 2012; Welsh, 2023; Wood and Kathman, 2015), this specific subset of violence against civilians is relatively understudied and warrants greater examination. How these forms of violence may differ from other modalities of violence against civilians in varying conflict environments is not fully understood, leaving both an empirical and theoretical gap in our understanding of violence directed at civilian objects. While collection efforts of conflict event data have grown considerably in recent years, these initiatives have as yet failed to account for a phenomenon that makes up an important part of how civilians experience conflict and suffer harm from it. These efforts that seek to document and examine contextual factors in a granular way are, therefore, incomplete and this thesis fills an important gap in these efforts.

This thesis examines patterns of primary and secondary modalities of violence against civilians through a case study of the South Sudanese civil war between 2013 and 2022. South Sudan presents an ideal case for hypothesis-testing on the distinction between primary and secondary modalities of violence against civilians (Gerring, 2008). Over the course of the civil war, the South Sudanese people have suffered from

violence in a variety of forms, starting as early as the hours and days following the declaration of the attempted coup d'état (Bureau of Democracy, Human Rights, and Labor, 2014; Henry, 2014; UNMISS, 2014) and continuing through each year of the civil war (Pedneault, 2017; UNMISS, 2023; U.S. Department of State, 2023). This includes patterns of primary and secondary modalities of violence against civilians reported in different contexts, against different groups, and across various parts of the country (Human Rights Watch, 2016, 2014a).

The South Sudanese civil war includes many important contours, including the contestation of central political power (Arnold and LeRiche, 2013; Johnson, 2014), a history of recurrent violent conflict and long-standing grievances (Arnold and LeRiche, 2013; Jok and Hutchinson, 1999; Nyaba, 2019), evidence of ethnic-based violence (Garang, 2020; Johnson, 2014; Pedneault, 2017; Raleigh et al., 2010), and intense violence in resource-constrained setting that precipitated acute food insecurity and famine (Devi, 2017; O'Driscoll, 2018; Olsen et al., 2021), which are mirrored in other contemporary civil wars across Africa (Ahmed, 2024; Akande and Gillard, 2019; Bapolisi et al., 2021; Bitenga Alexandre et al., 2021; Medani, 2024; Olanrewaju and Balana, 2023; Tuki, 2025). This allows the findings of this analysis to speak not only to patterns of violence in South Sudan, but to civil wars with similar features (Gerring, 2009).

This thesis has asked – what contextual factors shape variation in patterns of primary and secondary modalities of violence against civilians? As the empirical evidence presented in this thesis demonstrates, patterns of violence against civilians by armed actors in civil war differ in substantive ways. In particular, this thesis has examined variation in primary and secondary modalities of violence against civilians. In some cases, armed actors target civilians directly while in other cases, changes to the

conflict environment can lead armed actors to use force to harm civilian populations through attacks targeting civilian objects – burning crops, looting food stores, attacks on healthcare facilities, and other violence that denied civilians access to important resources.

This final chapter is divided into four parts. First, a summary of key findings of this thesis is presented, including empirical findings on secondary modalities of violence against civilians, armed actor competition and violence against civilians, and ethnic identity and violence against civilians. Next, the research contributions and implications of this research are discussed, including conceptual, analytical, empirical, methodological, and applied contributions. This is followed by a discussion of the limitations of this analysis. Lastly, the conclusion identifies opportunities for future research.

7.1 Summary of key findings

The findings of this thesis are divided in two. First, the dataset of secondary modalities of violence against civilians presents empirical evidence which suggests that patterns of primary and secondary modalities of violence against civilians diverge in meaningful ways. Second, these patterns, can vary with shifts in subnational conflict environments during civil wars and are not uniform. When examining the contextual factors of ethnic identity and armed actor competition, the occurrence of primary and secondary modalities of violence against civilians are shown to differ. The subsections below detail the findings of empirical evidence from the dataset on secondary modalities of violence against civilians and the two analyses of subnational contextual factors.

7.1.1 Empirical findings of secondary modalities of violence against civilians

The original data collection effort of this thesis demonstrates three key findings. First, that as research on patterns of civil war expand, new conflict event data can be sourced from open access, unstructured text data. For data on secondary modalities of violence against civilians, this drew on news and nonprofit reporting sources. The availability of data that can be transformed and subsequently analysed removes barriers to research and creates opportunities for scholars at a global level to engage in debate and further understanding of drivers of violence against civilians. Second, a process for coding this unstructured data into a quantitative dataset can be designed to include innovative approaches that combine manual and automated techniques. The data collection methodology and subsequent dataset on secondary modalities of violence against civilians demonstrated the efficacy of a semi-automated approach and the utility for researchers that experience resource constraints – whether number of researchers, time, or funding – but seek to carry out effective data generation at scale.

And third, the dataset generated from this process presents empirical evidence which suggests that these patterns diverge from those of primary modalities of violence against civilians in meaningful ways. Data on secondary modalities of violence against civilians was shown to vary across time, space, and armed actor as compared to other categories of violence. This demonstrates the utility of distinguishing secondary modalities of violence against civilians as distinct from other categories of violence. The variation between primary and secondary modalities of violence against civilians is then subsequently explored to understand how the relationship among armed actors and between armed actors and civilians are connected to violence against civilians.

7.1.2 Armed actor competition and violence against civilians

Primary and secondary modalities of violence against civilians have a distinct connection to armed actor competition – the presence and interaction of multiple armed actors in a given conflict environment. In highly competitive conflict environments, armed actors can use primary modalities of violence against civilians to signal strength and resolve to continue fighting, to impose military costs on opponents, and to increase their political relevance in a competitive market (Boyle, 2009; Fjelde and Hultman, 2014; Kydd and Walter, 2006). Aligned with the empirical evidence presented by extant research (Dowd, 2024, 2019; Raleigh and Choi, 2017; Welsh, 2023; Wood and Kathman, 2015), I expected that three mechanisms of armed actor competition to be positively associated with primary modalities of violence against civilians – high levels of armed actors present in a conflict environment, fluctuations in that presence, and the use of violence against civilians by rival armed actors.

The proposed hypothesis, however, suggested that this relationship would not hold for secondary modalities of violence against civilians. First, secondary modalities of violence against civilians present less immediate and visible human suffering than primary modalities and as a result, may serve as a weaker communication tool in highly saturated or fragmented conflict environments (Bloom, 2005; Croicu and Eck, 2022). Second, in highly competitive conflict environments, armed actors have greater incentives to control local resources (Kathman and Wood, 2016; Metelits, 2009). While primary modalities of violence against civilians can be used to coerce civilian populations in pursuit of these resources (Kalyvas, 2006; Metelits, 2009), secondary modalities present a direct link between the use of violence and the resources armed actors may seek to control. As a result, I expected that the rival use of secondary modalities of violence against civilians would be positively associated with further

violence, rather than high levels of or changes in armed actor presence in a conflict environment.

The statistical analysis provides support for the hypothesis on primary modalities of violence against civilians, with a positive and significant relationship between all three measures of armed actor competition and primary modalities of violence against civilians. Illustrative case study evidence from Juba in 2016 further supports this theory that armed actor presence, fluctuations, and rival violence against civilians are positively associated with higher levels of primary modalities of violence against civilians. In this case, the highest levels of primary modalities of violence against civilians seen in the civil war occurred in a highly saturated conflict environment with multiple armed actors present from both conflict sides.

Similarly, statistical analysis provides support for the hypothesis on secondary modalities of violence against civilians, with a positive and significant relationship between use of rival violence against civilians and secondary modalities of violence against civilians. Illustrative case study evidence from Rubkona in 2014 further supports this theory of rival use of violence against civilians being the measure of armed actor competition that is positively associated with secondary modalities of violence against civilians. In this case, violence against civilians was carried out by both government and opposition armed actors as each conflict side vied to dominate the strategically significant location, creating a positive feedback loop of violence against civilians as each side (re)gained control.

The findings of the analysis of armed actor competition and violence against civilians demonstrate a divergence between primary and secondary modalities of violence centred around the relationship between armed actor competition in terms of presence, fluctuations, and use of violence against civilians by rival armed actors.

Connections between measures of armed actor competition and violence against civilians differ. For primary modalities of violence against civilians, armed actor presence, fluctuations, and use of rival violence against civilians are positively associated with higher levels of violence. For secondary modalities of violence against civilians, only the use of violence against civilians by opposing armed actors is positively associated with further violence.

7.1.3 Ethnic identity and violence against civilians

Primary and secondary modalities of violence against civilians have differing connections to ethnic identity composition. Existing research highlights that subnational composition of ethnic identity has a strong connection with violence against civilians. This includes observed patterns of armed actors targeting areas where an opponent's ethnic constituency dominates (Fjelde and Hultman, 2014; Hultman, 2008) and targeting in areas where their own constituency dominates but directing violence toward the ethnic minority in that area (Di Salvatore, 2016). I expected that where an armed actor's perceived ethnic constituency was a minority, they would carry out less primary modalities of violence against civilians. Conversely, I expected that where an armed actor's perceived ethnic constituency was a majority, they would carry out more primary modalities of violence against civilians. This aligns with the logic that violence against civilians, particularly lethal violence (Di Salvatore, 2016; Valentino Benjamin, 2004), can be used as a tool to target the ethnic minority present.

The proposed hypothesis, however, suggested that this relationship would not hold for secondary modalities of violence against civilians. Secondary modalities of violence against civilians have the capacity to collectively harm – attacking vital resources such as food, water infrastructure, and humanitarian installations denies

multiple civilians access to resources in a single event. As a result, I expected secondary modalities of violence against civilians to serve as a strategy to inflict harm on perceived opponents on a collective scale. In particular, I expected that where an armed actor's ethnic constituency was the minority, they would carry out higher levels of secondary modalities of violence against civilians to target an area where the opposition's ethnic constituency had a majority (Fjelde and Hultman, 2014; Sullivan, 2012).

The statistical analysis provides support for the hypothesis on primary modalities of violence against civilians, with a negative and significant relationship where an armed actor's ethnic constituency is a minority and a positive and significant relationship where an armed actor's ethnic constituency is a majority. Illustrative case study evidence from Rubkona in 2014 further supports this theory of armed actors carrying out greater levels of primary modalities of violence against civilians where an armed actor's ethnic constituency is a majority. In this case, in a majority Dinka inhabited area, government armed actors targeted an ethnic minority – Nuer – where the government sought to consolidate a majority for its ethnic constituency as contestation between Dinka and Nuer communities continued in other parts of Unity State.

Similarly, the statistical analysis provides support for the hypothesis on secondary modalities of violence against civilians, with a positive and significant relationship where an armed actor's ethnic constituency is a minority and a negative and significant relationship where an armed actor's ethnic constituency is a majority. Illustrative case study evidence from Bor South in 2014 further supports this theory of armed actors carrying out greater levels of secondary modalities of violence against civilians where an armed actor's ethnic constituency is a minority. In this case,

opposition armed forces whose ethnic constituency was a minority targeted its opponent's ethnic constituency – Dinka – which held a majority in the area.

The findings of the analysis of ethnic identity and violence against civilians demonstrate a divergence between primary and secondary modalities of violence centred around the minority and majority ethnic compositions. For primary modalities of violence against civilians, where an armed actor's ethnic constituency is a majority, they carry out more violence against civilians, suggesting the use of primary modalities of violence against civilians in a pattern of cleansing – forcing an ethnic minority from an area that allows for consolidation and greater ethnic homogeneity. For secondary modalities of violence against civilians, where an armed actor's ethnic constituency is a minority, they carry out greater levels of violence against civilians, suggesting the use of secondary modalities of violence against civilians to target its opponents base of support, seeking to collectively target and punish civilians where large populations of the opponent's ethnic constituency reside.

7.2 Research contributions and implications

This thesis has made five contributions to research on violence against civilians – conceptual, analytical, methodological, empirical, and applied. Each subsection below describes these contributions in detail, beginning with the framework of primary and secondary modalities of violence against civilians, followed by the analysis of armed actor competition and ethnic identity composition, the empirical evidence presented by the dataset on secondary modalities of violence against civilians in South Sudan, and the methodology of its development. And finally, the applied contributions of this thesis in the policy formulation and implementation of work aiming to prevent and respond to violence against civilians is considered.

7.2.1 Conceptual contributions

With the introduction of a novel framework distinguishing modalities of violence against civilians, this thesis made a conceptual contribution to research on violence against civilians. This novel conceptualisation of violence against civilians enabled the identification of divergences in these different categories of violence. The theoretical framework categorised modalities of violence against civilians into two groups – primary modalities of violence against civilians and secondary modalities of violence against civilians which refer to attacks against civilian bodies and civilian objects, respectively. Scholars have recognised that the vast majority of casualties in civil wars are civilian (Holt and Berkman, 2006; Kilroy et al., 2024; Williams, 2013). However, the majority of these deaths do not result in injuries sustained from violent conflict but rather its subsequent effects – disease, malnutrition, and other health risks (Jawad et al., 2020). Consideration of attacks against civilian objects which are central to supporting the safety and wellbeing of civilians are therefore crucial to understanding the full scope of risk and conflict-related deaths of civilian populations.

The creation of this framework and the addition of the concept of secondary modalities of violence against civilians made two contributions to scholarship on violence against civilians. First, this expanded scope allows scholars to examine a comparatively understudied subsection of violence against civilians – attacks against civilian objects which can lead to physical harm. This allows scholars to understand patterns of violence that can have severe downstream outcomes for civilian populations. Second, the creation of this framework facilitates the comparison of primary and secondary modalities of violence against civilians, allowing scholars to identify variation in how differences in the conflict environment are connected to

different modalities of violence. This enables scholars to identify when and where the risks posed by differences in the conflict environment will vary between categories of violence against civilians and disaggregate a possible strategic logic of violence against civilians for armed actors between targeting civilians themselves and objects that are important to their safety and wellbeing. The validity of this concept of secondary modalities of violence against civilians as distinct from other forms of violence is subsequently tested in the analysis of this thesis.

7.2.2 Analytical contributions

Second, through the analysis of the relationship of armed actor competition and ethnic identity with primary and secondary modalities of violence against civilians, this thesis makes an analytical contribution to research. This thesis furthers existing debates on the strategic logic of violence against civilians. Both analysis chapters have sought to understand patterns of violence between two categories – primary and secondary modalities of violence against civilians – in the context of differing conflict environments. The first analysis examines the relationship between armed actor competition and violence against civilians, and the second analysis examines the relationship between ethnic identity and violence against civilians. These analyses make two important contributions to existing research on violence against civilians. First, they advance discussions on sub-national contextual factors and analysis of violence against civilians more specifically, adding to the growing research on how armed actor relationships with civilian populations (ethnic identity) and other actors (armed actor competition) vary over time and space. Second, they identify a distinction between the two categories of violence, pointing to the value of future research that considers a broader scope of modalities of violence.

For armed actor competition, the findings indicated that the relationship between armed actor competition and primary and secondary modalities of violence against civilians is distinct. For primary modalities of violence against civilians, armed actor presence, fluctuations, and use of rival violence against civilians were associated with higher levels of violence. For secondary modalities of violence against civilians, only the use of violence against civilians by opposing armed actors was associated with further violence. These findings contributed to debate on the relationship between armed actor competition and violence against civilians. Extant research had identified that in highly competitive conflict environments, armed actors can use primary modalities of violence against civilians to signal strength and resolve to continue fighting, to impose military costs on opponents, and to increase their political relevant in a competitive market (Boyle, 2009; Fjelde and Hultman, 2014; Kydd and Walter, 2006).

Scholars had identified three mechanisms of armed actor competition which can drive violence against civilians – high levels of armed actors present in a conflict environment, fluctuations in that presence, and the use of violence against civilians by rival armed actors (Dowd, 2024, 2019; Raleigh and Choi, 2017; Welsh, 2023; Wood and Kathman, 2015) but the relationship of these measures of competition and secondary modalities of violence against civilians was as yet untested. The findings of this thesis built on this scholarship by identifying that connections between armed actor competition and violence are not uniform – the differing relationship between primary and secondary modalities of violence against civilians suggests that where there is a strategic logic for armed actors to engage in violence against civilians, the modalities of violence that armed actors employ may shift alongside changes in a conflict environment.

For ethnic identity, the findings similarly demonstrate a divergence between primary and secondary modalities of violence centred around the minority and majority ethnic compositions. For primary modalities of violence against civilians, where an armed actor's perceived ethnic constituency is a majority, they carry out more violence against civilians. For secondary modalities of violence against civilians, where an armed actor's perceived ethnic constituency is a minority, they carry out greater levels of violence against civilians. These findings advanced research on the impact of subnational ethnic identity composition on violence against civilians.

First, the results offer additional empirical evidence to the argument that in an area dominated by an ethnic majority, minorities in that space are at risk of violence as armed actors seek to displace minorities in pursuit of ethnic homogeneity and control (Di Salvatore, 2016). In particular, findings suggested the use of primary modalities of violence against civilians in a pattern of cleansing – forcing an ethnic minority from an area that allows for consolidation and greater ethnic homogeneity, reinforcing the findings of extant research that the most intense or violent actions are most likely to induce immediate flight or removal of a population from an area (Di Salvatore, 2016; Melander, 2007).

Second, the results expand existing scholarship on ethnic identity and violence, finding evidence that suggests that secondary modalities of violence against civilians can be used to target its opponents base of support, seeking to collectively target and punish civilians where large populations of the opponent's ethnic constituency reside. This builds upon current research which highlighted that armed actors can target the ethnic constituency of their opponents as a way to raise military costs and inflict harm on perceived opponents (Fjelde et al., 2016; Fjelde and Hultman, 2014; Hultman,

2008), but considers previously understudied modalities of violence that have the capacity for more collective harm.

7.2.3 Empirical contributions

Through its original data collection effort, this thesis makes an empirical contribution to research on violence against civilians. The dataset provides complete and systematically collected event data on secondary modalities of violence against civilians over the course of the South Sudanese civil war, filling a gap in our understanding of modalities of violence against civilians which target civilian objects. The dataset of secondary modalities of violence against civilians provides spatiotemporal information on the date (day, month, and year), location (state, county, town, latitude, and longitude), and armed actors involved in the event. The structure of the event data was transformed from unstructured text data into data with coded variables on time, location, armed actors, and metadata. This creates a dataset with comprehensive coverage of the full duration a civil war, allowing analysis of subnational patterns of violence in response to variation in contextual factors to test theories of violence against civilians.

As the majority of casualties in civil wars are civilian (Holt and Berkman, 2006; Kilroy et al., 2024; Williams, 2013) and the majority of these deaths result from indirect effects of violent conflict, including disease, malnutrition, and other health risks (Jawad et al., 2020), development of empirical evidence on secondary modalities of violence against civilians are crucial to understanding the full scope of risk for civilians in civil wars. The development of this dataset enabled analysis of what is highlighted by extant research as an important risk to civilians and a growing phenomenon (Cavaliere et al., 2021; Hägerdal, 2020; Muzzall et al., 2021; Sowers and

Weinthal, 2021), demonstrating that patterns of secondary modalities of violence against civilians varied across time, space, and armed actor as compared to other categories of violence. Furthermore, the structure of the data ensured compatibility with existing datasets on primary modalities of violence against civilians, enabling an analysis of patterns of violence across time and space and possible divergences between different modalities of violence against civilians.

7.2.4 Methodological contributions

The original data collection effort of this thesis filled a gap in systematically collected event data on secondary modalities of violence against civilians. The data collection methodology took a semi-automated approach, combining researcher-led oversight and decision-making with the automation of repetitive, rule-based tasks. The methodology utilises Robotic Process Automation software to integrate automated workflows that could identify, collect, and transform conflict event data from reporting sources into a quantitative event dataset on secondary modalities of violence against civilians that facilitated comparative analysis of event data on primary modalities of violence against civilians. This data collection methodology represents an innovative approach to event data generation in the field of quantitative conflict research.

While manually coded datasets are currently the dominant approach to conflict event data generation (Fjelde et al., 2021; LaFree and Dugan, 2007; Raleigh et al., 2010; Salehyan et al., 2012; Sundberg et al., 2012), the use of automation for data coding and dataset generation has grown in conflict research. Machine coding of event data from news sources has been used to develop datasets including ICEWS, GDELT, and KEDS, which have underscored the value of automation-based methods for real-time and large-scale event coding (Boschee et al., 2012; Leetaru and Schrodt, 2013;

Schrodt et al., 2014; Ward et al., 2013a). However, this is not without criticism. Conflict scholars argue that automated data collection has little to no oversight or review process (Raleigh and Kishi, 2023) and can erroneously count conflict events in a dataset because the automation process was incapable of effectively interpreting the context of the report or the use of figurative language (Miller et al., 2022). Without assurance that data is correctly identified and coded, concerns around the accuracy of automation-generated data can continue to outweigh the gains in efficiency that automation offers.

The semi-automated data collection methodology presented in this thesis eliminates the binary of manual and automated data collection approaches. An approach that combines computational methods of automated data collection with human coding aligns with ongoing advances in event data collection (Croicu and Weidmann, 2015; Nardulli et al., 2015) that reduces the burden of manual review of articles and combines automatic and researcher-led processes in workflows, enabling greater efficiency for repetitive, rule-based tasks while ensuring oversight. Diverting from the use of traditional automation (Jovanović et al., 2018; Penttinen et al., 2018) in favour of RPA enables this approach as it allows for the integration of the researcher for data collection oversight and decision-making across the various steps of the data collection process (Hofmann et al., 2020; Van der Aalst et al., 2018; Wewerka and Reichert, 2020).

RPA is a software technology that enables the user to build, run, and manage software robots that can carry out actions traditionally completed by the human user (Syed et al., 2020). RPA software sits on top of existing software or systems, such as a webpage, and emulates the actions of a human user (e.g. move and click the mouse) (Hofmann et al., 2020). RPA presents effective use cases for data extraction and data

transformation – the two uses of RPA for this research – in information-dense industries including public administration (Houy et al., 2019), audits and invoicing (Bellinga et al., 2022; Eulerich et al., 2022; Huang and Vasarhelyi, 2019; Moffitt et al., 2018; Urbach et al., 2021), and healthcare settings (Sreekrishna and Jacob, 2023).

The use of RPA for data extraction and data transformation in the dataset generation of this thesis, however, represents a novel application of this software and data collection approach in area of event data on political violence and conflict. The results of the data collection demonstrate that RPA is an effective technology to support the semi-automated generation of conflict event data. The structure of RPA to develop and execute workflows for specific components of the data collection process that were repetitive, rule-based tasks facilitated the integration of researcher oversight and decision-making alongside automated processes. In line with existing semi-automated approaches, the results of the data collection indicate that a semi-automated approach to event data generation using RPA is most effective deploying RPA components early in the data collection process where the volume of information is highest, later complemented by manual tasks to ensure accurate coding decisions and consistency with source material (Croicu and Weidmann, 2015). As quantitative research on conflict expands, scholars should consider semi-automated approaches to data collection and the utilisation of Robotic Process Automation software to support these efforts to facilitate the study of areas of conflict event data that are limited by time, funding, and researcher constraints.

7.2.5 Applied implications

Academic research, especially within the field of conflict research, has the crucial capacity to inform policy and the subsequent design and implementation of

interventions that seek to prevent or disrupt violence directed at civilian populations. As such, there are several policy implications stemming from the results of this research. First, connections between the empirical evidence of this thesis and the focus on protection of civilians from threats of physical violence are discussed. Second, how these results provide further support to a primary concern in the implementation of effective protection of civilians – when government actors are aggressors – is considered.

In the last 25 years, there has been a significant evolution in the commitment of the international community to protect civilians during civil war (Kilroy et al., 2024) from the first peace keeping mission to receive a protection of civilians mandate in 1999 to nearly all current military and police peacekeeping personnel serving with a mandate to protect civilians (Johnson, 2018). As outlined in *The Protection of Civilians in United Nations Peacekeeping Handbook*, the current scope of protection of civilians is limited specifically to threats of physical violence against civilians (DPKO, 2020). Current policy states that under a protection of civilians mandate, peacekeeping missions must 'consider all threats of physical violence against civilians,' including attacks that 'kill, torture, maim, rape or sexually exploit, forcibly displace, starve, pillage, abduct or arbitrarily detain, kidnap, disappear or traffic persons' (DPKO, 2020 p. 83). This definition of physical violence aligns strongly with the theoretical framework set forth in this thesis to consider the use of force to cause physical harm to civilians, considering both primary modalities of violence against civilians such as murder, torture, and abduction as well as secondary modalities of violence against civilians such as pillage and attacks against civilian objects that can lead to starvation.

In addition to the alignment of the scope of violence of this research and current policy for protection of civilians, the empirical evidence presented further underscores

the importance of examining threats of physical violence beyond the risks to civilians themselves. The findings of this analysis demonstrate that secondary modalities of violence against civilians contribute significantly – and differently – to the threats of physical violence that protection of civilians seeks to prevent. Specifically, in areas of high rivalry or where armed actors seek to punish opponents through violence against its civilian base of support, peacekeepers should expect to see greater risk through violence against civilian objects. Focusing predominantly on threats of physical violence against civilian bodies would create unintended blind spots in the risks civilians face. As peacekeeping missions continue to implement policy guidance and conduct assessments of threat and risk (e.g. the Protection of Civilians Threat Matrix) (DPKO, 2020 p. 89), analysis of threat type would benefit from following the findings of this thesis – the location, risk level, and subsequent priority level of types of physical violence attacking civilian bodies and civilian objects will differ and careful consideration of these divergences in country and sub-national specific contexts will better enable effective implementation of protection interventions.

Furthermore, the results of the analysis of armed actor competition and ethnic identity speak to one of the primary issues faced by the international community – how to implement protection mandates when the government is also a perpetrator of violence against civilians. Peacekeeping missions have struggled to fully implement their protection of civilians mandates as peacekeepers remain especially reluctant to use force against government forces in order to protect civilians (Kilroy et al., 2024). As stated by Hilde Johnson, the former UN Special Representative in South Sudan, there remains a lack of policy guidance for protection of civilians when governments are the main perpetrator (Johnson, 2018, 2016). Findings of the two analytical chapters of this thesis demonstrate that both government and opposition armed actors can respond to

shifts in subnational conflict environments and both conflict sides carry out violence against civilians – both in terms of modalities of violence and scale of violence – in alignment with these shifts. As policymakers and practitioners seek to improve their capacity to protect civilians, it is clear that the primacy of this issue will not diminish. For both government and opposition armed actors, primary and secondary modalities of violence against civilians can hold a strategic logic that enables the pursuit of their goals. Empirical evidence presented in this thesis demonstrates that both conflict sides are subject to this strategic logic of violence. As academic research continues to underscore these patterns and better understand drivers of different modalities of violence against civilians, improved protection of civilians by peacekeeping forces will require continued debate and updated guidance to address this ongoing issue.

7.3 Limitations

This thesis formed and tested theories of primary and secondary modalities of violence against civilians in civil war as distinct categories of violence that have differing connections to contextual factors. While the theoretical framework, empirics, and analyses provide strong support for this claim, there remain limitations to this research that are important to highlight. This includes limitations posed by the design, case selection, and data of this thesis that have implications for the conclusions of this analysis.

First, there are limitations to an analytical approach based on conflict event data. The conflict event data included in the dataset of this research does not represent the full universe of primary and secondary modalities of violence against civilians that occurred during the South Sudanese civil war. This, like all conflict event datasets, is a sample of conflict events, relying on the reporting of conflict events. Data can only be

included in this analysis if it was first reported. With quantitative research based on conflict event data, there are limitations on the ability to understand causal relationships from observational data on violence (Bell-Martin and Marston Jr, 2021; Gibilisco and Steinberg, 2023; Miller et al., 2022; Nunes et al., 2025; Weidmann, 2016). In response to these limitations, this thesis worked first, to overcome biases in conflict event data generation where possible, and second, employed qualitative and quantitative approaches of observation and analysis that can improve the alignment of theories and empirics with the complexities of violence during civil war (Thaler, 2017).

Second, due to the researcher constraints for data collection, this research analyses a single case study. While a single case study design presents advantages to internal validity, there are limits to the external validity of the analysis (Halperin and Heath, 2020). South Sudan is an extreme case (Gerring, 2008) for the study of primary and secondary modalities of violence against civilians in civil war because preliminary data and extensive reporting indicated high use of various modalities of violence across the geographic scope and timeline of the civil war. While the case selection of an extreme case is well-suited for the hypothesis-testing (Gerring, 2009), it also limits the generalisability of the findings, providing only conditional evidence that the causal mechanisms identified are relevant to other similar cases of civil war (Gerring, 2008).

There are several factors, including the contestation of central or national level political power (Arnold and LeRiche, 2013; Johnson, 2014); a history of recurrent violent conflict that created long-standing grievances that shape the dynamics and mobilisation for violence (Arnold and LeRiche, 2013; Jok and Hutchinson, 1999; Nyaba, 2019); evidence of ethnic-based violence (Garang, 2020; Johnson, 2014; Pedneault, 2017; Raleigh et al., 2010); and a severity of civil war in resource-constrained settings that precipitate acute food insecurity and famine (Devi, 2017;

O'Driscoll, 2018; Olsen et al., 2021), which shaped the South Sudanese civil war. While many of these factors appear in other contemporary civil wars across Africa (Ahmed, 2024; Akande and Gillard, 2019; Bapolisi et al., 2021; Bitenga Alexandre et al., 2021; Medani, 2024; Olanrewaju and Balana, 2023; Tuki, 2025), the case of South Sudan is not universally representative. As a result, the conclusions of this analysis will be able to speak to the patterns of patterns of primary and secondary modalities of violence against civilians in civil wars, including the South Sudanese civil war and cases with these similar contours (Gerring, 2009). This research serves as a basis to test theories of primary and secondary modalities of violence against civilians in civil wars, demonstrating the value of distinguishing between categories of violence against civilians and opening space for future research to tests these findings cross-nationally.

7.4 Directions for future research

In this thesis, I have argued that there are distinct relationships between contextual factors and primary and secondary modalities of violence against civilians during civil wars. Empirical evidence demonstrated clear distinctions in patterns of primary and secondary modalities of violence against civilians in the context of subnational conflict environments. In the analysis of armed actor competition, results indicated that highly saturated or fragmented conflict environments are associated with higher levels of primary modalities of violence against civilians but not for secondary modalities of violence against civilians. In the analysis of ethnic identity composition, results indicated that while armed actors use primary modalities of violence against civilians in the targeting of ethnic minorities, armed actors are more likely to use secondary modalities of violence against civilians where an opponent's ethnic constituency dominates. Rather than serving as a proxy for other modalities of violence

against civilians, the occurrence of secondary modalities of violence against civilians is shown to differ in substantive ways from primary modalities of violence against civilians. The two categories of violence are shown to differ with variation in subnational contextual factors, suggesting that armed actors can view different modalities of violence as having distinct strategic functions as a conflict environment changes.

These results highlight the significance of secondary modalities of violence against civilians, a comparatively understudied component of the risks faced by civilians in civil war. This thesis identified this significance through a mixed methods analysis of two contextual factors, ethnic identity and armed actor competition, through examination of a single case study – the South Sudanese civil war. The findings of these analyses open space of future research to understand the variation in modalities of violence against civilians with greater focus on violence directed at civilian objects, including cross-national analysis and the consideration of other contextual factors.

Appendix A – Data mapping

The table below details sources currently available on conflict events, including what each data source captures and what the concerns or limitations are for the source. The table is further subdivided in two ways. First, sub-headers within the table divide data into source formats – conflict event datasets that capture data on primary and secondary modalities of violence against civilians, news reporting databases, and other conflict event datasets. Second, the table is colour coded to indicate suitability for this analysis – first, rows in green indicate a data source that is sufficient to be included in this analysis; second, rows in yellow indicate that a data source collects data on primary or secondary modalities of violence against civilians but has some limitation that precludes it from inclusion; and third, and rows in red indicate that a data source does not collect sufficient information on any modality of violence against civilians.

Source	What it captures	Concerns/limitations
Conflict Event Datasets on Primary and Secondary Modalities of violence against civilians		
ACLED	The Armed Conflict Location and Event Dataset (ACLED) collects real-time data on the locations, dates, actors, fatalities, and types of all reported political violence and protest events around the world.	This dataset collects data on primary modalities of violence against civilians comprehensively and systematically. It will serve as the basis for conflict event data for this first category of violence. ACLED, however, states that events on 'strategic developments' which include looting and property destruction do not systematically collect data (ACLED, 2019).
Attacks on Health Care in Countries in Conflict (SHCC)	This dataset contains agency-specific and open-source events published in the Attacks on Health Care News Brief and is included in the Safeguarding Health in Conflict Coalition (SHCC) annual reporting on violence against or obstruction of health care. This page is managed by SHCC member	This dataset collects data on a subset of secondary modalities of violence against civilians - damage and destruction of healthcare facilities. This data is available in an excel spreadsheet (hyperlinked to the left), an interactive map (https://map.insecurityinsight.org/health), and in written form via monthly briefs

	Insecurity Insight. The dataset is compiled from open sources and provides the link to the original information where possible.	(https://insecurityinsight.org/projects/healthcare/monthlynewsbrief). The spreadsheet does not, however, include the geographic information needed to map the data.
Education in Danger Monthly News Brief Data	This dataset contains agency- and open-source events published in the Education in Danger Monthly News Brief – an overview of safety, security and access incidents affecting the provision of education. It is compiled from open sources and provides the link to the original information where possible.	Although an important civilian object at risk in conflict contexts, education infrastructure and resources is not within the scope of secondary modalities of violence against civilians.
The Humanitarian Data Exchange	The Humanitarian Data Exchange (HDX) is an open platform for sharing data across crises and organisations. Launched in July 2014, the goal of HDX is to make humanitarian data easy to find and use for analysis. This is a platform that collects publicly available datasets like the Attacks on Health Care in Countries in Conflict.	The platform itself does not collect data but has facilitated the identification of specific datasets included above, including Attacks on Health in Countries in Conflict and Education in Danger Monthly News Brief Data. While HDX does not contain a comprehensive dataset on secondary modalities of violence against civilians, it contains contextual information on the conflict environment which will be suitable for control variables.
Global Terrorism Database	The GTD is an event-level database containing more than 200,000 records of terrorist attacks that took place around the world since 1970. GTD defines a terrorist attack as an event that has meets three key criteria – 'the incident must be intentional – the result of a conscious calculation on the part of a perpetrator; the incident must entail some level of violence or immediate threat of violence - including property violence, as well as violence against people; the perpetrators of the incidents must be sub-national actors' (Global Terrorism Database, 2021 p. 12).	This dataset collects incident data on - among other things - secondary modalities of violence against civilians. This dataset labels these events as 'property damage.' The GTD only collects data on intentional acts of violence so it could not serve as a sole source for conflict event data on secondary modalities of violence. Data is available from 1970 to 2020. The definition of events collected in this database overlap with definitions of both primary and secondary modalities of violence against civilians – violence against people would constitute primary modalities of violence against civilians and property violence would constitute secondary modalities of violence against civilians. However, because this database does not include acts

		of state terrorism, it is an incomplete resource for this analysis (Global Terrorism Database, 2021).
Nigeria Security Tracker	This dataset is an effort to catalogue and map political violence based on a weekly survey of Nigerian and international press (May 2011 - present). The data presented includes violent incidents related to political, economic, and social grievances directed at the state or other affiliated group.	This dataset is only relevant in the case that Nigeria is selected as a case study. The dataset, among other things, collects incident data on secondary modalities of violence against civilians.
Crisis Tracker	The Crisis Tracker is a geospatial database and reporting project that tracks armed group activity and conflict-related incidents in the remote border region encompassing northeastern Democratic Republic of Congo and eastern Central African Republic.	This dataset is only relevant in the case that the Great Lakes region (parts of DRC and CAR) is selected as a case study. The dataset, among other things, collects incident data on secondary modalities of violence against civilians. Data can be obtained through a request form at: https://docs.google.com/forms/d/e/1FAIpQLSegv1J9dPCgG6OLrWpdRZd2lKAtCNon5QDjfZR7A-REDy9ymA/viewform
UCDP - UCDP/PRIO Armed Conflict Dataset version 22.1	One-sided Violence Dataset is a project within the Uppsala Conflict Data Program (UCDP) at the Department of Peace and Conflict Research, Uppsala University. The Uppsala Conflict Data Program (UCDP) has publicly available datasets, including the One-sided Violence Dataset which provides information on intentional attacks on civilians by governments and formally organised armed groups (Eck, 2012). The One-sided Violence Dataset focuses on a subset of violence against civilians, looking in particular at lethal violence. UCDP's threshold and definition for one-sided violence is, 'One-sided violence is the use of armed force by the government of a state or by a formally organised group against	This definition represents only a portion of primary modalities of violence against civilians but excludes non-lethal attacks which are part of the scope of this research, making it an incomplete resource.

	civilians which results in at least 25 deaths (Kreutz et al., 2008, p.2).	
News Reporting Databases		
LexisNexis (also referred to as Nexis Advance)	LexisNexis is a database with a 45-year archive of more than 40,000 curated news and business sources in 50 languages covering content from more than 200 countries. Nexis strategically collates trusted premium and web news, company profiles, legal content and industry information.	This dataset serves as a source to gather (and later code) conflict event data on secondary modalities of violence against civilians reported by news sources. Membership is required to access to this database which is provided through DCU library.
Factiva	Factiva is a business information and research tool that aggregates content from both licensed and free sources. Factiva provides access to approximately 32,000 sources including newspapers, journals, magazines, television and radio transcripts, and photos. These are sourced from nearly every country in the world in 28 languages, including more than 600 continuously updated newswires.	This dataset could serve as a potential source to gather (and later code) conflict event data reported by news sources. Unfortunately, the database requires a membership to access the database and DCU does not have a partnership with Factiva. Individual access is extremely cost prohibitive.
Google News	Google News is a news aggregator service developed by Google. It presents a continuous flow of links to articles organised from thousands of publishers and magazines.	While this dataset could serve as a potential source to gather (and later code) conflict event data reported by news sources, there are significant limitations to its search function. The advanced search feature only enables selecting a timeframe of 12 months or shorter from the date of the search which would not capture the complete duration of a conflict.
OCHA Sitreps	ReliefWeb facilitates search of situational reports provided by OCHA by country and publication date. Currently, there are over 23,000 situational reports available globally through this search function.	These situational reports can collect data on both primary and secondary modalities of violence against civilians. OCHA Situational reports could serve as a potential but single source to gather (and later code) conflict event data.

Human Rights Watch	Human Rights Watch investigates and reports on abuses happening in all corners of the world, including against vulnerable minorities, civilians in wartime, refugees, and children in need.	Human Rights Watch offers a search function of all their news reporting, including dispatches, factsheets, reports, etc. that can be disaggregated by country and topic. Human Rights Watch does collect data on both primary and secondary modalities of violence against civilians. HRW reporting could serve as a potential but single source to gather (and later code) conflict event data.
Other Conflict Event Datasets		
Correlates of War Project	The Correlates of War Project collects quantitative data on armed conflict (interstate, intrastate, extra-state, and non-state) starting from 1816. This includes data on the location, participants, and timeline of wars.	This dataset does not collect data on violence against civilians.
Nonviolent Action During Civil Wars in Africa	The Nonviolent Action During Civil Wars in Africa dataset (NVAVC) develops a set of events and traces their occurrence in the context of African civil wars from 1990-2021.	This dataset does not collect data on violence against civilians. While some datasets include looting and property damage as part of nonviolent events (e.g. ACLED), this dataset does not collect any of that information.
Action on Armed Violence	Action on Armed Violence (AOAV) has been recording causality data from explosive violence, as reported in English-language media, since October 2010.	This dataset does not collect data on secondary modalities of violence against civilians; the dataset only counts killed and injured related to explosive violence.
Aid Worker Security Database	The Aid Worker Security Database (AWSD) records major incidents of violence against aid workers, with incident reports from 1997 through the present.	This dataset does not collect data on secondary modalities of violence against civilians; the dataset only collects data on primary modalities of violence against civilians for a specific subset of the civilian population (aid workers) on the number of killed, kidnapped, and wounded.
GEO SVAC	The GEO-SVAC dataset provides information on conflict-related sexual violence. The dataset is part of the UCDP and extends the UCDP GED geocoded conflict event dataset	This dataset only collects data on a subset of primary modalities of violence against civilians and does not collect data on secondary modalities of violence against civilians.

	with information about the actors' reported use of sexual violence, covering the years 1989-2009.	
Small Arms Survey	The Small Arms Survey conducts research on global trends on small arms and armed violence, including datasets on global firearms holdings, global violent deaths, small arms trade transparency barometer, and unplanned explosions at munitions sites.	This dataset does not collect data on violence against civilians outside of violent deaths.
Homicide Monitor	The Homicide Monitor is one of the most comprehensive publicly available datasets on murder globally. However, the Homicide Monitor does not draw on sources that count deaths directly associated with military operations in civil or inter-state wars.	This dataset does not collect data on secondary modalities of violence against civilians. The methodology also states that it is not recommended to be used in conflict-affected areas.
Women, Peace and Security Index	The third edition of the global Women Peace and Security Index (WPS Index) draws on recognised data sources to measure women's inclusion, justice, and security in 170 countries.	This dataset does not collect data on violence against civilians.
Aid Data Geo Query	GeoQuery enables individuals and organisations to find and aggregate satellite, economic, health, conflict, and other spatial data into a single file compatible with Microsoft Excel and other common software.	This dataset compiles multiple sources of open-source data and easily facilitates analysis. Unfortunately, at present this platform does not have a dataset that collects data on secondary modalities of violence against civilians. This data can, however, provide contextual information on the conflict environment which will be suitable for control variables.
Newpapers.com	Newspapers.com is a large online newspaper archive, that enables search for news articles on obituaries, marriage announcements, birth announcements, social pages,	While the structure of this dataset could have served as a potential source to gather (and later code) conflict event data reported by news sources, it does not archive newspapers from anywhere in Sub-Saharan Africa and only has

	national and local news articles, among other topics.	newspapers from the US, UK, Australia, Canada, and New Zealand.
EBSCO Library (UK and Ireland Reference Centre)	UK and Ireland Reference Centre provides ongoing full text for regional and international magazines and journals, including Consumer Reports, The Daily Mail, New Statesman, Newsweek Global, The Sun, and The Times (London).	While the structure of this dataset could have served as a potential source to gather (and later code) conflict event data reported by news sources, it does not archive newspapers from anywhere in Sub-Saharan Africa and focuses on newspapers in print in Ireland and the UK.
Ulrichs Web	Ulrichs Web is a source of detailed information on more than 300,000 periodicals, including academic and scholarly journals, e-journals, peer-reviewed titles, popular magazines, and newspapers.	While the structure of this dataset could have served as a potential source to gather (and later code) conflict event data reported by news sources, it does not archive newspapers from anywhere in Sub-Saharan Africa and only has newspapers from 6 countries - Australia, Canada, Ireland, Panama, UK, US.
WHO Surveillance System for Attacks on Healthcare	The purpose of the WHO Surveillance System for Attacks on Health Care (SSA) is to systematically collect and make available data on attacks on health care, and their immediate impact on health care in countries facing emergencies.	This dataset collects data on primary and secondary modalities of violence against civilians that are specific to healthcare systems. Among other events impacting healthcare staff, this includes a subset of secondary modalities of violence against civilians where healthcare facilities are set fire. Unfortunately, the geographic data is not granular and only includes the country where the event occurred.
Social Conflict Analysis Data	The Social Conflict Analysis Database (SCAD) includes protests, riots, strikes, inter-communal conflict, government violence against civilians, and other forms of social conflict not systematically tracked in other conflict datasets. SCAD currently includes information on social conflicts from 1990-2017, covering all of Africa	This dataset does not capture instances of secondary modalities of violence against civilians and does not capture data on violence against civilians by all armed actors.

USAID Situational Reports	These daily updates on the situational context of USAID programs can provide details on the location, date, and description of events critical to successful program implementation.	Situational reports could serve as a potential source to gather (and later code) conflict event data. Unfortunately, over the course of this research, these documents have become unavailable along with other data resources from the agency.
Global Hunger Index	The Global Hunger Index (GHI) is a tool designed to measure hunger at global, regional, and national levels, reflecting multiple dimensions of hunger over time.	Despite the clear connection between hunger/food insecurity and violent conflict, this dataset does not collect contextual information on conflict or instances of violence impacting hunger scores.
Global Internal Displacement Database	The Global Internal Displacement Database provides information on internal displacement worldwide, covering all countries and territories experiencing situations of international displacement for conflict, generalised violence, and hazard-related disasters from 2009-2022.	This dataset collects data on Internal displacement associated with conflict and generalised violence between 2009-2020. Unfortunately, this data is not very granular and only collected at the country/year level. Incident data, including more specific timeframe, location, or cause of the displacement is not available through this dataset.
Human Rights Data Analysis Group	The HRDAG conducts statistical analysis on behalf of human rights projects globally. This work has been used by truth commissions, international criminal tribunals, and non-governmental human rights organisations. HRDAG has projects across Africa, Asia, Europe, the Middle East, and LAC. Within Africa, Chad, Liberia, Sierra Leone, and South Africa.	This database has excellent, highly detailed reports from truth and reconciliation commissions that could be coded into a dataset on violent event incident data. Unfortunately, data is not available on the case study of this analysis.
Displacement Tracking Index	The Displacement Tracking Matrix (DTM) gathers and analyses data to disseminate critical multi-layered information on the mobility, vulnerabilities, and needs of displaced and mobile populations that enables decision makers and responders to provide these populations with better context specific assistance.	This site is a database for a variety of datasets on to help track migrant flows. The data collected in these datasets is highly granular, including geo-referencing often to the state and sub-state level. Unfortunately, this data is not tied to specific instances of conflict-related violence.

Missing Migrants Project	The Missing Migrants Project tracks incidents involving migrants, including refugees and asylum-seekers, who have died or gone missing in the process of migration towards an international destination.	The data collected on missing migrants is highly granular, including geo-referencing and incident date. Unfortunately, this data is not tied to instances of conflict-related violence. In the absence of datasets on primary modalities of violence against civilians, this could serve as a partial measure of lethal primary modalities of violence.
UNHCR Refugee Statistics	The database contains information about forcibly displaced populations spanning more than 70 years. It covers displaced populations such as refugees, asylum-seekers and internally displaced people, including their demographics.	The data collected on forcibly displaced populations and aggregates data to the international level by year. This dataset does not collect data on primary or secondary modalities of violence against civilians.

Appendix B – Concept, measure, operationalisation

<table>
<tr><th>Concept</th><th>Measure</th><th>Key terms from measure</th><th>Operationalisation</th></tr>
<tr><td>Primary modalities of violence against civilians include violence that attacks civilian bodies, including lethal and non-lethal attacks.</td><td>Intentionally directing attacks against the civilian population as such or against individual civilians not taking direct part in hostilities; including wilful killing, torture or inhumane treatment, wilfully causing great suffering, or serious injury to body or health (Source: UN General Assembly, 1998. Rome Statute of the International Criminal Court, Article 8).</td><td>N/A - Data on Primary Modalities of violence against civilians will be drawn from ACLED so key word searches will not be carried out as part of data collection on primary modalities of violence against civilians</td><td>Data on Primary Modalities of violence against civilians will be drawn from ACLED so the following definition will be used: Civilians are targeted with violence by an organised armed actor, including an attack (lethal and non-lethal), abduction or forced disappearance, and sexual violence (Source: ACLED, 2021).</td></tr>
<tr><td rowspan="11">Secondary modalities of violence against civilians include violence that attacks civilian objects which can lead to physical harm.</td><td rowspan="11">‘Starvation of civilians as a method of combat is prohibited. It is therefore prohibited to attack, destroy, remove or render useless, for that purpose, objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock, drinking water installations and supplies and irrigation works’ (Source: International Committee of the</td><td colspan="2">Verb Terms</td></tr>
<tr><td>Attack</td><td rowspan="4">Ambush*, Attack*, Bomb*, Bombard*, Burn*, Damag*, Depriv*, Destr*, Harm*, Imped*, Loot*, Obstruct*, Remov*, Shell*, Shoot*, Shot, Starv*,</td></tr>
<tr><td>Destroy</td></tr>
<tr><td>Remove</td></tr>
<tr><td>Render Useless</td></tr>
<tr><td colspan="2">Object Terms</td></tr>
<tr><td>Foodstuffs</td><td>Food*, sustenance, ration*, provision*</td></tr>
<tr><td>Agricultural areas</td><td>Agricultur*, Farm*, Garden*, Plantation*, Ranch*</td></tr>
<tr><td>Crops</td><td>Crop*,</td></tr>
<tr><td>Livestock</td><td>Livestock*, Herd*</td></tr>
<tr><td>Drinking Water Installations and Supplies</td><td>Water*</td></tr>
<tr><td>Irrigation Works</td><td>Irrig*</td></tr>
</table>

	Red Cross, 1977a, Article 14).		
	‘Concerning food and medical supplies, the Occupying Power shall, to the fullest extent of the means available to it and without any adverse distinction, also ensure the provision of clothing, bedding, means of shelter, other supplies essential to the survival of the civilian population of the occupied territory’ (Source: International Committee of the Red Cross, 1997b, Article 69).	Medical Supplies	Clinic*, "Health center*", "Health centre*", "Health Post", Hospital*, Medical
		Clothing	Cities, City, Communit*, Clothing, Clothes, Bed*, Dwell*, Home*, Hous*, Hut*, Residence*, Shack*, Tent*, Town*, Village*
		Bedding	
		Means of Shelter	
		Other	Humanitari*, "Object* indispensable for survival"

Appendix C – Codebook for dataset generation

Dataset description

Event data for this thesis are brought together in a composite dataset, combining data from an existing database – the Armed Conflict and Location Event Dataset (ACLED) – and an original data collection effort carried out using Robotic Process Automation to transform unstructured text data from news reporting. ACLED provides data on events of primary modalities of violence against civilians while the original data collection produced data on events of secondary modalities of violence against civilians.

ACLED's codebook detailing the project's event typology and coding decisions is publicly available on the project website (ACLED, 2023a). To increase compatibility, coding for secondary modalities of violence against civilians follows ACLED's coding methodology. However, development of a dataset on secondary modalities of violence – a categorisation not previously used by researchers – required some adjustments to ACLED's methodology, namely around defining an event, event subtypes, and data precision. This codebook details where coding methodology and coding decisions differ between primary modalities of violence against civilians (sourced from ACLED) and secondary modalities of violence against civilians (original data collection).

Events

This dataset presents reported information on violence against civilians. Violence against civilians is defined as the use of force by an organised armed actor to harm or damage civilians or civilian objects. An event of violence against civilians is a single altercation where force is used by one or more armed actors in which the recipient of that violence is a civilian or civilian object. This dataset has developed a framework

that defines primary and secondary modalities of violence against civilians, including a taxonomy of event types (primary and secondary modalities of violence against civilians) and sub event types (sexual violence, attacks, abduction/forced disappearance, attacks on civilian property, and attacks on communal objects). The scope of this dataset is limited to events of violence against civilians during the South Sudanese civil war between 2013 and 2022.

ACLED defines 'violence against civilians' as violent events where an organised armed group inflicts violence upon unarmed non-combatants (ACLED, 2023a). For this dataset, events of violence against civilians as defined by ACLED are labelled primary modalities of violence against civilians. This event type includes the same sub-event types as ACLED – 'sexual violence', 'attack', and 'abduction/forced disappearance' (ACLED, 2023a). Secondary modalities of violence against civilians are defined as violence that attacks civilian objects which can lead to physical harm. For this research, civilian objects are considered those objects important for the physical safety and wellbeing of the civilian population, as outlined in international humanitarian law, including foodstuffs, agricultural areas, crops, livestock, drinking water installations, irrigation infrastructure as well as clothing, bedding, shelter and medical supplies. A full discussion of what constitutes a civilian object can be found in the preceding theoretical framework chapter.

Table A1 – Event types

Type of violence	**Event type**	**Sub-event type**
Violence against civilians	Primary modalities of violence against civilians	Attack
		Sexual violence
		Abduction/forced disappearance
	Secondary modalities of violence against civilians	Attacks on civilian property
		Attacks on communal objects

Secondary modalities of violence against civilians sub-event types

This dataset expands the definition of violence against civilians to include civilian objects. Secondary modalities of violence against civilians includes acts which use force to damage or deny access to foodstuffs, agricultural areas, crops, livestock, drinking water installations, irrigation infrastructure as well as clothing, bedding, shelter and medical supplies.

Attacks on civilian property

This sub-event type is used when civilian objects are targeted with violence by an organised armed actor and the civilian object is indicated to be an individual rather than collective/shared resource. This includes the use of force to destroy, damage, or loot homes, crops, and other objects that are individually owned. Note that multiple civilian objects can be attacked in a single 'attacks on civilian property' event.

Attacks on communal objects

This sub-event type is used when civilian objects are targeted with violence by an organised armed actor and the civilian object is indicated to be a collective or shared resource. This includes the use of force to destroy or loot health resources and infrastructure, communal food stores and distribution centres, humanitarian resources and locations, and other communal spaces like markets. Note that multiple civilian objects can be attacked in a single 'attacks on communal objects' event.

Event aggregation

Because this research is particularly interested in the different modalities of violence used against civilians, events of secondary modalities of violence against civilians are aggregated differently. Where an event of secondary modalities of violence against civilians or one of its sub-event types occurs, it is recorded as a distinct event. Unlike ACLED, event subtypes for secondary modalities of violence against civilians are categorised by type of civilian object rather than tactic. As such, there is not a hierarchy of event subtypes by which two concurrent event subtypes are coded as a single event. This means that the burning of homes (recorded as 'attacks on civilian property') occurring within the same context as the looting of a hospital (recorded as 'attacks on communal objects') remain distinct events.

Event geography

Up to four types of spatial information are recorded for each event:

1. The name of the first, second, and third level administrative units – for South Sudan, this corresponds to the state, county, and town.
2. The names of the specific location of an event
3. The geographic coordinates of the location
4. A spatial precision code

Spatial precision codes

Geo-precision codes 1-3 align with ACLED's spatial precision. If the source material indicates a particular location and coordinates are available, a 'geo-precision' code 1is recorded. If the source material indicates that an event took place in a small part of a region or mentions a general area, a 'geo-precision' code 2 is recorded. If the source material mentions a larger region, the closest natural

location or provincial capital is used, and a ‘geo-precision’ code 3 is recorded. Spatial precision coding for this dataset extends ACLED’s precision codes one step further to include a ‘geo-precision’ code 4 for events where source material indicates they took place in South Sudan, but no further geographic information is available.

Event time

Up to three types of temporal information are recorded for each event:

1. Event date
2. Year
3. Temporal precision

Events are recorded by the day. In cases where source material reports on a campaign of violence, events are only recorded for the days for which an activity was reported. When a campaign of violence is reported without specific information on the dates of events, events are recorded periodically. For campaigns reported to last a certain number of weeks, one event is recorded per week. For campaigns reported to last a certain number of months, one event is recorded per month.

Time precision codes

Time precision codes 1-3 align with ACLED’s temporal precision. If the source material reports an actual date of an event, a ‘time precision’ code 1 is recorded. If the source material indicates that an event took place during a week or in a similar time period, a ‘time precision’ code 2 is recorded. If the source material only specifies that an event took place sometime in a month, a ‘time precision’ code 3 is recorded. Time precision coding for this dataset extends ACLED’s precision codes

two steps further to include a 'Time Precision' code 4 for events where source material indicates they took place in a range of months, such as a given season and a 'time precision' code 5 for events where source material indicates that an event occurred in a given year but provides no additional detail.

Actors

The name of each actor is noted in the 'Actor 1' column while the 'associated actor' column records any group indicated to be an ally in the action. Two organised armed actors engaging in the same form of attack, such as a state actor and a pro-government militia destroying a health centre will have both groups recorded. In cases where two opposing armed actors carry out event(s) of secondary modalities of violence against civilians, such as a state actor and a rebel group burning homes over the course of a battle, two events with each actor in the 'Actor 1' column are recorded.

Actor precision codes

Utilising the previous precision code structures, this dataset captures information on the specificity of the reporting language for events of secondary modalities of violence against civilians. Where the actor or leaders of the group are listed directly in the source material, an 'actor-precision' code 1 is recorded. If the source material indicates an armed actor participated in an event but uses imprecise language such as 'armed men in uniform' or 'opposition forces,' an 'actor-precision' code 2 is recorded. Finally, if the source material indicates that the actor is unknown or provides no information to identify the actor, an 'actor-precision' code 3 is recorded. In instances where two actors carry out an event

of secondary modalities of violence against civilians in the context of a battle and there is not clear attribution as to which actor, both actors are recorded.

Event scale

Source material often varies in the scale of reported violence. Reporting can provide detailed information on the destruction of a single civilian object such as a house or health centre but can also report on a larger pattern of violence in which entire villages are destroyed. To account for this variation, this dataset includes an event scale for secondary modalities of violence against civilians. Where source material provides information on the attack of a single civilian object, an 'event scale' code 1 is recorded. Where source material describes an attack on multiple objects in a single location (e.g. multiple houses in a town burned), an 'event scale' code 2 is recorded. Finally, if the source material indicates that civilian objects have been attacked across multiple locations, but precise information is not available on the number or location of events (e.g. multiple nearby villages were burned), an 'event scale' code 3 is recorded.

Appendix D – VAC and armed actor competition robustness tests

Table A2 – Armed actor presence and fluctuations including unidentified armed actors

Variable	Model 1: All VAC	Model 2: 1 VAC	Model 3: 2 VAC
Count Model			
Armed Actor Presence	0.066***	0.077***	-0.009
	(0.019)	(0.019)	(0.041)
Actor Fluctuations	0.055***	0.048**	0.076*
	(0.016)	(0.016)	(0.034)
Rival VAC	0.069***	0.065***	0.338***
	(0.014)	(0.019)	(0.072)
Conflict Duration	-0.028	-0.005	-0.058
	(0.021)	(0.022)	(0.044)
Time-lagged VAC	0.538***	0.63***	0.873***
	(0.056)	(0.066)	(0.201)
Poverty Measure	-0.253	-0.947	1.363
	4.63	(4.609)	(9.377)
Zero-Inflation Model			
Population Count	-4.637	-4.463	-0.417
	(2.087)	(1.306)	(1.631)
Conflict Presence	-1.537	0.087	-10.468
	(2.121)	(1.037)	(45.142)

ZINB regression. Standard error in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table A3 – Rival VAC including unidentified armed actors

Variable	Model 1: All VAC	Model 2: 1 VAC	Model 3: 2 VAC
Count Model			
Armed Actor Presence	0.043*	0.057**	-0.041
	(0.02)	(0.02)	(0.042)
Actor Fluctuations	0.061***	0.055***	0.074*
	(0.016)	(0.017)	(0.034)
Rival VAC	0.046***	0.047***	0.282***
	(0.008)	(0.011)	(0.063)
Conflict Duration	-0.031	0.001	-0.068
	(0.021)	(0.021)	(0.044)
Time-lagged VAC	0.535***	0.629***	0.761***
	(0.055)	(0.066)	(0.198)
Poverty Measure	0.119	-0.899	1.249
	(4.584)	(4.562)	(9.489)
Zero-Inflation Model			
Population Count	-4.826*	-4.564***	-0.426
	(2.377)	(1.363)	(1.616)
Conflict Presence	-1.901	-0.073	-11.284
	(2.667)	(1.07)	(66.238)

ZINB regression. Standard error in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table A4 – VAC by quarter

Variable	Model 1: All VAC	Model 2: 1 VAC	Model 3: 2 VAC
Count Model			
Armed Actor Presence	0.109***	0.115***	0.217***
	(0.023)	(0.023)	(0.051)
Actor Fluctuations	0.066***	0.058**	-0.067
	(0.019)	(0.019)	(0.04)
Rival VAC	0.078***	0.056*	0.583***
	(0.019)	(0.026)	(0.131)
Conflict Duration	-0.012**	-0.003	-0.048***
	(0.004)	(0.004)	(0.009)
Time-lagged VAC	0.946***	1.129***	0.823**
	(0.081)	(0.095)	(0.279)
Poverty Measure	4.443	5.97	-13.981
	(5.154)	(5.206)	(11.168)
Zero-Inflation Model			
Population Count	-3.475**	-3.704**	-0.014
	(1.308)	(1.133)	(0.428)
Conflict Presence	8.764	-9.443	10.08
	(60.071)	(15.396)	(44.652)

ZINB regression. Standard error in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table A5 – VAC including armed actor subunits and factions

Variable	Model 1: All VAC	Model 2: 1 VAC	Model 3: 2 VAC
Count Model			
Armed Actor Presence	0.069**	0.0789***	-0.026
	(0.022)	(0.022)	(0.047)
Actor Fluctuations	0.051**	0.047*	0.095*
	(0.018)	(0.018)	(0.04)
Rival VAC	0.068***	0.069**	0.319***
	(0.015)	(0.022)	(0.081)
Conflict Duration	-0.002	0.014	0.003
	(0.021)	(0.023)	(0.047)
Time-lagged VAC	0.586***	0.685***	0.847***
	(0.065)	(0.081)	(0222)
Poverty Measure	0.605	0.435	2.732
	(4.932)	(4.951)	(10.626)
Zero-Inflation Model			
Population Count	-4.124**	-4.389***	-0.36
	(1.496)	(1.236)	(1.573)
Conflict Presence	-1.179	-0.171	-10.526
	(1.03)	(0.795)	(46.354)

ZINB regression. Standard error in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table A6 – VAC by armed actors excluding the National Salvation Front

Variable	Model 1: All VAC	Model 2: 1 VAC	Model 3: 2 VAC
Count Model			
Armed Actor Presence	0.072***	0.082***	-0.014
	(0.021)	(0.02)	(0.044)
Actor Fluctuations	0.05**	0.045*	0.062
	(0.018)	(0.018)	(0.037)
Rival VAC	0.068***	0.056**	0.337***
	(0.014)	(0.02)	(0.075)
Conflict Duration	-0.037	-0.015	-0.068
	(0.022)	0.022	(0.045)
Time-lagged VAC	0.0503***	0.596***	0.792***
	(0.0547)	(0.064)	(0.189(
Poverty Measure	0.591	0.09	1.214
	(4.731)	(4.689)	(9.631)
Zero-Inflation Model			
Population Count	-4.967	-4.46**	-0.43
	(3.361)	(1.356)	(1.636)
Conflict Presence	-1.823	0.216	-11.391
	(4.208)	(1.137)	(71.167)

ZINB regression. Standard error in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table A7 – VAC accounting for time in conflict

Variable	Model 1: All VAC	Model 2: 1 VAC	Model 3: 2 VAC
Count Model			
Armed Actor Presence	0.062***	0.072***	-0.03
	(0.02)	(0.02)	(0.043)
Actor Fluctuations	0.052**	0.047**	0.065
	(0.017)	(0.017)	(0.037)
Rival VAC	0.079***	0.082***	0.357***
	(0.014)	(0.02)	(0.074)
Conflict Duration	0.29***	0.264***	0.499***
	(0.059)	(0.061)	(0.146)
Years in Conflict	-0.309***	-0.0261***	-0.542***
	(0.061)	(0.062)	(0.148)
Time-lagged VAC	0.528***	0.619***	0.844***
	(0.055)	(0.065)	(0.195)
Poverty Measure	-0.203	-0.778	1.363
	(4.63)	(4.61)	(9.467)
Zero-Inflation Model			
Population Count	-4.618*	-4.473***	-0.411
	(2.038)	(1.311)	(1.602)
Conflict Presence	-1.545	0.052	-11.083
	(2.036)	(1.04)	(60.161)

ZINB regression. Standard error in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table A8 – Year and actor fixed effects

Variable	Model 1: All VAC	Model 2: 1 VAC	Model 3: 2 VAC
Count Model			
Armed Actor Presence	0.101*	0.097*	0.053
	(0.019)	(0.346)	(0.044)
Actor Fluctuations	0.041*	0.041*	0.02
	(0.018)	(0.018)	(0.039)
Rival VAC	0.048*	0.054**	0.304*
	(0.012)	(0.017)	(0.056)
Time-lagged VAC	0.433*	0.533*	0.342*
	(0.046)	(0.057)	(0.099)
Poverty Measure	3.774	3.464	1.091
	(4.724)	(4.715)	(9.512)
Zero-Inflation Model			
Population Count	-6.753	-4.486**	1.024
	(4.718)	(1.396)	(1.368)
Conflict Presence	-13.140	-0.125	-3.350*
	(33.964)	(1.243)	(1.477)

ZINB regression with year and armed actor fixed effects. Standard error in parentheses. *$p <$ 0.05, **$p < 0.01$, ***$p < 0.001$

Table A9 – Armed actor competition and VAC with spatial lag

Variable	Model 1: All VAC	Model 2: 1 VAC	Model 3: 2 VAC
Count Model			
Armed Actor Presence	0.071**	0.092***	-0.029
	(0.022)	(0.021)	(0.044)
Actor Fluctuations	0.054**	0.043*	0.055
	(0.018)	(0.018)	(0.039)
Rival VAC	0.068***	0.058**	0.385***
	(0.014)	(0.02)	(0.073)
Conflict Duration	-0.028	0.002	-0.028
	(0.022)	(0.023)	(0.022)
Time-lagged VAC	0.537***	0.62***	0.537***
	(0.056)	(0.065)	(0.056)
Poverty Measure	-1.354	-2.555	-1.354
	(4.714)	(4.685)	(4.714)
Armed Actor Presence Spatial Lag	-0.005	-0.011*	-0.005
	(0.004)	(0.005)	(0.005)
Actor Fluctuations Spatial Lag	-0.005	-0.001	-0.005
	(0.006)	(0.006)	(0.006)
Rival VAC Spatial Lag	-0.004	0.002	-0.004
	(0.005)	0.007	(0.005)
Zero-Inflation Model			
Population Count	-4.489*	-4.252	-4.489*
	(2.224)	(1.281)	(2.224)
Conflict Presence	-1.712	0.144	-1.712
	(2.386)	(1.108)	(2.386)

ZINB regression. Standard error in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table A10 – Placebo test of rival violence

Variable	Model 1: All VAC	Model 2: 1 VAC	Model 3: 2 VAC
Count Model			
Armed Actor Presence	0.1***	0.1***	0.052
	(0.02)	(0.02)	(0.046)
Actor Fluctuations	0.047**	0.043*	0.034
	(0.018)	(0.017)	(0.039)
Placebo rival VAC	0.01	-0.025	-0.032
	(0.01)	(0.017)	(0.074)
Conflict Duration	-0.038	-0.014	-0.093*
	(0.022)	(0.022)	(0.045)
Time-lagged VAC	0.518***	0.621***	0.772***
	(0.055)	(0.066)	(0.214)
Poverty Measure	-0.961	-0.011	1.302
	(4.705)	(4.697)	(10.095)
Zero-Inflation Model			
Population Count	-4.288**	-4.397***	-0.409
	(1.577)	(1.226)	(1.619)
Conflict Presence	-0.956	0.222	-10.719
	(1.276)	(0.969)	(55.254)

ZINB regression. Standard error in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table A11 – Competition and VAC with standard errors clustered by county

Variable	Model 1: All VAC	Model 2: 1 VAC	Model 3: 2 VAC
Count Model			
Armed Actor Presence	0.065**	0.076**	-0.022
	(0.024)	(0.023)	(0.048)
Actor Fluctuations	0.053*	0.047*	0.065
	(0.022)	(0.024)	(0.052)
Rival VAC	0.072**	0.068	0.341***
	(0.027)	(0.037)	(0.085)
Conflict Duration	-0.03	-0.007	-0.061
	(0.022)	0.025	(0.075)
Time-lagged VAC	0.539***	0.631***	0.856***
	(0.087)	(0.098)	(0.152)
Poverty Measure	0.003	-0.467	1.368
	(3.839)	(3.9218)	(3.924)
Zero-Inflation Model			
Population Count	-4.576**	-4.468**	-0.409
	(1.462)	(1.708)	(1.769)
Conflict Presence	-1.445	0.077	-11.321*
	(3.198)	(1.182)	(4.865)

ZINB regression. Standard errors clustered by county in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Appendix E – Codebook for armed actor competition regression models

Dependent variables

Variable Name: 1 VAC

Description: Count of events of primary modalities of violence against civilians by an armed actor per admin2 unit per year

Calculation: Using the dataset of primary modalities of violence against civilians, I created a pivot table of the count of events of primary modalities of violence against civilians per admin2 unit, per year, per armed actor. I used the 'vlookup' function in Excel to transfer the information of the pivot table into a cross-tabular format aligned with the actor-year-admin2 unit of measure.

Source: ACLED

Variable Name: 2 VAC

Description: Count of events of secondary modalities of violence against civilians by an armed actor per admin2 unit per year

Calculation: Using the dataset of secondary modalities of violence against civilians, I created a pivot table of the count of events of secondary modalities of violence against civilians per admin2 unit, per year, per armed actor. I used the 'vlookup' function in Excel to transfer the information of the pivot table into a cross-tabular format aligned with the actor-year-admin2 unit of measure.

Source: original data collection

Variable Name: All VAC

Description: Count of events of violence against civilians by an armed actor per admin2 unit per year

Calculation: Using the data from 1 VAC and 2 VAC above, I utilised a basic addition function within the spreadsheet to calculate the total number of events of violence against civilians per armed actor-admin2-year.

Source: ACLED and original data collection

Independent variables

Variable Name: Armed actor presence

Description: Count of armed actors active in the admin2 unit per year

Calculation: Using the dataset of all violent events (including non-VAC events), I created an additional data column that captured all armed actors that participated in an event (actor 1, associated actor 1, actor 2, and associated actor 2). I then utilised Power Query to delimit (with comas or semicolons, as included in the source data) each armed actor name, subsequently aggregate to the admin2-year level, and remove duplicate names to create a discrete count of the number of armed actors that participated in violent events by county-year. Two categories were excluded from this calculation. First, any actor listed as 'unidentified armed actor' was excluded, except for when this actor what the only actor active in that admin2-year to avoid a false zero measurement. Second, in events coded as violence against civilians, ACLED data lists civilians as the actor 2 and their subgroup as associated actor 2 (where information is available). All actors listed as civilians or a civilian subgroup are excluded.

Source: ACLED and original data collection

Variable Name: Armed actor fluctuations

Description: Change in number of armed actors present in the same admin2 between the current and previous calendar year

Calculation: Using the armed actor presence variable formatted into the actor-year-admin2 unit of measure, I utilised the Excel xlookup function to offset the data by one year and subtract the number of armed actors present in the current year (e.g. 5 armed actors in 2014) from the previous year (e.g. 3 armed actors in 2013).
Source: ACLED and original data collection

Variable Name: Rival 1 VAC
Description: Count of events of primary modalities of violence against civilians carried out by opposing conflict side per admin2 unit per year
Calculation: Using the dataset of primary modalities of violence against civilians, I created a pivot table of the count of events of primary modalities of violence against civilians carried out by a) government and government-affiliated armed actors and b) opposition/rebel armed actors per admin2 unit per year. I used the 'vlookup' function in Excel to transfer the information of the pivot table into the actor-year-admin2 unit of measure, recording the count of events carried out by the opposing conflict side for each respective armed actor.
Source: ACLED

Variable Name: Rival 2 VAC
Description: Count of events of secondary modalities of violence against civilians carried out by opposing conflict side per admin2 unit per year
Calculation: Using the dataset of secondary modalities of violence against civilians, I created a pivot table of the count of events of secondary modalities of violence against civilians carried out by a) government and government-affiliated armed actors and b) opposition and opposition-affiliated armed actors per admin2 unit per year. I used the

'vlookup' function in Excel to transfer the information of the pivot table into the actor-year-admin2 unit of measure, recording the count of events carried out by the opposing conflict side for each respective armed actor.

Source: Original data collection

Variable Name: Rival All VAC

Description: Count of all events of violence against civilians carried out by opposing conflict side per admin2 unit per year

Calculation: Using the data from Rival 1 VAC and Rival 2 VAC above, I utilised a basic addition function within the spreadsheet to calculate the total number of events of rival violence against civilians per admin2-year.

Source: ACLED and original data collection

Control variables

Variable Name: Conflict Duration

Description: Number of years since the beginning of the civil war

Calculation: This variable begins with 0, starting in December 2013 and 1 is added for each subsequent year (e.g. 2015 = 2). The variable is constant across all armed actors.

Source: ACLED

Variable Name: Time-lagged 1 VAC

Description: Count of events of primary modalities of violence against civilians carried out by the same armed actor in the same admin2 in the previous year

Calculation: Using the Excel xlookup function, the dependent variable 1 VAC is offset by one year (e.g. events of 1 VAC that occurred in 2013 are recorded as Time-lagged 1 VAC in 2014).

Source: ACLED

Variable Name: Time-lagged 2 VAC

Description: Count of events of secondary modalities of violence against civilians carried out by the same armed actor in the same admin2 in the previous year

Calculation: Using the Excel xlookup function, the dependent variable 2 VAC is offset by one year (e.g. events of 2 VAC that occurred in 2013 are recorded as Time-lagged 2 VAC in 2014).

Source: original data collection

Variable Name: Time-lagged All VAC

Description: Count of all VAC events carried out by the same armed actor in the same admin2 in the previous year

Calculation: Using the data from Time-lagged 1 VAC and Time-lagged 2 VAC above, I utilised a basic addition function within the spreadsheet to calculate the total number of events of violence against civilians from the previous armed actor-admin2-year.

Source: ACLED and original data collection

Variable Name: Log population count

Description: Logarithmic measure of population count per admin2 per year

Calculation: Population count data per admin2 unit per year was downloaded to csv format from WorldPop via AidData and a logarithmic transformation was performed.

Source: AidData GeoQuery – WorldPop

Variable Name: Economic Development

Description: A proxy measure of economic development based on night-time lights

Calculation: Night-time light data was downloaded to csv format from the Earth Observation Group dataset via AidData per admin2 unit per year.

Source: AidData GeoQuery - VIIRS night-time lights (Earth Observation Group)

Appendix F – VAC and ethnic identity robustness tests

Table A12 – Ethnic identity and intensity of violence against civilians

Variable	**Model 1: 1** VAC	**Model 2:** 2 VAC	**Model 3:** 1 VAC	**Model 4:** 2 VAC
Count Model				
Ethnic Minority	-0.264* (0.140)	0.423* (0.214)	-	-
Ethnic Majority	-	-	0.243 (0.154)	-0.503* (0.249)
Time-lagged VAC	-0.013 (0.028)	-0.041 (0.027)	-0.014 (0.028)	-0.040 (0.027)
Economic Development	-8.578 (6.466)	-2.566 (8.505)	-8.063 (6.624)	-1.973 (8.508)
Conflict Side	-0.29* (0.554)	-0.316 (0.212)	-0.336* (0.136)	-0.297 (0.213)
All VAC Count	0.554*** (0.044)	0.469*** (0.053)	0.547*** (0.044)	0.481*** (0.054)
Zero-Inflation Model				
Conflict Presence	-14.005 (71.273)	-14.693 (129.665)	-14.257 (80.784)	-14.140 (97.722)

ZINB regression. Standard error in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table A13 – Continuous ethnic shares

Variable	**Model 1: 1** VAC	**Model 2:** 2 VAC
Count Model		
Continuous ethnic shares	0.436***	-0.309
	(0.119)	(0.273)
Time-lagged VAC	0.033*	-0.011
	(0.014)	(0.021)
Economic Development	4.459	4.511
	(3.284)	(7.12)
Conflict Side	0.058	-0.37
	(0.088)	(0.192)
All VAC Count	0.251***	0.321***
	(0.018)	(0.033)
Zero-Inflation Model		
Conflict Presence	-13.646	-13.576
	(57.197)	(69.797)

ZINB regression. Standard error in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table A14 – Polarised ethnic identity

Variable	**Model 1: 1** VAC	**Model 2:** 2 VAC
Count Model		
Ethnic Polarisation	-0.379	-0.353
	(0.196)	(0.415)
Time-lagged VAC	0.031*	0.081
	(0.014)	(0.042)
Economic Development	2.910	4.987
	(3.305)	(6.974)
Conflict Side	0.010	-0.337
	(0.088)	(0.191)
All VAC Count	0.253***	0.289***
	(0.018)	(0.030)
Zero-Inflation Model		
Conflict Presence	-13.857	-13.447
	(62.828)	(68.807)

ZINB regression. Standard error in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table A15 – Ethnic identity composition including Equatorians

Variable	**Model 1: 1** VAC	**Model 2:** 2 VAC	**Model 3:** 1 VAC	**Model 4:** 2 VAC
Count Model				
Ethnic Minority	-0.276**	0.337	-	-
	(0.089)	(0.190)		
Ethnic Majority	-	-	0.357***	-0.167
			(0.091)	(0.206)
Time-lagged VAC	0.032*	0.083*	0.029*	0.081
	(0.014)	(0.042)	(0.013)	(0.042)
Economic	4.277	4.136	4.534	4.894
Development	(3.30)	(7.038)	(3.276)	(7.030)
Conflict Side	0.029	-0.272	0.004	-0.291
	(0.088)	(0.192)	(0.088)	(0.194)
All VAC Count	0.257***	0.292***	0.251***	0.295***
	(0.018)	(0.030)	(0.018)	(0.031)
Zero-Inflation Model				
Conflict Presence	-14.159	-13.798	-13.444	-13.563
	(73.273)	(81.224)	(51.452)	(72.156)

ZINB regression. Standard error in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table A16 – Testing for influence of capital city

Variable	**Model 1: 1** VAC	**Model 2:** 2 VAC	**Model 3:** 1 VAC	**Model 4:** 2 VAC
Count Model				
Ethnic Minority	-0.272**	0.469*	-	-
	(0.090)	(0.189)		
Ethnic Majority	-	-	0.385***	-0.329
			(0.096)	(0.215)
Time-lagged VAC	0.037**	0.078*	0.035*	0.078*
	(0.014)	(0.039)	(0.014)	(0.040)
Economic	5.13	5.657	5.501	6.247
Development	(3.364)	(6.893)	(3.339)	(6.922)
Conflict Side	0.069	-0.326	0.059	-0.310
	(0.089)	(0.188)	(0.088)	(0.188)
All VAC Count	0.260***	0.284***	0.253***	0.290***
	(0.018)	(0.028)	(0.018)	(0.029)
Capital	-0.450	-2.013	-0.417	-1.884
	(0.323)	(1.121)	(0.316)	(1.140)
Zero-Inflation Model				
Conflict Presence	-14.334	-14.419	-13.866	-13.642
	(79.813)	(104.272)	(63.281)	(70.951)

ZINB regression. Standard error in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table A17 – County and year fixed effects

Variable	**Model 1:** 1 VAC	**Model 2:** 2 VAC	**Model 3:** 1 VAC	**Model 4:** 2 VAC
Count Model				
Ethnic Minority	-0.434***	0.257	-	-
	(0.115)	(0.24)		
Ethnic Majority	-	-	0.456***	-0.257
			(0.117)	(0.24)
Time-lagged VAC	0.012	0.019	0.012	0.186
	(0.011)	(0.031)	(0.011)	(0.031)
Economic	-0.936	-30.78	-0.96	-30.71
Development	(10.037)	(21.29)	(10.03)	(21.29)
Conflict Side	-0.009	-0.435*	-0.015	-0.434*
	(0.086)	(0.177)	(0.086)	(0.176)
All VAC Count	0.198***	0.185***	0.198***	0.185***
	(0.013)	(0.194)	(0.013)	(0.194)
Zero-Inflation Model				
Conflict Presence	-20.474	-15.999	-20.424	-18.977
	(2471.496)	(214.447)	(2407.041)	(950.495)

ZINB regression with county and year fixed effects. Standard error in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table A18 – VAC and ethnic identity composition with standard errors clustered by county

Variable	**Model 1:** 1 VAC	**Model 2:** 2 VAC	**Model 3:** 1 VAC	**Model 4:** 2 VAC
Count Model				
Ethnic Minority	-0.286*	0.443*	-	-
	(0.111)	(0.2)		
Ethnic Majority	-	-	0.397***	-0.313
			(0.111)	(0.228)
Time-lagged VAC	0.034*	0.08*	0.031*	0.08*
	(0.015)	(0.037)	(0.014)	(0.038)
Economic	4.321	4.149	4.688	4.877
Development	(2.343)	(4.421)	(2.549)	(4.693)
Conflict Side	0.068	-0.341*	0.057	-0.327*
	(0.099)	(0.152)	(0.098)	(0.149)
All VAC Count	0.257***	0.288***	0.25***	0.294*
	(0.066)	(0.062)	(0.064)	(0.063)
Zero-Inflation Model				
Conflict Presence	-13.94***	-14.251***	-13.8***	-14.042*
	(0.298)	(0.716)	(0.296)	(0.716)

ZINB regression. Standard errors clustered by county in parentheses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Appendix G – Codebook for VAC and ethnic identity regression models

Dependent variables

Variable Name: 1 VAC

Description: Count of events of primary modalities of violence against civilians by an conflict side per admin2 unit per year

Calculation: Using the dataset of primary modalities of violence against civilians, I created a pivot table of the count of events of primary modalities of violence against civilians per admin2 unit, per year, per conflict side. I used the 'vlookup' function in Excel to transfer the information of the pivot table into a cross-tabular format aligned with the conflict side-year-admin2 unit of measure.

Source: ACLED

Variable Name: 2 VAC

Description: Count of events of secondary modalities of violence against civilians by conflict side per admin2 unit per year

Calculation: Using the dataset of secondary modalities of violence against civilians, I created a pivot table of the count of events of secondary modalities of violence against civilians per admin2 unit, per year, per conflict side. I used the 'vlookup' function in Excel to transfer the information of the pivot table into a cross-tabular format aligned with the conflict side-year-admin2 unit of measure.

Source: original data collection

Independent variables

Variable Name: Ethnic Majority

Description: Binary measure if the ethnic constituency of the conflict side (government or opposition) is the ethnic majority in a given admin2unit

Calculation: Using data on affiliation and geographic location of ethnic groups available through GeoEPR, I performed a spatial join in R between the ethnic group and administrative boundary shape files to identify where the admin2 units overlap with ethnic group polygons, calculating the percentage of the total space of an admin2 unit that is occupied by a given group. The variable takes a value of '1' if the intersection is greater than 65 percent of the geographic area of the admin2 unit and '0' if otherwise.

Source: Ethnic Power Relations Dataset (GeoEPR)

Variable Name: Ethnic Minority

Description: Binary measure if the ethnic constituency of the conflict side (government or opposition) is the ethnic minority in a given admin2 unit

Calculation: Using data on affiliation and geographic location of ethnic groups available through GeoEPR, I performed a spatial join in R between the ethnic group and administrative boundary shape files to identify where the admin2 units overlap with ethnic group polygons, calculating the percentage of the total space of an admin2 unit that is occupied by a given group. The variable takes a value of '1' if the intersection is less than 25 percent of the geographic area of the admin2 unit and '0' if otherwise. Where no ethnic constituency occupies more than 5 percent of the total area of the admin2 unit, '0' is also recorded.

Source: Ethnic Power Relations Dataset (GeoEPR)

Variable Name: Ethnic Polarised

Description: Binary measure if the ethnic constituency of the conflict side (government or opposition) lives in a polarised admin2 unit

Calculation: Using data on affiliation and geographic location of ethnic groups available through GeoEPR, I performed a spatial join in R between the ethnic group and administrative boundary shape files to identify where the admin2 units overlap with ethnic group polygons, calculating the percentage of the total space of an admin2 unit that is occupied by a given group. The variable takes a value of '1' if the intersection is between 25 and 65 percent of the geographic area of the admin2 unit and '0' if otherwise.

Source: Ethnic Power Relations Dataset (GeoEPR)

Control variables

Variable Name: Time-lagged 1 VAC

Description: Count of events of primary modalities of violence against civilians carried out by the same conflict side in the same admin2 in the previous year

Calculation: Using the Excel xlookup function, the dependent variable 1 VAC is offset by one year (e.g. events of 1 VAC that occurred in 2013 are recorded as Time-lagged 1 VAC in 2014).

Source: ACLED

Variable Name: Time-lagged 2 VAC

Description: Count of events of secondary modalities of violence against civilians carried out by the same conflict side in the same admin2 in the previous year

Calculation: Using the Excel xlookup function, the dependent variable 2 VAC is offset by one year (e.g. events of 2 VAC that occurred in 2013 are recorded as Time-lagged 2 VAC in 2014).

Source: original data collection

Variable Name: Conflict Side

Description: A categorical variable indicating if the armed actor that carried out an event is part of the conflict side.

Calculation: These designations determined by the Small Arms Survey which conducted both a Mapping Actors and Alliances Project in South Sudan (MAAPSS) as part of its Human Security Baseline Assessment (HSBA). For 'Government,' this includes the South Sudanese military and police, including subdivisions of these groups (e.g. Military Forces of South Sudan: Special Forces) and pro-government and ethnically affiliated militias. For 'Opposition,' this includes the Sudan People's Liberation Movement-In Opposition (SPLM-IO), National Salvation Front (NAS), White Army, Arrow Boys Militia, Nuer Ethnic Militia, and Murle Ethnic Militia.

Source: Small Arms Survey

Variable Name: Conflict Presence

Description: Dichotomous measure indicating whether a violent event between two or more armed actors occurred in an admin2 unit in a given year

Calculation: Using the dataset of all violent events between two or more armed actors, I created a pivot table of events per year and admin2 unit. I used the 'vlookup' function in Excel to transfer the information of the pivot table into the actor-year-admin2 unit of measure, recording a '1' if a violent event occurred and '0' otherwise.

Source: ACLED and original data collection

Variable Name: Economic Development

Description: A proxy measure of economic development based on night-time lights

Calculation: Night-time light data was pulled from the Earth Observation Group dataset via AidData per admin2 unit per year.

Source: AidData GeoQuery - VIIRS night-time lights (Earth Observation Group)

Variable Name: All VAC

Description: Count of events of violence against civilians by an armed actor per admin2 unit per year

Calculation: Using the data from 1 VAC and 2 VAC above, I utilised a basic addition function within the spreadsheet to calculate the total number of events of violence against civilians per conflict side-admin2-year.

Source: ACLED and Original Data Collection

Variable Name: Capital

Description: Dichotomous measures whether the admin2 unit is Juba County

Calculation: Using reported subnational administrative boundaries for South Sudan, an admin2 unit is recorded as a '1' if it is Juba County and '0' otherwise.

Source: South Sudan Information Management Working Group (IMWG), National Bureau of Statistics (NBS), International Organisation for Migration (IOM) and OCHA

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