The Economics of Violence and Development in Post-Conflict Societies

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Abstract

Despite a wealth of research on how socio-economic factors such as underdevelopment or inequality influence armed conflict, existing research has paid little attention to how micro-dynamics relating to armed violence and socio-economic factors affect post-conflict societies. This thesis builds on the observation that both socio-economic development and armed conflict vary substantially across time and space and contextualises their relationship in the post-conflict setting. Across three articles it examines the causes and effects of changes in socio-economic marginalization and the variation in armed violence at a local level.

The first article looks at whether more equitable distribution of socio-economic development across space can reduce the risk of future armed conflict in countries emerging out of war using nightlight data to trace spatial inequality over time. Subsequent articles zoom in on this relationship at a micro level. I empirically study the case of Peru and build on data collected during fieldwork, human rights reports and historical census records. The second paper examines how wartime economies affect subnational variation in armed violence between insurgent and the state after armed conflict has come to a halt at a national level. The third article builds on the finding that post-conflict socio-economic marginalisation matters and flips the question to examine how differences in patterns of civilian victimisation affect local trajectories in socio-economic development.

This thesis contributes to a more nuanced understanding of the economics of armed violence by placing a focus on the interplay between armed violence and socio-economic development across time and space within the post-conflict context. The different theoretical arguments are linked through their emphasis on the importance of civilians' responses to adverse conditions such as marginalization and violence. The thesis also contributes to existing literature by collecting novel data and combining different methodological approaches.

Contents

List of Figures

List of Tables

1 Introduction

One of the most pressing issues around intrastate armed conflict today is its resolution. The majority of contemporary civil conflicts take place in countries that previously experienced armed intrastate conflict (Walter, 2015). If one looks at the UCDP/ PRIO Armed Conflict Dataset, which defines an active armed conflict as a "contested incompatibility which concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths" (Gleditsch et al., 2002), about half of armed conflicts today are recurrences. This rate of recurrence is no longer surprising if one considers the extensive literature that has studied the difficulties of conflict resolution, the legacies of civil war or post-conflict stability.

The experience of armed conflict contributes to the normalisation of violence, fractures relationships between the state and the population, creates a pool of fighters, or contributes to the entrenchment of wartime economies (e.g., Themnér, 2011; Suhrke and Berdal, 2013; Bateson, 2017; Deglow, 2016; Themnér, 2017; Karim, 2020; Cheng, 2018). These are just a few of an extensive set of risk factors that make it difficult for countries emerging out of war to simply transition to peace. In fact, most post-conflict countries appear to never fully pacify and in the absence of recurrence other forms of violence take a hold instead, such as organised crime or intimate partner violence (e.g. Deglow, 2016; Cheng, 2018; Østby et al., 2019). This thesis contributes to the literature on post-conflict stability and reconstruction by going back to one of the most debated causes of political violence: inequality.

The relationship between (economic) inequality (or concepts related to it such as relative deprivation or poverty) and different forms of political contention (e.g. armed conflict, revolution, or protest) has been the subject of famous works from Aristotle to Machiavelli. For decades it has been a topic for debate in the field of conflict research with the aim to give an answer to the question: Does (economic) inequality breed political violence?

Various scholars have been important in shaping this debate. For instance, Gurr's (1970) seminal work on relative deprivation , which drew on the idea that aggression arises out of frustration and proposed that collective violence is the result of a collective perceiving a large gap between what they have and what they deserve. This idea became criticised by Charles Tilly and others, who emphasised that while political violence hardly occurs without shared dissatisfaction, it requires opportunities for mobilisation and financing warfare (Snyder and Tilly, 1972; Tilly, 1978). In the early 2000s the works of Collier and Hoeffler (2004) and Fearon and Laitin (2003) were essential in pushing towards the narrative that violent mobilisation is the result of opportunity and not necessarily 'grievances' or relative deprivation, which was usually operationalised as income inequality and measured as GDP/capita or using the Gini index. But

in parallel the end of the Cold War had brought a rise in armed conflict mobilised along ethnic lines. This motivated scholars to contextualise how and in which forms inequality matters. Gurr developed his work further and now emphasised the role of ethnic minorities (Gurr, 1993, 2000). This offered a way to understand when grievances are perceived collectively and are more likely to be acted upon.

Today a large part of the literature on inequality and political violence has been influenced by the seminal work of Frances Stewart (2000; 2005; 2008; 2016). She proposed that inequality is most salient for collective forms of violence if it runs along group identity lines, such as ethnicity or religion. She coined it *horizontal inequality* – in contrast to the traditionally studied *vertical inequality*, which emphasises inequality between individuals, and also highlighted various dimensions along which inequality matters: political, economic, social and cultural. Based on the her work a body of literature developed linking horizontal inequalities to political violence (e.g. Langer, 2005; Murshed and Gates, 2005; Østby, 2008; Cederman et al., 2011; Hillesund, 2015).

This literature has been essential in highlighting that perhaps the question is not whether there exists a relationship between inequality and political violence but understanding the mechanisms that link them to each other. Surprisingly though, despite a wealth of work on inequality and armed conflict, the literature has been rather limited in regards to systematically studying how inequality shapes post-conflict dynamics. The conventional wisdom across scholars and policymakers is: grievances need to be addressed to end conflict and consolidate peace. Nonetheless, due to the emphasis of most econometric studies on the opportunity for violence, scholars have been focused on the effect of economic growth, employment opportunities or democratisation (Collier et al., 2003, 2008; Blattman and Annan, 2016; Walter, 2015).

Even less consideration has been given to understanding how intrastate armed conflict affects inequality. Instead, also here the work on the economic effect of armed conflict has been limited to a discussion on economic growth (Collier et al., 2003, 2008; Hegre et al., 2017; Costalli et al., 2017). Yet, studying how inequality developed in post-conflict societies is crucial, not only because it is likely to affect future political violence but because inequality shapes political organisation, representation and civic life (e.g., Verba et al., 1995; Boix et al., 2003; Acemoglu and Robinson, 2006; Ansell and Samuels, 2010; Lupu and Pontusson, 2011).

Further it is important to better understand inequality within post-conflict contexts because these tend to offer exactly the conditions which scholars such as Charles Tilly emphasised for explaining when grievances matter, i.e. in the presence of opportunity. Mobilisation has already taken place before and previous armed conflict leaves behind structures of violent organisation that do not simply dissolve as the result of a peace agreement, the presence of international

peacekeeping operations, or other conditions which have facilitated a halt to hostilities. This is what makes post-conflict countries so vulnerable to relapsing into armed conflict. For instance, Daly (2012) and similarly Osorio et al. (2021) show that the organisational capacity developed during previous episodes of violent mobilisation can endure for centuries. The political entrepreneurs, which are necessary to coordinate and mobilise recruits into armed conflict often remain present during 'peacetime' (here loosely defined as the absence of active armed conflict) (Tilly, 1978; Gurr, 2000; Themnér, 2011; Themnér, 2017).

Given the extensive risk factors post-conflict countries face and what we know thus far about inequality and political violence, this thesis does not set out to answer whether inequality shapes post-conflict dynamics. Instead, I aim to situate the relationship between inequality and armed conflict within the post-conflict context. Specifically, this dissertation studies socio–economic inequality with a particular focus on aspects of marginalisation. In other words, I look at the bottom part of the distribution: what happens to those that have been historically excluded from (socio-)economic power post-conflict? How does this affect prospects of armed violence? And how did conflict dynamics shape socio–economic conditions of the most marginalised? This is not to undermine the relevance of other dimensions of inequality, for instance political (e.g., political representation) or cultural (e.g., recognition of cultural practices). Nor does it imply that the socio-economic position of the middle class or the most wealthy do not affect conflict dynamics or prospects for stability. Similarly, I focus on studying politically motivated armed violence between the government of a state and an organised violent non-state actors (also referred to as insurgent or rebel group from hereon out). While other forms of political or organised violence would be just as important to study, adding in these forms of violence would have made it more difficult to discern possible causal mechanisms and by far exceeded the scope of this dissertation project.

1.1 Main Concepts

Post-Conflict The lines between war and peace are blurry and thus for good reason, what exactly constitutes 'post-conflict' is generally not clearly defined in most scholarly work. Some works talk about post-conflict and speak to the phase immediately after armed conflict ends. But even defining the endpoint of armed conflict itself is often difficult (see Kreutz, 2010). More commonly the end of conflict is often denoted by the signing of a peace agreement or ceasefire agreement, the military victory of one conflict party or a 'prolonged' phase in which intensity of violence has dropped below conventional levels considered to define armed conflict as active. But even here scholars employ varying thresholds, the most common being 25 battle related deaths (UCDP/PRIO Armed Conflict Dataset) or 1000 battle-related deaths (Correlates of War

Project) reported annually.

Instead of providing a clear-cut definition of post-conflict, I refer to a country as post-conflict when it meets two criteria. First, it experienced an intrastate armed conflict.[1] Second, it is in a phase of sustained absence of armed violence or at least is experiencing a sustained drop in the intensity of armed violence, i.e. armed confrontations between the government security forces and a politically motivated insurgent group results in *less* than 25 battle related deaths in a given year.

What is even more problematic than defining the starting point of the post-conflict era, is the end point. When does a post-conflict country cease to be 'post-conflict'? This is a question I have been consistently contemplating on during the writing of this thesis. Some scholars use arbitrary rules of thumb such as 5 years after conflict termination to declare that 'peace' is consolidating. But this inadvertently assumes a false dichotomy between conflict and peace. Thus, for the purpose of this dissertation, I do not put an explicit time limit on what constitutes a post-conflict setting as I believe this to be counterproductive, particularly considering the extensive literature on the legacies of armed conflict that are likely to echo for years after conflict termination. This enables deeper inquiry into understanding the continuities between war and peacetime and an analysis of countries, which have experienced an end to civil conflict many years ago but that are clearly not peaceful, though at the same time do not meet the criteria for being classified as within active armed conflict either.

Inequality, and Marginalisation This thesis relies heavily on the terms of inequality and marginalisation. When talking about inequality, I refer to the the unequal distribution of economic power (e.g., wealth, income, land) and/or social power (e.g., access to public services such as education or health services). Across the different chapters I put differing emphasis on certain aspects of inequality and measure it differently depending on data availability and the specific argument put forward. However, throughout the chapters I theoretically and empirically stress two aspects.. First, the role of marginalised populations in the context of inequality. In other words, I give particular weight to the socio-economic position of the people at the bottom part of the distribution (e.g., do they have enough income to survive? do they have access to public services?). Second, the collective experience of marginalisation. In this regard, I conceptualise inequality across geographic space rather than between individuals or ethnic groups.

This builds on several observations. First, vertical inequality, which measures the distribution amongst individuals, might not be helpful to understand collective forms of violence, which are more likely to be the result of a set of individuals who share the same grievances. Second, while

[1] Empirically, I rely on the operational definition of armed conflict by the UCDP/PRIO Armed Conflict Dataset (as cited in the first paragraph), to classify which countries could potentially come to be considered post-conflict.

horizontal inequality has been more useful to capture the collective element of inequality that drives political violence, it has only limited explanatory value in post-conflict contexts where armed conflict did not run along fixed identity group lines (such as ethnic or religious groups) – which is at least more than half of all contemporary armed conflicts. Moreover, others have observed that horizontal inequality is most salient when it coincides with geographic patterns of exclusion. Thus by focusing on spatial inequality, I am able to capture to a certain extent potential horizontal inequalities but at the same time also analyse contexts in which the collective experience of exclusion does not run along group lines. Marginalisation is a process of historical exclusion and discrimination and often tends to agglomerate in geographic space, specifically when we look at patterns of distribution of socio-economic power (e.g., income levels and access to public services).

1.2 Theoretical Arguments and Main Findings

A central question within Political Science is how do people overcome the problem of collective action (cf. Olson, 1965)? Armed conflict and socio-economic inequality are both outcomes that have been studied through this lense. While elite organisation and other structural factors play a considerable role in understanding both these phenomenons, the main proposition of this thesis is that civilian behavior matters. It can shape variation in the viability of armed conflict and prospects for socio-economic development in post-conflict societies and help us understand how problems of collective action are overcome in conflict-affected societies. I examine this proposition across three separate outcomes: conflict recurrence, post-conflict armed violence and post-conflict socio-economic development. Rather than seeing civilians and specifically marginalised communities as passive actors, I propose that their influence over these outcomes and specifically their role in contributing to resolving or reinforcing problems of collective action is more complex. Within the three papers I consider different conditions under which civilians can come to have an important role in understanding post-conflict countries, their trajectory of violence and socio-economic recovery. In the following I give an outline of the respective papers.

The first paper of this thesis analyses the effect of changes in the distribution of economic power across space on the risk of conflict recurrence in a cross-national analysis. I posit that improvements in the economic status of marginalised areas can affect the probability that countries will experience repeat armed conflict by increasing the opportunity costs for participating in armed violence. In contrast, persistence in the patterns of distribution or even an aggravation of the concentration of economic power can lead to a higher risk of recurrence by lowering opportunity costs of violence across populations most vulnerable to be re-mobilised. The argument builds on the findings that economically marginalised populations are usually the ones who fight

and that perceptions of exclusion matter. I combine this with insights from Economics and Psychology and refer to work on loss aversion and risk preferences after the experiences of trauma, which highlight that people tend to prefer certainty after trauma and assign more value to not loosing something, even if what they could gain would be much bigger. I empirically test this argument using nightlight data. Specifically I assess how luminosity (averaged across population density) is distributed before conflict and compare it to how it is distributed in post-conflict years. I operationalise distribution by relying on the Theil's L index, which gives more weight to changes in the bottom part of the distribution (in this case geographic areas with little to no light). The empirical analysis supports the claim: countries, where spatial inequality decreased see a significantly reduced risk of recurrence. Put differently, improvements in the net level of economic power across marginalised areas reduce the likelihood of renewed armed conflict.

The second paper of this thesis is motivated by the fact that in the absence of recurrence, armed violence does not necessarily cease and asks: Why do some conflict-affected areas remain an arena of violent political contestation with the state, while others do not? It builds on the idea that armed conflicts leave behind a legacy of social and economic structures and that these tend to manifest locally. I thus focus on analysing subnational variation in post-conflict violence. My theoretical argument builds on the first paper but puts it into perspective. Improvements in the economic power of marginalised populations influence post-conflict stability but it matters what or who sustains local livelihoods to understand the characteristics of the post-conflict violence. Specifically, I analyse the role of wartime economies as an important source of variation in post-conflict violence. I propose that the continuation of armed violence between insurgents and the state can be explained by the economic inter-dependencies between communities and insurgents that have evolved during wartime as result of insurgents taking control over the extraction or trade of lootable resources in that area. Insurgents often sustain control of these areas during peacetime, which shapes civilian support because they still depend on these resource streams to sustain their livelihoods. In absence of the continuation of the 'wartime economy', local communities would be economically much worse off. This creates at least tacit civilian support for insurgents, which informs the ability of insurgents to stage attacks against the state but also shapes how costly counterinsurgency is for the state. Thus areas which were involved in the wartime economy will see more armed violence than other areas post-conflict. I test this argument empirically using the case of Peru. I develop a novel coca suitability index to serve as an instrument for local presence of a wartime economy and collect original data on post-conflict armed violence and cultivation of coca at a subnational level. I also rely on original interview data I collected during field work to give evidence of causal mechanisms. My findings lend strong support to the argument and additionally highlight that the links between economic motivations

for supporting an insurgent and armed conflict are far more complex than accounting only for grievances and financial feasibility to explain armed violence.

In light of the findings of the first and second paper, which both highlighted that local socio-economic conditions matter for post-conflict stability, the third paper set out to understand how armed conflict affects local socio-economic development and is motivated by the question of how civilian behavior influences local level socio-economic development. Building on an extensive literature that links social cohesion to various political and economic outcomes, I propose that how communities are targeted matters. While armed conflict is extremely destructive, collective civilian victimisation reinforces collective action capacity by creating a shared threat that can be better tackled together. I posit that these reinforced social bonds can facilitate post-conflict socio-economic development and explain why some areas are better at recovering from the detrimental destruction imposed by armed conflict than others. I study this argument empirically using the case of Peru and collect novel data on civilian victimisation and socio-economic development. Given tremendous concerns of endogeneity, my research design leverages geographic variation in emergency zones, which resulted in subnational variation in the propensity of being exposed to collective victimisation in a regression discontinuity design. The analysis lends support to the argument and is further supported with a a case study of the district Tambo to illustrate the causal mechanisms.

1.3 Methodological Approach and the Case of Peru

Studying inequality and political violence is demanding because the two dynamics have been major forces in shaping each other. Separating the effects from each other is difficult and perhaps impossible. To better understand how they interact with each other, this thesis relies to a large extent on the collection of new data and employs strategies of causal inference, where feasible. Most of all, however, this thesis has benefited from exploring different levels of analysis: while the first paper conducts a cross-national analysis, the second a third paper take a micro level perspective. This is motivated by the fact that armed conflict dynamics and socio-economic inequality vary across geographic space. To fully understand their interaction, we need to consider micro level dynamics. For this purpose insights and interview data gathered during fieldwork in Lima and the department of Ayacucho in Peru were essential. I explain my data collection strategy and analysis of the interview data in the second paper. Observations from the field and interviews with experts and civilians in historically excluded areas of Peru have majorly influenced this dissertation's perspective on how and to which extent socio-economic marginalisation matters for understanding violent action against the state.

The case of Peru is a focal case throughout this dissertation. The case was strategically chosen

with the dissertation's underlying research interest in mind. Peru experienced an extremely deadly armed conflict between 1980 and 2000.[2] Several characteristics made it a theoretically and empirically interesting case to analyse subnational dynamics of armed violence and socio-economic development, discern existing arguments around inequality and political violence and also put my initial ideas from the first paper into perspective. First of all, armed conflict had ended but in an 'unclear end' rather than a peace agreement or military victory. This type of conflict end is the most susceptible to recurrence, an aspect and ending to conflict that remains largely understudied in the literature, which has been rather focused on peace consolidation when conflicts end in peace agreements and/or with international involvement (e.g., peacekeeping operations) (cf. Kreutz, 2010). Second, although Peru is an ethnically diverse country, armed conflict was not organised along ethnic group lines. This offered a way to understand links between socio-economic marginalisation and armed conflict outside the context of an ethnic conflict or a country, where politics is largely organised along ethnic lines.[3] This allows me to at least to some extent more clearly analyse certain mechanisms as ethnicity in itself is often a very important factor in explaining political violence and development. Third, several macro level factors existed which had been emphasised by the existing literature as 'pacifying': Peru had repeat democratic elections since the end of armed conflict, experienced high economic growth, displayed strong coercive state capacity, and had implemented a truth and reconciliation commission. However, inequality remains rampant and the insurgent group Sendero Luminoso has remained active and continuously attacks state security forces. Which leads me to the fourth and final reason: Peru displays interesting subnational variation in post-conflict armed violence and also exhibits subnational disparities in post-conflict socio-economic development. It thus offers an interesting case to understand micro-dynamics and interactions between inequality and armed violence in a post-conflict context.

1.4 Contribution

Inequality is one of the most defining issues societies have historically faced and also one of the most debated causes for armed conflict. Yet, very little research has actually discerned its impact on post-conflict trajectories of violence and how patterns of violence may come to affect inequality in post-conflict societies. This dissertation contributes to different strands of literature but primarily the study of post-conflict countries by demonstrating 1) how differences in development across space (i.e. spatial inequality) influences the risk and subnational variation in post-conflict armed violence and 2) studying the effect of patterns of violence on local post-

[2]The second and third paper offer more detailed information about the case itself.

[3]This is not to undermine the fact that indigenous and Andean communities have been historically excluded and discriminated against. Rather this is to say that ethnic cleavages are not a major mobilising factor in the organisation of political life.

conflict trajectories of socio-economic development. This contributes to a growing awareness in the literature on inequality within Political Science that suggests how inequality is structured has perhaps more explanatory value than the levels of inequality a society experiences (e.g. Stewart, 2016; Lupu and Pontusson, 2011). With regard to this, the theoretical propositions emphasise the role of civilian agency and thus speak to a growing literature on processes and consequences of civilian preferences during armed conflict (e.g. Arjona, 2016; Kaplan, 2017; Krause, 2018). This dissertation also constructs and presents new data on the case of Peru. I collected data on post-conflict armed violence, constructed a coca suitability index, compiled and created a cohesive dataset on socio-economic development from 1981 to 2017 using census data and identified events of collective civilian victimisation during the armed conflict using data from the Truth and Reconciliation Commission (CVR, 2003). Moreover, interview data collected during field work has been essential to construct and test theoretical mechanisms.

More broadly, the theoretical arguments and empirical findings are central to two broader questions in Political Science. First, they speak to debates on the origin and maintenance of monopoly over the use of violence (cf. Weber, 1948). The dissertation suggest that even in countries with high coercive capacity, states will be unable to regain the monopoly over the use of force without winning over civilian populations. Similarly, insurgents will be unable to gain or maintain a (local) monopoly over violence without the support of civilians. While tacit support can leave both actors space to operate, it is insufficient to be able to escalate violence without accumulating extensive costs. For insurgents, this can mean their military demise if it is not strong enough to sustain attacks from the state. For the state it implies loss of political power, unless it can leverage other benefits for the price of causing instability. Civilians favor stability and while entrepreneurs of violence can exploit grievances to mobilise people into armed conflict the links between grievances and armed violence are more complex. The findings thus caution to understand arguments on the 'feasibility' of violence and grievances in the context of legitimacy. How is legitimacy constructed by armed actors and under which conditions do civilians perceive armed actors as legitimate? The dissertation suggest that one elemental piece to the puzzle is meeting local needs such as the security to livelihoods as civilians. Particularly in historically excluded areas communities are predominantly concerned with their survival. Second, the findings also speak to an extensive literature that relates to the question of why some groups organise and others do not (cf. Olson, 1965). It does so by relating how and why adverse conditions such as armed conflict or socio-economic marginalisation affect civilian preferences. Specifically the dissertation identifies collective threat perception as an important mechanism and highlights how economic and social bonds are created or sustained because of it, during and after armed conflict.

The following chapters are organised as follows. Chapter 2 presents the first paper of this thesis and analyses the relationship between spatial inequality and conflict recurrence. Chapter 3 presents the second paper, which looks at the legacy of wartime economies to discern how economic dependencies within marginalised communities inform where we see post-conflict armed violence. Chapter 4 presents the last paper of this thesis and analyses how patterns of civilian victimisation affect post-conflict socio-economic development. Finally, Chapter 5 recaps the purpose of this thesis, identifies main findings and discusses the main limitations of this research project. It concludes with a discussion of research questions that emerge out of the dissertation and considers possible policy implications.

2 Spatial Inequality and the Risk of Conflict Recurrence

Abstract

Countries emerging out of intrastate armed conflict have on average a 50% chance of experiencing recurrence. Can changes in the distribution of economic power affect the ability of countries to sustain peace? This paper uses nighttime light data to study the effect of changes to spatial patterns of inequality on the risk of conflict recurrence. I argue that more equal distribution of economic power across space can substantially affect chances of peace consolidation by reducing the re-mobilisation capacity of violent non-state actors. In contrast, when patterns of distribution persist or concentration of economic power grows, countries escalate their risk of recurrence by reinforcing existing grievances and perpetuating feelings of exclusion. The empirical analysis supports this claim. For instance, in post-conflict countries where spatial inequality stays the same, about half of all countries will relapse into conflict. If inequality was halved the probability decreases by over 20 percentage points. Contrastingly, if inequality is doubled, the risk increases to over 80%.

2.1 Introduction

Can changes in the distribution of economic power affect the risk of conflict recurrence? Despite widespread conceptions amongst policy makers that addressing economic drivers of conflict is crucial for peace consolidation, we know very little about the link between economic inequality and conflict recurrence. Most research to date focuses on the existence of a 'conflict trap', where the immense economic costs of armed conflict perpetuate low economic growth, which in turn facilitates recurrence (Collier et al., 2003, 2008; Hegre et al., 2017; Costalli et al., 2017). Consequently, emphasis has been put on economic growth as a deterrent against conflict recurrence. But growth is not necessarily always inclusive and may fail to addresses the economic root causes of conflict often grounded in unequal distribution of power. [4]

To contribute to our understanding of post-conflict stability this paper studies whether the economic inclusion of marginalised populations can help consolidate peace. Power sharing is generally understood to be an import tool for the consolidation of peace after armed conflict, for instance through power sharing provisions in peace agreements or democratisation (e.g. Hartzell and Hoddie, 2003a; Matanock, 2017). While these types of 'redistribution' efforts may come to decrease the risk of recurrence, they do so by primarily benefiting elites. Yet it is marginalised populations who are typically most affected by armed conflict and also most likely to be (re-)mobilised into fighting (Murshed and Gates, 2005; Justino, 2009; Acemoglu et al.,

[4] For instance, Dahl and Høyland (2012) show that depending on model specifications, economic growth might actually increase the risk of recurrence.

2011; Lin, 2021; Humphreys and Weinstein, 2008). Inclusion of marginalised populations could hence be key to understanding why some countries are more successful at consolidating peace in the long term than others.

Building on prominent literature that stresses the role of grievances or opportunity costs for motivating armed conflict, I link the distribution of economic power to the risk of conflict recurrence (e.g. Gurr, 1970; Collier and Hoeffler, 2004; Stewart, 2016). But in contrast to existing research, which looks at absolute levels of economic deprivation (e.g. income levels, employment opportunities, or access to public goods), my theory emphasises the role of *change in the distribution* or in other words the extent to which the net level of economic power held by marginalised populations increases or decreases. Particularly, I situate existing theories on inequality and conflict within the post-conflict context by drawing on theories on loss aversion and risk preferences after the experience of trauma (Kahneman, 1979; Tversky and Kahneman, 1992; Callen et al., 2014). I posit that changes to the economic standing of marginalised areas within a country can play an important role in affecting perceptions of the opportunity costs of renewed conflict. This is because it affects the preferences across marginalised populations, which are most vulnerable to be mobilised into participating in violence.

Additionally, this paper contributes to existing literature by assessing inequality across geographic space rather than between individuals (vertical inequality) or identity-based groups (horizontal inequality)[5]. While group identity is an important cleavage across many political contexts, it is not always a key factor in generating shared perceptions of marginalisation. Similarly, relying on individual-level measures of inequality tends to disregard the importance of collective action for violent mobilisation. Instead, I exploit that salient patterns of exclusion are often concentrated in space, also when they run along fixed group lines.[6] Thus, by focusing on spatial inequality, I am more likely to account for *collective* experiences of marginalisation (ethnic and non-ethnic), relevant for understanding violent mobilisation.

To empirically test whether changes to the distribution of economic power across space affect the risk of recurrence I rely on high resolution nighttime light data (Elvidge et al., 2014; NASA, 2013). In comparison to alternative data on local level economic development, for instance derived from government agencies or surveys, nighttime light data is available for all countries which experienced an end to armed conflict between 1992 and 2012 and allows me to track temporal changes to the distribution across years. I operationalise spatial inequality as the distribution of nightlight across space, but use an index that gives particular weight to changes

[5]See Murshed and Gates (2005) and Buhaug et al. (2011) for interesting exceptions in considering space a crucial factor for assessing inequality.

[6]This is evident by looking at countries around the globe, where political and economic exclusion can be mapped geographically, also beyond differences of urban and rural areas. One prominent example for instance being Italy, with a wealthy North and poor South. But examples extend beyond the Western hemisphere, e.g. India, China, Turkey, Peru, or Bolivia, just to name a few.

in the bottom part of the distribution. This way I am able to account for whether economic power is shifting towards previously marginalised populations rather than whether middle-class citizens are becoming economically more powerful[7] I combine this data with the UCDP Conflict Termination Dataset (Kreutz, 2010) and apply a Cox proportional hazards model. My results show that changes in the distribution of economic power, which result in improvement in the net level of economic power across previously marginalised areas, significantly reduce the risk of conflict recurrence.

In the following I will first review existing literature on conflict recurrence. I then introduce my theoretical argument and offer some examples to illustrate the proposed mechanisms. Next, I present my research design and discuss the empirical findings. I conclude with ideas for future research.

2.2 Existing Literature

Research on conflict recurrence often overlaps with work on post-conflict stability, or conflict duration as scholars diverge on defining the starting and end points of a given civil war and employ different concepts of what they consider ongoing armed conflict or peace. However, within this thematic sphere, three strands of literature seem particularly salient to understanding trajectories of armed conflict in conflict-affected societies.

One strand focuses on the role of bargaining failure or commitment issues: Fighting often resumes despite the costs of war because there are no credible guarantees. They posit that third-party involvement can provide an incentive to commit to peace, for instance in the form of peacekeeping operations (e.g. Walter, 2004; Fortna, 2004; Doyle and Sambanis, 2000). However, when conflicts involve various veto players they are harder to resolve because there will be fewer acceptable terms of agreement for everyone (Cunningham, 2006). Similarly, scholars emphasise the need to consider potential spoilers to the peace process Stedman (1997); Greenhill and Major (2006). But for instance the inclusion of civil society in the peace process may make it more likely that peace will endure (Kew and John, 2008; Nilsson, 2012).

A second strand highlights the role of unresolved grievances. It argues that if grievances at the core of a conflict are not addressed, recurrence is more likely. Some scholars highlight low economic or human development levels (Collier et al., 2003, 2008; Doyle and Sambanis, 2000; Walter, 2004; Quinn et al., 2007; Kreutz, 2010). However, particularly in the conflict onset and duration literature scholars have repeatedly stressed the role of grievances formed along ethnic or religious group lines, positing that conflict between competing identity groups is more intractable (Horowitz, 1985; Fearon, 2004; Wucherpfennig et al., 2012). But systematic research of the link

[7]For instance, the commonly used Gini index is particularly sensitive to changes in the middle of the distribution.

between inequality and post-conflict stability has been surprisingly limited (e.g. Langer et al., 2012) with a more substantive literature focusing on individual-level incentives to refraining to participate in armed violence, for instance through employment opportunities (Blattman and Annan, 2016).

This is linked to a third strand of literature, which highlights how different structural factors shape opportunity costs of violence and thus can explain why some armed groups remobilise for conflict or sustain rebellion. In essence, as conflict continues to be feasible, it will recur. Post-conflict stability can be explained, for instance, by the availability of contraband financing (Fearon, 2004), the type of conflict termination (e.g. Toft, 2009; David Mason et al., 2011; Caplan and Hoeffler, 2017; Kreutz, 2010), the characteristics of the negotiated settlement (e.g. Hartzell and Hoddie, 2003a, 2019), or the institutions in place (e.g. Walter, 2015).

Overall, the literature shows that consolidating peace after armed conflict is difficult and requires addressing the root causes of conflict. This paper adds to the existing literature by more closely linking recurrence back to one of the most debated causes of armed conflict: inequality. While some scholars have questioned the importance of inequality for understanding mobilisation into armed resistance against the state (e.g. Collier and Hoeffler, 2004; Fearon and Laitin, 2003), a plethora of studies has established that inequality matters. Either by generating shared experiences of marginalisation, which allow entrepreneurs of violence to mobilise on the basis of perceptions of collective exclusion such as unequal access to political power along group lines (i.e. horizontal inequality), or if it reduces opportunity costs of violence because people lack employment opportunities or ways to finance their livelihood (e.g. Justino, 2009; Blair et al., 2013; Østby, 2008; Cederman et al., 2011; Dube and Vargas, 2013). Yet, systematic studies on inequality have been widely missing from the post-conflict literature.

Instead the literature on the economics of post-conflict stability has been predominantly focused on the need to foster post-conflict growth; if anything scholars only emphasise the need to consider uneducated, young males as important targets of 'inclusion' (e.g. Collier et al., 2008; Blattman and Annan, 2016). But a country can experience high economic growth, leaving some groups better off, while inequality remains the same or is even increasing. So far the literature seems to assume that this would not matter, although extant literature on conflict onset and mobilisation provide extensive evidence for a link between inequality and political violence.

Particularly in a post-conflict context, where countries face on average a 50% chance of experiencing recurrence, it is conceivable that addressing inequality may be an important pathway towards consolidating peace. In the next section, I situate existing arguments on inequality and conflict in relation to the post-conflict context and draw on economic theories of loss aversion after the experience of trauma to argue that *changes* in the distribution of economic power are

crucial to understanding conflict recurrence.

2.3 Theoretical Argument

The role of inequality in explaining armed violence has long been subject to controversy. Some scholars posit that not all unequal countries experience intrastate conflict and thus it is in fact feasibility of armed conflict (e.g. access to lootable resources, availability of arms, weak state capacity) rather than grievances which explain armed conflict (e.g. Tilly, 1978; Collier and Hoeffler, 2004; Fearon and Laitin, 2003). In contrast, an extensive set of qualitative and quantitative studies suggest that inequality can be a driving force behind mobilisation into armed conflict (e.g. Gurr, 1970; Lichbach, 1989; Stewart, 2008; Østby, 2013). Though they do emphasise the need to consider when grievances are experienced collectively, for instance when grievances coincide with group identity and create horizontal inequalities (cf. Stewart, 2008).

Further, scholars also acknowledge that even collective experiences of marginalisation do not always translate to violence. Armed conflict is costly and thus requires resources and organisation to fight (cf. Tilly, 1978). Yet, if entrepreneurs of violence exist, that are able to mobilise resources and recruits, it is usually the most marginalised populations that will participate in violence (Humphreys and Weinstein, 2008; Justino, 2009; Buhaug et al., 2011). This is why the following argument emphasises the need to consider that the post-conflict context is substantially different from contexts where armed conflict has yet to take place in that entrepreneurs of violence exist and organisational capacity as well, e.g., wartime networks and collective capacity to mobilise violently usually remain intact years after conflict termination (see Themnér, 2011; Daly, 2012; Osorio et al., 2021). But the question is are those who will be most likely to be mobilised still willing to fight?

Economic theories of violence usually build on the idea of opportunity costs: participating in violence is more lucrative when the costs of violence are smaller than the loss associated with the alternative option of refraining from violence. However, perceptions of cost subject to change and might be reconsidered given the circumstances. For instance, literature on horizontal economic inequality, meaning the distribution of economic power across identity-based groups, finds that improving the economic situation of a marginalised group relative to other groups decreases the risk that this group will initiate armed conflict (Østby, 2008; Cederman et al., 2011, 2013, 2015). Similarly, an interesting body of literature has examined the effect of re-distributive policies such as land reforms, which affect the economic standing of marginalised populations, on intensity of violence; they find that areas where previously excluded populations are assigned land see less violence (Albertus and Kaplan, 2013; Albertus, 2020). It appears that addressing grievances, or in particular economic marginalisation, can prevent conflict onset.

Additionally, scholars which have investigated more carefully when and how perceptions of inequality translate to violent action have found that objective measurements of inequality do not necessarily overlap with subjective perceptions of marginalisation and subsequent willingness to participate in violent action against the state (Langer et al., 2012; Rustad, 2016). A key mechanism linking one's economic status to armed conflict is likely the perception of unfair treatment by the government (cf. Cederman et al., 2013; Miodownik and Nir, 2016; Kirwin and Cho, 2009; Rustad, 2016).

Following this, I suggest that to better understand the relationship between economic inequality and armed violence in post-conflict settings, we need to consider how perceptions of marginalisation are constructed and how these play into the willingness to participate in armed violence. To construct this argument, I build on research in economics and psychology, which emphasises the logic of loss aversion to understand why some people choose one option over the other. In short, people prefer to avoid losing compared to gaining the same amount (see Kahneman, 1979; Tversky and Kahneman, 1992). For example, the psychological costs associated with loss of for instance 100$ are larger than the gains experienced by winning 100$. This effect is further amplified after the experience of trauma as people assign more value to certainty or security. For instance, Callen et al. (2014) run an experiment amongst conflict-affected communities in Afghanistan and find that individuals exposed to violence are more risk averse and have a higher preference for certainty than others. This is in line with research in economics and psychology, which points to a relationship between experiences of trauma and risk preferences in decision making. Even after comparatively less 'severe' episodes of insecurity, such as early life experiences of financial insecurity, people become more risk averse (Malmendier and Nagel, 2011).

I argue that changes to the extent of economic marginalisation relative to the past (rather than relative to other individuals or an out-group) is important for understanding violent mobilisation. The 'costs' people assign to repeat armed conflict are conditioned by the traumatic experiences lived and the loss already incurred, e.g. human lives lost, economic losses and psychological trauma experienced. Perceptions of potential gains of participating in armed conflict are (at least in part) shaped by how beneficial peace has been to one's economic standing. Consequently, assuming that perceptions matter, the link between inequality and repeat violence could be more sensitive to *changes* in inequality, i.e. the improvement or worsening of the economic position of marginalised populations, rather than just being a function of the absolute level of inequality or deprivation relative to others. If previously marginalised populations – which are most likely to participate in armed conflict – experience an improvement in their economic position, the likelihood of conflict recurrence will drop because their preferences for

supporting armed conflict as a viable strategy to achieve political change have changed.

Put differently, improvements in the economic situation of marginalised populations might increase the chances that a large part of the most vulnerable people to be mobilised into fighting the state will not want to join an insurgency. This is for instance the case in Peru, where the insurgent group Sendero Luminoso continues to exist and perpetrate violent attacks against the state – though at very low intensity. While the country remains characterised by high levels of inequality, the economic position of some of the most marginalised populations (which were simultaneously also the most targeted during armed conflict) has improved significantly, thanks to development programs (Orihuela, 2012; Schady, 2000). In conjunction with the high costs associated with the past armed conflict, this has affected the ability of Sendero Luminoso to recruit people into participating in its insurgency and limited its capacity to escalate violence against the state (Taylor, 2017).

I propose that conflict recurrence is in part a function of whether a sub-population considers the additional costs of violence (economic and non-economic) acceptable given the potential returns of restarting conflict. How much potential gain renewed armed conflict must bring for a significant subset of the population to consider restarting armed conflict less costly than keeping the status quo is difficult to say. Nonetheless, following the logic of opportunity costs, it is plausible that if the share of people who are economically marginalised further increases after conflict termination, i.e. inequality increases, this will heighten the risk of recurrence. When economic grievances do not only persist but actually worsen, the benefits associated with peace will be more likely to be perceived as negative and also enlarge the potential pool of recruits.

Mozambique illustrates this argument. After a long and bloody war, rebel group RENAMO and the government signed a peace agreement in 1992. The country subsequently saw a UN peace mission, a security sector reform (SSR), disarmament, demobilization and reintegration programs (DDR), as well as its first democratic elections with Renamo as a political party. For twenty years the country experienced economic growth and regular elections, yet armed conflict was reinitiated by Renamo. In spite of positive development, inequality had persisted for years, leaving particularly formerly rebel-held areas underdeveloped and marginalized. This allowed the insurgent elite to maintain dependencies and wartime networks and consequently easily mobilize ex-fighters on the grounds of marginalization (Themnér, 2011; Themnér, 2017). While other factors such as the discovery of natural resources played a role – particularly to incentivise elites (i.e. entrepreneurs of violence) to take up arms, inequality has facilitated mobilization of marginalised populations for renewed armed conflict.

From this I derive the following testable hypothesis:

H: *A decrease in spatial inequality, i.e. an improvement in the economic standing of marginalised*

populations, reduces the risk of conflict recurrence, while an increase in spatial inequality increases the risk of conflict recurrence.

2.4 Research Design

To assess the impact of temporal changes in spatial inequality on the risk of conflict recurrence, I construct a time-series cross-sectional dataset that includes all countries, where an intrastate armed conflict ended between 1992 and 2012. My unit of analysis is the post-conflict-year. I rely on a Cox proportional hazards model to analyze the relationship between changes in spatial inequality and the hazard of conflict recurrence.

The Cox proportional hazards model assesses the risk that a conflict will recur conditional on the length of time the subject has been at risk. I allow for multiple failures, given that in practice some countries experience repeat armed conflict multiple times. An observation enters the analysis every time a conflict episode has ended and is observed until conflict recurs or the period of observation ends, in which case it becomes right-censored. I use robust standard errors and cluster the observations by country, considering that recurrences might be interrelated (Box-Steffensmeier et al., 2004). This dependence is also captured by stratifying the results by the number of previous recurrences.

The advantage of using a Cox proportional hazards model rather than a linear probability, logit model or similar, is that survival analysis allows for censored observations. This means that the model includes countries that did not experience conflict recurrence during the time of analysis. The Cox model also has specific advantages: it does not pre-determine a baseline hazard, it makes it easy to incorporate control variables, and it does not impose too much structure on the data. Also, it is able to handle recurrent events (i.e. repeat conflict recurrence across years) (cf. Box-Steffensmeier et al., 2004).

Armed conflict is defined as a contested incompatibility over government and/or territory between a government and a non-state actor, where the use of armed force between them results in twenty-five or more battle-related deaths in one calendar year (Gleditsch et al., 2002). A country is considered post-conflict after experiencing at least one year in which no conflict is active. I draw on the UCDP Conflict Termination Dataset (Kreutz, 2010), which gives specific start and end dates to conflict episodes to measure my main dependent variable ***conflict recurrence***. It is a dummy variable, coded as 1 for a post-conflict year in which armed conflict with the *same incompatibility* across a previously active *or* a new conflict-dyad, reaches 25 battle related deaths.

Change in spatial inequality is the main independent variable and assesses temporal differences in the distribution of economic power across space. Deriving an operational measure

for inequality is challenging due to a general lack of reliable data, particularly for post-conflict countries. Many conflicts take place in countries for which we do not have very reliable data on local economic conditions even before the conflict. If anything, data on economic wealth or income is usually collected through household surveys or possibly government agencies. Yet, insecurity in post-conflict countries often makes it difficult to conduct such surveys and government data is often unreliable and biased. While survey data can often give access to interesting aspects of economic power, they are often only collected in certain countries, every couple years and often does not sufficiently cover all regions equally.

To overcome such limitations, I assess spatial inequality using high-resolution satellite data on night light emissions. Light emission is a quantity that can be measured instantaneously, objectively and systematically with great potential for assessing subnational variation and particularly short-term changes in economic power. Global data is available from the U.S. National Oceanographic and Atmospheric Administration (NOAA) and was collected by the US Air Force Defense Meteorological Satellite Program's Operational Linescan System (DMSP-OLS). I take the nighttime light (NTL) data from the PRIO GRID 2.0 dataset (Tollefsen et al., 2012) which has already standardized the pixel (light) gain values for the Saturated Light to range from 0 to 1, instead of from 0 to 63, where 1 is the highest observed value and 0 is the lowest. The data has also been calibrated to eliminate variation across years due to atmospheric noise or sensor drift, using the regression-based intercalibration technique developed by (Elvidge et al., 2014). This makes it possible to compare distribution of night light emissions across time.

Different studies have shown that nighttime light data is useful for assessing local economic development and even human development outcomes such as health and education in countries where disaggregated data is lacking (e.g. Chen and Nordhaus, 2011; Weidmann and Schutte, 2017; Henderson et al., 2011, 2012; Hodler and Raschky, 2014; Chand et al., 2009). For instance, Weidmann and Schutte (2017) show that night light emissions can successfully proxy local wealth with correlations in developing countries averaging around 0.73, while Henderson et al. (2011) demonstrate that changes in nightlights correlate with economic development. Similarly, Chand et al. (2009) find that nightlight highly correlates with electrification rates. Areas that are more illuminate are also more likely to have access to other public goods as well such as water, health, roads, and education (Hodler and Raschky, 2014; Alesina et al., 2016). This validates the use of nighttime light as a tool to assess spatial inequality.

To measure spatial inequality, I employ the Theil's L Index, a generalized entropy inequality measure. It is often used to measure economic inequality but also racial segregation or other forms of inequality. It's advantage in contrast to the more commonly known Gini index is the possibility to include a parameter alpha, which makes it more sensitive to differences in income

shares, or in this case luminosity shares, among the poor or rich. Given the hypotheses in this paper, which focuses on inclusion of marginalised populations, I assign the parameter alpha to be 0. This makes the index more sensitive to changes at the bottom of the distribution. The formula can be written as follows:

$$GE(0) = \frac{1}{N}\sum_{i=1}^{N} ln(\frac{\bar{y}}{y_i}), \tag{1}$$

where y is given by the luminosity per capita and N stands for the number of observations. I calculate per capita luminosity for each grid cell in a country by dividing the gain value (i.e. luminosity) by the population density (i.e. average number of people per square kilometer).[8]

Change in spatial inequality is calculated by assessing whether the Theil's L Index has decreased or increased in post-conflict years. The calculation is given by:

$$ln(\frac{SI_{post}}{SI_{pre}}), \tag{2}$$

where SI_{pre} indicates the level of spatial inequality before conflict onset and SI_{post} indicates the level of spatial inequality in each post-conflict year. I log-transform the variable in order to create a continuous variable, where 0 denotes no change, positive numbers indicate an increase in inequality and negative numbers a decrease in inequality.

I also include a set of ***covariates***, which are conceivably correlated with changes in spatial inequality and the risk of conflict recurrence. I include VDem's Equal Access Index, which measures whether all people in society can de facto enjoy participate in politics and influence policymaking on a scale from 0-1 (low to high) (Coppedge et al., 2017). Political inclusion, which makes countries less susceptible to repeat conflict but could also contribute to more economic inclusion. I also consider natural resource production since this not only generates extraordinary luminosity but also increases the likelihood of conflict recurrence due to the increased economic benefit associated with control over such areas. I use data on gas and oil production from Ross (2004). Further, I also include a measure of electoral democracy using V-Dem data (Coppedge et al., 2017). Given that particularly anocracies are very likely to experience instability, include a squared term. This accounts for a curvlinear relationship between democracy and conflict and similarly democracy and accommodation of grievances of marginalised populations, with very strong democracies or autocracies better capable of preventing conflict. I also account for several characteristics of the armed conflict. I include the duration of the previous conflict episode. After

[8]It is necessary to divide it by population density rather than population count because each 30 arc-seconds grid does not correspond to an equal area at the surface of the earth. Population density is calculated by dividing population estimates from the Gridded Population of the World version 3 (CIESIN and CIAT 2005) by land area of that grid cell. Data on population is only available every five years from 1990-2010 and was extrapolated using linear regression to obtain yearly estimates.

very long conflicts countries are less likely to see recurrence because of war weariness (e.g. Fortna, 2004) but they are also more likely to have experienced more destruction, potentially affecting particularly the poorest members of society and thus resulting in an increase of inequality. I also include dummies for types of conflict termination (Kreutz 2010). Agreement indicates that conflict ended in a peace agreement or cease fire agreement; Unclear end indicates that conflict activity continues but does not reach 25 battle related deaths or that the conflict actor has become another conflict actor or has ceased to exist; Victory indicates that conflict ended in rebel or government victory. Peace is thought to be harder to maintain when war ends in a compromise settlement than in victory, because actors are more likely to resume violence if they eventually no longer are satisfied with the terms of the peace. Inequality is perhaps most likely to persist when there is no clear end to the conflict. Note that all variables except for duration are lagged by one year. Further, the results are stratified by the number of times the subject (conflict) is at risk of experiencing recurrence.

2.5 Analysis

Do changes in spatial inequality, i.e. the geographic distribution of economic power, affect the risk of conflict recurrence? Table 1 presents the main results from the Cox proportional hazards models that capture the effect of changes in inequality on the risk of conflict recurrence, conditional on the time the country has remained at peace. I report hazard ratios: values above 1 indicate that the particular variable increases the risk of conflict recurrence (i.e. shorter peace spells) while a value below 1 indicates that it decreases the risk of recurrence (i.e. longer peace spells). Model 1 shows the bivariate relationship between a change in inequality and the risk of recurrence. Model 2 includes all covariates specified above. Given that data is missing for several countries for the production of natural resources, Model 3 omits these variables to demonstrate robustness of results.[9] I find support for my hypothesis that changes in inequality affect the risk of conflict recurrence. The results indicate that moving towards more inequality puts a conflict at a higher risk of relapsing into armed conflict: a one unit increase in the change of inequality [10] is associated with around 2.25 to 3 times the risk of conflict recurrence.[11]

To see the results in more substantive terms, I visualize these effects over time. Figure 1 shows the Kaplan-Meier survival rates across time at peace for when inequality does not change compared to when it is doubled or when it is halved. Survival rates are estimated with all covariates set to their mean value; since conflict outcome is a categorical variable, I set it as

[9] Note that data on covariates remains missing for Yemen, Serbia and Sudan

[10] One standard deviation of change in inequality equals 0.3, so about 30 percentage point increase in inequality.

[11] This is quite substantial, if we compare it for instance to the effect of an unclear end to conflict on the risk of conflict recurrence, which has been shown to be the most unstable type of conflict outcome (Kreutz, 2010). See Figure A1 in Appendix.

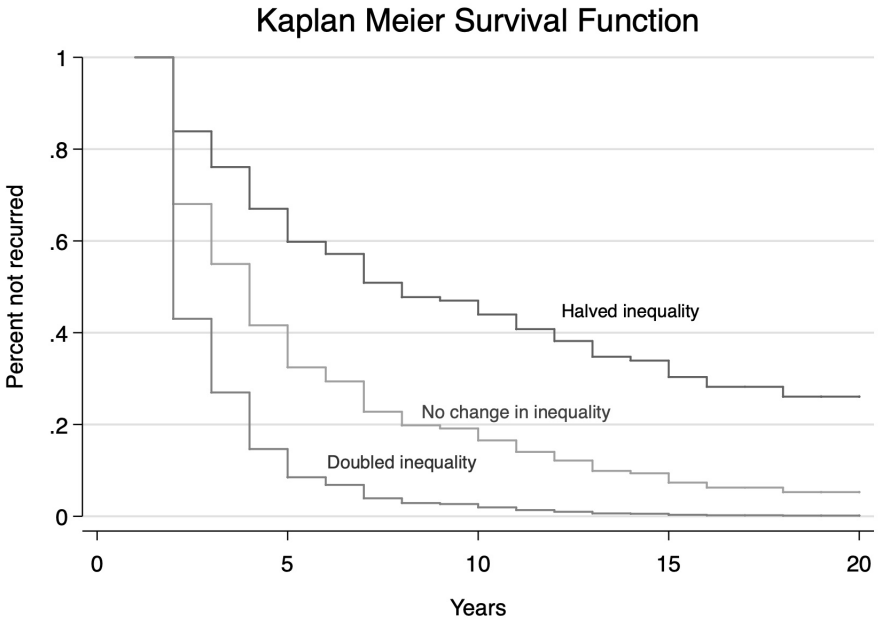
Table 1: Table 1: Change in Inequality and Risk of Conflict Recurrence

	Cox Proportional Hazards Model		
	(1)	(2)	(3)
Change in Spatial Inequality	2.225*	3.098 **	2.812 **
	(1.045)	(1.875)	(1.405)
Equal Access Index		0.669	0.212
		(1.466)	(0.176)
Democracy		0.782	0.698
		(2.016)	(1.779)
Democracy (squared)		0.468	1.585
		(1.396)	(4.744)
Gas production		0.999	
		(0.000)	
Oil production		1	
		(0.000)	
Unclear conflict end		3.379***	3.735***
		(1.420)	(1.443)
Peace agreement		2.210*	2.656**
		(0.935)	(1.085)
Previous conflict duration		1.028**	1.029***
		(0.011)	(0.011)
Conflicts	86	76	83
N	159	141	155

Note: Hazard ratios reported. Robust standard errors clustered at the conflict level.
* p <0.1; ** p <0.05; *** p <0.01

unclear conflict end given that this is the most likely outcome amongst contemporary conflicts. About 5 years after conflict ended close to 70% of conflicts will not have recurred when inequality is halved. In contrast, if inequality was doubled only about 90% of conflicts will have recurred. Meanwhile, if inequality levels stay the same about 40% of conflicts will have restarted.

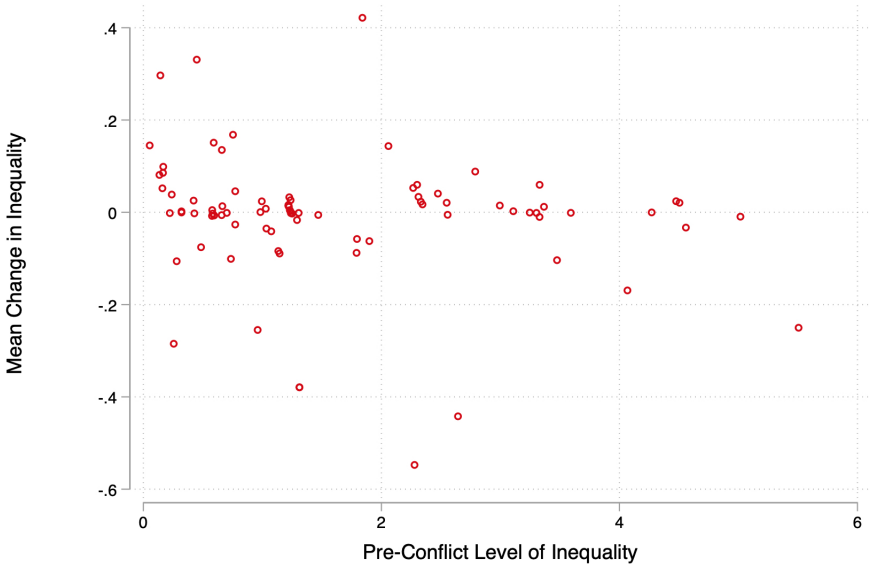
Figure 1: Kaplan-Meier survival curves by change in inequality observed



How applicable are these results to understanding recurrence or absence thereof in practice? Unfortunately, most post-conflict years see little improvement in the distribution of economic power. In Figure 2 I show the average change in inequality after conflict termination. [12] While most post-conflict years see on average a decrease in inequality by about 8 percentage points, this is notably a fairly small decrease. We can see that most post-conflict countries remain about as unequal as they were, regardless of how unequal they were prior to conflict onset. Note that for the pre-conflict level inequality, I use the Theil's L index, where 0 indicates perfect equality and higher values represent more deviation from an equal distribution of economic power. Only few countries record strides towards including marginalised communities economically post-conflict (e.g., Russia, Angola, Myanmar, Nigeria, Serbia, Ethiopia). The same seems to hold true for worsening economic conditions and further marginalisation (e.g., India, Azerbaijan, Lesotho, Ivory Coast, Turkey, Bangladesh).

[12] I omitted Bosnia-Herzegovina from this graph for purposes of better visualisation, since inequality decreased tremendously by 1,7 and is thus an extreme outlier.

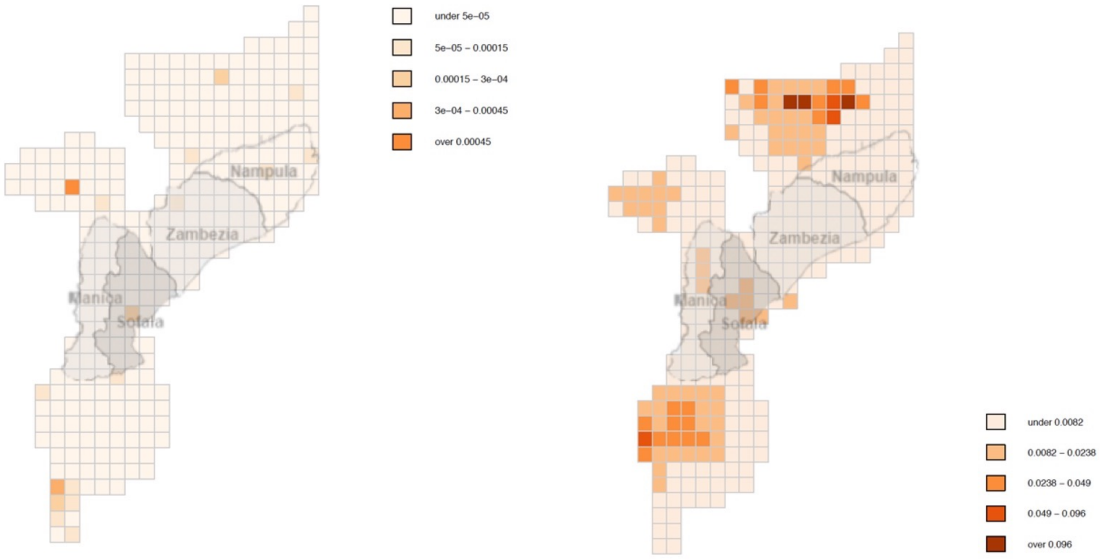
Figure 2: Mean Change in Inequality by Pre-Conflict Levels of Inequality



Closer analysis of different post-conflict countries where inequality increased or decreased, recurrence or absence thereof is never explained by inequality alone (as with most factors that shape armed conflict or human interaction). Ultimately, it appears to be a *necessary* condition but not a sufficient one. This reinforces an argument made in extant literature: experiences of grievances are perhaps not enough to translate into violent action in the absence of 'organisational capacity' (cf. Tilly, 1978; Gurr, 1970). Macro-level processes that affect power distribution among the elites are an important factor in understanding when we see conflict recurrence. But if these do favor recurrence then how inequality developed is an important determinant for understanding recurrence and possibly even the intensity of repeat armed conflict. I use the case of Mozambique to clarify this dynamic.

Mozambique experienced a particularly long and bloody civil war between the rebel group Renamo and the ruling party Frelimo. The peace process in the beginning of the 1990s led to a UN peace mission, multiparty elections with Renamo as a recognized party, a power sharing agreement and the implementation of disarmament, demobilization and reintegration programs as well as a security sector reform. Mozambique saw twenty years of 'peace' (meaning absence of armed conflict), strong and steady economic growth and regular democratic elections. However, in 2013 violence resurged.

Figure 3: Distribution of nighttime lights in Mozambique: 1992 vs. 2012



Researchers point to fraudulent elections, the loss of political power on part of Renamo due to the rise of a new opposition party and most importantly fear to lose out on the economic profit of the newly found gas reserves. Although all of these factors can be argued to have played a role, inequality has also been crucial to explain why the elite was able to remobilize for conflict (Themnér, 2017). While Mozambique was economically on the rise, the areas formerly held by Renamo – shaded in grey in the maps – were still lagging behind the rest of the country, as we can see in Figure 3.

The map illustrates variations in per capita luminosity across Mozambique. The darker the color, the more light they have in that area. By the end of conflict in 1992 most parts of the population do not have light or live in extremely poorly lit areas. Over the years, economic development brings higher absolute levels of luminosity, reflected in the overall increase in darkness of the colors in the map. However, the former Renamo strongholds, particularly concentrated in the provinces Manica, Sofala, Zambezia and Nampula, are still the most poorly lit areas. The persistent inequality and specifically the marginalization facilitated the continuation of wartime networks in the post-war period and provided Renamo's leaders with a pool of ready, seasoned, often frustrated and marginalised recruits and also popular support for its rebellion, particularly because the attacks perpetrated by Renamo were mainly focused on damaging infrastructure, rather than harming civilians.

It is difficult to know whether in a counterfactual world, where Mozambique would have channeled economic development programs towards the most vulnerable populations, it would have remained stable – despite the loss of power experienced by Renamo as a political party or the discovery of natural resources. An interesting counter example is the case of Peru. Similar

to Mozambique Peru experienced a very long and deadly civil war but saw steady economic growth and repeat democratic elections after conflict termination. Although some important differences in the post-conflict context should be highlighted: Peru did not implement a peace agreement, nor did it see a UN peace keeping operation, or the development of the insurgent organisation into a political party.

Conflict involving the insurgent group Sendero Luminoso ended in 2000, though violence already waned in intensity following the capture of the group's leader in 1992.[13] At conflict onset, Sendero's discourse resonated mainly with young, educated people in historically marginalised areas. Its violent campaign against the state rapidly gained traction as a result of widespread economic and social inequalities at the beginning of the 1980s (CVR, 2003; Del Pino, 1993; Degregori, 1998; McClintock, 1984). The rebellion was in large parts led by middle-class, educated professionals, while the lower ranks were filled by poor, provincial youth and popular support came mostly from the most marginalized (Orihuela, 2012; Degregori, 1991). However, as conflict progressed Sendero's popularity plummeted as a result of i) a quite harsh counterinsurgency campaign that left many communities severely victimised, as Sendero did not offer any protection, and ii) the imposition of harsh rules by Sendero, which severely limited rural livelihoods, e.g., they banned local markets and fairs due to the capitalistic exploitation they represented (McClintock, 1984; Degregori, 1998; Coronel, 1996).

As Sendero had to rely more on coercion to hold on to territory, the government started to become more popular across marginalised areas in the 1990s with the election of Alberto Fujimori (1990-2000), who enacted widespread development programs. His policies appeared to be more considerate of local issues: "they were conscious of the risk of capture of projects by the local bosses, and incorporated what they hoped was a solution: building a direct relationship between the central power and the rural communities" (Paredes and Thorp, 2015, :12). Local communities started to develop economically and policies acknowledged the legacy of inequality. Although projects often disproportionately targeted areas that were most likely to increase support in elections (i.e. more densely populated areas) and did not address extreme poverty in many rural areas, living standards across previously marginalised areas increased (Schady, 2000; Orihuela, 2012). As a result, acceptance and support for the democratically elected government increased as people that had previously lived in areas completely secluded from electricity, water or education, now had roads, hospitals and schools (Orihuela, 2012). Though inequality remains high and poverty remains an important policy issue in Peru, many previously marginalised areas have seen an improvement in economic development – compared to levels experienced before

[13]Note: Sendero remains active until today and has still not been completely defeated, after mid-1990s armed violence has been concentrated in the main coca-cultivating valleys and has caused only few deaths compared to the death toll of over 70,000 victims during the conflict.

conflict onset. The development experienced across previously marginalised areas has been key in limiting the success of Sendero's ongoing propaganda campaign to recruit new members in impoverished areas and escalate its violent campaign to a level, which would be considered 'recurrence' of armed conflict (see Paredes and Thorp, 2015).

2.6 Limitations and avenues for future research

The analysis suggests that contrary to previous theories on conflict onset, levels of inequality alone are less indicative of the risk of recurrence than how inequality developed.[14] A more dynamic relationship might be at play after conflict termination, further conditioned by the context of the armed conflict which shape opportunity costs of violence amongst entrepreneurs of violence, or in other words the elites. Yet, this analysis must be considered given the limitations that relying on nightlight data brings. Nightlight data are ultimately a rough measure of economic activity and do not fully capture income levels, or access to public services like water, health facilities or education. While the analysis suggests that there is a strong relationship, future research would gain from disaggregating more closely different factors associated with economic power, such as income levels or living standards. [15]

Further, lack of data across cases on which areas where previously controlled by insurgents does not permit me to analyse a link between the improvements of economic standing in previous rebel-controlled areas, where insurgents would conceivably be most likely to access recruits, and renewed conflict. The cases of Peru and Mozambique show that these might be specifically salient areas for understanding the link between changes in inequality and the risk of conflict recurrence. Although, for instance, Mozambique is currently experiencing intense violent campaigns by Islamist militants in the northern province of Cabo Delgado (Figure 3 shows that this is also an area which continues to be marginalised), which was not a Renamo-controlled area.

Additionally, it might be important to consider why living standards improved or worsened. Previous research on relative deprivation has shown that it matters whether being economically marginalised is directly attributed to the government (e.g. Rustad, 2016). Presence of insurgents could be a driver behind socio-economic development if they provide access to public servives such as health facilities or other forms of governance relevant to socio-economic development such as a reliable justice system, which could give rise to secure property rights, which are essential for development (cf. Dell, 2010). And in fact, the emerging literature shows that many

[14] In figure A2 and A3 in the appendix I also show model estimates using inequality as the main independent variable instead of change in inequality. The results suggest that higher levels of inequality, whether measured using the Theil's L index or the Gini index increase the risk of recurrence but the effect is not distinguishable from 0, allowing me to not reject the null hypothesis that inequality has no effect on recurrence.

[15] Specifically, other research associates nightlight with state capacity, which could ultimately be linked with a better capacity to enact counterinsurgency campaigns (Koren and Sarbahi, 2018, cf.) but also better public service provision. Other research suggests that both are crucial for winning armed conflict (Beath et al., 2012; Mikulaschek et al., 2020; Lyall et al., 2020, e.g.)

rebel groups do provide such services, though to varying extent (e.g. Arjona, 2016; Stewart, 2018). An interesting question to pose here would be: if rebels are attributed the improvement in living standards will local populations still support escalation of violence or will they be inclined to restrain violence that could threaten their newly gained economic standing? These are all questions and dynamics that need to be carefully studied and require more fine-grained data at the subnational level.

Further, the identification strategy employed here does not allow me to rule out problems associated with selection on observables designs such as omitted variable bias or reverse causality. Future research would benefit from understanding how armed conflict ultimately shaped socio-economic development. While existing literature emphasises the negative effects of armed conflict on economic growth or human capital, we know very little about how armed conflict shapes development more broadly and at a subnational level (cf. Collier et al., 2008). Those most marginalised, are often the ones most affected by armed conflict. Does armed conflict just reinforce marginalisation? Is this perhaps the mechanism explaining the 'conflict trap' and also why even countries that do not go back to war, see extremely high crime rates instead? Interesting research at the intersection of economics and psychology seems to suggest that the picture might not be so grim: communities most victimised by armed conflict reinforce social cohesion and display more altrustic behavior, which could be linked to more socio-economic development (e.g. Blattman, 2009; Voors et al., 2012; Gilligan et al., 2014).

2.7 Conclusion

Armed conflict changes societies and the end of violence is often an opportunity to address old structures and make space for peace. Yet countries are faced with a multitude of competing priorities post-conflict and also many threats to peace. Much of the existing literature and donor practice supports (either explicitly or implicitly) a liberal peace building approach, in which democracy, economic liberalization and rule of law are promoted as the foundations for peace. This paper has set out to understand to which extent the economic inclusion of previously marginalised populations can contribute to the prevention of conflict recurrence and whether not addressing inequalities poses a significant risk to conflict recurrence. The findings suggest that there is a strong effect between changes in inequality and the duration of peace. If inequality is taken seriously and policies are implemented towards addressing grievances and needs of marginalised populations this can help prevent recurrence. However, it might not be enough to prevent the activity of violent non-state actors. But case study evidence suggests that at least it restrains the extent of violence. Violent non-state actors need local populations to operate, at least their tacit support is necessary to be able to launch attacks against the state military.

Inequality or relative deprivation of a sub-population is arguably quite important for understanding why people join a rebel group, Many post-conflict governments do not necessarily address this issue sufficiently. While economic development and multiparty elections are often at the forefront of policy making, the findings of this paper highlight the necessity to not only spur economic growth or democratization but make sure larger parts of the population profit from peace. These findings are also relevant to policymakers, as international donors pour millions into war-torn countries every year in a quest to secure peace. If efforts to rebuild these societies were to focus on also addressing the exclusion of marginalised populations, beyond only ex-insurgents or young males, countries could be more likely to see peace or at least stability.

The findings of this study suggest that cases like Mozambique or Peru are not necessarily unique but part of a wider pattern. Although other studies have explored the role of inequality as a motivation for violence, this paper has shown that strides towards addressing inequality can reduce the risk of renewed conflict, i.e. high-intensity violence. The findings are hopeful in that they show that it is not necessarily absence of inequality in itself that reduces the risk of conflict but relative improvement over time. People update their outlook on life or to put it in economic terms, their preferences, if confronted with change and it appears that this is specifically the case after traumatic experiences such as war. The experience of 'profitable peace' across the wider population could help make conflict too costly.

Yet, while an emerging literature highlights the need to win 'hearts and minds', i.e. through development, many efforts to build peace are not based on permanently addressing inequality but solely on spurring economic growth and democratization, potentially in the hope that this might lead to the reduction of grievances. Future research would also benefit from studying marginalisation beyond the economic dimension. For instance, issues around cultural recognition could be extremely important to understanding motivations for resorting to violence, even if living standards are high, as is for instance apparent in the case of Spain and the conflict in Catalonia (though this is not classified as an armed conflict).

3 Linking Wartime Economies to Armed Violence in Post-Conflict Countries: The Role of Civilian Support

Abstract

Why do some conflict-affected areas remain an arena of violent political contestation with the state, while others do not? I explore how the legacy of wartime economies shape where we see armed violence after conflict termination. Wartime economies help insurgents create economic inter-dependencies with civilians, which decreases incentives to inform on insurgents. Counterinsurgency, which relies heavily on intelligence, is thus specifically costly in areas where civilians depend on the wartime economy to secure their livelihood, also during peacetime. Simultaneously, mounting attacks and hiding in these areas is less costly for insurgents as long as they enjoy civilian support. Using novel subnational violence data for Peru, I apply an instrumental variables approach and demonstrate that areas which were involved in the wartime economy see more violent attacks in years after conflict termination.

3.1 Introduction

Why do some conflict-affected areas remain an arena of violent political contestation with the state, while others do not? This question is central to understanding conflict recurrence, insurgent survival and more broadly the conditions under which the state can regain monopoly over the use of violence. Post-conflict societies are peculiar contexts because factors that facilitate the resurgence of armed conflict, such as conflict capital (e.g. abundance of ex-fighters), lack of trust in the state, the normalisation of violence or the entrenchment of wartime economies tend to coexist with other factors, which have contributed to the end of armed conflict at large, such as peace agreements, peace keeping operations, or military victory of one side (e.g., Themnér, 2011; Suhrke and Berdal, 2013; Bateson, 2017; Deglow, 2016; Themnér, 2017; Karim, 2020; Hartzell and Hoddie, 2003b; Nilsson, 2008; Fortna, 2004; Toft, 2009). This tension becomes particularly apparent when we focus on the local level: peace may have been reached and even sustained at a national level but this is not necessarily true subnationally.

Extant research shows that previously conflict-affected areas are more likely to be the stage of future insurgency or other types of organised violence due to dynamics that armed conflict perpetuated such as lack of trust or organisational feasibility (e.g. Daly, 2012; Deglow, 2016; Osorio et al., 2021). But it remains unclear why we would observe different trajectories of armed violence across conflict-affected areas. In this paper I propose that subnational units may differ in the continuation of armed violence between insurgents and the state given their involvement in wartime economies.

Wartime economies encompass the "organisation and development of a society's legal and

illegal resource flows in support or as a result of conflict and violence" (Kurtenbach and Rettberg, 2018, p.2). Based on extant literature on the 'feasibility' of conflict, we would anticipate that areas of resource extraction will witness more violence because they enable insurgent' financing (Fearon and Laitin, 2003; Collier and Hoeffler, 2004; Ross, 2004). In contrast, I emphasise that wartime economies in addition to revenues, they provide insurgents something far more important: a source of legitimacy. To consolidate and retain control over resource extraction and trade during war, insurgents were motivated to provide governance functions such as security (Felbab-Brown, 2005; Cheng, 2018; Krauser, 2020).[16] Inadvertently, this shapes a dependency with local communities as wartime economies provide swathes of populations with sources of livelihood [17]. By protecting resource flows insurgents can create and retain civilian support because this protects their livelihoods.

In the post-conflict era, communities usually remain reliant on revenue streams linked to wartime economies and as a consequence also count on insurgents to provide protection. I argue that these dependencies inform civilians' cost-benefit calculations in providing intelligence to the state about the insurgent, even in areas where the state's coercive capacity is extremely high.[18] To successfully defeat an insurgent the state requires local intelligence (Kalyvas, 2006; Berman et al., 2011). Plus, without local intelligence counterinsurgency is extremely costly. This is even the case when insurgents operate on reduced capacity, e.g., due to lack of access to resources or recruits. [19] The state is thus likely to to opt to contain the insurgent and only invest minimal resources in active counterinsurgency operations. Insurgents, however, have an incentive to continue to attack the state, not just to maintain control over the wartime economy but to retain civilian support. But mounting attacks is too costly beyond areas where they do not enjoy civilian support and could be informed upon.

I empirically test this argument using the case of post-conflict Peru. It offers a useful context to study why armed violence continued in some conflict-affected areas and not others. According to existing macro-level research we would not expect to observe continued armed violence. Peru displays relatively high coercive state capacity, has seen record high economic growth and development and has held repeat democratic elections. Crucially, apart from the insurgent group Sendero Luminoso[20], no other violent non-state actor remains active or has taken control

[16]The level of governance, e.g. the extent of public goods provision, varies by type of actor, capacity, location and previous governance structures (e.g., Arjona, 2016; Arjona et al., 2015; Kaplan, 2017). Providing security to the wartime economy is the most basic level of governance needed to retain support.

[17]Not just resource extraction generates income, but also resource trade spurs local economic activity by positively affecting income of local businesses like restaurants, hotels or pharmacies – in areas of extraction but also along trading routes.

[18]This is important because informants often put themselves and their families in danger. However by informing on insurgents they do not only threaten their physical security but their livelihood, unless the state offers physical *and* economic protection.

[19]Active counterinsurgency might be perceived as particularly costly in contexts where the insurgent is perceived to not pose a threat to the incumbent government's political survival.

[20]English translation: Shining Path; recently renamed itself to the Militarized Communist Party of Peru (Militarizado Partido Comunista del Peru)

of territory, e.g., there is no record of Peruvian cartels or other violent non-state actors that might pose a serious threat to the state or Sendero and could lead to infighting or explain attacks on the state security forces. This allows me to trace the mechanisms more carefully in absence of turf wars that could alter the attitudes and experiences of civilians and also the tactics employed by the insurgent and the state.

For the empirical analysis, I introduce new data on violent clashes involving remnants of Sendero Luminoso and Peruvian state security forces from 2004-2020. I also collect subnational data on coca cultivation during and after the conflict. To estimate the effect of coca cultivation on armed conflict, I exploit the fact that coca leafs are only suitable for drug trafficking if they contain the alkaloid cocaine and compile a novel coca suitability index (CSI). I employ the CSI in an instrumental variable (IV) approach to exploit plausibly exogenous spatial variation in suitability of land for cultivation of coca for drug production to assess the effect of wartime economies. The results show that districts involved in the wartime economy see far more violent clashes post-conflict than those that were not. Further analysis also demonstrates that districts which are involved in the drug production today but were not involved in the wartime economy do not see insurgent violence post-conflict. This lends support to the claim that the social legacy of wartime economies matters rather than just feasibility alone. To understand the mechanism underlying the results, I also provide illustrative examples using interview data I collected during field work in Peru in the Spring of 2020.

Understanding why we see violence in some conflict-affected areas but not others is central to a classic puzzle in political science: the origin and maintenance of monopoly over the use of violence. The findings of this paper suggest that even in countries with high coercive capacity, states will be unable to regain the monopoly over the use of force without winning over civilian populations. This speaks directly to the literature on "winning hearts and minds" as a counterinsurgency strategy and other literature that studies the importance of civilian populations in shaping armed conflict dynamics more broadly (e.g. Beath et al., 2012; Berman et al., 2011; Arjona, 2016; Kaplan, 2017; Hirose et al., 2017; Krause, 2017; Schubiger, 2021). The findings suggest that insurgents are highly dependent on civilians and can exploit economic marginalisation to foment their role. This extends upon existing research that has mainly focuses on the enduring nature of ethnic ties between insurgents and civilians.

The findings call researchers and policy makers to not overemphasise the relevance of coercive state capacity alone. This is important to consider in other contexts like Afghanistan, Sierra Leone, or the Democratic Republic of Congo, where international efforts have been focused on training security personnel and coercive state capacity. While donors often also provide economic assistance they have payed less attention to the fact that legitimacy is ultimately drawn from

meeting local needs – economic needs being just one of them. Especially if insurgents already meet these economic needs, providing some economic assistance and services may not be enough if civilians do not *credibly* conceive that there will be a long term shift in the state's policy towards addressing their needs. Rebuilding state-civilian relationships requires extensive effort on part of the state due to the long-term legacies of war (see Karim, 2020; Daly, 2012; Osorio et al., 2021; Deglow, 2016). Unless the conditions which foster the need to retain wartime structures are addressed, these legacies will likely survive and can ultimately also facilitate conflict recurrence.

The article is organized as follows. I first discuss existing literature and present the theoretical framework to illustrate why and under which conditions areas involved in the wartime economy see more violent clashes than others. Next, I introduce the case of Peru and describe my research design and data collection efforts. I then report the main results, followed by a discussion of the mechanisms and alternative explanations. I conclude with suggestions for future research.

3.2 Literature Review

What explains post-conflict violence? Motivated by the fact that about half of countries emerging out of civil war will experience armed conflict again, a large body of literature has looked at what explains conflict recurrence (e.g., Walter, 2015; Fortna, 2004; Nilsson, 2012). But also in the absence of *active* armed conflict most post-conflict countries usually experience continued armed violence, new forms of violence and instability (Suhrke and Berdal, 2013). Only recently have scholars started to study why some countries experience violence beyond recurrence. Below I give a short overview.

One strand of literature focuses on structural factors. Particularly, weak state capacity, weak state institutions or bad governance is often emphasized as a culprit in the conflict onset and recurrence literature (e.g., Richani, 2010; DeRouen Jr et al., 2010; McBride et al., 2011; Walter, 2015; Mason and Greig, 2017). In other words the ability of the state to enforce its monopoly on violence is important. Yet, Mukherjee (2014) finds that middle to high capacity states are more likely to see longer, low-intensity armed conflicts. He traces this back to resource constraints politicians face. Even in states capable to defeat an insurgency, incumbent governments often prefer to contain peripheral ethnic conflicts as long as their political survival is not threatened. Meanwhile, Kleinfeld and Barham (2018) argue that violence is not a function of weak capacity but lack of political will: violence often maintains elites in power – also in democratic states. Democratisation as an important element on the path towards peace has also become highly debated; research highlights that it is decisive how and when democracy is introduced after conflict to prevent election violence (e.g., Brancati and Snyder, 2011, 2013).

Another strand of literature emphasises the legacy of armed conflict and factors pertaining

to the conflict, which continue to affect post-conflict dynamics. Simply the fact of having experienced armed conflict, makes countries also more susceptible to experiencing other types of violence such as homicides or interpersonal violence (Archer and Gartner, 1976; Collier and Hoeffler, 2004; Rivera, 2016; Østby et al., 2019). Linked to this, the organizational legacies of war may be central in enabling future collective action (Daly, 2012; Osorio et al., 2021). Violence also leaves behind a psychological legacy. Bateson (2017) looks at how civilians in conflict zones in Guatemala were socialised into use or acceptance of extralegal violence and shows that this sentiment prevails until today. Likewise, perceptions of the "enemy' but also bonds formed during armed conflict matter. In ethnic conflict, threat perception can spur violence Balcells et al. (2016). And in fact if minority and majority groups share power, violence can be even more likely (Blair et al., 2017). In turn, social ties among ex-combatants, who are an important residual element of armed conflict, are extremely important as well. They often have the training and also network to continue to engage in violence and can have different incentives to do so (Kalyvas, 2015a; Themnér, 2011, 2015; Themnér, 2017; Nussio, 2018; Daly et al., 2020). Armed conflict also erodes trust in the state and specifically trust in state security forces, which is important to understand why the state is unable to regain its monopoly over the use of violence. This can for instance explain where we see post-conflict crime (Deglow, 2016). Interestingly, Karim (2020) shows that in areas of limited statehood positive direct interaction between civilians and the police can lead to improved perceptions of the state, while unfair treatment reinforces negative views.

Existing literature has demonstrated quite clearly that armed conflict imprints certain psychological, social and political dynamics which can explain why previously conflict-affected areas are more susceptible to future armed violence. But the explanations have predominantly been focused on the rationale of one warring actor, although it takes two to fight. Another limitation is that theories which highlight links between insurgents and civilians usually emphasise only ethnic ties. Rarely do scholars consider the relevance of non-identity based ties in the civil war literature. While ethnic ties are certainly important, not all conflicts are ethnic and we have seen a significant decline in the number of ethnic conflict in recent years (Cederman and Pengl, 2019). In the following I propose a theoretical framework that builds on the reviewed literature but discerns more closely why some conflict-affected areas are more likely to see continued violence than others as a function of their role in the wartime economy. I argue that the wartime economy creates economic ties between insurgents and civilians, which shape the costs of fighting in these areas for both the state *and* the insurgent, particularly when armed confrontations have ceased elsewhere.

3.3 Theory

The presence of natural resources can play an integral part in post-conflict societies. In fact, the potential spoils of natural resources can be used to negotiate peace deals (Rustad and Binningsbø, 2012). Yet looking at the case study literature, we see that lootable resources in particular tend to help violent non-state actors maintain themselves post-conflict (Rettberg and Ortiz-Riomalo, 2016; Cheng, 2018). Scholars often attribute the presence or endurance of violent non-state actors, especially in areas of resource extraction, to weak state capacity or absence of the state. In turn, I put forward an argument that highlights the importance of the civilian population, explicitly assuming that the state has the coercive capacity to defeat the insurgent and is in fact present in extracting areas.

Scope Conditions I focus on understanding the logic behind armed violence within i) a context of *asymmetric conflict*, meaning that the government's military represents a real and credible threat to insurgents (cf. Weinstein 2006) and ii) a context where armed conflict is considered to have ended because intensity of armed violence has dropped significantly for prolonged periods of time.[21]

Importantly, the argument put forward rests on the assumption that these conditions signify that the overall power balance has shifted in favour of the state; to an extent that specifically state's with high coercive capacity should be able to defeat the insurgent. Under these conditions civilian support for the insurgent denotes something more than reluctant acquiescence (cf. Blair and Kalmanovitz, 2016), as the state offers a credible threat in disseminating the insurgent.

Additionally, the theoretical frame work aims to explain violence between the state and an insurgent group who is *ideologically motivated*. I follow Guttierez-Sanin and Wood (2014:214), and define ideology as "a set of more or less systematic ideas that identify a constituency, the challenges the group confronts, the objectives to pursue on behalf on that group, and a (perhaps vague) program of action". If conflict ended, potential fighters likely assume and de facto face a reduced likelihood of winning war, should they resume conflict. Thus they may turn into criminal groups and leave their political agenda behind (Nussio, 2018; Cheng, 2018). Especially if resource extraction financed warfare, ideological motivations of many members may not have been so strong to begin with (Weinstein, 2006). I assume, however, that even if just some members of an insurgent group remain unsatisfied with the political status quo and are ideologically motivated to fight the state, this can yield a fruitful basis for future attacks against the state.

[21] What constitutes the "end" of conflict is highly debated – here I define it as a relatively sustained drop in conflict intensity below lethal levels used to classify armed conflict as "active", i.e. below 25 battle related deaths. This level is based on the definition of one of the most used conflict databases: the Uppsala Armed Conflict Database, an armed conflict is active in years in which they record 25 or more battle related deaths.

Although political and criminal motivated violence are difficult to differentiate and in fact may often be connected, it is important to think about what ultimately motivates violence. Insurgents continue to attack the state wanting to compete for political power as their end goal. In contrast, criminal groups often also employ violence against political actors but violence is motivated by economic factors not ideological motivation (Kalyvas, 2015b; Lessing, 2015) [22]

3.3.1 Role of Wartime Economies

The experience of war leads to destruction and re-construction of infrastructure, social ties and local economies. The presence of lootable resources in some areas, makes them more prone to be targeted for control by insurgent groups. Ross (2004) suggests lootability to be a key characteristic shaping the mechanism linking resources to conflict. Resources are cosidered *lootable* when they are easy to extract, i.e., without much capital investment. For instance, minerals, diamonds, gems, hydrocarbons, and drugs (opium, cocaine) are more likely to be associated with conflict dynamics because they offer a source to finance rebellion (e.g., Lujala et al., 2005; Lujala, 2009, 2010).

Wartime economies encompass the "organisation and development of a society's legal and illegal resource flows in support or as a result of conflict and violence" (Kurtenbach and Rettberg, 2018). If an insurgent group has gained control of the resource extraction or at least extracts revenues from lootable resources in some way, they are likely to want to sustain territorial control in these areas by offering some sort of governance, which guarantees that they will be able to exploit revenues in the future (cf. Olson, 1993). This can come for instance in the form of protecting against violent attacks from other violent actors (Sánchez De La Sierra, 2020), reducing violence in extracting areas Krauser (2020), specifically also against civilians (Bellows and Miguel, 2009; Salehyan et al., 2014).

Wartime economies are also crucial to sustain local livelihoods of communities. Specifically labor-intensive extraction of resources, such as opium, coca, timber, or metals from artisanal mines, often provides economic opportunities for a large number of civilians living in areas of resource extraction or living along routes of resource trade. Not just resource extraction generates income, but also the trade itself spurs local economic activity by positively affecting income of local businesses like restaurants, hotels or pharmacies. Thus wartime economies do not cease to exist just because armed conflict ended. In fact, I argue that both communities in extracting and trading areas as well as the insurgent controlling these economies have a strong interest in protecting these revenue streams, which creates and sustains an important co-dependency, which can explain why insurgents remain able to operate in these areas.

[22] This explains why criminal violence is not always visible, see Duran-Martinez (2015) for an excellent take on the visibility of violence by criminal actors.

During conflict popular support for violence can explain subnational variation in armed conflict (Linke et al., 2015). Once widespread violence has ended and some stability has set in, going back to war can be hard to justify. Different studies in post-conflict contexts have explored "war-weariness". Using surveys they have demonstrated across different contexts that people are less likely to support violence, the more violence they were exposed to (e.g., Colombia: Tellez, 2018; North Caucasus: Bakke, O'Loughlin, and Ward, 2009; Sudan: Hazlett 2020). Thus, both the state and non-state actors have to constrain their use of violence, even if strong state capacity or access to resource rents would allow them to finance violence, e.g., buy arms, recruit fighters. Escalation of violence could threaten their political survival respectively.

I propose that areas with a legacy of being involved in the wartime economy see more armed violence between insurgents and the state because the co-dependency affects civilians willingness to share intelligence about the insurgent with the state. The mechanisms connecting the wartime economy to post-conflict armed violence is not simply 'feasibility', i.e. resource extraction enables insurgent financing (see Fearon and Laitin, 2003; Collier and Hoeffler, 2004; Ross, 2004). Instead, wartime economies can be a source of legitimacy for insurgents and help them reduce the costs of staging an attack against state security forces. While legitimacy can be drawn from various sources, in areas of resource extraction it is often performance-based, e.g. based on the delivery of salient public goods for the local population such as security. [23]

While, the level of public goods provision and other governance functions such as justice provision by the insurgent varies by type of actor, capacity, location and pre-war governance structures (Arjona et al., 2015; Arjona, 2016; Kaplan, 2017), I argue that provision of security to the market, e.g., activities of resource extraction and trade, is sufficient for the insurgent in order to retain civilian support not specifically because of the insurgents ideological agenda but because civilians depend on the resource-related economic activity to sustain their livelihoods. Civilian support could be tacit (e.g., not informing on the gang to the police) or explicit (e.g., agreeing to hide arms and drugs) (Wickham-Crowley, 1987), but specifically support is more than reluctant acquiescence as civilians could inform on the insurgent (cf. Blair et al., 2016). So even in cases where insurgents face constraints in operational capacity (e.g., number of members) and states have sufficient military capacity to defeat the insurgent, areas involved in the wartime economy will be more likely to see armed violence than other areas because of the attitudes of the civilian population.

Dependencies between civilians and insurgents inform cost-benefit calculations in providing intelligence to the state about the insurgent, even in areas where the state's coercive capacity is

[23] I do not explicitly test the effect of war economies on violence against civilians. But data shows that insurgents have refrained from victimising civilians indiscriminately after conflict termination. Likely because this could lead to civilians either mobilising against the insurgent or siding with the state.

extremely high. This is important because informants often put themselves and their families in danger. However by informing on insurgents they do not only threaten their physical but their economic survival. This argument builds on extant literature on counterinsurgency which has highlighted the importance of civilian support or in other words legitimacy for each warring actor (e.g., Berman and Matanock, 2015). Local intelligence helps state security forces to identify and dismantle insurgent groups (Berman et al., 2011). Yet, counter insurgency campaigns are extremely costly without being able to identify insurgents (Lyall and Wilson, 2009). For instance, should the state try to attack the insurgent without enough intelligence this could backfire. Indiscriminate targeting could shift support in favor of insurgent and encourage individuals to join (Findley and Young, 2007; Lyall et al., 2013). Additionally, handling insurgents badly and incurring too many military deaths or even worse civilian casualties caused by state security forces could also threaten incumbent governments' political survival (Gartner, 2008). Thus, counterinsurgency is particularly costly if the state lacks relevant information on its opponent, which should be the case in areas involved in the wartime economy, as civilians living there are likely to prioritise securing their livelihood before anything else.

The effect of wartime economies on insurgent violence should be even more emphasised in a post-conflict context, where the power asymmetries between insurgents and the state are likely to have increased. Thus I expect insurgents to retract to areas of resource extraction and mount more attacks against the state in these areas, because civilian support reduces the costs of attacking a much stronger state and the state in turn may want to defeat the insurgent but due to lack of intelligence faces high costs of counterinsurgency, which likely result in the state pursuing a strategy of containment rather than actively fighting the insurgent as the government's main goal is to retain political power on a national level (cf. Mukherjee, 2014). From this I derive the following testable hypothesis:

H: *Areas which were involved in the extraction of labor-intensive lootable resources during war, i.e. the wartime economy, see more violent clashes than other areas post-conflict.*

3.4 The Case of Peru

Case Selection I evaluate the theoretical framework using the case of post-conflict Peru. I argue that areas which were involved in the coca cultivation during the armed conflict see more violent clashes between remnants of Sendero Luminoso and state security forces after conflict termination. The case of Peru is interesting to study for several reasons. First, Peru displays interesting variation the continuation of armed violence across conflict-affected areas. But apart from news reports linking drug-trafficking to the presence of Sendero Luminoso, there has been

no systematic analysis as to whether legacies of the war or simply criminal opportunities explain these patterns. Second, the Peruvian state displays high coercive state capacity (see Dargent et al., 2017), particularly in areas where Sendero is present. For instance, the state has placed 52 military bases in one of the most violent areas, the Valley of the Rivers Apurimac, Ene and Mantaro (VRAEM), and staffed them with 8,000 soldiers (Caretas, 2018). Additionally, Peru has had repeat democratic elections and experienced economic growth and reduced poverty since the end of armed conflict, all factors the literature considers relevant for understanding onset or recurrence of armed conflict. Third, the armed conflict in Peru lasted for two decades and is likely to have had lasting effects on state-society relationships and other social dynamics. Fourth, Sendero continues to espouse a Marxist-Leninist political rhetoric and pursues a political agenda. Lastly, to test micro-level arguments, I have been able to create a new dataset on armed violence using disaggregated reports on political violence and access data on coca cultivation during and after the conflict. Fine-grained data like this can be particularly difficult to obtain for post-conflict countries, as these often lack the infrastructure to collect high-quality data. Before I analyse why violence has ceased in some previously affected areas but not others, the following provides relevant case information.

3.4.1 The armed conflict in Peru

Peru experienced a two decade long armed conflict, involving two different insurgent groups: Sendero Luminoso and Movimiento Revolucionario Tupac Amaru (MRTA). However, they varied significantly in size, capacity, territorial control, deadliness and their survival. According to Peru's Truth & Reconciliation Commission, 46% of 69,000 casualties were caused by Sendero, 30% by state forces and only 1.5 % by MRTA (CVR, 2001). In the following I will focus on Sendero because they a) controlled the wartime economy and b) continue to operate until today. [24]

Sendero Luminoso, more formally known as PCP– Partido Comunista del Peru, was founded by Abimael Guzman in the 1970s and had planned and set the ground work for its take over in the department of Ayacucho years before. Sendero initiated its armed struggle on the eve of Peru's first democratic elections in 1980 in Chuschi, a rural area in Ayacucho [25]. It quickly rose to power in many rural parts of Peru in the early 1980s and managed to gain control of various parts of the country. Whereas in 1981 six provinces were declared to be in a state of

[24] MRTA started its violent campaign in 1984, initially focusing on urban guerrilla attacks in Lima. It remained comparatively weaker and limited violence against civilians while relying heavily on voluntary collaboration of civilians. Its insurgency effectively ended after the killing of its last members in 1997 (McCormick, 1993). MRTA expanded its activity to the Alto Huallaga but was never able to control substantial amount of territory and was defeated by Sendero, as they were already operating in the area and had won the support of the drug traffickers (Felbab-Brown, 2005).

[25] Technically the conflict only started in December 1982, when the state officially started its counterinsurgency campaign and the number of battle deaths rose beyond 25

emergency, by December 1989 this figure had risen to 56, accounting for nearly one third of all administrative units (Taylor, 2017).

Historical state neglect, initial lack of military counter-insurgency until 1983 as well as a very bloody and indiscriminate counter-insurgency strategy until the end of the 1990s all contributed to Sendero's initial success. But as Sendero started to engage more heavily in violence against civilians and impose a radical rule of law, some local communities started to organise in so called rondas campesinas (peasant patrols) to resist Sendero Degregori (1998). Once the government realised how effective the rondas were at defeating Sendero, they were co-opted and communities that did not have them yet were forced to form rondas (Degregori et al., 1996). The rondas (or comites de autodefensa, self-defense committees) are an integral part to understanding the demise of Sendero. On the one hand, they provided the government with better intelligence and thus their violent tactics were more discriminate and effective. On the other hand, it made Sendero's approach to targeting civilians less discriminate and more intense (Degregori 1998; CVR 2003), which reinforced opposition against the insurgency.

Additionally, the capture of Sendero leader Guzman and other high-ranking members in 1992 significantly weakened the group. The group was highly hierarchical and Guzman's capture eroded morale amongst many members. Many members demobilised, mainly also in response to an amnesty law from 1992-1994 that offered Senderistas to turn themselves in, only having to dispose of their weapons and serve a short period of military service, in return for impunity. Remaining members decided to retract and regroup under the leadership of Oscar Ramirez Durand alias 'Feliciano'. Since the mid-90s activity has been significantly reduced and concentrated in two areas: the Alto Huallaga Valley and the Valley of the Rivers Apurimac, Ene, and Mantaro (VRAEM) [26], Peru's two largest coca-producing regions. However, after Feliciano's capture in 1999, leadership split. Two factions emerged with rivalling relationships with Guzman. While the Upper Huallaga faction remained loyal, the VRAEM faction allegedly cut ties with Guzman.

Wartime Economy During the armed conflict Sendero gained control of the then main producing coca valley, the Alto Huallaga, in 1987. In contrast, coca cultivation in the VRAEM mainly evolved as a result of the armed conflict (Heuser, 2019). And while Sendero initially did not want to extract profits from the drug economy, it eventually started taxing and protecting the drug trade, resulting in a yearly income of at least $30 million (Felbab-Brown, 2005). Note, that Sendero was never directly involved in cocaine production. Instead it formed an alliance with local drug-processing and trafficking groups called *firmas*) and relied on controlling drug smuggling routes and exerting "cupos" (taxes) from drug traffickers and coca farmers (Van Dun,

[26]The *M* was only added in 2012, and is a designation used by the state (Supreme Decrete D.S. No. 074–2012–PCM). In interviews, locals call it just the VRAE, as they do not consider the Mantaro river to be part of the same area.

2016; Felbab-Brown, 2005).

Sendero gained civilian support in coca valleys by protecting farmers from abusive firmas and helping them negotiate better prices. Additionally, Sendero used part of the resource revenues to finance public goods such as access to running water. However, its primary source of support was the protection from anti-narcotics state policies. Success of counterinsurgency operations in the coca valleys became a function of whether the military credibly signalled that it would allow coca cultivation as this shifted peasant's allegiance, who in part saw Sendero as abusive as well, having imposed a harsh and bloody rule of law (Gonzales, 1994; Felbab-Brown, 2005; Weinstein, 2006). For instance, Sendero launched one of its most successful attacks in 1989, after the Peruvian government had started spraying coca fields in the Alto Huallaga with herbicides, which had provided Sendero with vast civilian support (Gonzales, 1994).

3.4.2 The 'Post-Conflict' Era

Armed conflict was officially proclaimed to have ended and won by the state in 2000. But armed conflict involving Sendero has persisted in some areas to varying intensity. Specifically, between 2007 and 2010, clashes resulted in more than 25 battle related deaths per year but overall intensity remained relatively low and clashes have been concentrated in the coca valleys: Alto Huallaga and the VRAEM, where Sendero continues to control the drug economy [27] as communities lack opportunities to pursue alternative livelihoods. And even if farmers would grow other crops or produce other goods, many communities (specifically in the VRAEM) continue to have difficult access to formal markets.

Although the VRAEM has been under state of emergency since 1999 and most of the military bases are located in this area (Saffon, 2020), the Peruvian government only admitted to the continued presence and threat posed by Sendero Luminoso in the VRAEM in 2007. It subsequently created the Comando Especial de las Fuerzas Armadas to tackle drug trafficking and terrorist activities in the area. *Operacion Excelencia* 777 was launched and according to state sources successfully raided and destroyed several insurgent camps in 2007. Nonetheless, Sendero Luminoso has maintained its stronghold in the VRAEM and specifically in Vizcatan del Ene (Interview Devida, 2020). In this area they also have active collaborators, who share intelligence about counterinsurgents with them (El Comercio 2020, IDL 2019). And while the state now considers itself to be at 'war in the VRAEM" (Ministry of Defense, 2018), the VRAEM faction appears to have acquired some degree of legitimacy by garnering support from coca growers directly (van Dun, 2019). In contrast, the Huallaga faction was more actively targeted by counterinsurgents post-conflict and dismantled with the capture of its leader Florindo Eleuterio Flores Hala, alias

[27] Additionally, there are also reports of Sendero controlling illegal timber trade and illegal mining activities in the VRAEM.

Artemio in 2012. As I argue in the analysis, one of the reasons is that Artemio's strategy emphasised close ties to the "higher echelons of the drug industry" over local civilian support (van Dun, 2019, 1041). This strategy became costly, as the state gained popularity in mid-2011 by reversing its anti-narcotics policies, e.g., temporarily halting eradication, under the leadership of Ricardo Soberon as head of Peru's anti-narcotics agency Devida.

Ideology of Sendero post-conflict Although the state claims that Sendero is only a drug-trafficking terrorist group ('narco terroristas'), both expert interviews and also the data I collected for this project through NGO reports and news reports suggests that Sendero factions remained ideologically focused in their activities. Reports published by the Defensoria del Pueblo, an independent government agency, repeatedly record political propaganda activities by Sendero. Additionally, the Sendero faction in the VRAEM published a new manifesto in 2009 (Panorama, 2009). Additionally, it has in recent years shifted its rhetoric towards framing itself as the defender of the coca leaf. In fact, the VRAEM faction has tried to transform itself into the Militarized Communist Party of Peru (MPCP), in order to be able to run in elections and obtain official support from the VRAEM peasant communities that were victims of Sendero's violent tactics in the past (Saffon, 2020)

3.4.3 The Drug Market in Peru.

Coca, the raw material for cocaine, has historically been grown in Peru and the Andes. Coca cultivation is legal in Peru and supposed to be sold to National Enterprise of Coca (Empresa Nacional de la Coca, ENACO). However, most of the coca production is sold illegally as it is fairly unprofitable to sell to ENACO. Drug production, however, only really began after the 1970s as the demand for cocaine increased and accelerated during the armed conflict. Before that, coca was mostly cultivated for traditional purposes.

In contrast to Mexico and Colombia, Peru's drug production is mainly controlled by family clans, referred to as *firmas* (Van Dun, 2016). While Sendero increasingly gained control over the main coca valleys it cooperated with the firmas rather than fight them (van Dun, 2019). Nowadays, several international cartels are known to operate in Peru and to be involved in the drug trade but they do *not* control territory and there is no record of a Peruvian cartel as such. This organizational structure reduces the risks of being caught and has also reduced violence amongst armed non-state actors, including Sendero Luminoso (Balbierz 2015; Beriain 2014; Pachico 2012; Van Dun 2012).

Coca is cultivated on very small parcels of less than one hectare – hence individual 'cocaleros' (coca farmers) do not have much control over coca supply nor do they enrich themselves by

cultivating coca. The crop can be harvested 3 to 6 times a year, depending on field slope, age of the plantation and the agricultural techniques applied.[28] Specifically, in areas aimed to cultivate coca for illicit markets, like the VRAEM, cocaleros heavily use fertilizers and pesticides. Coca cultivation is the most labor-intensive stage of cocaine production and sustains the livelihood of many communities. For instance, 48 percent of total net family income in the VRAEM in 2000 came from coca cultivation (Bedoya, 2003). But coca cultivation is not necessarily as profitable as many assume. Although, in comparison to local labor alternatives or alternative crops it does pay better.

In Peru, most of the coca leaves are only processed into cocaine paste (pasta basica de cocaina–PBC). It is then trafficked to neighbouring Bolivia and Brazil. Most of it is transported on small planes or on foot by "mochileros" (backpackers), relying heavily on employing mostly young males. Some of it is also trafficked out of ports and from Lima's international airport, either hidden in freight or using drug mules. Today the main destination is Europe and Asia but also urban areas in Brazil and Chile, rather than the American market (which is catered to by Colombia after the air interdiction campaign in the 1990s). Anti-drug policies were actively introduced in 1995, when the National Plan for the Prevention and Control of Drugs was launched. Peru receives financial aid from the USA to implement this plan as part of the U.S "War on Drugs". It is important to note that Peru does not allow the use of chemical spray to fumigate coca crops with herbicides. Instead, it combines manual eradication with substitution schemes to encourage farmers to cultivate legal alternatives. These policies, however, have done little to really diminish production but rather displaced it (at times only temporarily until fields become fertile again). Only the "Denial Bridge" or interdiction of illegal airplanes and boats between Peru and Colombia in 1994 plus the collapse of the Cali Cartel in Colombia in 1995 (one of the main customers of Peruvian cocaine) led to a sudden drop in the demand for coca and hence a drop in price, specifically in the Huallaga region. As a response, about 60% of formerly cultivated areas were left abandoned (UNOCD 2002). However, coca farming still represents a large fraction of income for peasants and cultivation has increased in recent years according to UNODC, in response to increase in demand for cocaine in Europe, Asia, and more recently also Brazil .

[28] In general, the first harvest is carried out between February and March. This is the period of highest precipitation and, consequently, the volume of coca leaf is higher than for any other harvests. The second harvest takes place 3 to 4 months later, i.e. between May and June. The third harvest, between August and September, and the fourth harvest, between November and December, are less productive because they coincide with the dry season.

3.5 Research Design

My analysis leverages variation across space in coca cultivation during the conflict, instrumented using a novel coca suitability index. In the following, I summarise data, identification strategy, and model specifications. Data is aggregated to district boundaries during the year 1993, yielding 1793 districts. [29]

3.5.1 Identification

The decision to cultivate coca is not random and likely depends on socio-economic factors or the presence of violent actors. However, suitability to grow coca is plausibly exogenous to violence or other factors that might predict violence. I thus employ an instrumental variable (IV) approach, using a novel coca suitability index as an instrumental variable to estimate the effect of coca production on violence, in spite of non-random compliance, meaning that they are not a random subset of the population. For instance, districts that grow coca are more likely to lack labor opportunities that offer better wages and thus make coca cultivation an attractive option to sustain ones livelihood.

Coca Suitability To estimate the effect of coca cultivation on armed conflict, I exploit the fact that coca leafs are only suitable for drug trafficking if they contain the alkaloid cocaine. Specifically two species of the coca plant called Erythroxylum: i) E.coca and ii) E. novogranatense, are most commonly cultivated for this purpose since they both produce the alkaloid cocaine (Plowman, 1984) [30]. According to botanical research a certain set of conditions need to be in place, for coca leafs to contain cocaine:

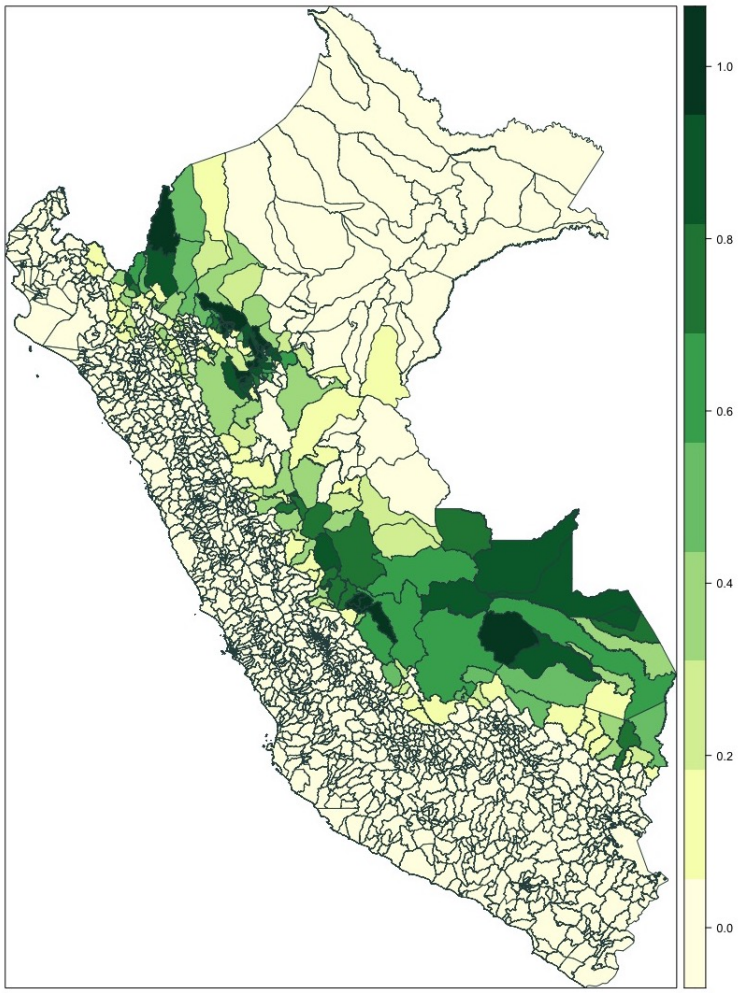
1. Elevation: 300-2000 meters above sea level Plowman (1984)
2. Precipitation: 500-4000 mm year (Plowman, 1979)
3. Soil: pH 3.5-6.0 (Johnson and Foy, 1996)
4. Temperature: 19-27 degrees Celsius (Acock et al., 1996)
5. Light Levels: PPFD>155 μ mol/m2/s Acock et al. (1996)[31]

[29] The year of 1993 was chosen because census data at the district level for the year of 1981, which would have been ideal because it is pre-conflict, was missing for an extensive set of districts.

[30] There are different varieties. E. coca var. coca is most common in Peru and Colombia, E. coca var. ipadu aka Amazonian coca (Bolivia, Colombia, Brazil, and Peru), E. novogranatense var. novogranatense aka Colombian coca, E. novogranatense var. truxillense aka Trujillo coca (northern Peru) (cf. Plowman and Hensold, 2004; Restrepo et al., 2019)

[31] They grew the plants under a 12-hr photo period,. To convert the PPFD to daily light integral, I multiply the PPFD by 12 hours x 3600 s/hr. Hence, ideal light levels are minimum 6.696.000 μ mol/m2/day. The data on solar radiation is measured in kJ/m2/day. I use the formula: 1kJ = 2018 μ molFaust and Logan (2018), so that 6.696.000 μ mol/m2/day = 3318 kJ/m2/day. Across all districts, this condition was met.

Figure 4: Coca Suitability (mean) across Districts



I build a coca suitability index (CSI) based on these conditions. Data is at a resolution of 30 arc seconds ($1km^2$). Measures of soil acidity are taken from the Harmonized World Soil Database version 1.2 (FAO and IIASA, ISRIC, ISS-CAS, 2012).[32] Average temperature, precipitation and solar radiation is computed as the mean across the years 1970–2000 using the WorldClim version 2.1 dataset (Fick and Hijmans, 2017). Elevation data is taken from NASA's Shuttle Radar Topography Mission (SRTM) (CGIAR-CSI, 2018). To calculate the index I first assign the value 1 to each grid (about 1km2) within districts that meets all the conditions, and 0 otherwise. I then calculate the share of 'suitable' land for each district, resulting in a CSI that ranges from 0 to 1 (see Figure 4: darker greens denote higher share of land suitable for coca cultivation). In the analysis however I use a dummy of the CSI to facilitate interpretation, assigning a 1 when any share of land is suitable for coca cultivation [33]

[32] I use the indicator T_PH_H2O

[33] CSI is calculated by taking the sum of grids that meet the conditions, divided by the total number of grids. Hence, CSI is fixed over time given that coca is a "renewable" resource, this suitability can also be understood as the actual resource that varies across districts.

3.5.2 Estimation Strategy

To test my hypothesis, I use the two-stage least squares (2SLS) estimator.

For the first stage I regress actual coca production on coca suitability:

$$Coca\ Production_{i1994} = \alpha_1 + \beta_1\ CSI_i + \beta_2 X_i + \epsilon_0 i. \tag{3}$$

I then fit the second stage to estimate violent attacks as follows:

$$Violence_i = \alpha_2 + \lambda_{2SLS}\ \widehat{Coca Production}_i + \beta_3 X_i + \epsilon_1 i. \tag{4}$$

The subscript i denotes a district. Xi is a matrix of district-level covariates, which are the same set in both stages. I also present results without including covariates. I include robust standard errors. Operationalisation of the variables is described in the data section.

For the IV approach to estimate the local average treatment effect, several assumptions need to be met: The *exclusion restriction* implies that suitability for coca cultivation only affects violence through its effect on coca production and there is likely no compound treatment effect. I argue this is a plausible assumption as the exact combination of these climatic and geographic factors does not predict any other variable that would conceivably explain variation in violence. While for instance altitude alone could be an indicator for how inaccessible an area is, by introducing this specific set of conditions, we see a very unique variation of suitability across and within districts.[34] One way this assumption could be violated is through spatial dependence in the outcome (Betz et al., 2019). I take this into account by additionally estimating spatial two-stage least squares (S2SLS) models (see Appendix B1). The *monotonicity* assumption implies that there are no defiers, meaning districts that are suitable for coca cultivation are *not* less likely to cultivate coca as a result of being assigned treatment, i.e. being suitable. This seems plausible, given that coca cultivation is financially attractive to rural communities. The instrument is *relevant*: I show that the coca suitability index reaches an F-statistic over 200 in the first stage, which indicates that it is a strong instrument (see Angrist and Pischke, 2009).[35] I also assume that coca suitability is randomly assigned. Coca suitability is independent of potential outcomes and potential treatment assignments, this allows me to suggest that the first stage measures the causal effect of coca suitability on coca production. As suitability was assigned by nature, this assumption seems plausible. However, to show the robustness of results I also include a set of covariates that at least would invoke conditional independence (see Sovey &

[34] While it is impossible to prove the validity of this assumption, the qualitative evidence supports my claim.

[35] I also show that the CSI is still predictive but less so for coca cultivation in 2017. The data demonstrates that even though less districts overall produce coca, coca cultivation has expanded to other areas, that are less suitable. This is probably due to successful eradication in some of the most suitable areas such as the Alto Huallaga. See Appendix B3

Green, 2011). Lastly, I also assume that the potential outcomes for each district i are unrelated to the treatment status of other districts (stable treatment value assumption). This assumption is problematic because the CSI is based on absolute ideal conditions. Under these conditions, farmers are able to grow coca plants of high quality. But it is still possible to cultivate coca in not fully ideal conditions, e.g. at lower altitudes. The caveat is that the alcaloid content of these leaves is much lower (Soberon, 2012). But at times farmers decide to grow coca anyways because prices for other products such as cacao, coffee, or pineapples have plummeted and they cannot survive otherwise. This is also apparent from the smaller amount of hectares that 'unsuitable' districts cultivate, relative to suitable ones. As I show in the appendix B3 unsuitable areas cultivate coca mainly after the war, when the Peruvian government starts to eradicate coca crops and farmers are displaced to areas less suitable, e.g. lower altitudes. Additionally, since these 'practically' suitable areas are likely located next to the de facto suitable areas, this concern is also addressed by taking into account spatial interdependence in the instrument and estimating a spatial two-stage least squares models (see Appendix B1).

3.5.3 Data

Armed Violence I introduce new data based on monthly reports of Peru's Defensoria del Pueblo, an independent government agency in Peru from 2004-2020. The reports track social and political violence and specifically also insurgent activity since 2004 until today [36](Defensoria del Pueblo 2019). The main dependent variables is the *number of violent clashes between Sendero Luminoso and state security forces* at the district level across years. In total I record 186 violent clashes.

The variable is not a battle deaths count variable. Instead I exploit the detailed nature of the reports to record various types of events in which Sendero Luminoso and the state violently confronted each other, such as ambushes, attacks, or violent captures. For most events the descriptions include who initiated the confrontation. Reports also provide date of occurrence, the district in which it took place, the identity of the perpetrator, and the number of victims involved in the incident. Importantly, reports are not only based on open-source data and news reports but also data collected directly via local Defensoria offices. Staff also travels to remote areas to collect testimonies from affected areas (Interview with the head of the Defensoria division of Huanta, Ayacucho). This directly decreases reporting bias often found in other databases that rely mostly on only news reports from major newspapers. This makes data on events in remote areas less reliable, which are often the location of armed violence in asymmetric conflict.

[36]Defensoria defines a social conflict as an event with at least one of the following features: (i) threat to the integrity of people's life or health, (ii) damage to private or public property, (iii) obstruction to freedom of movement, (iv) impediment of the exercise of public authority, and (v) obstruction of public services delivery.

Figure 5: Areas affected by Armed Violence during and after the conflict

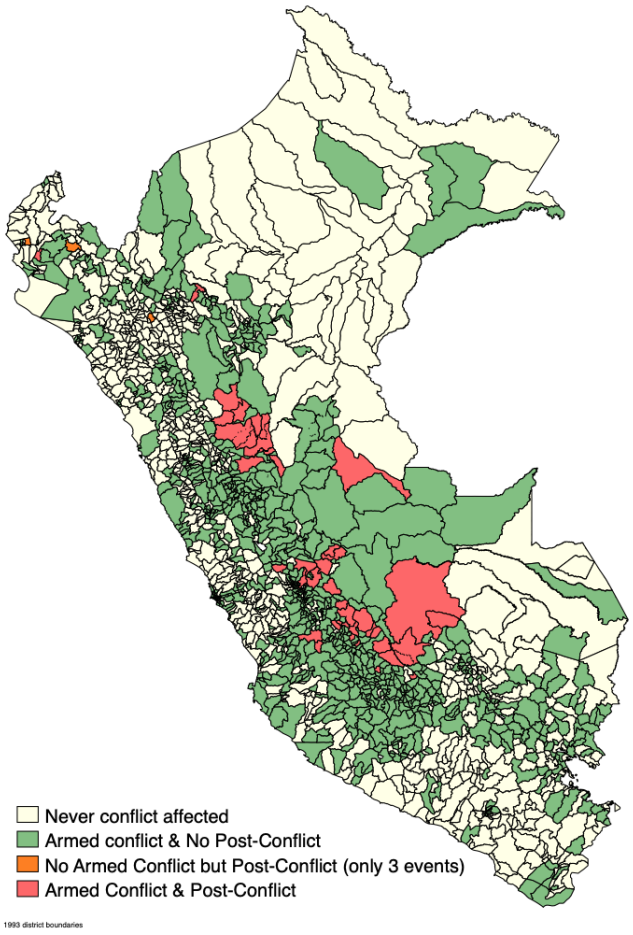


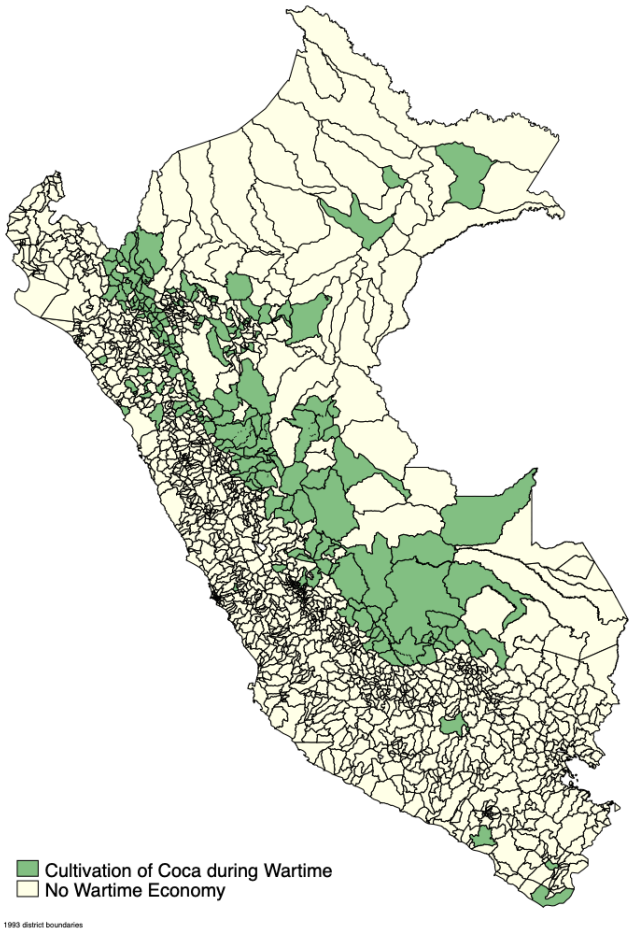
Figure 5 depicts districts in red if they experienced armed conflict between 1980-2000 and also saw armed violence between security forces and the Shining Path between 2004 and 2020. Those shaded in light-orange experienced violence during armed conflict but not afterwards. We can see a clear variation in the continuation of armed violence across previously conflict affected areas. Note that I record three clashes in areas that did not see violence during armed conflict (orange).

For purposes of getting a broader understanding of insurgent activity, I also code other events involving Sendero Luminoso as one of the perpetrators, such as violence against civilians, incursions, raids and propaganda activity. [37]

Location of the Wartime Economy My main independent variable is a measure of which areas were involved in the wartime economy (see Figure 6). I use data from Peru's agricultural census in 1994, which records whether districts cultivated coca and how many hectares (INEI,

[37] Additionally, the UCDP-GED dataset collects and publishes aggregate figures on violence, which I use to validate the Defensoria Data. I find that discrepancies between data sources are restricted to nonviolent events. Violent events that involve state security forces are the most heavily reported and least likely to be missed. By using the Defensoria reports, however, I gain precision over the exact geolocation of events, since the location of many events in the GED is often imprecise. For instance, it is quite often coded at the centroid of the province or department, where the event occurred, rather than the actual location of the event.

Figure 6: Coca Production during Wartime



1994). The census was conducted a year before anti-narcotics policies started to be enacted in Peru and while armed conflict was still at levels that would be classified as civil war, i.e. above 1000 battle related deaths. These areas should reflect quite accurately districts that cultivated coca during the war for the main purpose of financing insurgent activity. As a robustness test I explicitly estimate the effect of coca production during wartime in areas controlled by Sendero Luminoso during armed conflict (as opposed to other armed actors such as MRTA,; see Appendix B4). As mentioned above, I instrument wartime economy using the coca suitability index (CSI) described above.

Predictive Covariates With a perfect identification strategy, where my independent variable is completely exogenous from my outcome, I would not need covariates. However, with an IV-design it is conceivable that there might still be variables that influence both coca cultivation during wartime and post-conflict armed clashes. I thus include a set of "pre-treatment" covariates to reduce noise. Note that their effect is not causal and will not be interpreted. Using data from the national census (INEI, 1981, 1972), I control for the *literacy rate*, the *share of households*

with a dirt floor, and the *electrification rate* [38]. Socio-economic development might explain both, why people living in this district may become involved in the wartime economy to sustain their livelihood and could also affect the propensity of districts experiencing post-conflict activity by a violent non-state actor as trajectories of marginalisation do not necessarily change. I also consider *state capacity* as an important determinant of insurgents' ability to control resource extraction and establish a wartime economy as well as their ability to establish a stronghold, enabling to perpetrate violence more easily. I draw on historical data on road density (1973) and number of state personnel (1972) as proxies for state reach. I also include a measure of exposure to land reform in the 1970s, which improved counterinsurgency and could influence insurgent's ability to establish a wartime economy and also to stage attacks after conflict termination. Data is taken from Albertus (2020).

Results are robust to other model specifications with additional variables pertaining to the conflict, which however strictly speaking are not pre-treatment variables and thus not considered in the main specification. I use data from Peru's Truth and Reconciliation Commission (CVR) to measure whether the district was declared an emergency zone during the conflict, indicating *high conflict activity* and thus more insurgent presence as repeat attacks indicate a more robust command infrastructure in that area. I also measure whether the district was *controlled by Sendero*, by looking at whether the district had a mayor in 1989. This is based on the reasoning that "the ability of the guerrillas to prevent official elections from being held in the area" is the best proxy for guerrilla control (McClintock 1998, 80). Rebel control of an area suitable for coca cultivation, made it more likely that this area in fact cultivated coca during the conflict (for instance, the highest producing area today, the VRAEM, was not a traditional site of coca cultivation pre-conflict), this could make it more likely to see post-conflict violence. Results are reproducible using replication files.

3.5.4 Interview Data

Capturing the underlying causal mechanisms linking past structures such as the legacy of a wartime economy to current processes of political contention requires understanding of the political context, security context and also people's beliefs and living situations. In an effort to build and substantiate theoretical claims made in this paper I collected data using interviews during three months of field work in Lima and Ayacucho. Combined with the secondary sources, these interviews provide the basis for understanding to which extent civilian support plays a role in explaining why areas involved in the wartime economy continue to be focal points of armed

[38] For the 1981 census data is missing for several districts. I therefore use the 1972 literacy rate as the main covariate in the main specification. I check the robustness of results using the 1981 data available. Both effect size and significance levels remain consistent. Results are reproducible using replication files.

violence. The qualitative analysis included in this papers is by no means exhaustive as this would extend far beyond the scope of one paper. Instead qualitative data is used to illustrate the causal mechanisms put forward and substantiate the quantitative analysis.

I collected in total 41 interviews. 20 interviews were conducted with experts related to the armed conflict or the drug trade, the majority in Lima and some in Huamanga, the capital city of Ayacucho (one of the most conflict-affected departments). The other 21 interviews were conducted with community members and local officials in Huanta and Llochegua[39], two districts in Ayacucho, located close to or in the VRAEM respectively. This provided different insights from which to understand the organisation of the drug trade today, the logic of insurgent operations as well as the organisation of communities linked to the drug trade, social relations, their understanding of the armed conflict and Sendero Luminoso today, current local security, politics and also structures of marginalisation.

I selected the two sites based on the high conflict intensity they experienced during conflict. Yet, the two sites vary in terms of actual coca cultivation and extend to which the local population economically relies nowadays on the drug trade. While Huanta is not directly involved in coca cultivation, many people in and around Huanta own *chacras* (parcels of land) in the jungle area where coca can be cultivated. But mostly many businesses rely on the drug trade indirectly as Huanta is one key transporting route for the drug trade. Nonetheless, not all livelihoods are directly linked to the drug trade as Huanta is also very close to Huamanga, the department capital. In contrast, Llochegua is today one of the biggest producers of coca leafs. Most people depend on the drug trade directly or indirectly. Not everyone cultivates coca but local businesses and livelihoods depend highly on revenue streams from the drug trade.

To identify interviewees I followed two strategies: For expert interviews I followed a snowball system and asked interviewees to recommend others whom they believed I should speak with. The primary goal was to obtain contextual and background information. For interviews in the communities I worked with a research assistant, who was familiar with the areas and who could identify relevant community members and leaders to speak to. This I also combined with a snowball system. Across the potential pool of interviewees I explicitly made sure to include women as interviewees. On the one hand, male interviewees would not necessarily recommend women to talk to and on the other hand women themselves would often not consider themselves relevant to talk to. The interviewees also spanned a spectrum in terms of their role within the community.

The interviews were conducted in person and in Spanish (without a translator). Expert interviews were semi-structured but tailored to each interviewees' background. Interviews in Huanta

[39]Llochegua used to be part of the district Sivia

and Llochegua were semi-structured but left room for interviewees to elaborate on questions or issues they found relevant, at times leading to prolonged conversations. All interviews started with a detailed informed verbal consent procedure and interviewees were aware that they could terminate the interview at any point. The interview protocol is included in the appendix B5.

I analyzed the interview data qualitatively with a view towards identifying commonalities and variation in interviewees responses across and within communities or fields of expertise. My analysis combines the interview data with field notes on informal interactions and observations as well as secondary qualitative data. I do not necessarily claim to have interviewed enough people as to have reached a point of saturation where additional interviews did not yield any or little new information (cf. Small 2009). However, across the number of interviews one could conceive a consensus in terms of important mechanisms and issues highlighted independent of each other, which I use in the analysis as supportive evidence of the quantitative findings.

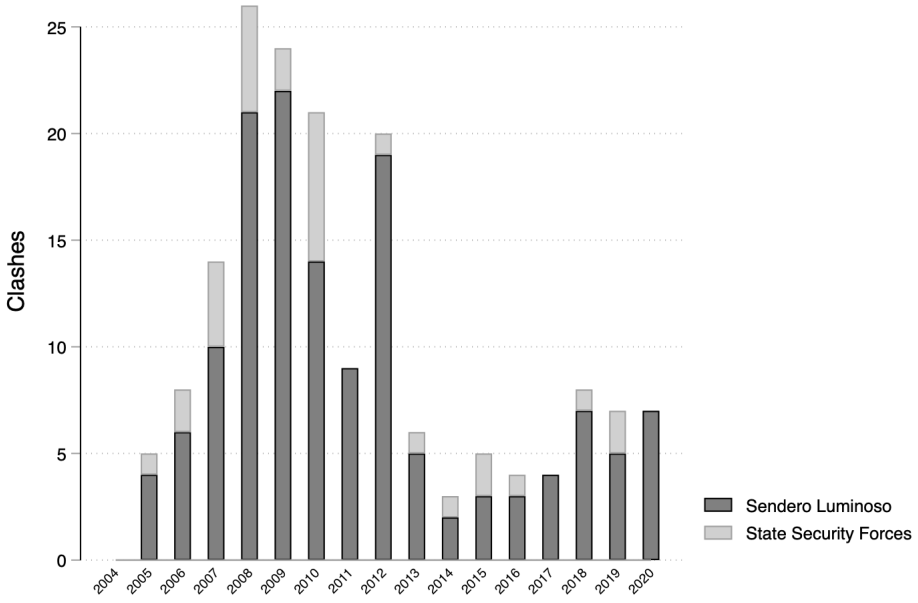
3.6 Analysis

In the following I want to estimate the effect of the wartime economy around coca cultivation in Peru on the prevalence of armed violence after conflict termination. I begin the analysis by looking at descriptive statistics to illustrate the tactics remnants of Sendero Luminoso have employed and map changes in the nature of armed violence between the state and Sendero. I then analyse the relationship between the wartime economy and armed violence post-conflict. First, I look at the relationship cross-sectionally, aggregating across time the number of armed clashes districts have seen and employing coca suitability as an instrument. Second, I put forward qualitative evidence to analyse to which extent these results are in fact driven by civilian support as suggested in the theoretical section. The analysis demonstrates that areas involved in the wartime economy remain focal points for armed violence. This is the result of economic interdependencies between the civilian population and Sendero Luminoso, which appear to mainly be a function of the absence of access to formal markets in areas of coca cultivation and continued marginalisation across different dimensions, economic just being one analysed here.

3.6.1 Descriptive Statistics

Based on Defensoria reports I code both violent and non-violent events associated with Sendero between 2004 and 2020 (these are the years for which reports were produced). Overall I record 482 events, of which 38,59% are violent clashes between state security forces and Sendero Luminoso. Only seven of these violent clashes are directly related to coca cultivation or eradication, i.e. attacking eradication personnel or security forces protecting eradication efforts. Two events involved the killing of civilians (one cacao farmer and one local leader), possibly for being in-

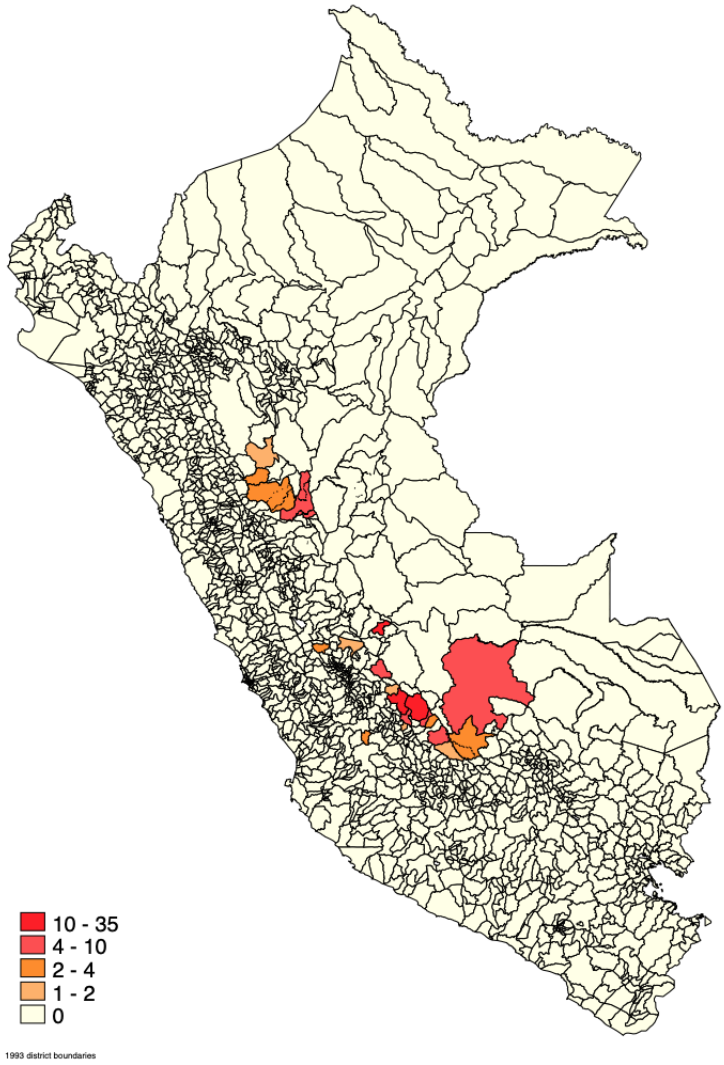
Figure 7: Violent Clashes by Initiator



volved in voluntary eradication programs.

Of the 186 violent clashes recorded since 2004, over 75% are initiated by Sendero Luminoso (see Figure 7). Only in 15% of clashes state security forces clearly initiate an attack against Sendero Luminoso. In most of these clashes (70%) Sendero Luminoso killed or at least injured state security forces. Meanwhile, across all violent clashes, Sendero Luminoso members were killed or injured in only 20% of clashes. This discrepancy may be in part the result of the targeted recruitment of recently trained soldiers to become members of Sendero Luminoso, specifically often snipers (Interview in Ayacucho, 2020). Additionally, this distribution in who initiates clashes may also reflect the state's counterinsurgency campaign being driven by a focus on containment rather than active military defeat because it does not have sufficient intelligence to mount attacks against insurgents. That is because lack of local intelligence has often resulted in high numbers of casualties on side of the military. For instance, after one of the bloodiest attacks in 2008 in Huancavelica, the only surviving military reports in an interview, that the community members knew of an armed column that was prowling the area the previous week and preparing a revenge attack (Vera, 2019). Additionally, the reports indicate that throughout the years, state forces have managed to capture or kill 21 high-ranking members of Sendero Luminoso during operations planned by state security forces, relying mostly on local intelligence. Only a third of these resulted in an actual clash between the two actors. However, there were only two significant hits: the capture of 'Artemio' in February of 2012, which led to the fall of the Alto Huallaga faction as he was the leader of the faction operating in that area, and the killing of

Figure 8: Number of clashes by district 2004-2020



'Alipio', military strategist and second in command of the faction in the VRAEM, in August 2013.

Across all 1,793 districts included in the analysis, [40] only 128 districts have seen activity by Sendero after 2004. The most affected areas are the province of Huanta and La Mar in Ayacucho (VRAEM; center-south of Peru) and the province of Leoncio Prado in Huanuco (Alto Huallaga, center-North of Peru). Areas that see more attacks, likely exhibit a robust insurgent infrastructure to be able to perpetrate attacks repeatedly. In the following I will analyse whether this pattern is the result of the legacy of the wartime economy around coca cultivation.

3.6.2 Results

Table 2 presents the results of a 2SLS approach using the Coca Suitability Index (CSI) as the instrument and also the reduced form estimates (regressing coca suitability index on armed

[40] Today more districts exist, for the analysis they have been aggregated to the 1993 district boundary

clashes). I report first and second stage estimations with and without covariates. Whether certain additional covariates are added or dropped does not change the estimates.

The IV approach estimates a local treatment effect (LATE), which is the effect of the wartime economy on armed clashes for compliers, meaning districts that are suitable for coca cultivation and cultivated coca during the war. The control group includes all districts that did not cultivate coca during the war. Thus, this design helps us understand whether districts that cultivated coca during wartime see more violence compared to those that do not.

We see in Table 2 in the first stage estimation that if a district is suitable for coca cultivation, coca cultivation increases by approximately 42.5%, this effect is highly significant ($p < .001$). The F statistic at 200 is sufficiently high (cf. Lee et al. 2020), suggesting the CSI is a strong instrument. In the second stage, I use the fitted values from the first stage and find that districts which cultivated coca during the conflict see 1.2 more violent clashes. This may seem like a minuscule effect but given that the average district only sees .1 armed clashes and the standard deviation of armed clashes is 1.3, this effect is quite large. The results remain stable from the basic bivariate specification to the full model. As a robustness check, I use the intensity of armed violence as an outcome, measured as the number of casualties or injured in violent clashes (see Appendix B2). The results are in line with the main specification and show that districts involved in the wartime economy see 3 to 4 more casualties or injured persons as a result of violent clashes.

Further, the data shows that 26 districts did not cultivate coca during wartime but do so today. These districts, however, see *no* armed clashes over the entire period of observation. This lends support to my argument, which suggests that 'feasibility' of violence, e.g., access to lootable resource to finance violence, is not sufficient to explain where we see violence. Instead violence is a function of the legacy of the wartime economy because this facilitates insurgent operations post-conflict. This is also apparent if we analyse which districts witness violent clashes even though they never produced coca during war or peace time. Only districts that have been and remain key along transporting routes of the drug trade, see violent clashes. This makes sense given that also along transporting routed civilians rely heavily on the economic benefits provided by sustaining the wartime economy and thus staging violent attacks against the state is less costly in these areas than it would be in areas where civilians do not benefit from the drug trade (Interviews in Huanta and Luricocha, Ayacucho, 2020).

Through the protection of the wartime economy and consequently local livelihoods, insurgents can create a relationship with the civilian population based on economic ties. Post-conflict insurgents are able to maintain this inter dependency if the wartime economy continues to finance local livelihoods. If anything, post-conflict the relationship between insurgents and civilians is

likely to improve given the necessity of insurgents to not threaten civilians' physical survival and exert too much coercion. A look at the tactics employed by Sendero in the post-conflict era sustain this claim. Sendero has mainly refrained from engaging in repressive or very violent behaviour towards local populations in areas where they operate. The second most recorded type of event involving Sendero Luminoso between 2004 and 2020 is political propaganda (34% of events). This includes activities like the distribution of leaflets, painting of walls or the holding of speeches in front of communities. Most of them are *non-violent*. [41] In several interviews with community members in the VRAEM, respondents tell stories about encounters with Senderistas. They recount the surprise of realising that they were not trying to forcefully recruit new members but would only try to convince them to join and explain why they are fighting the state security forces.

[41] Propaganda events are recorded as including the threat of violence, when Sendero members were visibly heavily armed but did not injure or kill anyone or if the leaflet included a direct reference to killing. Only 5 propaganda events were violent and left behind leaflets after the use of explosives to destroy infrastructure (2 events), or the killing of civilians they accused of being whistleblowers, and one event included the forced recruitment of children (across all events this is the only one that includes children). All of these took place in 2009 or early 2010.

Table 2: The Wartime Economy and Armed Violence (2SLS)

Model	**First Stage**	**Second Stage**	**Reduced Form**	**First Stage**	**Second Stage**	**Reduced Form**
Dependent Variable	*Wartime Economy*	*Armed Violence*	*Armed Violence*	*Wartime Economy*	*Armed Violence*	*Armed Violence*
Coca Suitability Index	0.425*** (0.300)		0.518 *** (0.083	0.425 *** (0.030)		0.520** (0.188)
Wartime Economy		1.218** (0.437)			1.223** (0.436)	
Covariates	No	No	No	Yes	Yes	Yes
Constant	0.037*** (0.004)	-0.023 (0.019)	0.022* (0.008)	0.025 (0.018)	-0.371* (0.197)	
Kleibergen-Paap rank Wald F statistic	200.04		7.56	44.55		2.10
Observations	1793	1793	1793	1793	1793	1793

*See details about included covariates in the data section. *p <.05 **p<.01 ***p<.001. Robust standard errors in parentheses.*

Although Sendero does engage in civilian targeting, it does so rarely compared to during the war. Additionally, targeting is very discriminate against people accused of being whistleblowers (*soplones*). The majority of civilian targeting is committed in early post-conflict years in the Alto Huallaga region. In contrast, the VRAEM faction explicitly changes its strategy in the targeting of civilians. Staring in October of 2007 they actively communicate a new strategy across communities where they operate. They distribute leaflets, where they vow to no longer target civilians and exclusively engage in a fight against the state. This is also accompanied by a stop in raids of local communities, where they used to steal food, medicine etc. Instead, communities report Sendero Luminoso members coming to buy necessities and leave again. From the data and interviews conducted in the VRAEM it appears that they hold by their promise .[42]

We see from the results that districts that were suitable for coca production were more likely to produce coca as part of the wartime economy in 1994 and those that produced coca are associated with more armed clashes after conflict termination, compared to districts that were unsuitable for coca production and did not cultivate coca. The estimates are arguably biased, because there are districts that do not get treatment (are unsuitable), yet do produce coca. I thus also estimate a spatial-two-stage-least squares models and demonstrate that the results are robust to accounting for possible spatial interdependence (see Appendix B1).

3.6.3 Mechanisms

The main mechanism proposed here is that insurgents rely on civilian support to survive and that the state requires civilians cooperation to garner intelligence to be able to defeat the insurgent. I propose that the presence of existing economic ties between Sendero and the civilian population explains why areas involved in the wartime economy, namely the production of coca for the drug trade, have remained focal points of armed violence, while other conflict-affected areas no longer see armed violence.

For insurgents local support means shelter, easier taxation of lootable resources (meaning employing less coercion to extract rents) and also possible access to recruits. In a post-conflict context, where armed groups are likely to have reduced capacity to fight, e.g. reduced number of members or limited military capacity, these are very important goods to an insurgent trying to fight the state. In turn, losing popularity also means that community members may share intelligence with the state in order to avoid being exposed to a violent non-state actor. In the following I provide qualitative evidence for these mechanisms.

There is extensive evidence of the Sendero faction in the VRAEM engaging in activities to

[42]Note that there have been reports of Sendero keeping captive civilians of the indigenous group Ashanika. In 2015 the military rescued 39 people, some of them had been abducted in the 1980s (BBC, 2015)

actively win over communities support post-conflict. Aside from actively refraining from targeting civilians, as I reported in the previous section. The Sendero members in the VRAEM started in early 2002 to signal communities their willingness to have an amicable relationships. For instance, they offered seeds and other supplies as well as money to local farmers (El Comercio, 2002). Additionally, they were buying goods from communities and paying them over price and in dollars (EL Comercio, 2002).

Meanwhile, state officials repeatedly claimed in the early 2000s that the remnants in the VRAEM were not an active threat. Yet, the Sendero faction remains active until today and according to the government consists of about 300 to 400 members. And this in spite of the Peruvian state having placed 52 military bases in the VRAEM, and staffed them with 8,000 soldiers (Caretas, 2018). But the military forces rely heavily on the intelligence work of the local police (Yaranga, 2019) and communities are not willing to provide such intelligence. For instance, after one of the bloodiest attacks in 2008 in Huancavelica (an area within the VRAEM), the only surviving military reports in an interview, that the community members knew of an armed Sendero column that was prowling the area the previous week and preparing a revenge attack, yet did not give this information to the security forces (Vera, 2019). Additionally, in interviews conducted with community members in the VRAEM, people describe security officials and specifically police as corrupt and abusive and only interested in drug-related crimes, as a way to secure bribes. In turn, some describe Sendero as "fighters of the coca leaf". That is because the faction in the VRAEM appears to have learned from past mistakes and is starting to claim legitimacy based on what we could also consider a cultural identity: the coca leaf. This way, they are further reinforcing, not only an economic alliance but creating a common ground based on a cultural notion around the cultivation of coca. Meanwhile strengthening the boundary between the state, aka "outsiders" who, local say, do not belong to them and their culture (cf. Kasfir, 2015). In this view, Sendero is also only gaining further legitimacy through the forced eradication programs that the Peruvian state has pursued in the last decades in the Alto Huallaga and recently initiated in the VRAEM. So even if some of these communities never experienced forced eradication, they still perceive the state as hostile. Specifically also, because they see themselves as marginalised and wrongfully framed as "narcoterroristas" (drug terrorists), as most previous governments have framed coca cultivators.

Further, areas involved in the drug industry in the VRAEM have seen increases in living standards in comparison to other marginalised rural areas not involved in the drug trade. The population wants to protect their livelihood and therefore sees Sendero Luminoso not as a threat but as an ally. Many communities also organise their own self-defense groups. In the absence of effective state security forces, which local communities describe as corrupt and only interested

in making a financial gain out of the existing illicit activity, community-organised defense forces protect local businesses, i.e. prevent crime, and also secure order. They are called for domestic disputes, sexual assault and other issues which should be dealt with by the state. The self-defense forces do not fight Sendero, although they strongly believe that they would have the capacity to do so, as they were key in defeating Sendero in the first place and know where remnants are hiding. But they have no incentive to share intelligence about Sendero because they do not see them as a threat. Instead, the state is the predatory actor in their view (Interview VRAEM, 2020).

In contrast, the Alto Huallaga faction was dismantled in 2012. What happened? As I described above, the Huallaga faction continued to target and kill civilians they claimed had shared intelligence on them, often targeting community leaders in areas that had decided to agree to voluntary eradication programs offered by the state. During war civilian compliance is usually based on a mixture of coercion and persuasion (Kalyvas, 2006). But as I argued previously, in the post-conflict context, relying on coercion does not bode well. Civilians can easily defect and share intelligence with the state that can result in the end of the insurgency. Particularly, if the state is offering an alternative to sustaining local livelihoods, some communities or even just a few members could decide to share intelligence about the insurgent with counterinsurgents. And in fact although communities remained dependent on the wartime economy in the early 2000s, the region was being increasingly targeted for development programs (in contrast to the VRAEM).

Yet, what ultimately led to the dismantling on the Alto Huallaga faction was the capture of their leader Florindo Eleuterio Flores Hala, alias Artemio, in early 2012. His capture was the result of intelligence work conducted by the Special Investigations Division of the Anti-Drug Directorate (Dirandro) of the National Police of Peru (PNP). According to Dirandro, their strategy mostly entailed leaving Sendero without any local support (Gob, 2018). Potentially, here a temporary but very credible shift in Peru's anti-narcotics policy in the summer of 2011 may have been key in swaying some community members to inform on Sendero or at least refrain from sharing intelligence about police advances in area.

Then newly elected president Ollanta Humala appointed Ricardo Soberon as head of Peru's national anti-drug agency DEVIDA (Comision Nacional para el Desarrollo y Vida sin Drogas) on 6th of August 2011. This was a surprising move. Soberon was seen by conservatives as a bad choice due to his prominent opposition towards US-supported and financed anti-narcotics policy. In turn, prior and during his appointment he enjoyed support by the national coca growers' union CONPACCP (the National Confederation of Agricultural Producers of the Coca Valleys of Peru), which had its strongest support in the Alto Huallaga at the time. According

to drug policy expert Kathryn Ledebur "For the first time in Peru you had a drug control chief with legitimacy with the affected coca-grower population".

Soberon had worked closely for years with many coca growers, specifically in the Alto Huallaga, and wanted to implement a new strategy with an emphasis on arresting the big drug traffickers and money launderers, seizing illegal drug shipments and halting the influx of chemicals used to process cocaine, and stopping to penalise peasants who grow coca. And in fact, on 16th of August 2011 it was announced that eradication would be put on halt until the government would have time to re-evaluate its anti-narcotics approach. This move came as a surprise to observers and even U.S. officials (BBC, 2011); the U.S. Ambassador at the time, Rose Likins, said she had not been informed of this policy change prior to its announcement and said it had not been coordinated with the U.S. government, who pays for Peru's eradication program and considers it integral to combating the illegal drugs trade.

Although, this halt was reversed after only a month and was met with calls for an "indefinite national strike" by CONPACCP, Soberon continued to enjoy their active support, [43] as he continued to lobby U.S. officials in favor of alternative development programs for coca farmers, and insisted on reducing forced eradication. In an interview just months before Artemio's capture he states "We have reached a basic understanding with the United States about Peru's new policy, which implies a bit less funding from them for eradication and interdiction, and a bit more funding for alternative development" (Stauffer, 2011). It is conceivable that the appointment of Soberon in conjunction with development programs credibly signalled to at least some community members, that the presence of Sendero was no longer necessary, specifically if it entailed being exposed to a overtly violent non-state actor, unable to provide the necessary protection to local livelihoods. Another factor which might explain differences between the Alto Huallaga and the VRAEM is their history of coca cultivation and involvement in the drug trade. While the Alto Huallaga has historically been the main producing coca valley and thus already was controlled by drug traffickers by the time Sendero took control in 1987, coca cultivation in the VRAEM mainly evolved as a result of the armed conflict (Heuser, 2019). Consequently, differences in power structures between Sendero, existing firmas and the local population could come to explain some of the variation as well.

[43] In their communique in response to the reversal of the eradication halt, CONPACCP writes:"Agents of US interests, like [former interior minister] Fernando Rospigliosi have unleashed a campaign of destruction against one of the few specialists in drug traffic, Ricardo Soberon [...] They say that Soberon's closeness to the cocaleros is a defect, when in reality, it is a logical consequence of his work as an analyst who has studied deeply the problematic of coca leaf cultivation and who could, if they let him do his job, propose solutions that transcend mere repression and criminalization of the weakest link in the chain, which in this case is the growers, and not the grand narcos and the apparatus that they have created around the commercialization of cocaine hydrochloride and its derivatives" CONPACCP communique, 2011

Limitations This study has been limited to understanding a context in which there are no competing violent non-state actors. In contexts where the insurgent group is in competition with other rebels, paramilitaries and other types of non-state actors, the weight of popular support might decrease because power balance among these actors is more symmetric and hence territorial control to secure rents becomes more important (see Dell, 2015; Duran-Martinez, 2015). But in absence of 'turf wars', the costs of armed violence is likely dependent on civilian support.[44]

3.7 Conclusion

Containment of violence can only be a first step towards building sustainable peace in a society emerging from violent conflict. This paper has been aimed at understanding when the use of violence is constrained in conflict-affected societies. Empirically, I studied the case of Peru and analysed why some previously conflict-affected areas still see armed clashes, while others do not. I have argued that civilian support has been key in understanding this dynamic and that the wartime economy has played a crucial part in the post-conflict context for shaping civilian attitudes vis a vis the insurgent and the state.

I showed that intensity of violence is a function of how costly it is for insurgents and the government to employ armed violence against one another. At the core of my argument stands that both the state and insurgents are predominately dependent on local civilian support in order to operate. While the state requires civilians to access intelligence to reduce the costs of its counterinsurgency campaign [45], the insurgents require civilians to at least stay quiet about where they are. Hence, in a sense civilians can both constrain and facilitate violence in a post-conflict context.

These findings also indicate that dependence on civilians puts insurgents and the state into a "no war, no peace" state. Since both seek to secure their political survival and civilian support, they cannot simply engage in excessive violence without threatening their own survival. Why? Because the government cannot simply escalate violence without possibly risking political survival on a national level. In turn, insurgents cannot escalate violence beyond areas where they enjoy support and also not beyond a point that would destabilise the area to an extent which would threaten economic activity in the area because this would limit civilian support.

The continuity in armed violence, although at lower levels, clearly also indicates the fragility of this state of 'stability'. The economic explanation would be that lootable resources are used to only reap economic benefits. In this view, we should expect that solid territorial control

[44] This is the quintessential difference to when we observe violence in criminal markets because criminal actors will not employ violence for political motive.

[45] Terrorist attacks or violence against civilians more broadly could legitimise a state's use of force at the potential cost of further instability, specifically even in democracies (Huddy et al., 2005).

leads to limited use of violence, both by criminal and insurgent groups in order to protect the market (Cockayne and Lupel, 2011; Krauser, 2020, cf.). However, I suggest that what really matters is in fact civilian attitudes. By "protecting" coca cultivation and the drug trade, Sendero Luminoso is able to maintain financial flows but mostly it garners civilian support. Arguably even gaining somewhat of a legitimate presence. They do so, it appears in their quest to conquer the state, once the moment is ripe (Interview in Huanta with affiliate of Sendero Luminoso). If civilian support did not matter, Sendero would have already accumulated enough resources to finance warfare in other areas and actively destabilise Peru as a whole. This suggests how important local legitimacy is to understand the behavior of an armed actor – specifically one that continues to be ideologically motivated. The findings thus also point to additional questions: Under which conditions do low-intensity conflicts flare up into full-scale conflicts or wars, while others do not? Why do some low-intensity conflicts last longer than others? How can the state regain its monopoly over the use of violence?

Moreover, a narrative focused on the relevance of civilian attitudes has important policy implications. It encourages approaches that actively consider local needs, beyond typical economic development programs. Trust in the state and its institutions needs to be rebuild. To achieve this militarized responses and discourses that frame cocaleros as 'narcos' need to be limited. These approaches have stigmatised and victimised populations in coca cultivating areas, to an extent which makes it incredibly difficult to address the root causes of armed conflict. Unfortunately, it appears that since the insurgent does not pose a threat to the political survival of the incumbent government, nor is seen by most Peruvian voters as a relevant problem, the state is likely to continue to militarily contain Sendero remnants, rather than winning over the local population.

4 Rebounding after Conflict: Collective Civilian Victimisation and Trajectories of Development

Abstract

Armed conflict has devastating effects on development. Extant theories highlight the destruction of infrastructure or human capital as relevant channels largely ignoring the effect patterns of violence might have. This article studies how and why patterns of civilian victimisation affect local trajectories of socio-economic development, e.g., education levels, access to water, or electrification rates. I emphasise the role of civilian agency and argue that collective victimisation inadvertently affects the rate of development by reinforcing collective mobilisation capacity in targeted communities. This translates to more successful demands for public services after conflict ends. I test this argument empirically using the case of Peru. Leveraging subnational data on civilian victimisation and socio-economic development pre-and post-conflict, I show that collectively targeted communities see higher rates of development. To causally identify this effect, I exploit geographic variation in the type of violence civilians were predominantly exposed to using a regression discontinuity design. The results suggest that collectively targeted communities see faster post-conflict development rates than comparable communities.

4.1 Introduction

Do differences in patterns of civilian victimisation explain diverging rates of socio-economic development, e.g., the rate at which education levels, access to water and sanitation, or income levels improve, across conflict-affected communities? This question is crucial for understanding how patterns of violence relate to economic, social and political trajectories in post-conflict societies. Armed conflict has a detrimental effect on social and political institutions and economic development (Collier, 1999, 2009; Blattman and Miguel, 2010; Deglow, 2016; Wong, 2016). Yet, existing studies offer little insight beyond emphasising the destruction of infrastructure and human capital as the mechanisms linking armed conflict to slow economic growth and poverty (cf. Collier et al., 2003).

Armed conflict is a very local phenomenon: conflict dynamics differ across space and often also change as conflict evolves. Similarly, local level development is often contingent on factors beyond national economic performance. Namely, local capacity to effectively organise to demand public services from the state; for instance by acquiring political representation or becoming politically relevant to the incumbent government. This article seeks to understand whether some conflict-affected areas are better at recovering from armed conflict as a result of experiencing collective civilian victimisation.

Collective civilian victimisation refers to the imperfect targeting of various members of a community in contrast to selective victimisation, where only specific individuals within a community are targeted (see Kalyvas, 2006; Steele, 2009; Gutiérrez-Sanín and Wood, 2017).[46] For instance, the massacre in the district of Socos (province of Huamanaga, Ayacucho) that occured during the armed conflict in Peru (1980-2000) is an example of collective victimisation. On 13th November 1983 several community members were celebrating an engagement. The celebration was brought to an unexpected end after the arrival of a special police force called Sinchis. 33 people were tortured, raped, and killed, including children. Only one survivor was able to hide and flee and share her story with other community members the following day (CVR, 2003: Tomo VII, p.55).

Civilian victimisation is often employed to enforce compliance and establish territorial control and has important ramification for conflict dynamics (Balcells and Stanton, 2020). Existing literature offers little guidance on whether differences in targeting could come to affect post-conflict recovery although there is good reason to believe that they would. Namely, scholars find that communities who are collectively targeted are more likely to reinforce social cohesion and collective action capacity as a response to violence, while selectively targeted communities are more likely to grow mistrust amongst each other (Voors et al., 2012; Gilligan et al., 2014; Schubiger, 2021; Hager et al., 2019; Cassar et al., 2013).

I argue that collective victimisation inadvertently shapes local capacity to successfully demand public services and economic inclusion in the long run by reinforcing collective mobilisation capacity, which facilitates access to state-provided public services or even political representation. When communities are collectively targeted, members share a threat and are more likely to have to rely on each other to survive. Social cohesion is therefore maintained or even reinforced as a result of victimisation. This effect is further amplified if armed groups do not offer them protection and is likely to endure long after the initial threat has vanished (Schubiger, 2021; Steele, 2009; Osorio et al., 2021; Lupu and Peisakhin, 2017). Social cohesion is crucial for accessing state-provided public services such as schooling, health facilities, or infrastructure programs, because it helps to successfully communicate existing grievances and even gain political representation (e.g. Carter, 2021). Differences in patterns of civilian victimisation could thus explain variation in socio-economic development post-conflict.

To study this argument empirically, I use the case of Peru which experienced armed conflict between 1980 and 2000. In the first part of my analysis I draw on subnational data on civilian

[46] I refrain from using the term indiscriminate, as targeting is never fully random and thus not completely indiscriminate (cf. Kalyvas, 2006). Instead I emphasise that targeting is often imperfect and victimises civilians without precise knowledge on who is a collaborator with the opposing armed group. Note that for this paper the conceptual emphasis lies in the collective threat triggered by "imperfectly" targeted violence within a community, not the logic of targeting per se.

victimisation and newly collected data on socio-economic development. I estimate a linear model using OLS and find that areas exposed to collective civilian victimisation see a higher rate of development. Yet, estimating the relationship between patterns of targeting and post-conflict development through linear regression poses several challenges to inference given that targeting is not exogenous to development.

To address these concerns the second part of my analysis employs a regression discontinuity design. Exposure to collective civilian targeting was geographically confined to certain areas as a result of changes in the state's counterinsurgency strategy (see Fumerton, 2001; De la Calle, 2017; Schubiger, 2021). Areas declared emergency zones in the initial period of conflict (1982- July 1985) saw 70% of all collective civilian victimisation. In contrast, areas subject to emergency zones after July 1985 saw far less collective victimisation and were exposed to more discriminate forms of violence against civilians. I reduce the sample size to only consider areas ever declared emergency zones and use the distance to emergency zone borders as a local instrument to estimate whether differences in collective targeting impacted subsequent development rates. The results suggest that collectively targeted areas see higher growth in literacy rates post-conflict. Peru makes a theoretically and methodologically fitting case study for several reasons. First, marked geographic variation in civilian targeting allows me to rely on a regression discontinuity design as an additional identification strategy. Second, I am able to isolate the effect of collective targeting from one of the most studied factors in explaining patterns of civilian targeting and differences in subnational development rates: ethnicity (e.g., Fjelde and Hultman, 2014; Alesina et al., 2016; Weidmann, 2011; Theisen et al., 2020). Although, violence predominantly affected non-white communities, conflict was not fought along ethnic lines (CVR, 2003). Similarly, politics in Peru is not organised around ethnic identity (Degregori, 1998; Carter, 2021). Third, studying the effect of armed conflict on development subnationally offers a way to hold constant other national-level factors relevant in understanding post-conflict development, while contributing to understanding the effects of armed conflict on microeconomic inequalities across victimized societies rather than the often studied macroeconomic stability (e.g. GDP growth).

The findings of this paper are central to understanding how and why adverse conditions such as armed conflict shape socio-economic development today (cf. Nunn and Wantchekon, 2011; Dell, 2010). It also relates to one of the most fundamental questions in Political Science: Why do some groups organise and others do not (cf. Olson, 1965)? The findings of this paper suggest that collective victimisation can enable a restrengthening of social bonds which then can help communities improve their livelihood post-conflict. This also contributes previous literature that explores the origins of variations in subnational development. Predominantly, research has

been focused on understanding institutional determinants as well as other structural conditions such as corruption, labor markets, resource extraction or ethnic ties to the government to understand variations in development within countries (Dell, 2010; Guardado, 2018; Alesina et al., 2016). I add to this body of literature by explicitly accounting for civilian agency. The analysis demonstrates how divergent exposure to security threats can come to affect local development in conflict-affected areas. This is particularly relevant to understand since armed conflict tends to disproportionately reinforce marginalisation and thus is is important to emphasise not only the legacy of historic events such as war but how and why adverse conditions perpetuate exclusion (see for instance Acemoglu et al., 2011; Lin, 2021).

This paper is organised as follows. In the next section I shortly summarise previous research on the welfare effects of conflict and then introduce my theoretical argument. Subsequently, I give a short overview of the patterns of civilian victimisation in Peru. I then introduce my empirical strategy and data and present my results. This is followed by an analysis of the channels through which collective victimisation has affected development in the long run. I conclude with possible avenues for future research.

4.2 The Effect of Civilian Victimisation on Development

How could patterns of civilian victimisation come to influence socio-economic development, (e.g., education levels, access to water and sanitation, life expectancy or income)? Inequalities in socio-economic development are usually the result of unequal provision of state-provided services, i.e. public services, such as schooling or potable water and tend to reflect larger inequalities within the political system. Public services provision is often responsive to political imperatives: Politicians want to stay in power. In particular, in developing countries public services provision is funded with transfers from the central government and not through local taxation. Consequently, areas that are politically relevant will often receive better access to public services (e.g., Schady, 2000; Alesina et al., 1999; Lee, 2018). It would thus be unsurprising if armed conflict which often disproportionally victimises the most marginalised reinforced patterns of marginalisation (Acemoglu et al., 2011; Lin, 2021).

Previous research has emphasised the costs of conflict in terms of its negative effect on economic growth, human capital development and physical destruction (e.g., Collier, 1999; Collier et al., 2003; Blattman and Miguel, 2010; Hegre et al., 2017; Costalli et al., 2017). In fact, one of the most robust findings is that the experience of armed conflict slows down economic growth by around 2 % (e.g., Collier, 1999). Yet there are good reasons to expect possible heterogeneous welfare effects of armed conflict at the local level. Differences in patterns of violence could have different effects on the local capacity to recover from the negative welfare effects of armed

conflict. To date there has been little systematic analysis of possible subnational dynamics. One notable exception is Lin (2021), who links wartime bombing and remaining unexploded bombs on high-fertility land to underdevelopment in Cambodia. This paper thus improves upon existing literature on the welfare effects of armed conflict by demonstrating how differences in patterns of violence matter. Specifically, I study the effects of collective civilian victimisation and emphasise the formation and destruction of social cohesion.

Civilian victimisation is often employed to enforce compliance and establish territorial control and has important ramification for conflict dynamics (for an excellent review see Balcells and Stanton, 2020). But from previous literature it is not necessarily clear that *how* civilians are targeted would matter for understanding outcomes such as the levels of education, access to water or electricity, health outcomes or income levels in a post-conflict community. I posit that collective targeting of various members of a community, referred to as direct *collective victimisation* from hereon out, can positively affect the post-conflict socio-economic development of a community by reinforcing collective action capacity. I consider both lethal and non-lethal violence against civilians as both forms of violence can translate into the perception of a possible threat to ones survival. However, whether victimisation translates to a higher collective action capacity depends on the threat being perceived as *shared* with other members of the community. This is a function of whether civilians are exposed to collective or selective victimisation.

Several studies find that exposure to armed violence increases trust and cooperative behavior towards community members post-conflict (e.g. Blattman, 2009; Voors et al., 2012; Gilligan et al., 2014). Nonetheless, others show the opposite: exposure to violence reduces cooperative behavior, both towards out-group *and* in-group members (Hager et al., 2019; Cassar et al., 2013). To reconcile these findings, differentiating between types of violence studied is important. The ability to differentiate between friend and foe during exposure to violence matters for explaining social cohesion, often measured as trust or willingness to cooperate with others. If one cannot be sure that ones neighbor will inform on them, this increases suspicion and can reduce trust and cooperation within a group in the long run. Hager et al. (2019) find that selective victimisation which resulted in the targeting of some group members and not others fostered a sense of suspicion and mistrust towards in-group members. Correspondingly, Cassar et al. (2013) find that exposure to selective violence reduced trust as targeting was a function of having been informing on by others.

Contrastingly, imperfect collective targeting reduces the possibility that violence is a function of informing. The threat is more likely to be perceived as shared with others and sought to be collectively addressed to secure survival. For instance, Schubiger (2021) shows that state-led collective civilian victimisation in Peru facilitated communal violent resistance campaigns by

facilitating civilians to overcome collective action problems in an effort to survive. Meanwhile, Voors et al. (2012) find that individuals exposed to high levels of collective victimisation[47] during war in Burundi display more altruistic, risk-seeking preferences and higher social capital measured as trust towards others. Similarly, Gilligan et al. (2014) find that communities with greater exposure to violence during the Maoist rebellion in Nepal displayed higher levels of trust and collective action capacity.

In line with my proposition, Krakowski (2020) looks at Colombia and finds that symmetric conflict, which is more highly associated with collective victimisation, increases social cohesion by triggering "collective coping" while asymmetric conflict, which is more highly associated with selective victimisation, reduces social cohesion by fostering mistrust because there is constant fear of denouncement (on collective coping see also Gilligan et al., 2014). Importantly, the reinforcement of collective action capacity can persist long after conflict ends (see Osorio et al., 2021; Daly, 2012). Further, it is not necessary for a given individual to be directly affected by violence to feel threatened. The experience of selective or collective victimisation of some members in a community can be sufficient to either reduce trust or reinforce social cohesion within a community as a survival mechanism. But how does this relate to socio-economic development?

Social cohesion within communities structures their social, political, and economic life. I argue that collective civilian victimisation is likely to affect post-conflict socio-economic development by increasing levels of social cohesion, e.g. trust or altruistic behavior, which in turn facilitates the access to public service provision because of the ability to overcome collective action problems (see Putnam, 2000; Anderson et al., 2004). More generally social cohesion can facilitate the election of favorable candidates to political office, specifically across marginalised communities which would otherwise not be able to achieve political representation (Carter, 2021). It can also help facilitate the pursuit of other non-violent strategies such as protest in demanding public service provision. Communities where members trust each other are more inclined to act collectively to organise themselves and become politically relevant, make demands to the state and see economic growth (Knack and Keefer, 1997; Zak and Knack, 2001; Algan and Cahuc, 2010; Carter, 2021). Social cohesion is also linked to more efficient provision of public services and better overall governance (Nannicini et al., 2013; Glennerster et al., 2013). This is because the provision of public services fundamentally relies on the ability of community members to coordinate. If communities display little social cohesion or in other words collective action capacity they face problems of advocating for public services provision or agreeing on which public services they need access to (Tajima et al., 2018).

[47] They refer to it as indiscriminate violence.

Particularly, in a post-conflict context where reconstruction is the main focus, not all communities manage to access funds and receive help. For instance, Peru started implementing a development project called *FONCODES* (Fondo Nacional de Compensacion y Desarrollo) in the 1990s just as armed violence was decreasing. In the early 1990s FONCODES predominantly funded community-based projects around malnutrition, construction or rebuilding of schools, health posts, water and sanitation systems, rural roads,electrification schemes,and small-scale irrigation work (Schady, 2000). The majority of funds were given to communities directly based on proposals they hand in. Funds were then directly given to a group of specifically elected community members, who are responsible to spend funds accordingly (see Schady, 2000). This means that communities need the capacity to prepare a successful proposal which requires organising to understand the conditions under which a project will be funded. Communities who act collectively, are more likely to be able to overcome these hurdles. More importantly, for the funds to actually end up fostering socio-economic development, communities need to be able to hold elected members accountable and make sure that funds do not end up in private pockets.

One of the key mechanisms linking collective victimisation to socio-economic development is reinforced local capacity to mobilise collectively to hold local politicians accountable for delivering public services and not just cash in for themselves. Post-conflict contexts usually see the influx of development funds and projects as armed conflict comes to an end. Lack of local accountability not just in terms of which projects are funded (e.g., does this community need this particular development help[48]), but also in terms of ability to hold accountable whoever manages the funds to comply and deliver certain goods to the community is crucial. Corruption is widespread across countries (developing and industrialised), particularly public service provision often falls victim to this as local politicians for instance choose worse quality products, give contracts to uncertified personnel, or end up buying machinery or providing infrastructure only to a certain subset of the population. This is most likely the case if there are few repercussions in doing so. Communities with stronger social bonds will be more likely to rely on each other to organise access to public services but also makes sure that funds are used more efficiently. For instance, in Peru there is a saying that implies acceptance of corrupt politicians as long as they deliver: “Roba, pero hace obra“ (roughly translated as “He steals but he does the work”). Corruption without giving back to the community is punished, for instance through voting (e.g. Vera, 2020) but also by force. When politicians do not hold their promise, communities have been found to organise collectively to literally kick them out of office by using or threatening

[48]One example is the community of Uchuraccay. After conflict termination they received reparations in form of financial benefits and public service provision such as sanitation and water. Yet, another reparation they received was cattle. These had either escaped or had died shortly after they were delivered to them as the conditions to hold such animals was not given and the community members had no experience in caring for and using such animals.

violence (Defensoria, 2020). However, accountability is more likely if community members are able to organise collectively to organise their local politics.

Additionally, other research also highlights the importance of secure property rights for economic development in particular (Dell, 2010). Yet, in developing countries enforcement of property rights is often difficult given weak contract or law enforcement, specifically in rural or peripheral areas. Communities with strong social cohesion are more likely to resolve disputes over land or similar issues such as access to common water resources peacefully. For instance, through commonly shared customary institutions. Importantly, people will be more likely to trust one another to act fairly and are also more likely to rely on each other for other purposes (e.g., the provision of security) and share other interests beyond the resolution of this particular dispute (e.g., trade relations).

In comparison, selectively targeted communities are more likely to experience growing mistrust within their communities as a result of armed conflict and are thus worse equipped to recover from war. If individualistic behavior becomes the best survival strategy, collective action – even if favorable to everyone – is more difficult. This can result in problems of public services provision and thus lower socioeconomic development as communities will struggle to successfully demand public services or existent public services will not be properly maintained (e.g. Hardin, 1968; Ostrom, 1990; Trounstine, 2016). For instance members of a community will be less able to coordinate with each other to maintain public goods such as water wells or collective farming resources. This might particularly be the case post-conflict where many communities are given development aid in the form of communal goods such as a shared facility to farm or process agricultural products or produce local goods. The utility and return of such investments on local development depends a lot on communal capacity to coordinate with each other (Ostrom, 2000; Bunselmeyer, 2020).

Particularly communities which were historically excluded by the state require coordination, often also amongst several smaller communities, to be able to access public services. For instance, Carter (2021) shows that indigenous communities in Peru who rely on reciprocity institutions are more likely to coordinate with co-ethnics in order to agree on one indigenous candidate to run for local government. This results in an increased likelihood of public services provision for *all* participating communities, as it is more likely that a candidate of a marginalised, peripheral community gets elected into political office. Similar dynamics occurred across Peruvian communities in collectively targeted areas. During episodes of violence smaller communities bound together to be able to counter the threat (Fumerton, 2002). Thus, in areas where a high share of communities was collectively targeted, the effect of civilian targeting on subsequent rates of development might be particularly high. It is important to consider that my argument

aims to understand differences in growth rates subnationally: Collectively targeted areas see higher growth rates *relative* to areas where communities experienced selective victimisation or no civilian victimisation. From this I derive the following testable hypothesis.

H: *Districts exposed to collective targeting see a higher rate of socio-economic development post-conflict.*

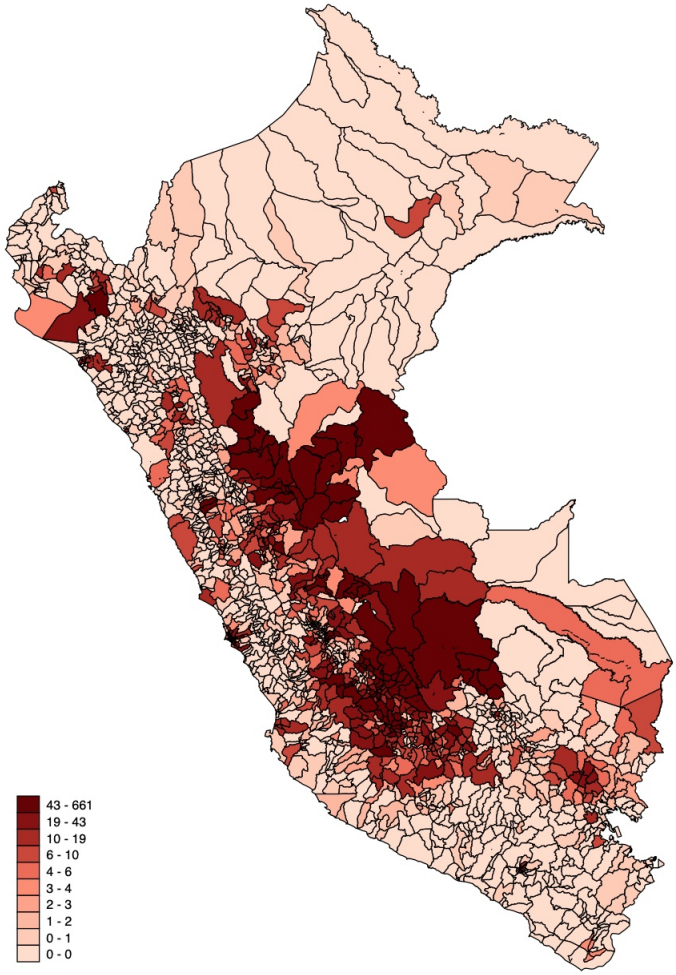
4.3 Collective Victimisation and Development in Peru

To examine the effect of collective civilian victimisation on socio-economic development rates I study the case of Peru, which makes an interesting case for several reasons. First, different areas experienced notably different rates of collective civilian victimisation as a result of the state's initial counterinsurgency strategy. This allows me to identify whether differences in the form of targeting impacted subsequent socio-economic development, despite the fact that targeting is never fully random. Second, ethnicity is usually a crucial factor in understanding patterns of violence and development rates (e.g., Fjelde and Hultman, 2014; Alesina et al., 2016; Weidmann, 2011; Theisen et al., 2020). However, in the case of Peru armed conflict was not fought along ethnic lines and ethnic identity is also not a major factor in policymaking (CVR, 2003; Degregori, 1998; Carter, 2021). This allows me to isolate the effect of patterns of violence away from the role of identity, which tends to be a salient explanation in other contexts and get closer to understanding how collective targeting can come to strengthen social bonds and affect development. Lastly, Peru saw one of the highest economic growth rates in Latin America and has seen significant strides in economic development compared to other post-conflict countries. Yet it continues to be marked by subnational inequalities. It is thus an empirically interesting case to understand post-conflict development while accounting for national-level factors which have contributed to an increased budget catered towards addressing poverty and economic development. In other post-conflict countries lack of development in conflict-affected areas is more likely to be the result of overall weak state capacity and lack of funds. Peru offers and empirically and theoretically relevant case to study if patterns in civilian victimisation explain why some communities were better at capturing state-provided services and see higher rates of socio-economic development post-conflict.

4.3.1 Armed Conflict and Civilian Victimisation in Peru

Armed conflict was initiated by the insurgent group Sendero Luminoso in the rural highlands of Ayacucho. Between 1980 and 2000 an estimated 48,000 to 70,000 people were killed and over half a million people were displaced as a result of armed conflict (CVR, 2003; Rendon,

Figure 9: Conflict-affected areas in Peru by number of violent events (Source: CVR (2003))



2019). Violence mostly affected impoverished rural areas and at the height of conflict spanned over half of the country, though armed violence varied significantly across space (see Figure 9). Yet, several contemporary accounts of the conflict and also the data collected by the Truth Commission document differences in the nature of civilian victimisation across different areas of the country as a result of the state's initial counterinsurgency strategy. At the onset of armed conflict, civilian casualties remained low. Sendero's violent strategy was focused on targeting public infrastructure such as electricity networks and police posts (Desco, 1989). To gain civilian support it relied on strategies such as the distribution of land or cattle in marginalised peasant communities and administration of 'justice' through popular courts, which targeted rapists, thieves and the like but employed little violence against civilians (Degregori, 1987). Meanwhile, President Belaunde declared zones of emergency in the provinces of Huamanga, La Mar, Cangallo, and Victor Farjado in Ayacucho, but was reluctant to use military force (Fumerton, 2002). Yet, as Sendero was gaining popularity and territory, Belaunde sent in the military after Sendero rejected an ultimatum in December of 1982 to just turn themselves in.

With this the government's incredibly harsh counterinsurgency campaign began and a cycle of violence as Sendero started unleashing more guerrilla attacks (Desco, 1989). The state's counterinsurgency strategy relied on the declaration of zones of emergency, which were put under complete political-military command and effectively restrained all human and civil rights. Due to very poor intelligence on Sendero state forces relied heavily on collective targeting of civilians such as mass killings, kidnappings, torture, extra-judicial executions and disappearances, with little regard of whether these were in fact insurgent supporters or not (CVR, 2003). State forces assumed that everyone and anyone that looked indigenous had been recruited by Sendero Luminoso (Tapia, 1997). This resulted in the highest rates of collective civilian victimisation in the years of 1983 and 1984 and was majorly confined to areas under state of emergency (Coronel, 1996; Degregori, 1998).

Although insurgent violence was not confined to emergency zones, Sendero did disproportionately also target these areas in 1983 and 1984 (Desco, 1989). Mainly because the state often 'cleared' an area of insurgents without effectively establishing control and offering protection to civilians. Thus, Sendero would frequently return to target "collaborators" in areas, where the state had just inflicted heavy violence against civilians and insurgents (Tapia, 1997). Yet, rather than selectively targeting civilians they would resort to collective victimisation such as mass killings to enforce compliance. This explains the significantly higher rate of collective victimisation in areas put under state of emergency in the early years of conflict (Desco 1989).

While some targeted communities chose to collaborate with Sendero out of fear, and some civilians responded by fleeing, many collectively targeted communities chose to actively mobilise against Sendero (Fumerton, 2002; Schubiger, 2021). Communities formed civilian defense groups called *rondas campesinas* as a way to protect themselves. Facing heavy collective civilian victimisation by *both* sides, many communities assumed it was more likely that the stronger state forces would win and thus wanted to signal non-alignment to the state (Del Pino, 1993; Fumerton, 2002, 2001; Schubiger, 2021). Moreover, Sendero did not offer protection from state violence in areas it had taken control but was enforcing harsher rules, e.g., they banned local markets and fairs due to the capitalistic exploitation they represented, making survival very difficult (Del Pino, 1993). [49] (McClintock, 1984; Degregori, 1998; Coronel, 1996). While, civilian mobilisation against Sendero further spurred retaliation attacks on civilians and resulted in extremely high rates of civilian victimisation, these communities demonstrated to be highly resilient (Fumerton, 2002; De la Calle, 2017).

Patterns of violence shifted when President Alan Garcia took office on 28 July 1985 and pledged to end the "dirty war". Although diffusion of insurgent activity led to the declaration of

[49] Plus, Sendero increasingly targeted civilians for breaking those rules.

more provinces under state of emergency, state violence reduced significantly. Garcia aimed to reduce military involvement: Most Marines were withdrawn from emergency zones and replaced with conscript soldiers of the Army's 2nd Infantry Division, meaning that many security forces were from rural areas and spoke Quechua. This already improved relations and communication with civilians and facilitated selective repression (Fumerton, 2002). But Garcia strained relationships with the military by not only threatening to punish state forces found guilty of violating human rights but actually arresting high-ranking military officers (Desco, 1989). Consequently, not only state-led violence against civilians reduced but also overall counter-insurgent activity because security forces feared that they might be arrested (Del Pino, 1993).

Sendero Luminoso was able to use the lack of state action to further expand its reach and started to increasingly directly attack state security forces. Though they continued to target civilians, targeting became more selective (Tapia, 1997). Specifically in newly declared areas of emergency such as the departments of Junin, Puno and Ancash or the coca-cultivating areas of the Alto Huallaga Valley, Sendero was able to establish territorial control without relying too much on collective civilian targeting (Fumerton, 2002; Weinstein, 2006). Additionally, at the end of the 1980s Peru spiralled into hyperinflation, which helped Sendero gain more support across these areas (Fumerton, 2002). Nonetheless, in areas where civilian self defense forces had already formed in the early stages of conflict (1983/84), communities continued to be collectively targeted (Del Pino, 1993).

In 1988 the state altered its counterinsurgency strategy once again. This time realising the potential of civilian self defense forces, the military cooperated much more closely with communities but also started co-opting local village patrols and rondas, where they had not been formed yet (Degregori, 1996; Fumerton, 2002; Garcia-Godos, 2006, McClintock 1999). [50] Particularly after the election of Alberto Fujimori (1990-2000) the military was also allowed to 'crush' the insurgency without the possible burden of being persecuted for human rights violations (Tapia, 1997; Fumerton, 2002), though now counterinsurgency relied heavily on local intelligence and cooperation with civilian self-defense forces and more selective violence by the state. Meanwhile, Sendero started to loose power, not only with the capture of its leader in 1992 but also because of popular dissatisfaction. When the government offered amnesty in 1994, many Senderistas demobilised, causing a significant downward trend in violent attacks after the mid-1990s. [51]

In sum, throughout conflict violence was majorly concentrated in zones declared under state

[50] In fact, often communities that refused to organise in self defense committees risked harsh punishment at the hands of the military (Fumerton, 2002). Consequently, rondas that had been self-organised in the early 1980s differed from those rondas forced into existence due to military pressure (Fumerton, 2002).

[51] Weakened on all fronts, what remained of Sendero retreated to its strongholds in the two main coca producing valleys: Alto Huallaga and Valle de los Rios Apurimac y Ene. While remenants of Sendero continue to operate today the conflict is considered to have ended in 2000.

of emergency. Nonetheless, areas declared emergency zones while Belaunde was in office experienced disproportionately high levels of collective victimisation. Areas declared emergency zones after Garcia took office experienced higher levels of selective targeting. The difference results mostly from the state's initial counter insurgency strategy being reliant on non-selective collective targeting of entire communities and subsequent increased collective targeting by Sendero in order to enforce compliance across defecting communities (see Fumerton, 2001; De la Calle, 2017; Fielding and Shortland, 2012).

4.4 Empirical Strategy

In the 2000s (after conflict termination) Peru experienced steady and one of the highest economic growth rates in Latin America thanks to mining and natural resource exploitation. But economic policy was not directly aimed at addressing socioeconomic grievances in conflict-affected areas or post-conflict reconstruction (Orihuela, 2012). Instead, already in the early 1990s, under the government of Fujimori (1990-2000), structural reforms were implemented to reduce poverty across the country. The Peruvian Social Fund (Fondo Nacional de Compensacion y Desarrollo Social – FONCODES) was initiated in 1991 to expand public services provision. Under this scheme more than US$ 2 billion were invested in rural development. Most projects funded rural public infrastructure such as water and sanitation, electrification or establishment of health posts (Schady, 2000; Orihuela, 2012). Funds were targeted at marginalised areas and eventually also chosen with the help of "poverty maps" that were compiled on the basis of the 1993 population census. Thus it is plausible that conflict-affected areas were more likely to be targeted as the origins of the conflict have been attributed to dire economic conditions and lack of access to public services (McClintock, 1984; Palmer, 1986; CVR, 2003). Plus protracted armed conflict is likely to have exacerbated these conditions. Yet, would it be possible that some areas were better at accessing public services and see a higher rate of development in comparison to similarly impoverished areas as a function of the patterns of violence they experienced?

4.5 Estimation Framework

My unit of analysis is the district, which are usually the smallest political units and the lowest administrative level for which data on armed conflict and socioeconomic development is consistently available.[52] I aggregate variable values to 1993 district boundaries, yielding 1,793 districts. To study the effect of different types of civilian victimisation on development I first employ a simple OLS estimation to establish a correlation between collective victimisation and

[52]Note: assignment to emergency zones varies at the province level

socio-economic growth rates. I specify the following model:

$$Y_i = \alpha_1 + \beta_1 CollectiveVictimisation_i + \beta_2 C_i + \varepsilon_{1i}, \tag{5}$$

where Y_i is the development rate observed in each district i, $CollectiveVictimisation_i$ indicates whether a given district experienced collective victimisation during armed conflict, C_i is a matrix of pre-treatment covariates which could explain both collective victimisation and development trajectories. ε_{1i} is the error term. Variables are described in the Data section.

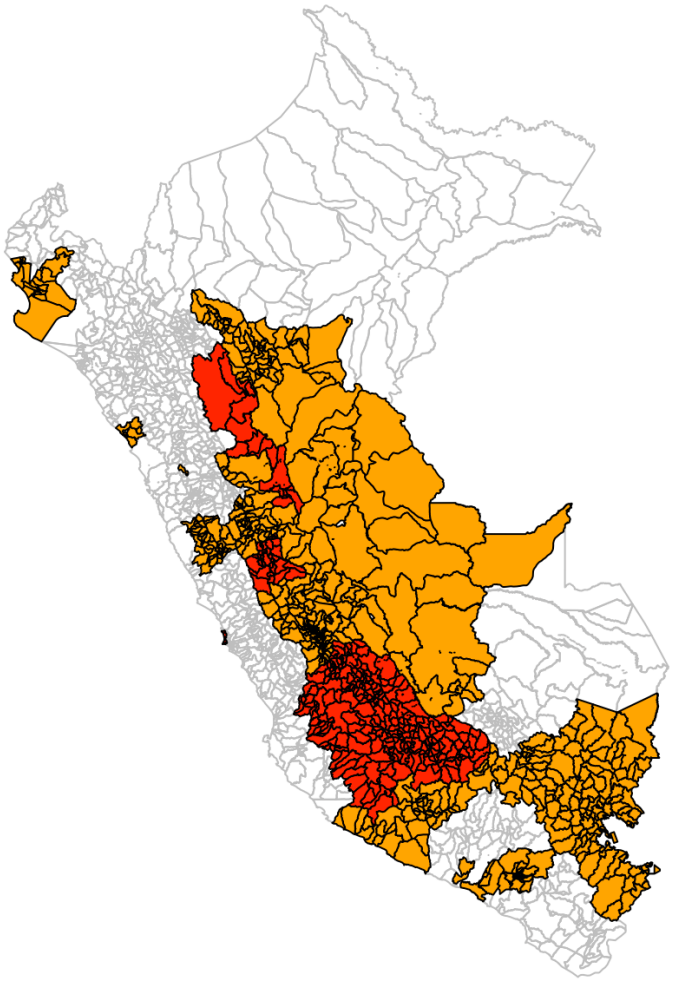
Although the inclusion of covariates helps to assess whether collective victimisation correlates with the socio-economic development rate, the results of this model are only suggestive. Violence is never exogenous to development itself. Most of the deaths and violent attacks were recorded in some of the most marginalised areas within Peru, so there is likely unobserved confounding even when accounting for an extensive set of covariates. To address this challenge, I leverage that collective victimisation was majorly confined to districts declared areas of emergency early on in the conflict, due to the state's counterinsurgency strategy (as described above). Across eventually designated areas, declaration of an emergency zone before or after July of 1985 can be thought to be "as if random" very near the boundary, making treated and control groups near the boundary good counterfactuals for each other.

Note that for clean identification, in this part of the analysis I only consider districts which were ever declared under state of emergency as close to no violent attacks were perpetrated outside emergency zones. This makes sure that conflict-affected districts serve as counterfactuals to collectively targeted areas, rather than peaceful districts. I also exclude Lima and the special administrative region of Callao, where both exposure to civilian victimisation and its development rate are likely related to state capacity and their urban character. Figure 10 shows which areas are included in the analysis and highlights in red early emergency zones and in orange later emergency zones.

The analysis utilises the discontinuous shift in treatment probability (i.e. likelihood of experiencing collective victimisation) as one moves across the boundary *between* emergency zones to estimate the effect of collective victimisation on subsequent socio-economic development rates. The forcing variable is determined by latitude and longitude: a district's treatment probability for collective civilian targeting depends on distance to the boundary between emergency zones declared before or after July of 1985. Districts get a negative score when they are located outside an early emergency zone and positive scores if they are inside an early emergency zone.

But the discontinuity I analyse is fuzzy rather than sharp as the treatment probability does not shift from 0 to 1 as one moves across the boundary: Some areas declared emergency zones post July 1985 had a nonzero probability of experiencing collective civilian victimisation.

Figure 10: Emergency Zones



Additionally, even if a district is located within an early emergency zone, it did not necessarily experience collective civilian, or in more formal terms: not all districts assigned to treatment take treatment. Thus, similar to an IV design, I estimate a treatment effect for compliers using two-stage least squares but limit observations to be within a certain bandwidth of the boundary. I divide the jump in the relationship between the outcome Y and the forcing variable X (distance to the boundary) by the fraction induced to take the treatment at the boundary (see Hahn et al., 2001; Lee and Lemieux, 2010; Cattaneo et al., 2016).To estimate the treatment effect of collective civilian victimisation I define the estimand as follows:

$$\tau_F = \frac{lim_{x\downarrow 0}E[Y_i|X_i = x] - lim_{x\uparrow 0}E[Y_i|X_i = x]}{lim_{x\downarrow 0}E[D_i|X_i = x] - lim_{\epsilon\uparrow 0}E[D_i|X_i = x]}, \tag{6}$$

where Y_i is the socio-economic development rate observed in each district i, D_i is the potential treatment status of district i, and X_i is the distance between each district's centroid to the nearest emergency zone boundary. Note that D_i is used as an instrument and indicates whether a district experienced collective victimisation. I fit the two regression functions on the two sides of the cutoff (i.e. one for districts in later emergency zones and one for districts in early emergency zones), using nonparametric local polynomial methods. This is to help approximate the unknown functional form. I also include relevant covariates (see Imbens and Lemieux, 2008; Skovron and Titiunik, 2015; Keele and Titiunik, 2015). The estimated effect is calculated as the difference between the two separate regression intercepts.

I then employ local linear regression to estimate the following:

$$Y_{is} = \alpha + \widehat{\tau_F}E_i + \beta_1 X_i + \beta_2 E_i * X_i + \beta_3 C_i + \phi_s + \varepsilon, \tag{7}$$

where Y_{is} is the outcome of interest for district i along segment s of the emergency zone boundary; E_i is an indicator equal to 1 when a district is within an early emergency zone and equal to 0 otherwise; X_i is the distance of the district's centroid to the nearest boundary point b for districts located within a bandwidth h of the emergency zone boundary; C_i is a vector of covariates for district i; ϕ_s is a set of boundary segment fixed effects that indicate which of six equal length segments of the boundary district i is closest to. This ensures I compare observations in close geographic proximity and captures geographic treatment effect heterogeneity (see Dell, 2010).[53] I estimate treatment effects for different bandwidths ranging from 15 to 100km from the emergency zone boundary.[54] I employ a triangular Kernel weighting function, which gives observations outside the bandwidth h a weight of zero and maximises

[53]By construction the design satisfies the boundary positivity assumption as I only include boundary segments where there are sufficient districts on either side of the cutoff, as to assure that non-treated districts can serve as counterfactuals (see, Imbens and Zajonc 2011).

[54]The bandwidth controls which observations are used to fit the the local polynomial.

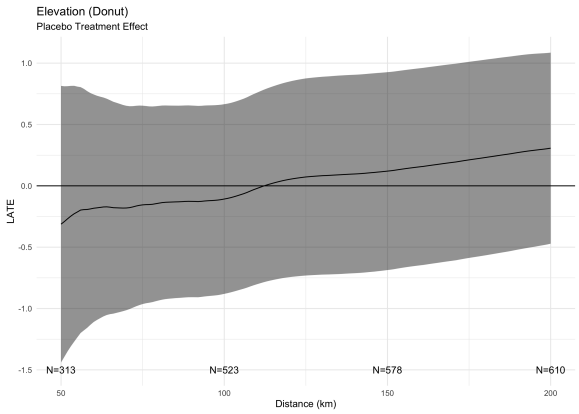
weight at the boundary between emergency zones: $X_i = x_0$. The weight declines symmetrically as the score of district i is farther away from the boundary. I compute robust standard errors, clustered at the province level because treatment to emergency zones was assigned on this administrative level.

Identification assumptions The geographic fuzzy regression discontinuity approach used in this paper requires several identification assumptions to be valid. While it is not necessary that the emergency zones were randomly assigned, it is crucial that all covariates vary smoothly at the boundary to ensure *continuity of potential outcomes* at all points of the boundary (Skovron and Titiunik, 2015; Calonico et al., 2015; De la Cuesta and Imai, 2016; Keele et al., 2017). Put differently, I assume that the average potential development rate under treatment (control) for a unit located near a point of an emergency zone border is very similar to the average development rate under treatment (control) that would be observed exactly at this boundary point, regardless of the direction in which we approach the boundary.

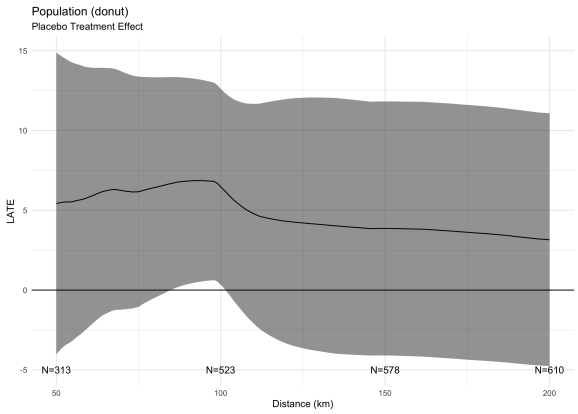
This identification assumption assures that districts located just outside early emergency zones are appropriate counterfactuals for districts located just inside an early emergency zone. Differences in means across pre-treatment covariates between treatment and control areas do not necessarily constitute a violation of the continuity assumption (cf. De la Cuesta and Imai, 2016). Instead, to assess the plausibility of the continuity I estimate "placebo" treatment effects on pre-treatment covariates. I employ the same estimation as for the main analysis (replacing Y_i with each covariate) (see Figure 10). There is no evidence of a treatment effect for an extensive set of covariates except state personnel and land reform. Balance is therefore similar to what one would expect if the treatment had been randomly assigned and I condition on unbalanced covariates (see De la Cuesta and Imai, 2016; Keele and Titiunik, 2015), invoking *conditional ignorability*.

I also assume *Compound Treatment Irrelevance* under which potential outcomes are only a function of the treatment of interest and not other possible treatments that change along the boundary (Keele and Titiunik, 2015). This assumption is similar to the exclusion restriction in IV design. We must assume that the boundary has an effect on the outcome but only through the treatment of interest (i.e. collective civilian victimisation) but does not affect the outcome directly. The emergency zone boundary under study overlaps with administrative boundaries, particularly departmental borders, at which certain factors relevant to the outcome might change in addition to the level of exposure to collective civilian victimisation. While it is impossible to prove this assumption, I provide several elements of evidence that trajectories in subnational development are not just a function of differences between departments.

(a)


Elevation (Donut)
Placebo Treatment Effect
LATE
1.0
0.5
0.0
-0.5
-1.0
-1.5
N=313
N=523
N=578
N=610
50
100
150
200
Distance (km)

(b)


Population (donut)
Placebo Treatment Effect
LATE
15
10
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0
-5
N=313
N=523
N=578
N=610
50
100
150
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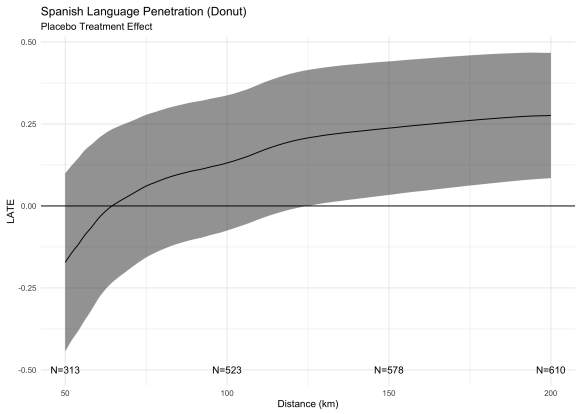
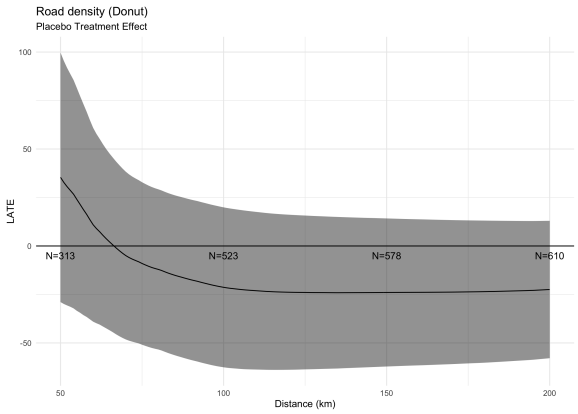
Distance (km)

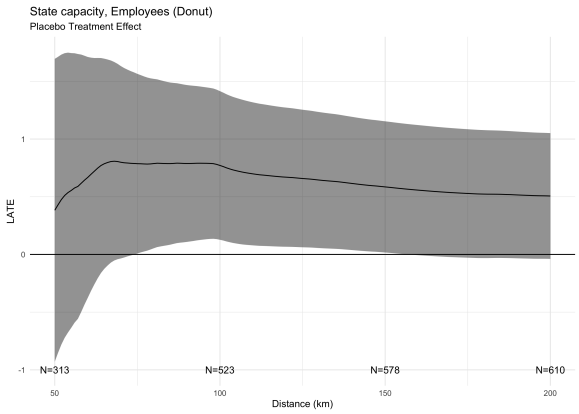
(c)


Spanish Language Penetration (Donut)
Placebo Treatment Effect
LATE
0.50
0.25
0.00
-0.25
-0.50
N=313
N=523
N=578
N=610
50
100
150
200
Distance (km)

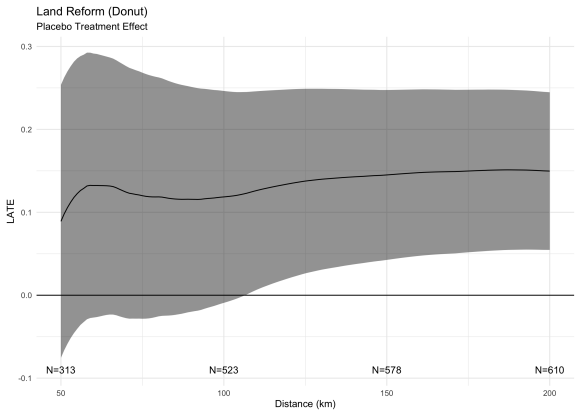
(d)

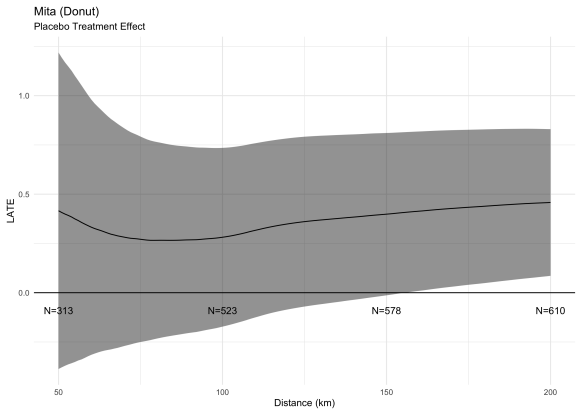

Road density (Donut)
Placebo Treatment Effect
LATE
100
50
0
-50
N=313
N=523
N=578
N=610
50
100
150
200
Distance (km)

(e)


State capacity, Employees (Donut)
Placebo Treatment Effect
LATE
1
0
-1
N=313
N=523
N=578
N=610
50
100
150
200
Distance (km)

(f)


Land Reform (Donut)
Placebo Treatment Effect
LATE
0.3
0.2
0.1
0.0
-0.1
N=313
N=523
N=578
N=610
50
100
150
200
Distance (km)


Mita (Donut)
Placebo Treatment Effect
LATE
1.0
0.5
0.0
N=313
N=523
N=578
N=610
50
100
150
200
Distance (km)

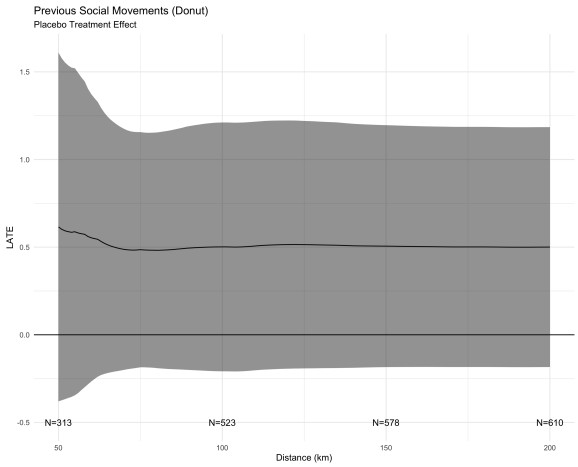
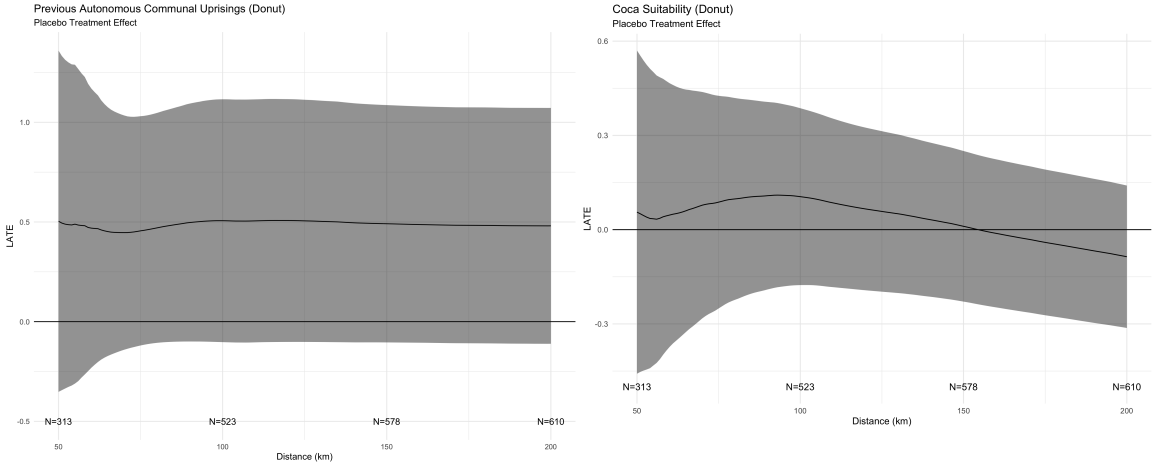

Previous Social Movements (Donut)
Placebo Treatment Effect
LATE
1.5
1.0
0.5
0.0
-0.5
N=313
N=523
N=578
N=610
50
100
150
200
Distance (km)

Figure 10: Placebo Treatment Effects of Covariates



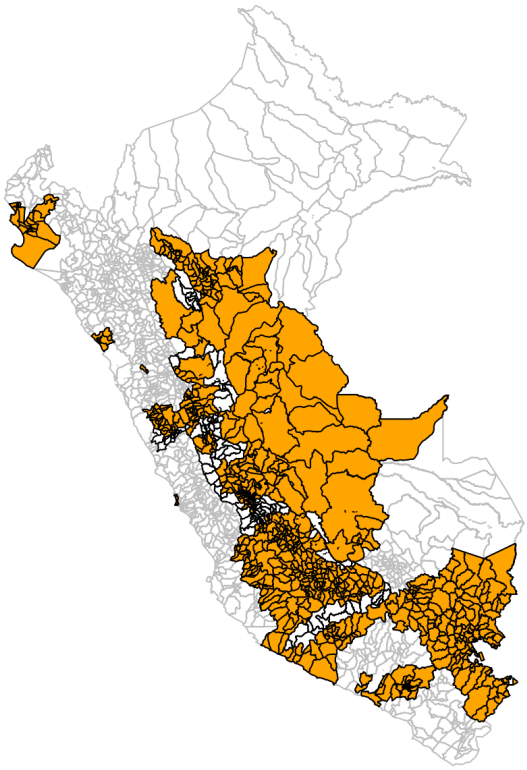
Foremost, Peru has been and continues to be a very centralised state. Although, there have been efforts of decentralisation in the early 2000s, Peruvian departments have little influence over national policy-making (particularly for years under observation). Peru has a highly centralized taxation and budgeting process, departments are merely administrative units to the central government and supervise the implementation of central government schemes(Monaldi, 2010). Particularly when it comes to schemes regulating public service provision, which could affect levels of socio-economic development post-conflict. For instance, under Fujimori (1990-2000) development funds were allocated to the most impoverished areas as a way to capture votes (Schady, 2000). Departmental governors had no sway over how many funds communities in departments would receive.

Further, Figure 10 shows that infrastructure, i.e. road density, which is a very important predictor of future development (e.g. Donaldson, 2018) does not jump at the discontinuity. Similarly, there is no jump for being inside a mita zone, which Dell (2010) finds to be an important factor in explaining long-term development in Peru. Three relevant variables where there is a jump are land reform, number of state personnel and Spanish language penetration. While, I acknowledge this possible additional treatments in the analysis, it is worthwhile to note that land reform and state personnel might cancel each other out. Albertus et al. (2020) show that land reform led to lower levels of human capital development. In contrast, it is conceivable that the number of state personnel could have increased local capacity to see higher growth rates in socio-economic development.

Another plausible threat to inference is *sorting around the boundary* into treatment or control. What sorting behavior is possible and relevant? Districts themselves were not necessarily able to influence where emergency zones were declared – specifically in the early stages of conflict – for instance by fending off insurgents. The government itself only had very incomplete

information about insurgent presence and consequently particularly initial emergency zones do not map precisely onto insurgent presence (see also Schubiger, 2021). Further, as mentioned previously, Peru was and continues to be a very centralised state. In the early 1980s regional or local governments had little if any policy influence – even less in the context of military operations (see also Arce, 2014) [55]

Figure 11: Donut RDD – Included Observations



Yet, post-treatment sorting could potentially influence outcomes. I consider (temporary) displacement after the declaration of early emergency zones a very important sorting mechanism affecting outcomes. Accounts of conflict dynamics and community behavior suggest that this was very likely (Fumerton, 2002). Within this identification strategy, it implies that civilians who would have been exposed to a high probability of collective victimisation end up with a low probability of being collectively targeted, creating a discontinuous jump in the conditional expectation function of the potential outcomes at the boundary (see continuity assumption). To tackle this issue, my main specification relies on a so-called Donut RDD and does not use observations within 15km of the emergency zone boundary. Districts depicted in orange are included in the analysis while districts in white are excluded (see Figure 11). Removing districts within 15km of the border is a rather conservative approach as this is a reasonable distance

[55] Additionally, even if pre-sorting existed amongst provinces, they would have needed to be be able to predict with extremely high precision where emergency zones would be declared for this factor to matter (Eggers et al., 2015; De la Cuesta and Imai, 2016).

to flee on foot without having to completely abandon land, which is an important factor in explaining why many targeted communities did not flee; they did not want to loose their land and livelihood (Fumerton, 2002). I am also not dropping too many observations. In Appendix C3 I also show results including observations directly at the cutoff.

Further, several other assumptions need to hold for the validity of this identification strategy. I verify a *strong first-stage relationship*: a discontinuity exists in the relationship between civilian victimisation and the emergency zone boundary. Additionally, I assume *monotonicity* and rule out local defiers. This implies that no district ends up being selectively targeted as a result of being in an early emergency zone assignment, while it would have been collectively targeted had it been put in an emergency zone later on.

4.6 Data

Emergency Zones A district's exposure to high levels of non-selective targeting is determined by district's geographic location inside an emergency zone declared up until July of 1985 (treatment, in red) or in an emergency zone declared in following years (control, in orange) (see Figure 10). I rely on cross referencing various qualitative accounts, which indicate when and where the Peruvian government declared states of emergency during the armed conflict (Desco, 1989; McClintock, 1984, Amnesty International, 1985; Palmer, 1986; Strong, 1992; CVR 2001). For the analysis I also compute the distance of a district's centroid to the nearest geographic boundary between emergency zones.

Civilian Victimisation Districts within early emergency zones experienced a much higher probability of being subject to collective civilian targeting, yet not all districts were subject to collective targeting. Similarly,some districts outside early emergency zones experienced collective targeting. To capture which districts in fact experienced collective civilian victimisation, i.e. the compliance rate, I draw on data collected by Peru's Truth and Reconciliation Commission (Comision de la Verdad y Reconciliacion - CVR). The CVR collected evidence and testimonies on killings and human rights abuses during the conflict. The CVR cross-checked information and created the most comprehensive databases on political violence during the Peruvian armed conflict. Data includes information on the location, victim(s) and perpetrator(s). This data has been used extensively by other researchers to study the civil conflict in Peru and is widely recognised as a credible source (e.g., De la Calle, 2017; Albertus, 2020; Schubiger, 2021). Nonetheless, the data as such is incomplete as not all violence perpetrated was reported as up until this day survivors of human rights are coming forward. To address this concern and approximate the extent of violence others scholars have applied different methods to estimate intensity of vio-

lence.[56] This requires however the imposition of additional assumptions about the way through which violence developed to capture violence correctly.

To avoid introducing more bias, I rely on the raw data and carefully compute a dummy variable based on intensity, i.e. number of victims in an event, following other work on this subject (cf. Fjelde and Hultman, 2014; Steele, 2017). A dummy variable is less informative but more reliable and indicates whether a district ever experienced collective victimisation as I expect the experience of one event of collective targeting to be enough to trigger some sort of collective mobilisation to prevent future attacks. I consider all violent events targeting civilians, including both lethal (killings and assassination) and non-lethal violence (such as sexual violence, torture or forced disappearances) as both are theoretically relevant. I first code events of collective civilian victimisation based on whether the number of victims targeted in a given district-year is above the 75^{th} percentile, which is more than 6 victims. [57] Figure 12 depicts the geographical distribution of civilian victimisation, classified into selective and collective victimisation. Districts in early emergency zones saw 70% of all collective victimisation. [58]

Rate of Socio-Economic Development My main dependent variable is the rate of socio-economic development. To measure development, I rely on census data collected by the National Institute for Statistics (INEI). I look at the rate of change to account for the fact that across time, development at least to a certain extent is almost inevitable, regardless of policies enacted or other factors that might explain levels of development. [59] According to my argument, differences in exposure to different types of violence can explain the rate at which (marginalised) areas develop. Due to data restrictions, the main analysis draws on literacy data from the 1972 census (data is taken from Albertus, 2020). I compute the rate of development contrasting literacy rates in 1972 to 2007 as follows:

$$\textbf{\textit{Literacy Rate}} = \frac{Literacy_{2007} - Literacy_{1972}}{Literacy_{1972}} 60$$

Ideally I would use the 1981 census as the baseline for which I have data on several other variables such as access to water or electrification rates to assess socio-economic development.

[56] For instance, Ball et al. (2003) used capture-recapture methods. But their approach has been recently criticized for overestimating the number of deaths while simultaneously underestimating violence perpetrated by the state and falsely attributing most deaths to Sendero Luminoso (see Rendon, 2019).

[57] Note that despite the very rich information about the victims contained in the CVR dataset, this variable remains a proxy for collective victimisation. It is not directly possible to ascertain if violence followed a very selective targeting strategy.

[58] Note also that 93% of all districts subject to any form of civilian victimisation are located within emergency zones. Further, districts in early emergency zones saw on average 32 civilian victims, districts in later emergency zones saw on average 8 civilian victims, while districts outside of any emergency zone saw on average 0.6 civilian victims.

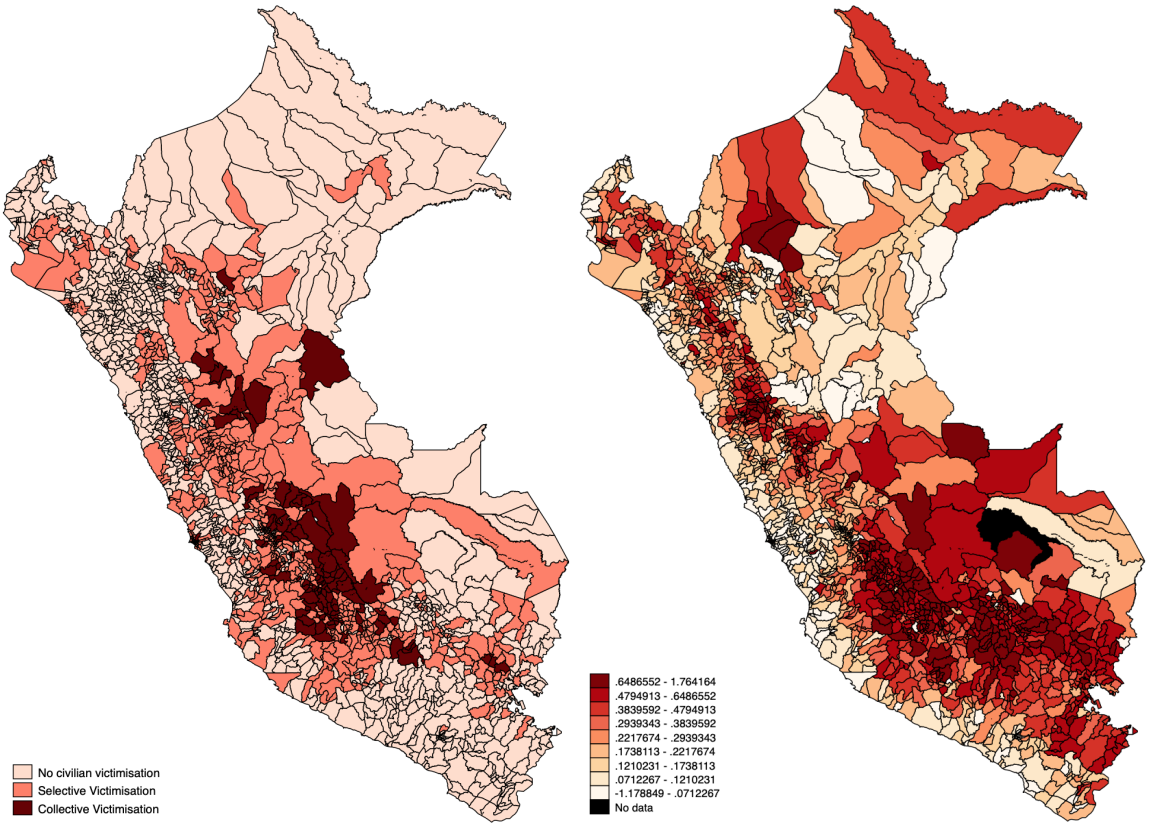
[59] Arguably a jump from 40% to 50% educational attainment is considerably a larger feat in terms of development, than a shift from 80% to 90%.

[60] In some instances the literacy rate in 1972 was 0. Because it is mathematically impossible to divide by 0 I divide it by 0.00000000001 instead of 0, since these are conceptually the same in this context

Figure 12: Civilian Victimisation and Rate of Socio-Economic Development

(a) Civilian Victimisation

(b) Growth in the Literacy Rate



However, too many theoretically and empirically important observations are dropped if using the 1981 census. During the digitization process data for three departments was destroyed: Apurimac, San Martin, and Loreto. In effect this leaves not too few observations 'close' to the boundary as Apurimac and San Martin are crucial within the regression discontinuity design. Several districts in these departments were subject to the initial emergency zone and affected by collective victimisation. To address concerns of the robustness of results, I draw on the 1981 census data for which I have data to assess socio-economic development measured as education levels and living standards (access to water, dirt floor etc.) (see Appendix C2).

Notwithstanding, literacy rates although imperfectly correlated with overall socio-economic development do predict whether the state provides public services in that area. Historically speaking, increasing literacy rates have been indicative of the presence of state-provided schooling (Darden and Grzymala-Busse, 2006; Wimmer, 2016). Additionally, literacy is key for state-society relations as it is crucial for citizens to navigate and access state services, e.g. registering for benefits (Zhang and Lee, 2020). Thus it is conceivable that more literate areas will also be more capable to demand other public infrastructure and interact with the state bureaucracy (e.g., get a license to trade agricultural product).

Covariates I also collect data on pre-treatment covariates to account for the possibility that differences in civilian victimisation and development rates could be reflecting variation in certain characteristics prior to armed conflict such as population density, elevation, state capacity measured as road density and number of state personnel, Spanish language penetration and exposure to relevant state policies such as mita (see Dell, 2010) and an extensive land reform in the 1970s, as well as data on previous collective action (i.e. previous social movements and autonomous communal uprisings). Data comes from Albertus (2020) and (Dell, 2010). While higher state capacity could potentially either facilitate better counterinsurgency and make it more discriminate, it could also increase development rates. Spanish language penetration could have perhaps facilitated communication with military forces to prevent collective targeting and could also impact access to state-provided services as most state officials do not speak indigenous languages such as Quechua (making it very difficult for those populations to voice their grievances). Historic extractive institutions such as the mita could make populations more vulnerable to being exposed to armed groups, while also reducing development (Dell, 2010). Interestingly, land reform seems to have improved counterinsurgency by raising support for the state but it appears to have negatively affected development (Albertus, 2020; Albertus et al., 2020). I also include an original measure of suitability of land to cultivate coca, which is highly correlated with wartime cultivation around the drug trade. Involvement in the wartime economy could affect treatment

of civilians (cf. Weinstein, 2006) but also affect post-conflict development.

4.7 Results

I begin my analysis with two simple graphs, depicting the relationship between civilian victimisation and post-conflict socio-economic development rates (i.e. how fast did a districts socio-economic development grow?). In Figure 13 we can see an upward trend in the socio-economic development rate for districts which experienced higher levels of civilian victimisation (selective and collective). The black line indicates the national average socio-economic development rate (1972-2007).

Figure 13: Civilian Victimisation and Post-Conflict Development

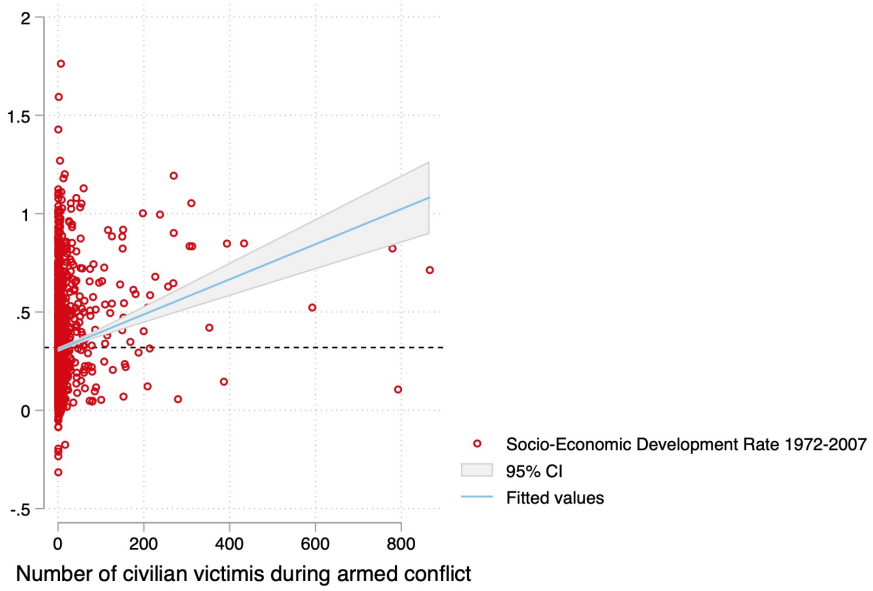


Figure 14 could suggest that this effect is driven by districts in which civilians were collectively targeted. In fact, most of the districts, which experienced extreme levels of civilian victimisation (e.g., more than 200 civilian victims) are located in the department of Ayacucho, where Sendero began its insurgency campaign – but only within provinces that were declared an emergency zone at the onset of conflict. Figures 15 and 16 show the relationship between collective victimisation and socio-economic development rates, measures using only data on literacy and data on a wider range of indicators of socio-economic development such as access to clean water or secondary education (see Appendix C1 for a description of the data). Both figures indicate that there might be relationship between collective victimisation and subsequent socio-economic development rates.

To test this effect more systematically I use a linear model estimated using ordinary least squares (using data on all districts in Peru). The outcome variable is the socio-economic devel-

Figure 14: Collective Civilian Victimisation and Post-Conflict Development

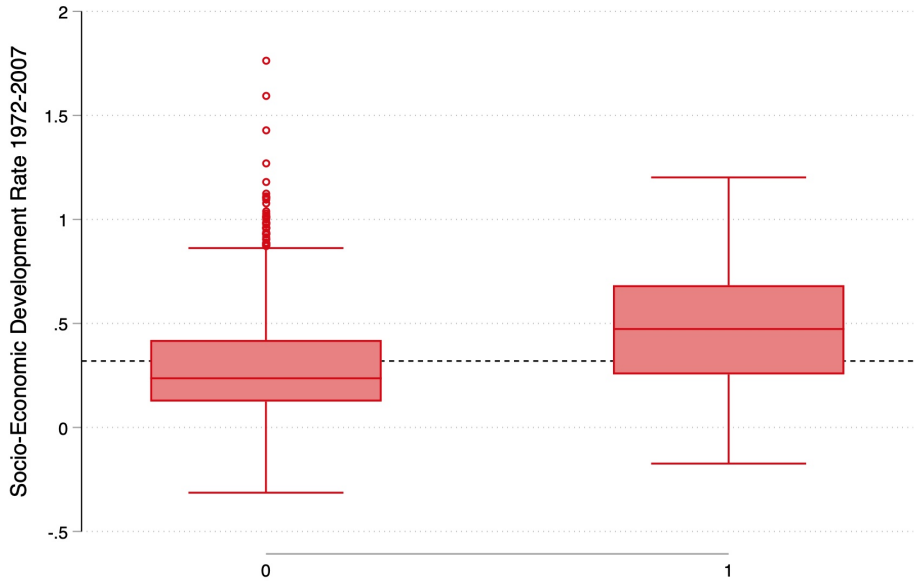


Figure 15: Collective Victimisation and Socio-Economic Development in Ayacucho

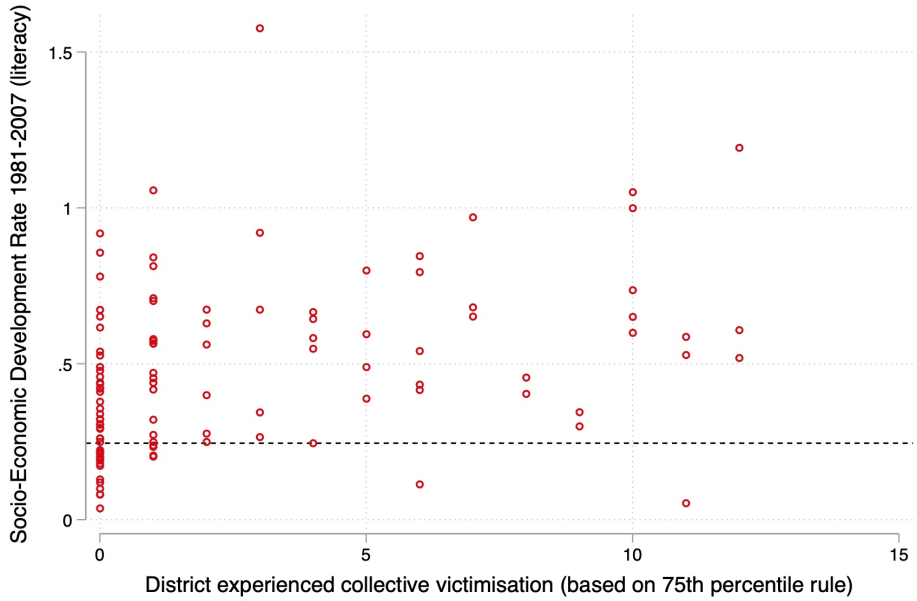
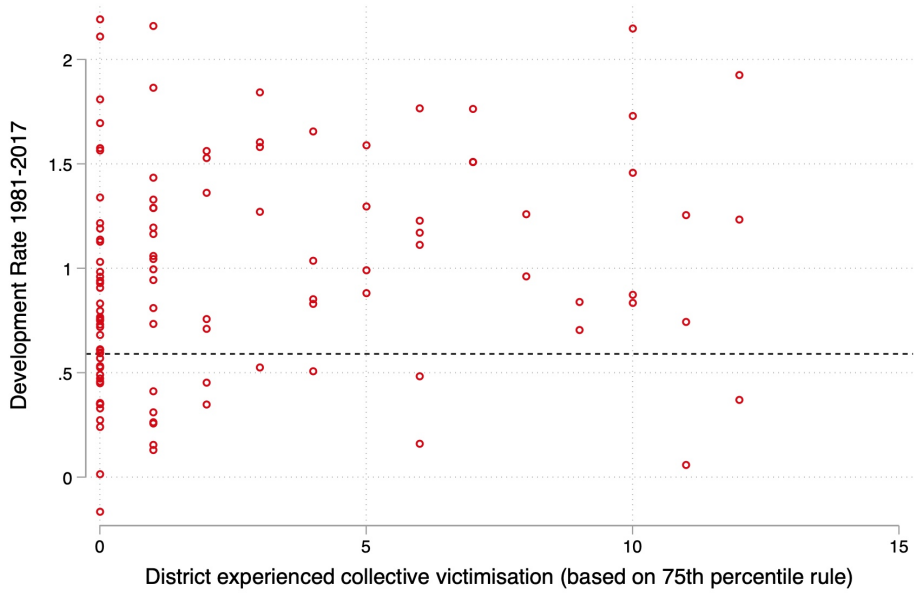


Figure 16: Collective Victimisation and Socio-Economic Development in Ayacucho



opment rate (measured using literacy data). The results are reported in Table 3 and suggest that districts which experienced collective civilian victimisation saw on average a close to 11 percent higher socio-economic development rate, controlling for an extensive set of covariates. The results are robust to measuring socio-economic development in a more comprehensive manner (e.g. including also access to water and completion of secondary education) and are reported in the appendix C2, alongside a more detailed description of the alternative data (see Appendix C1). They are also robust to only including districts which were ever affected by armed conflict (i.e. excluding districts that were never within an emergency zone). This would suggest that collectively targeted districts have been better at recovering from armed conflict than other conflict-affected districts. While, conflict-affected areas remain widely marginalised, it is puzzling that some districts have been experiencing far larger strides towards development than others. My theoretical argument suggests that these effects might be driven by communal capacity to demand public services from the state, such as access to water, education facilities or health posts and also communities' ability to hold politicians accountable that misuse funds allocated for development. I argue that collectively targeted districts are more likely to reinforce social bonds and therefore see higher rates of development than other conflict-affected districts. While the linear model lends some support to this claim the results are only suggestive.

The main concern regarding these results is that exposure to violence or collective victimisation is not exogenous to socio-economic development. Historically excluded areas were more likely to be targeted during the armed conflict (CVR, 2003). Similarly, collective victimisation is often argued to be a function of lack of intelligence, which makes it difficult to target defiers

Table 3: OLS Regression

	Dependent variable:	
	Socio-Economic Development Rate	
	(a)	(b)
Collective Victimisation	0.189***	0.108***
	(0.017)	(0.016)
Elevation		0.049***
		(0.004)
Population Density (1972)		0.0001
		(0.0002)
Shate of Land subject to Land Reform		0.199***
		(0.021)
Inside Mita Catchment Area		0.085***
		(0.013)
State Employees (1961)		−0.022***
		(0.004)
Road Density (1973)		−0.001***
		(0.0001)
Previous Social Movements		0.0002
		(0.006)
Previous Communal Uprisings		0.046***
		(0.011)
Coca Suitability Index		0.052***
		(0.015)
Constant	0.296***	0.188***
	(0.006)	(0.016)
Observations	1,791	1,791
R^2	0.062	0.317
Adjusted R^2	0.061	0.313
Residual Std. Error	0.238 (df = 1789)	0.204 (df = 1780)
F Statistic	117.618*** (df = 1; 1789)	82.534*** (df = 10; 1780)

*p<0.1; **p<0.05; ***p<0.01

of insurgent rule or supporters of insurgents (depending who is the perpetrator). For instance, the state would have had little capacity to gather local intelligence in such areas, e.g., they do not have an established relationship between state officials and locals . Similarly, Sendero Luminoso started its insurgency in the most excluded areas of the country (i.e. Ayacucho) and used historic exclusion to mobilise against the state, possibly making these areas more vulnerable to targeting by the state, which eventually led to a spiral of violence against civilians as Sendero tried to hold on to territory (McClintock, 1984; De la Calle, 2017).

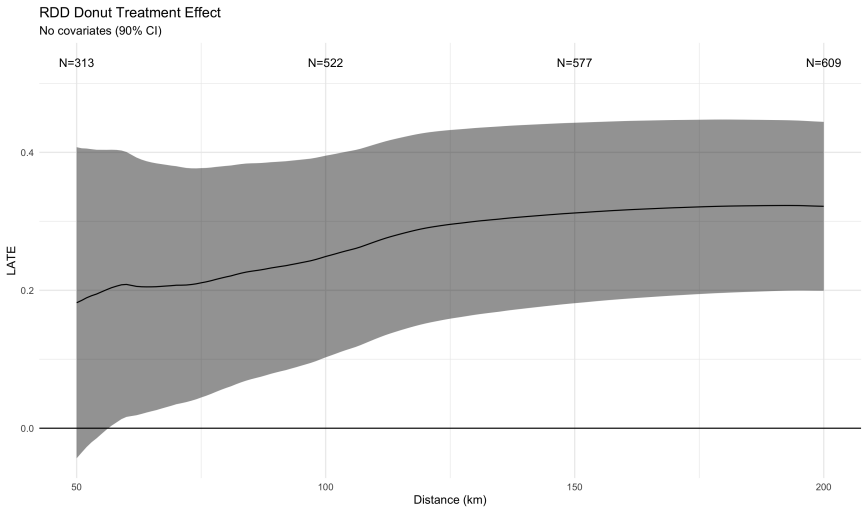
I thus take into account that exposure to targeting is non-random by applying a geographic regression discontinuity design, effectively comparing districts with similar potential outcomes (socio-economic development rates) but which differed in their probability of experiencing collective victimisation. Figure 17 and 18 show estimates across different bandwidths. The bandwidth determines which observations are used. Smaller bandwidths significantly limit the number of observations, which reduces power and explains small fluctuation in the point estimates at smaller bandwidths. Nonetheless, point estimates remain fairly consistent between 0.1 and 0.2 through all model specifications, similar to the results in Table 3. This effect can also be understood as the weighted treatment effect for compliers at the border, i.e. districts within initial emergency zones that were exposed to collective civilian victimisation and are located within the employed bandwidth. The weights reflect the ex ante likelihood that the district is near the emergency zone border.

In Figure 17a I do not include any covariates or border fixed effects. The results suggest a significant and positive effect of collective civilian victimisation. As we move further from the border, the point estimate increases from around 0.2 to 0.3, suggesting that districts which experienced collective victimisation saw between 20 to 30 percent higher socio-economic development rate. However, districts far away from each other are not necessarily good counterfactuals for each other. Ideally we would compare districts that are located very close to the emergency zone border because here assignment can be considered "as-if-random". In other words, districts very close to the emergency zone border are more likely to have had similar odds of being declared an emergency zone early on in the conflict or later. This makes a better comparison as potential outcomes (i.e. the socio-economic development rate) would have changed continuously at this border if it had not been for the declaration of emergency zones. To make sure these results are robust, I progressively extend the model in subsequent estimations. Note that all figures show effect estimates within a 90% confidence interval.

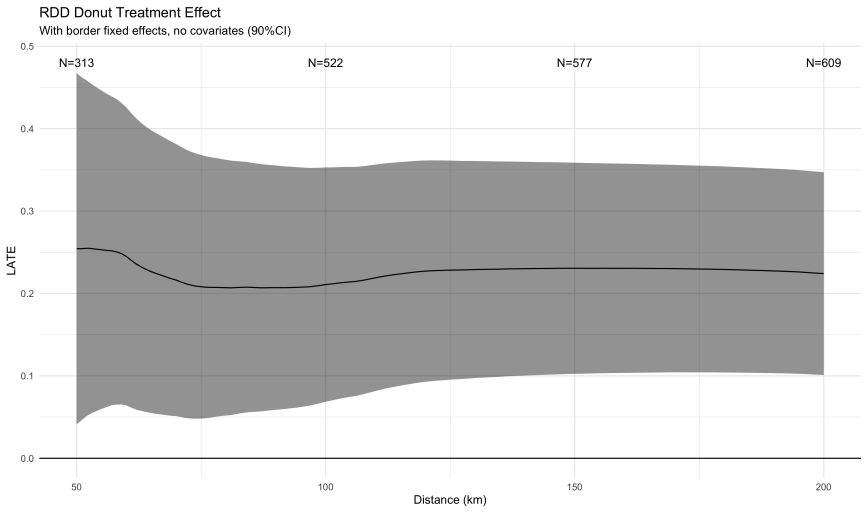
In Figure 17b I include border fixed effects, which assures I am comparing districts geographically close to each other. This should to a certain extent account for other unobservable characteristics that might vary with geography. Districts close to each other are more likely

Figure 17: Donut RDD Effect of Collective Civilian Victimisation on Development

(a)



(b)



to share similar history of collective action, development, state involvement, or even cultural aspects such as language or religion, which all may come to affect the relationship between civilian victimisation and socio-economic development. The point estimates remain fairly stable slightly above 0.2, suggesting that collectively targeted communities see around a 20 percent higher socio-economic development rate.

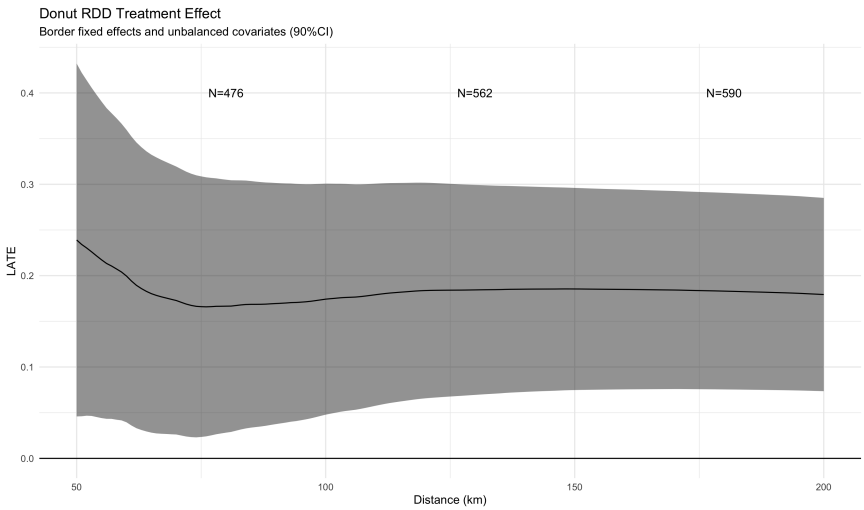
In Figure 18a I include the following covariates alongside the border fixed effects: Share of land subject to land reform, Spanish language penetration and number of state personnel. The placebo treatment effect test (see Figure 10) had indicated that there might be a discontinuous change in these covariates at the emergency zone border. By including them, I account for a possible violation of the continuity assumption required for identification. We can see that the point estimate remains fairly similar to previous model specifications and gives support to the hypothesis: communities exposed to collective civilian victimisation see around 15 to 20 percent higher socio-economic development rate.

Next, Figure 18b shows results of a model specification which drops the border fixed effects and instead includes an extensive set of covariates (as described in the data section). Inclusion of an extensive set of covariates is not necessary for identification but should help to control for any residual imbalance attributed to differences between districts within the early emergency zone and those assigned to an emergency zone later in the conflict. Across different bandwidths, point estimates are significant and similar in size compared to other model specifications. Notwithstanding, the results could be driven by differences between treatment and control groups in unobservable characteristics. There might be significant differences in unobserved characteristics that can account for why the initial stage of conflict took place in some areas and not others. Consequently, being declared an emergency zone early on may have been the result of these imbalances. While it impossible to know whether this is true, the covariates account for obvious differences that have been shown by other researchers to be relevant, e.g., land reform (Albertus, 2020) or levels of social cohesion.

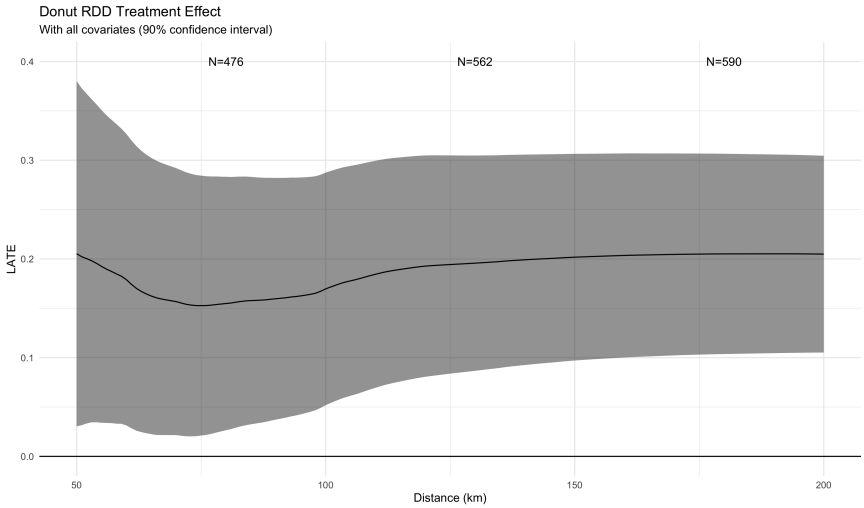
These are specifically relevant within the context of this paper because it would be plausible that communities with high levels of social cohesion will be less likely to be targeted at all. Krause (2018) documents this for communities in Nigeria exposed to communal conflict and argues that leadership, social control over internal youth, and refusal to collaborate with external armed groups prevented civilian victimisation. Similarly, however, communities with strong social cohesion might in fact be more likely to be collectively targeted because community members are less inclined to share intelligence with violent actors (La Serna, 2012). While some of the covariates, such as previous social movements and previous communal uprisings, are able to account for collective action capacity, which would indicate social cohesion, these might not

Figure 18: Donut RDD Effect of Collective Civilian Victimisation on Development (including covariates)

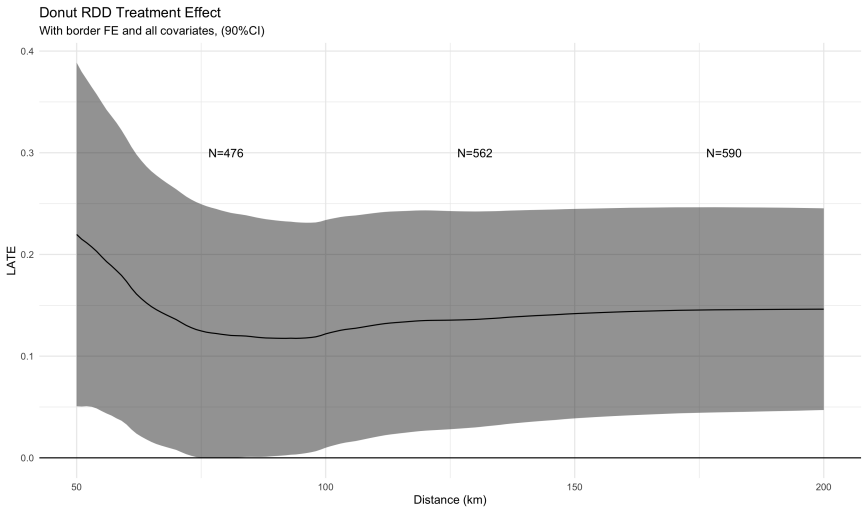
(a)



(b)



(c)



be sufficient. As I mentioned previously, including border fixed effects can somewhat address a possible imbalance across unobservable characteristics – although even communities close to each other may still have very different levels of social cohesion or other characteristics which may confound the findings.

Finally, Figure 18c includes all covariates and border fixed effects. Point estimates are consistent with previous model specifications at around 0.15, indicating that collectively targeted communities see a 15 percent higher socio-economic development rate. Nevertheless, the effect is only significant at the 90% confidence level across certain bandwidths. In the following I give a case example to demonstrate the proposed mechanisms linking collective victimisation to post-conflict socio-economic development in a collectively targeted district.

4.8 Mechanisms

The results from the OLS specification and the geographic regression discontinuity design (GRD) indicate a positive effect of collective victimisation on subsequent development patters. In the theory section I have argued that the collective threat experienced by community members reinforces social bonds as members are more likely to perceive that survival hinges upon collectively acting against the threat. During the conflict reinforced social bonds can facilitate peaceful interaction with violent non-state actors or if that is not possible, violent resistance against them (Kaplan, 2017; Schubiger, 2021).

Post-conflict communities with stronger social cohesion are better equipped at recovering from the armed conflict. For instance, it could even facilitate psychological recovery by collectively finding meaning in what has happened. Socio-economic recovery, however, requires accessing public services or autonomously providing governance. Some districts in Peru appear to have recovered remarkably well. Apart from the analysis provided above, anecdotal evidence suggests that collective victimisation reinforced social bonds and accumulated in many cases in violent resistance against insurgents, which facilitated community organisation structures that helped communities recover from armed conflict better than others. In the following I discuss the case of the district Tambo in the province of La Mar, Ayacucho.

In the district of Tambo 173 civilians became victim to state or insurgent violence during the conflict. Throughout all years of conflict, civilians were subject to a high rate of victimisation and specifically collective targeting. Despite the unfavorable conditions of armed conflict the district has seen an incredible recovery compared to other districts that were as impoverished at the onset of conflict. In 1972 Tambo's literacy rate was at 36%, while the national average was at 64%. However, today it stands at 72%, quite close to the national average of 83%. The same holds true for other indicators of development. Electrification rates improved from only

6% in 1981 to 66% in 2017. Access to sanitation rose from 2% to 45%. Secondary education only improved from 22 to 29%. Thus, while these numbers show that Tambo still has room for improvement in terms of development and also has not improved along all dimensions, they demonstrate a significant improvement in development [61] compared to other conflict-affected areas.

One explanation, is the district's social cohesion and strong local leadership that was reinforced due to the constant collectively shared threat to survival. During armed conflict Tambo experienced collective victimisation from state forces and Sendero Luminoso. These are crucial in understanding why existing community organization came to be replaced with self-defense forces called comite de autodefensa (CAD) (García-Godos, 2006, 125). The CADs were essential in giving security to community members across settlements. The first settlement within the district to organise a community defense force was Ccarhuapampa, a settlement created by displaced rural communities from the district, which had been targeted by the state at the beginning of the military's counterinsurgency campaign in February of 1983 (Fumerton, 2002). The military had set fire to homes across several villages and was collectively executing fleeing peasants.

While other communities within the district followed in forming defense forces, Ccarhuapampa remained a stronghold of violent resistance against Sendero Lumimoso throughout the conflict. But therefore was also continously attacked – often experiencing collective forms of targeting. Fumerton (2002) gives a recount by a community member of the dynamics during the conflict in his work on peasant counter-rebellion in Ayacucho:

"Ccarhuapampa has been despised by the Senderos because it was the first to rebel against them. For this reason the terrorists always came. [...] When they gained entrance into the community, the Senderos butchered with axe, with knife. There is one woman, she's still alive, whose breast they even cut off. In Ccarhuapampa when the Senderos attacked, they burnt the houses. Murdered fathers, mothers, children. They always left people dead, widowed mothers, orphans [...] In spite of such adversities, however, it seems that the effect has been to draw the inhabitants of Ccarhuapampa closer together in spirit. Their social and economic hardship, for which they largely blamed Shining Path as the primary underlying cause, became a bonding experience that merely strengthened their determination to jealously guard their scarce resources against any attempts by the guerrillas to take or to steal them. They took pride in pointing out to me that they have consistently resisted [the] Shining Path [...]" (Fumerton, 2002, p. 161).

[61] from 16.5 to 48 %, measured using the socio-economic development index as described in Appendix C2. The national average today is 51%.

But also beyond Ccarhuapampa, communities in the district organised together across various defense groups to stay safe. In 1993 the groups were officially recognised as the district's *Comite Central de Autodefensa y Desarrollo "San Juan Bautista"* and consisted of twenty-six bases (Fumerton, 2002). Alongside the retreat of Sendero Luminoso, a new era of reconstruction began. But the national economic crisis had not been lost on Tambo and surrounding areas. People were faced with widespread famine. However, by the mid-90s the president Fujimori had started to implement social expenditure programs, such as FONCODES, that were aimed at benefiting poor areas.

From the data it appears that Tambo recovered from the political violence and socio-economic marginalisation better than other districts. This might be beacuse of the communities social cohesion and local leadership. Particularly also the CADs came to play a vital role in post-conflict reconstruction. For instance, CADs assisted in lending security to internally displaced communities within the district to relocate back to their home villages. This also facilitated access to development workers and NGOs, who were providing humanitarian assistance to repopulated areas Fumerton (cf. 2002, 258). In general their presence provided security for reconstruction to begin but also many communities that were key in organising resistance against Sendero still rally around the collective memory of having defeated Sendero. For communities such as Tambo the CADs and organisation against insurgent violence remained a focal point of community relations in the post-conflict era. For instance, the founding of the CADs is celebrated annually on the 24th of May.

Additionally, Tambo's mayor was crucial for securing socio-economic development and facilitating the reconstruction of the communities within the district. He applied for and managed financial assistance from government agencies and international donors to bring electricity to rural areas, build roads and water reservoirs. While Tambo was not the only district to benefit from development programs, it is a prime example of how social cohesion enabled community members to collectively elect politicians who will ensure funds towards reconstruction are in fact allocated towards the community. The quantitative analysis suggested that Tambo might not be the exception. Yet, social cohesion alone may not always be sufficient to secure socio-economic development – even if communties manage to hold local politicians accountable. I thus discuss limitations to these findings and highlight possible conditional factors.

4.9 Robustness and Limitations

Overall the results have supported the main hypothesis: collectively targeted districts see a higher socio-economic development rate. Across all model specifications, the point estimates have remained consistent and significant. Nevertheless, there are concerns about whether these

results might be driven by having dropped observations close to the border. I argued that historic accounts of the conflict dynamics document active sorting after the declaration of the emergency zone, i.e. communities or community members temporarily migrated to areas they knew to not be under the state of emergency. This justified relying on a Donut RDD as my main specification and dropping observations 15 km within the border.

This was to ensure that there would be continuity of potential outcomes right at the boundary. In other words, for communities in districts very close to the cutoff it was much easier to migrate to areas close by to avoid targeting but without actually experiencing displacement, as they would go back to farm their land. Consequently, this violated the SUTVA and also made observations right at the cut-off were not ideal counterfactuals for each other. Nonetheless, I also conduct the same set of model specifications as described above but including observations right at the border. Results can be found in Appendix C3.

While the point estimate is consistent at around 0.1, it is smaller and more importantly the effect is no longer significant. I can thus not distinguish whether the true effect might be 0. This could be reflective of several issues. First, the most obvious: there is sorting and this makes it difficult to consistently detect an effect. Second, the data should ideally capture development in conceptually more rich manner. While I test robustness of the OLS specification using a richer dataset on other factors that indicate levels of socio-economic development and find that results hold, this is not possible within the geographic regression discontinuity design as too many treated observations are dropped. Third, the effect of collective victimisation on development rates might be conditional on other factors. Particularly anecdotal evidence suggests that while collective targeting might have reinforced social bonds, it is important to consider which response mechanisms communities chose.

Specifically, there might be differences between communities that ended up siding with insurgents, those that mobilised against insurgents or those that were displaced – regardless of the fact that overall social cohesion might have increased because of the collective threat they faced. For all three responses, social cohesion can play a key aspect. For instance, Kaplan (2017) shows how communities protect themselves by negotiating with armed actors – this requires social cohesion and strong leadership (see also Krause, 2018). Similarly, violent resistance requires collective action (Fumerton, 2002; Schubiger, 2021). However, also displacement is often only a choice available to those that have the resources to do so and communities often flee together if they can because this increases chances of survival (Steele, 2017).

For within Ayacucho Fumerton (2002) argues that the reason civilians were more likely to mobilise and stay close to their homes rather than flee far away was because they were protective of the land many of them had just gained through the land reform in the 1970s (see

also Albertus, 2020). Additionally migration to other parts of the country appeared too costly or out of reach as many were illiterate and did not speak Spanish. [62] Thus even if different pathways help in protecting community members, whether communities stay or flee is likely to matter for post-conflict development. Mainly, historical account on the armed conflict highlight that communities which were collectively targeted chose different pathways to be able to protect themselves.

The main protection mechanisms were: displacement, siding with insurgents, or violent mobilisation. Yet, these trajectories resulted in very different local security and economic conditions. Foremost, socioeconomic rehabilitation and exercise of democracy is only possible if there is a certain degree of security. Fumerton (2002) shows that the communal defense forces (CADs) played a crucial role in creating the conditions that allowed governance and reconstruction to take place after 1992. He also highlights differing dynamics between displaced populations – even within the same district – and those that were able to stay in their homes.

One prominent example is the community of Uchuraccay, which became very famous because villagers killed 8 journalists in the early 1980s thinking that they were Senderistas (members of the guerilla group Sendero Luminoso). But communal self defense spiralled into bloody attacks by Sendero, killing 130 out of 470 community members. All survivors fled. In the mid 1990s the government launched a re-population program and 70 families decided to go back. The state put a school, a small health post and gave them three computers (which is ironic because they did not give them access to electricity). Since 1993 nothing has changed. 27 years later, almost all homes remain without access to running water. Anemia runs high and women die during childbirth due to lack of medical attention. Villagers would like the government to provide basic services but they say they have been forgotten. Despite strong social cohesion and community organisation within the village, e.g. the village meets weekly to discuss issues and organise its defense force, socio-economic development has been stagnant at best. Social cohesion, while useful, appears a necessary condition but not always sufficient when it comes to historically marginalised communities. 5 years ago the state created the district of Uchuraccay, due to its national fame the district carries the communities name but the district capital is the town of Huaynacancha, which is where the money for development goes.

Future research would benefit from more refined data on socio-economic development at the village level and additional microlevel data on local trajectories during armed conflict. These trajectories, however, are often quite complex. Some communities may initially side with in-

[62] Some civilians fled violence in the highlands but disproportionately migrated to nearby areas (i.e. in the same province or department) such as the jungle areas of the Valley of the Rivers Apurimac and Ene, cooperation tended to be high with many forming civilian defense forces (del Pino, 1996; Fumerton, 2002). Plus many of them already owned small landholdings in those areas, which facilitated their survial. Meanwhile, those that did not have land, often decided to return home, where they founded new civil defense forces nearer to their own agricultural fields (del Pino 1996)

surgents and defect later on. Others may flee preemptively, before they are even targeted. While the analysis has lend support to my hypothesis that collective victimisation increases socio-economic development rates, the mechanisms underlying this relationship are incredibly complex and require more profound qualitative data collection. Collective victimisation appears to be one surprising factors in contributing to reinforced social bonds. This makes communities more resilient as they cooperate with each other to deal with adverse conditions. For instance, even the villagers of Uchuraccay – after years of violence and marginalisation – remain hopeful that one day they too will be seen.

4.10 Conclusion

Armed conflict has profound effects on communities and their social organisation. This paper has demonstrated that how communities are targeted has long term effects on their local capacity to recover from armed conflict and can create differential trajectories in post-conflict socio-economic development. I find that communities which were collectively targeted see higher development rates. I attribute this to reinforced social cohesion and collective action capacity.

Given the importance both researchers and practitioners attribute to socioeconomic development for peace building as well as the vast resources dedicated to post-conflict reconstruction, the findings contribute to an initial understanding of the relationship between patterns of conflict and development in a more disaggregated manner. Yet, I caution that while collective victimisation may have generally reinforced social bonds and facilitated development, its impact on socio-economic development is likely shaped by other conditions which affected the political marginalisation of conflict-affected communities. Closer analysis of post-conflict development in collectively targeted communities suggests that social cohesion may at times be insufficient, for instance if communities were displaced during conflict this further marginalised them within the local political sphere. Thus despite displaying strong social cohesion, they are unable to access public services or funding.

Furthermore, poverty, inequality, or relative deprivation are one of the most common causes of armed conflict denoted by both policymakers and scholars and can explain where we witness the outbreak of conflict (e.g. Gurr, 1970; Stewart, 2016; Østby, 2008; Justino, 2009; Braithwaite et al., 2016; Tollefsen, 2017; Buhaug et al., 2011). I contribute to this literature by examining the channels through which collective victimisation enables a collective response and restrengthening of social bonds which then can help communities improve their livelihood post-conflict. However, this could potentially result in the manifestation of new inequalities. It is thus unclear whether differences in targeting reduce the risk of conflict recurrence or the permanence of other forms of violence after conflict termination, or in fact may aggravate local tensions that could result

in further violence. Moreover, it is important to caution against possible conclusions that the gap in development could close as a result of collective civilian victimisation. Conflict-affected areas lag behind substantively in their development when compared to those never affected by conflict.

The findings also inform our understanding of links between adverse conditions to survival and the perpetuation of exclusion. Future research could study whether these dynamics translate to other life-threatening situations, e.g, when communities face adverse environmental conditions as a result of climate change. For instance, Cassar et al. (2017) find that people affected by the 2004 Tsunami in Thailand are, more trusting and risk averse four and a half years after the event. Could this potentially have repercussions for development depending on whether the event is perceived as a collective threat?

There are several questions that still remain to be answered in order to understand how collective victimisation links to socio-economic development. While my empirical strategy aimed to address core threats to inference more fine grained data would help in more closely scrutinising the validity of the assumptions made. Generally, future research would benefit from tracing more closely scope conditions and gathering more refined data. Particularly qualitative data would be be useful to be able to evaluate causal mechanisms better and understand how to quantitatively operationalise complex concepts such as social cohesion, political accountability or development and refine quantitative tests of the existence of patterns across space.

5 Conclusion

This dissertation has set out to analyse the economics of armed violence and development in post-conflict societies. It provides new insight into how the socio-economic context shapes post-conflict stability and how patterns of violence against civilians affect local trajectories of socio-economic development. The findings of the first two papers put into perspective existing work on the relationship between inequality and political violence by putting the long-standing debate on grievances/inequality vs. feasibility/opportunity into the context of post-conflict societies (Gurr, 1970; Tilly, 1978; Collier and Hoeffler, 2004; Fearon and Laitin, 2003; Stewart, 2016). A question that arises when considering the scholarship on grievances would be: Is (economic) equality the answer when inequality is a cause of violence? Of course this remains a hypothetical question as perfect economic equality does not exist in reality – but it is an important thought experiment. The findings do not give a direct answer to this question but discern how the structure of inequality and economic marginalisation facilitate the conservation of the organisational structures that make armed conflict feasible. They consequently relate back to a crucial critique made against the grievances argument, namely grievances only matter if there is "opportunity for mobilisation", e.g. presence of lootable resources, external financing or weak state capacity (cf. Tilly, 1978). Yet, the second paper shows the limitations of this argument: even if grievances coincide with opportunity structures, this does not necessarily lead to the escalation of violence into armed conflict. Economic explanations of armed conflict need to be considered within a local context. The findings suggest that even when the opportunity structures of violence remain intact in post-conflict societies, the local human and social geography determines if escalation of armed violence is feasible. Civilians and their support matter. Understanding how they perceive inequality and the need to engage in armed violence, which would bring instability to their lives, is crucial if we want to understand continuation or escalation of post-conflict violence.

The third paper investigates a widely understudied relationship: how does political violence and specifically intrastate armed conflict shape inequality? The findings shed light on the mechanisms that affect local level trajectories of development in post-conflict societies. While others have proposed that armed conflict is destructive and can be a leveler of inequality by mere force of destruction of the capital of the most rich (cf. Scheidel, 2018), the paper takes a micro-level perspective to understand differences in the ability of communities to recover from armed conflict. It focuses on civilian behavior and emphasises the role of social cohesion. I find that areas which experienced collective civilian victimisation see higher rates of socio-economic development. The findings speak to a body of literature within Political Science that looks at how social organisation and trust between community members are linked to outcomes

such as political organisation (Putnam et al., 1994; Putnam, 2000). The theoretical argument contributes to a growing literature of the role of civilians in shaping their surroundings when faced with adverse conditions such as war. For instance, civilian attitudes can shape insurgent tactics and conflict dynamics (e.g. Arjona, 2016; Kaplan, 2017; Hirose et al., 2017; Schubiger, 2021). The findings also add to a relatively new body of literature that looks into the legacies of violence. Scholars show that the organisational capacity acquired due to exposure to organised violence can endure for centuries (cf. Daly, 2012; Osorio et al., 2021). Similarly structural violence can have long term psychological ramifications that can carry over generations and affect levels of trust and political attitudes and behavior (e.g. Nunn and Wantchekon, 2011; Lupu and Peisakhin, 2017).

The limitations of the findings are driven by lack of direct measurement of civilian preferences and behavior to trace causal mechanisms. This was not possible with available data but the respective analyses try to address this concern by incorporating illustrative case studies or provide interview data to give evidence of civilian perceptions. Future research would gain much from studying more closely attitudes and preferences of civilians, which also other studies suggest to be a crucial aspect in understanding violence (Linke et al., 2015; Rustad, 2016; Hillesund, 2015). Similarly, future investigations into the effects of armed conflict on development would gain much from measuring social cohesion and discerning other conditions that affect the organisation of communities, for instance through surveys or experiments. While I do provide case study evidence, it is difficult to know how far reaching the proposed mechanisms are, even across communities in Peru, let alone in other societies.

Despite several limitations, this dissertations advances many important questions and provide answers that give rise to other interesting research questions and avenues for future research. The results highlight the need for more microlevel data and research on attitudes and perceptions of civilians on violence and marginalisation in conflict-affected areas to trace causal mechanisms (cf. Rustad, 2016; Hillesund, 2015; Linke et al., 2015). They also call for more refined operationalisation of peace within the conflict literature. Simply assuming a dichotomy between armed conflict and peace, as is common practice in econometric studies, does not give justice to the diversity of post-conflict environments and limits our ability to truly discern what helps societies prevent future organised violence. For instance, Bara et al. (2021) make an interesting observation in a systematic analysis of research on post-conflict stability: various factors that are found to decrease the risk of conflict recurrence, increase the risk of other forms of post-conflict violence such as organised crime or violence against civilians, e.g. peacekeeping operations (see also Di Salvatore, 2019). While it is difficult to disentangle causes of conflict onset from those of recurrence or low-intensity continuation, the findings also show that we need

to consider more carefully the contextual factors in which political violence arises. Although post-conflict contexts are very different from each other along many dimensions they do often share similarities, which we need to acknowledge in order to understand political and economic dynamics in post-conflict societies. As already suggested by Daly (2012), conflict research needs a "a reorientation [...] back to the human and social geography that determines if rebellion is organizationally feasible". We can learn much by going back to fundamental questions posed by Political Scientists for decades in order to construct answers around the functioning and dynamics of post-conflict societies: 1) Why do some groups organise and others do not? 2) What are the origins of the monopoly over violence? (Olson, 1965, 1993; Weber, 1948; **?**). This opens up many other questions for future research such as: Why does armed violence escalate into recurrence in some cases but not in others? How do the organisational legacies of armed conflict contribute to the persistence of other forms of violence? How do they affect political organisation? Do different dimensions of inequality matter in explaining variation? For instance, post-conflict countries often see high levels of organised crime or intimate partner violence (cf. Deglow, 2016; Cheng, 2018; Østby et al., 2019). In the case of Peru, intimate partner violence is quite prevalent but communities deal with it in different ways across contexts, e.g. in areas where comites de autodefensa (CADs) are still present, women often know they can rely on the CADs to step in and resolve domestic disputes, while in areas where the state provides security, experiences of police misconduct and abuse lead many women to avoid reporting issues. Yet, areas where the CADs are still present today are predominantly areas that are involved in the cultivation of coca and the drug trade. Further, an interesting literature has developed around understanding how to create social cohesion in conflict affected societies. Future research should consider more carefully how armed conflict has affected social cohesion in order to understand other outcomes such as political competition or communal conflict (e.g., land disputes).

Additionally, the data collected here can be useful to further discern other factors such as insurgent tactics. For instance, how do insurgents target their propaganda? Why do they target civilians in some areas but not others? Also the coca suitability index is useful for studying links between the drug economy and political or criminal violence and local politics across Latin America, specifically: Colombia, Bolivia and Peru where most coca for drug production is cultivated. The data collected on socio-economic development can also be useful to study its relationship to other forms of violence but also political behavior: To which extent do legacies of armed conflict and levels of development come to shape political competitiveness?

Finally, I end this dissertation with a note on external validity. Particularly the second and third paper gain from analysing the case of Peru and investigating micro-dynamcis. Yet this comes at the cost of the following questions. How similar is Peru to other post-conflict countries?

How well do these mechanisms and findings translate to other contexts? In recent years, there has been a wave of research into the micro dynamics of armed violence. While these are necessary and crucial to get a better sense of detailed mechanisms, they have also created a call for taking these questions back to the macro level. But this requires better data. Precisely the reason why this dissertation relied extensively on the case of Peru is the exceptional availability of data on important variables this study was interested in, i.e. armed violence and socio-economic inequality. I can only speculate about the ability of these findings to explain dynamics in other contexts such as Liberia, Northern Ireland, Sierra Leone, Azerbaijan, the Philippines or Afghanistan. However, I do believe that many of these mechanisms travel well to other contexts. For instance, in the case of Afghanistan civilians lack alternative economic opportunities in areas in which opium is produced and controlled by the Taliban. This is likely to affect their ability to sustain control, even if the Taliban would be militarily defeated. The drug economy provides a vital lifeline for Afghans and as long as their government and the international community does not recognise the need to provide viable alternatives to secure the survival of local communities, they are unlikely to be successful in securing the monopoly over violence – regardless of how many millions are poured into training security forces and buying weapons. Take also as an example the case of Northern Ireland. It has been decades since conflict parties signed the Good Friday Agreement and yet paramilitaries and violent extremists remain an issue alongside social and economic divides between Catholics and Protestants. Particularly Brexit has raised the concerns of a possible escalation of violence. It demonstrates how important it is to tackle socio-economic development but also highlights that there appears to be an interesting variation across space in the permanence of the organisational legacies of armed conflict (cf. Deglow, 2016). Thus a final research agenda would be to not only test these arguments and mechanisms more carefully across other contexts but also on other levels of analysis: Why does low-intensity armed violence continue in some areas and not others? Why did armed conflict in some countries lead to more socio-economic equality than in others? How does spatial inequality within subnational areas affect the risk of conflict recurrence?

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A Appendix: Spatial Inequality and the Risk of Conflict Recurrence

Figure A1: Cox Proportional Hazards Model: Effect of Conflict Outcome on Conflict Recurrence

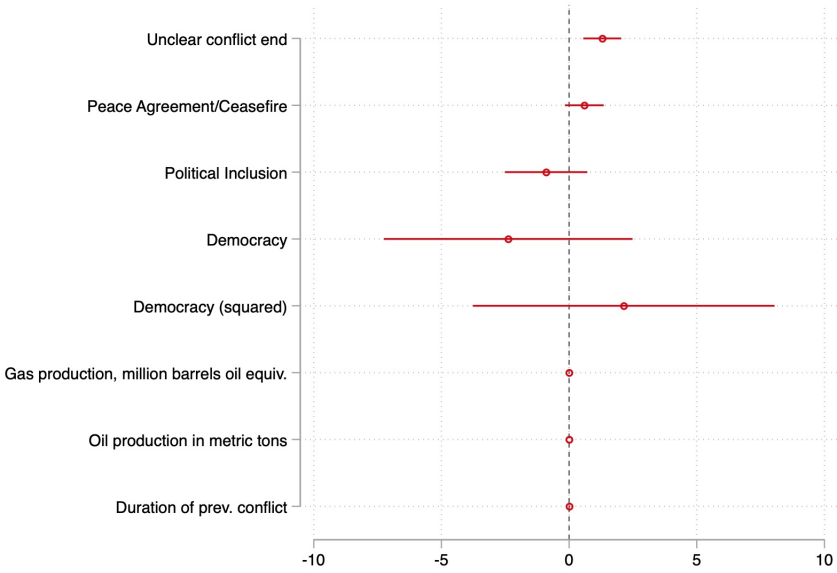


Figure A2: Cox Proportional Hazards Model: Effect of Inequality on Conflict Recurrence

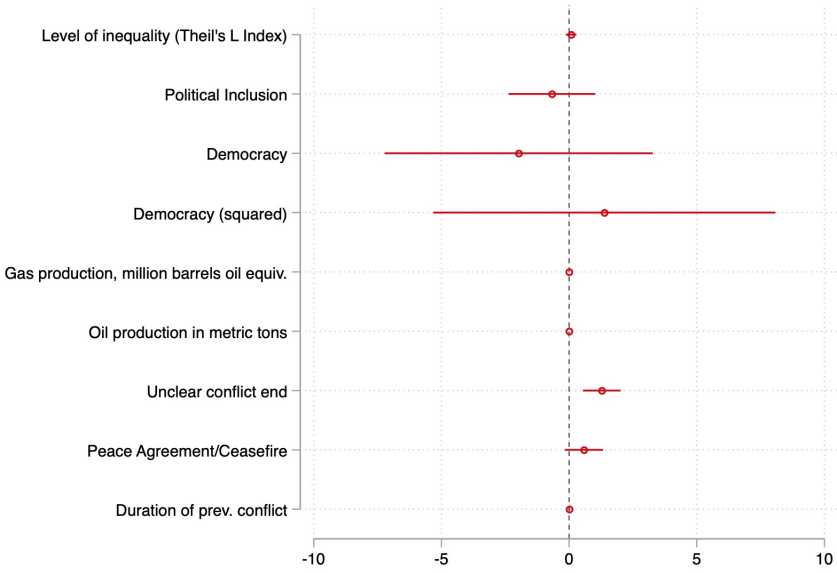
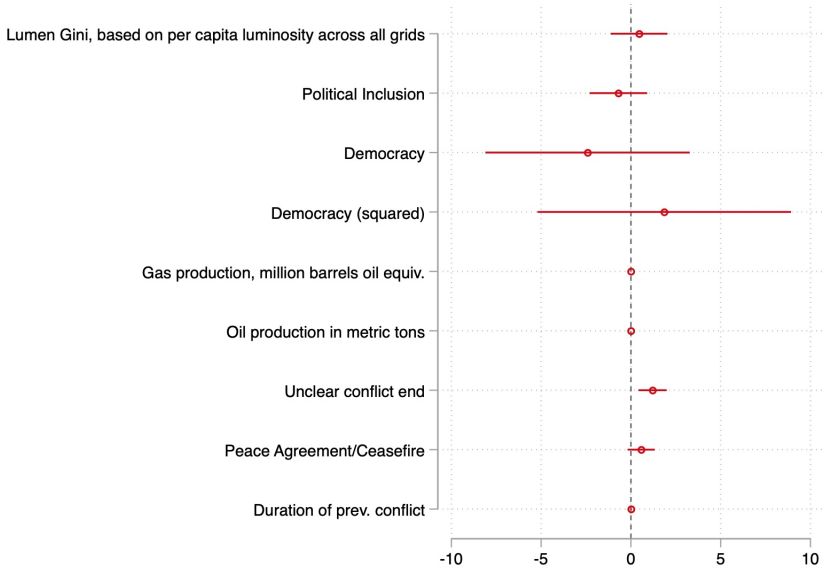


Figure A3: Cox Proportional Hazards Model: Effect of Inequality (Gini) on Conflict Recurrence



B Appendix: Linking Wartime Economies to Armed Violence in Post-Conflict Countries: The Role of Civilian Support

B.1 Spatial 2SLS

Table B1: The Wartime Economy and Armed Violence (S-2SLS)

Model	**Bivariate**	**Multivariate**
Dependent Variable	*Armed Violence*	*Armed Violence*
Wartime Economy	1.278***	1.263***
	(0.229)	(0.207)
Covariates	No	Yes
Constant	-0.030	-0.272*
	(0.474)	(0.103)
Spatial ρ_y	1.210	0.278
	(0.775)	(0.367)
Spatial γ_{CSI}	-0.764	-0.243
	(0.474)	(0.275)
Observations	1793	1792

**p <.05 **p<.01 ***p<.001. Robust standard errors in parentheses.*

In the following I address possible bias in the estimates introduced by ignoring spatial interdependence in the outcome. I take this into account by additionally estimating spatial two-stage least squares models (S-2SLS) including a spatial lag for the outcome and the instrument (see Betz et al., 2020). Spatial connectivity (W) is modelled based on continguity (geographic prox-

imity) given that this is the theoretically most appropriate variable through which units in the data are related to each other.

Table B1 reports the results from the bivariate model and the full specification with all controls. The estimated effect size and significance level remain consistent with the main 2SLS specification in the paper and supports the hypothesis that districts involved in the wartime production of coca (instrumented) see significantly more armed violence in the post-conflict era. The standard errors are smaller though, suggesting efficiency gains in the estimate when accounting for spatial interdependence.

B.2 Intensity of Armed Violence

In the following I employ the same specification as described in section 5.2 but use intensity of violence as the dependent variable. Intensity is measured as the sum of casualties and injured people as a result of armed clashes between Sendero and state security forces. The results remain in line with expectations and demonstrate a positive effect of the wartime economy on intensity of armed violence. Namely, districts suitable for coca cultivation that were involved in the wartime economy see on average 3.5 victims as the result of armed violence. In contrast the average district only sees 0.3 victims. The effect size is as big as one standard deviation, which is rather substantial and similar to the main specification using number of armed clashes.

Table B2: The Wartime Economy and Intensity of Armed Violence (2SLS)

Model	**First Stage**	**Second Stage**	**Reduced Form**	**First Stage**	**Second Stage**	**Reduced Form**
Dependent Variable	*Wartime Economy*	*Armed Violence*	*Armed Violence*	*Wartime Economy*	*Armed Violence*	*Armed Violence*
Coca Suitability Index	0.425***		1.507 **	0.425 ***		1.526**
	(0.030)		(0.511)	(0.030)		(0.512)
Wartime Economy		3.546**			3.590**	
		(1.188)			(1.189)	
Covariates	No	No	No	Yes	Yes	Yes
Constant	0.037***	-0.065	0.042	0.025	-0.780	-0.690
	(0.004)	(0.055)	(0.016)	(0.018)	(0.480)	(0.489)
Kleibergen-Paap rank Wald F statistic	200.04		8.68	44.55		2.40
Observations	1793	1793	1793	1792	1792	1792

*See details about included covariates in the data section. *p <.05 **p<.01 ***p<.001. Robust standard errors in parentheses.*

B.3 Coca Production and Suitability During War and Peacetime

In the following I show that the coca suitability index is more predictive of production of coca during wartime than today by regressing the CSI on coca production in 1994 and 2017 respectively. I also include as covariates indicators of socio-economic development (literacy rate, dirt floor and electrification rate) for the years 1993 and 2007 respectively (INEI). Table A3 shows that while the CSI predicts 41% of coca cultivation during wartime, this decreases to 25% during wartime. This decrease is likely the result of eradication campaigns by the state, which have significantly reduced the ability and or incentive of farmers to cultivate coca in some of the most suitable areas, e.g. the Alto Huallaga. The lower predictive power supports the claim that the results in the main text are not simply a demonstration of a popular claim that resource extraction as such is violent but rather that legacy of the wartime production matters.

In addition, figures B1 and B2 show the spatial variation of coca cultivation by suitability of land for coca cultivation. Figures also include bubbles to depict the amount of hectares cultivated in each district and it is visible that in general unsuitable districts produce much less coca. When comparing A1 and A2 one can also see that during wartime coca cultivation was more spread out geographically and different regions produced substantial amounts of coca. Nowadays coca production has become heavily centered in the VRAEM. The Alto Huallaga, which was the traditional coca cultivation valley barely produces any coca today. This is the result of the combination of eradication campaigns and development programs. In comparison, districts in the VRAEM have increased their production far beyond levels previously seen thanks to fertilisers and heavy pesticides.

During peacetime cultivation of coca has substantially expanded in border regions between Peru and Colombia. This may be the result of the expansion of Colombian actors into these areas. However, cultivation has been limited in quantity due to the mostly unfavorable conditions or growing high-quality coca leafs for cocaine production. Coca cultivation has also expanded into the border region between Peru and Bolivia. Here involvement in the drug trade has become more lucrative due to the proximity to Bolivia, where today most of Peru's coca paste is being processed into cocaine for further export into Brazil and Europe. In contrast to the border region with Colombia, these areas are highly suitable and farmers can produce coca with high alcaloid content.

Table B3: Predictive Power of the Coca Suitability Index

Model	**Wartime Production**	**Peacetime Production**
CSI	0.418***	0.256***
	(0.030)	(0.028)
Covariates	Yes	Yes
Constant	0.097	0.124
	(0.074)	(0.093)
Observations	1792	1792

**p <.05 **p<.01 ***p<.001. Robust standard errors in parentheses.*

Figure B1: Coca Production and Suitability during Wartime

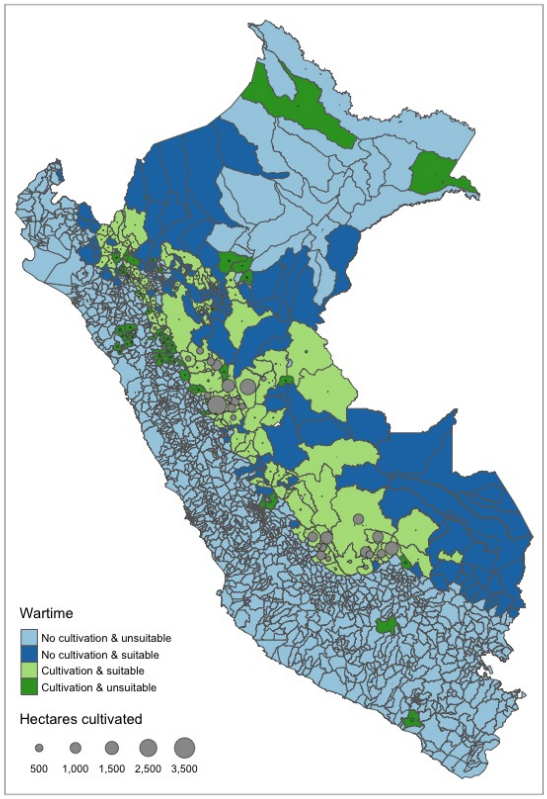
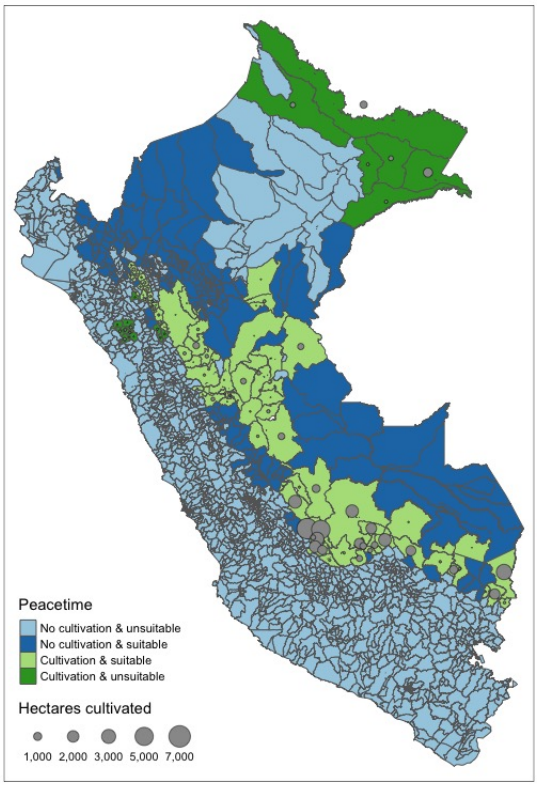
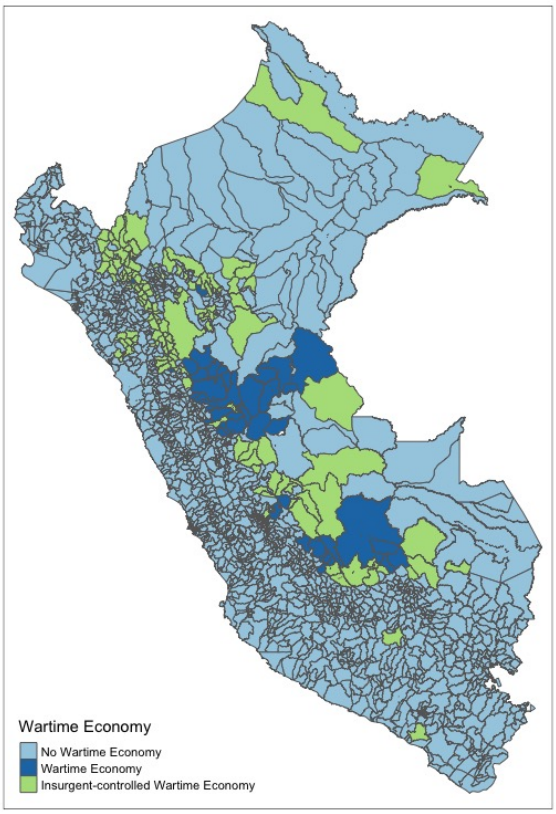


Figure B2: Coca Production and Suitability during Peacetime



B.4 Territorial Control

Figure B3: Wartime Economy and Sendero Strongholds



As a further robustness test I compare the effect of coca production during wartime in areas controlled by Sendero Luminoso during armed conflict with the effect in areas that were not controlled by Sendero. Across the 188 districts that produced coca during conflict, only 44 were under Sendero control (see B3). As in the main specification, I instrument coca production using the coca suitability index (CSI) described above. Territorial control is measured by looking at whether the district had a mayor in 1989. This is based on the reasoning that "the ability of the guerrillas to prevent official elections from being held in the area" is the best proxy for guerrilla control (McClintock 1998, 80). B3shows that cultivation of coca in areas not under Sendero control during wartime are positively associated with armed clashes post-conflict but this effect cannot be distinguished from zero and is also substantially small. In contrast, areas involved in the wartime economy and under Sendero control see on average 2.4 armed clashes. This effect is statistically significant at the 95% level and also substantially quite large (almost double the standard deviation). These results suggest that it was likely easier to maintain control over resource extraction also during 'peace time' in areas where Sendero had previously established control and build a relationship with the civilian population (regardless of whether this was necessarily a positive relationship).

Table B4: The Wartime Economy and Armed Violence by Areas of Control

Model	**Under Sendero Control**	**No Sendero Control**
Dependent Variable	*Armed Violence*	*Armed Violence*
Wartime Economy	2.418**	0.639
	(0.946)	(0.410)
Covariates	Yes	Yes
Constant	-0.962	-0.002
	(0.537)	(0.061)
Observations	485	1302

**p <.05 **p<.01 ***p<.001. Robust standard errors in parentheses.*

B.5 Interview Questionnaire

All interviews were conducted in Spanish. The following questions are translated into English.

1. Background of respondents
   (a) Community
   (b) District
   (c) Gender
   (d) Year of Birth
   (e) Since when have you lived here?
   (f) Where did you use to live?
2. Professional occupation: How do you make a living? (Can name various jobs)
3. Do you have an ID? (Why not?)
4. Did you go to school?
   If yes, what is your highest earned degree?
5. What are the public services most people have access to?
   - potable water
   - sanitation
   - electricity
   - primary education

- secondary education
- health services (specify what kind)

6. Are these services provided by the state? *Which ones aren't?*
7. Can you tell me more about the quality of these services?
8. If children want to attend secondary school, where do they have to go?
9. To go to university, where do young people from this district go?
10. What is the state for you?
11. How can you feel the presence of the state in this district?
12. Does the state play an important role in this district? *In what sense?*
13. Do you think the state cares about the people in this district?
14. Do you think the needs of people like you are important in current politics? *Why?*
15. If you wanted to influence policy making, would you have the option to do so?
16. What are ways to participate politically?
17. How are important decisions that affect this district taken? Who takes them?
18. Who participates in making political decisions in this district?
19. How do people make a living in this district?
20. What are the economic opportunities in this district?
21. Do many young people migrate to other areas in order to find economic opportunities?
22. Are you happy with the quality of life you have?
23. Would you say the quality of your life has improved or worsened in the last ten years?
24. Would you say the quality of your life is comparatively better or worse than that of your parents?
25. Do you think the quality of life of your children will be better or worse than yours?
26. What is the relationship between the state and the local population in this district?
27. Do people trust the state? *Why (not)?*
28. How corrupt is the police here?

29. How corrupt are other state authorities?
30. Is there trust in the judicial system?
31. Who is responsible for bringing justice?
32. Is justice being made in a just way?
33. Who has the right to arrest someone?
34. Who holds people accountable if they have done something wrong?
35. Who is the highest authority in this district?
36. How do they get to that post? Are they elected? By whom?
37. What are their responsibilities?
38. Are there other responsibilities they should have?
39. Do you receive any social welfare benefits or do you participate in any state funded program? *If yes, which program(s)?*
40. Would you say the state...
    - Is there to help you
    - Fulfills its responsibilities
    - Does not do anything
    - Only makes things worse

    Why?
41. What could the state do to create legitimacy?
42. What are the biggest problems this district has?
43. Which social organisations exist in your community? What is their role?
44. Do they have the ability to influence local decision making and politics?
45. Does this district depend much on coca cultivation for its economic survival?
46. What happens in times when the price of coca plummets?
47. Are there social conflicts because of public service provision or bad governance within Peru? From your perspective, would you say that your community has similar issues?
48. How are problems of bad governance resolved?

49. How likely is it that such disputes will turn violent?
50. Is this district safe?
51. Who is responsible for bringing safety?
52. What kind of crime exists in this areas? Is there much crime? item Is it common or even necessary to be involved in illicit activities in order to make a living?
53. Have there been problems between the police or military and organised groups in this area?
54. Is there a group in this area, whose activities are watched by the state?
55. According to news reports, there an armed group operates in this are called Sendero Luminoso. Have you heard of any incidents related to them?
56. Are they violent with people like you?
57. Do they only attack state forces?
58. What do you think motivates their activity?

C Appendix: Rebounding After Conflict: Collective Civilian Victimisation and Trajectories of Development

C.1 Additional Information on Covariates

Data on all covariates, except for the coca suitability index and mita, were collected by Albertus (2020) and taken from the replication data.

1. Road density in 1973: Date is from Touring and Automobile Club and the Banco de Crédito del Peru: Touring and Automobile Club and the Banco de Credito del Peru. 1973. Carreteras del Peru. Lima, Peru.
2. Number of state personnel in 1961: Data is from INEI. Direccion Nacional de Estadística y Censos. 1964. Sexto censo nacional de poblacion. Lima, Peru.
3. Spanish language penetration: 1961 census (ibid.)
4. Land reform: Land reform (share of private area affected). Data is from Albertus (2020).
5. Mita: Dummy variable taken from Dell (2010).

6. Previous social movements data is from Kammann (1982): Kammann, Peter. 1982. Movimientos campesinos en el Peru: 1900-1968. Lima: Universidad Mayor de San Marcos.

7. Communal uprisings (ibid)

The Coca Suitability Index is a dummy variable indicating whether land is suitable for coca cultivation based on the following climatic and geographic conditions:

1. Elevation: 300-2000 meters above sea level Plowman (1984)

2. Precipitation: 500-4000 mm year (Plowman, 1979)

3. Soil: pH 3.5-6.0 (Johnson and Foy, 1996)

4. Temperature: 19-27 degrees Celsius (Acock et al., 1996)

5. Light Levels: PPFD>155 μ mol/m2/s Acock et al. (1996)[63]

Data is at a resolution of 30 arc seconds ($1km^2$). Measures of soil acidity are taken from the Harmonized World Soil Database version 1.2 (FAO and IIASA, ISRIC, ISS-CAS, 2012).[64] Average temperature, precipitation and solar radiation is computed as the mean across the years 1970–2000 using the WorldClim version 2.1 dataset (Fick and Hijmans, 2017). Elevation data is taken from NASA's Shuttle Radar Topography Mission (SRTM) (CGIAR-CSI, 2018). To calculate the index I first assign the value 1 to each grid (about 1km2) within districts that meets all the conditions, and 0 otherwise. I then calculate the share of 'suitable' land for each district, resulting in a CSI that ranges from 0 to 1 (see Figure 1: darker greens denote higher share of land suitable for coca cultivation). In the analysis I use a dummy of the CSI.[65]

C.2 Socio-Economic Development Rate measured using 1981 census

To address concerns of the robustness of results given the limitation of only relying on literacy as a measure for socio-economic development, I draw on the 1981 census data for which I have data to assess socio-economic development along two dimensions[66]:

1. Education levels:
   (a) Share of the population that completed secondary education
   (b) Literacy rate

[63]They grew the plants under a 12-hr photo period,. To convert the PPFD to daily light integral, I multiply the PPFD by 12 hours x 3600 s/hr. Hence, ideal light levels are minimum 6.696.000 μ mol/m2/day. The data on solar radiation is measured in kJ/m2/day. I use the formula: 1kJ = 2018 μ molFaust and Logan (2018), so that 6.696.000 μ mol/m2/day = 3318 kJ/m2/day. Across all districts, this condition was met.

[64]I use the indicator T_PH_H2O

[65]CSI is calculated by taking the sum of grids that meet the conditions, divided by the total number of grids. Hence, CSI is fixed over time given that coca is a "renewable" resource, this suitability can also be understood as the actual resource that varies across districts.

[66]This closely approximates efforts to track human development as done by the Human Development Index that looks at health, education and living standards.

2. Living standards:
   (a) Share of the population with access to an improved water source within their home
   (b) Share of the population with no dirt floor in their home

Similar to above, I calculate the rate of development by first computing an additive index of the level of development in a given census year[67]. Subsequently I contrast levels of development before emergency zones were declared (1981) with post-conflict levels (2007).

$$\textbf{\textit{Rate of development}} = \frac{Development_{2007} - Development_{1981}}{Development_{1981} * 100}$$

I then use the same model specification of the linear model as used in the main analysis but replace the outcome with the socio-economic development rate using 1981 census data. Table C1 shows that the results are robust to using this data, despite that fact that observations are reduced and no longer include a high number of districts which were subject to collective targeting. Districts, where communities experienced collective victimisation see on average 7 percent higher socio-economic development rates, taking into a substantive set of covariates. This effect is statistically significant.

[67] I divide the sum of all variables by four, resulting in an indicator that theoretically ranges from 0 to 100.

Table C1: OLS Regression

	Dependent variable:	
	Socio-Economic Development (1981 census)	
	(1)	(2)
Collective Victimisation	0.089***	0.076***
	(0.027)	(0.028)
Elevation		0.064***
		(0.007)
Population Density (1972)		−0.0001
		(0.0004)
Share of Land subject to Land Reform		0.146***
		(0.034)
Inside Mita Catchment Area		−0.077***
		(0.022)
State Employees (1961)		−0.035***
		(0.006)
Road Density (1973)		−0.0005***
		(0.0001)
Previous Social Movements		−0.001
		(0.009)
Previous Communal Uprisings		0.048***
		(0.018)
Constant	0.254***	0.196***
	(0.009)	(0.027)
Observations	1,589	1,589
R^2	0.007	0.128
Adjusted R^2	0.006	0.123
Residual Std. Error	0.344 (df = 1587)	0.323 (df = 1579)
F Statistic	10.467*** (df = 1; 1587)	25.729*** (df = 9; 1579)

*p<0.1; **p<0.05; ***p<0.01

Figure C1: Rate of Socio-Economic Development Rate and Growth in Literacy Rate

(a) Socio-Economic Development Rate using 1981 census

(b) Growth in the Literacy Rate

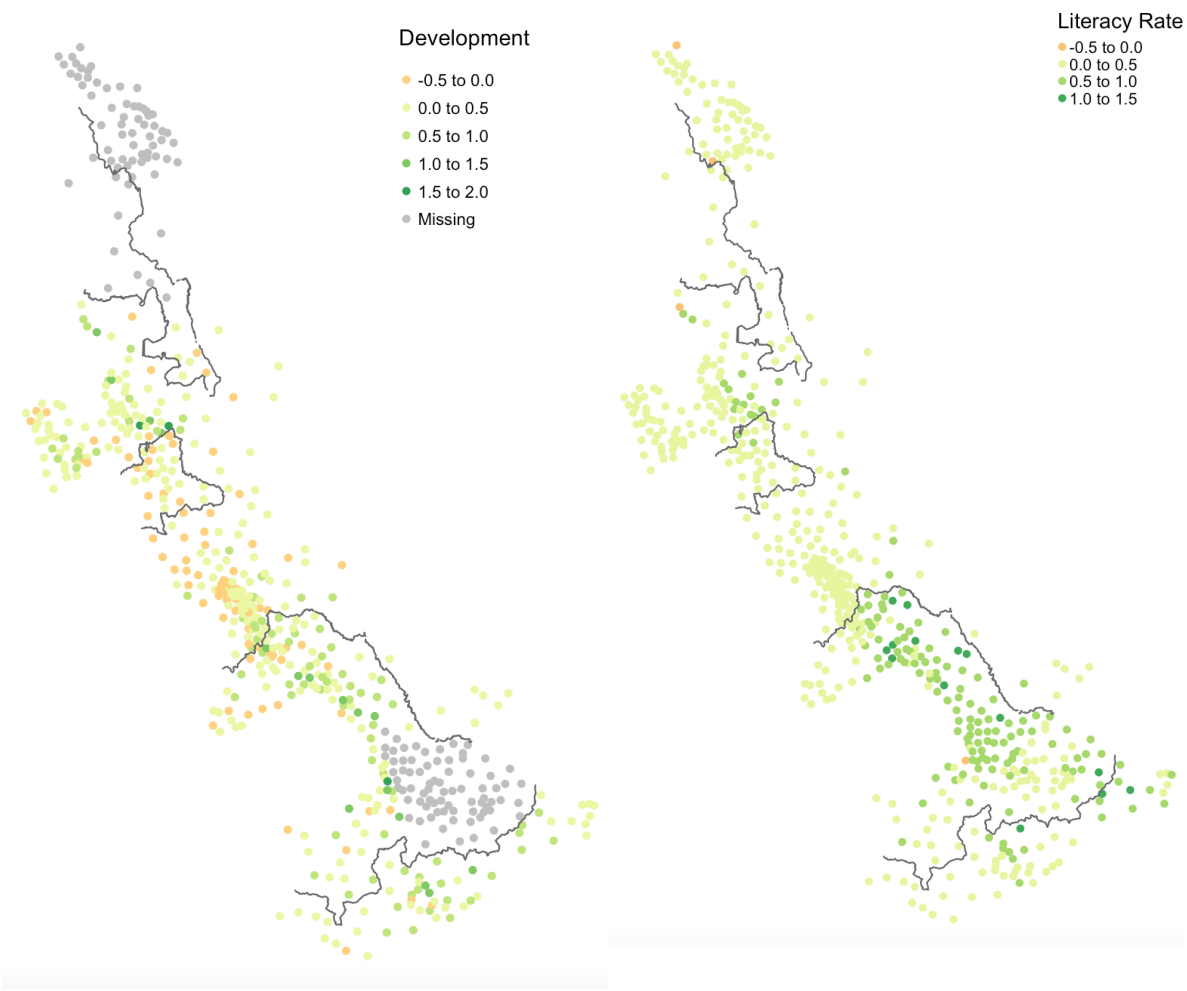


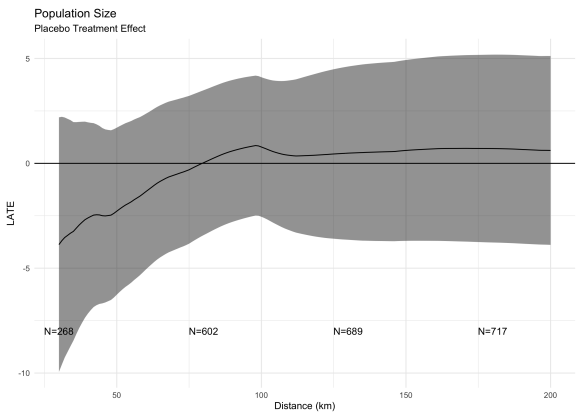
Figure C1 demonstrates development rates using the broader data available from the 1981 census as the baseline or just using literacy rate data from 1972. We can see that data on broader development results in slightly more refined variation in development but eliminates many districts, which would be necessary to conduct a test of the second part of empirical analysis using the geographic regression discontinuity approach.

C.3 RDD with all observations

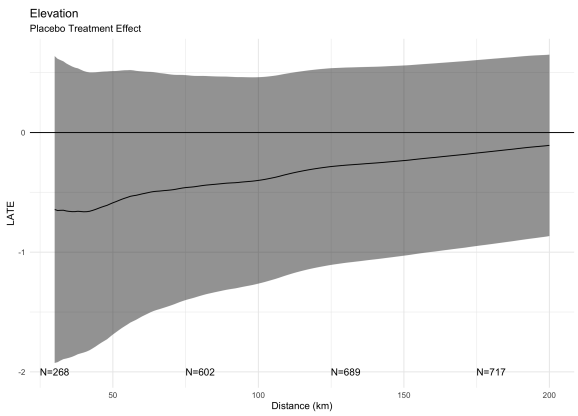
C.3.1 Placebo Effect on Covariates

Figure C2: Placebo Treatment Effects of Covariates

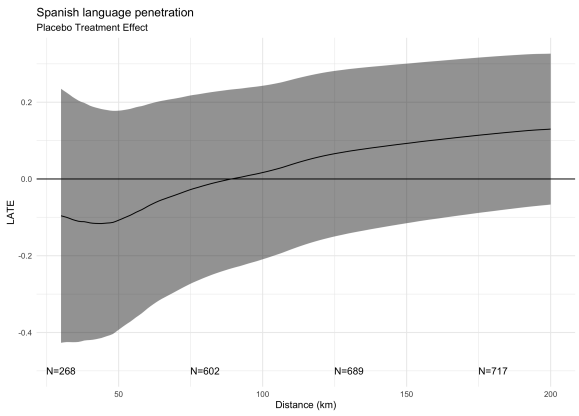
(a)



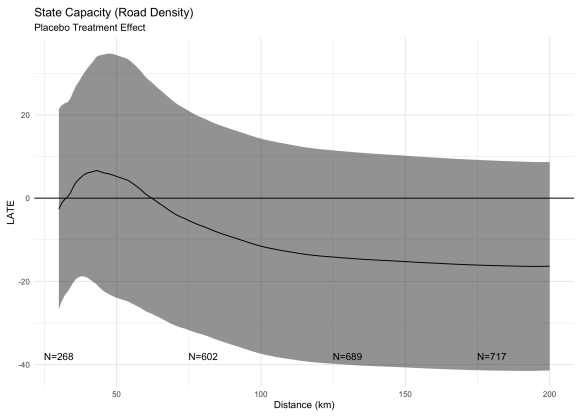
(b)



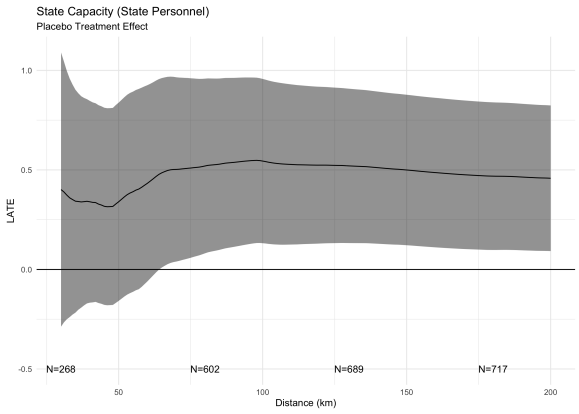
(c)



(d)



(e)



(f)

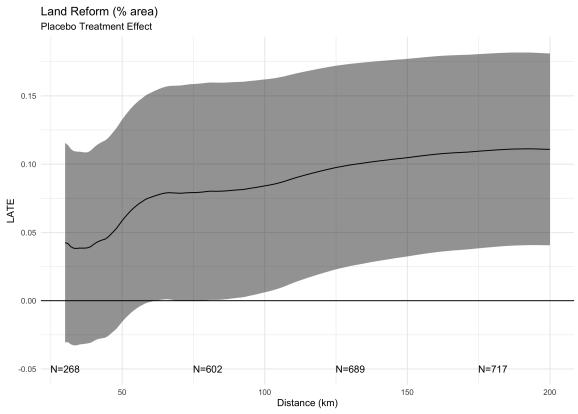
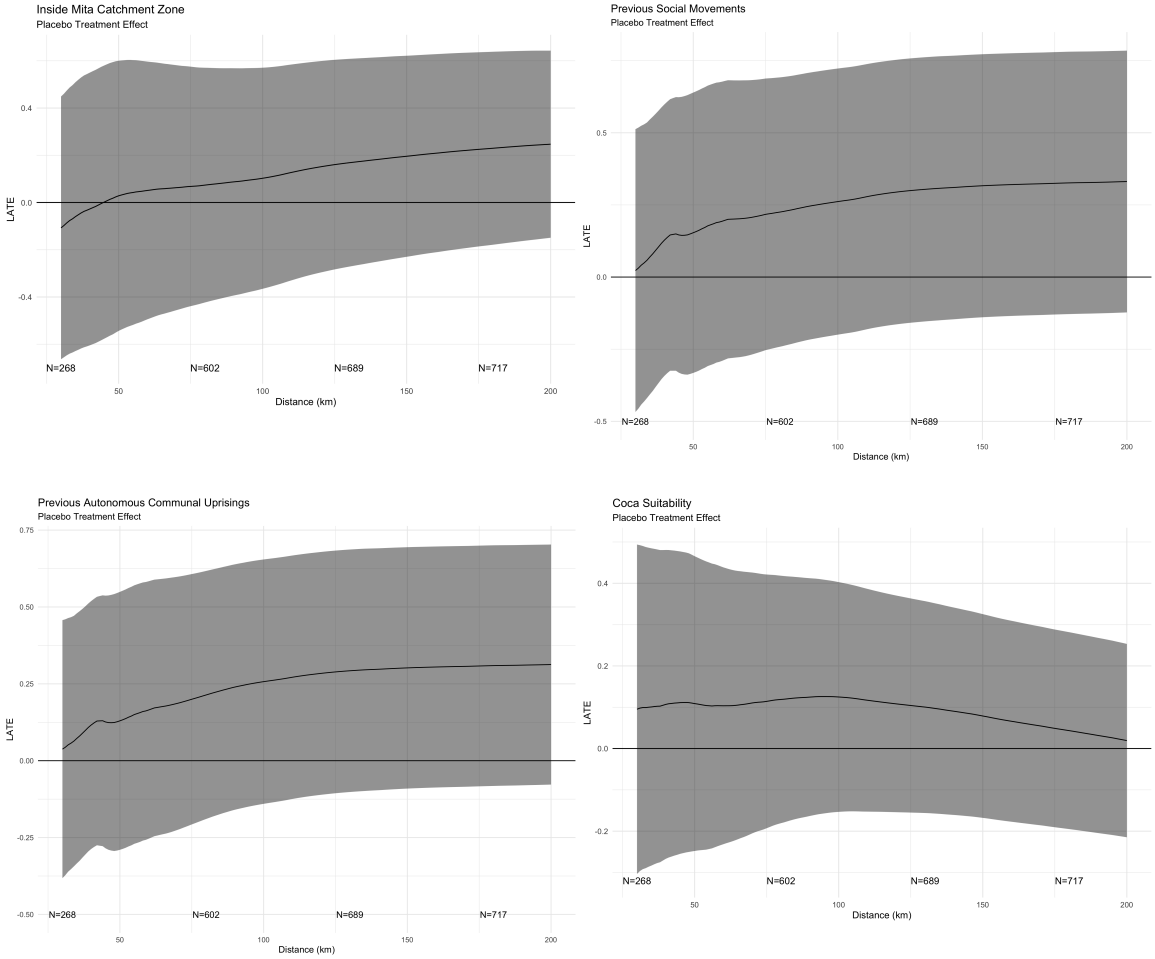


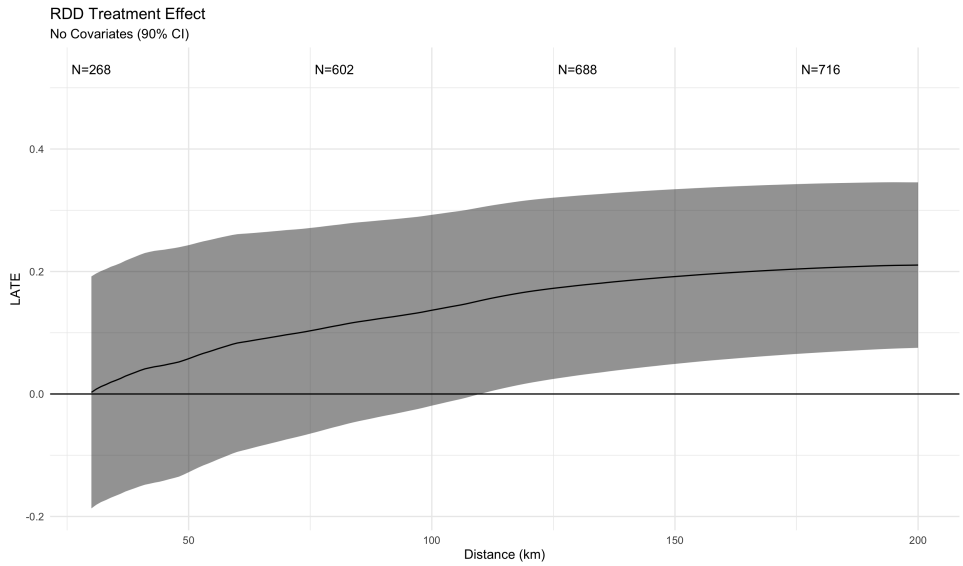
Figure C2: Placebo Treatment Effects of Covariates



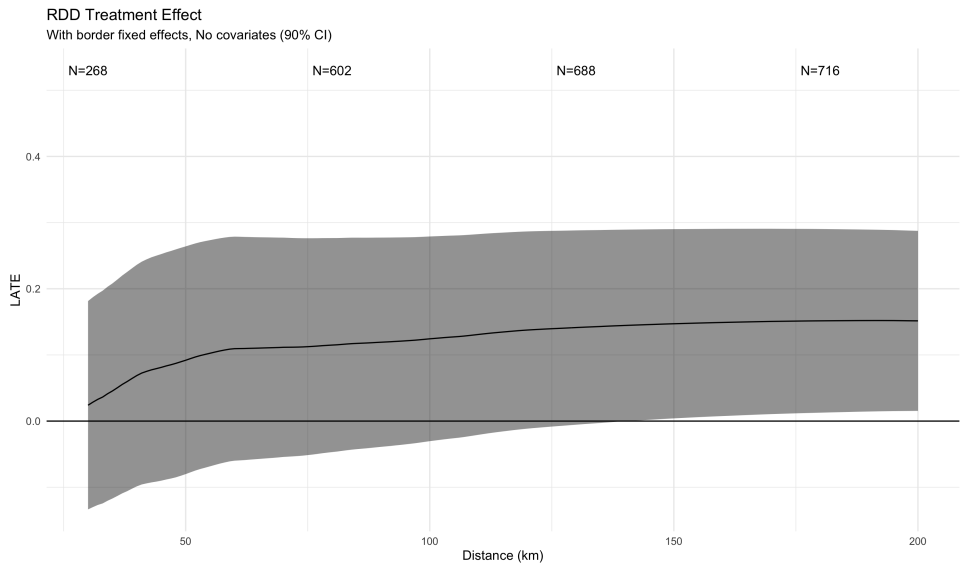
C.3.2 Replication of Main Results using all observations

Figure C3: RD Effect of Collective Civilian Victimisation on Development

(k)



(l)



(m)

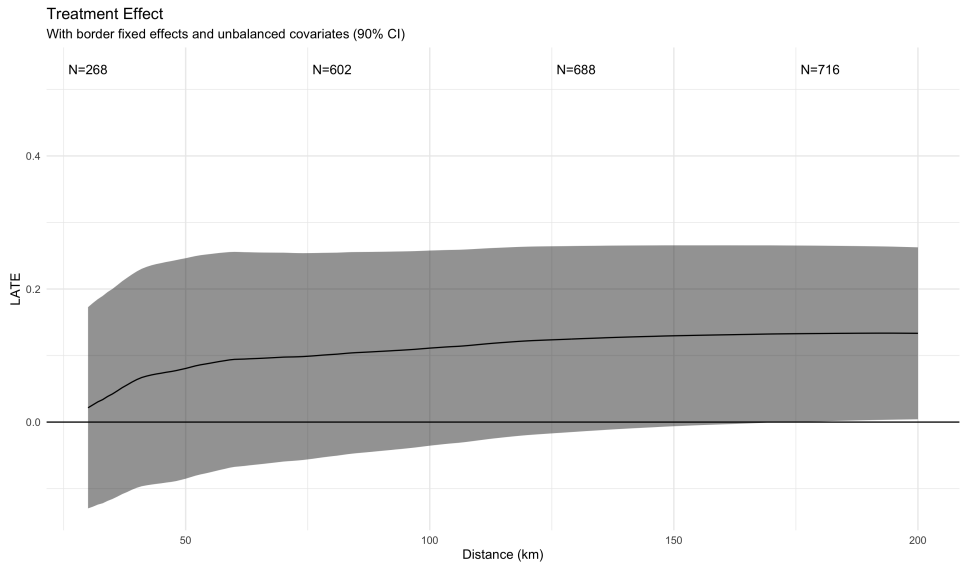
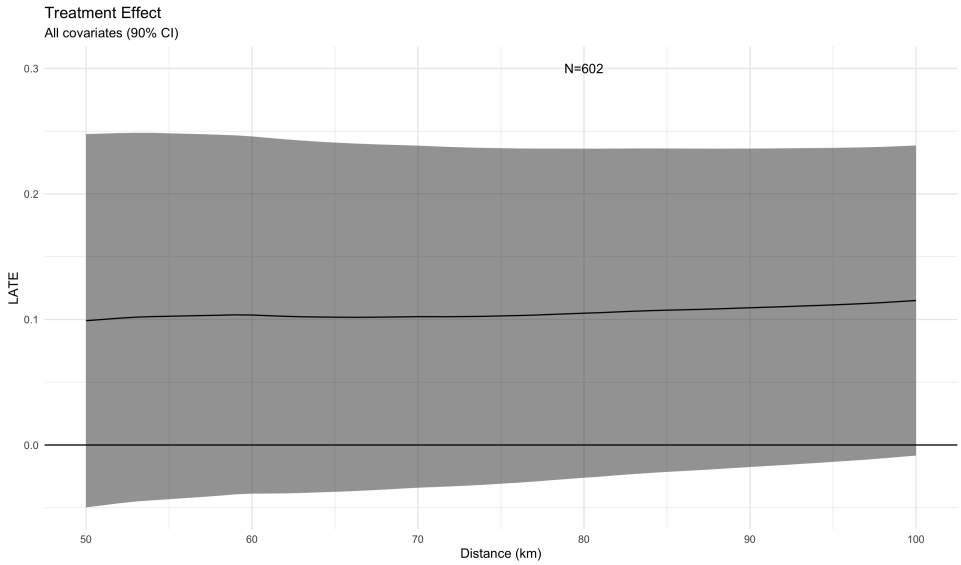


Figure C4: RD Effect of Collective Civilian Victimisation on Development

(a)



(b)