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COVID-19 and Conflict

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Abstract: What does the threat of and the policy response to COVID-19 mean for inter-group conflict worldwide? In this study, we examine time series trends for different types of inter-group conflict and evaluate discernible changes taking place as global awareness of COVID-19 spread. At the country level, we examine changes in trends following policy responses, such as lockdowns, curfews, or ceasefires. We specifically examine violent conflict events (e.g., battles, remote violence and bombings, and violence against civilians) as well as civil demonstrations (e.g., protests and riots) using data from the Armed Conflict Location and Event Data (ACLED) project. Our main contribution comes from our examination of heterogeneity in trends. Although in many cases a downward trend in inter-group conflict seems to be associated with COVID-19 policy responses, there are critical exceptions to this general result.

Key words: COVID-19, Armed Conflict, Violence, Riots, Protests, Governance

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1 Introduction

Over the course of just a few months, COVID-19 has quickly spread across the world, with reported cases in nearly every country. In response, many governments have enacted a variety of nonpharmaceutical policy responses such as closing non-essential businesses and schools, promoting public safety campaigns, encouraging social distancing, or implementing some form of stay-at-home order. Despite concerns over growing inequality and the struggles of low-income households, such policies have helped "flatten the curve" in high-income and stable countries (Fowler et al., 2020). Whether the benefits of such policies outweigh the costs in low- and middle-income countries, however, remains unclear (Mobarak, 2020).

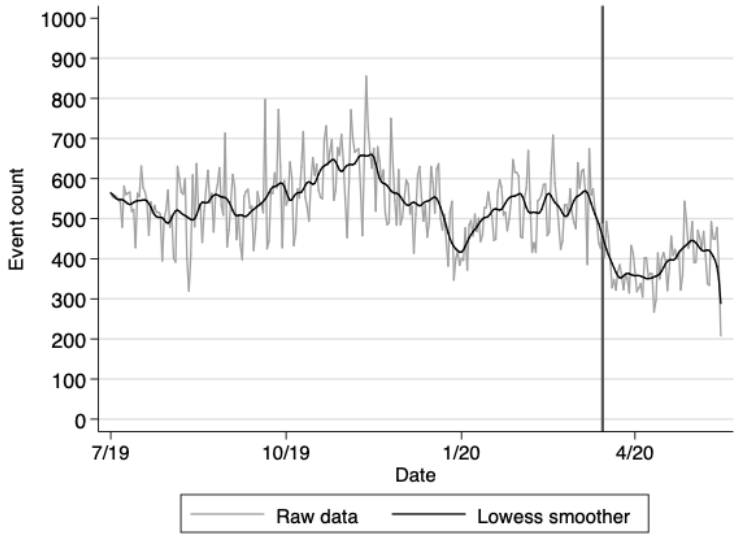
The threat of COVID-19, and nonpharmaceutical policy responses to this coronavirus, may influence life in low- and middle-income countries by impacting rates of inter-group conflict.[1] Given the novelty of the COVID-19 global health

* Last updated: May 2020.

[1] Many express serious concern that COVID-19 may increase inter-personal conflict, such as the frequency of domestic violence (Peterman et al., 2020; Taub, 2020).

risk, the relationship between the pandemic, policy responses, and inter-group conflict events in low- and middle-income countries remains poorly understood. Moreover, this relationship has serious implications for a host of development outcomes—such as food security, human rights, political expression, etc.

Figure 1: **All conflict events by date, all ACLED countries**



Source: Authors' calculations using all conflict events recorded by ACLED from July 1st, 2019 to mid-May 2020. The vertical reference line is for March 15th, the day on which the World Health Organization declared a global emergency. The Lowess smoother uses a bandwidth of 0.5.

Overall, the threat of and policy response to COVID-19 appear to lead to a reduction in conflict events. As displayed in Figure 1, the Armed Conflict Location and Event Data (ACLED) data show a notable drop in conflict event counts starting around early March, shortly before the World Health Organization (WHO) declared a global emergency (March 15th).[2] A small increase in daily inter-group conflict counts began in April 2020, but counts have yet to return to their pre-March 2020 levels.

Despite this general trend, critical heterogeneity seems very likely and the *ex-ante* relationship between COVID-19 health risks, policy responses, and conflict events remains ambiguous. Some related evidence suggests that the threat of and policy response to COVID-19 may lead to a reduction in local income levels and, in turn, a reduction in the opportunity cost of violence and conflict—thereby increasing conflict (Bazzi and Blattman, 2014; Becker, 1968; Collier and Hoeffler,

Without diminishing the seriousness of those concerns, we focus exclusively on on inter-group conflict in this paper.

[2] See `https://acleddata.com/dashboard/`.

1998; Dube and Vargas, 2013; Ehrlich, 1973; Fearon and Latin, 2003; Grossman, 1991; Hirshleifer, 1995).[3] Other relevant evidence suggests that COVID-19 could reduce the value of natural and physical resource exploitation and, in turn, reduce the economic benefit of seizing control of these resources (Besley and Persson, 2011; Caselli and Colleman, 2013; Grossman and Mendoza, 2003; Hodler, 2006; Reuveny and Maxwell, 2001). Furthermore, disruptions to global food supply chains may lead to increasing food prices (Koren and Winecoff, 2020), and in turn, increased conflict (Barrett, 2020; Bellemare, 2014)

Given the unprecedented nature of the COVID-19 pandemic, we are aware of only one other study that empirically investigates the relationship between COVID-19 and inter-group conflict events. Exploiting the differential timing of national COVID-19 responses across countries, Berman et al. (2020) find evidence that national shutdowns reduce the probability of daily conflict by roughly 9 percentage points. We build on this work in two key ways: First, with a more modest analytical approach, we document critical heterogeneity in this relationship with country cases studies. Second, we discuss threats and challenges to common quasi-experimental empirical strategies used to estimate the causal relationship between COVID-19 and inter-group conflict.

The primary purpose of this study is to chronicle trends in conflict events during this historical moment. These findings are important to document for several reasons. First, conflict events are—by themselves—an important outcome. They represent expressions of social unrest and at times lead to fatalities. Second, exposure to conflict influences access to food, medicine, health care, work, travel, and other essential inputs for life (Adelaja and George, 2019). Finally, conflict can influence a host of development outcomes for years—if not decades—into the future (Abadie and Gardeazabal, 2003).

The remainder of our paper is organized as follows. We describe the data used for our study in Section 2 and report "global" trends in conflict events.[4] In Section 3 we examine several country case studies that highlight critical heterogeneity and exceptions to the general trends shown in Section 2. Finally, in Section 4, we conclude.

2 Data and "Global" Trends

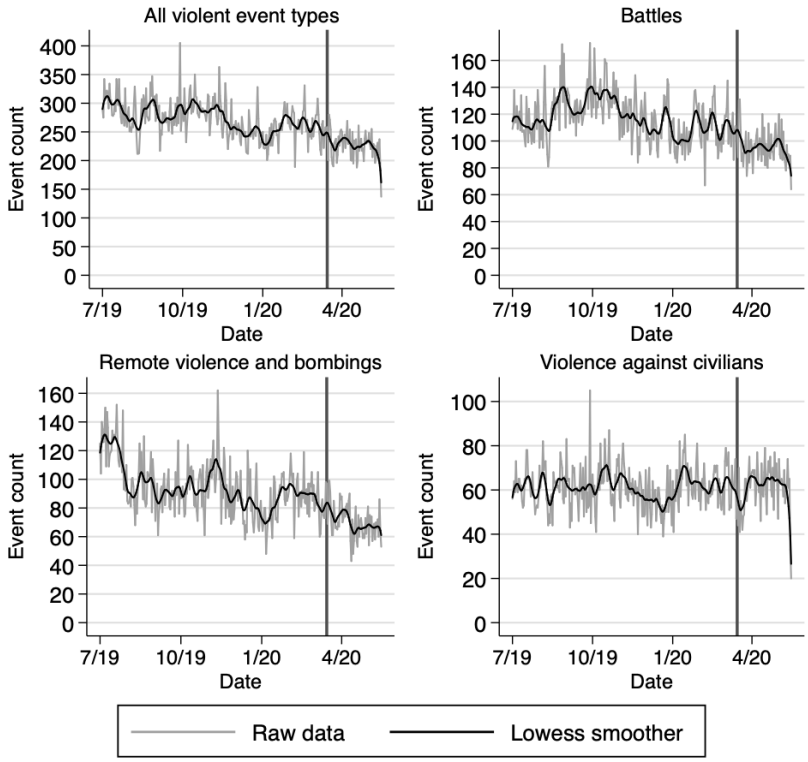
We use the Armed Conflict Event and Location Data (ACLED) for our analysis (Raleigh et al., 2010). ACLED is an event-level dataset that chronicles the location, date, and characteristics of a conflict occurrence. ACLED geographic coverage for 2019 and early 2020 is extensive, with observations for countries throughout Latin America, Eastern Europe, Africa, the Middle East, South Asia,

[3] The underlying components of this hypothesis are themselves ambiguous. Due to the health risk associated with social interaction amid the COVID-19 pandemic, the opportunity cost of violence and conflict may actually be higher now than before.

[4] We enclose "global" in quotation marks because although the ACLED database does not cover all countries in the world, it does aim to provide information on the countries with the majority of the world's inter-group conflict.

and Southeast Asia. Unless otherwise noted, we show trends of daily conflict event counts from July 2019 through mid-May 2020. These daily counts can be relatively noisy, so we also show a non-parametric local regression estimate of the trend over time.

Figure 2: **Violent events by date and event type, all ACLED countries**



Source: Authors' calculations using ACLED data from July 1st, 2019 to mid-May 2020. The vertical reference line is for March 15th, the day on which the World Health Organization declared a global emergency. The Lowess smoother uses a bandwidth of 0.5.

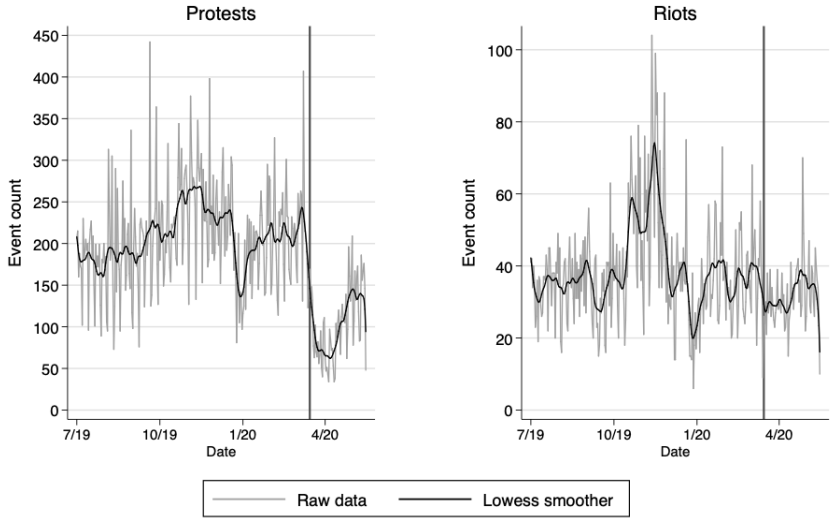
We focus on two broad categories of events in ACLED and their five sub-categories.[5] First, we examine *violent events*, including events associated with armed struggles over territory or acts of terror. The category includes battles, bombings, explosions, remote violence, and violence against civilians. Second, we

[5] ACLED also includes an event category called "strategic developments," which cover a broad variety of events, many of which do not directly involve violence for the associated date or location. With the exception of Figure 1, we exclude any event categorized as a strategic development in ACLED.

look at *demonstrations*, including events in which citizens engage in collective action by protesting or rioting.[6]

Figure 2 displays the trend of all violent conflict event types in all ACLED countries. Battles, remote violence, and bombings appear to have been slowly declining since late 2019, and we do not see a sharp discontinuity in March 2020 indicating any response to higher awareness of the health threat. There is a small discontinuity in the trend of violence directed towards civilians, but it appears as though the global count rebounded in April 2020.

Figure 3: **Demonstrations by date and event type, all ACLED countries**



Source: Authors' calculations using ACLED data from July 1st, 2019 to mid-May 2020. The vertical reference line is for March 15th, the day on which the World Health Organization declared a global emergency. The Lowess smoother uses a bandwidth of 0.5. "All violent event types" aggregates the daily counts of battles, remote violence and bombings, and violence against civilians.

Figure 3 displays the number of protest events and riots in all ACLED countries. We see a large drop in global protests in mid-May 2020. This sharp reduction in protesting may reflect both the higher costs of participating in protests

[6] Classifying an event as a protest *or* a riot is not straightforward, as one demonstration could have attributes of both. In the ACLED dataset, a demonstration is labeled as a "protest" if participants are engaging in peaceful collective action, including cases with documented violence *against* protesters. See ACLED (2019). "Riots" cover all manifestations in which participants are engaging in violence, including "mob violence," and the destruction of property.

as well as opposition movements deciding to postpone regular demonstrations.[7] Shortly after this dramatic drop, the trend began to increase, but has yet to return to previous levels. The global trend in riots, however, exhibits a trend quite different to protest events. There is a small dip in riot events in mid-March, around the timing of the WHO's declaration of a global emergency. It is difficult, however, to distinguish this fluctuation from the underlying noise in the time-series. By late April 2020, we find an upward trend in global rioting, bringing daily counts roughly back to the same levels as in early 2020.

These results may suggest that the threat of and policy response to COVID-19 have driven a reduction in conflict events (Berman et al., 2020). We are, however, more interested in examining important heterogeneity in these trends across a variety of settings. As such, in the next section, we document details that complicate robust estimates of the causal effect of COVID-19, policy responses, and inter-group conflict.

We explore heterogeneity in two ways. First, and primarily, we perform a number of quantitative case studies that focus on specific country contexts. These quantitative case studies represent the majority of the remainder of this paper, with additional case studies included in the Supplemental Online Appendix.

Second, in the Supplemental Online Appendix, we restrict our analysis to countries categorized as "high-conflict" based on the Global Peace Index (GPI) produced by the Institute for Economics and Peace.[8] We then further divide countries based on the presence of a ceasefire.[9] We find that in the absence of a ceasefire, there is no clear reduction in conflict as a result of COVID-19, even in countries with nonpharmaceutical policy responses (see Figure A1 and Figure A2). Additionally, for both ceasefire and non-ceasefire countries, COVID-19 does not appear to be associated with violence against civilians (see Figure A3).

3 Quantitative Case Studies

In this section we perform five quantitative case studies focusing on India, Syria, Libya, Lebanon, and Chile. These five countries are not representative of the rest of the world, but they enrich our understanding of the complex relationship between contemporaneous political climate, pandemic risk, policy response, and inter-group conflict. When appropriate, we discuss how these contexts either relate or contrast to alternative contexts and refer to the Supplemental Online Appendix.

[7] For example, Algeria's Al-Hirak movement has been organizing regular protests since 2019. Al-Hirak officially postponed its protests, leading to a decline in protesting to essentially zero since.

[8] We specifically use the GPI's 2019 country-level scores for "ongoing domestic and international conflict." We identify all countries with a score of 2.5 or higher based on a 1 to 4 scale (with 4 being the highest degree of ongoing conflict). We then drop those countries that were engaged in proxy wars (e.g., Saudi Arabia, Russia). The resulting list covers 22 countries located predominately in Asia and Africa.

[9] Some of these ceasefires were COVID-19 motivated, while others emerged prior to the global recognition of the threat of the new coronavirus.

3.1 India

A country home to roughly 1.3 billion people, India implemented one of the world's most strictly enforced national lockdowns on March 25, 2020. In mid-May 2020, as the number of positive COVID-19 cases within India grow by the thousand each day, a complementary crisis escalated. The swift and strict lockdown measures stranded millions of migrant workers in urban areas with little access to food or social support (Purnam, 2020). These competing dynamics provide a unique setting to consider when examining the relationship between India's national response to the pandemic and various types of conflict events.

Figure 4 displays trends of all types of conflict, violence against civilians, protests, and riots in India. When considering all conflict event types we see a noticeable decline in the number of events per day beginning in early 2020, and accelerating around the national lockdown implemented on March 25. Prior to this decline, India experienced slightly over 50 events each day on average. To date, this average rate has declined by roughly half. The variance has also declined dramatically as well.

It appears that the decline in all types of conflict can be mostly attributed to a similar drop in the number of protest events each day. Throughout the end of 2019 India experienced roughly 50 daily protest events on average. Protest events declined dramatically in March and April 2020 and to date have yet to rebound to pre-decline levels. This fall in protest activity suggests that the net costs of participation in protesting has risen. Even if the opportunity costs of participating are relatively lower as workers lose livelihood opportunities (Campante and Chor, 2012, 2014), the pandemic risk, combined with the physical threat of violence by security forces punishing lockdown violators (AlJazeera, 2020), results in high costs to protest activity.

Although the trend is quite noisy, we do notice a sharp increase in the number of riots shortly following the beginning of India's national lockdown. The trend in the number of riots per day has since leveled off, but to date persists at a higher daily rate than compared to the months proceeding the national lockdown. It is difficult to attribute this increase in rioting to any particular issue or geographic location, but many of the riots appear to be related to migrant workers' mobilizing violently in response to the loss of their livelihoods options. Moreover, many of the riot events involved attacks on police.

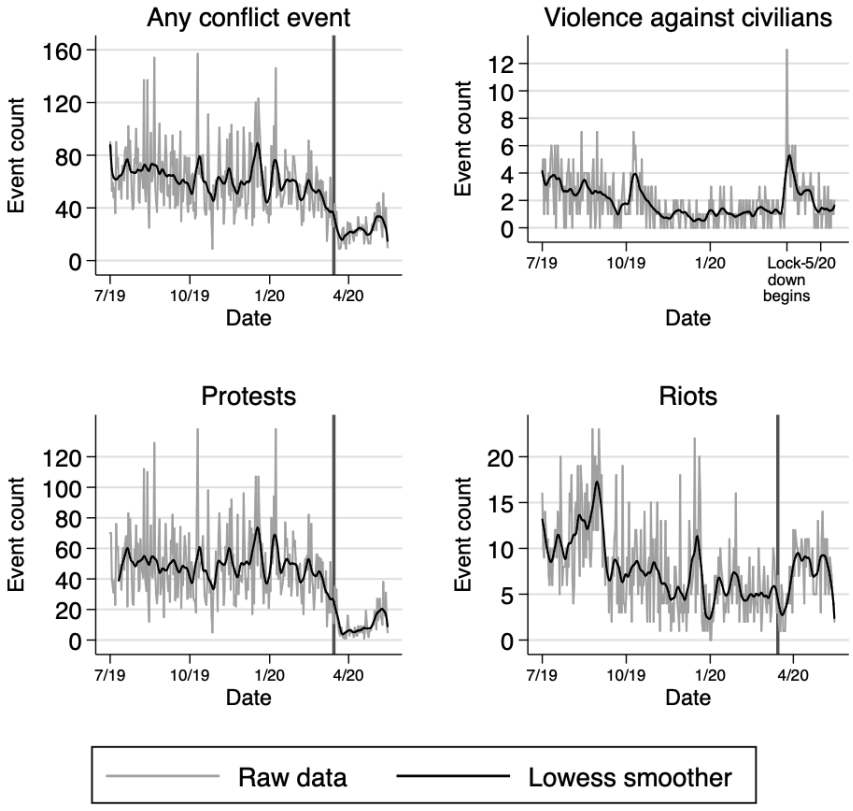
Finally, we document an increasing trend in violence against civilians, which sharply spikes on the same day that India implemented their national lockdown.[10] This trend likely reflects the strict implementation of India's national lockdown and supports news reports of Indian police using violence to penalize violators (Mukhopadhyay, 2020).

Other countries, such the Philippines and Uganda, also implemented strictly enforced policies. Figure A4, in the Supplemental Online Appendix, documents conflict trends in the Philippines. Although we fail to notice much change in

[10] This spike is so dramatic that it prevents us from visualizing the lockdown start date with a vertical line in the figure.

the trends of violent conflict in the Philippines, the presence of a pandemic-motivated temporary ceasefire among rebel groups makes this observation is itself noteworthy (Gomez, 2020). Figure A5, in the Supplemental Online Appendix, documents trends in Uganda where the government strictly enforced a ban on public transportation and non-food markets. We see a noticeable increase in all violent event types, specifically violence against civilians, but no changes in the prevalence of riots in protests.

Figure 4: **Conflict events by date and type, India**

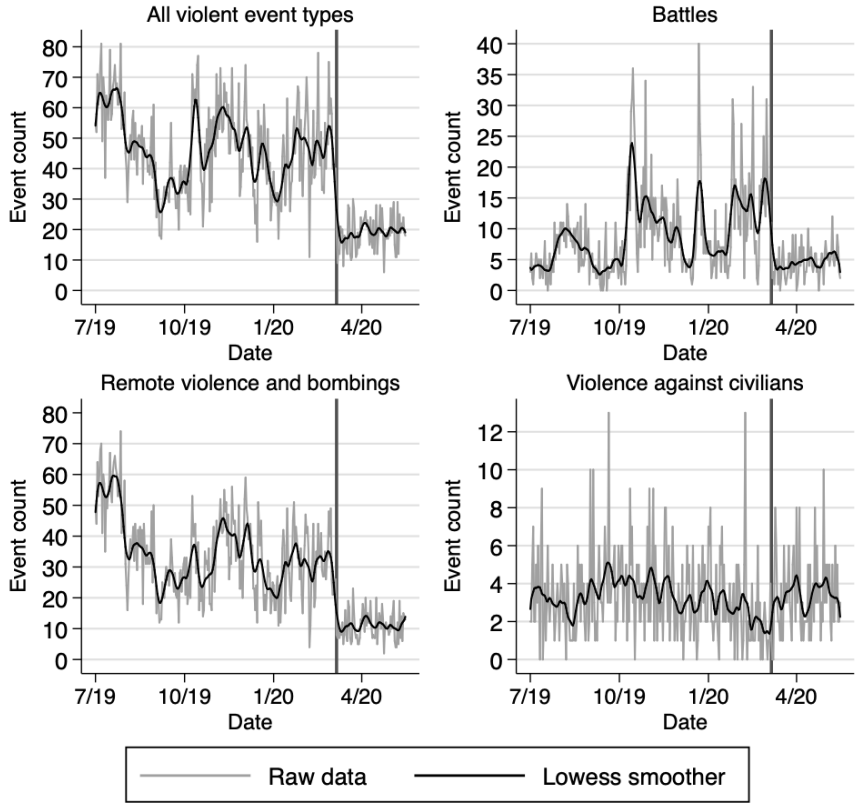


Source: Authors' calculations using ACLED data from July 1st, 2019 to mid-May 2020. India's national lockdown, marked by a vertical line, began on March 25th. We omit this vertical line in the graph of violence against civilians to better visualize the dramatic spike on March 25th. The "any conflict event" category includes all 5 violent conflict and demonstration event types. The Lowess smoother uses a bandwidth of 0.5.

3.2 Syria

In the tenth year of Syria's civil war, the Syrian armed forces have established control over the majority of the country. Their current campaign targets the Idlib governorate, a large share of which is still held by rebel and Jihadist militias (BBC, 2019). On March 5th, Turkey and Russia, two countries directly involved in the Idlib fighting, negotiated a ceasefire agreement covering the Idlib governorate. To the best of our knowledge, this ceasefire was not motivated by COVID-19. There is currently no nation-wide agreement to lay down arms in response to COVID-19, hence we consider Syria to currently have a "partial" ceasefire in place.

Figure 5: **Violent conflict events by date and event type, Syria**



Source: Authors' calculations using ACLED data from July 1st, 2019 to mid-May 2020. The vertical reference line is at March 6th, 2020, the first day of the ceasefire covering the Idlib governorate. The Lowess smoother uses a bandwidth of 0.5.

Perhaps because fighting has recently been concentrated in Idlib, we see a drastic reduction in battles, remote violence, and bombings for all of Syria since the ceasefire, as shown in Figure 5. These results may suggest that residents of Idlib and other war-affected areas of Syria have a brief respite from war to focus on COVID-19 response.

By contrast, however, violence against civilians remains rather constant in the country, with an average of three to four events per day.[11] These results highlight the fact that even in the presence of some degree of ceasefire, certain types of violent conflict may continue at previous rates. The ongoing incidence of this type of conflict inside and outside of Idlib illustrates the need for a country-level (not governorate-level) cessation of hostilities.

Syria represents a large share of conflict events in the ACLED global data for our time period of interest. For all 2020 observations to date, 8% of battles, 26% of remote violence and bombings, and 15% of violence against civilian events took place in Syria. Hence, the downward trend in violent conflict for Syria likely has a direct influence on the global trend line (Figure 1). Therefore, it is important that we note how difficult it is to disentangle attribution of the recent trends in Syria to either the Idlib ceasefire or COVID-19. This case study highlights the importance of careful identification of concurrent factors when deciphering changes in conflict trends in the COVID-19 era.

Other countries, such as Yemen, have also recently implemented a ceasefire in ongoing conflicts. In Figure A6, shown in the Supplemental Online Appendix, we examine trends in Yemen where a COVID-19 motivated ceasefire seems to be associated with a reduction in violent conflict events. This trend seems to be mostly driven by a reduction in remote violence and bombings. As in the case of Syria, there is very little change in the violence against civilians trend around the time of the ceasefire agreement.

3.3 Libya

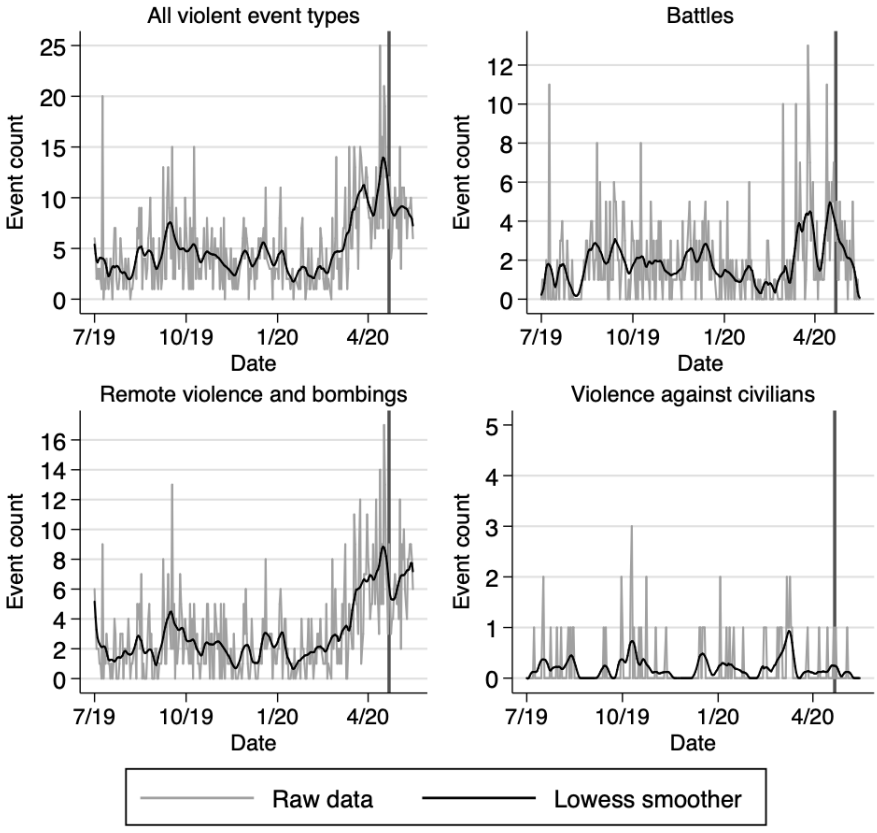
Since the 2011 forced removal of Muammar al-Qadaffi from Libyan leadership, the country has been mired in violent contestations over governance. Two competing governments have emerged in Libya, the internationally-recognized Government of National Accord (GNA) and the Libyan National Army (LNA). While these two entities continue to fight over legitimacy, nonstate militant actors such as the Islamic State have also vied for territory and influence. Starting in 2019, the LNA has been on a campaign to seize the capital city of Tripoli and other

[11] The ACLED data suggests that a variety of actors have been involved in this violence. ACLED counts 212 conflict events classified as "violence against civilians." For 110 of the observations, the ACLED study team was unable to attribute the event to a particular group. Roughly one-quarter of the remaining 102 events were carried out by the Syrian military: these were mostly deaths by torture in prison. One-quarter were attributed to the "National Defense Forces," militias aligned with and organized by the Syrian government. Numerous different non-state groups, including communal militias, rebel groups, Turkish forces, and Jihadist militias, carried out the remaining half of the violence against civilian events.

strategic locations from the GNA. After launching the campaign, the GNA announced that it was deploying a counter-offensive strategy against the LNA (Zaptia, 2019). Although the UN brokered a truce betwen the LNA and GNA in January 2020, this ceasefire was gradually violated (UN Security Council, 2020*a*).

In April 2020, the LNA called for a COVID-19 motivated ceasefire, but the GNA refused their offer, claiming they do not trust the LNA to uphold such an agreement (Wintour, 2020). Libya did however impose a curfew starting on April 22nd, in an effort to curtail the spread of COVID-19.

Figure 6: **Violent conflict events by date and event type, Libya**



Source: Authors' calculations using ACLED data from July 1st, 2019 to mid-May 2020. The vertical reference line is for March 15th, the day on which the World Health Organization declared a global emergency. The Lowess smoother uses a bandwidth of 0.5.

Figure 6 shows the violent conflict event time series for Libya. We see a small dip in violent conflict events following the truce established on January 12, 2020. The number of violent events, however, gradually increased through February and March, despite growing awareness of the risks of COVID-19. The increasing frequency of remote violence and bombings is especially alarming, as counts have continued to grow into May.[12] These increasing trends, amidst a COVID-19 motivated national lockdown, contrast with both overall "global" trends and trends in specific countries that also implemented a national lockdown.

Another problematic trend underlying the Libya data is the documented targeting of health facilities by the LNA. There have been multiple accounts of bombings of hospitals, including locations dedicated to treating those infected with COVID-19 (Al Jazeera, 2020*a*,*b*; Canli, 2020; Topcou, 2020). These accounts highlight the fact that for certain militant groups, the pandemic may introduce new vulnerabilities that can be exploited in their pursuit of territory and influence.

3.4 Lebanon

Protests erupted throughout Lebanon in October 2019 as civilians collectively denounced endemic government corruption and poor economic management. Former Prime Minister Saad Hariri stepped down in response to the protests, but given the country's complex political landscape and the relative strength of different sectarian-aligned interest groups, there has been little progress towards building a new, transparent government since. While the frequency of protests has fallen since October 2019, demonstrations continued through the end of 2019 and into 2020.

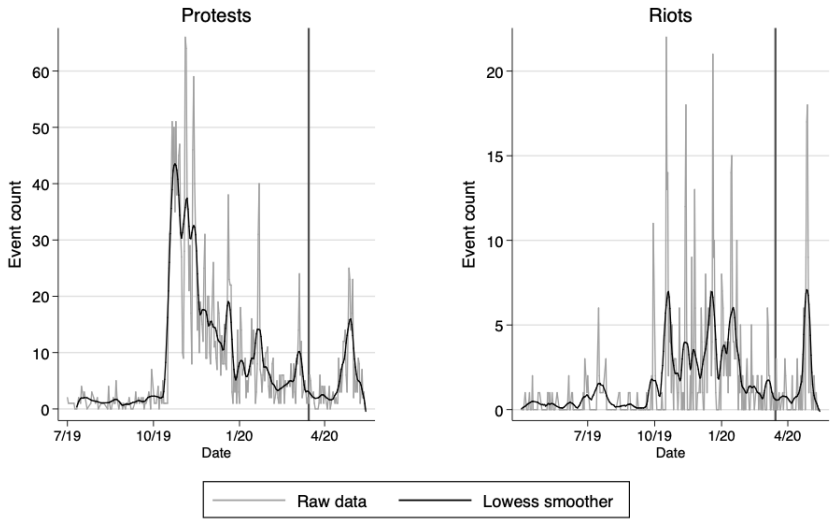
Figure 7 shows the time series for protests and riots in Lebanon in 2019 and early 2020. It does not appear that the initial lockdown led to a fall in demonstration events: the number of protests and riots had already fallen relative to earlier months. Moreover, despite appeals to stay at home to prevent the spread of COVID-19, protesting resumed in late April and continued into May.

Most analysts attribute the recent protests and riots to COVID-19 accelerating the country's ongoing currency crisis (The Economist, 2019).[13] Further

[12] The overwhelming majority of 2020 violent conflict events for Libya in the ACLED data involved the GNA and LNA. Looking at all bombings in Libya between January 1st, 2020 and the date of writing, 52% were carried out by the LNA and 45% were carried out by the GNA. The LNA was also responsible for 57% of remote violence and bombings over this time interval, while the GNA was involved in 20%.

[13] For over twenty years, the Lebanese Central Bank has managed to peg the Lebanese Pound to the US Dollar (at a rate of roughly 1,500 LBP to 1 USD) by buying dollars from commercial banks at above-market value. This approach to currency management has been likened to a pyramid or Ponzi scheme, as it relies heavily on continuous cash inflow via commercial banks (The Economist, 2019, 2020*a*). But as deposits to commercial banks fell in 2019, these banks became increasingly illiquid. And the reduction of cash inflows negatively impacted the central government's ability to purchase US dollars. Shortly before the country's COVID-19 response

Figure 7: **Demonstration events by date and type, Lebanon**



Source: Authors' calculations using ACLED data from July 1st, 2019 to mid-May 2020. The vertical reference line is for March 15th, the first day of Lebanon's initial COVID-19 lockdown. The Lowess smoother uses a bandwidth of 0.5.

reductions in the purchasing power of the Lebanese pound, and pandemic-driven shifts in supply and demand, have left many citizens struggling to afford basic necessities (The Economist, 2020*a*). Because of illiquidity in the banking sector, Lebanese citizens with bank accounts cannot simply withdrawal their savings as USD and instead are watching their wealth depreciate.

Figure 7 shows an increase in rioting as well after following initial COVID-19 lockdowns. In recent riots, participants have vandalized commercial banks throughout the country in an expression of frustration over their aforementioned financial woes (Azhari, 2019).

The results from Lebanon suggest that in certain contexts, lockdown orders and the risk of contracting COVID-19 will not dissuade demonstrators from collectively showing their dissent. The opportunity cost of participation may seem relatively low for a "banked" Lebanese citizen whose savings are dramatically depreciating. For Lebanon's poor and unbanked, the opportunity costs of participation are low as well, given COVID-19 related reductions in working hours as well as the declining value of their incomes.

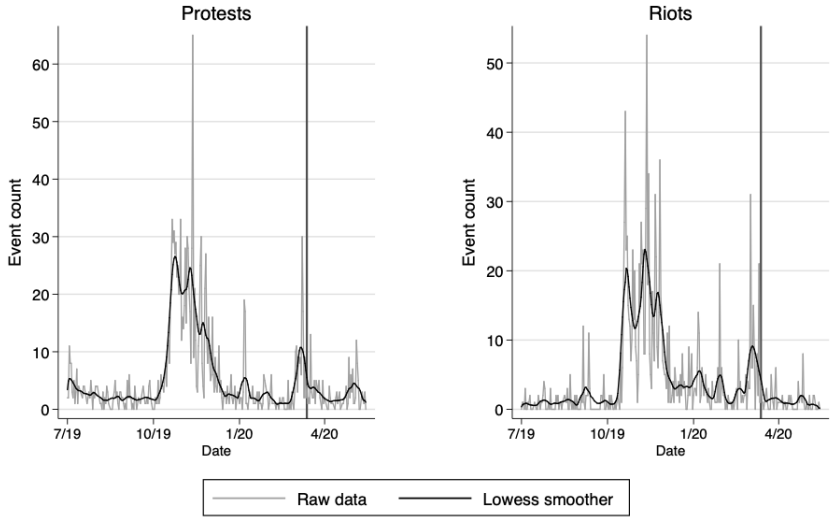
shuttered businesses, the government defaulted on a $1.2 Eurobond. This is the first time in Lebanon's history that the country defaulted on a debt (The Economist, 2020*b*).

3.5 Chile

In response to rising public transportation fares, but ultimately motivated by increasing economic inequality, Chile experienced a dramatic escalation in civil protests in 2019. These protests began as small demonstrations by students in Santiago, Chile's capital city. By the middle of October 2019, however, demonstrations intensified as participants began vandalizing and seizing control of public infrastructure (McGowan, 2019).

This escalation in both protests and riots can be seen clearly in Figure 8, with dramatic spikes—roughly 3 times baseline rates—of both types of events in October 2019. The rate of these protest and riot events decreased by the beginning of 2020, likely due to Chilean summer holiday season.

Figure 8: **Demonstration events by date and type, Chile**



Source: Authors' calculations using ACLED data from July 1st, 2019 to mid-May 2020. The vertical reference line is for March 13th, start of the government's ban on public gatherings of more than 500 people. The Lowess smoother uses a bandwidth of 0.5.

In early 2020, however, rates of both protest and riots increased again. These fresh protests and riots—still motivated by dramatic economic inequality—focused on university entrance exams, with students preventing access to test taking sites (Ramos Miranda, 2020). On March 13, the Chilean government banned public gatherings of more than 500 people, which effectively paused all public demonstrations gatherings. This effect of government policy is clear in Figure 8. Daily counts of both protests and riots increased steadily, but abruptly decreased with the government's ban. To date this lockdown persists and we do not know when and if previous demonstration movements will escalate again in Chile.

We also see noticeable reductions in demonstration events in other countries. Despite reports of protests and riots in South Africa in response to widespread concerns of lack of food and hunger (Davis, 2002), in Figure A7 in the Supplemental Online Appendix, we document a dramatic reduction in both protests and riots in the days *preceding* the national lockdown. In Figure A8, we also document a sharp decline in protests, but not riots, in Venezuela several days before the country's national lockdown went into effect.

4 Conclusion

In this short paper our primary objective is to document trends in conflict during the time of the COVID-19 pandemic. We pay particular attention to the relationship between the threat of and policy response to COVID-19 and trends in inter-group conflict by performing a quantitative case studies. If anything, our analysis highlights the sensitive relationship between COVID-19 and inter-group conflict. Future work must consider the complex and localized realities motivating inter-group conflict around the world. Nevertheless, we offer three concluding thoughts.

First, across all ACLED countries there is a recognizable decline in inter-group conflict events associated with COVID-19 (see Figure 1). Additionally, the overall decline in inter-group conflict seems to be less due to any change in trends of violent events (see Figure 2), and is mostly driven by a declining trend in protests (see Figure 3).

Second, we document critical heterogeneity in the relationship between COVID-19, policy responses, and inter-group conflict across various contexts. In India, for example, protest events have declined but violence against civilians have increased since the beginning of the country's national lockdown. In Syria, for another example, violent conflict has dramatically declined (see Figure 5). By contrast, in Libya, violent conflict has dramatically increased (see Figure 6). In other contexts, there is very little noticeable change in the rate of inter-group conflict events despite the implementation of nonpharmaceutical policy responses to the COVID-19 pandemic (see the Philippines in Figure A4, Nigeria in Figure A9, or Iraq in Figure A10).

Finally, robust causal inference identifying the specific relationship between nonpharmaceutical policy responses and inter-group conflict will inevitably be relatively tricky. The specific details of our findings potentially threaten internal validity of quasi-experimental studies. In Syria, for example, the observed dramatic decline in violent conflict is associated with a partial ceasefire implemented on March 5 which unknown connections to COVID-19. Specifically in the context of Syria, a country that represents a large share of ACLED conflict events in 2020, endogeneity of this sort threatens the credability of causal estimates. In other cases, we see reductions in inter-group conflict events in the days preceding a national lockdown (see, South Africa in Figure A7 and Venezuela in A8). Therefore, more ambitious empirical analysis employing quasi-experiemental es-

timation strategies, such as Berman et al. (2020), should be interpreted with care (Goodman-Bacon and Marcus, 2020).

This is not to say that efforts to credibly estimate and understand the consequences of COVID-19 in low- and middle-income countries is not worthwhile. To the contrary, future quasi-experimental work will do well to start small, so that authors can account for the complexity within a given context—accounting for details that we cannot go into detail in this short paper (e.g., centralization, timing, geographic implementation, etc. of policies). This future work could then build on the modest insights documented in our quantitative cases studies.

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Supplemental Online Appendix

The following material provides supplemental detail supporting the discussion and analysis in the main manuscript. This Supplemental Online Appendix includes two sections. The first section documents differential trends in violent conflict by ceasefire status, thereby documenting an alternative dimension of heterogeneity. The second section provides additional country case studies that either compare or contrast with the primary case studies in the main manuscript.

A1 Heterogeneity by Ceasefire Status

Table A1 lists the countries included in our "high-violent conflict" category and identifies whether we classified them as having a ceasefire or not. We used this information to create Figures A1, A2, and A3. In Cameroon, the Central African Republic, and Yemen, state and nonstate actors have agreed to a ceasefire in response to COVID-19. But other recently high-conflict countries established ceasefires prior to the UN Secretary General's appeal for a global ceasefire in response to COVID-19 on March 23rd. For Syria and South Sudan, there is no evidence that the current ceasefires were COVID-19 motivated. Sudan's current ceasefire began in October of 2019, months before COVID-19 became a known threat for the country. While Palestine and Lebanon do not have official ceasefires, analysts have noted what appears to be an "informal truce" betwen Israel, Hezbollah, and Hamas.

Figure A1 contrasts the daily count of battles in high-conflict countries with and without ceasefires motivated by the spread of COVID-19. The trend is lower overall in ceasefire countries because a larger share of high-conflict countries currently do not have a recognized ceasefire.[14] The trend lines do suggest that ceasefires are associated with a large reduction in battles. In countries with no ceasefire, the battle count appears to be oscillating around 45 per day, hardly a reduction compared to trends before the March 15th declaration of a global emergency.

Ceasefires appear to be associated with reductions in remote violence and bombings in high-conflict countries as well, as evidenced by Figure A2. The trendline for high-conflict countries with no recognized ceasefire is rather flat over the time series. By contrast, we see a large reduction in remote violence and bombings in ceasefire countries taking place slightly before March 15th, and the trend line has been downward-sloping in April and May.

The time series for violence against civilians in these high-conflict countries (Figure A3) shows no clear decline in response to COVID-19, ceasefire or not. In fact, in countries with no ceasefire, it appears that violence against citizens marginally increased around March 15th. Even in countries with ceasefires, the trendline has remained quite flat, suggesting no reduction in violent events targeting citizens in response to ceasefires.

[14] Of the 22 countries we classify as "high conflict," 13 do not have a recognized ceasefire and 9 have a partly or fully recognized ceasefire.

These time series suggest that in high-conflict states, certain types of conflict events are indeed declining, but only if state and non-state actors have agreed upon the terms of ceasefire. As in the trend for all ACLED countries (Figure 2, violence against civilians remains relatively constant.

A2 Additional Country Case Study Figures

Supplemental country case studies include:

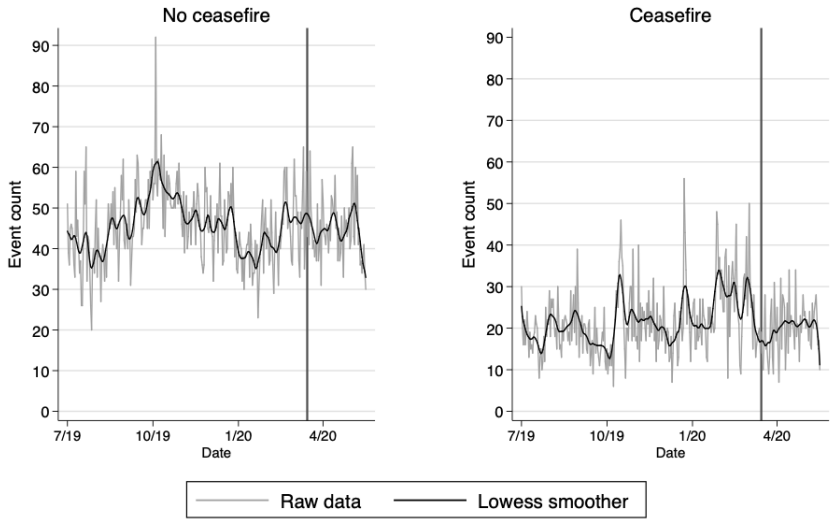
- The Philippines in Figure A4, with community quarantines implemented across the country on March 16 and a ceasefire negotiated between the central government and rebel groups on March 24.
- Uganda in Figure A5, with bans on public transportation and non-food markets implemented on March 25.
- Yemen in Figure A6, with a ceasefire arrangement from April 9 through May 23.
- South Africa in Figure A7, with a national lockdown implemented on March 26.
- Venezuela in Figure A8, with a national lockdown implemented on March 30.
- Nigeria in Figure A9, with state-specific lockdowns. We show Borno state's lockdown implemented on April 20.
- Iraq in Figure A10, with a national lockdown on March 22.

Table A1: **High violent conflict countries and current ceasefire status**

Country	Recent ceasefire?	Ceasefire start date	Ceasefire end date	Ceasefire initially motivated by COVID-19?
Afghanistan	No			
Azerbaijan	No			
Cameroon	Partly	3/29/20	Unclear	Yes
Central Afr. Rep.	Partly	4/22/20	Unclear	Yes
Dem. Rep. Congo	No			
Ethiopia	No			
India	No			
Iraq	No			
Lebanon	Informal truce	Unclear	Unclear	Yes
Libya	No			
Mali	No			
Myanmar	No			
Nigeria	No			
Pakistan	No			
Palestine	Informal truce	Unclear	Unclear	Yes
Philippines	Yes	3/19/20	4/30/20	Yes
Somalia	No			
South Sudan	Yes	2/22/20	Unclear	No
Sudan	Yes	10/21/19	Unclear	No
Syria	Partly	3/6/20	Unclear	No
Ukraine	No			
Yemen	Yes	4/9/20	5/23/20	Yes

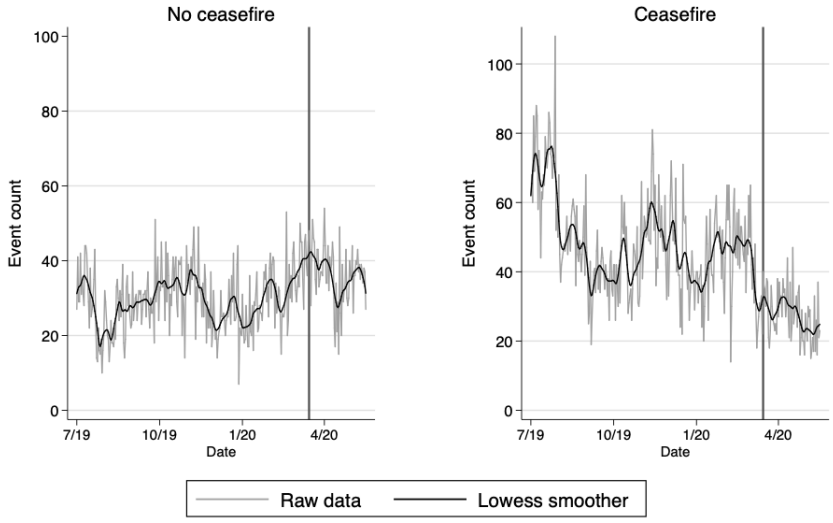
Source: Authors' determination. The countries included on this list were selected based on the Global Peace Index. We selected high violent conflict countries as those with an "ongoing domestic and international conflict" index score of 2.5 or higher, then dropping all countries that made the list because of ongoing proxy warfare (Iran, Turkey, Saudi Arabia, Iran) as well as North Korea. We determine ceasefire data based on various sources, including updates from the UN Secretary General (UN Security Council, 2020*b*).

Figure A1: **Count of battles by date and national ceasefire, high-conflict ACLED countries**



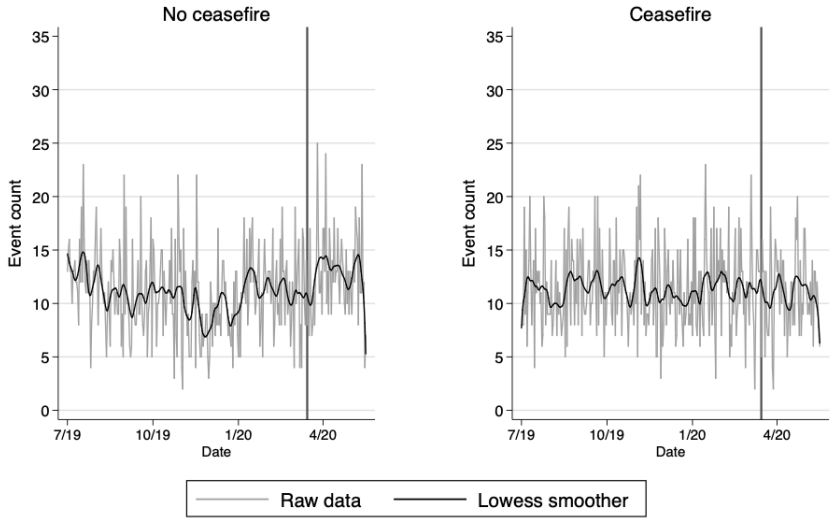
Source: Authors' calculations using ACLED data from July 1st, 2019 to ????. The vertical reference line is for March 15th, the day on which the World Health Organization declared a global emergency. We classify high-conflict countries based on the GPI, specifically a country having a 2019 "ongoing domestic or international conflict" score of 2.5 or higher.

Figure A2: **Count of remote violence and bombings by date and national ceasefire, high-conflict ACLED countries**



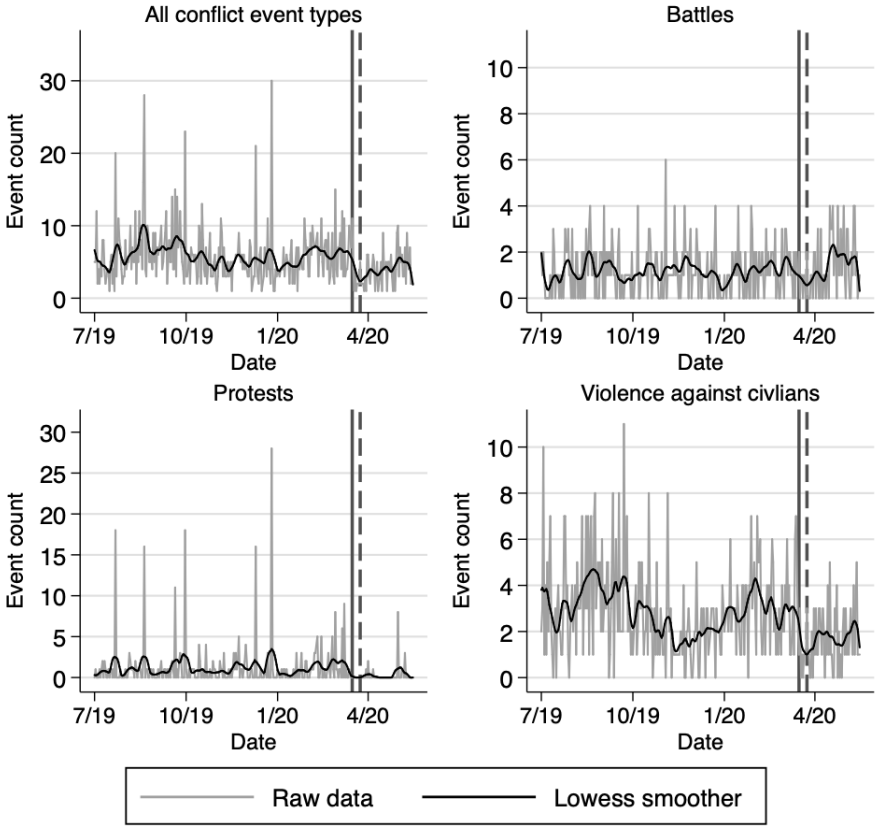
Source: Authors' calculations using ACLED data from April 1st, 2019 to ????. The vertical reference line is for March 15th, the day on which the World Health Organization declared a global emergency. We classify high-conflict countries based on the GPI, specifically a country having a 2019 "ongoing domestic or international conflict" score of 2.5 or higher. The Lowess smoother uses a bandwidth of 0.5.

Figure A3: **Count of violence against civilians by date and national ceasefire, high-conflict ACLED countries**



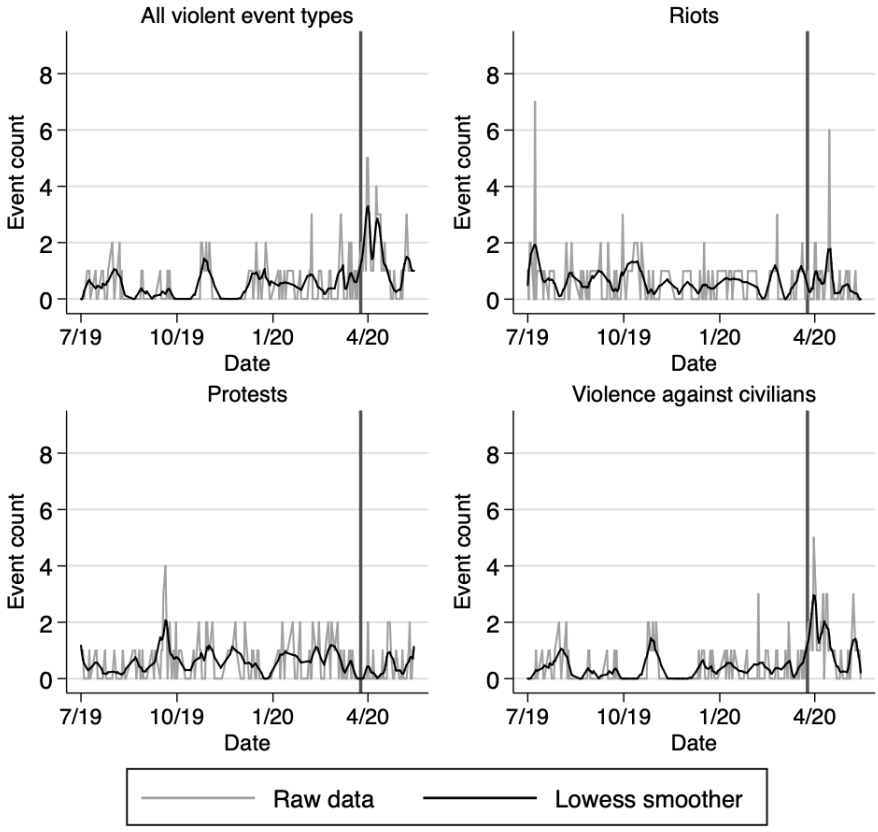
Source: Authors' calculations using ACLED data from April 1st, 2019 to ????. The vertical reference line is for March 15th, the day on which the World Health Organization declared a global emergency. We classify high-conflict countries based on the GPI, specifically a country having a 2019 "ongoing domestic or international conflict" score of 2.5 or higher. The Lowess smoother uses a bandwidth of 0.5.

Figure A4: **Conflict events by date and type, Philippines**



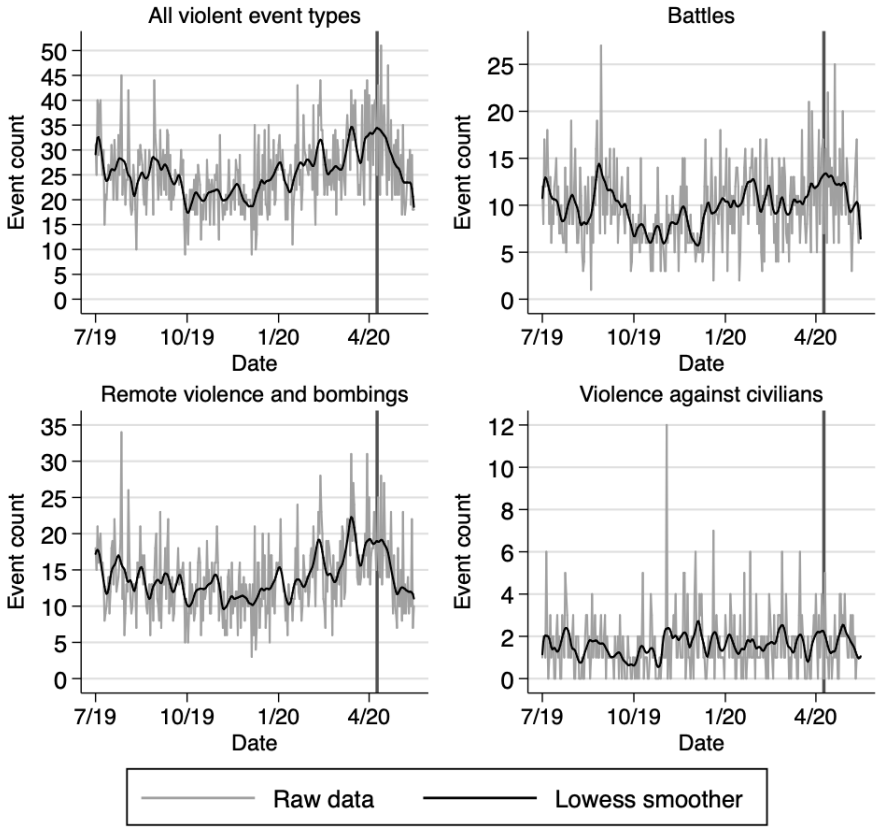
Source: Authors' calculations using ACLED data from July 1st, 2019 to mid-May 2020. Community quarantines implemented across the Philippines, marked by a solid vertical line, began on March 16th. On March 24, marked by a dashed vertical line, rebel groups within the Philippines committed to a temporary ceasefire. The Lowess smoother uses a bandwidth of 0.5.

Figure A5: **Conflict events by date and type, Uganda**



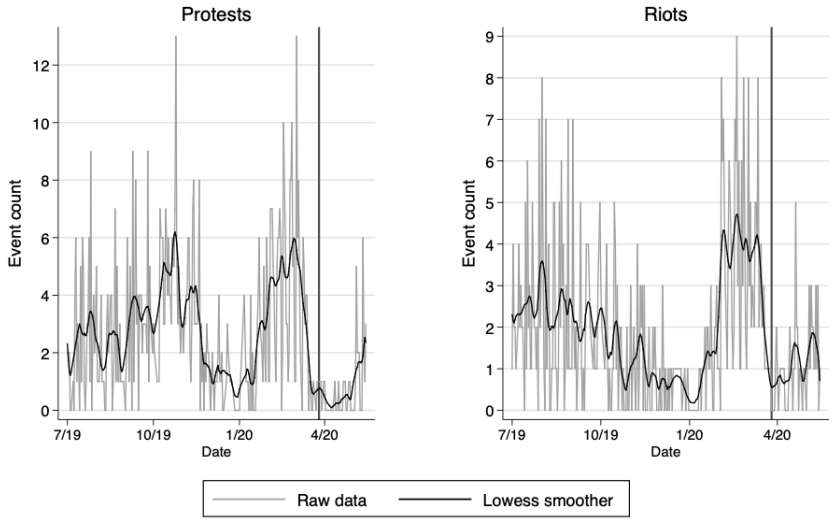
Source: Authors' calculations using ACLED data from July 1st, 2019 to mid-May 2020. Bans on public transportation and non-food markets, marked by a solid vertical line, began on March 25th. The Lowess smoother uses a bandwidth of 0.5.

Figure A6: **Violent conflict events by date and type, Yemen**



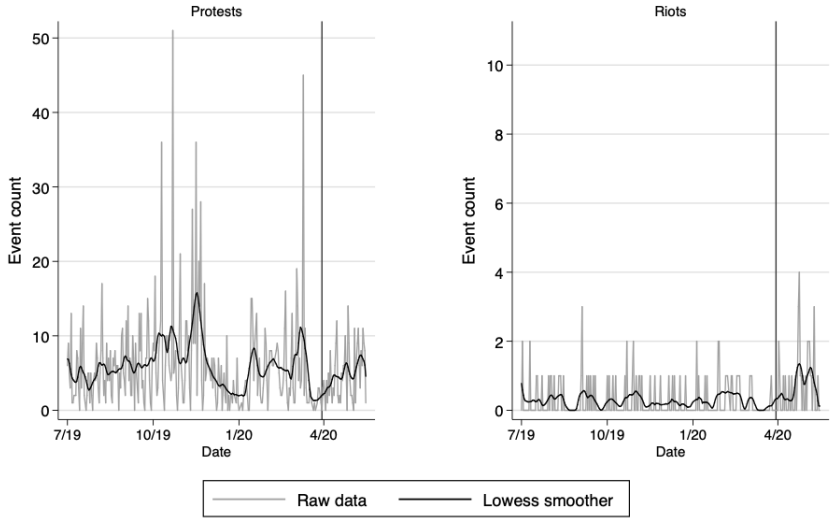
Source: Authors' calculations using ACLED data from July 1st, 2019 to mid-May 2020. The vertical reference line is for April 9th, the beginning of a recognized ceasefire that expired on May 23rd. The Lowess smoother uses a bandwidth of 0.5.

Figure A7: **Demonstration events by date and type, South Africa**



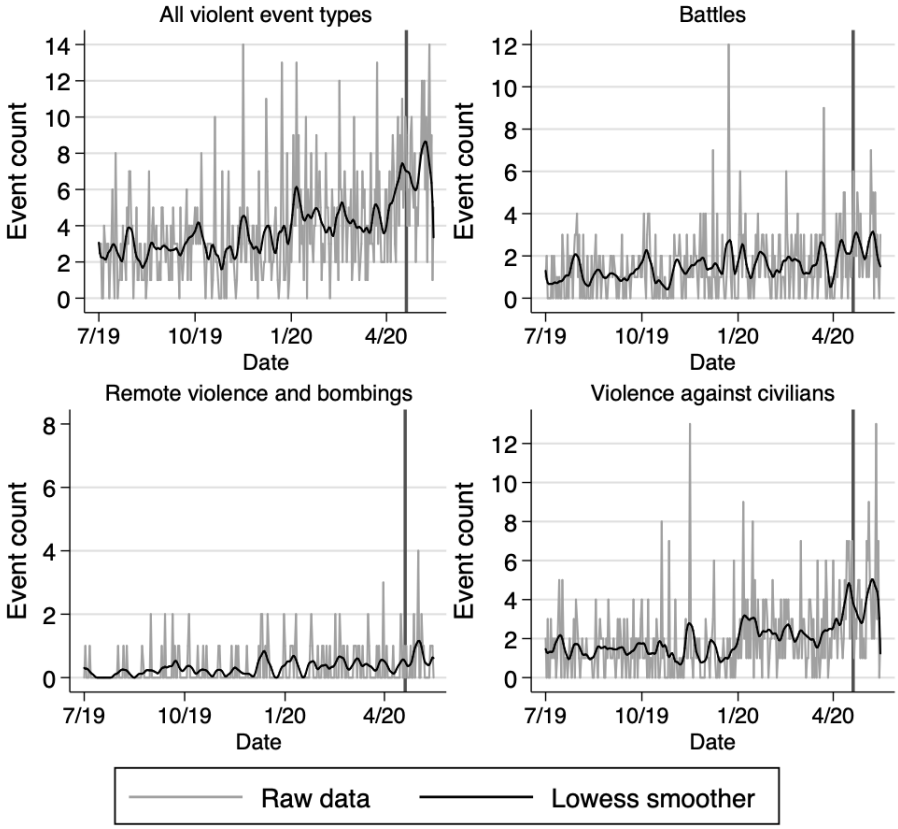
Source: Authors' calculations using ACLED data from July 1st, 2019 to mid-May 2020. The vertical reference line is for March 26, the beginning of the national lockdown. The Lowess smoother uses a bandwidth of 0.5.

Figure A8: **Demonstration events by date and type, Venezuela**



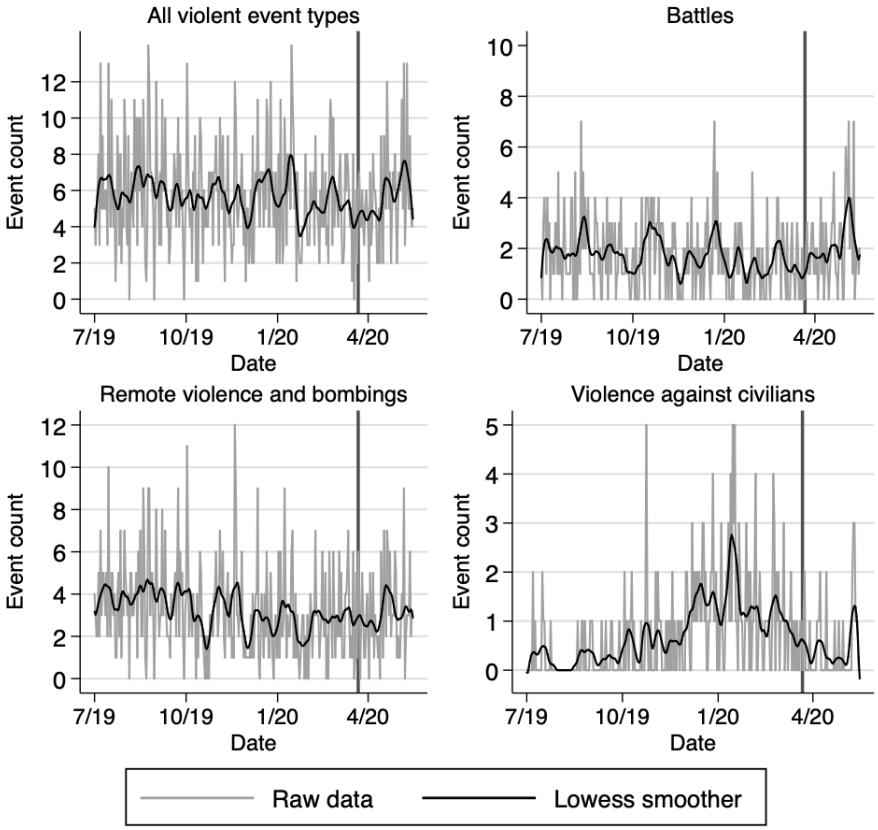
Source: Authors' calculations using ACLED data from July 1st, 2019 to mid-May 2020. The vertical reference line is for March 30, the beginning of the national lockdown. The Lowess smoother uses a bandwidth of 0.5.

Figure A9: **Violent conflict events by date and type, Nigeria**



Source: Authors' calculations using ACLED data from April 1st, 2019 to mid-May 2020. States across Nigeria implemented lockdowns at different times. The vertical reference line is for April 20, the beginning of Borno state's lockdown. Borno state is home to a relatively high level of Boko Haram activity. The Lowess smoother uses a bandwidth of 0.5.

Figure A10: **Violent conflict events by date and type, Iraq**



Source: Authors' calculations using ACLED data from April 1st, 2019 to mid-May 2020. The vertical reference line is for March 22, the beginning of Iraq's national lockdown. The Lowess smoother uses a bandwidth of 0.5.