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Shutdown Policies and Worldwide Conflict

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Shutdown policies and worldwide conflict*

Nicolas Berman † Mathieu Couttenier ‡ Nathalie Monnet § Rohit Ticku ¶

May 7, 2020

Abstract

We provide real-time evidence on the impact of Covid-19 restrictions policies on conflicts globally. We use daily information on conflict events and government policy responses to limit the spread of coronavirus to study how conflict levels vary following shutdown and lockdown policies. We use the staggered implementation of restriction policies across countries to identify their effect on conflict incidence and intensity. Our results show that imposing a nation-wide shutdown reduces the likelihood of daily conflict by around 9 percentage points. The reduction is driven by a drop in the incidence of battles, protests and violence against civilians. Across actors the decline is significant for conflicts involving political militias, protesters and civilians. We also observe a significant cross-country heterogeneity in the effect of restriction policies on conflict: no conflict reduction is observed in low income countries and in societies more fractionalized along ethnic or religious lines. We discuss the potential channels that can explain this heterogeneity.

Keywords: Covid-19, Coronavirus, Conflict, Violence
JEL classification: D74, E65, J18

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1 Introduction

On March 31st, 2020 the U.N. Secretary General, Antonio Guterres, cautioned that the coronavirus epidemic could lead to "enhanced instability, enhanced unrest, and enhanced conflict". The ongoing epidemic can exacerbate conflict by upending social and political protections. The effect could be severe for the vulnerable populations: those caught up in war and persecution, or those living in densely populated areas with dismal state capacity.[1] Critically, countries have responded with varying degree of restrictions to limit the spread of coronavirus. The policy response to COVID-19 can itself have a bearing on conflict situations.

Anecdotal evidence suggests that restrictions on mobility to flatten the epidemic curve, that raise the cost of mobilization, have a direct and negative effect on conflict. For example, violent crime across major cities in the United States has fallen sharply following the lockdown[2] and India's lockdown has terminated nationwide protests against the mistreatment of Muslims.[3] The flipside is rising scapegoating of minorities or vulnerable groups, especially when state resources are diverted to combat the pandemic.[4] Moreover, the authoritarian regimes may also use the global preoccupation with coronavirus as an opportunity to crush opposition. For example, the Myanmar military has stepped up its offensive against ethnic armed rebel groups in Rakhine, Chin, Karen and northern Shan state[5], while the United Nations appeal for a global ceasefire to countervail the escalation in violence.[6] Some regimes have also used the global epidemic as an opportunity to stifle democratic opposition. In Azerbaijan, members of the opposition have been locked up for allegedly violating a lockdown.[7]

The COVID-19 pandemic and the restriction policies have also negatively affected economic activity. For example, the contraction of China's economy has been estimated to be 6.8% in the first quarter of 2020.[8] In United States, a staggering 22 million people were rendered unemployed in a month since coronavirus was declared a national emergency.[9] The effect of restrictions through the income mechanism is a priori ambiguous. On the one hand, the current economic downturn may lead to more conflict, by reducing the individual opportunity cost of violence, protests and rebellions (Becker, 1968; Grossman, 1991; Dal Bó and Dal Bó, 2011), and by hampering the capacity of the state to fight opponents or buy off opposition (Berman et al., 2011, Fearon and Laitin, 2003a). On the other hand, states with more limited resources are less attractive "prizes" to be seized, which may lead to a decrease in conflict intensity (Bates et al., 2002; Besley and Persson, 2010).[10]

In this paper, we provide real-time evidence on how enforcing restrictions to limit the spread of coronavirus

[1] Shared responsibility, global solidarity: Responding to the socio-economic impacts of COVID-19 (UNSDG, March 2020, url).
[2] Domestic violence has increased during coronavirus lockdowns (The Economist, April 22th, 2020, url).
[3] Would-be autocrats are using COVID-19 as an excuse to grab more power (The Economist, April 23th, 2020, url).
[4] For example, there have been a few incidents of physical violence against Muslims, in addition to hateful messages on social media, since it was discovered that a Muslim religious gathering was the source of many coronavirus cases (The Economist, April 23th, 2020, url). Among Rohingya refugee camps in Bangladesh coronavirus is being attributed as divine punishment for women's "dishonorable acts" and not observing *Purdah* (veiling) (International Organization of Migration, April 19th, 2020, url).
[5] Myanmar military steps up attacks as coronavirus spreads (AlJazeera, April 16th, 2020, url).
[6] While some warring groups have responded to a call for ceasefire, in many of the most fragile situations there has not been any let up in fighting, and in some cases the fighting has intensified (UN.org, April 3rd, 2020), url).
[7] Would-be autocrats are using COVID-19 as an excuse to grab more power (The Economist, April 23th, 2020, url).
[8] CRU: China's First Ever Negative Quarterly GDP Growth, Yahoo Finance (April 21th, 2020, url).
[9] U.S. now has 22 million unemployed, wiping out a decade of job gains, Washington Post (April 16th, 2020, url).
[10] One of the consequences of the current slowdown in economic activity is a collapse of the market for commodities, from agricultural to oil and mineral prices. Such drop of commodity prices may have multiple effects on conflict. Studying such effects is beyond the scope of this paper, in which we focus on the specific impact of COVID-19 related shutdown and lockdown policies.

affects conflicts globally and how conflict dynamics may vary across types of events, actors and may also crucially depend on socio-economic context. We take advantage of the joint release of daily information on conflict events by the *Armed Conflict Location and Event* dataset, on the one hand, and on government policy responses by the Oxford COVID-19 Government Response Tracker, on the other hand, to estimate how conflict levels vary following shut- and lockdown policies. In our baseline estimations, we focus on policies imposing the closing of workplaces and schools, and restricting internal movements. We also consider in our robustness exercises "stay-at-home" policies specifically. Our results show that imposing a nation-wide restriction on mobility reduces the likelihood of daily conflict by 9 percentage points. Controlling for the country-specific timing of COVID-19 outbreak does not affect this result. We further explore the dynamics of conflict in response to a restriction and find that the reduction in likelihood is progressive, and stronger three to four weeks after the policy is implemented. We exploit additional information in our dataset to assess whether restrictions affect conflict events differently, based on their nature and on the type of actors involved. We find that such policies negatively affect battles, protests and violence against civilians. The negative effect is most conspicuous for protests. Across actors, the decline is significant for events that involve political militias, protesters or civilians. On the other hand, conflict involving state forces, rebel groups or identity militias do not show any significant decline. These results are robust across various measures of mobility restrictions policies, and hold when considering either conflict incidence or intensity (number of reported events).

Next, we investigate whether country level characteristics mediate the effectiveness of restriction policies. We consider different characteristics that are identified in the literature as important features explaining conflict: ethnic and religious fractionalization, institutions (democracy, rule of law) and income (GDP per capita). Two main results emerge. First, conflict does not appear to significantly decrease post-restriction in countries with low GDP per capita, while it does in countries with relatively high income per capita. This difference appears to be mostly driven by a stronger drop in protests in the latter case. Second, and consistent with the scapegoating narrative mentioned above, we find that conflict does not decrease in countries with high religious fractionalization. This effect is mostly driven by events involving civilians, political militias and state forces. These results suggest that the negative effect of mobility restriction on conflict could be tempered by a rise in violence against the religious minorities.

Finally, we perform a counterfactual exercise where we quantify the average change in conflict incidence implied by shutdown measures, compared to a no-shutdown situation, taking into account the country characteristics mentioned above. While most countries which implemented restriction policies would have experienced higher conflict incidence otherwise, we observe a significant cross-country heterogeneity in the magnitude of conflict reduction.

We believe that our estimates of the extent of conflict reduction following shutdown policies are likely to be an upper bound. Collecting and reporting data on conflict events might become more difficult during shutdown periods, especially if states use these contexts to further repress the media. We would in this case overestimate the reduction in violence in repressive states. We consider this possibility explicitly by testing how the effect of shutdown policies varies with press and media freedom indices. We find no heterogeneous effect in that dimension; in addition, controlling for media freedom leaves unchanged our results on country characteristics. Hence, though the overall conflict reduction might be overestimated, such bias does not appear to be driving the cross-country heterogeneity we uncover.

Our paper contributes to the literature in several ways. We contribute to research on the consequences of COVID-19. Ongoing research has assessed the macroeconomic implications of COVID-19 (Atkeson, 2020; McKibbin and Fernando, 2020; Guerrieri et al., 2020), the role of climate, or mass media in spreading COVID-19 (Carleton and Meng, 2020; Bursztyn et al., 2020). Notably, Chinazzi et al. (2020) study the effect of travel restrictions on the spread of COVID-19. In contrast, we provide first evidence for the effect of COVID-19 related mobility restrictions on global conflicts' level. Next we contribute to the literature on infectious diseases and civil conflicts, which shows that health shocks due to infectious diseases can potentially cause civil conflicts (Cervellati et al., 2017). We instead highlight that policy response to an epidemic can have an unintended consequence for civil conflicts. We also contribute to the literature on the opportunity cost of organized political activity. These papers find that bad weather hampers political demonstrations by increasing the cost of individual participation (Madestam et al., 2013; Kurrild-Klitgaard, 2013). In a similar vein, we find that restriction policies have a particularly significant effect on reducing protests. Finally, our work relates to the literature on scapegoating of minorities during epidemics. Jedwab et al. (2019) find that Black Death mortality increased Jewish persecution, while Voigtländer and Voth (2012) show that Black Death pogroms created anti-Jewish sentiment that persisted over centuries. We provide suggestive evidence that the reduction in violence against civilians due to mobility restrictions may have been countervailed by a rise in violence against religious minorities in some countries.

The next section presents the data and our baseline research design. Section 3 discusses the results and their robustness, and section 4 concludes.

2 Data and empirical strategy

2.1 Data and stylized facts

Conflict. We use conflict event data from the *Armed Conflict Location and Event* dataset (Raleigh et al., 2010, ACLED), as available on the ACLED webpage on April 28th, 2020. The data contain daily information on conflict events with specific details on the nature and the actors on both sides of the conflicts. Events are compiled from various sources, including press accounts from regional and local news, humanitarian agencies, and research publications.[11] For the purpose of our analysis, we end up with 105 countries (see Online Appendix Table A1.2 for a full list of countries) from January 1st 2016 to April 18th 2020. We do not consider the last week of data (April 19-25, 2020), as it is likely that reporting of events for that week is still incomplete at the time we retrieved the data.[12] We consider all types of conflict events in our estimations, regardless of whether they are described or not by ACLED as being directly related to the COVID-19.[13]

In our baseline estimates, we consider the daily incidence of any violent event, as well as the total number of

[11] These data have been widely used in recent conflict literature, see for instance Besley and Reynal-Querol (2014), Michalopoulos and Papaioannou (2016), and Berman et al. (2017).

[12] ACLED is updated on a daily basis, but events are added retrospectively if they did not yet appear in the various sources immediately after they occur.

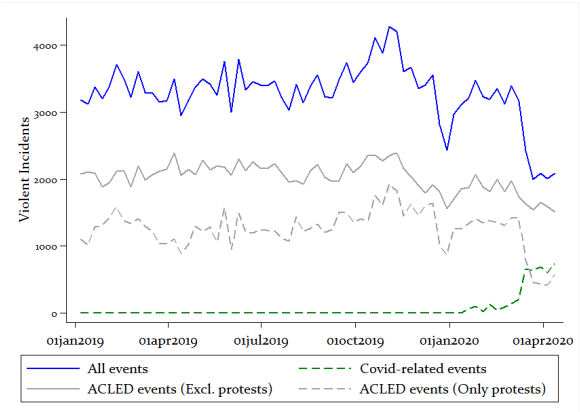
[13] Though they account for a very small share of the observations, ACLED also reports information on ceasefire and peace agreement (ACLED sub-category "agreements" in the category "Strategic developments") and other events which are not conflictual (ACLED sub-category "other" in the category "Strategic developments"; the example provided by ACLED for this type of event is the following: "President of Russia Vladimir Putin inaugurates the newly constructed bridge that connects Russia with the Kerch City of Crimea, four years after the annexation of Crimea"). We drop these events from the data before computing our conflict measures. In our period of study, they represent only 0.66% of the total number of events.

violent events observed in each country. We also make use of two crucial features of the ACLED dataset. First, the data informs us on the nature of violence, i.e. whether the event is related to battles, remote violence, protests, riots, strategic development, and violence against civilians. Second, information are released on the different actors that are involved, such as state forces, rebel groups, political militias, identity militias, rioters, protesters, and civilians. Note that the ACLED data do not include information on who initiated the attack.

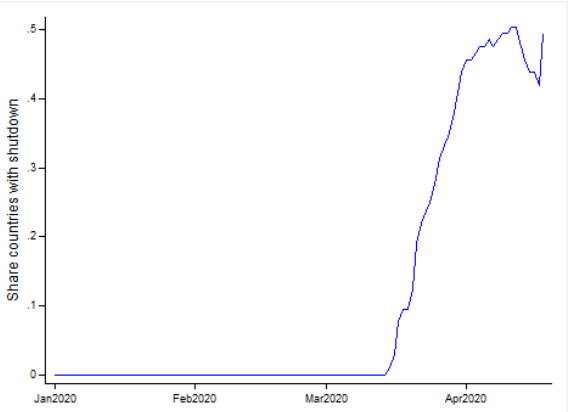
Figure 1(a) displays the weekly number of events since January 1st, 2019. The total number of events dramatically declines from March 2020 onward. Mid-March 2020, it is 25% lower than the number of events at the same period of the previous year; in the first half of April 2020, it is 30 to 35% lower than in the first half of April 2019. The drop appears to be partly driven by protests, though even after excluding protests the conflict events fall by almost 25% in March-April 2020 compared to the previous year. Figure 1(a) also plots the number of events that ACLED identifies as being related to COVID-19: those for which the words "Covid" or "Coronavirus" appears in the ACLED event description. At the end of our sample period, such events represent more than a third of the total number of observed events.

Figure 1: Evolution of conflict events and shutdown policies

(a) Conflict



(b) Shutdowns



Source: Authors' computation from ACLED and OxGRT data.

Covid-19-related Policies. Information on the various governmental policies as a response to the COVID-19 outbreak are collected from the Oxford COVID-19 Government Response Tracker (OxCGRT) (Hale et al., 2020).[14] OxCGRT systematically assembles information on several policy responses governments have implemented, using public sources such as official government press releases and newspaper articles. Data include information on eight measures of public policy responses: the closings of school, workplaces and public transport, travel restrictions (internal and international), limitations of public gatherings, and stay-at-home requirements. Note that latter two categories have been added on April 28th, 2020 and are still incomplete at the time this paper is written. Measures are ranked on a scale ranging from 0 (no measure) to 2, 3 or 4: 0 means no measure in place, 1 means that the measure is a recommendation, and 2 to 4 denote required measure of different scale.[15] The OxCGRT data also contain information on whether the measure

[14] Data were downloaded on April 29th, 2020.

[15] For instance, in the case of schools, a value of 2 implies a required measure to close some part of the schooling system (only high schools, or only public schools), while a value of 3 implies a complete shutdown of the schools.

is a national or a regional one.[16]

In this paper, we focus on all COVID-19 related policy responses, with an emphasis on measures that restrict mobility. Our estimations are based on three measures. First, we construct a binary restriction measure, which switches to 1 when governments have implemented national school and workplace closings as well as restrictions on internal movements. We label this measure *Shutdown*. Our sample includes 62 countries with the enforcement of restriction measures between March 15th and April 18th (see Online Appendix Table A1.3 for the list of implementation dates by countries). On the other hand, 43 countries do not impose such measures (or only impose a part of these).

Second, we compute an index measure, hereafter labeled *Narrow Index*, which uses the same policy categories but takes into account the degree of requirement (no measure, recommended or required) as well as the geographical scope of the measure (local vs. national). We proceed in two steps. First, we recode each of the measure in the following order: i) recommendations, whether national or local, are coded as 1; ii) local requirements, are coded as 2; and iii) national requirements are coded as 3.[17] Our index is then computed as the sum of the three policy measures – closings of school, closing of workplaces and restrictions on internal movements – normalized on a scale between 0 and 1.

These two measures omit several categories available in the OxCGRT data: closing of public transport, restrictions to international travel, limitations of public gatherings and stay-at-home requirements. The closing of public transport is a redundant measure: when schools and workplaces are closed, and when there are restrictions on internal movements, public transport is already shut down. We also abstract from limitations on international travels as this measure entails some discrepancies. The last two measures – public gatherings and stay-at-home – are omitted from our baseline because they appear to be incomplete at the time of our data download (approximately 60% of the observations are missing). As a robustness, we therefore compute a more general index, labeled *Broad Index*, which takes into account all categories, with the exception of limitations on public gathering and stay-at-home measures. Also, we have recoded the stay-at-home measure to fill-in most of the missing observations[18] and we consider the effect of this measure separately in our sensitivity exercises. Figure 1(b) depicts the global move toward shutdown policies across the world in response of the COVID-19 crisis. Until mid-March, none of the countries in our sample have imposed a shutdown, based on our definition. Within a month since then, shutdown policies have affected about half of our sample of countries. Figures A1.5 in the Online Appendix show the evolution of our two indexes.

Country characteristics. In Section 3, we study how country characteristics may explain heterogeneous effect of restriction policies across countries. We mainly focus on five country characteristics from the Quality of Government dataset, which compiles several country indicators from various publicly available

[16] OxCGRT also provides a composite measure of the 7 indicators, the "stringency index", including the seven government responses and their geographical coverage. The stringency index is built as the average measure of the eight policies, taking into account whether the policy is local or national, and rescaled between 0 and 100. We do not use this measure because some of the sub-categories are redundant for our research design. Finally, OxCGRT also includes some information about fiscal and monetary measures, and two COVID-19 related health policies (testing and contact tracing).

[17] We do not consider the distinction between the different scales of requirements, i.e. values 2 and 4 of the policy measures, but assign a value of 2 to the all required measures at the local level and a value 3 for the national level.

[18] More than 20% of the countries in OxCGRT contained a coded stay-at-home measure starting on April 18th, 2020 with missing observations beforehand. Sources provided by OxCGRT and online searches (newspaper articles and official sources retained) were used to assess the exact date of implementation of stay-at-home policies, without making changes to the OxCGRT coding.

sources (Teorell et al., 2020). First, we use two indicators of fractionalization that reflect the probability that two randomly selected individuals from a given country will not share a certain characteristic. The fractionalization variables can capture the relationship between ethnic cleavages and political instability or conflict that could exist across countries (Esteban and Ray, 1994, 1999; Montalvo and Reynal-Querol, 2005). Based on the year 2000, we are specifically interested at ethnic and religious fractionalization (Alesina et al., 2003). Second, we use two scores on the quality of institutions, namely the rule of law and the level of democracy. The latter is approximated using a combined imputed Polity-Freedom House index which ranges from 0 (least democratic) to 10 (most democratic). Rule of law measures the confidence in the rules of society by including perceptions on crime, the judiciary system and enforceability (Worldwide Governance Indicators, World Bank Group et al. (2010)). These variables capture any difference in conflict levels across countries that could be due to the underlying institutions (Fearon and Laitin, 2003b; Collier and Rohner, 2008). Last, we use GDP per capita as a measure of economic development (World Bank Group et al., 2010). All measures except the fractionalization ones are averaged between 2016 and 2019.

Descriptive statistics. Table A1.4 in the Online Appendix provides summary statistics for all variables used in the paper. Over the four conflict events that are reported daily in our sample period, protests are the most common form, followed by battles. This pattern is also reflected in the actor types: conflict events that involve state forces, protesters or rebel groups are most preponderant. Given that ACLED primarily focuses on developing countries, unsurprisingly, the countries included in our sample exhibit lower GDP per capita (about 6,800 current USD, compared to a world average of 14,000 over the period), democracy scores (4.9, as compared with a cross-country average of 6.4 at the world level), rule of law indexes (-0.46, -0.1 at the world level) than the world average; on the other hand, the levels of ethnic and religious fractionalization are more comparable to the world average (0.53 and 0.43 in our sample versus 0.44 and 0.44 at the world level).

2.2 Empirical strategy

Baseline equation. Our aim is to estimate how restriction policies in country i at day t contemporaneously affect conflict. We estimate the following baseline specification:

$$\text{Conflict}_{it} = \beta \text{Restrictions}_{it} + \eta_c + \mu_{ym} + \varepsilon_{it}, \tag{1}$$

where Conflict_{it} is our conflict variable at the country-day level, being measured in terms of incidence (i.e. a binary variable coding for non-zero events) in our baseline estimates. We also report results using conflict intensity, defined as the total number of violent events in a day. Restrictions_{it} is our measure of restrictions at country-level - the binary *Shutdown* measure is used as baseline, and we systematically check the results using the *Narrow Index* and *Broad Index* measures. Finally, η_c and μ_{ym} are country and year-month fixed effects, respectively. η_c accounts for any time-invariant or slow-moving country characteristics, such as political system, institutions, or culture, that may affect conflict; μ_{ym} captures common year-month shocks, in particular the global spread of COVID-19 that correlates with lockdown policies, and worldwide seasonality in conflict incidence. In our baseline estimates we use a linear probability model, with standard errors clustered at the country level. When using the number of conflict events as a dependent variable, we use a Poisson pseudo maximum likelihood estimator.

Additional exercises and robustness. We perform several additional exercises. First, we evaluate the

post-shutdown dynamics of violence by including weekly leads and lags of our binary Restrictions$_{it}$. Second, we consider separately each of the ACLED category of events and actors (see Online Appendix Table A1.4 for a list of types of events and actors). Finally, we test whether our estimates of β vary across countries with different characteristics, by interacting our measure of COVID-19-related policies with binary indicators denoting that the country-specific indicator falls below or above the sample median.

3 Results

Baseline estimates. Table 1 displays the main estimates. Our binary measure of restrictions is negatively correlated to the incidence of conflict. The point estimate suggests that shutdowns are associated with a 9 percentage point drop in conflict incidence (column 1), and with 0.27 fewer events, e.g. a 6.5% drop in the total daily number of conflict events (column 2). Results are similar to the use of our alternative policy measures, *Narrow index* and *Broad index* (columns 3 and 4, respectively). Quantitatively, a one standard deviation increase in the indexes (-0.136 and -0.135, respectively) is associated with a decrease in conflict incidence range from 5.1 percentage points (column 3) to 5.5 percentage points (column 4). Overall, the results in Table 1 confirm the descriptive pattern shown in Figure 1: shutdown policies are associated with a lower incidence and intensity of conflict.

We perform three robustness exercises on these aggregate results. First, we control for COVID-19 outbreak, in the form of a dummy variable which switches to 1 when a country confirms its first COVID-19 case (Table A2.5 in the Online Appendix). This has little effect on our estimates, which suggests that our results are indeed driven by COVID-19 restriction policies, rather than by the local outbreak of the pandemic. Second, we control for linear country specific time trends to allow for unobserved country-specific conflict propensities to trend linearly over time. Despite our short-time period, this demanding specification leaves our results broadly unchanged (Table A2.6). Finally, we perform a placebo analysis, by randomly permuting the implementation dates of our restriction measure *Shutdown (binary)* for each country in the sample. We estimate equation (1) with our permuted restriction. Figure A2.6 plots the sampling distribution of our coefficient of interest, for which we repeat the estimation 1,000 times. Most of the estimates with permuted dates are not significant and far from our main estimate.

Freedom of press and reporting bias. Since the beginning of COVID-19 pandemic, Reporters Without Borders (RSF) have been monitoring the impact on journalism. Through anecdotal evidence, they document state censorship, disinformation, and negative consequences on the right to reliable news.[19] These effects are argued to be more prominent in countries where media independence and pluralism or respect for freedom of press was rather low before the pandemic.[20] Transposed to our research question, this might imply that countries with a low level of press freedom exhibit bias in the reporting, which would imply a downward bias in our estimates of the effect of restrictions policies: with fewer events reported, we would overestimate the conflict-reducing impact of shutdown policies. In column (5) of Table 1, we indirectly test for the existence of such reporting bias by interacting our baseline policy variable with a pre-shutdown measure of press freedom: the average of the press freedom index from Reporters Without Borders over the 2016-2019 period,

[19] A real time update of COVID-19 related violations are compiled here.

[20] Reporters Without Borders use anecdotal evidence in the 2020 World Press Freedom Index to highlight a correlation between press freedom violations related to the coronavirus epidemic and the ranking in the Index. url.

Table 1: Baseline Results

	(1)	(2)	(3)	(4)	(5)
Dep. var. (conflict)	Incidence	Intensity	———	Incidence	———
Policy restrictions measure	Shutdown	(binary)	Narrow index	Broad index	Shutdown
Policy restriction	-0.093***	-0.273*	-0.185***	-0.201***	-0.149**
	(0.030)	(0.165)	(0.034)	(0.036)	(0.074)
× Press Freedom Index					-0.001
					(0.002)
Observations	122,099	122,099	122,099	122,099	117,794
R-squared	0.482		0.482	0.482	0.478
Model	OLS	PPML	OLS	OLS	OLS
Country FE			——— Yes ———		
Month-year FE			——— Yes ———		

Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict incidence is a variable that takes the value 1 if at least one conflict event is recorded in the country a given day. Conflict intensity is the number of events observed in the country a given day. See main text for the definition of the various restriction measures. Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation. Press Freedom Index is the average of the press freedom index from Reporters Without Borders over the 2016-2019 period, as provided in the Quality of Government dataset.

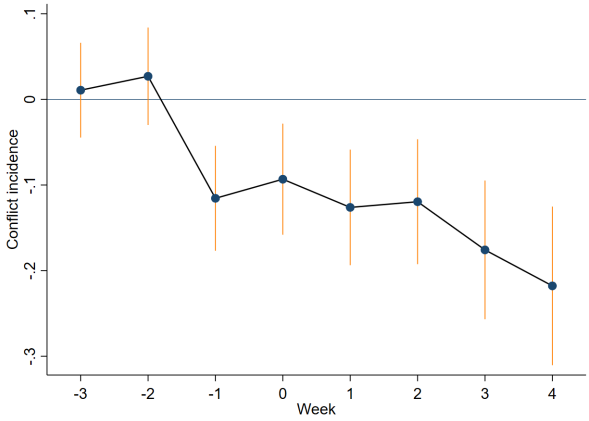
as provided in the Quality of Government database.[21] The coefficient is negative – the opposite sign as the one we would expect according to the narrative above – and far from statistical significance (p-value of 0.44). Hence, the effect of shutdown policies on the quality of reporting does not appear to vary significantly across countries with different degrees of press freedom. Reporting bias may however still be an issue in our context, even if it is distributed homogeneously across countries. For this reason, our estimates are likely to be an upper bound of the conflict-reducing effect of shutdown policies, and should be considered as such.

Post-shutdown dynamics of violence. Our results of Table 1 are silent on the dynamic and the persistence of violence during the weeks following the implementation of the restrictions. We slightly modify equation 1 by allowing the effect of restrictions to vary across time, around the implementation date. Figure 2 displays the estimates. The specification is demanding because of the short period under consideration following the restrictions, still, a pattern emerges. Following the restriction, the reduction in conflict incidence is gradual, and stronger three to four weeks after the policy is implemented. This indicates that actors involved in violence may already have begun adjusting their behavior in anticipation of the policy change.

Types of events. A crucial feature of the ACLED data is to inform us on the nature of violent events. We replicate column (1) of Table 1 for every single type of events: battles, remote violence, protests, riots, strategic development, and violence against civilians. Figure 3(a) displays the point estimate for each category. Shutdown policies are negatively correlated to battles, remote violence, protests and violence against civilians. The effect is most significant for protests which decline by over 10 percentage points. The significant decline in protests is plausibly due to shutdown measures increasing the cost of individual

[21] The press freedom index measures countries on a scale of 0-100, with 100 representing countries with the least press freedom. We inverse the measure, a higher score indicating greater press freedom, to ease interpretation.

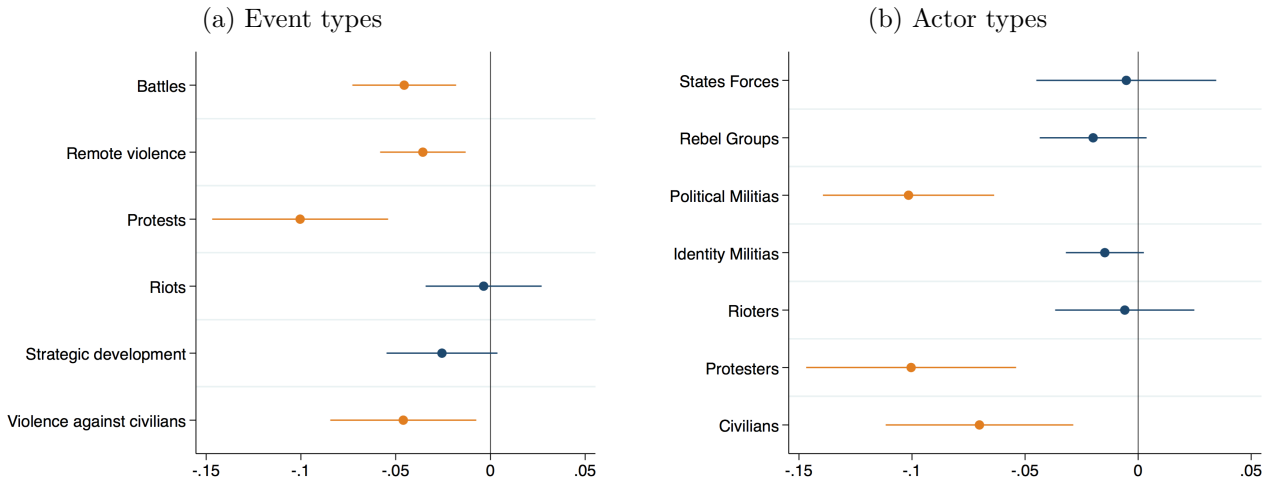
Figure 2: Timing of Shutdown and Conflict Incidence



Note: This figure plots the coefficients of Table A2.7 in appendix, together with 90% confidence intervals.

participation in an activity where the benefit is shared by all sympathizers, irrespective of their participation (Kurrild-Klitgaard, 2013). Using of a PPML estimator and of our two alternative indexes of restrictions delivers similar results (Online Appendix Section A3).

Figure 3: Estimates across types of events and actors



Note: These figures estimate the effect of our baseline measure of restriction policy (*Shutdown*) on different types of conflict events and on conflicts involving different types of actors. The OLS coefficients and standard errors appear in Tables A3.8 and A4.12 in the online appendix. The dependent variable is conflict incidence.

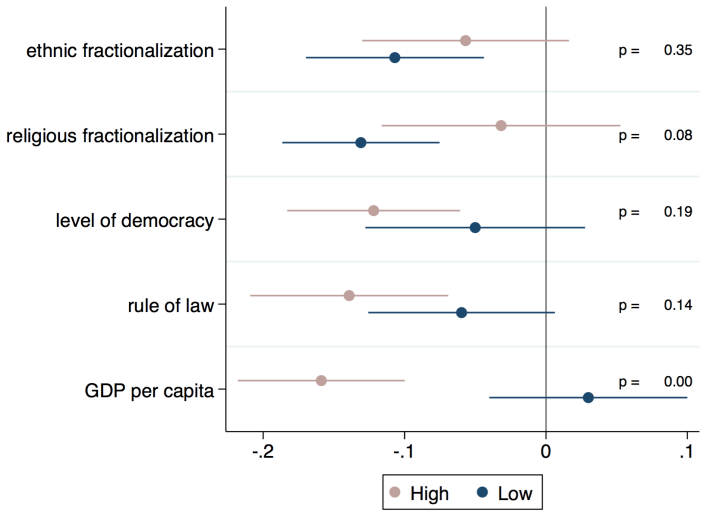
Type of Actors. ACLED data also records information on the types of actors that are involved in each of the violent event. We use this information to estimate equation 1, assessing the daily level of violence by actors. Strikingly, political militias, protesters and civilians are the actors for which there is a decrease of violence. For the other categories of actors – state forces, rebel groups, identity militias and rioters –, restrictions have a negative but statistically insignificant effect on the level of conflict. In the Online Appendix Section A4, we estimate whether these results are robust to using conflict intensity and our alternative policy indexes.

Country characteristics. We finally explore whether countries are heterogeneous in the way they react

to the implementation of restriction policies. We define a binary variable equal to 1 when a country's pre-sample (2016-2019) characteristic is above the sample median. We estimate equation 1 allowing the effect of shutdowns to be heterogeneous for the two groups of countries, namely those above and below the sample median. Figure 4 plots the estimates and the p-value of the difference between the two.

First, countries with a higher level of ethnic fractionalization do not seem to behave significantly differently to those with lower level of fractionalization (though they do in a number of our robustness exercises, see below). However, countries with high level of religious fractionalization do not exhibit a reduction in the level of violence, but do for countries with a low level (the difference between the two is different from 0). Second, the level of violence in countries below the median level of democracy score is not decreasing while it is in countries above the median (the difference between the two is different from 0). Third, we evaluate whether countries may react differently along a measure of rule of law. We fail to detect any significant differences between the two groups of countries. Last, we find that countries above the GDP per capita median are those for which the decrease of violence is the highest but positive and significant for those below.

Figure 4: Country characteristics



Note: These figures estimate the effect of our baseline measure of restriction policy (*Shutdown*) on different overall daily conflict incidence, as a function of country characteristics. Lines represent 90% confidence bands. The *Shutdown* variable is interacted with a dummy which takes the value 1 if the country characteristic is above the sample median. The p-values of the difference in the coefficient between the high and low groups appear next to the coefficients. Table A5.16 in the online appendix provides the full estimates.

Overall, countries with a higher level of religious fractionalization, lower level of democracy and higher poverty are those for which the restriction policies either do not reduce or in some cases even increase violence. These results are confirmed when using conflict intensity instead of incidence as a dependent variable, and the non-binary policies indexes, though in some cases, the effect of ethnic, rather than religious, fractionalization appears more significant.[22]

Next, we assess if restriction policies have a heterogeneous effect across countries depending on the nature

[22]We did not find evidence of cross-country heterogeneity in reporting bias using a press freedom index in Table 1, column (5), which suggest that these cross-country results are unlikely to be driven by differences in reporting. Still, we further show in the Online Appendix A5 that controlling for an interaction term between the shutdown measure and (demeaned) press freedom to account leaves the results of Figure 4 unchanged (Figure A5.14).

of event or of the actors involved (Tables are displayed in Online Appendix Section A5.3). We find that countries with high level of religious fractionalization do not experience a reduction in violence against civilians, whereas countries with low levels of religious fractionalization experience a significant decline in such type of violence (Figure A5.23). This effect is mostly driven by events involving civilians, political militias and state forces. Further, the heterogeneity of conflict responses with respect to income (GDP per capita) is mostly driven by the dynamics of protests (Figure A5.26).

Counterfactual analysis. In the online appendix A6, we conduct a counterfactual exercise where we estimate the average change in conflict incidence, by country, compared to an hypothetical no-shutdown situation. We take into account the set of country characteristics discussed above, and control for the timing of COVID-19 outbreak in the country. We find that most countries which imposed a shutdown would have experienced more conflict in the absence of a shutdown (Figures A6.27 and A6.28). The conflict response is however quite heterogeneous across countries: it is close to zero in countries like Angola or Pakistan, and shutdown policies are predicted to have actually *increased* conflict probability in some cases, in particular in countries of the African Great Lakes region like Uganda and Rwanda.

The impact of stay-at-home policies. We consider the specific effect of the stay-at-home policies on conflict. We construct a binary restriction measure, which switches to 1 when governments have implemented a nationwide stay-at-home policy. Further we adjust our *Broad index* variable to include that policy, taking into account, in the same way as for the other component, the severity of the home stay policy, based on the degree of requirement (no measure, recommended or required) and its geographical scope (local vs. national). The results are presented in Table A7.20 in the Online Appendix. The results broadly confirm that stay-at-home policies reduce violence, though the decline is smaller both in size and in statistical significance than in our baseline estimations. Consistent with our previous findings however, we find that protests decline significantly in response to stay-at-home restrictions (Figures A7.29 and Tables A7.21). Interestingly, cross-country differences appear more significant in this case: in countries with above median levels of religious fractionalization and in countries with low income per capita, we find that conflict levels actually *increase* significantly following such lockdown policies. This important cross-country heterogeneity explains the weaker average results found when averaging the effect across countries.

Discussion. Overall, our results can be summarized as follows. First, most of the conflict reduction following shutdown policies is observed for protests, though some significant effect is also found for violence against civilians and battles. Second, conflicts that are found to decline involve political militias, protesters and civilians, but we do not find any significant reductions in events involving state forces, rebel groups and identity militias. Third, the cross-country analysis reveals that differences in levels of fractionalization – mostly religious – and GDP per capita create different responses of conflict to restriction policies (and, to a lesser extent, rule of law): conflict declines more in countries with above median GDP per capita, and below median fractionalization measures. The underlying types of conflict are however quite different in each case: while GDP per capita appears to play a role mostly through protests events, fractionalization affect events involving state forces and civilians.

Overall these results points to several potential mechanisms through which COVID-19 related restrictions might be impacting conflict. First, by reducing mobility, such restrictions impact individual mobilization capacity, which explains the decline in the protests worldwide. However, this reduction in the number of protests is not observed in countries with very low income, which suggests that the economic effect of shut-

and lockdown policies might trigger additional (mostly peaceful) conflict. This effect might also relate to the fact that shutdown policies limit the capacity of low-income states to fight against the opposition (Berman et al., 2011). Second, we find consistent evidence that shutdown policies have an ambiguous effect on violence against civilians in more fractionalized countries. This indicates that the negative effect of mobility restriction on violence could be tempered by a rise in inter-religious and inter-ethnic violence. This result is in line with the literature which suggests that epidemics can intensify underlying ethnic or religious tensions and lead to scapegoating of minorities (Jedwab et al., 2019; Voigtländer and Voth, 2012).

4 Conclusion

In this paper, we provide real-time evidence of how enforcing restrictions to limit the spread of coronavirus affects conflicts globally. Our results show that imposing nation-wide shutdown of economic activities and mobility restriction reduces the likelihood of daily conflict by 9 percentage points. The conflict reduction is particularly strong for protest, though other types of events – battles or violence against civilians – also decline to some extent. Interestingly, our results show that conflict has not reduced in every country, and that socio-economic characteristics play an important role in driving the conflict response to Covid-19 restrictions policies. In the most fractionalized countries, in particular, restriction policies have an ambiguous effect, and violence against civilians, involving political militias and state forces, show no decline.

Our work is only a first step to try to understand how Covid-related policies might impact conflict. Given the preliminary nature of the data, and the short time span currently available, more work is surely needed. Many important dimensions of the conflict-covid nexus are not considered in our analysis. For instance, future research could try to further explore cross-country heterogeneity in conflict responses, and consider within-country characteristics, such as urbanization and local income levels. Given the current collapse in many commodity markets, how natural resources rich regions react to the spread of the virus is surely an important question to study as well.

References

Alesina, A., A. Devleeschauwer, W. Easterly, S. Kurlat, and R. Wacziarg (2003). Fractionalization. *Journal of Economic growth 8*(2), 155–194.

Atkeson, A. (2020). What will be the economic impact of covid-19 in the us? rough estimates of disease scenarios. Technical report, National Bureau of Economic Research.

Bates, R., A. Greif, and S. Singh (2002). Organizing violence. *Journal of Conflict Resolution 46*(5), 599–628.

Becker, G. S. (1968). Crime and punishment: An economic approach. In *The economic dimensions of crime*, pp. 13–68. Palgrave Macmillan, London.

Berman, E., J. N. Shapiro, and J. H. Felter (2011). Can hearts and minds be bought? the economics of counterinsurgency in iraq. *Journal of Political Economy 119*(4), 766–819.

Berman, N., M. Couttenier, D. Rohner, and M. Thoenig (2017). This mine is mine! how minerals fuel conflicts in africa. *American Economic Review Volume 107*.

Besley, T. and T. Persson (2010). State capacity, conflict, and development. *Econometrica 78*(1), 1–34.

Besley, T. and M. Reynal-Querol (2014). The legacy of historical conflicts: Evidence from africa. *American Political Science Review 108*(2), 319–336.

Bursztyn, L., A. Rao, C. Roth, and D. Yanagizawa-Drott (2020). Misinformation during a pandemic. *University of Chicago, Becker Friedman Institute for Economics Working Paper* (2020-44).

Carleton, T. and K. C. Meng (2020). Causal empirical estimates suggest covid-19 transmission rates are highly seasonal. *medRxiv*.

Cervellati, M., U. Sunde, and S. Valmori (2017). Pathogens, weather shocks and civil conflicts. *The Economic Journal 127*(607), 2581–2616.

Chinazzi, M., J. T. Davis, M. Ajelli, C. Gioannini, M. Litvinova, S. Merler, A. P. y Piontti, K. Mu, L. Rossi, K. Sun, et al. (2020). The effect of travel restrictions on the spread of the 2019 novel coronavirus (covid-19) outbreak. *Science 368*(6489), 395–400.

Collier, P. and D. Rohner (2008). Democracy, development, and conflict. *Journal of the European Economic Association 6*(2-3), 531–540.

Dal Bó, E. and P. Dal Bó (2011). Workers, warriors, and criminals: social conflict in general equilibrium. *Journal of the European Economic Association 9*(4), 646–677.

Esteban, J. and D. Ray (1999). Conflict and distribution. *Journal of Economic Theory 87*(2), 379–415.

Esteban, J.-M. and D. Ray (1994). On the measurement of polarization. *Econometrica: Journal of the Econometric Society*, 819–851.

Fearon, J. and D. Laitin (2003a). Ethnicity, insurgency and civil war. *American Policial Science Review 97*(1), 75–90.

Fearon, J. D. and D. D. Laitin (2003b). Ethnicity, insurgency, and civil war. *American political science review 97*(1), 75–90.

Grossman, H. I. (1991). A General Equilibrium Model of Insurrections. *The American Economic Review 81*(4), 912–921.

Guerrieri, V., G. Lorenzoni, L. Straub, and I. Werning (2020). Macroeconomic implications of covid-19: Can negative supply shocks cause demand shortages? Technical report, National Bureau of Economic Research.

Hale, T., A. Petherick, T. Phillips, and S. Webster (2020). Variation in government responses to covid-19" version 4.0. blavatnik school of government working paper. april 7, 2020.

Jedwab, R., N. D. Johnson, and M. Koyama (2019). Negative shocks and mass persecutions: evidence from the black death. *Journal of Economic Growth 24*(4), 345–395.

Kurrild-Klitgaard, P. (2013). It's the weather, stupid! individual participation in collective may day demonstrations. *Public Choice 155*(3-4), 251–271.

Madestam, A., D. Shoag, S. Veuger, and D. Yanagizawa-Drott (2013). Do political protests matter? evidence from the tea party movement. *The Quarterly Journal of Economics 128*(4), 1633–1685.

McKibbin, W. J. and R. Fernando (2020). The global macroeconomic impacts of covid-19: Seven scenarios.

Michalopoulos, S. and E. Papaioannou (2016, July). The Long-Run Effects of the Scramble for Africa. *American Economic Review 106*(7), 1802–1848.

Montalvo, J. G. and M. Reynal-Querol (2005). Ethnic polarization, potential conflict, and civil wars. *American economic review 95*(3), 796–816.

Raleigh, C., A. Linke, H. Hegre, and J. Karlsen (2010). Introducing ACLED: an armed conflict location and event dataset: special data feature. *Journal of peace research 47*(5), 651–660.

Teorell, J., S. Dahlberg, S. Holmberg, B. Rothstein, P. Alvarado, and S. Alelsson (2020). The Quality of Government Standard Dataset. *The Quality of Government Institute University of Göteborg. Göteborg*.

Voigtländer, N. and H.-J. Voth (2012). Persecution perpetuated: the medieval origins of anti-semitic violence in nazi germany. *The Quarterly Journal of Economics 127*(3), 1339–1392.

World Bank Group, D. Kaufmann, A. Kraay, and M. Mastruzzi (2010). *Worldwide governance indicators*. World Bank Group.

Online Appendix

A1 Data and descriptive statistics

Table A1.2: Sample of countries

Africa	Asia	Central & South America	Europe
Algeria	Afghanistan	Argentina	Albania
Angola	Azerbaijan	Aruba	Bosnia and Herzegovina
Botswana	Bahrain	Barbados	Bulgaria
Burkina Faso	Bangladesh	Belize	Croatia
Burundi	India	Bolivia	Cyprus
Cameroon	Indonesia	Brazil	Greece
Chad	Iran	Chile	Kosovo
Democratic Republic of Congo	Iraq	Colombia	Moldova
Djibouti	Israel	Costa Rica	Romania
Egypt	Jordan	Cuba	Russia
Gabon	Kazakhstan	Dominica	Serbia
Gambia	Kuwait	Dominican Republic	Ukraine
Ghana	Kyrgyzstan	Ecuador	
Kenya	Laos	El Salvador	
Lesotho	Lebanon	Guatemala	
Libya	Malaysia	Guyana	
Madagascar	Myanmar	Honduras	
Malawi	Oman	Jamaica	
Mali	Pakistan	Mexico	
Mauritania	Palestine	Nicaragua	
Morocco	Philippines	Panama	
Mozambique	Qatar	Paraguay	
Namibia	Saudi Arabia	Peru	
Niger	Sri Lanka	Puerto Rico	
Nigeria	Syria	Trinidad and Tobago	
Rwanda	Thailand	Uruguay	
Sierra Leone	Turkey	Venezuela	
South Africa	United Arab Emirates		
South Sudan	Uzbekistan		
Sudan	Vietnam		
Tanzania			
Tunisia			
Uganda			
Zambia			
Zimbabwe			
eSwatini			

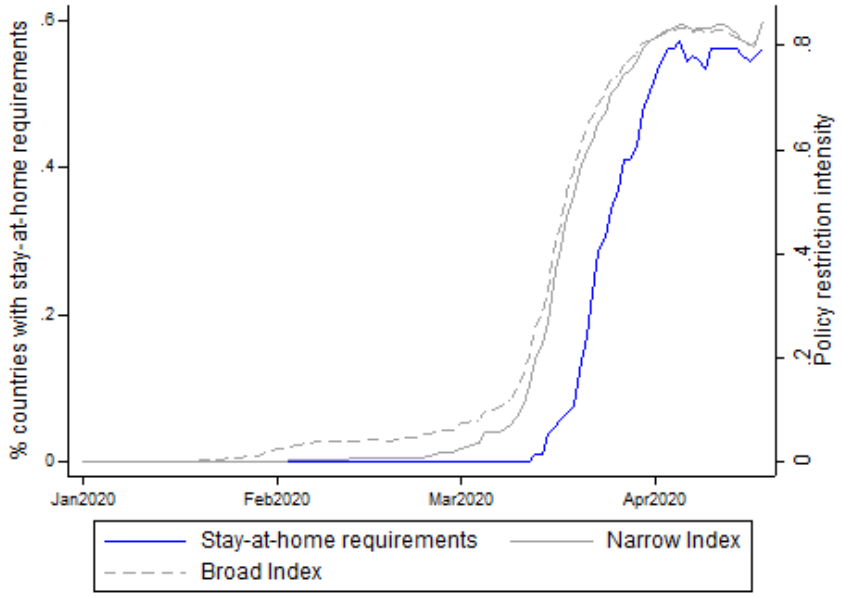
Note: This Table shows countries that are in our baseline sample, i.e. for which both ACLED and OxCGRT data are available.

Table A1.3: Date of shutdown

Countries	Date of shutdown
Puerto Rico	15.03.20
Paraguay, Peru	16.03.20
Costa Rica, Ecuador, Guatemala, Ukraine, Venezuela	17.03.20
Lebanon, Malaysia	18.03.20
Dominican Republic, Honduras, Israel	20.03.20
Bosnia and Herzegovina, El Salvador, Jordan, Madagascar, Rwanda, Serbia, Sri Lanka	21.03.20
India, Iraq, Tunisia	22.03.20
Croatia, Djibouti, Romania	23.03.20
Cyprus, Moldova	24.03.20
Colombia, Saudi Arabia	25.03.20
Bangladesh, Bolivia, Pakistan, South Africa	26.03.20
Angola, Uzbekistan	27.03.20
Vietnam	28.03.20
Aruba, Lesotho, United Arab Emirates	29.03.20
Mexico, Russia, Uganda, Zimbabwe	30.03.20
Azerbaijan, Laos, Oman	31.03.20
Belize, Syria	01.04.20
Barbados, Guyana	03.04.20
Dominica	04.04.20
Sierra Leone	05.04.20
Argentina, Egypt	09.04.20
South Sudan	12.04.20
Cuba	17.04.20
Greece, Kosovo, Libya, Palestine, Panama	18.04.20

Note: This Table shows the dates of the implementation of our shutdown measure by country. This measure is a binary indicator equal to 1 when the following policies were nationally implemented: closings of school, closing of workplaces and restrictions on internal movements.

Figure A1.5: Evolution of shutdown policies



Source: Authors' computation from OxCGRT data.

Table A1.4: Descriptive Statistics

	Obs.	Mean	S.D.	Min	Max
Total					
Events (#)	122099	4.058	11.42	0	336
Events ($Pr > 0$)	122099	0.493	0.500	0	1
Events (#) if $Pr > 0$	60194	8.231	15.18	1	336
Fatalities (#)	122099	4.150	21.35	0	673
Type of Events					
Battles (#)	122099	0.985	4.033	0	82
Remote Violence (#)	122099	0.848	5.081	0	144
Protests (#)	122099	1.343	5.625	0	264
Riots (#)	122099	0.313	1.619	0	164
Strategic Development (#)	122099	0.139	0.634	0	38
Violence agst. civilians (#)	122099	0.431	1.542	0	41
Battles ($Pr > 0$)	122099	0.186	0.389	0	1
Remote Violence ($Pr > 0$)	122099	0.108	0.310	0	1
Protests ($Pr > 0$)	122099	0.275	0.447	0	1
Riots ($Pr > 0$)	122099	0.126	0.332	0	1
Strategic Development ($Pr > 0$)	122099	0.0859	0.280	0	1
Violence agst. civilians ($Pr > 0$)	122099	0.184	0.388	0	1
Type of Actors					
State Forces (#)	122099	1.688	6.207	0	118
Rebel Groups (#)	122099	1.098	5.338	0	169
Political Militias (#)	122099	0.614	2.273	0	43
Identity Militias (#)	122099	0.0661	0.360	0	21
Rioters (#)	122099	0.315	1.626	0	164
Protesters (#)	122099	1.343	5.625	0	264
Civilians (#)	122099	0.728	2.513	0	72
States Forces ($Pr > 0$)	122099	0.277	0.447	0	1
Rebel Groups ($Pr > 0$)	122099	0.144	0.351	0	1
Political Militias ($Pr > 0$)	122099	0.202	0.401	0	1
Identity Militias ($Pr > 0$)	122099	0.0472	0.212	0	1
Rioters ($Pr > 0$)	122099	0.127	0.332	0	1
Protesters ($Pr > 0$)	122099	0.275	0.447	0	1
Civilians ($Pr > 0$)	122099	0.240	0.427	0	1
Policy restrictions measures					
Shutdown (binary)	122099	0.0106	0.102	0	1
Narrow index	122099	0.0230	0.136	0	1
Broad index	122099	0.0250	0.135	0	1
Lockdown (binary)	122099	0.0123	0.110	0	1
Lockdown (index)	122099	0.0237	0.130	0	1
Country Characteristics					
Press Freedom (inverse scale)	117794	59.26	13.76	22.50	88.27
Ethnic Fractionalization	116333	0.534	0.239	0.0394	0.930
Religious Fractionalization	116333	0.426	0.247	0.00346	0.860
Level of Democracy	118742	4.925	2.742	0.140	10
Rule of Law	118742	-0.459	0.673	-2.278	1.085
GDP per capita	117064	6802	10457	283.5	62485

Note: Source: authors' computation from ACLED, QoG and OxCGRT data. See main text for more details.

A2 Additional Results: Baseline Estimates

A2.1 Controlling the timing of Covid-19 Outbreak

We assess whether the decline in conflict events is due to conflict actors adapting their behavior in response to COVID-19 outbreak, rather than due to the shutdown policies. We replicate our baseline findings to estimate the effect of different restriction measures after controlling for the timing of COVID-19 outbreak – a dummy which equals 1 from the date of the first confirmed COVID-19 case in a given country onward – in Table A2.5.

Table A2.5: Controlling for the effect of COVID-19 Outbreak

	(1)	(2)	(3)	(4)
Dep. var. (conflict)	Incidence	Intensity	——— Incidence ———	
Policy restrictions measure	Shutdown	(binary)	Narrow index	Broad index
Mobility Restrictions (indicator)	-0.093***	-0.274*		
	(0.030)	(0.165)		
COVID-19 outbreak	0.035	-0.040	0.035	0.035
	(0.033)	(0.102)	(0.033)	(0.033)
Mobility Restrictions (restricted index)			-0.185***	
			(0.034)	
Mobility Restrictions (general index)				-0.202***
				(0.036)
Observations	122,099	122,099	122,099	122,099
R-squared	0.482		0.482	0.482
Model	OLS	Poisson	OLS	OLS
Country FE	yes	yes	yes	yes
Month-year FE	yes	yes	yes	yes

Note: * significant at 10%; ** at 5%; *** at 1%. COVID-19 outbreak is a dummy that equals 1 since when the first COVID-19 case was confirmed in a given country. Standard errors in parentheses are clustered at the country-level.

A2.2 Linear Time Trends

We control for linear country-specific time trends to allow for unobserved country-specific conflict propensities to trend linearly over time. Table A2.6 displays the results.

Table A2.6: Baseline Results - adding country-specific time-trends

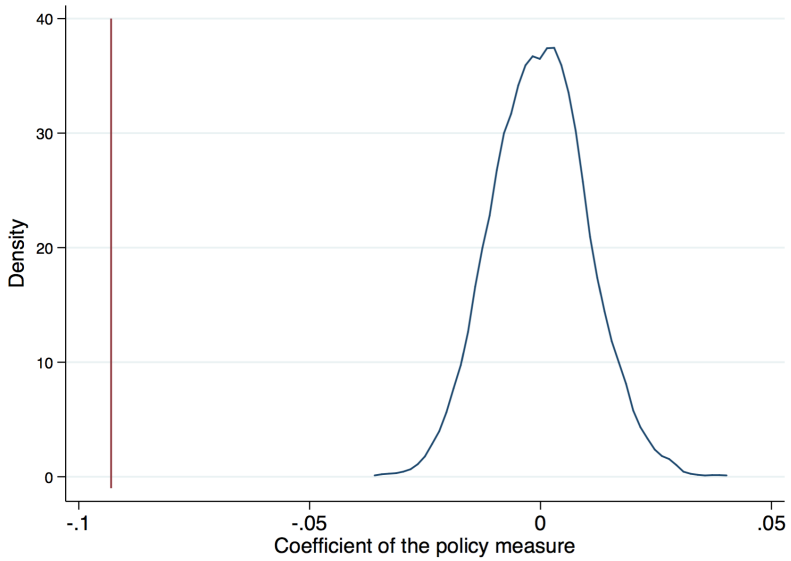
	(1)	(2)	(3)	(4)	(5)
Dep. var. (conflict)	Incidence	Intensity	———	Incidence	———
Policy restrictions measure	Shutdown	(binary)	Narrow index	Broad index	Shutdown
Policy restriction	-0.070**	-0.229	-0.163***	-0.169***	-0.212***
	(0.030)	(0.176)	(0.030)	(0.032)	(0.075)
× Press Freedom Index					-0.004**
					(0.002)
Observations	122,099	122,099	122,099	122,099	117,794
R-squared	0.503		0.504	0.503	0.500
Model	OLS	PPML	OLS	OLS	OLS
Country FE			——— Yes ———		
Month-year FE			——— Yes ———		
Country × time trends			——— Yes ———		

Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict incidence is a variable that takes the value 1 if at least one conflict event is recorded in the country a given day. Conflict intensity is the number of events observed in the country a given day. See main text for the definition of the various restriction measures. Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation. Press Freedom Index is the average of the press freedom index from Reporters Without Borders over the 2016-2019 period, as provided in the Quality of Government dataset.

A2.3 Placebo Test

The identification of the impact of COVID-19 related policy responses relies on the timing of the implementation of the policies. It could be argued that our results are driven by a decreasing trend preempting the restrictions measures. We answer this potential concern by performing a placebo test. We randomly permute the dates of implementation of our restriction measure *Shutdown (binary)* for each country in the sample and estimate specification 1 with our permuted restriction (see Table 1 column 1). We plot the sampling distribution of our coefficient of interest, for which we repeat the estimation 1,000 times (Figure A2.6). The red line displays our baseline estimates which is far from the the Monte Carlo coefficients, that are insignificant. This exercise confirms the validity of our approach.

Figure A2.6: Placebo Test



Note: This figure depicts the Monte Carlo sampling distribution of the coefficients of our policy restriction measure, shutdown (binary), in equation 1, after randomly permuting the dates of shutdown and using 1,000 draws.

A2.4 Dynamics and persistence of violence

We present further results on the dynamics and persistence of violence. Table A2.7 displays the baseline estimates that are graphically presented in Figure 2 in the manuscript.

Table A2.7: Timing of Lockdown and Conflict

	Total Events
	(1)
Restrictions (t-3)	0.0107
	(0.0333)
Restrictions (t-2)	0.0270
	(0.0343)
Restrictions (t-1)	-0.116***
	(0.0369)
Restrictions (t)	-0.0932**
	(0.0391)
Restrictions (t+1)	-0.126***
	(0.0407)
Restrictions (t+2)	-0.120***
	(0.0439)
Restrictions (t+3)	-0.176***
	(0.0488)
Restrictions (t+4)	-0.218***
	(0.0558)
Observations	122,099
R-squared	0.482
Country FE	yes
Month-year FE	yes

Note: * significant at 10%; ** at 5%; *** at 1%. t represents the day when a restriction was imposed. $t-n$ represent the number of weeks before the restriction was imposed. $t+n$ represent the number of weeks after the restriction was imposed. Standard errors in parentheses are clustered at the country-level.

A3 Additional Results: Events types

In this section, we display our baseline estimates by types of events, estimated by LPM (Table A3.8) and PPML (Table A3.9). We also test whether these our baseline estimates are sensitive to using alternative policy restrictions measures, i.e. our narrow index (Table A3.10) and our broad index (Table A3.11). Finally, we replicate the figures on the pre and post-shutdown dynamics of conflict (see Table A2.7) by types of events in Figure A3.9.

A3.1 Baseline estimates

Table A3.8: Baseline Results - by type of events (linear probability model)

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var. (conflict incidence)	Battles	Remote violence	Protests	Riots	Strategic development	Violence agst. civilians
Policy restriction	——— Shutdown (binary) ———					
Policy restriction	-0.045***	-0.036**	-0.100***	-0.004	-0.026	-0.046*
	(0.016)	(0.014)	(0.028)	(0.018)	(0.018)	(0.023)
Observations	122,099	122,099	122,099	122,099	122,099	122,099
R-squared	0.532	0.514	0.376	0.343	0.228	0.404
Country FE	——— Yes ———					
Month-year FE	——— Yes ———					

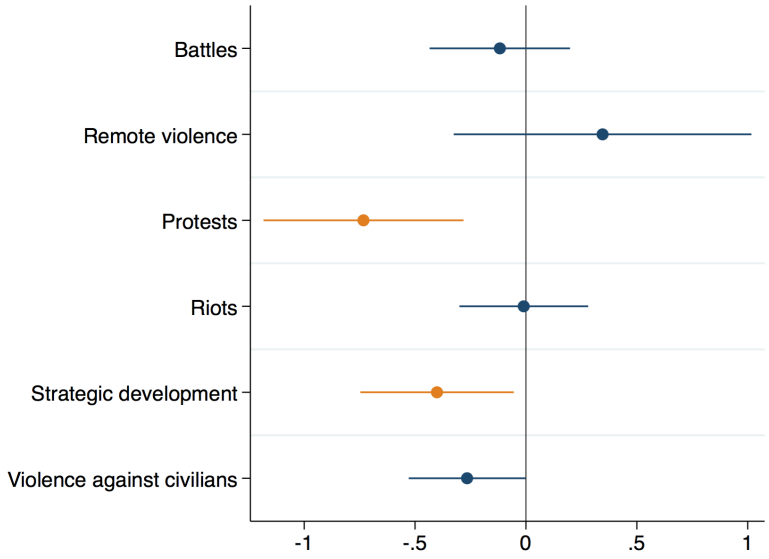
Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict incidence is a variable that takes the value 1 if at least one conflict event is recorded in the country a given day. The measure of conflict is separated by types of events following ACLED definitions: battles, remote violence, protests, riots, strategic development, violence against civilians. The policy restrictions measure is the shutdown binary measure (see main text for the definition). Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation.

Table A3.9: Baseline Results - by type of events (Poisson pseudo maximum likelihood)

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var. (conflict intensity)	Battles	Remote violence	Protests	Riots	Strategic development	Violence agst. civilians
Policy restrictions measure	——— Shutdown (binary) ———					
Policy restriction	-0.118	0.345	-0.733***	-0.010	-0.401*	-0.266*
	(0.192)	(0.408)	(0.274)	(0.177)	(0.210)	(0.160)
Observations	105,166	94,472	122,099	118,485	118,959	113,775
Country FE	——— Yes ———					
Month-year FE	——— Yes ———					

Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict intensity is the number of events observed in the country a given day. The measure of conflict is separated by types of events following ACLED definitions: battles, remote violence, protests, riots, strategic development, violence against civilians. The policy restrictions measure is the shutdown binary measure (see main text for the definition). Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation.

Figure A3.7: Type of events (Poisson pseudo maximum likelihood)



Note: This figure plots the coefficients of Table A3.9.

A3.2 Policy restrictions measure: index

Table A3.10: Baseline Results - by type of events (narrow index)

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var. (conflict incidence)	Battles	Remote violence	Protests	Riots	Strategic development	Violence agst. civilians
Policy restrictions measure				Narrow Index		
Policy restriction	-0.040**	-0.047***	-0.232***	-0.007	0.005	-0.069***
	(0.016)	(0.016)	(0.032)	(0.019)	(0.019)	(0.026)
Observations	122,099	122,099	122,099	122,099	122,099	122,099
R-squared	0.532	0.514	0.377	0.343	0.228	0.404
Country FE				Yes		
Month-year FE				Yes		

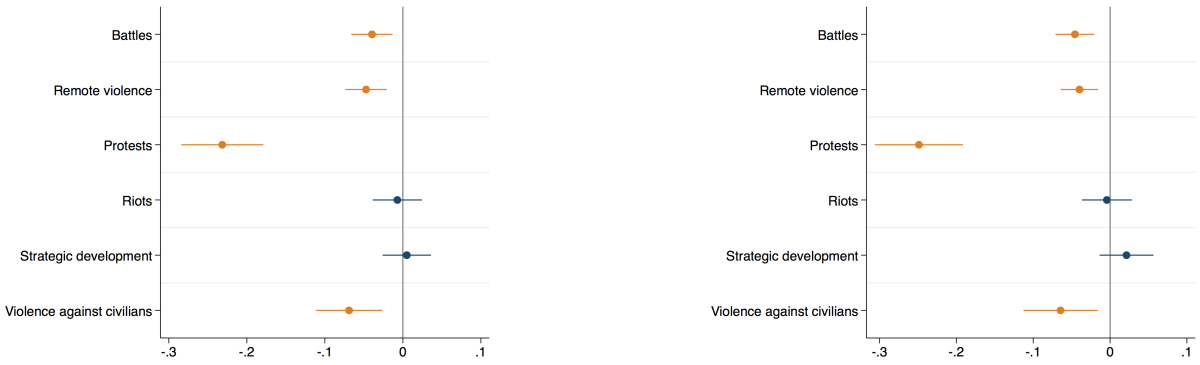
Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict incidence is a variable that takes the value 1 if at least one conflict event is recorded in the country a given day. The measure of conflict is separated by types of events following ACLED definitions: battles, remote violence, protests, riots, strategic development, violence against civilians. The policy restrictions measure is the narrow index measure (see main text for the definition). Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation.

Table A3.11: Baseline Results - by type of events (broad index)

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var. (conflict incidence)	Battles	Remote violence	Protests	Riots	Strategic development	Violence agst. civilians
Policy restrictions measure				Broad Index		
Policy restriction	-0.046***	-0.040***	-0.249***	-0.004	0.021	-0.064**
	(0.015)	(0.015)	(0.035)	(0.020)	(0.021)	(0.029)
Observations	122,099	122,099	122,099	122,099	122,099	122,099
R-squared	0.532	0.514	0.377	0.343	0.228	0.404
Country FE				Yes		
Month-year FE				Yes		

Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict incidence is a variable that takes the value 1 if at least one conflict event is recorded in the country a given day. The measure of conflict is separated by types of events following ACLED definitions: battles, remote violence, protests, riots, strategic development, violence against civilians. The policy restrictions measure is the broad index measure (see main text for the definition). Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation.

Figure A3.8: Types of Events - index



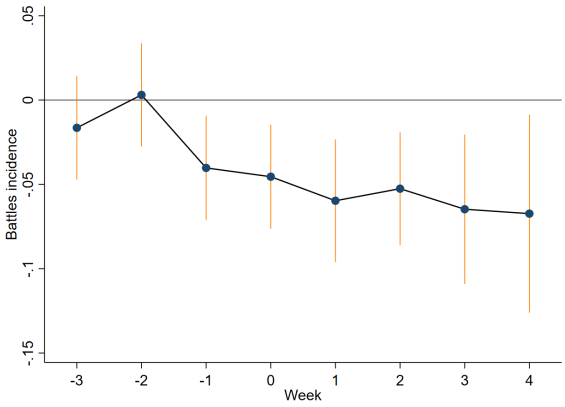
(a) Narrow Index

(b) Broad Index

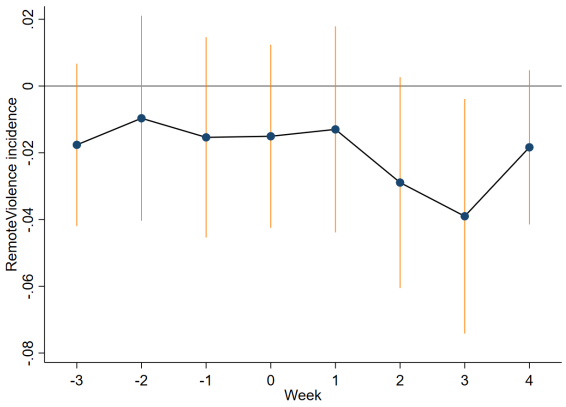
Note: This figure plots the coefficients estimates of Table A3.10 (left panel) and Table A3.11 (right panel).

A3.3 Dynamics and persistence of violence

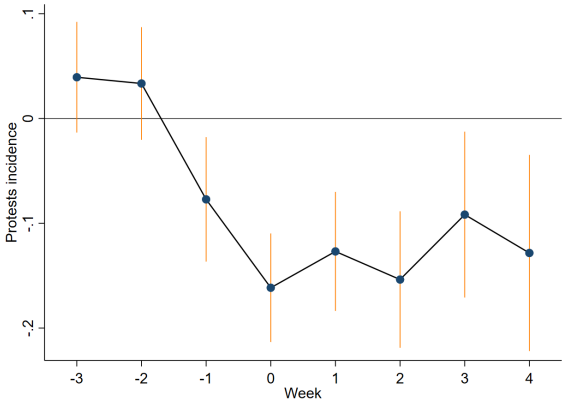
Figure A3.9: Timing of Restriction by types of Events



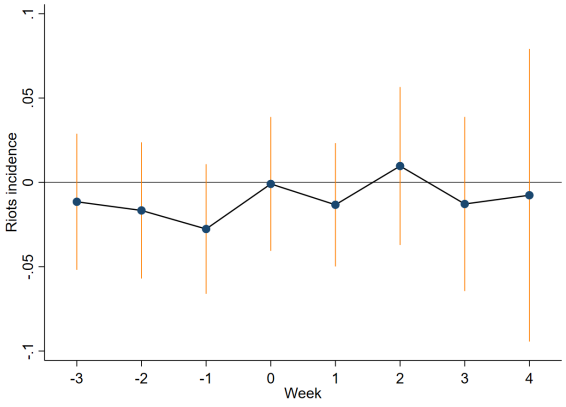
(a) Battles



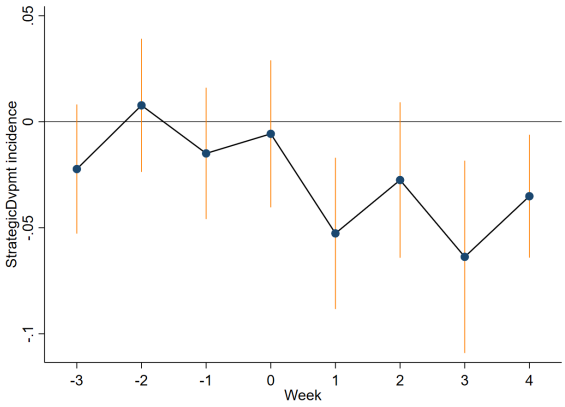
(b) Remote Violence



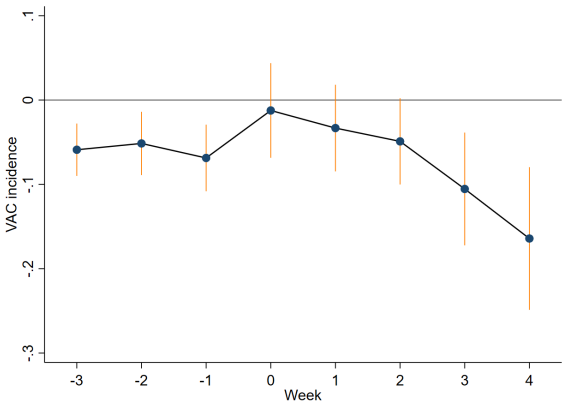
(c) Protests



(d) Riots



(e) Strategic Development



(f) Violence agst. civilians

Note: This figure plots estimates from a slightly modified equation 1 that allows the effect of shutdowns to vary across time, around the implementation date. The dependent variable is the incidence of battles, remote violence, protests, riots, strategic development and violence against civilians, respectively.

A4 Additional results: Actors

In this Section, we display our baseline estimates by types of actors using an LPM (Table A4.12) or a PPML estimator (Table A4.13). We also test the robustness of our results using alternative policy restrictions measures, i.e. the narrow index (Table A4.14) and the broad index (Table A4.15). Finally, we replicate the figures on the pre and post-shutdown dynamics of conflicts (see Table A2.7) by actors in Figure A4.13.

A4.1 Baseline estimates

Table A4.12: Baseline Results - by type of actors (linear probability model)

Dep. var. (conflict incidence)	(1) States Forces	(2) Rebel Groups	(3) Political Militias	(4) Identity Militias	(5) Rioters	(6) Protesters	(7) Civilians
Policy restrictions measure			Shutdown (binary)				
Policy restriction	-0.005	-0.020	-0.102***	-0.015	-0.006	-0.100***	-0.070***
	(0.024)	(0.014)	(0.023)	(0.010)	(0.019)	(0.028)	(0.025)
Observations	122,099	122,099	122,099	122,099	122,099	122,099	122,099
R-squared	0.469	0.578	0.444	0.216	0.343	0.376	0.433
Country FE			Yes				
Month-year FE			Yes				

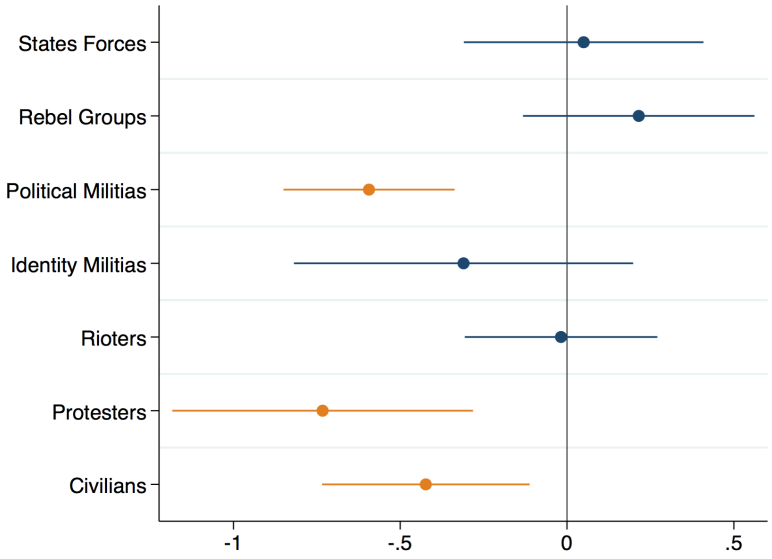
Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict incidence is a variable that takes the value 1 if at least one conflict event is recorded in the country a given day. The measure of conflict is separated by actors following ACLED definitions: states forces, rebels groups, political militias, identity militias, rioters, protesters, civilians. The policy restrictions measure is the shutdown binary measure (see main text for the definition). Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation.

Table A4.13: Baseline Results - by type of actors (Poisson pseudo maximum likelihood)

Dep. var. (conflict intensity)	(1) States Forces	(2) Rebel Groups	(3) Political Militias	(4) Identity Militias	(5) Rioters	(6) Protesters	(7) Civilians
Policy restrictions measure			Shutdown (binary)				
Policy restriction	0.050	0.215	-0.594***	-0.310	-0.018	-0.733***	-0.423**
	(0.218)	(0.211)	(0.156)	(0.309)	(0.176)	(0.274)	(0.189)
Observations	122,099	73,451	113,301	91,481	118,485	122,099	120,529
Country FE			Yes				
Month-year FE			Yes				

Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict intensity is the number of events observed in the country a given day. The measure of conflict is separated by actors following ACLED definitions: states forces, rebels groups, political militias, identity militias, rioters, protesters, civilians. The policy restrictions measure is the shutdown binary measure (see main text for the definition). Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation.

Figure A4.10: Type of Actors



Note: This figure plots the coefficients of Table A4.13.

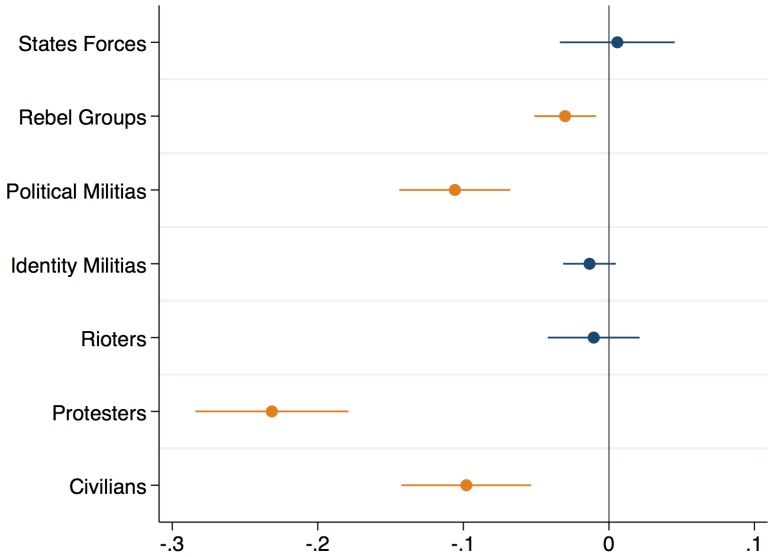
A4.2 Policy restrictions measure: index

Table A4.14: Baseline Results - by type of actors (narrow index)

Dep. var. (conflict incidence)	(1) States Forces	(2) Rebel Groups	(3) Political Militias	(4) Identity Militias	(5) Rioters	(6) Protesters	(7) Civilians
Policy restrictions measure			Narrow index				
Policy restriction	0.006	-0.030**	-0.106***	-0.013	-0.010	-0.232***	-0.098***
	(0.024)	(0.013)	(0.023)	(0.011)	(0.019)	(0.032)	(0.027)
Observations	122,099	122,099	122,099	122,099	122,099	122,099	122,099
R-squared	0.469	0.578	0.444	0.216	0.343	0.377	0.433
Country FE			Yes				
Month-year FE			Yes				

Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict incidence is a variable that takes the value 1 if at least one conflict event is recorded in the country a given day. The measure of conflict is separated by actors following ACLED definitions: states forces, rebels groups, political militias, identity militias, rioters, protesters, civilians. The policy restrictions measure is the narrow index measure (see main text for the definition). Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation.

Figure A4.11: Type of actors



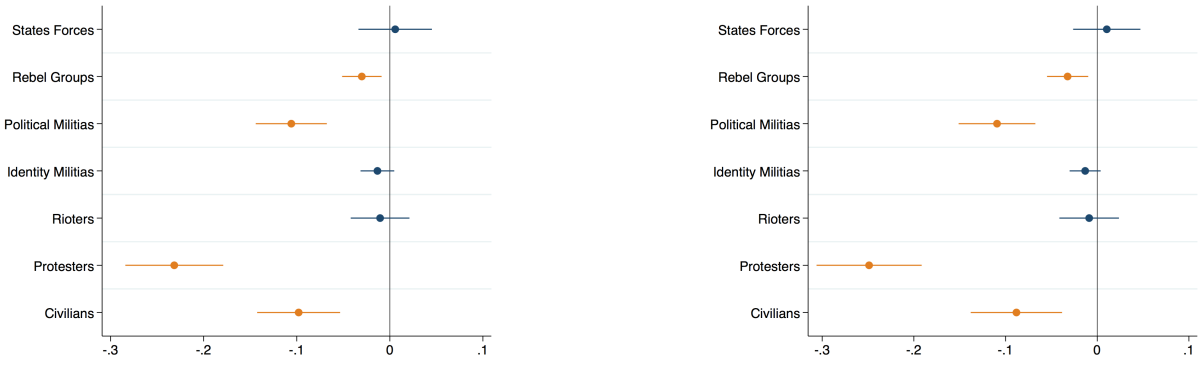
Note: This figure plots the coefficients of Table A4.14.

Table A4.15: Baseline Results - by type of actors (broad index)

Dep. var. (conflict incidence)	(1) States Forces	(2) Rebel Groups	(3) Political Militias	(4) Identity Militias	(5) Rioters	(6) Protesters	(7) Civilians
Policy restrictions measure			Broad index				
Policy restriction	0.010	-0.032**	-0.109***	-0.013	-0.009	-0.249***	-0.088***
	(0.022)	(0.014)	(0.025)	(0.010)	(0.020)	(0.035)	(0.030)
Observations	122,099	122,099	122,099	122,099	122,099	122,099	122,099
R-squared	0.469	0.578	0.444	0.216	0.343	0.377	0.433
Country FE			Yes				
Month-year FE			Yes				

Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict incidence is a variable that takes the value 1 if at least one conflict event is recorded in the country a given day. The measure of conflict is separated by actors following ACLED definitions: states forces, rebels groups, political militias, identity militias, rioters, protesters, civilians. The policy restrictions measure is the broad index measure (see main text for the definition). Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation.

Figure A4.12: Types of Actors - index

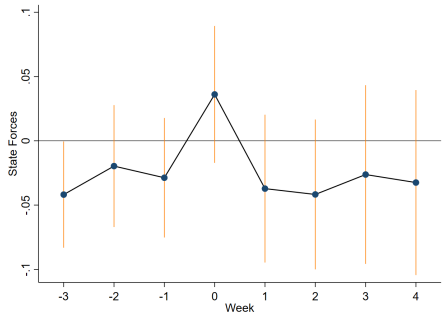


(a) Narrow Index (b) Broad Index

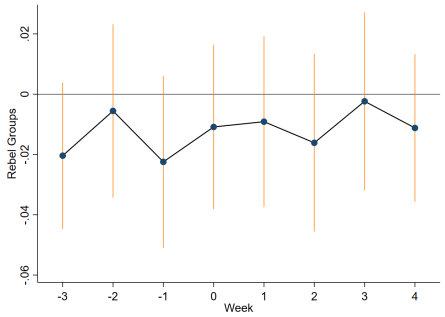
Note: This figure plots the coefficients estimates of Table A4.14 (left panel) and Table A4.15 (right panel).

A4.3 Dynamics and persistence of violence

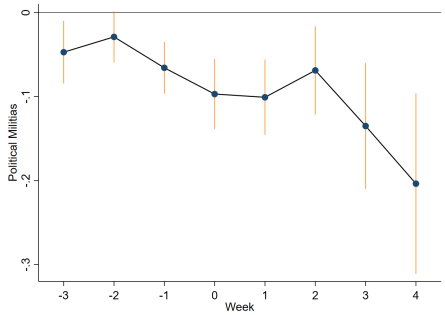
Figure A4.13: Timing of Restriction by types of Actors



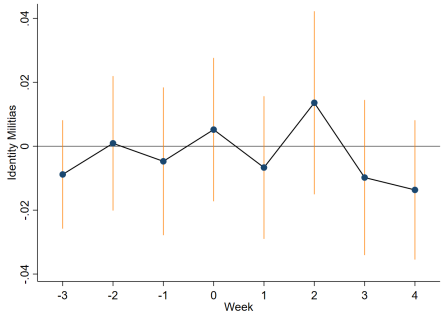
(a) State Forces



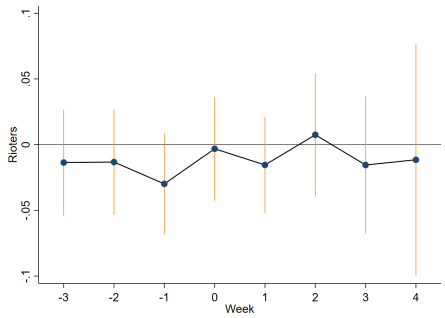
(b) Rebel Groups



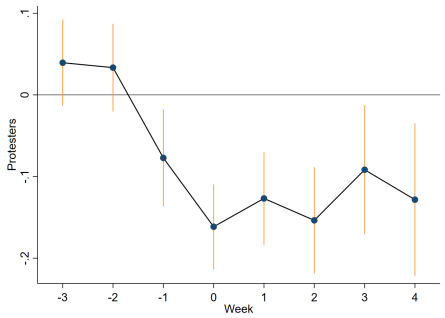
(c) Political Militias



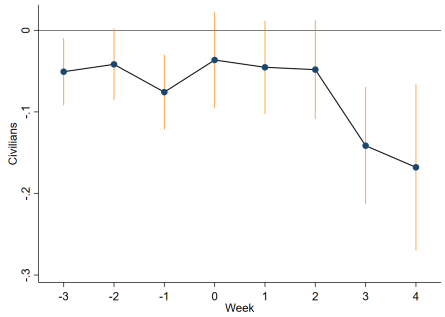
(d) Identity Militias



(e) Rioters



(f) Protesters



(g) Civilians

Note: This figure plots estimates from a slightly modified equation 1 that allows the effect of shutdowns to vary across time, around the implementation date. The dependent variable is the incidence of conflict events that involve states forces, rebel groups, political militias, identity militias, rioters, protesters or civilians, respectively.

A5 Additional Results: Heterogenous Effects

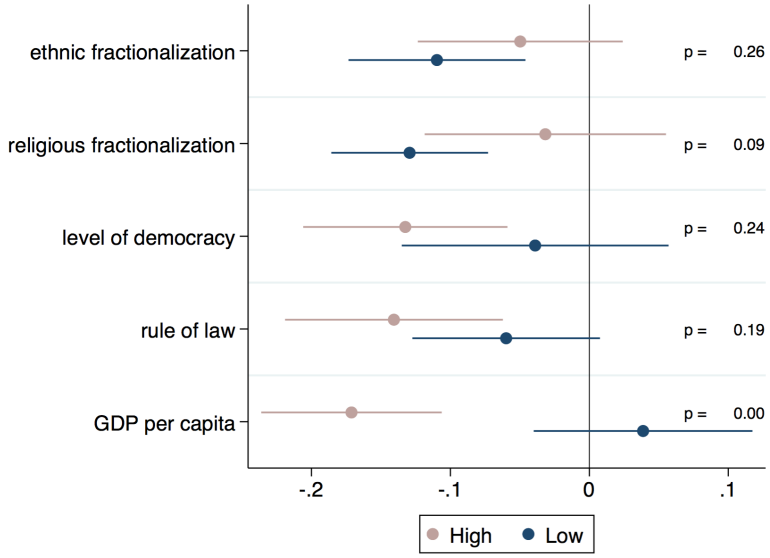
In this Section, we test the sensitivity of our results on cross-country heterogeneity alternatively conflict incidence and a LPM estimator (our baseline, Table A5.16) and conflict intensity and a PPML estimator (Table A5.17). We check that our results are robust to controlling for potential heterogeneity in reporting bias, by including an interaction term between the shutdown measure and (demeaned) press freedom to account for potential reporting bias (Figure A5.14). We also use alternative policy indicators, i.e. the narrow index (Table A5.18) and the broad index (Table A5.19). We then replicate the results on the pre and post shutdown dynamics of conflict (see Table A2.7) across groups of countries for all conflict events in Section A5.2. Finally, we show how the country heterogeneity matters for sub-categories of conflict events (left panels) and actors (right panels) in Section A5.3.

Table A5.16: Heterogenous Effects (linear probability model)

	(1)	(2)	(3)	(4)	(5)
Dep. var. (conflict)			Incidence		
Policy restrictions measure			Shutdown (binary)		
Policy restriction	-0.107***	-0.131***	-0.050	-0.060	0.030
	(0.038)	(0.034)	(0.047)	(0.040)	(0.042)
× ethnic fractionalization	0.050				
	(0.053)				
× religious fractionalization		0.099*			
		(0.056)			
× level of democracy			-0.072		
			(0.055)		
× rule of law				-0.079	
				(0.053)	
× GDP per capita					-0.189***
					(0.049)
Observations	116,333	116,333	118,742	118,742	117,064
R-squared	0.486	0.486	0.481	0.481	0.474
Country FE			Yes		
Month-year FE			Yes		

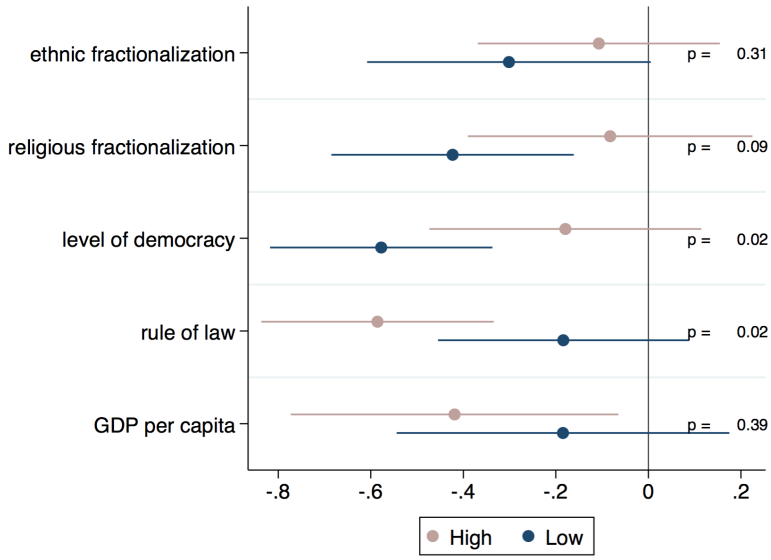
Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict incidence is a variable that takes the value 1 if at least one conflict event is recorded in the country a given day. The policy restrictions measure is the shutdown binary measure (see main text for the definition). Ethnic and religious fractionalization are the probability that two randomly selected individuals from a given country will not share a certain ethnicity or religion, respectively, in the year 2000. Level of democracy is approximated using *Polity2* index from the Freedom House which ranges between 0 (least democratic) to 10 (most democratic). Rule of law measures the confidence in the rules of society from the Worldwide Governance Indicators. GDP per capita, from the Worldwide Governance Indicators, measures economic development. The last three country-level characteristics are the averaged between 2016 and 2019. All country indicators are provided in the Quality of Government dataset. Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation.

Figure A5.14: Heterogenous Effects (controlling for Press Freedom)



Note: This figure replicates the estimation of Table A5.16 while controlling for the Press Freedom. Press Freedom Index is the average of the press freedom index from Reporters Without Borders over the 2016-2019 period, as provided in the Quality of Government dataset.

Figure A5.15: Heterogenous Effects (Poisson pseudo maximum likelihood)



Note: This figure plots the coefficients of Table A5.17.

Table A5.17: Heterogenous Effects (Poisson pseudo maximum likelihood)

	(1)	(2)	(3)	(4)	(5)
Dep. var. (conflict)			Intensity		
Policy restrictions measure			Shutdown (binary)		
Policy restriction	-0.301	-0.423***	-0.577***	-0.184	-0.184
	(0.186)	(0.159)	(0.146)	(0.165)	(0.219)
× ethnic fractionalization	0.194				
	(0.191)				
× religious fractionalization		0.341*			
		(0.201)			
× level of democracy			0.398**		
			(0.168)		
× rule of law				-0.402**	
				(0.175)	
× GDP per capita					-0.234
					(0.274)
Observations	116,333	116,333	118,742	118,742	117,064
Country FE			Yes		
Month-year FE			Yes		

Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict intensity is the number of events observed in the country a given day. The policy restrictions measure is the shutdown binary measure (see main text for the definition). Ethnic and religious fractionalization are the probability that two randomly selected individuals from a given country will not share a certain ethnicity or religion, respectively, in the year 2000. Level of democracy is approximated using *Polity2* index from the Freedom House which ranges between 0 (least democratic) to 10 (most democratic). Rule of law measures the confidence in the rules of society from the Worldwide Governance Indicators. GDP per capita, from the Worldwide Governance Indicators, measures economic development. The last three country-level characteristics are the averaged between 2016 and 2019. All country indicators are provided in the Quality of Government dataset. Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation.

A5.1 Policy restrictions measure: index

Table A5.18: Heterogenous Effects (narrow index)

	(1)	(2)	(3)	(4)	(5)
Dep. var. (conflict)			Incidence		
Policy restrictions measure			Narrow index		
Policy restriction	-0.218***	-0.207***	-0.173***	-0.127***	-0.072*
	(0.041)	(0.036)	(0.048)	(0.039)	(0.042)
× ethnic fractionalization	0.106**				
	(0.046)				
× religious fractionalization		0.055			
		(0.052)			
× level of democracy			-0.026		
			(0.050)		
× rule of law				-0.123***	
				(0.047)	
× GDP per capita					-0.168***
					(0.046)
Observations	116,333	116,333	118,742	118,742	117,064
R-squared	0.486	0.486	0.482	0.482	0.475
Country FE			Yes		
Month-year FE			Yes		

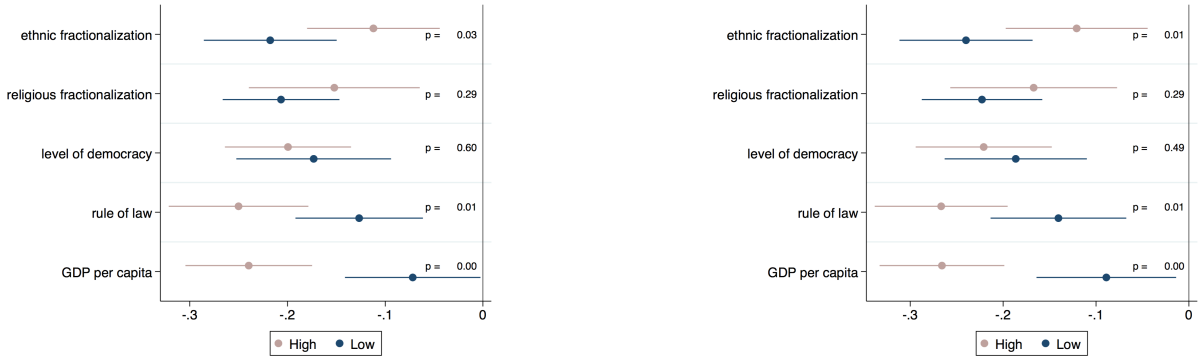
Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict incidence is a variable that takes the value 1 if at least one conflict event is recorded in the country a given day. The policy restrictions measure is the narrow index measure (see main text for the definition). Ethnic and religious fractionalization are the probability that two randomly selected individuals from a given country will not share a certain ethnicity or religion, respectively, in the year 2000. Level of democracy is approximated using *Polity2* index from the Freedom House which ranges between 0 (least democratic) to 10 (most democratic). Rule of law measures the confidence in the rules of society from the Worldwide Governance Indicators. GDP per capita, from the Worldwide Governance Indicators, measures economic development. The last three country-level characteristics are the averaged between 2016 and 2019. All country indicators are provided in the Quality of Government dataset. Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation.

Table A5.19: Heterogenous Effects (broad index)

	(1)	(2)	(3)	(4)	(5)
Dep. var. (conflict)			Incidence		
Policy restrictions measure			Broad index		
Policy restriction	-0.240***	-0.223***	-0.186***	-0.140***	-0.089*
	(0.043)	(0.039)	(0.046)	(0.044)	(0.045)
× ethnic fractionalization	0.119**				
	(0.048)				
× religious fractionalization		0.056			
		(0.052)			
× level of democracy			-0.034		
			(0.050)		
× rule of law				-0.126***	
				(0.047)	
× GDP per capita					-0.177***
					(0.046)
Observations	116,333	116,333	118,742	118,742	117,064
R-squared	0.486	0.486	0.482	0.482	0.475
Country FE			Yes		
Month-year FE			Yes		

Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict incidence is a variable that takes the value 1 if at least one conflict event is recorded in the country a given day. The policy restrictions measure is the broad index measure (see main text for the definition). Ethnic and religious fractionalization are the probability that two randomly selected individuals from a given country will not share a certain ethnicity or religion, respectively, in the year 2000. Level of democracy is approximated using *Polity2* index from the Freedom House which ranges between 0 (least democratic) to 10 (most democratic). Rule of law measures the confidence in the rules of society from the Worldwide Governance Indicators. GDP per capita, from the Worldwide Governance Indicators, measures economic development. The last three country-level characteristics are the averaged between 2016 and 2019. All country indicators are provided in the Quality of Government dataset. Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation.

Figure A5.16: Heterogenous Effects - index



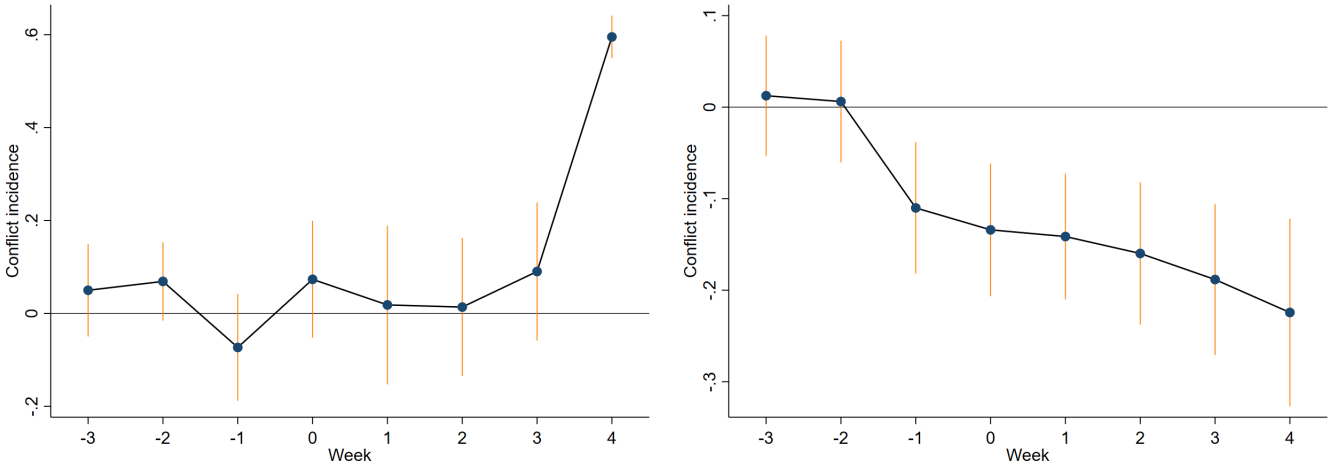
(a) Narrow Index

(b) Broad Index

Note: This figure plots the coefficients estimates of Table A5.18 (left panel) and Table A5.19 (right panel).

A5.2 Dynamics and persistence of violence

Figure A5.17: Timing of Restriction and Ethnic Fractionalization

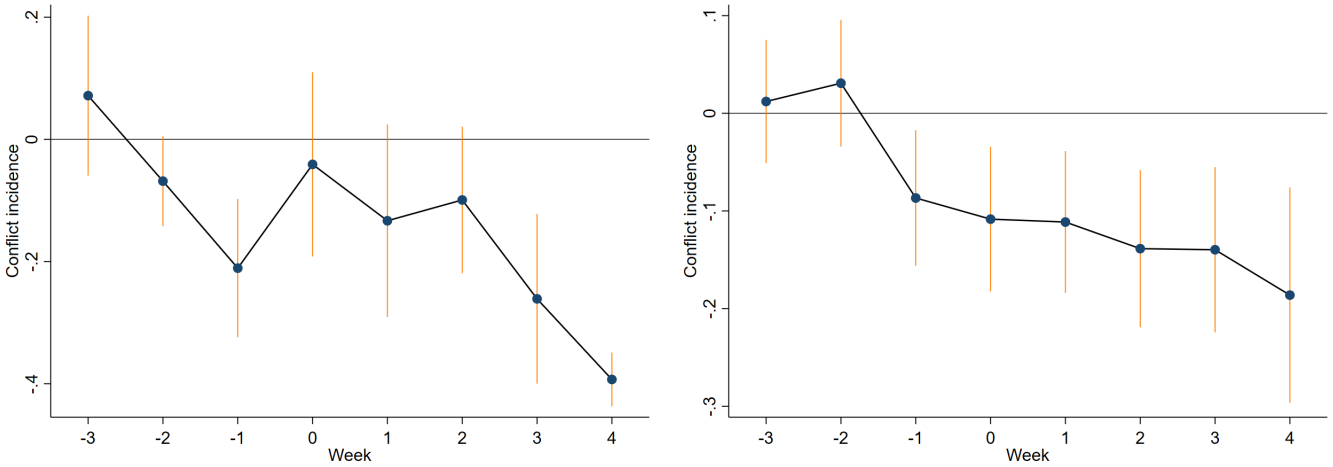


(a) High Ethnic Fractionalization

(b) Low Ethnic Fractionalization

Note: This figure plots estimates from a slightly modified equation 1 that allows the effect of shutdowns to vary across time, around the implementation date. The dependent variable is the incidence of conflict events. We allow the effect of shutdowns to be heterogeneous for two groups of countries, namely those above and below the sample median of ethnic fractionalization.

Figure A5.18: Timing of Restriction and Religious Fractionalization

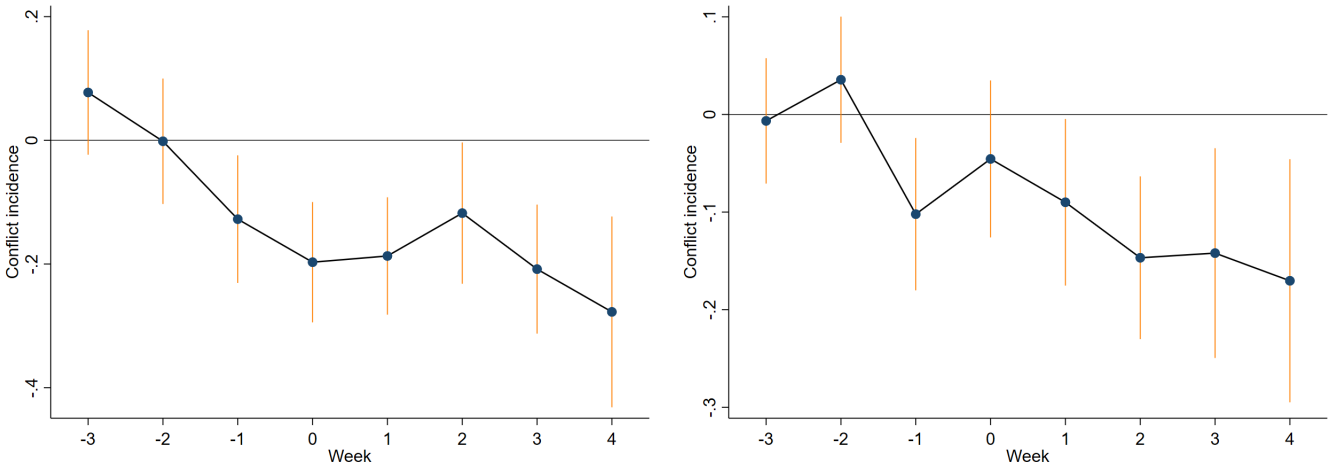


(a) High Religious Fractionalization

(b) Low Religious Fractionalization

Note: This figure plots estimates from a slightly modified equation 1 that allows the effect of shutdowns to vary across time, around the implementation date. The dependent variable is the incidence of conflict events. We allow the effect of shutdowns to be heterogeneous for two groups of countries, namely those above and below the sample median of religious fractionalization.

Figure A5.19: Timing of Restriction and Level of Democracy

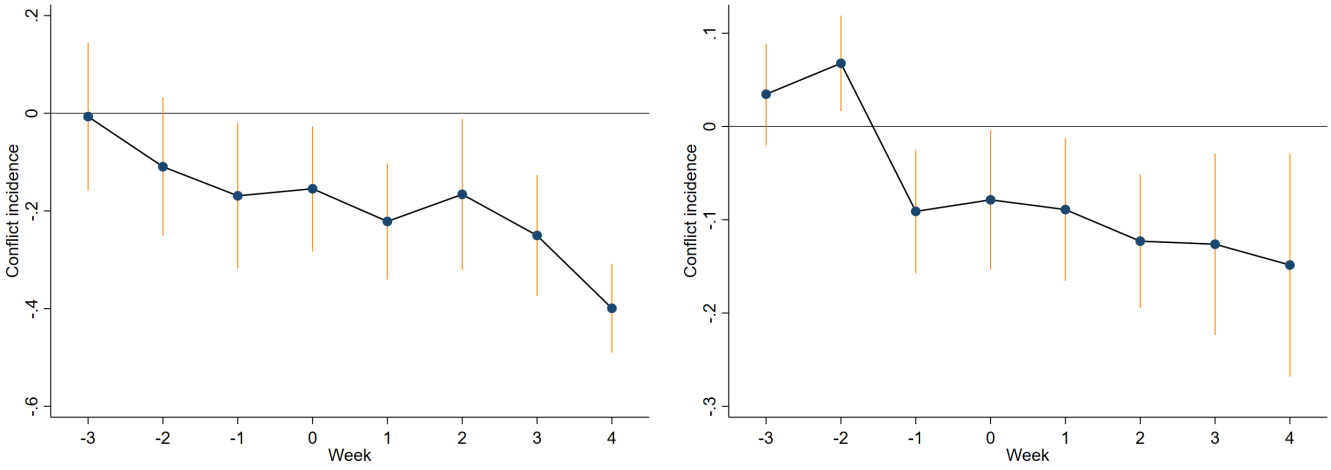


(a) High Democracy Level

(b) Low Democracy Level

Note: This figure plots estimates from a slightly modified equation 1 that allows the effect of shutdowns to vary across time, around the implementation date. The dependent variable is the incidence of conflict events. We allow the effect of shutdowns to be heterogeneous for two groups of countries, namely those above and below the sample median of level of democracy.

Figure A5.20: Timing of Restriction and Rule of Law

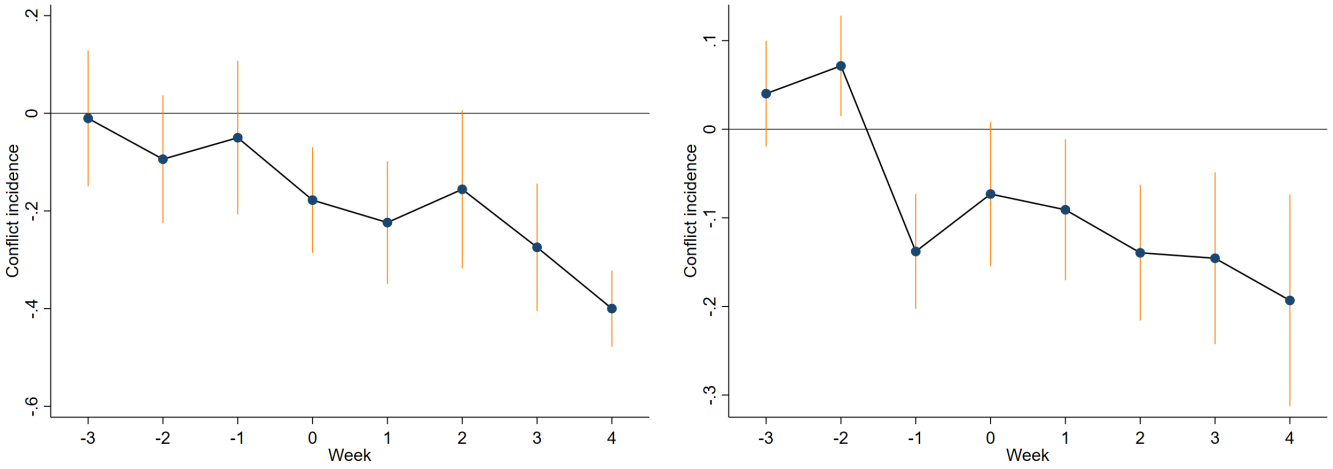


(a) High Rule of Law

(b) Low Rule of Law

Note: This figure plots estimates from a slightly modified equation 1 that allows the effect of shutdowns to vary across time, around the implementation date. The dependent variable is the incidence of conflict events. We allow the effect of shutdowns to be heterogeneous for two groups of countries, namely those above and below the sample median of rule of law.

Figure A5.21: Timing of Restriction and Size of the GDP



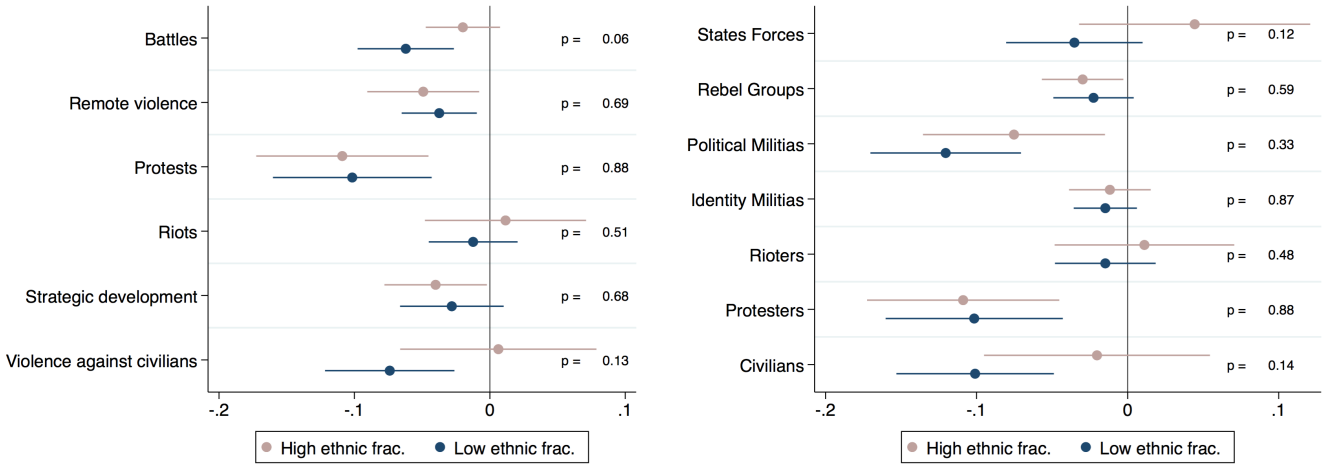
(a) High GDP per capita

(b) Low GDP per capita

Note: This figure plots estimates from a slightly modified equation 1 that allows the effect of shutdowns to vary across time, around the implementation date. The dependent variable is the incidence of conflict events. We allow the effect of shutdowns to be heterogeneous for two groups of countries, namely those above and below the sample median of GDP per capita.

A5.3 Events and Actors

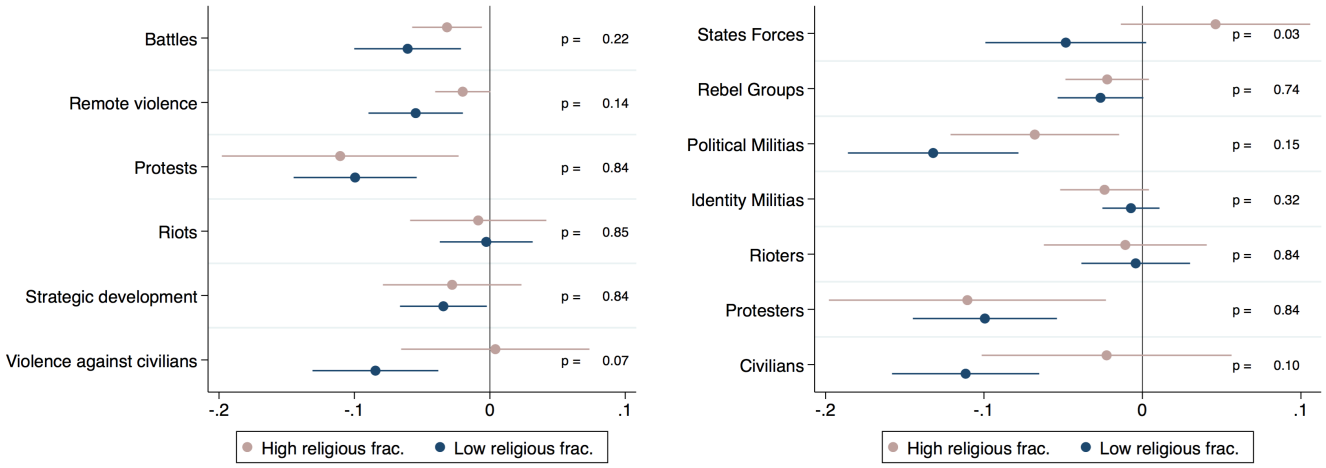
Figure A5.22: Ethnic Fractionalization



(a) Types of Events (b) Types of Actors

Note: This figure plots the estimates of equation 1 where the dependent variable is alternatively: panel (a) the incidence of battles, remote violence, protests, riots, strategic development or violence against civilians; panel (b) the incidence of violence where at least one actor involves states forces, rebels groups, political militias, identity militias, rioters, protesters or civilians. We allow the effect of shutdowns to be heterogeneous for the two groups of countries, namely those above and below the sample median of ethnic fractionalization. Each pair of dots comes from a single estimation. The p-value of the difference between the two is also displayed.

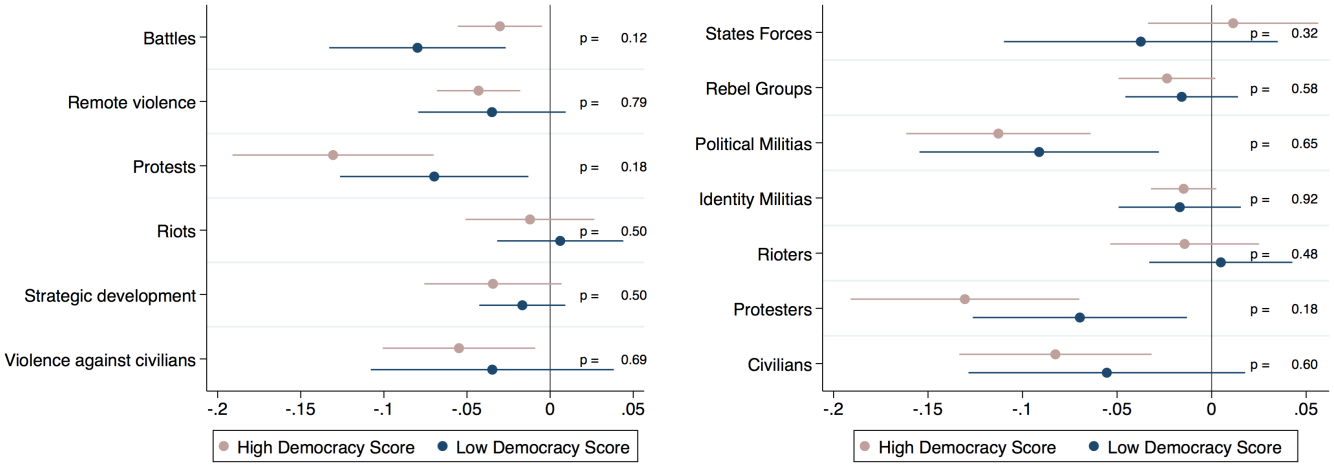
Figure A5.23: Religious Fractionalization



(a) Types of Events (b) Types of Actors

Note: This figure plots the estimates of equation 1 where the dependent variable is alternatively: panel (a) the incidence of battles, remote violence, protests, riots, strategic development or violence against civilians; panel (b) the incidence of violence where at least one actor involves states forces, rebels groups, political militias, identity militias, rioters, protesters or civilians.We allow the effect of shutdowns to be heterogeneous for the two groups of countries, namely those above and below the sample median of religious fractionalization. Each pair of dots comes from a single estimation. The p-value of the difference between the two is also displayed.

Figure A5.24: Level of Democracy

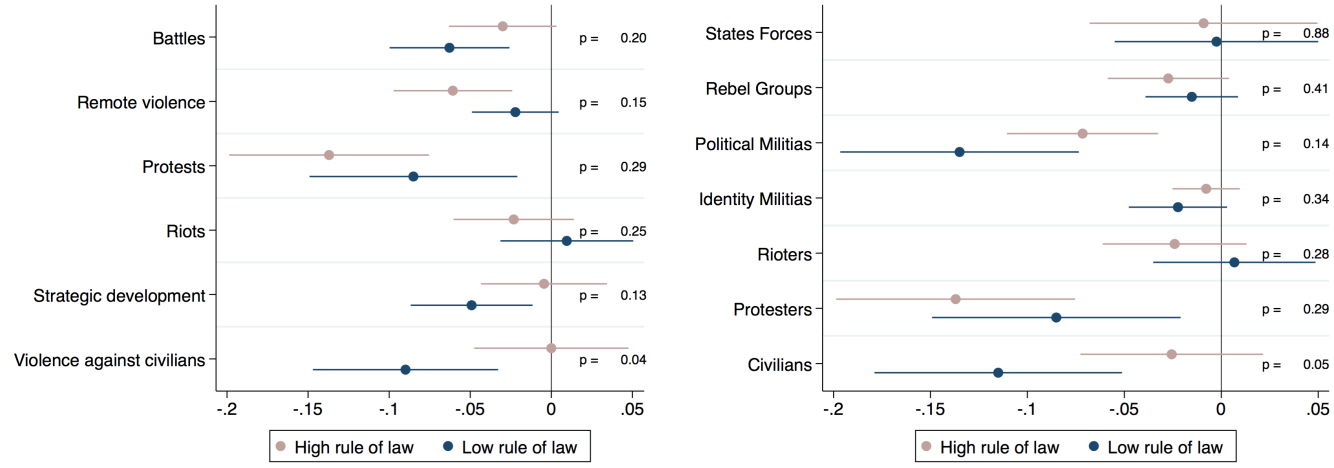


(a) Types of Events

(b) Types of Actors

Note: This figure plots the estimates of equation 1 where the dependent variable is alternatively: panel (a) the incidence of battles, remote violence, protests, riots, strategic development or violence against civilians; panel (b) the incidence of violence where at least one actor involves states forces, rebels groups, political militias, identity militias, rioters, protesters or civilians. We allow the effect of shutdowns to be heterogeneous for the two groups of countries, namely those above and below the sample median of level of democracy. Each pair of dots comes from a single estimation. The p-value of the difference between the two is also displayed.

Figure A5.25: Rule of Law

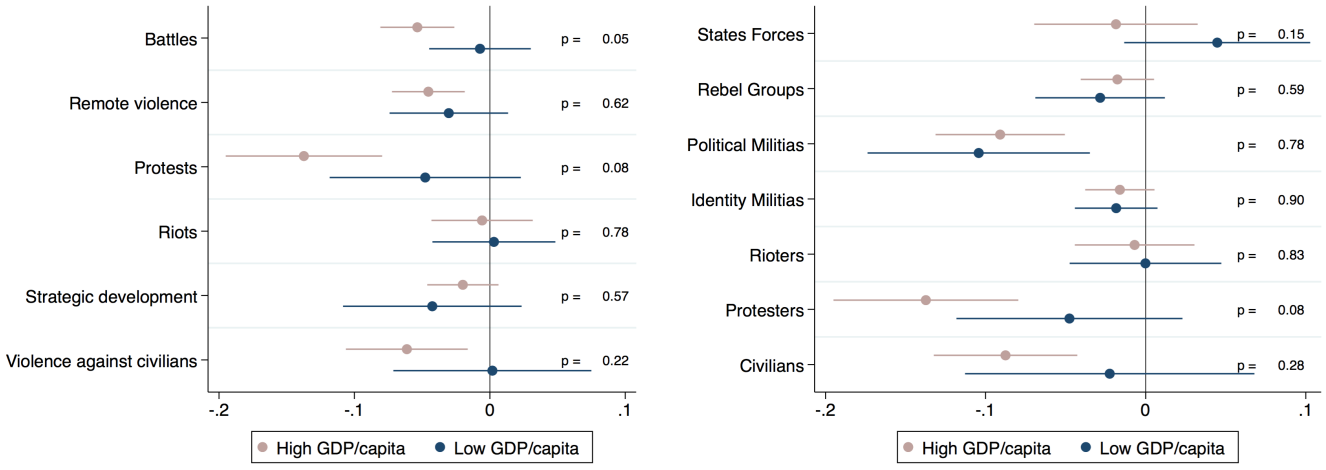


(a) Types of Events

(b) Types of Actors

Note: This figure plots the estimates of equation 1 where the dependent variable is alternatively: panel (a) the incidence of battles, remote violence, protests, riots, strategic development or violence against civilians; panel (b) the incidence of violence where at least one actor involves states forces, rebels groups, political militias, identity militias, rioters, protesters or civilians. We allow the effect of shutdowns to be heterogeneous for the two groups of countries, namely those above and below the sample median of rule of law. Each pair of dots comes from a single estimation. The p-value of the difference between the two is also displayed.

Figure A5.26: GDP per capita



(a) Types of Events

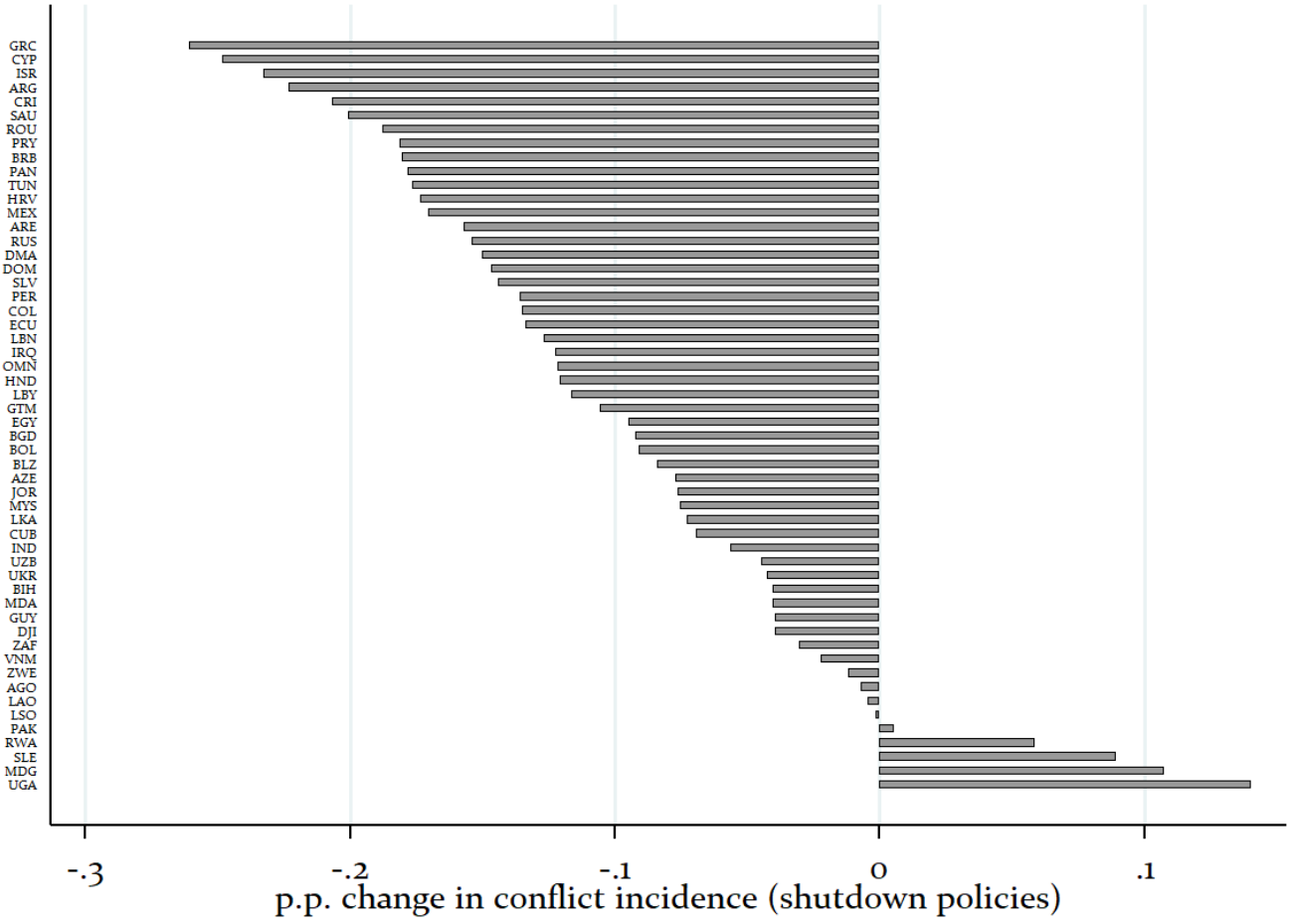
(b) Types of Actors

Note: This figure plots the estimates of equation 1 where the dependent variable is alternatively: panel (a) the incidence of battles, remote violence, protests, riots, strategic development or violence against civilians; panel (b) the incidence of violence where at least one actor involves states forces, rebels groups, political militias, identity militias, rioters, protesters or civilians. We allow the effect of shutdowns to be heterogeneous for the two groups of countries, namely those above and below the sample median of GDP per capita. Each pair of dots comes from a single estimation. The p-value of the difference between the two is also displayed.

A6 Counterfactual Analysis

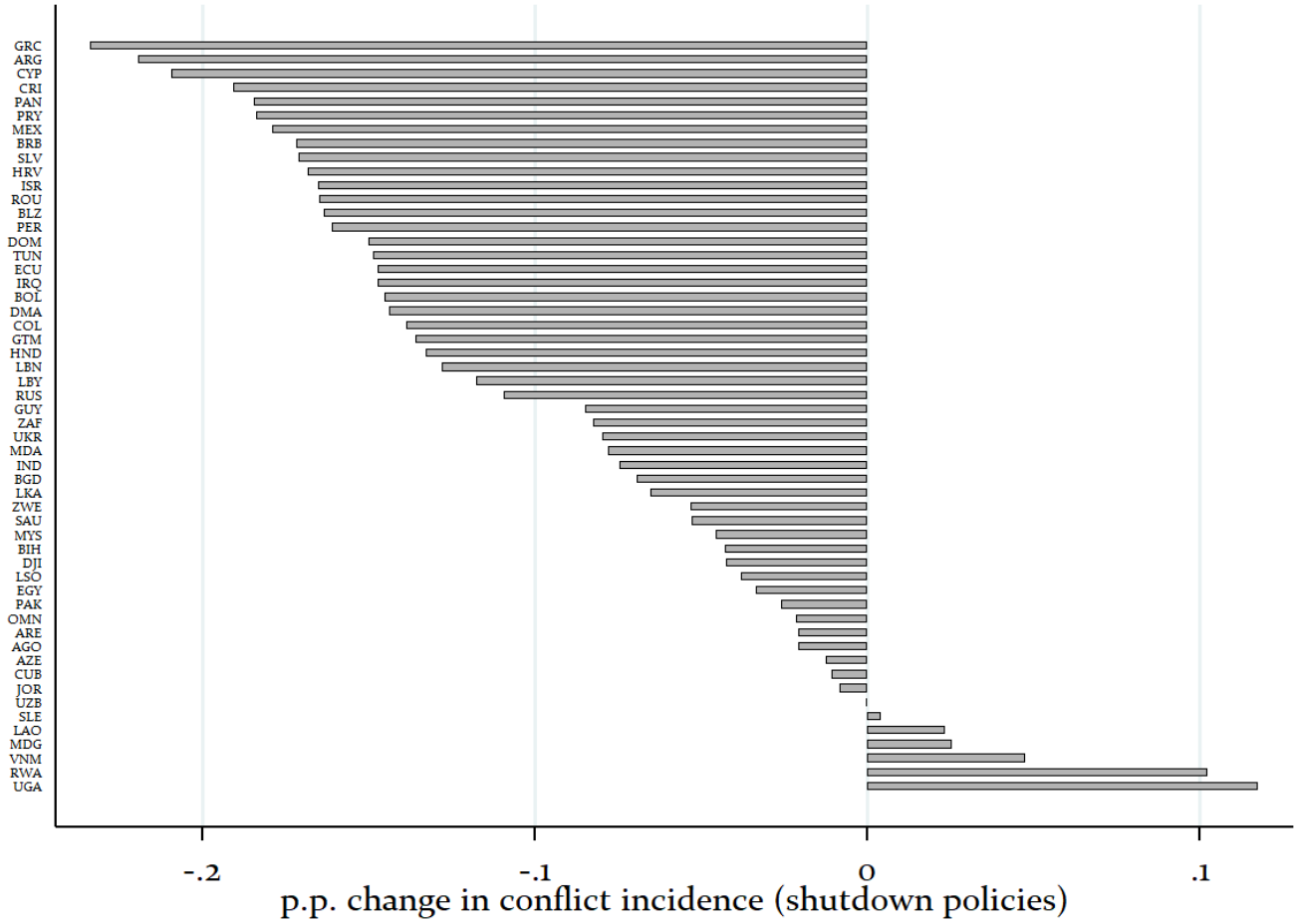
In this section, we conduct a counterfactual exercise where compare the level of conflict incidence predicted by our estimates, compared to an hypothetical no-shutdown situation. We include the various country characteristics considered in the paper: fractionalization, rule of law, democracy level and GDP per capita. GDP per capita is expressed in logs and fractionalization is computed as the average of religious and ethnic fractionalization measures. We regress conflict incidence on our baseline shutdown measure and its interaction with each of the country characteristic. In Figure A6.28 we also control for the country-specific timing of the outbreak of the pandemic. For each of the estimations, we compute the prediction from the actual data, then predict conflict incidence assuming no restriction policy, i.e. setting the shutdown variable to zero. We then average this prediction, post-shutdown, by country, and compute the difference between the two scenarios, which is depicted in Figures A6.27 and A6.28. The figure only contains the countries in which such policies have been implemented.

Figure A6.27: Contribution of shutdown policies to conflict incidence



Note: This figure plots estimated effect of shutdown policies on average conflict incidence, by country, compared to a counterfactual situation where no policy would have been implemented. See text for more details.

Figure A6.28: Contribution of shutdown policies to conflict incidence (controlling for Covid outbreak)



Note: This figure plots estimated effect of shutdown policies on average conflict incidence, by country, compared to a counterfactual situation where no policy would have been implemented. See text for more details.

A7 Stay-at-home orders

In this section, we focus specifically on stay-at-home orders as a policy response to the COVID-19 outbreak. We reproduce all our previous estimations using this alternative measure: baseline results (Table A7.20); results by events (Table A7.21) and by actors (Table A7.22); and country heterogeneity (Table A7.23). The results show that the effect of such measure is less significant and negative on average than broader policies measures, across actors and events, but also that this appears to be due stronger cross-country heterogeneity (Figure A7.31): conflict is actually found to *increase* following stay-at-home policies in low income countries, as well as in highly fractionalized societies.

Table A7.20: Baseline Results - stay-at-home orders

	(1)	(2)	(3)	(4)
Dep. var. (conflict)	Incidence	Intensity	Incidence	
Policy restrictions measure	Lockdown	(binary)	Lockdown index	Lockdown (binary)
Policy restriction	-0.034	-0.303*	-0.198***	-0.089
	(0.029)	(0.171)	(0.038)	(0.084)
× Press Freedom Index				-0.001
				(0.002)
Observations	122,099	122,099	122,099	117,794
R-squared	0.482		0.482	0.478
Model	OLS	PPML	OLS	OLS
Country FE			Yes	
Month-year FE			Yes	

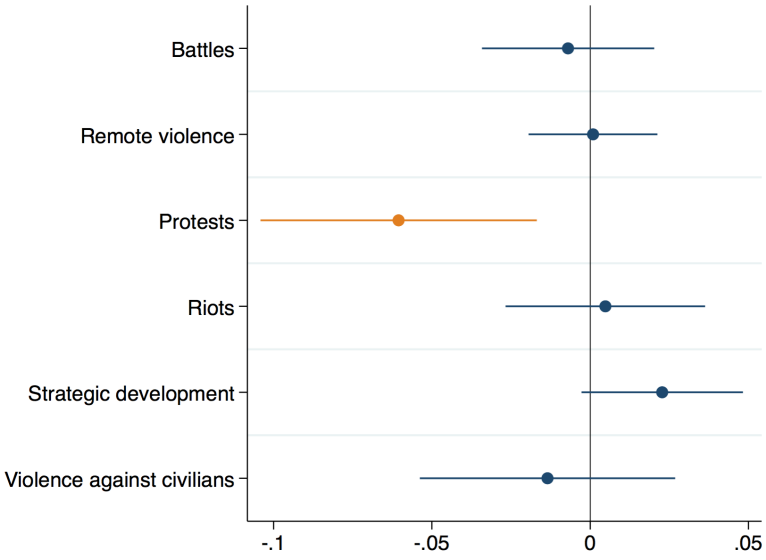
Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict incidence is a variable that takes the value 1 if at least one conflict event is recorded in the country a given day. Conflict intensity is the number of events observed in the country a given day. Restriction measure *lockdown* is a binary indicator when stay-at-home order was implemented at the national level. Restriction measure *lockdown index* in a index including all policy responses as in our broad index measures with stay-at-home orders in addition (see main text for details). Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation. Press Freedom Index is the average of the press freedom index from Reporters Without Borders over the 2016-2019 period, as provided in the Quality of Government dataset.

Table A7.21: Types of Events - stay-at-home orders

Dep. var. (conflict incidence)	(1) Battles	(2) Remote violence	(3) Protests	(4) Riots	(5) Strategic development	(6) Violence agst. civilians
Policy restriction				Lockdown (binary)		
Policy restriction	-0.007	0.001	-0.061**	0.005	0.023	-0.013
	(0.016)	(0.012)	(0.026)	(0.019)	(0.015)	(0.024)
Observations	122,099	122,099	122,099	122,099	122,099	122,099
R-squared	0.532	0.514	0.376	0.343	0.228	0.404
Country FE				Yes		
Month-year FE				Yes		

Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict incidence is a variable that takes the value 1 if at least one conflict event is recorded in the country a given day. The measure of conflict is separated by types of events following ACLED definitions: battles, remote violence, protests, riots, strategic development, violence against civilians. Restriction measure *lockdown* is a binary indicator when stay-at-home order was implemented at the national level. Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation.

Figure A7.29: Types of Events - stay-at-home orders



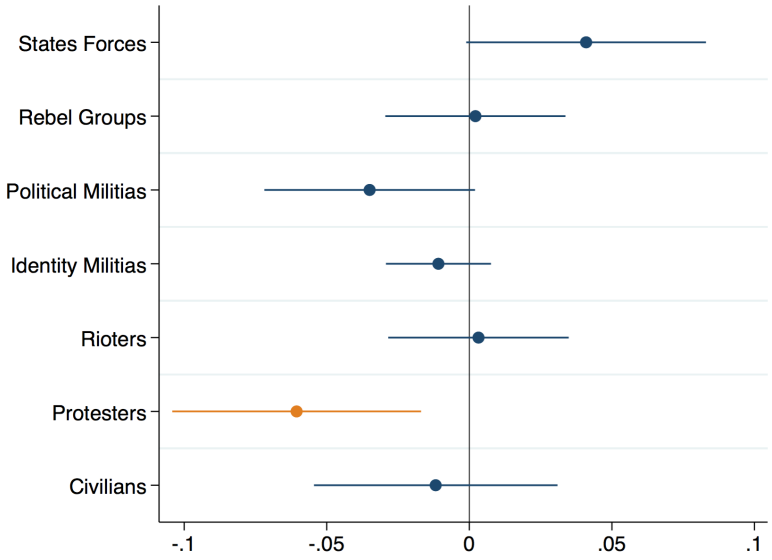
Note: This figure plots the coefficients of Table A7.21.

Table A7.22: Types of Actors - stay-at-home orders

Dep. var. (conflict incidence)	(1) States Forces	(2) Rebel Groups	(3) Political Militias	(4) Identity Militias	(5) Rioters	(6) Protesters	(7) Civilians
Policy restrictions measure			Lockdown (binary)				
Policy restriction	0.041	0.002	-0.035	-0.011	0.003	-0.061**	-0.012
	(0.025)	(0.019)	(0.022)	(0.011)	(0.019)	(0.026)	(0.026)
Observations	122,099	122,099	122,099	122,099	122,099	122,099	122,099
R-squared	0.469	0.578	0.444	0.216	0.343	0.376	0.433
Country FE			Yes				
Month-year FE			Yes				

Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict incidence is a variable that takes the value 1 if at least one conflict event is recorded in the country a given day. The measure of conflict is separated by actors following ACLED definitions: states forces, rebels groups, political militias, identity militias, rioters, protesters, civilians. Restriction measure *lockdown* is a binary indicator when stay-at-home order was implemented at the national level. Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation.

Figure A7.30: Types of Actors - stay-at-home orders



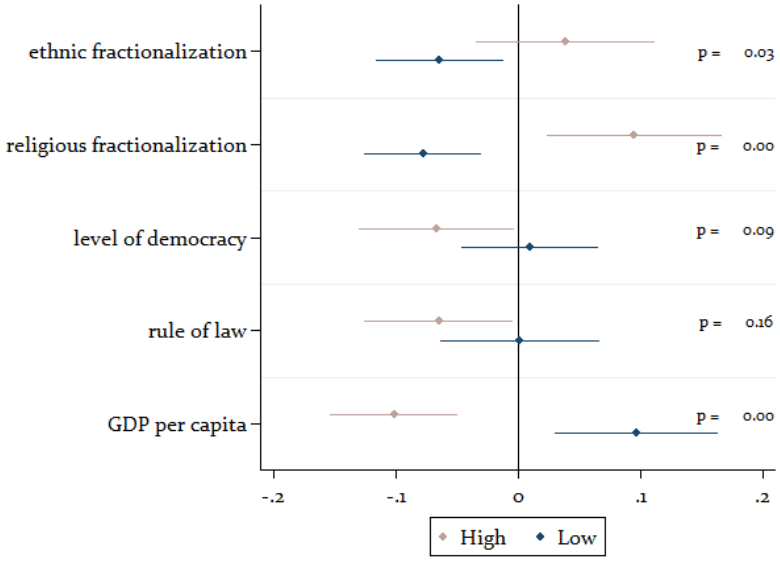
Note: This figure plots the coefficients of Table A7.22.

Table A7.23: Heterogenous Effects - stay-at-home orders

	(1)	(2)	(3)	(4)	(5)
Dep. var. (conflict)			Incidence		
Policy restrictions measure			Lockdown (binary)		
Policy restriction	0.039	0.095**	-0.066*	-0.065*	-0.101***
	(0.044)	(0.043)	(0.038)	(0.036)	(0.031)
× ethnic fractionalization	-0.103**				
	(0.047)				
× religious fractionalization		-0.173***			
		(0.045)			
× level of democracy			0.076*		
			(0.044)		
× rule of law				0.066	
				(0.047)	
× GDP per capita					0.198***
					(0.042)
Observations	116,333	116,333	118,742	118,742	117,064
R-squared	0.486	0.486	0.481	0.481	0.474
Country FE			Yes		
Month-year FE			Yes		

Note: * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the country level. Conflict incidence is a variable that takes the value 1 if at least one conflict event is recorded in the country a given day. Restriction measure *lockdown* is a binary indicator when stay-at-home order was implemented at the national level. Ethnic and religious fractionalization are the probability that two randomly selected individuals from a given country will not share a certain ethnicity or religion, respectively, in the year 2000. Level of democracy is approximated using *Polity2* index from the Freedom House which ranges between 0 (least democratic) to 10 (most democratic). Rule of law measures the confidence in the rules of society from the Worldwide Governance Indicators. GDP per capita, from the Worldwide Governance Indicators, measures economic development. The last three country-level characteristics are the averaged between 2016 and 2019. All country indicators are provided in the Quality of Government dataset. Table A1.4 in the online appendix contains descriptive statistics about each variable used in the estimation.

Figure A7.31: Heterogenous Effects - stay-at-home orders



Note: This figure plots the coefficients of Table A7.23.