UNITED NATIONS UNIVERSITY

UNU-MERIT

Maastricht University

Do pandemics lead to rebellion? Policy responses to COVID-19, inequality and protests in the USA

Francesco Iacoella
(with Bruno Martorano and Patricia Justino, UNU-WIDER)

Introduction

- Understanding the causes and consequences of protests and organized collective dissent has been a longstanding question in political economy.
- One of the prominent theories of civil unrest focuses on the role of inequality (Gurr, 1970; Boix, 2008).
- The COVID-19 pandemic offers a unique opportunity to study the relationship btw inequality and protests
- As the virus spread, so did social discontent: protests across the world increased by almost 30 percent between January 2020 and January 2021. In the USA, angry protesters have taken to the streets since mid-April 2020 to voice their anger over lockdown restrictions.

Why did protests rise when a pandemic was rampant?

- Highest risk areas may have faced a 'perfect storm'
- Evidence of this vicious cycle of public health crisis, persistent inequalities and social discontent is, however, largely anecdotal.

*The aim of this paper is to disentangle empirically the role of **pre-existing inequality** in explaining the relationship between **policy restrictions** and the **incidence of protests** in the USA*

Hp: COVID-19 is exposing existing inequalities (Galletta and Giommoni, 2020). The health shock and government-imposed restrictions, in turn, have caused economic decline

Data and Empirical Strategy

- The paper analyses the relationship between policy restrictions, inequality and protests across US counties (third-level administrative units).
- The final sample includes 3,142 US counties from 50 states and the District of Columbia.
- For each county, we compiled time-variant information on: (i) weekly-aggregated figures on COVID-related protest events, (ii) weekly changes in COVID-related policies, and (iii) a measure of income inequality in 2019, expressed as a Gini index.
- The period of analysis is January 2020-December 2021.

Empirical strategy

We test the following equation:

$$Y_{xit} = \beta_0 + \beta_1 Stringency_{it} + \beta_2 Stringency_{it} * Gini_{xi} + \beta_2\ Controls_{xit} + \ \delta_x + \theta_t + \ \varepsilon_{xit}. \quad (1)$$

where Y is a binary indicator =1 if a protest related to COVID-19 occurred at the county level x.

The main independent variables are the index measuring the stringency of anti-COVID-19 policies in state i in the week t, and the interaction term, which represents the index measuring the stringency of anti-COVID policies interacted with the Gini index in the same county-state pair.

Equation (1) implies that the effect of the level of policy stringency on protest incidence varies linearly with the level of inequality.

Empirical strategy

- To capture these non-linearities, we interact levels of policy stringency with quintiles of the Gini index, as follows

$$Y_{xit} = \beta_0 + \beta_1 \, Stringency_{it} + \beta_2 \, Stringency_{it} * q1_{xi} + \beta_3 \, Stringency_{it} * q2_{xi} + \beta_4 \, Stringency_{it} * q3_{xi} +$$

$$\beta_5 \, Stringency_{it} * q4_{xi} + \beta_6 \, Stringency_{it} * q5_{xi} + \beta_7 \, Controls_{xit} + \delta_x + \theta_t + \varepsilon_{xit}, \quad (3)$$

- where q refers to quintiles of the Gini index, with q1 indicating counties with the lowest levels of within-county inequality and q5 representing the most unequal counties.

- To capture unobserved heterogeneity at the national and the local level, we include county and week fixed effects.

- we control for the (log) total number of COVID-19 cases in previous week, the (log) average rainfall and temperature for each county and other social and economic controls (reviewed in Dalton, 2017)

Main results

	Main Estimation			
	(3)	(4)	(6)	(9)
Post * Unequal				
Stringency index	-1.337***	0.011***	-0.152***	-0.121***
	(0.252)	(0.003)	(0.037)	(0.036)
Stringency in.*inequality (*continuous*)	2.928***			
	(0.559)			
Stringency index * q2		0.008*	0.016	0.002
		(0.005)	(0.023)	(0.021)
Stringency index * q3		0.018***	0.073**	0.047
		(0.006)	(0.037)	(0.032)
Stringency index * q4		0.060***	0.253***	0.185***
		(0.009)	(0.047)	(0.038)
Stringency index * q5		0.068***	0.320***	0.231***
		(0.011)	(0.047)	(0.046)
Observations	311,128	320,140	320,140	311,128
R-squared	0.249	0.012	0.241	0.248
Population Weights	Y	N	Y	Y
County fixed effects	Y	N	Y	Y
Week fixed effects	Y	N	Y	Y
Additional controls	Y	N	N	Y

*** p<0.01, ** p<0.05, * p<0.1.

Main results

	Main Estimation			
	(3)	(4)	(6)	(9)
Post * Unequal				
Stringency index	-1.337***	0.011***	-0.152***	-0.121***
	(0.252)	(0.003)	(0.037)	(0.036)
Stringency in.*inequality (*continuous*)	2.928***			
	(0.559)			
Stringency index * q2		0.008*	0.016	0.002
		(0.005)	(0.023)	(0.021)
Stringency index * q3		0.018***	0.073**	0.047
		(0.006)	(0.037)	(0.032)
Stringency index * q4		0.060***	0.253***	0.185***
		(0.009)	(0.047)	(0.038)
Stringency index * q5		0.068***	0.320***	0.231***
		(0.011)	(0.047)	(0.046)
Observations	311,128	320,140	320,140	311,128
R-squared	0.249	0.012	0.241	0.248
Population Weights	Y	N	Y	Y
County fixed effects	Y	N	Y	Y
Week fixed effects	Y	N	Y	Y
Additional controls	Y	N	N	Y

*** p<0.01, ** p<0.05, * p<0.1.

Main results

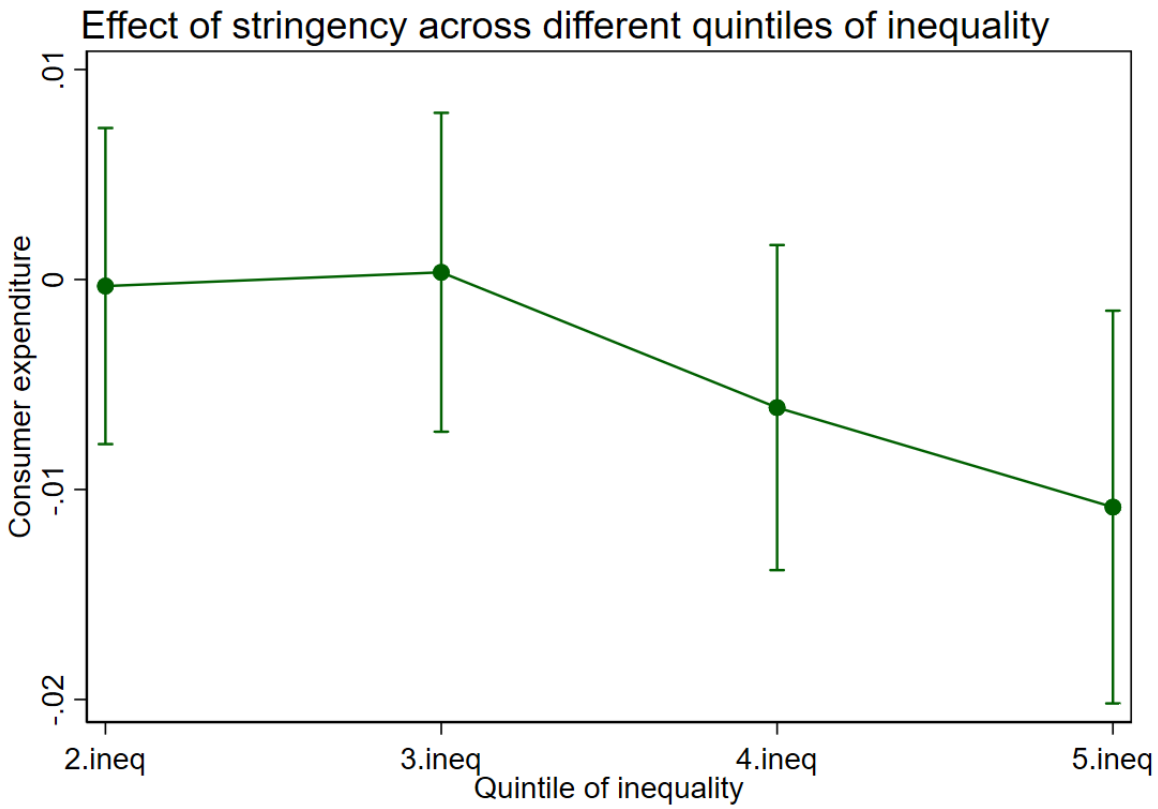
	Main Estimation			
	(3)	(4)	(6)	(9)
Post * Unequal				
Stringency index	-1.337***	0.011***	-0.152***	-0.121***
	(0.252)	(0.003)	(0.037)	(0.036)
Stringency in.*inequality (*continuous*)	2.928***			
	(0.559)			
Stringency index * q2		0.008*	0.016	0.002
		(0.005)	(0.023)	(0.021)
Stringency index * q3		0.018***	0.073**	0.047
		(0.006)	(0.037)	(0.032)
Stringency index * q4		0.060***	0.253***	0.185***
		(0.009)	(0.047)	(0.038)
Stringency index * q5		0.068***	0.320***	0.231***
		(0.011)	(0.047)	(0.046)
Observations	311,128	320,140	320,140	311,128
R-squared	0.249	0.012	0.241	0.248
Population Weights	Y	N	Y	Y
County fixed effects	Y	N	Y	Y
Week fixed effects	Y	N	Y	Y
Additional controls	Y	N	N	Y

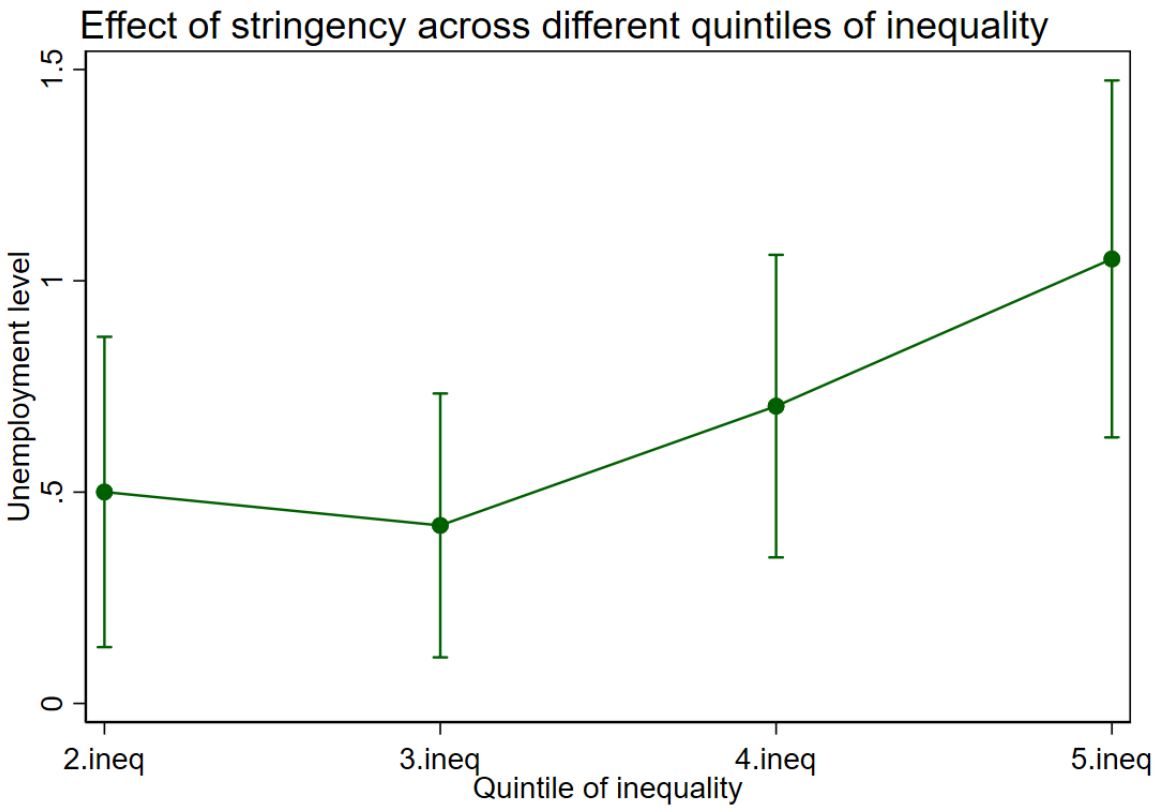
*** p<0.01, ** p<0.05, * p<0.1.

What mechanisms explain why policy stringency measures may have caused an increase in protests in more the unequal US counties?

- Policy measures to contain the COVID-19 pandemic have caused severe economic damage.
- In April 2020, unemployment reached its highest levels since 1948, with an average rate at 14.8% - most hit categories were temporary workers and members of minorities.
- Political science scholars have highlighted the role of group identity and political preferences in promoting social mobilisation (Tilly and Tarrow, 2015; Dalton, 2017; Wasow, 2020).
- It appears that the COVID-19 crisis has led some groups to embrace populist and more extreme political positions.

Impact of stringency on consumption expenditure and unemployment





Source: authors' own calculations. Note: Panel A shows the effect of stringency at different levels of inequality. Panel B shows the effect of stringency on different quintiles of inequality. Both panels report estimated marginal effects. Vertical lines indicate 95 percent confidence intervals for each marginal effect.

Social and political context

Results show that protests are more likely to take place in the most unequal counties where:

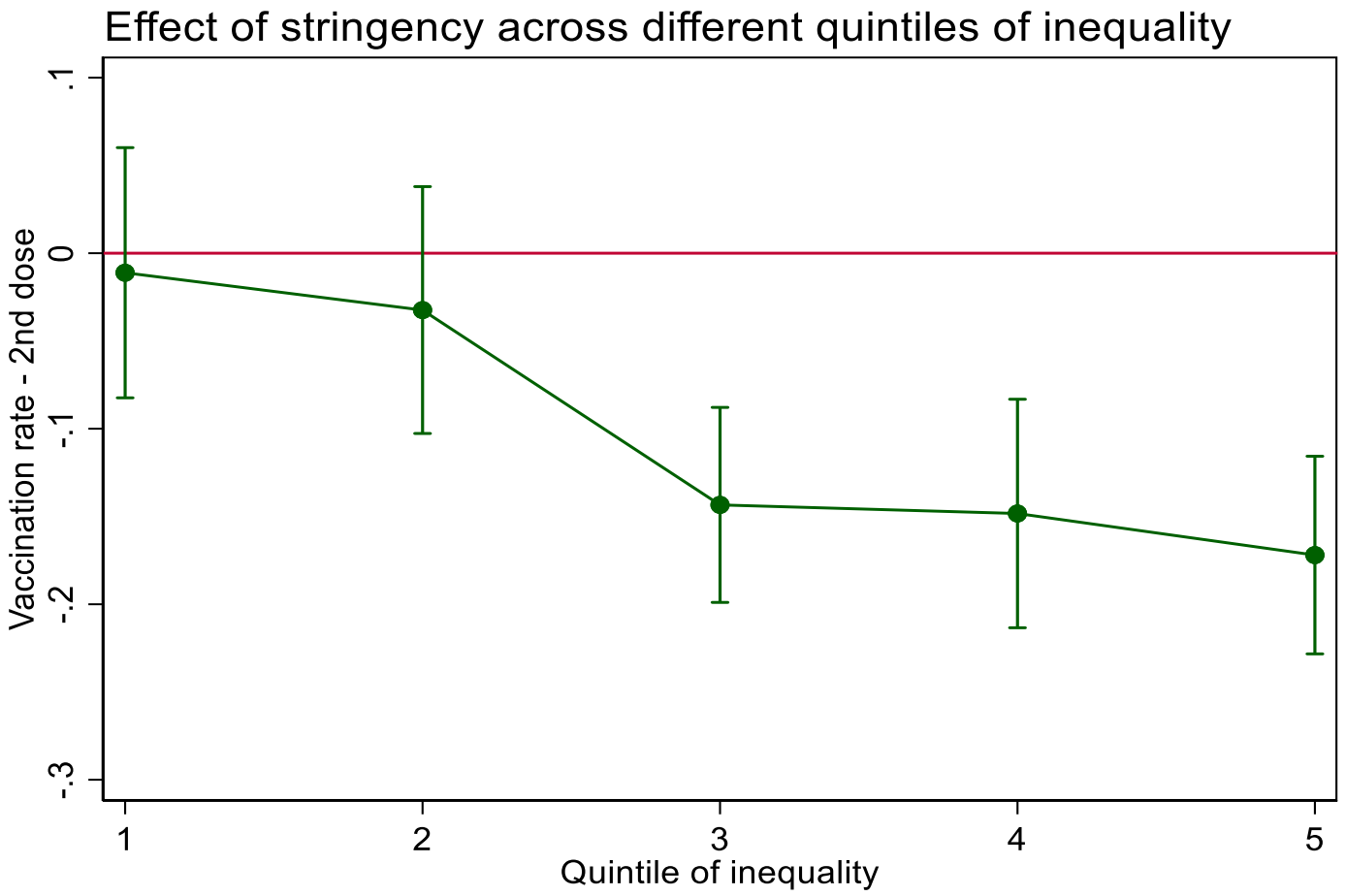
(i) Republican won in the 2016 elections

(ii) trust in the president is below the median

(iii) citizens are less satisfied with democracy.

(iv) higher levels of social trust and civic engagement i.e. : n. of religious organizations and of civic organizations; n. of political organizations; and n. of labour organizations.

… stringent policy measures seem to lead to a decrease in the % of individuals who had two doses of vaccine in areas where inequality was the highest



Conclusions

- The main results show that the implementation of policy restrictions to contain the virus led to increases in the incidence of protests in US counties with high levels of inequality.
- This result validates a longstanding theory of civil unrest, which emphasises the role of economic inequality in motivating deprived groups and individuals to protest (Gurr, 1970).
- Protests were motivated by the drastically adverse economic effects of such policies on living standards but also by political and social context.
- However, the political and social consequences of such a severe economic shock are yet to be completely understood and may take decades to be fully grasped


THANK
YOU
GRACIAS
ARIGATO
SHUKURIA
DANKSCHEEN
JUSPAXAR
GOZAIMASHITA
EFCHARISTO
TASHAKKUR ATU
YAQHANYELAY
SUKSAMA
EKHMET
MEHRBANI
GRAZIE
KOMAPSUMNIDA
MAAKE
BOLZÏN
MERCI
BÏYAN
SHUKRIA
TINGKI
SPASSIBO
SNACHALHUYA
NUHUN
CHALTU
WABEEJA
MAITEKA
YUSPAGARÀTAM
HUI
GUI
HATUR
UNALCHÈESH
SPASIBO
DENKAUJA
NENACHALHYA
MERSI
ANIHA
DHANYABAAD
ATTO
SAHCO
MERASTAWHY
GAEJTHO
LAH
AGUYJE
FAKAAUE
TAVTAPUCH
MEDAWAGSE
BAIIKA
PALDIES
EKOJU
SIIKOMO
MAKETAI
MINMONCHAR

(i) COVID-related protests events

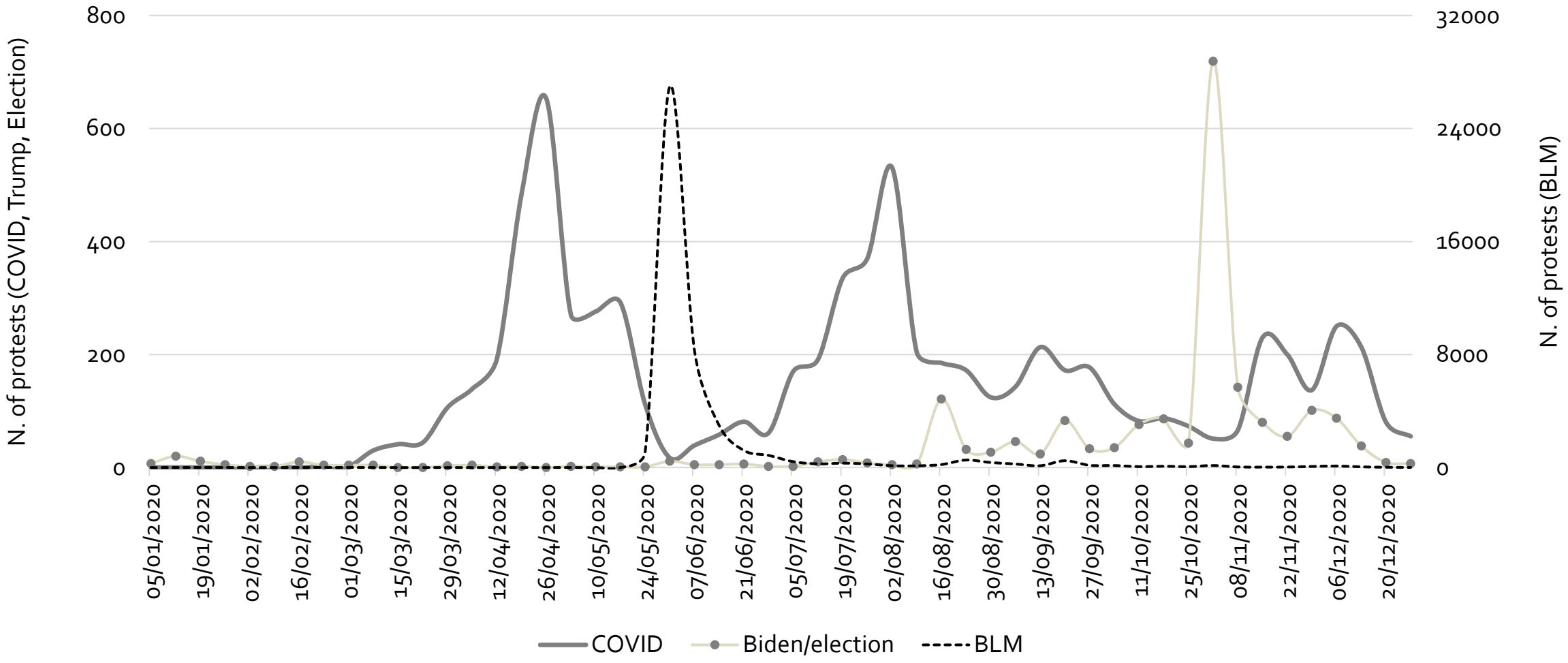
- All protest events that occurred in the US between 1st January and 31st December 2021 were recorded by the ACLED and the Bridging Divides Initiative (BDI) at Princeton University under the US Crisis Monitor initiative.

- The dataset includes dates, actors, locations, fatalities, and types of all political violence and demonstration events in the US.

- To code these categories, we identify whether each event's note contains specific terms and assign the event to the specific category.

- All events including the words 'COVID', 'pandemic' (after March 11), and 'restriction' (after stay-at-home orders were issued for the first time in each state) are coded as COVID-related protests.

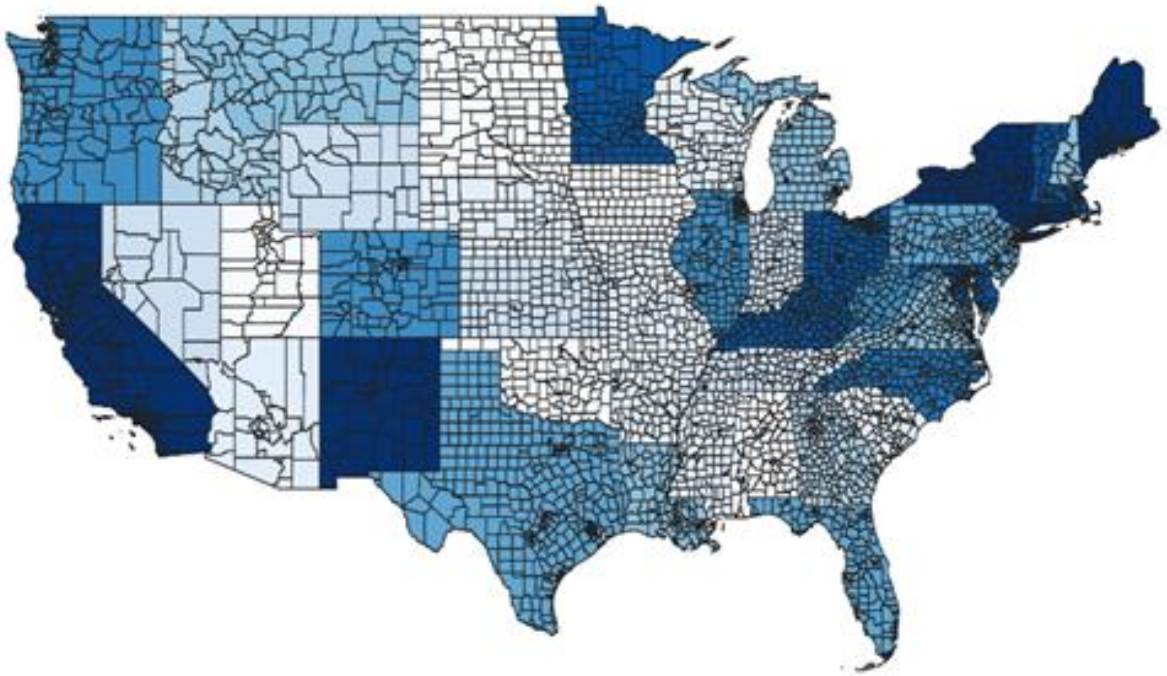
(i) COVID-related protests events

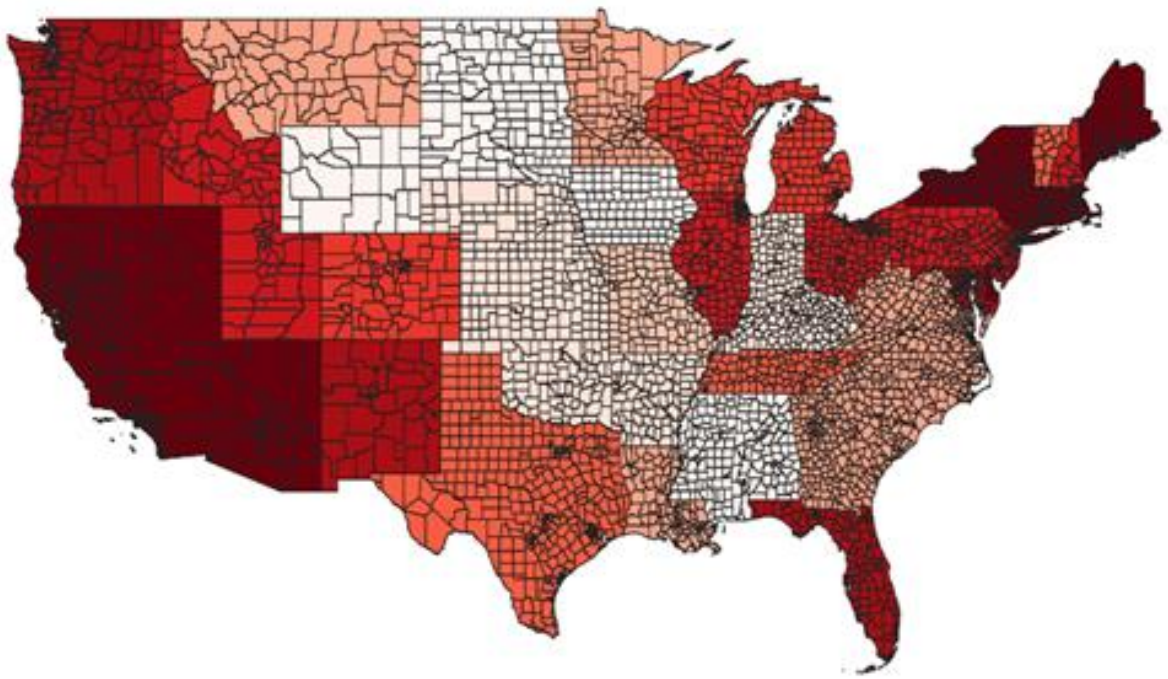


(ii) COVID-19 and containment policies

- Policy measures enacted in response to the COVID-19 pandemic are being recorded by the Blavatnik School of Government at the University of Oxford (Hale et al. 2020).
- The Oxford COVID-19 Government Response Tracker (OxCGRT) collects systematic information on 'lockdown'-style measures and scores the stringency of such measures.
- There are 19 indicators. Some of these indicators are aggregated into a Stringency Index ranging between 1 and 100, with 100 representing complete lockdown.

Stringency and protests in the US



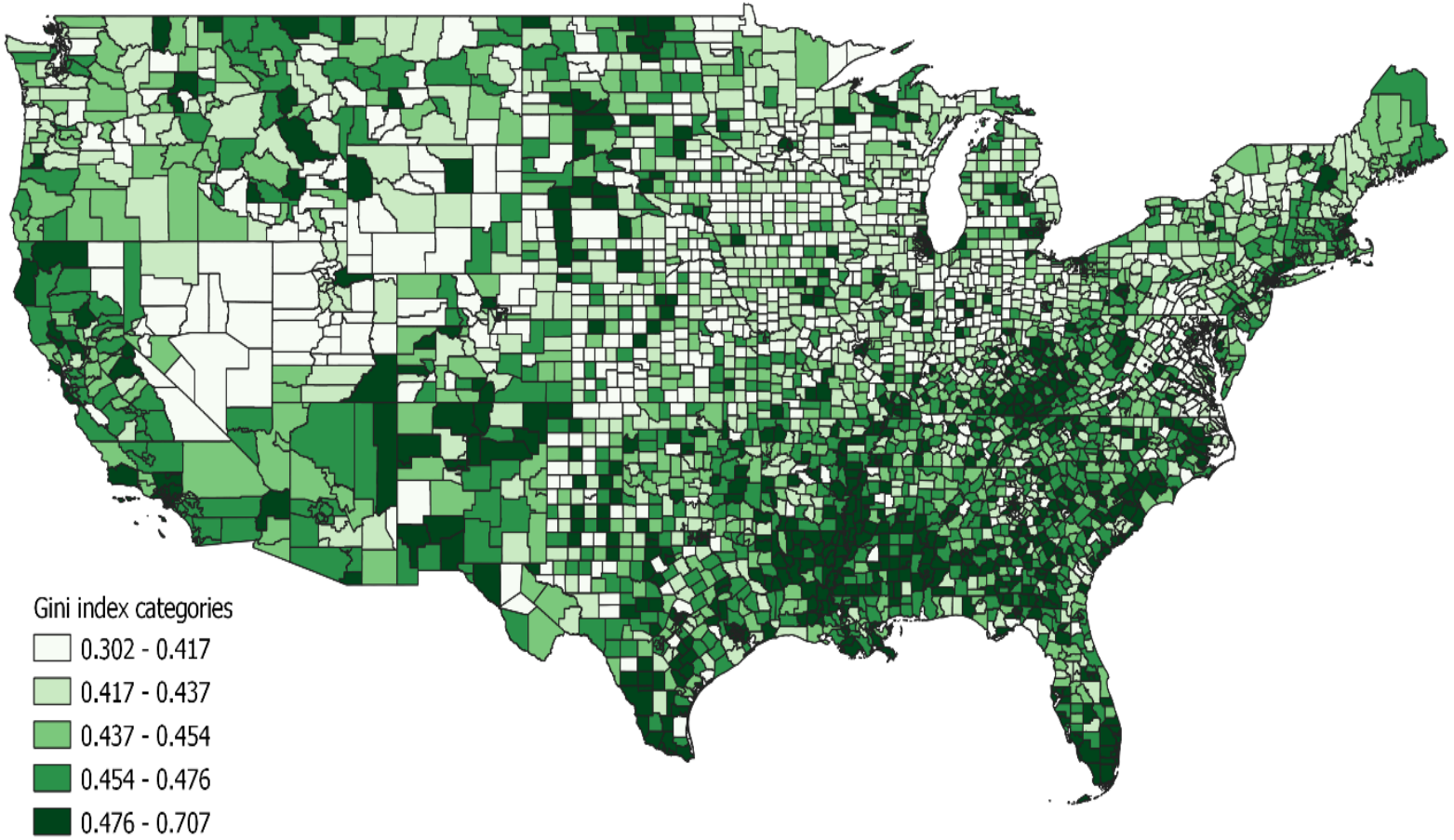


Source: Authors' calculations using the OxCGRT and ACLED Crisis Monitor. **Notes:** In both maps, darker colour shades represent higher intensity of the event (i.e., darker blue corresponds to stricter stringent measures and darker red corresponds to more protests).

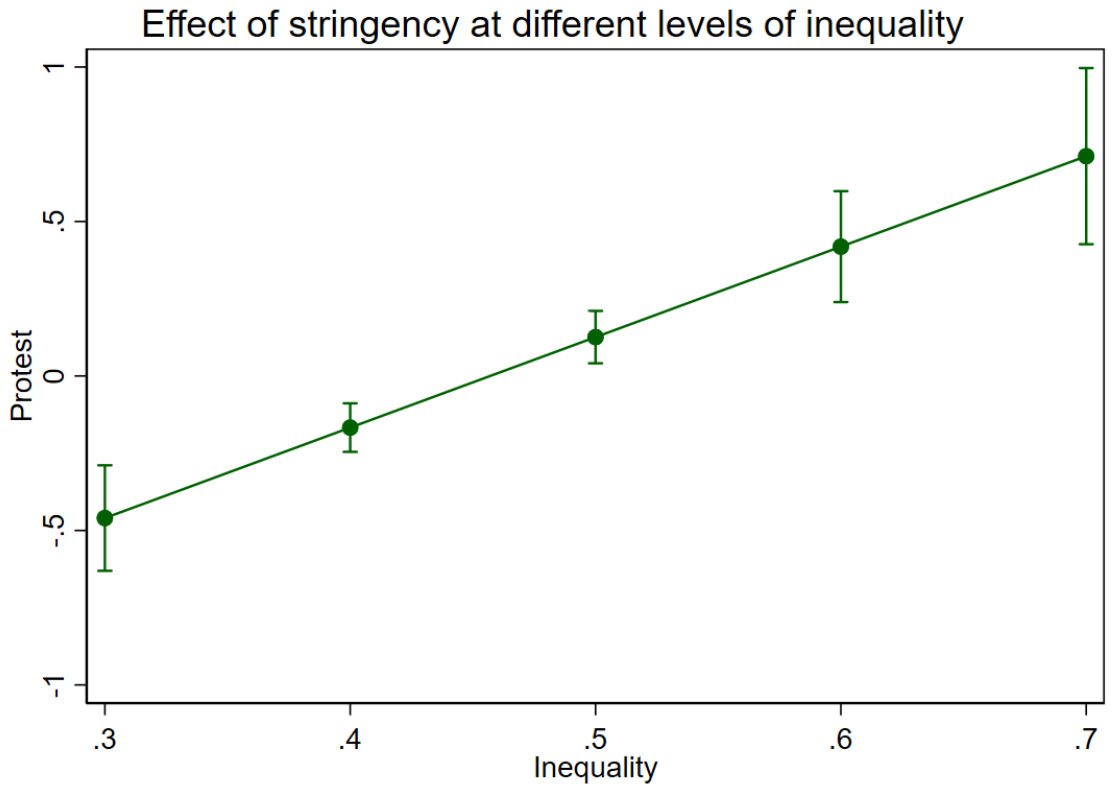
Inequality across US counties

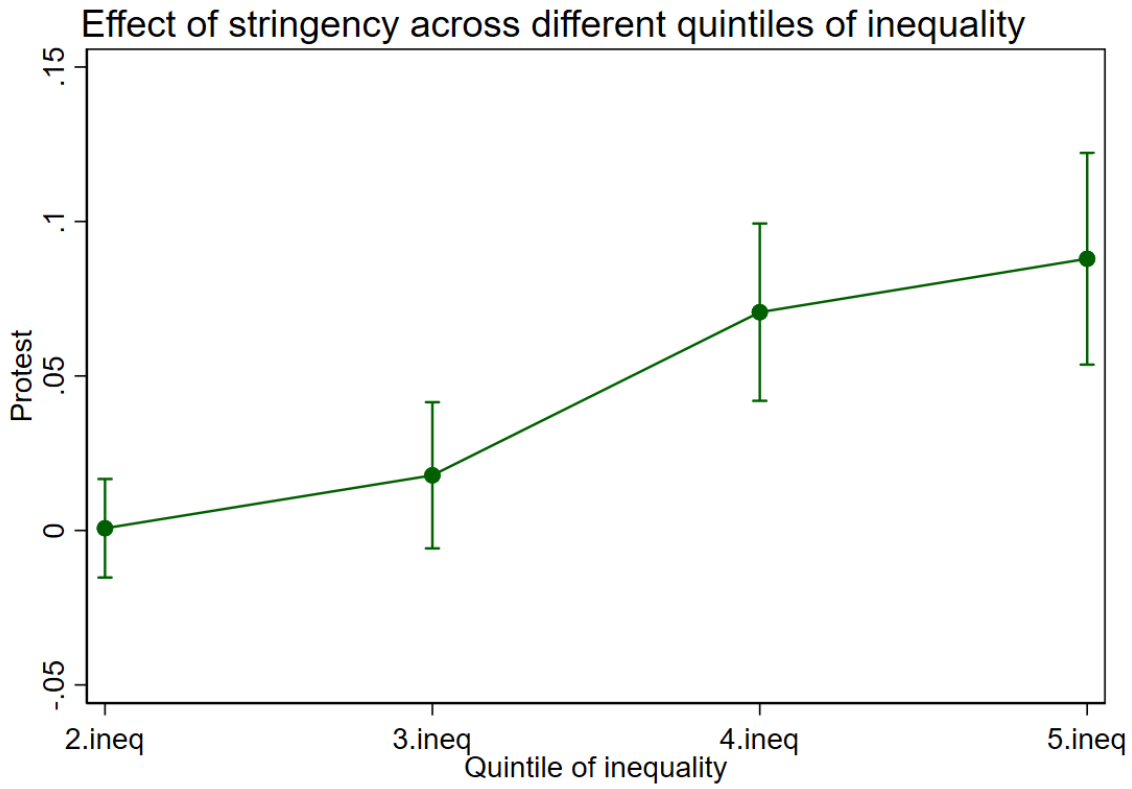
- Inequality in the USA is higher than in almost any other developed country (Piketty 2013).
- In this study, we use information on the Gini index is calculated at county-level by the Census Bureau using household income data from 2019 American Community Survey.
- Estimates are available for all 3,142 US counties included in our sample.
- The minimum value observed in our sample is 0.30 and the maximum is 0.71.

… the most unequal counties are in the South East.
The most equal counties are in Utah



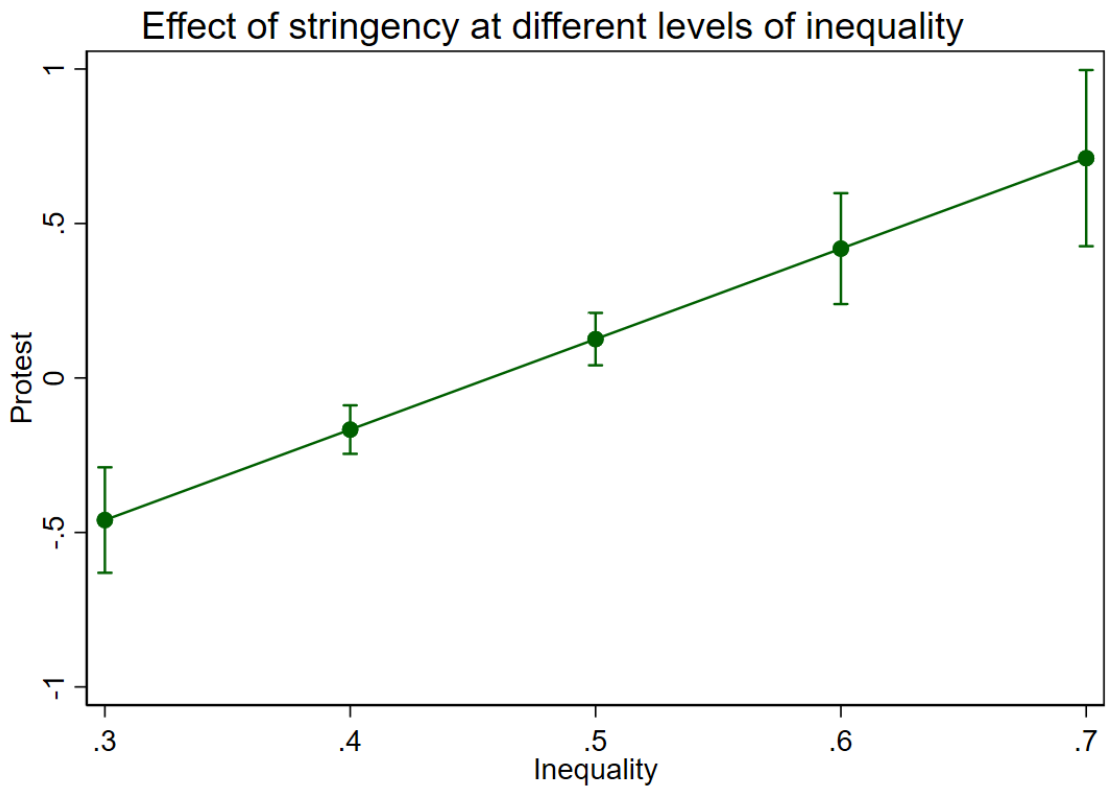
Effect of stringency on protests at different levels of inequality

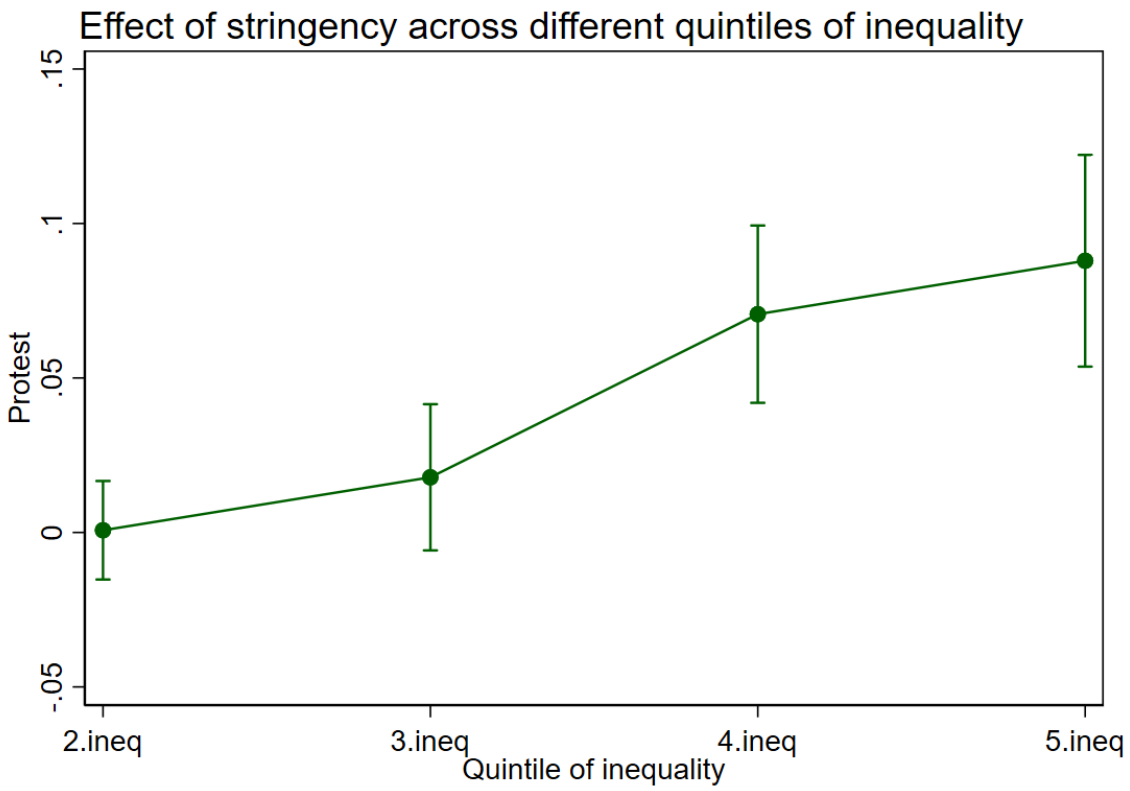




Source: authors' own calculations. Note: Panel A shows the effect of stringency at different levels of inequality. Panel B shows the effect of stringency on different quintiles of inequality. Both panels report estimated marginal effects. Vertical lines indicate 95 percent confidence intervals for each marginal effect.

Effect of stringency on protests at different levels of inequality





Source: authors' own calculations. Note: Panel A shows the effect of stringency at different levels of inequality. Panel B shows the effect of stringency on different quintiles of inequality. Both panels report estimated marginal effects. Vertical lines indicate 95 percent confidence intervals for each marginal effect.

Endogeneity

- The structure of the data ensures that the incidence of protests during week t is unlikely to affect levels of inequality – which were recorded in the same county during the previous year.

- Despite that, results could still be biased if protests influence the policy measures introduced by states to contain the spread of COVID-19.

- To further address these endogeneity concerns, we employ an instrumental variable strategy that proxies state level stringency measures with the average level of policy stringency in states within the same geographical division.

- This strategy is inspired by learning models whereby policy choices spread across countries because policies in one country are influenced by past policy decisions in neighbouring countries via policymakers' beliefs (Buera et al. 2011).

Endogeneity

- First, due to absence of federal coordination and the lack of recent pandemic experience, states decided to impose certain restriction policies when they observed neighbouring states doing so.
- Second, states introduced stringent measures to contain the rapid increase in COVID-19 cases when similar policies were effective in containing the virus among their neighbours.
- Third, several states decided to coordinate their policies at subnational level. e.g. "Western States Pact" through which they agreed to ease restrictive measures only under certain conditions.
- It is also reasonable to assume that changes in policy against COVID-19 in states within the same geographical region affected protests in one state largely through these state policies.

Endogeneity

	(1) Baseline estimation	(2) IV: policy stringency in states within same division	(3) IV: policy stringency in neighboring states
Panel A: second stage			
Stringency Index	-0.121***	-0.110	-0.118
	(0.036)	(0.122)	(0.178)
Stringency Index * q2	0.002	0.007	0.008
	(0.021)	(0.022)	(0.022)
Stringency Index * q3	0.047	0.047	0.062*
	(0.032)	(0.032)	(0.035)
Stringency Index * q4	0.185***	0.199***	0.200***
	(0.038)	(0.041)	(0.040)
Stringency Index * q5	0.231***	0.252***	0.259***
	(0.046)	(0.044)	(0.043)
Panel B: First stage			
IV		0.005***	0.004***
		(<0.001)	(<0.001)
Observations	311,128	311,128	311,128
Controls	Y	Y	Y
County FE	Y	Y	Y
Week FE	Y	Y	Y
Kleibergen-Paap rk LM statistic		114.100	107.895
Kleibergen-Paap Wald rk F statistic		66.261	37.615
Anderson-Rubin Wald test		10.92	12.22

*** p<0.01, ** p<0.05, * p<0.1.

Endogeneity

	(1) Baseline estimation	(2) IV: policy stringency in states within same division	(3) IV: policy stringency in neighboring states
Panel A: second stage			
Stringency Index	-0.121***	-0.110	-0.118
	(0.036)	(0.122)	(0.178)
Stringency Index * q2	0.002	0.007	0.008
	(0.021)	(0.022)	(0.022)
Stringency Index * q3	0.047	0.047	0.062*
	(0.032)	(0.032)	(0.035)
Stringency Index * q4	0.185***	0.199***	0.200***
	(0.038)	(0.041)	(0.040)
Stringency Index * q5	0.231***	0.252***	0.259***
	(0.046)	(0.044)	(0.043)
Panel B: First stage			
IV		0.005***	0.004***
		(<0.001)	(<0.001)
Observations	311,128	311,128	311,128
Controls	Y	Y	Y
County FE	Y	Y	Y
Week FE	Y	Y	Y
Kleibergen-Paap rk LM statistic		114.100	107.895
Kleibergen-Paap Wald rk F statistic		66.261	37.615
Anderson-Rubin Wald test		10.92	12.22

*** p<0.01, ** p<0.05, * p<0.1.

Endogeneity

	(1) Baseline estimation	(2) IV: policy stringency in states within same division	(3) IV: policy stringency in neighboring states
Panel A: second stage			
Stringency Index	-0.121***	-0.110	-0.118
	(0.036)	(0.122)	(0.178)
Stringency Index * q2	0.002	0.007	0.008
	(0.021)	(0.022)	(0.022)
Stringency Index * q3	0.047	0.047	0.062*
	(0.032)	(0.032)	(0.035)
Stringency Index * q4	0.185***	0.199***	0.200***
	(0.038)	(0.041)	(0.040)
Stringency Index * q5	0.231***	0.252***	0.259***
	(0.046)	(0.044)	(0.043)
Panel B: First stage			
IV		0.005***	0.004***
		(<0.001)	(<0.001)
Observations	311,128	311,128	311,128
Controls	Y	Y	Y
County FE	Y	Y	Y
Week FE	Y	Y	Y
Kleibergen-Paap rk LM statistic		114.100	107.895
Kleibergen-Paap Wald rk F statistic		66.261	37.615
Anderson-Rubin Wald test		10.92	12.22

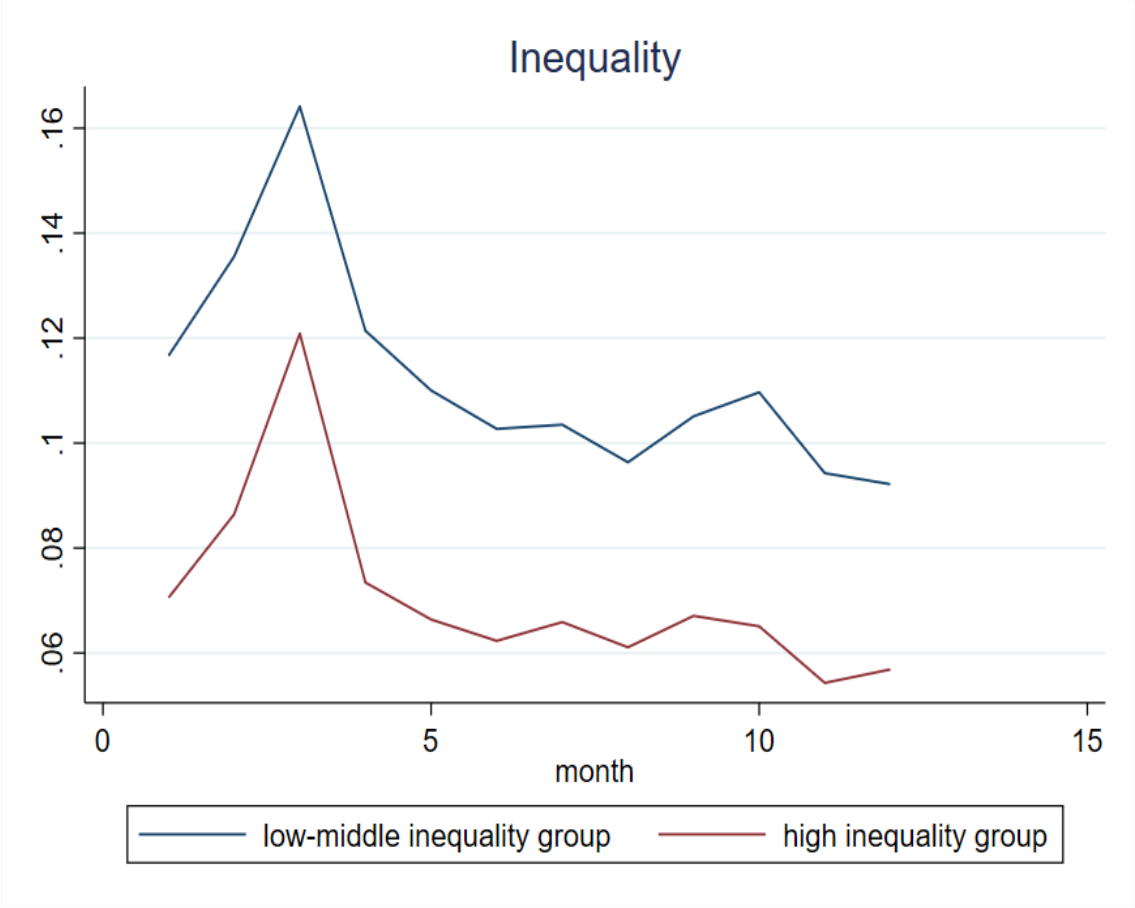
*** p<0.01, ** p<0.05, * p<0.1.

Additional Results

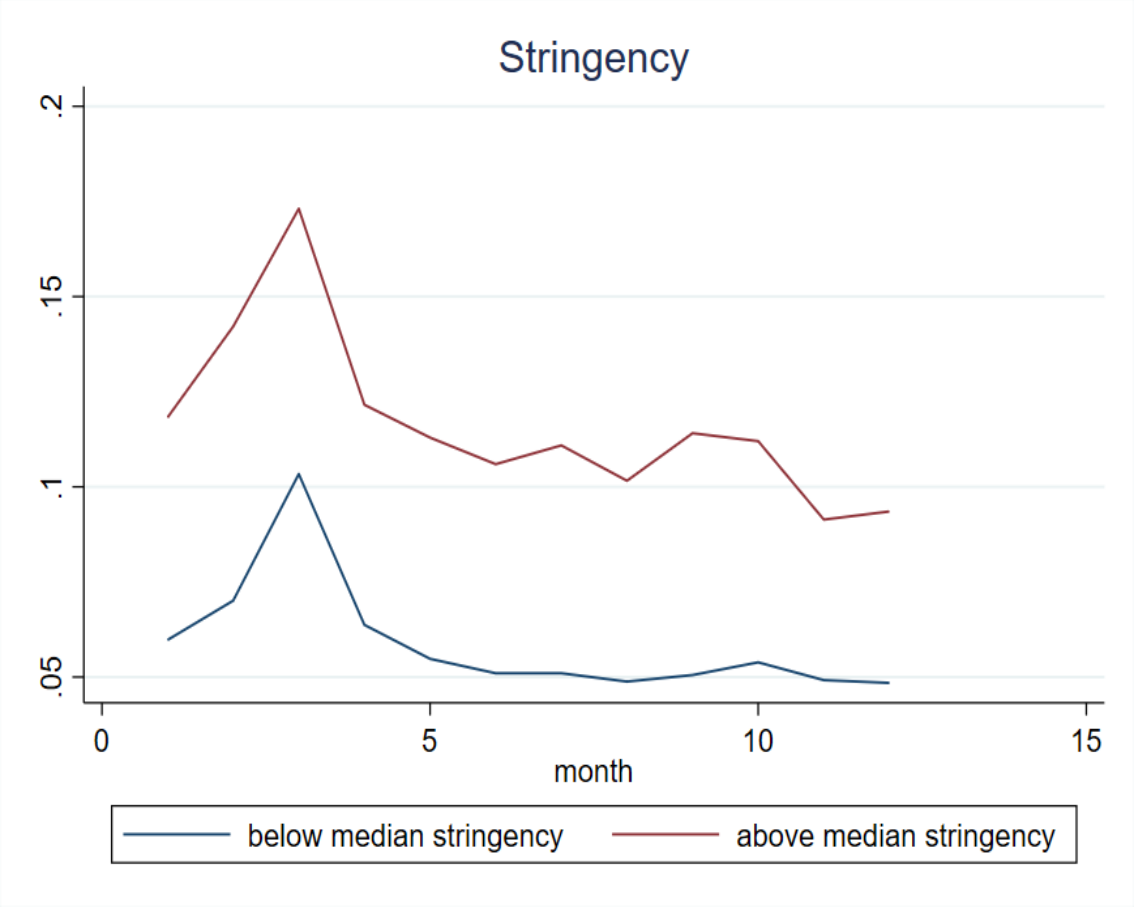
- We replicate the IV analysis by constructing alternative IVs that use the average stringency levels of the last 3, 4, and 5 weeks. Results hold!
- we run a placebo analysis, which replaces the 2020 protests data we use in the main analysis with 2019 protest data collected by GDELT. Results are not stat significant!
- we show that results are not driven by the inclusion/exclusion of specific states.
- Alternative definition of the dependent variable i.e. log-transformation of the actual number of protests that took place in the same county

Parallel trends

Panel A. Probability of protests before COVID-19 across different levels of inequality



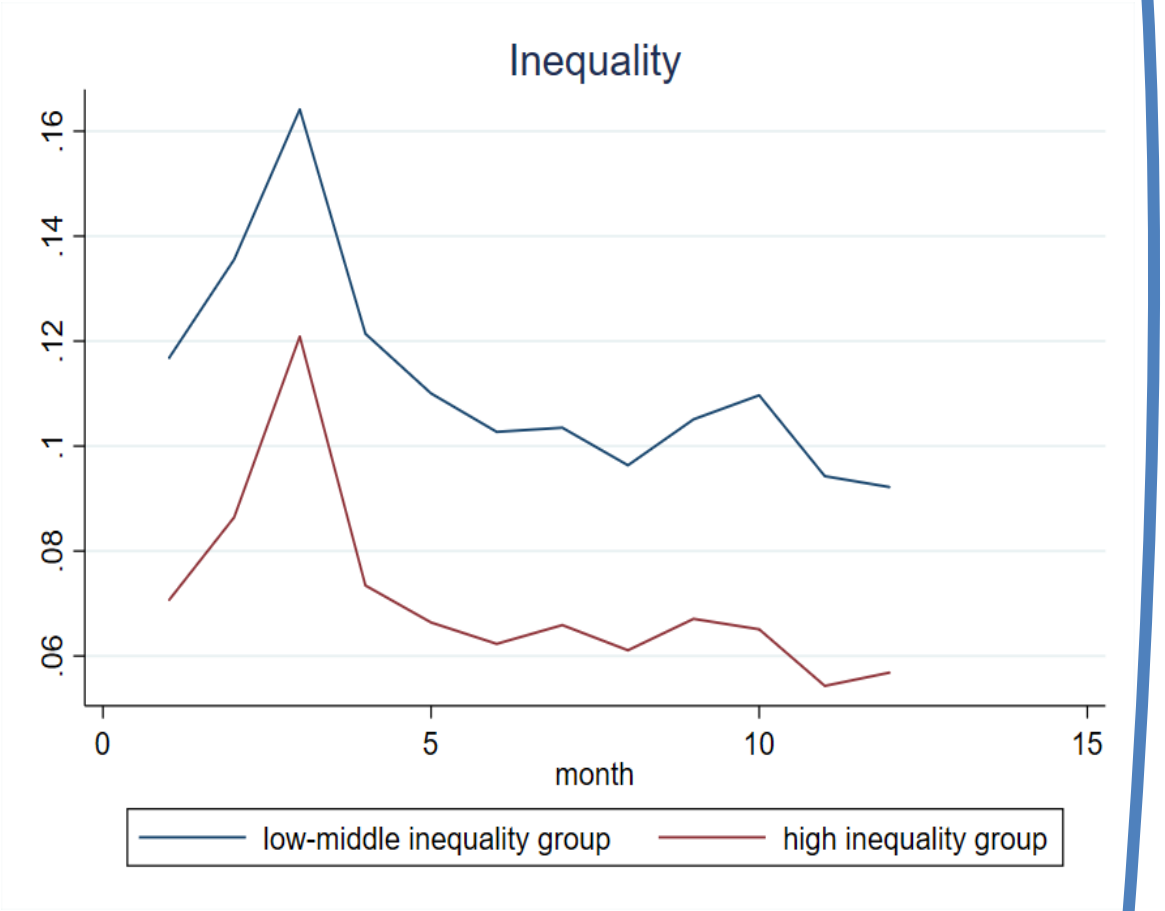
Panel B. Probability of protests before COVID-19 across different levels of stringency



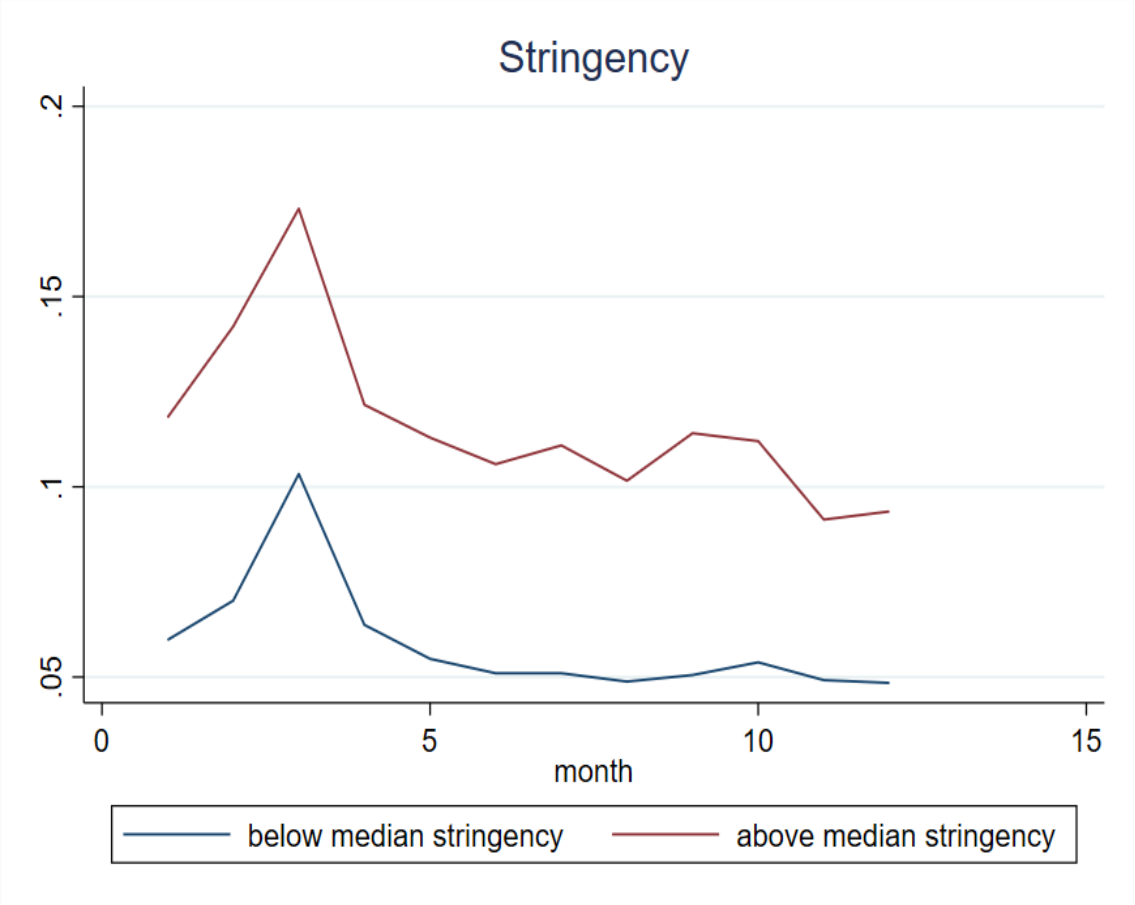
Source: Authors' calculations based on GDELT data.

Parallel trends

Panel A. Probability of protests before COVID-19 across different levels of inequality



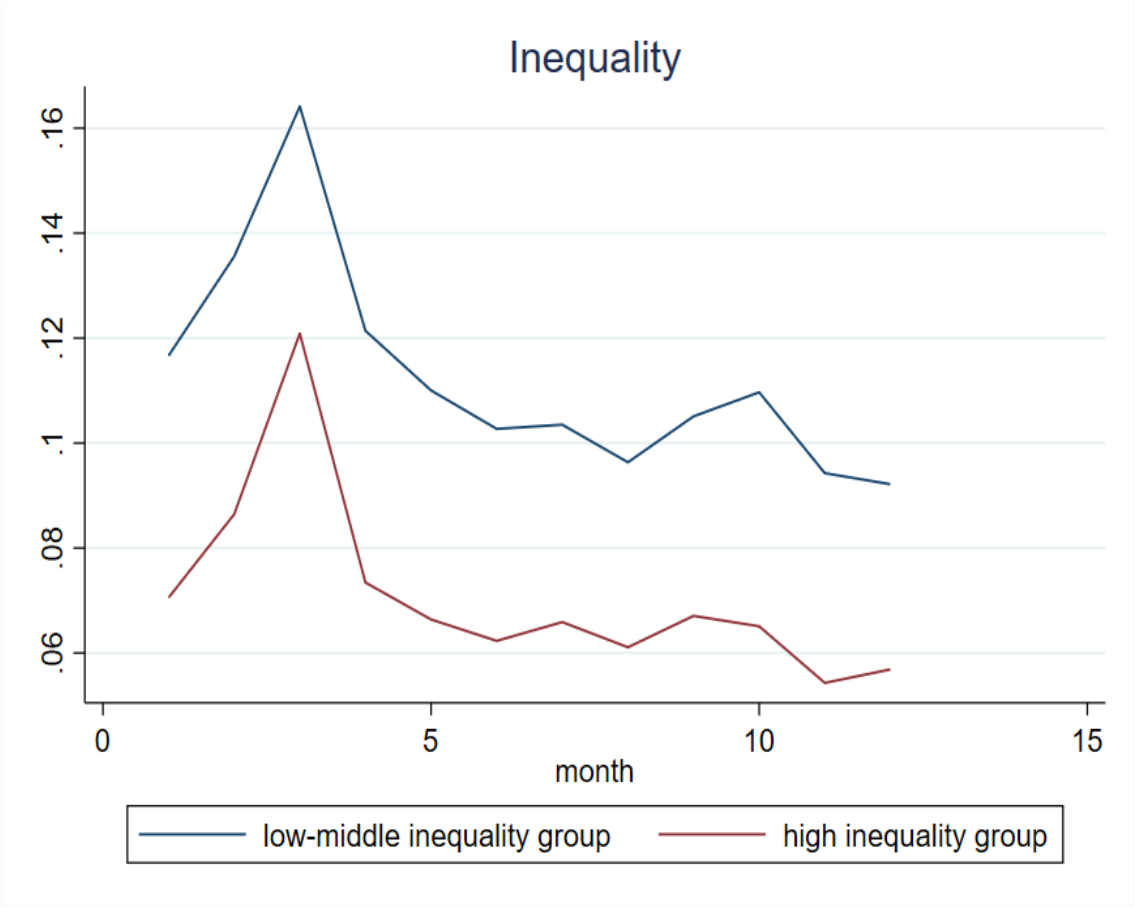
Panel B. Probability of protests before COVID-19 across different levels of stringency



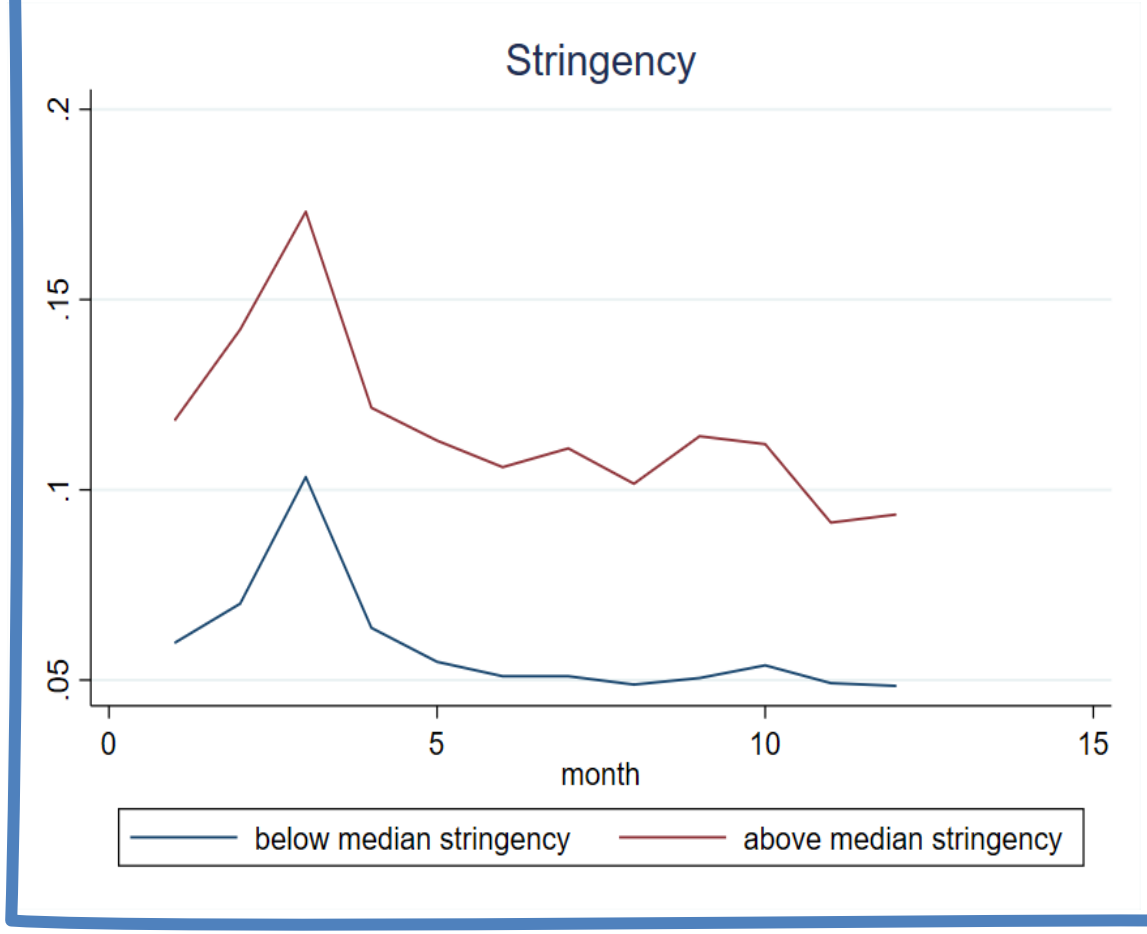
Source: Authors' calculations based on GDELT data.

Parallel trends

Panel A. Probability of protests before COVID-19 across different levels of inequality



Panel B. Probability of protests before COVID-19 across different levels of stringency



Source: Authors' calculations based on GDELT data.

Additional Results

- **Disaggregating policy responses**. Stay-at-home orders, domestic movement restrictions, and public transport restrictions have the largest impact on protest incidence in the most unequal counties.

- **Other protest types.** The results show that the interaction between policy stringency and inequality is uncorrelated to protests related to BLM and the presidential election.

- Last, we replicate the main estimates, by replacing the 2019 Gini with alternative definition of inequality and poverty…

Social and political context

	(1)	(2)	(3)	(4)	(5)	(6)
	Political preferences		Trust in the President		% individuals satisfied with democracy	
	Dem won in 2016	Rep won in 2016	*Above median*	*Below median*	*Above median*	*Below median*
Stringency index	-0.252***	0.012	-0.176***	-0.035	-0.239***	-0.033
	(0.075)	(0.019)	(0.044)	(0.038)	(0.049)	(0.040)
Stringency index * q2	-0.026	0.010	0.022	-0.003	0.003	0.002
	(0.065)	(0.013)	(0.027)	(0.026)	(0.021)	(0.029)
Stringency index * q3	0.087	0.012	0.124***	-0.020	0.149***	-0.035
	(0.081)	(0.014)	(0.046)	(0.024)	(0.046)	(0.025)
Stringency index * q4	0.185***	0.115**	0.256***	0.067	0.266***	0.113**
	(0.071)	(0.048)	(0.046)	(0.043)	(0.052)	(0.048)
Stringency index * q5	0.216***	0.053**	0.246***	0.257**	0.264***	0.224***
	(0.073)	(0.025)	(0.045)	(0.102)	(0.055)	(0.070)
Observations	46,834	264,294	153,091	158,037	157,632	153,496
R-squared	0.241	0.117	0.271	0.212	0.291	0.207
Controls	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Week FE	Y	Y	Y	Y	Y	Y

*** p<0.01, ** p<0.05, * p<0.1.

Social and political context

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Trust in other people		**N. religious organizations**		**N. civic organizations**		**N. political organizations**		**N. labor organizations**	
	Above median	*Below median*	*Above median*	*Below median*	*Above median*	*Below median*	*Above median*	*Below median*	*Above median*	*Below median*
Stringency Index	-0.056	-0.186***	-0.136***	-0.001	-0.139***	-0.003	-0.190**	-0.026**	-0.158***	0.010
	(0.044)	(0.052)	(0.040)	(0.005)	(0.043)	(0.004)	(0.078)	(0.011)	(0.054)	(0.011)
Stringency Index * q2	0.032	-0.020	0.002	0.023	0.002	-0.001	-0.059	0.016*	-0.006	0.007
	(0.030)	(0.031)	(0.025)	(0.018)	(0.028)	(0.005)	(0.068)	(0.009)	(0.040)	(0.013)
Stringency Index * q3	0.003	0.084*	0.052	0.011	0.051	-0.004	0.091	0.018**	0.049	0.012
	(0.025)	(0.048)	(0.035)	(0.010)	(0.038)	(0.004)	(0.081)	(0.009)	(0.049)	(0.011)
Stringency Index * q4	0.177***	0.188***	0.193***	0.006	0.195***	-0.002	0.213***	0.045***	0.200***	0.007
	(0.057)	(0.051)	(0.041)	(0.008)	(0.042)	(0.004)	(0.073)	(0.012)	(0.051)	(0.010)
Stringency Index * q5	0.260***	0.218***	0.241***	0.003	0.241***	-0.002	0.221***	0.062***	0.237***	0.025
	(0.088)	(0.052)	(0.048)	(0.004)	(0.050)	(0.004)	(0.075)	(0.014)	(0.057)	(0.016)
Observations	151,476	159,652	150,441	160,687	111,554	199,574	23,504	287,624	66,217	244,911
R-squared	0.234	0.259	0.245	0.071	0.242	0.026	0.236	0.064	0.238	0.051
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Week FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

*** p<0.01, ** p<0.05, * p<0.1.