

HOLY COW! RELIGIOUS VIOLENCE, CATTLE MARKETS AND SOCIAL COSTS IN INDIA

Anand Murugesan¹ and Jitendra Singh²

¹Central European University, Vienna, Austria ² Ashoka University, Sonapat, India



INTRODUCTION

- We study how religious violence breaks down markets in India
- Rise in Hindu nationalism coincided with violence in the last decade
 - Cow-vigilante* groups attacked people (mostly Muslims) suspected of trading cattle for slaughter, or eating beef
- We establish the links between (1) violence and cattle market disruption and (2) market disruption and rural households' abandoning cattle, and (3) document the social costs of violence: human deaths and externalities
- Using the geographical and temporal variation in violence, we show that in the affected regions:
 - Violence caused more than 10% fall in household cattle holdings
 - Increased cattle abandonment caused an alarming 200% increase in road accidents due to stray cattle
 - Farmers self-report extensive crop loss from marauding stray cattle

COW AND RELIGIOUS VIOLENCE IN INDIA

- Members of the Hindu community, the majority religion, hold cows sacred
- Cattle slaughter laws vary across states. India is the 3rd largest beef exporter and hosts a robust informal (but illegal) cattle trade market
- Recent rise in Hindu *cow-vigilante* violence to "protect cows" from slaughter
- Persons suspected of cattle trade, slaughter, and eating beef attacked
- Cow-vigilante* violence reported in newspapers (data by Indiaspend.com)
 - 133 incidents in 101 districts; 44 people killed out of which 39 are Muslims

RISE AND SPREAD OF VIOLENCE

Sharp rise in violence after 2014

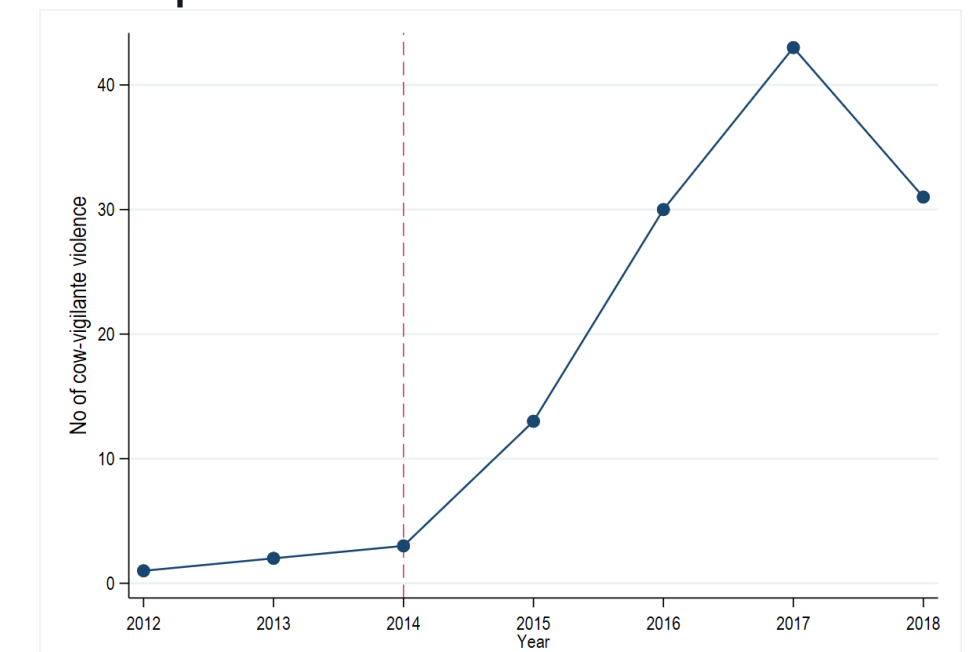
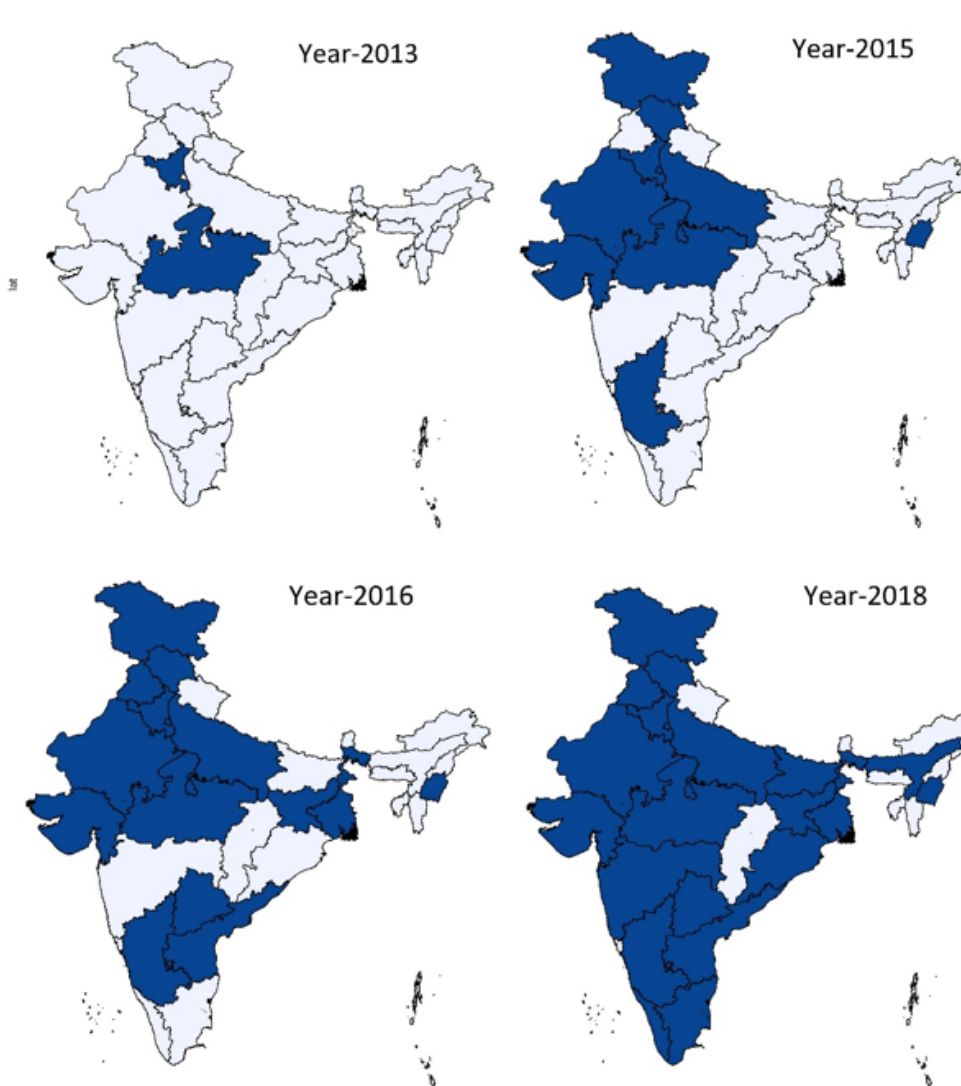


Figure on the right: Blue color depicts states experiencing violence before the specified year

Propagation of violence in states



VIOLENCE DISRUPTS CATTLE MARKETS

- Due to fear of violence households and traders unable to trade unproductive cattle ⇒ breakdown of cattle market. We statistically test three relationships
 - Households will abandon the unproductive cattle ⇒ rise in stray cattle
 - Loss in value of cows ⇒ decrease in stock of cattle owned by HH
 - Stray cattle and associated rural externalities (crop losses)

1.1 GRANULAR DATA AND EVENT STUDY DESIGN

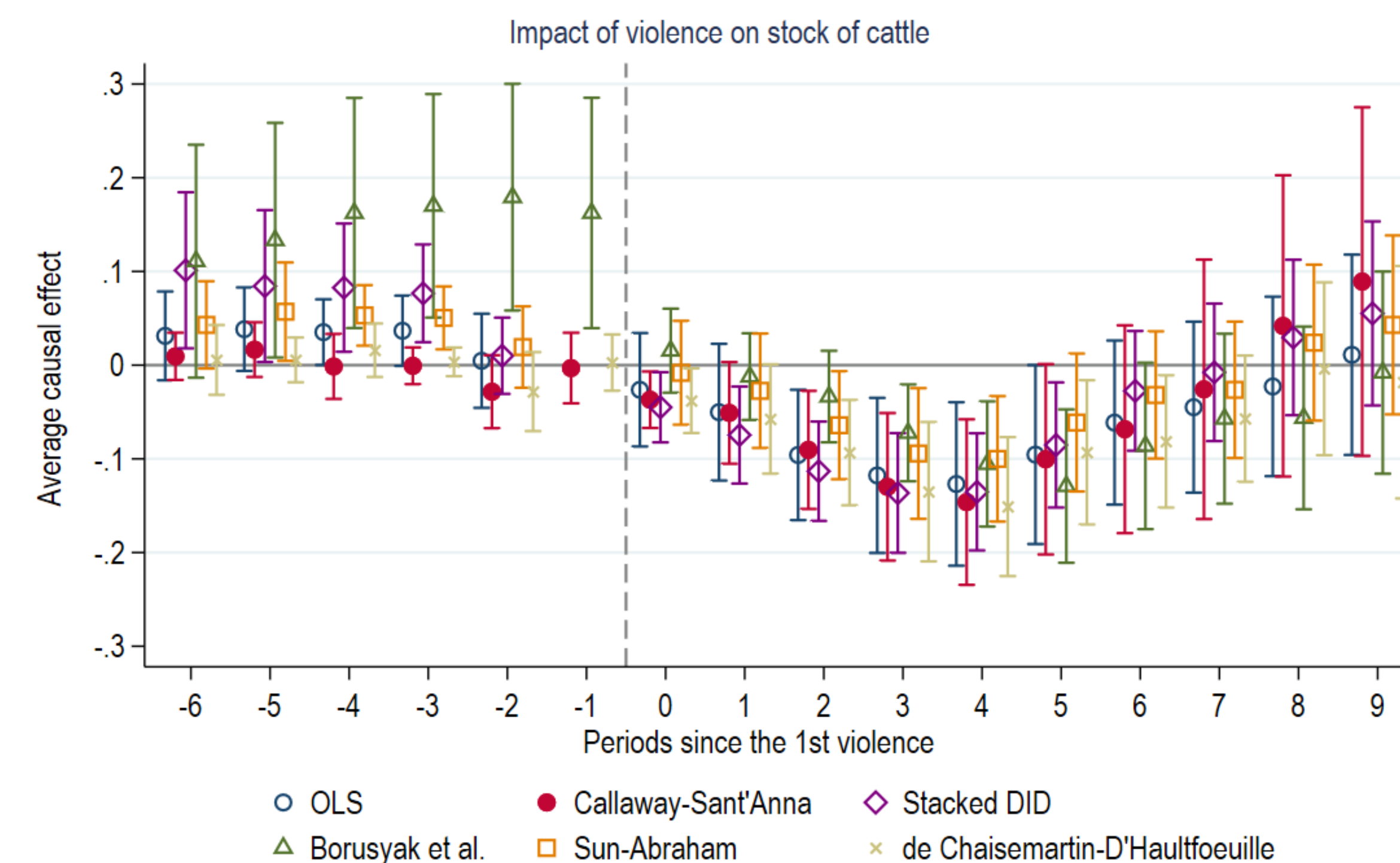
- Data: Consumer Pyramid Household panel (CPHS) survey
 - Representative panel survey of more than 1.5 lacs HHs across India
 - Each HH surveyed three times in a year with a gap of 4 months
 - We use 18 waves (periods) from January-2014 to December-2019
 - Half of the rural HH's are in the violence experiencing regions
- Empirical specification: Two-way fixed effects estimation

$$y_{ijt} = \alpha_i + \beta_t + \sum_{\tau=-K}^L \gamma_{\tau} D_{jt}^{\tau} + \epsilon_{ijt}$$

y_{ijt} : no. of cattle owned by the household i in HR j and wave t (in logs). $\tau = 0$ is the period of 1st violence and D_{jt}^{τ} is a dummy for τ waves from HR j 's treatment. α_i and β_t : HH and wave FE

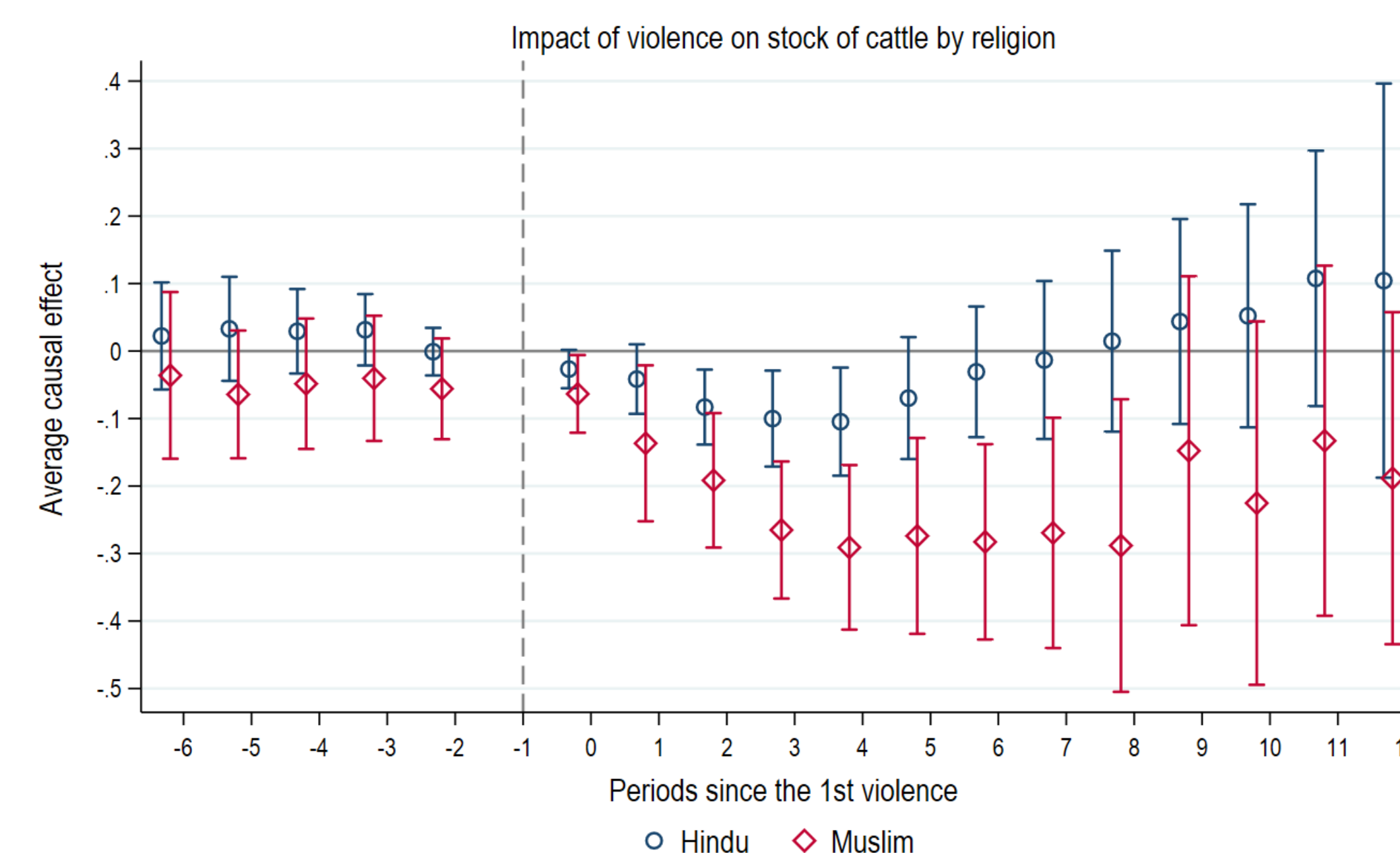
1.2 VIOLENCE CAUSED FALL IN CATTLE STOCKS

Cattle stocks fall by 10-15% after the violence with a recovery in later years



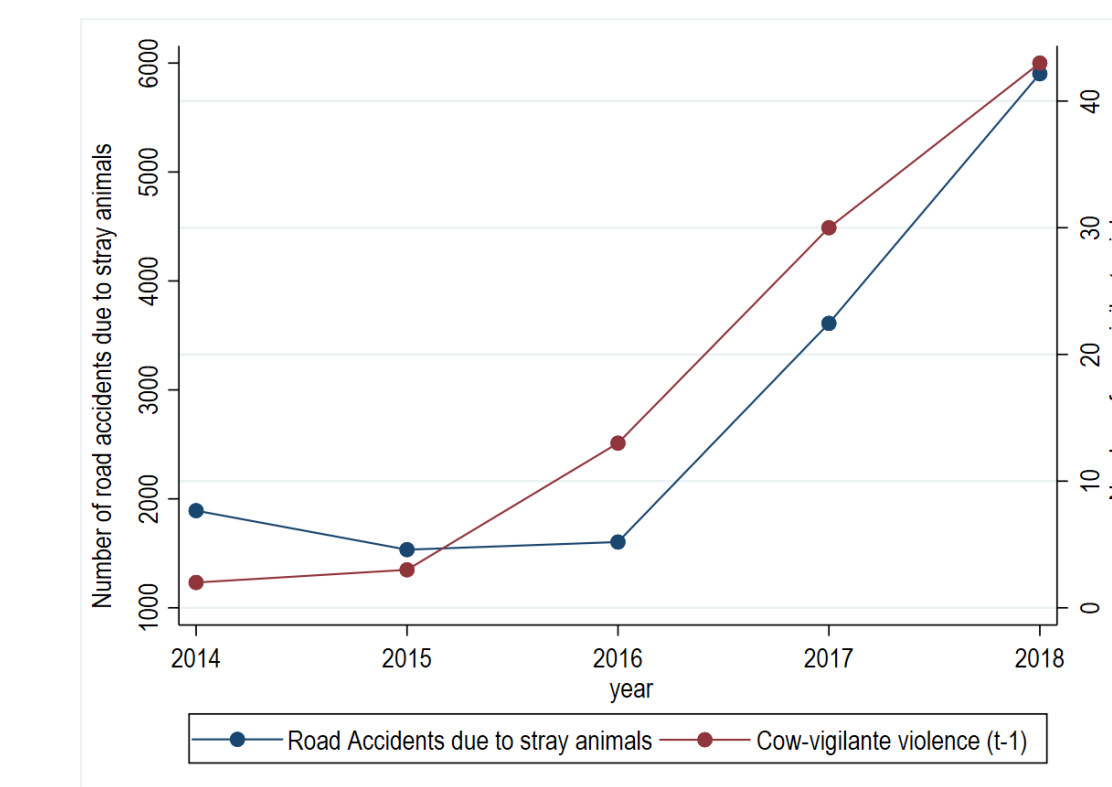
1.3 ADVERSE EFFECT ON MUSLIMS

Persistent and larger negative effect on Muslims (compared to Hindus)



2.1 SOCIAL COSTS: ROAD ACCIDENTS

Steep rise in violence precedes rise in accidents with stray animals



- We use road accidents due to collision with stray animals as a proxy for stray cattle
- Road accidents due to stray animals increased three times between 2014-2018
 - increased stray cattle; other road accidents falling

2.2 STRAY CATTLE: DATA & METHOD

- Datasets: (1) Annual state level road accidents reports 2014-18 (2) Historical Hindu-Muslim violence (1950-2000)
- Empirical Strategy:

$$y_{st} = \alpha + \beta \text{violence}_{s,t-1} + \gamma_s + \tau_t + \epsilon_{st}$$

y_{st} : Number of accidents due to collision with stray animals, state s & year t . γ_s and τ_t : State & Year FE. $\text{violence}_{s,t}$: vigilante violence in state s & year t .

- Identification using a **Bartik instrument** (historical Hindu-Muslim violence)

2.3 ROAD ACCIDENTS, DEATHS & INJURIES

Violence cause increased road accidents, human deaths and injuries

Dependent variable →	Accidents	Death	Death + Injury	Accidents	Death	Death + Injury
Explanatory variables ↓	IV estimates					
# of violence in $t-1$	150.9*** (52.85)	70.14*** (27.05)	184.9*** (71.66)			
Violence in $t-1$ (dummy)				482.2** (226.6)	261.5** (123.2)	689.1** (329.4)
State & Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	178	178	178	178	178	178

Robust standard errors clustered at state level in parentheses. *** p<0.01, ** p<0.05, * p<0.1

3. CROP LOSSES FOR FARMERS

- We conducted a primary survey in parts of rural Rajasthan
 - 211 farming households in 23 villages of 5 districts
- Large reported economic costs in affected regions (compared to control)
 - 44% higher reported risk of crop loss due to stray cattle
 - Twice the number of precautionary measures to protect crops
 - Higher monetary cost of precautions to protect the crops

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