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) documented social costs of violence: human deaths and externalities
- Using the geographical and temporal variation in violence, we show that in the affected regions:
  1. Violence caused more than 10% fall in household cattle holdings
  2. Increased cattle abandonment caused an alarming 200% increase in road accidents due to stray cattle
  3. 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
- Propagation of violence in states

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

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
  1. Households will abandon the unproductive cattle → rise in stray cattle
  2. Loss in value of cows → decrease in stock of cattle owned by HH
  3. 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

\[ y_{ijt} = \alpha_i + \beta_j + \sum_{\tau=1}^{T} \gamma_{\tau} D_{\tau j} + \epsilon_{ijt} \]

\[ y_{ijt}: \text{no. of cattle owned by the household } i \text{ in HR } j \text{ and wave } t \text{ (in logs). } \tau = 0 \text{ is the period of } 1^{st} \text{ violence and } D_{\tau j} \text{ is a dummy for } \tau \text{ waves from HR } j \text{’s treatment. } \alpha_i \text{ and } \beta_j: \text{HH and wave FE} \]

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

- 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:

\[ y_{xt} = \alpha + \beta \text{Violence}_{x-1} + \gamma_t + \tau_s + \epsilon_{xt} \]

\[ y_{xt}: \text{Number of accidents due to collision with stray animals, state } x \text{ & year } t \]

\[ \gamma_t: \text{State & Year FE} \]

\[ \tau_s: \text{vigilante violence in state } x \text{ & year } t \]

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

2.3 ROAD ACCIDENTS, DEATHS & INJURIES

- Violence cause increased road accidents, human deaths and injuries

\[ \begin{array}{ccc}
\text{Dependent variables} & \text{Accidents} & \text{Death} & \text{Death + Injury} \\
\text{Independent variables} & \text{Violence} & \text{State & Year FE} & \text{State & Year FE} \\
\text{Observations} & 178 & 178 & 178 \\
\text{Robust standard errors clustered at state level in parentheses.} & (52.85) & (27.05) & (71.66) \\
\end{array} \]

SELECTED REFERENCES