How Do We Choose Our Identity? A Revealed Preference Approach Using Food Consumption

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Identity Choice: Questions and Motivation

1. Are identities fungible?
2. If they are, how do people come to identify with specific groups?

Identity Choice: Questions and Motivation

1. Are identities fungible?
2. If they are, how do people come to identify with specific groups?

- Understanding identity is important
  - Consumption behavior and understanding preferences.
  - Cooperation, labor markets, education, production, judicial decisions, finance, tax compliance... ▸ Evidence
  - Health: As we will show, identity choice directly affects diet, with health implications particularly in developing countries (Atkin 2016).
  - Electoral choices:
    - Inequality, Immigration $\Longrightarrow$ increased national identity $\Longrightarrow$ reduced support for redistribution (Shayo 2009).
    - Trade policy (Grossman-Helpman 2018), Brexit, Trump, Modi (India).

Identifying Identity

- Most existing literature relies on
  - Ethnographic or historical **case studies**: insightful but often very specific, causality hard.
  - **Surveys**: broad samples, but do stated identities reflect day-to-day economic behavior?
  - **Lab experiments**: revealed-preference data; limited in scope to a particular time, place, and population.
- Increasingly: behavior in naturally occurring data (see Shayo ARE 2020 for review).

Identifying Identity: Our Approach

- Consumption choices affected by group norms and taboos
  - Since different groups have different norms, consumption choices can reveal the consumer's (chosen) identity.
- Can we use consumption data to understand identity choices?
  - standard, widely-available consumption data
  - well-established tools for analyzing them

  $\Rightarrow$ study multiple determinants of identity, in large representative samples, over a long period of time.
- But also: can insights from social identity research improve our understanding of consumer behavior?

The Setting: Food Consumption in India

Food in India is closely tied to the moral and social status of individuals and groups. Food taboos and prescriptions divide men from women, gods from humans, upper from lower castes, one sect from another.

Appadurai (1983), "How to Make a National Cuisine: Cookbooks in Contemporary India"

Basic Idea

- A Hindu from Gujarat: cannot choose to be Muslim or Tamil, but can choose whether to identify (more) as Gujarati or Hindu.
- Given different norms and taboos across religious and ethnic groups, the food consumption bundle uncovers this identity choice.
- Examine how these revealed identities respond to forces economics and social psychology conjecture drive identity choices.

A Conceptual Framework for Endogenous Social Identity

- Individual h belongs to several groups $A, B, ...$

Definition (Social Identity)

Individual h *identifies* with group $J \in \{A, B, ...\}$ if preferences can be represented by:

$$U_{hJ} = U(X_h, y_J, \kappa_{hJ}; \overline{X_J})$$

where U_{hJ} is decreasing in the distance $d(X_h, \overline{X_J})$, and increasing in y_J, κ_{hJ}.

- $X_h = h's$ consumption bundle
  - from standard consumer theory.
- $\overline{X}_J$ = the prescribed behavior of group J—e.g. group norms or taboos
  - from Identity Economics (Akerlof & Kranton (2000)).

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Two widely-discussed determinants of identification:

- [Affective]: y_J = status of group J
  - from Social Identity Theory (Tajfel & Turner (1979, 1986)).
- [Cognitive]: κ_{hJ} = salience of h's membership in group J
  - from Experimental Econ (Benjamin, Choi & Strickland (2010), Hoff & Pandey (2006)), Political Economy (Eifert, Miguel & Posner (2010)) and Cognitive Psychology (Categorization Theory, Nosofsky (1992)).
- Both taken as exogenous in this paper.

Three Implications of Endogenous Identity

h more likely to tilt consumption towards $\overline{X}_J$ (eg respect J's taboos) when:

1. Membership of group J is more salient ($\kappa_{hJ} \uparrow$):
   - Hindu-Muslim conflict $\rightarrow$ salience of religious id
   - State splits $\rightarrow$ salience of ethnic id.
2. The status of group J is higher ($y_J \uparrow$).
   - Shocks to group status (proxied by returns to group's occupations)
3. The (local) cost of adhering to J's norms/taboos is lower ($\boldsymbol{p} \cdot \overline{X_J} \downarrow$).
   - Identity choice generates complementarities across goods

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$\Longrightarrow$

- Explore impact of 1991 Indian Reforms on identity, calories, welfare.
- Changes in (revealed) identity show up in voting for religious vs. ethnic parties.

Contributions

1. Understanding Consumption
   - Why are goods complements or substitutes?
   - Response to political/ethnic shocks (beyond income & prices).
   - Response to group status shocks (keeping own income fixed). [cf. lit on *individual* status, e.g. Heffetz (2011); Charles, Hurst & Roussanov (2009)].
   - Demand more flexible than commonly assumed.

2. Understanding Identity
   - Use revealed preference approach, naturally occurring data.
     - Literature mainly relied on lab experiments, surveys, content analysis and ethnographic studies Abdelal, Herrera, Johnston & Mcdermott (2009); Tajfel et al. (1971) & hundreds of followups in Social ψ; Chen Li (2009); Benjamin Choi Strickland (2010); Everett Faber Crockett (2015).
   - Endogeneity: Most work in econ takes ethnic/religious identity as given Akerlof Kranton (2000); Easterly Levine (1997); Alesina Baqir Easterly (1999); Alesina La Ferrara (2005); Guiso Sapienza Zingales (2006); Estaban Ray (2011). Exceptions: Eifert Miguel Posner (2010); Shayo Zussman (2011); Hjort (2014).
   - Effect of economic costs largely overlooked.

Outline

1. Data
2. Demand for prominent identity goods
   - Salience shocks
   - Status shocks
   - Cost of identity goods
3. Demand system analysis (entire bundle)
4. Quantification: identity changes in the 1990's, voting, calories, and welfare
5. Conclusions

Consumption Data: Indian National Sample Surveys (NSS)

- NSS Consumer Expenditure surveys:
  - Rounds **43** (1987-1988, 128,000 households); **50** (1993-1994, 115,000 households); and **55** (1999-2000, 120,000 households).
- Record hhold expenditures and quantity consumed for specific foods:
  - 124 food items (rice, beef, banana etc), unit values provide prices.
- Geographic identifiers: 420 districts (using round 43 boundaries).

Religion and Ethnicity in the NSS

- Household religion identifiers
  - Coarse Hindu caste breakdown (Upper Caste, Scheduled Caste).
  - Restrict to 4 religious groups (others v. small/concentrated):
    ▸ Upper Castes, ▸ Scheduled Castes, ▸ Muslims, ▸ Christians

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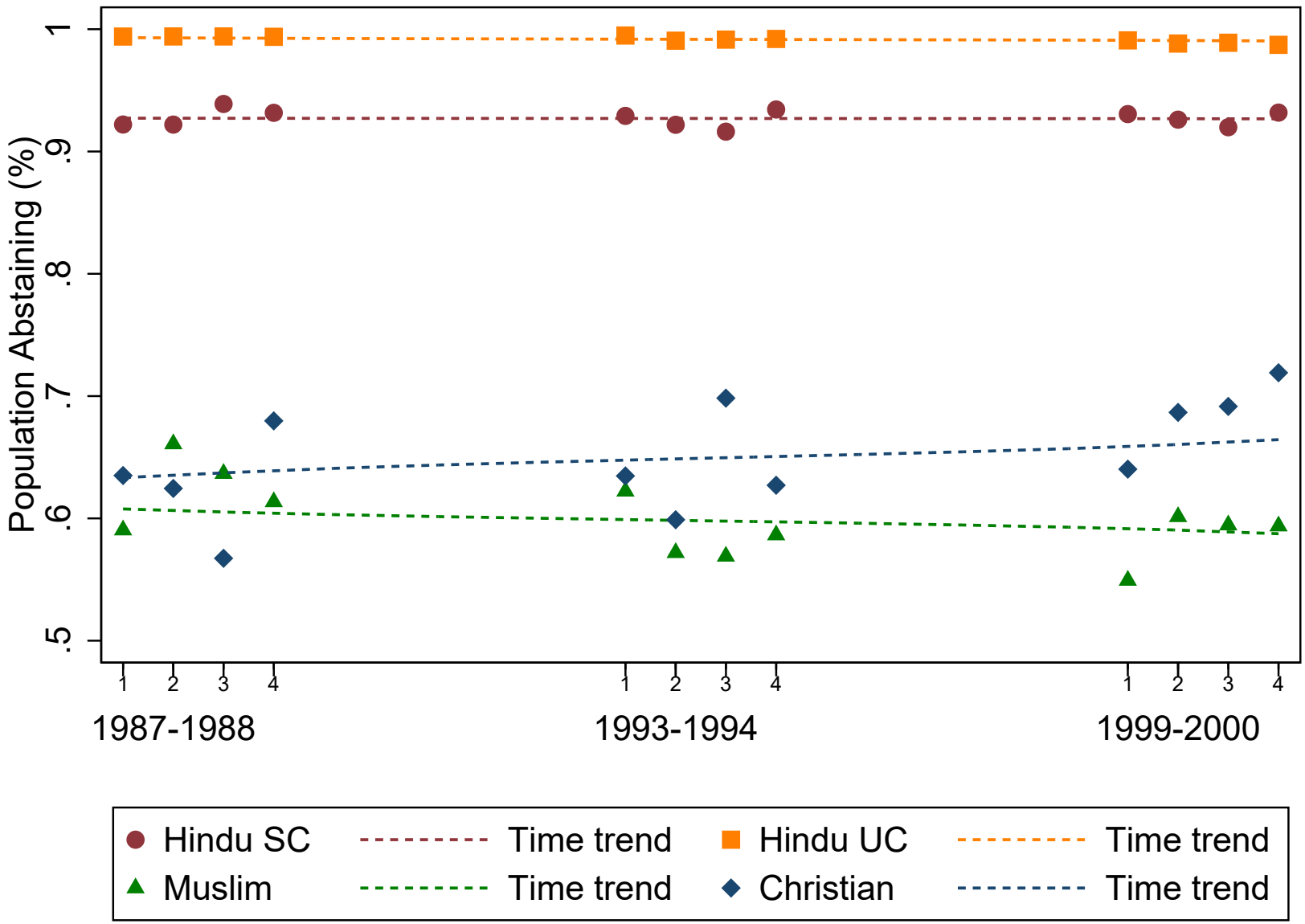
  - Restrict to 4 religious groups (others v. small/concentrated): ▸ Upper Castes, ▸ Scheduled Castes, ▸ Muslims, ▸ Christians
- Huge ethnic diversity in India
  - Measured by language: e.g. Tamil is Dravidian, Gujarati is Indo-Aryan, etc. (5 major groups).
  - Or by genes: Four times more diverse than Europe (Reich et al 2009), five ancestral groups (Basu et al. 2016).
- $\Longrightarrow$ India chose to draw state borders along ethno-linguistic lines.
  - Use state identifiers as ethnic identifiers.

In India, Several Prominent Religious Food Taboos

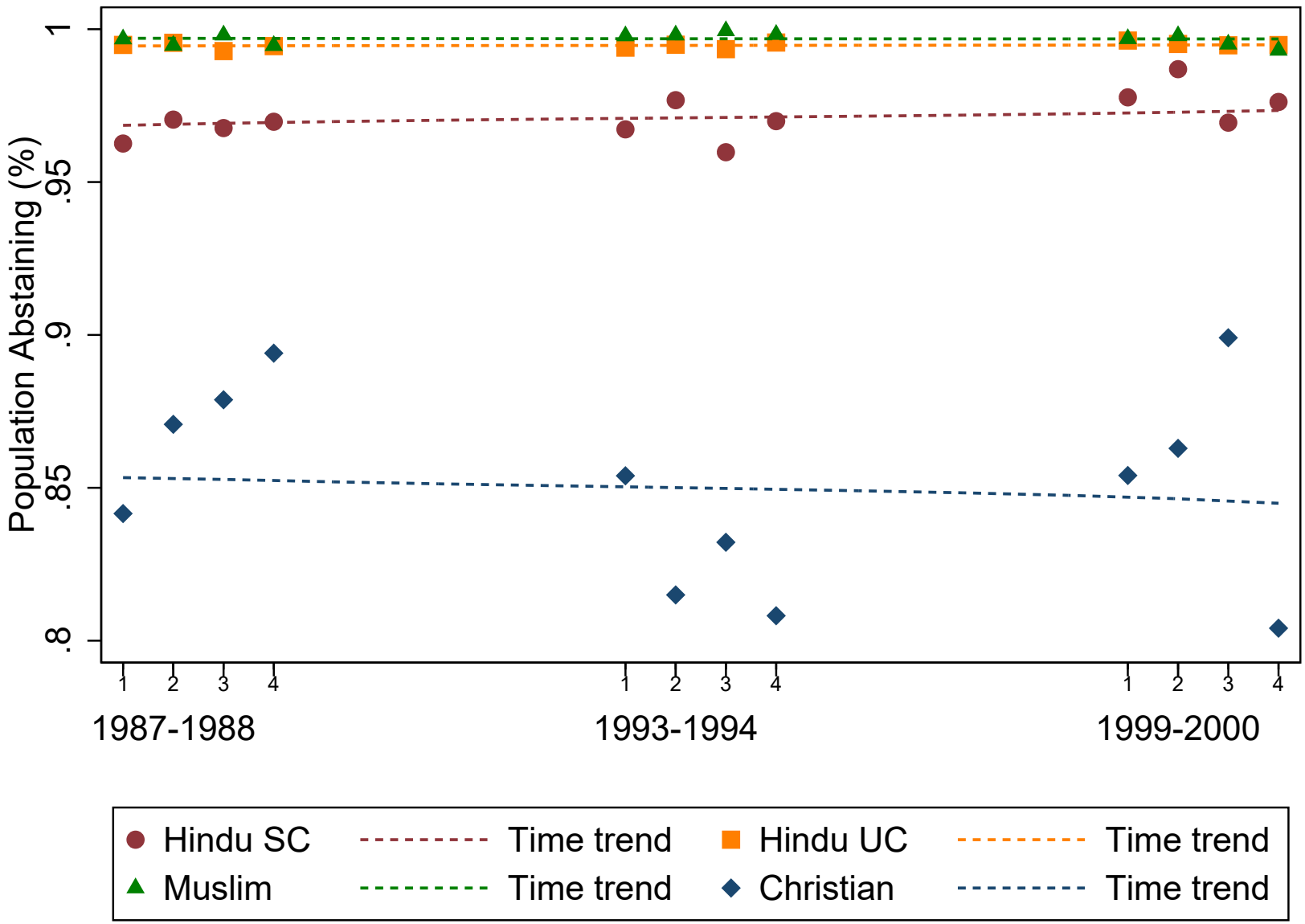
- *Hindus will be judged not by their tilaks, not by the correct chanting of mantras, not by their pilgrimages, not by their most punctilious observances of caste rules, but their ability to protect the cow.*

  Ghandi (1921), "Young India, 6 October 1921 p. 36"

Beef Taboos in India—Hindus, Muslims and Christians



Pork Taboos in India—Hindus, Muslims and Christians



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Choosing Identity: Salience

First consider κ_{hJ} = salience of h's membership in J.

- Inter-group conflict is a useful starting point
  - long associated with identity
  - raises salience of group membership, thereby increasing identification (Shayo & Zussman 2011, Sambanis & Shayo 2013)
  - it has been argued that Indian politicians use religious violence precisely to that end (Wilkinson 2004).
  - associated with vote for BJP (Iyer & Shrivastava 2018)

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  - it has been argued that Indian politicians use religious violence precisely to that end (Wilkinson 2004).
  - associated with vote for BJP (Iyer & Shrivastava 2018)
- Do we see a similar association in consumption data?
- Specifically: $\kappa_{hr} \uparrow \Rightarrow$ tilt X_h towards prescribed $\overline{X_r}$ (where r is h's religious group).

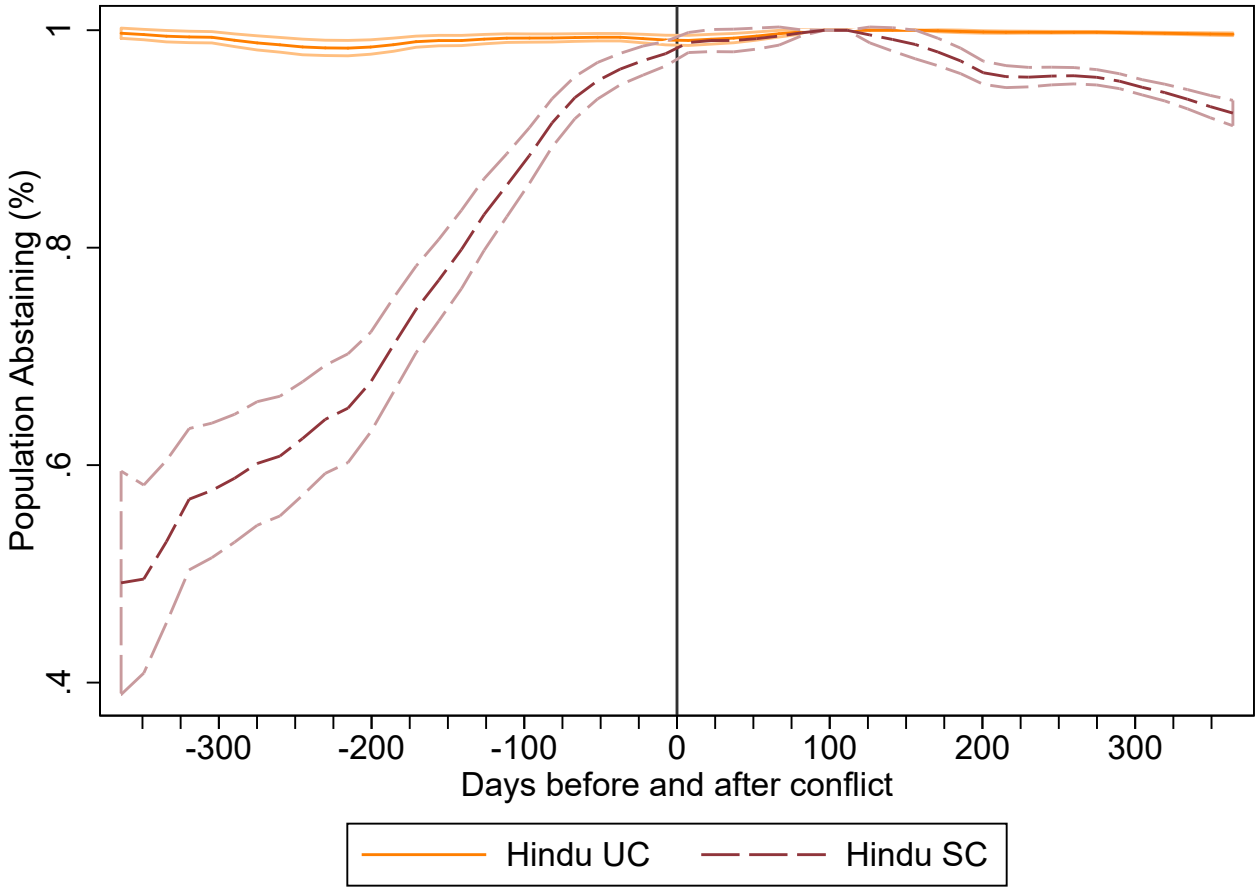
Not obvious:

- Standard econ: conflict affects consumption only via prices & incomes.

Measuring Religious Conflict

- Varshney-Wilkinson Dataset on Hindu-Muslim Violence in India, 1950-1995, extended by Mitra and Ray (2014) to 1995-2000.
  - Codes reports from *Times of India* on Hindu-Muslim violence in India
  - Between 1987 and 2000, a total of 507 riots were reported with around 4000 individuals killed.
- Plausible proxies for mounting inter-religious tensions in the region (hence salience of the *religious* cleavage).
  - Tensions need to have reached point where they get in national media.

Conflict and Hindu Beef Avoidance



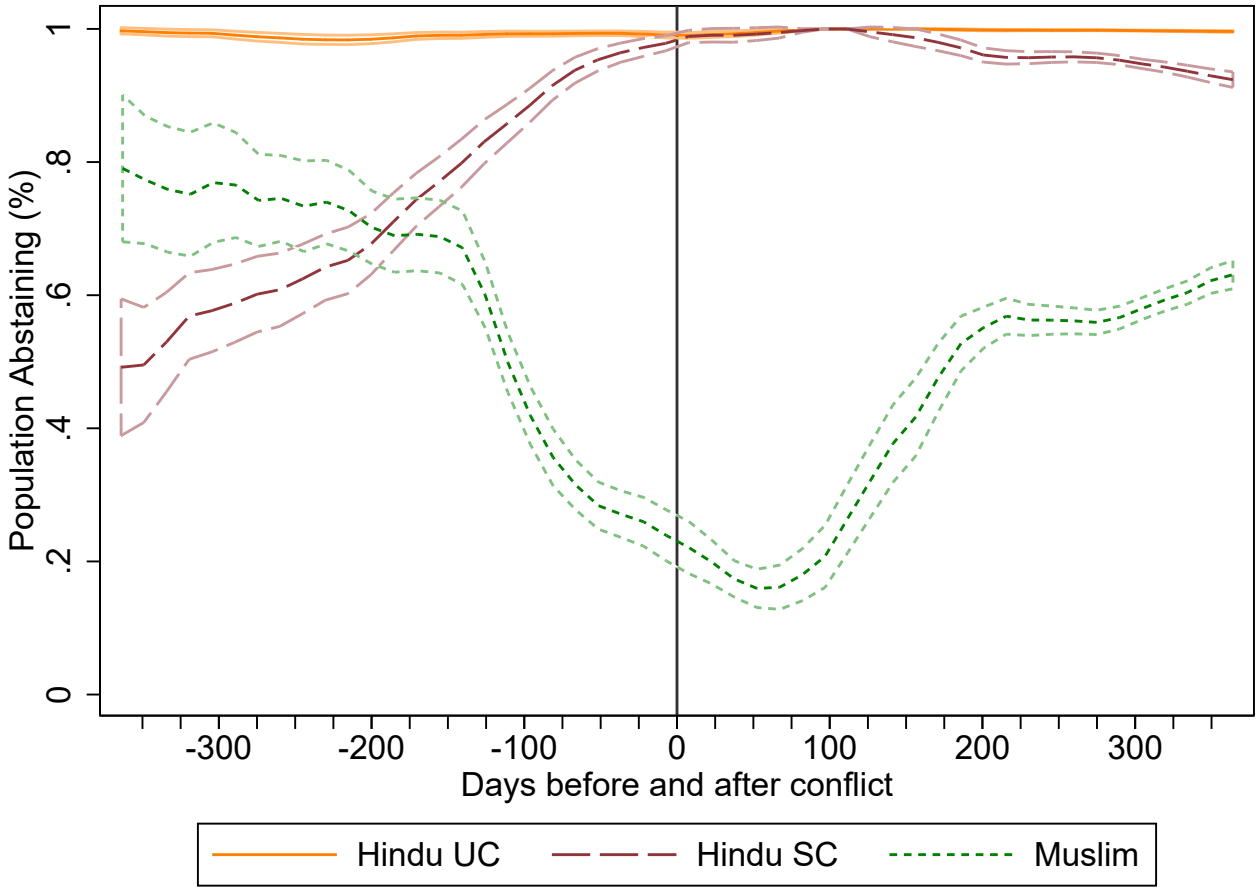
NSS round 50, fraction of population abstaining from beef consumption, unconditional.

▸ Beef Avoidance, Event Study with Controls ▸ Beef Avoidance, Restricted Event Study

Ethnic Identities

- If h choose between their two possible identities (religious and ethnic), choosing to identify more with religious identity $\Longrightarrow$ identifying less with ethnic identity.
  - E.g. for Muslims, beef is not a taboo, but average h consumes no or little beef in most states of India $\Longrightarrow$ low beef consumption is part of a shared ethnic cuisine.

Conflict and Beef Avoidance



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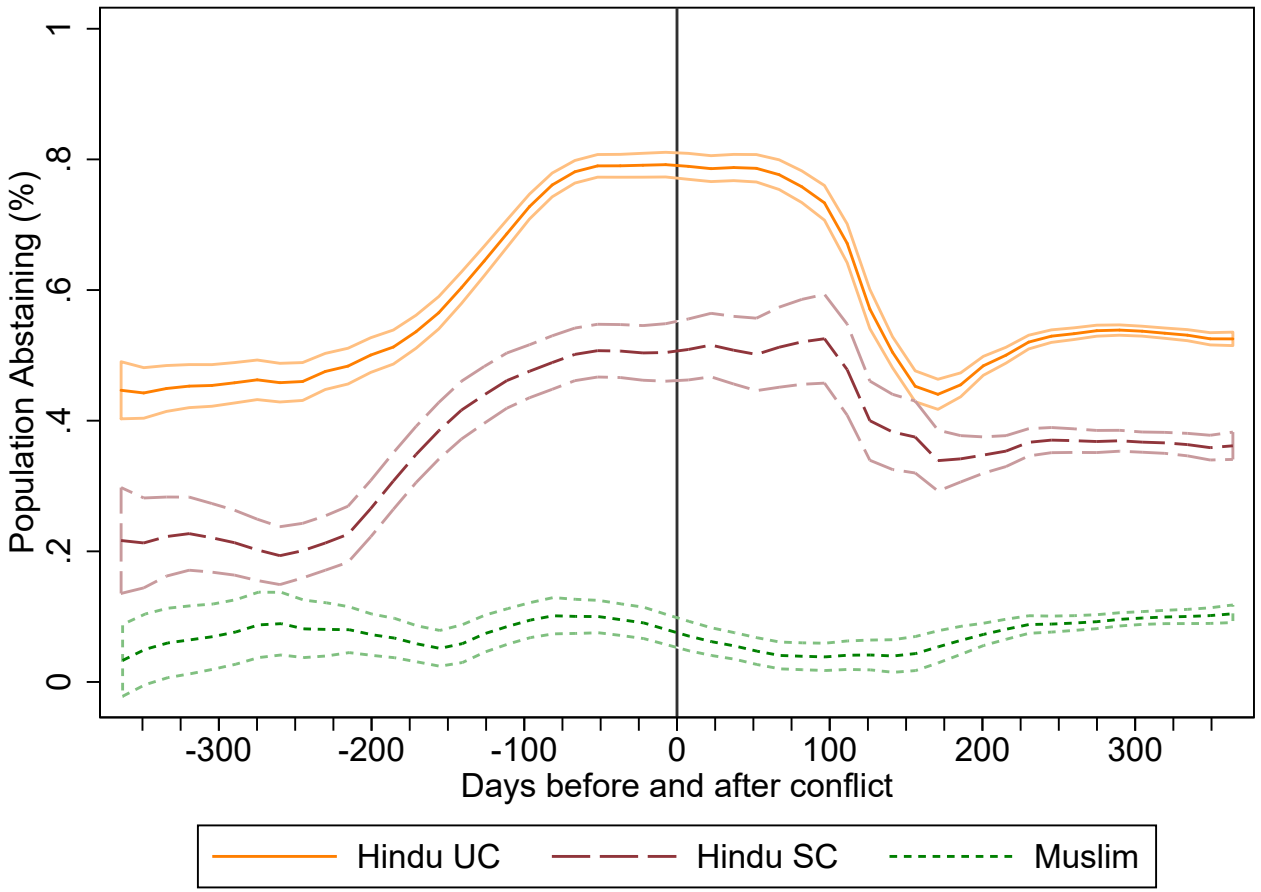
Vegetariansim

- *One can never obtain meat without causing injury to living beings... There is no greater sinner than a man who, outside of an offering to gods or ancestors, wants to make his own flesh thrive at the expense of someone else's.*

Manusmriti, 5.48-5.52

Conflict and Vegetarianism



NSS round 50, fraction of population abstaining from meat consumption, unconditional.

▸ Meat Avoidance, Event Study with Controls ▸ Meat Avoidance, Restricted Event Study

Combining Taboos and Survey Rounds

- Now combine the four taboo goods and three survey rounds with quarterly conflict data.

Religious Identity	Beef	Pork	Non-veg	Alcohol
Hindu Upper Caste	x	x	x	x
Hindu Scheduled Caste	x			
Muslim		x		x
Christian				

- ▸ Pork Avoidance, Taboo Evidence ▸ Pork Avoidance, Event Study
- ▸ Alcohol Avoidance, Taboo Evidence ▸ Alcohol Avoidance, Event Study

Combining Taboos and Survey Rounds

For household h of religion r, in district d, ethnicity (state) s, in round-quarter t, consuming good i:

$$\begin{aligned}\text{Abstain}_{ihrdst} = \alpha_1 \text{Taboo}_{ir} + \alpha_2 \text{Conflict}_{rdt} + \alpha_3 \text{Taboo}_{ir} \times \text{Conflict}_{rdt} \\ + \sum_j \gamma_{1ij} \ln price_{jht} + \gamma_{2i} \ln realfoodexp_{ht} + \delta_{idt} + \delta_{rdt} + FEs + \varepsilon_{iht}\end{aligned}$$

- Abstain_{ihrdst} = indicator for not consuming good i.
- Taboo_{ir} = indicator for good i being a taboo for religion r.
- Conflict_{rdt} = Indicator for Hindu/Muslim conflict in district at the time of the survey or the preceding two quarters
  - ($\text{Conflict}_{rdt} = 0$ for $r =$ Christian).
- $\ln price_{jht}$ = village median price of taboo good, $realfoodexp_{ht}$ = real per capita food expenditure.
- ε_{iht} clustered at rdt level.

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- δ_{idt} = fixed effects for local supply and demand conditions
  - or anything else that affects consumption of i in district d at quarter-year t that might be correlated with conflict.
- δ_{rdt} = fixed effects for anything driving general local consumption by religion r.

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- *FEs* = Additional fixed effects. Two strategies, both within religion-ethnicity:
  1. **"Cross section"** (δ_{irst}): control for *temporal* shocks to adherence. Identifies off variation within state-quarter-year across districts.
  2. **"Panel"** (δ_{irsdq}): control for *spatial* and seasonal differences in adherence. Identifies off variation within the same religion-district-quarter *rdq* across rounds.

Conflict and Taboo Adherence: Results

	LHS Variable: Abstain from Consuming Good i		
	Baseline	Cross-section	Panel
	(1)	(2)	(3)
	All	All	All
taboo=1	0.181***		
	(0.00364)		
taboo=1 × conflict	0.106***	0.0396***	0.0599***
	(0.0162)	(0.0107)	(0.00981)
Observations	1115640	1115292	1114116
Adjusted R^2	0.560	0.585	0.596
log prices and total expenditure controls	Yes	Yes	Yes
product*district*round*quarter	Yes	Yes	Yes
religion*district*round*quarter	Yes	Yes	Yes
religion*state*product*round*quarter	No	Yes	No
religion*state*product*district*quarter	No	No	Yes

▸ Log Fatalities ▸ Detailed Lags and Leads

Is this just about Availability?

- One possibility: in times of religious tensions a Hindu cannot go to Muslim areas (to get beef), and vice versa.

  $\Longrightarrow$ If local butchers neither Hindu nor Muslim, easier to buy taboo food.

  - Observe 1342 butchers across 7 religions in NSS: ▸ Butchers by Religion
  - But: similar conflict effects where larger share of non Hindu/Muslim butchers. ▸ Butcher Shares, Fractionalization and Conflict
  - And: similar conflict effects in religiously homogeneous and fractionalized neighborhoods (FSU$\approx$200 hhs)

Social Desirability Bias?

- Another possibility: households under-report taboo behaviors, and more so during conflict.

1. Trying to please surveyors more in times of conflict?
   - Maybe, if the NSSO sent Muslim surveyors to Muslim households and Hindu surveyors to Hindu households
     - But NSSO careful to randomize surveyors (no data to check).
2. Fearing local retribution if someone finds out?
   - (assumes *others* identify more religiously in times of conflict).
     - Like availability, would expect stronger effects in homogeneous communities.
3. Less of a concern when estimate the full demand system, using entire consumption bundle and shocks to status and prices.

Reverse Causality?

- Changes in identity drive conflict.
- Hindu-Muslim riots are primarily an urban phenomenon (Mitra and Ray, 2014).
  - Find that in urban areas, consumption responds immediately to conflict
  - But in nearby rural areas, consumption mainly responds in the quarters *following* conflict ▸ Urban/Rural and Conflict Timing
    - For rural households, a conflict recorded in their district is more likely to reflect exogenous urban forces (but still raises salience).

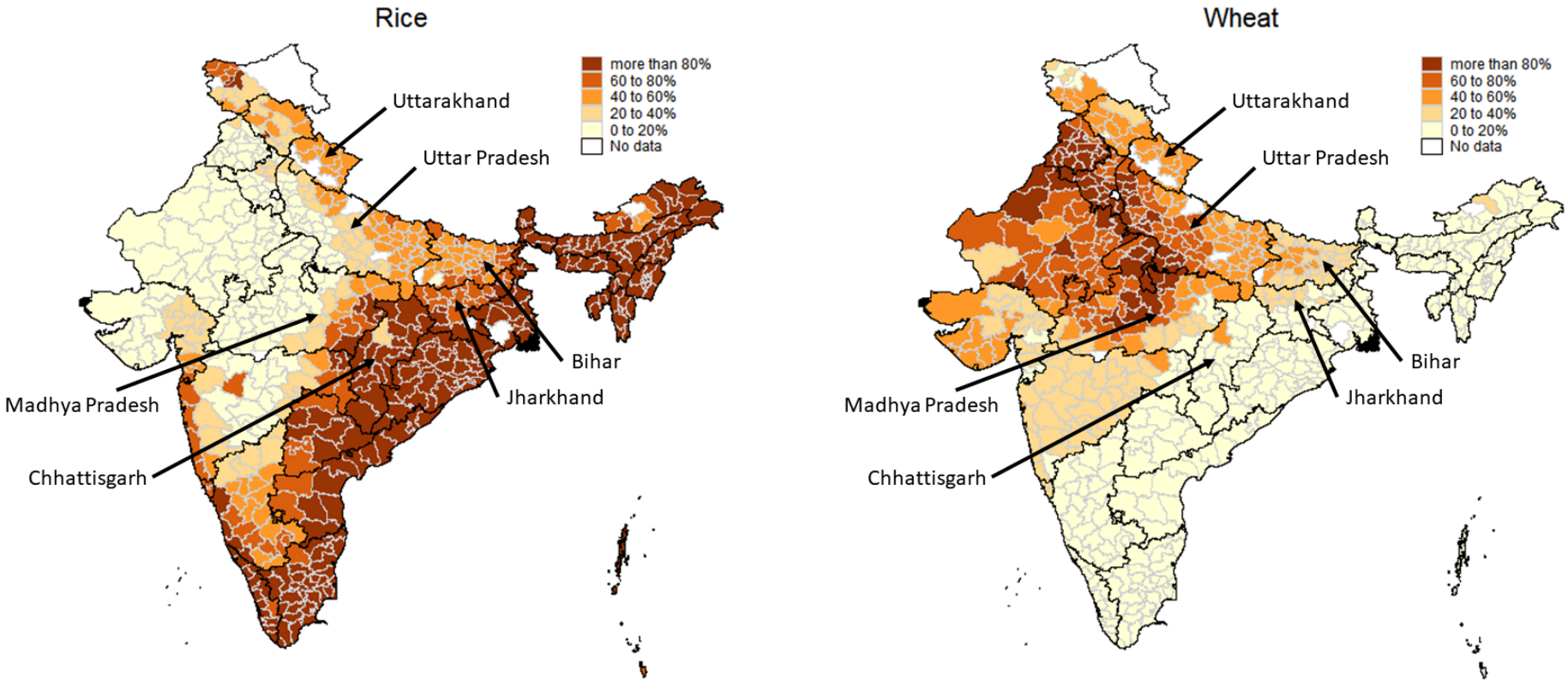
Choosing Identity: Salience of **Ethnicity**

- Three Indian States split between 1987-2000.
  - All in November 2000, following political mobilization in the 1990s.
- As with previous state formation, splits followed ethnic lines:
  - Chhattisgarh (1st November 2000) from Madhya Pradesh
    - The Chhattisgarh population shares a common history and language (Chhattisgarhi).
  - Jharkhand (15 November 2000) from Bihar
    - First recorded trace of the name "Jharkhand" in thirteen century. Kingdom before Mughal invasion and British colonization.
  - Uttarakhand (9 November 2000) from Uttar Pradesh
    - Unites the former kingdoms of Garhwal and Kumaon.

Ethnic Goods and State Splits

- Two of these splits occur along major ethnic good fault line:
  $\rightarrow$Wheat-eaters and rice-eaters (Chakravarti, 1974; Atkin, 2013).

Figure: Share of Rice and Wheat in Total Cereal Expenditures by District, all NSS Rounds



Ethnic Goods and State Splits: Main Results

- **Find**: districts tilt consumption towards their ethnic cereal as highly salient state split approached.
  - And more so in districts along new state border.
  - Note: All survey rounds occur *before* November 2000 split, so results not driven by state-level border taxes.
  - No differential cross-district migration.

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Choosing Identity: Group Status

- Basic argument: low group status results in unfavorable comparisons between the ingroup and relevant other groups.
- Follow sociology literature (e.g. Parkin, 1971; Weiss and Fershtman, 1998) in proxying for group status with returns to typical group occupations.
  - High status if (local) group members in high-paid occupations.

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  - High status if (local) group members in high-paid occupations.
- Local status measures may be endogenous:
  1. Identity choices may drive local occupational mix.
  2. Shared identity may raise wages and hence status.
- In India, religions over-represented in certain occupations (Mitra and Ray, 2014) $\Longrightarrow$ two shift-share strategies:
  - Cross-district variation in local occupational returns (national occupation shares by religion)—addresses (1). ▸ Occ. Shares
  - Cross-round variation in national occupational returns (initial local occupation shares by religion)—addresses (2). ▸ Occ. Returns

Taboos and Group Status (Diff-in-Diff)

Household h, good i, religion r, district d, ethnicity s, in round-quarter t:

$$\begin{aligned}\text{Abstain}_{ihrdst} = &\alpha_1 \text{Taboo}_{ir} + \alpha_2 \text{Status}_{rdt} + \alpha_3 \text{Taboo}_{ir} \times \text{Status}_{rdt} \\ &+ \sum_j \gamma_{1ij} \ln price_{jht} + \gamma_{2i} \ln realfoodexp_{ht} \\ &+ \delta_{idt} + \delta_{rdt} + FEs + \varepsilon_{iht}\end{aligned}$$

1. $\text{Status}_{rdt}^{national\_occ(r)} = \sum_o \log w_{odt} \theta_{od^- rt}$: uses national occupational mix of my religion (leave-out d), & local (odt) wages.
   - With δ_{irst} ("cross section") FE: identify off local occupational wage differences.
2. $\text{Status}_{rdt}^{national\_w(o)} = \sum_o \log w_{od^- t} \theta_{odrt_o}$: uses national wages (leaving out d) of different occupations, & initial local occupational mix in my religion.
   - Standard Bartik. With δ_{irsdq} ("panel") FE: identify off status changes over rounds within religion-district-quarter driven by national occupational wage changes.

Taboos and Group Status

	LHS Variable: Abstain from Consuming Good i					
	Baseline	Cross-section	Panel	Baseline	Cross-section	Panel
	(1)	(2)	(3)	(4)	(5)	(6)
taboo=1	-0.179***			-1.335***		
	(0.0387)			(0.0629)		
taboo=1 $\times$ status$_{rdt}^{national_o cc(r)}$	0.120***	0.0716***	0.0444***			
	(0.0128)	(0.0120)	(0.0102)			
taboo=1 $\times$ status$_{rdt}^{national_w(o)}$				0.489***	0.0662***	0.0558***
				(0.0203)	(0.0196)	(0.0213)
Observations	1111072	1110724	1109544	1089132	1088876	1088280
Adjusted R^2	0.560	0.584	0.595	0.561	0.583	0.593
log prices and total expenditure controls	Yes	Yes	Yes	Yes	Yes	Yes
product*district*round*quarter	Yes	Yes	Yes	Yes	Yes	Yes
religion*district*round*quarter	Yes	Yes	Yes	Yes	Yes	Yes
religion*state*product*round*quarter	No	Yes	No	No	Yes	No
religion*state*product*district*quarter	No	No	Yes	No	No	Yes

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The Cost of Identity

- Claim: less likely to identify with group J the higher the (local) cost of its prescribed bundle $\overline{X}_J$.

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Here, explore how taboos change own and cross price responses:

$$\begin{aligned}\text{Abstain}_{ihrdst} =& \alpha_1 \text{Taboo}_{ir} + \alpha_2 \ln p_{iht} + \alpha_3 \sum_{j \neq i} \ln p_{jht} \\ &+ \alpha_4 \text{Taboo}_{ir} \times \ln p_{iht} + \alpha_5 \text{Taboo}_{ir} \sum_{j \neq i} \ln p_{jht} \\ &+ \alpha_6 \sum_{j \neq i} \text{Taboo}_{jr} \ln p_{jht} + \alpha_7 \text{Taboo}_{ir} \sum_{j \neq i} \text{Taboo}_{jr} \ln p_{jht} \\ &+ \gamma_{2i} \ln realfoodexp_{ht} + \delta_{idt} + \delta_{rdt} + FEs + \varepsilon_{iht}\end{aligned}$$

- $\alpha_4 < 0$ if taboo demand less elastic, $\text{sign}\alpha_3 \neq \text{sign}\alpha_5$ if less x-price elastic.
- $\alpha_7 > 0$ consistent with identity creating complements among taboos.

Taboos and the Cost of Identity

	LHS Variable: Abstain from Consuming Good i								
	Baseline			Cross-section			Panel		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$taboo_i$=1	0.187***	0.170***	0.228***						
	(0.00359)	(0.0185)	(0.0158)						
ln p_i	0.0127***	0.0427***	0.0323***	0.00884***	0.0453***	0.0424***	0.00721***	0.0207***	0.0211***
	(0.00270)	(0.00363)	(0.00488)	(0.00257)	(0.00511)	(0.00564)	(0.00255)	(0.00413)	(0.00527)
sum ln p_j	-0.00294*	-0.0140***	0.00659*	-0.00166	-0.00883***	-0.00503	-0.00112	-0.00644***	-0.00351
	(0.00167)	(0.00221)	(0.00367)	(0.00165)	(0.00286)	(0.00396)	(0.00165)	(0.00199)	(0.00377)
$taboo_i$=1 x ln p_i		-0.0382***	-0.0287***		-0.0457***	-0.0424***		-0.0168***	-0.0173***
		(0.00278)	(0.00454)		(0.00488)	(0.00556)		(0.00351)	(0.00509)
$taboo_i$=1 x sum ln p_j		0.0146***	-0.0293***		0.00946***	-0.0117***		0.00681***	0.00209
		(0.00171)	(0.00159)		(0.00282)	(0.00416)		(0.00131)	(0.00267)
sum (ln p_j x $taboo_j$)			-0.0618***			-0.0142**			-0.00791
			(0.00422)			(0.00626)			(0.00574)
$taboo_i$=1 x sum (ln p_j x $taboo_j$)			0.0905***			**0.0340*** **			**0.0101***
			(0.00171)			(0.00664)			(0.00575)
Observations	1115640	1115640	1115640	1115292	1115292	1115292	1114116	1114116	1114116
Adjusted R^2	0.560	0.560	0.568	0.585	0.585	0.585	0.595	0.595	0.595
log prices and total expenditure controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
product*district*round*quarter	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
religion*district*round*quarter	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
religion*state*product*round*quarter	No	No	No	Yes	Yes	Yes	No	No	No
religion*state*product*district*quarter	No	No	No	No	No	No	Yes	Yes	Yes

- Similar results instrumenting $\ln p_{iht}$ with prices in neighboring villages to deal with idiosyncratic village demand shocks (assume production costs spatially correlated).

Outline

1. Data
2. Demand for prominent identity goods
   - Salience shocks
   - Status shocks
   - Cost of identity goods
3. **Demand system analysis (entire bundle)**
4. Quantification: identity changes in the 1990's, voting, calories, and welfare
5. Conclusions

A More Complete Analysis of Identity Choices

- Previous results are suggestive, but focus on a narrow set of goods (where norms easy for researchers to recognize).

- Now we pursue a more complete analysis.
  1. Do not impose which goods are "identity goods" and which are not.
     - Take the prototypical bundle to be the observed mean bundle in the group ("descriptive norm").
  2. Jointly consider all three determinants of identity choice
     - e.g. Mitra and Ray (2014) suggest status $\Longrightarrow$ conflict
  3. Formalize the choice of identity

  $\Rightarrow$ can quantify changes in identity choices over our study period.

A Simple Model of Identity

- Write the (collective) household h indirect utility when identifying with group $J \in \{r, s\}$ as:

$$V_{hJ}(P, m_h, y_J, \kappa_{hJ}; \overline{X_J}) = \delta_1 v_J(P, m_h; \overline{X_J}) + \delta_2 y_J + \delta_3 \kappa_{hJ} + \xi_{hJ}$$

  - Where $v_J(\cdot)$ is a subutility function over vector of prices p_i, income m_h, and vector of $\overline{x_{iJ}}$s, the prototypical consumption bundle of group J.
  - Households also obtain utility from status y_J of their chosen identity, a group-specific salience shifter κ_{hJ}, and idiosyncratic shifter ξ_{hJ}.

- A household chooses its ethnic identity if $V_{hs} > V_{hr}$, and religious identity if $V_{hs} \leq V_{hr}$.

A Specific Subutility Function

- Substituting AIDS indirect utility function for $v_J(\cdot)$, *observed* budget share x_{hi} is:

$$x_{hi} = \widetilde{x_{is}} + (\widetilde{x_{ir}} - \widetilde{x_{is}})\mathbf{1}[V_{hr} > V_{hs}] + \sum_k \gamma_{ik} \ln p_k + \beta_i (\ln m_h - a_0 - \frac{1}{2}\sum_i \sum_k \gamma_{ik} \ln p_i \ln p_k)$$

where $\widetilde{x_{iJ}} \equiv \overline{x_{iJ}} - \beta_i \sum_i \overline{x_{iJ}} \ln p_i$.

- Difference in utilities V_{hr} and V_{hs} depends on relative cost of prototypical bundles, relative status, and relative salience:

$$V_{hr} - V_{hs} = -\delta_1 (\frac{\sum_i (\overline{x_{ir}} - \overline{x_{is}}) \ln p_i}{\prod_i p_i^{\beta_i}}) + \delta_2 (y_r - y_s) + \delta_3 (\kappa_{hr} - \kappa_{hs}) + (\xi_{hr} - \xi_{hs})$$

  - If $\xi_{hJ} \sim$ iid extreme value, probability of choosing religious identity r is $P_r = (1 + e^{-(V_{hr} - V_{hs})})^{-1}$.

Linear Approximation: Estimation Equation

- Admits linear approximation for small changes (i.e. $\xi_{hJ} \sim$ uniform):

$$x_{hi} = (\overline{x_{ir}} - \overline{x_{is}}) \left[-\eta_1 \left(cost_{r|i} - cost_{s|i} \right) + \eta_2 (y_r - y_s) + \eta_3 (\kappa_{hr} - \kappa_{hs}) \right] + price\ and\ income\ terms + \text{FEs}$$

  - $\overline{x_J}$ = prototypical bundle of group J ("descriptive norm")
    - proxied by group mean (excluding own village).
  - Cost of group bundles (leaving out cost of good i)
  - Status shocks using occupational returns Bartik.
  - Salience shocks using Hindu-Muslim riots.

- Admits "reduced form" interpretation: relative cost/status/salience push you towards $\overline{x_r}$ and away from $\overline{x_s}$

Linear Approximation: Results

LHS Variable: Share Spent on Good i		
	(1) Cross-section	(2) Panel
$(\overline{x_{ir}} - \overline{x_{is}}) \times (cost_r - cost_s)$	-0.660***	-0.692***
	(0.0975)	(0.102)
$(\overline{x_{ir}} - \overline{x_{is}}) \times (status_r - status_s)$	0.237***	0.222***
	(0.0273)	(0.0639)
$(\overline{x_{ir}} - \overline{x_{is}}) \times conflict_r \ +/- \ 6 \ months$	0.0981***	0.273***
	(0.0374)	(0.106)
Observations	32,515,776	32,435,920
Adjusted R^2	0.772	0.780
log price and total expenditure controls	Yes	Yes
district*product*round*quarter	Yes	Yes
religion*state*product*round*quarter	Yes	No
religion*state*product*district*quarter	No	Yes

- Similar coefficients when not imposing symmetry of $\overline{x_{ir}}$ & $\overline{x_{is}}$ effects No symmetry
- Overall similar effects across religions (upper-caste more sensitive to status). By religion

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Implications and Counterfactuals

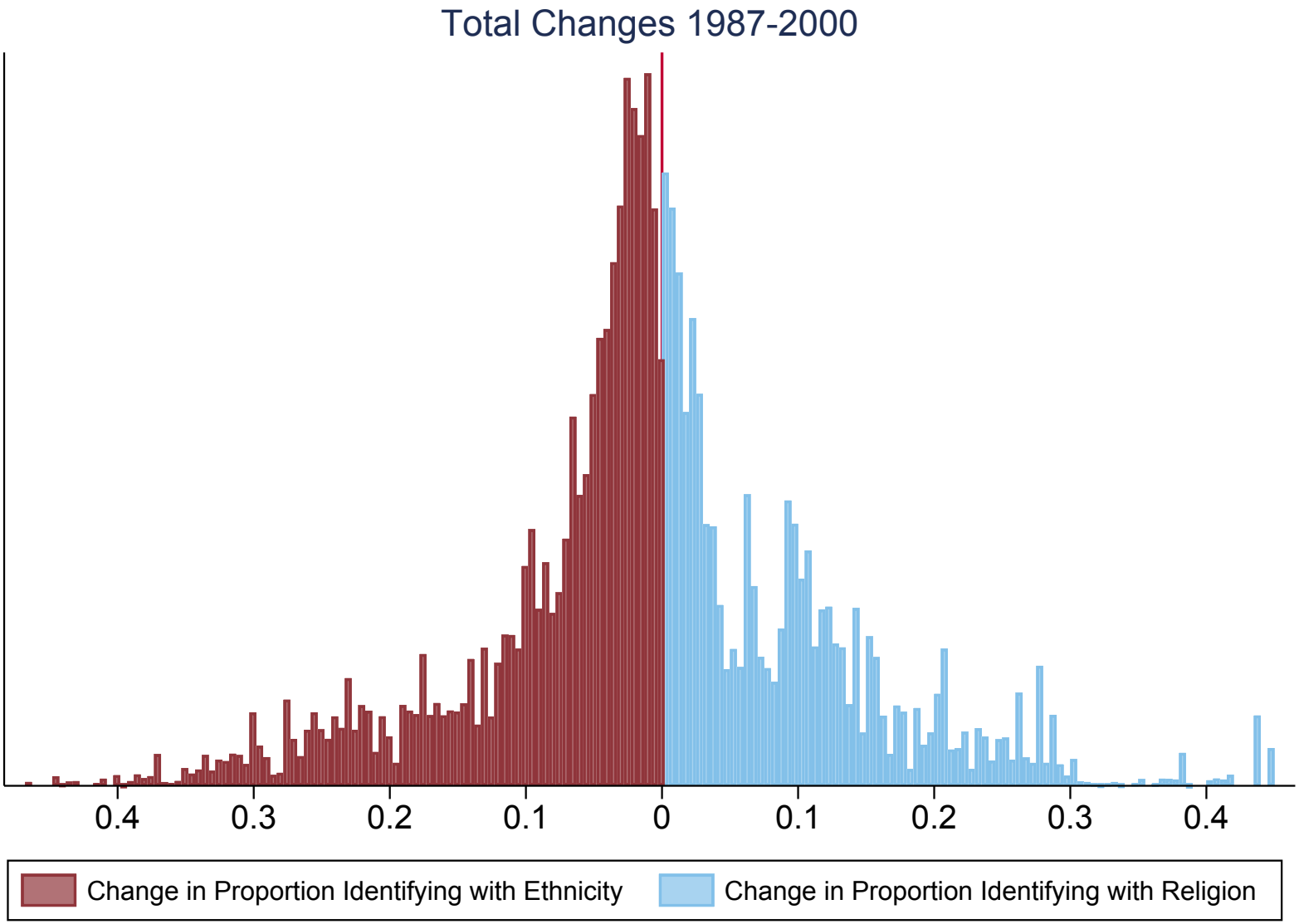
- Major changes in India between 1987 and 2000 associated with 1991 economic reforms.
- Use estimates to quantify impacts of changes in status, price and conflict on:

1. **Identity choices—with linear approximation**

$$dP_r \approx -\widehat{\eta}_1 d \sum_i (\overline{x_{ir}} - \overline{x_{is}}) \ln p_i + \widehat{\eta}_2 d(y_r - y_s) + \widehat{\eta}_3 d(\kappa_r - \kappa_s)$$

2. Voting for religious and ethnic parties
3. Health: Caloric gains (or losses) due to identity changes
4. Welfare: CV gains from endogenous identity

Identity Changes 1987-2000



Histogram of proportion of households changing identity by district-religion cells (mean: -0.65%)

Voting for Religious and Ethnic Parties

- Question: Are these identity changes (from consumption data) associated with changes in voting?

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- **Data**:
  - Indian State Assembly Election and Candidates Database (Jensenius & Verniers 2017).
  - Constituency level data, spanning our entire period.
  - Classify parties into religious and ethnic parties based on party platforms and media reports.
  - For ethnic parties, also use Election Commission reports that classify certain parties as State Parties.
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  - For each district-identity-round, compute vote share of the identity party, using closest elections.
- Note: voting driven by many factors other than identity
  - Still, correlation is of interest.

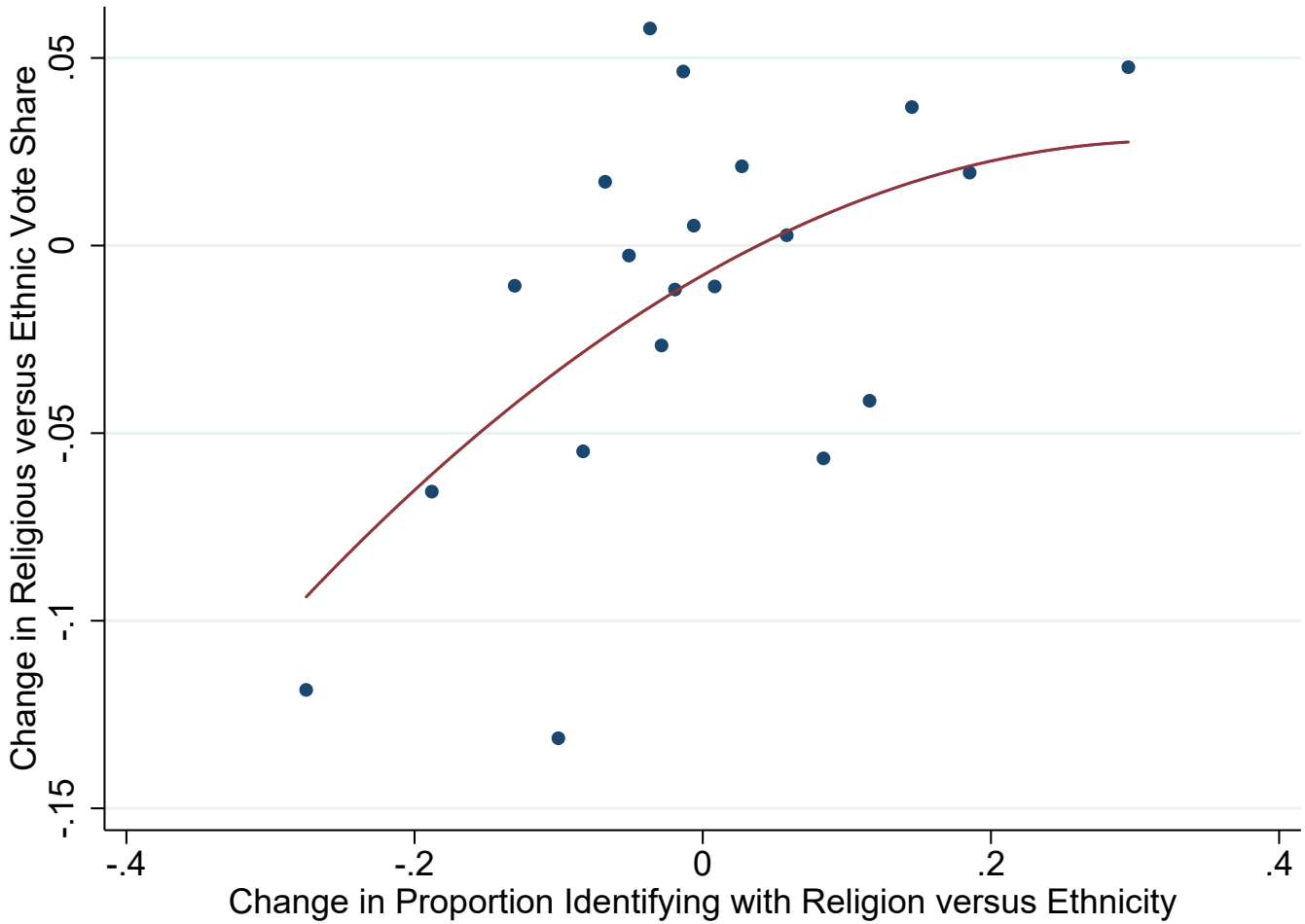
Recovered Identity Changes and Voting Behavior

Diff in (religious – ethnic vote shares), between 1987 and 2000, in district-religion cells

-

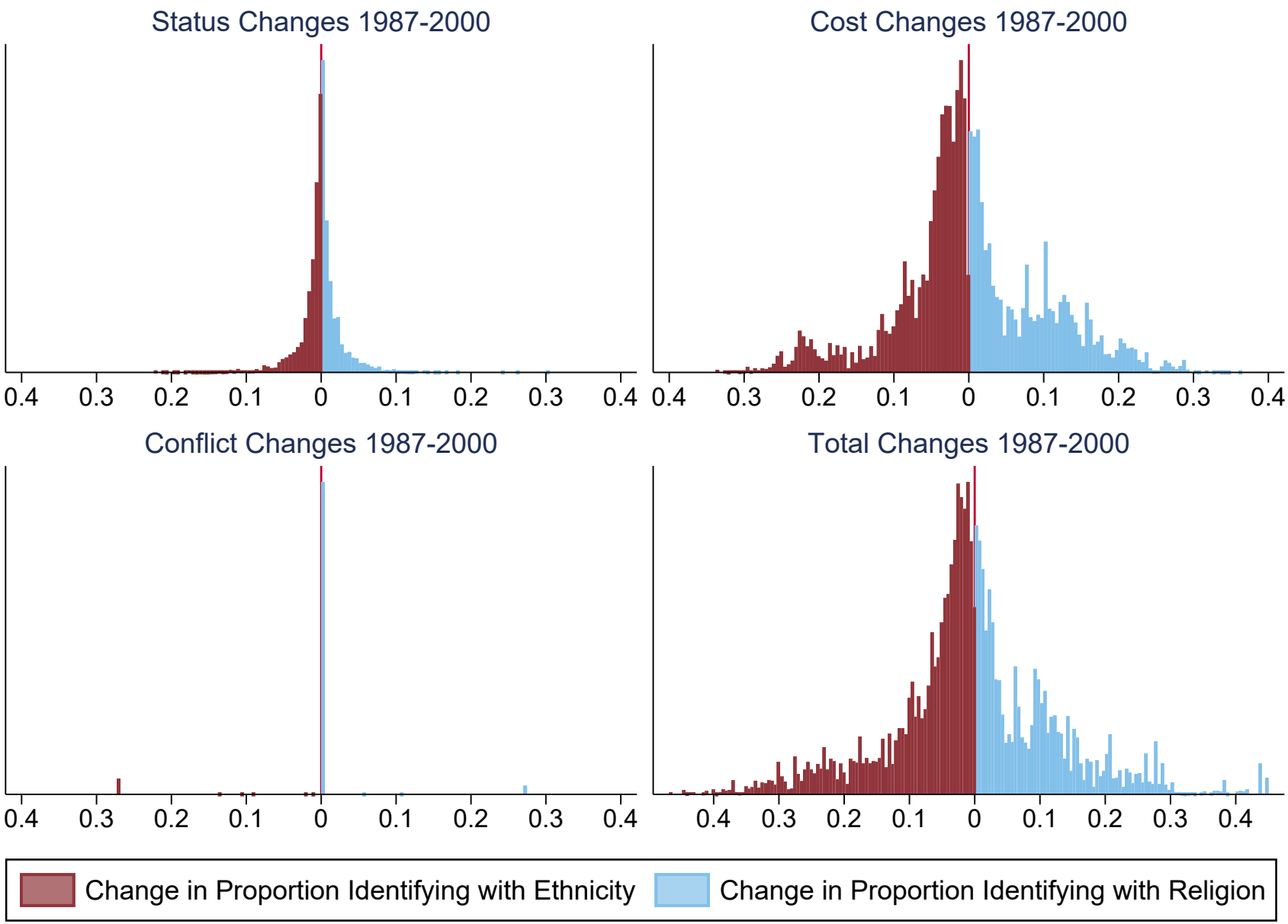
Recovered Identity Changes and Voting Behavior

Diff in (religious − ethnic vote shares), between 1987 and 2000, in district-religion cells



$\beta = 0.212^{***}$, s.e.$= 0.047$, N$= 519$ ▸ Regression Table

Quantifying the Sources of Identity Changes 1987-2000



Implications and Counterfactuals

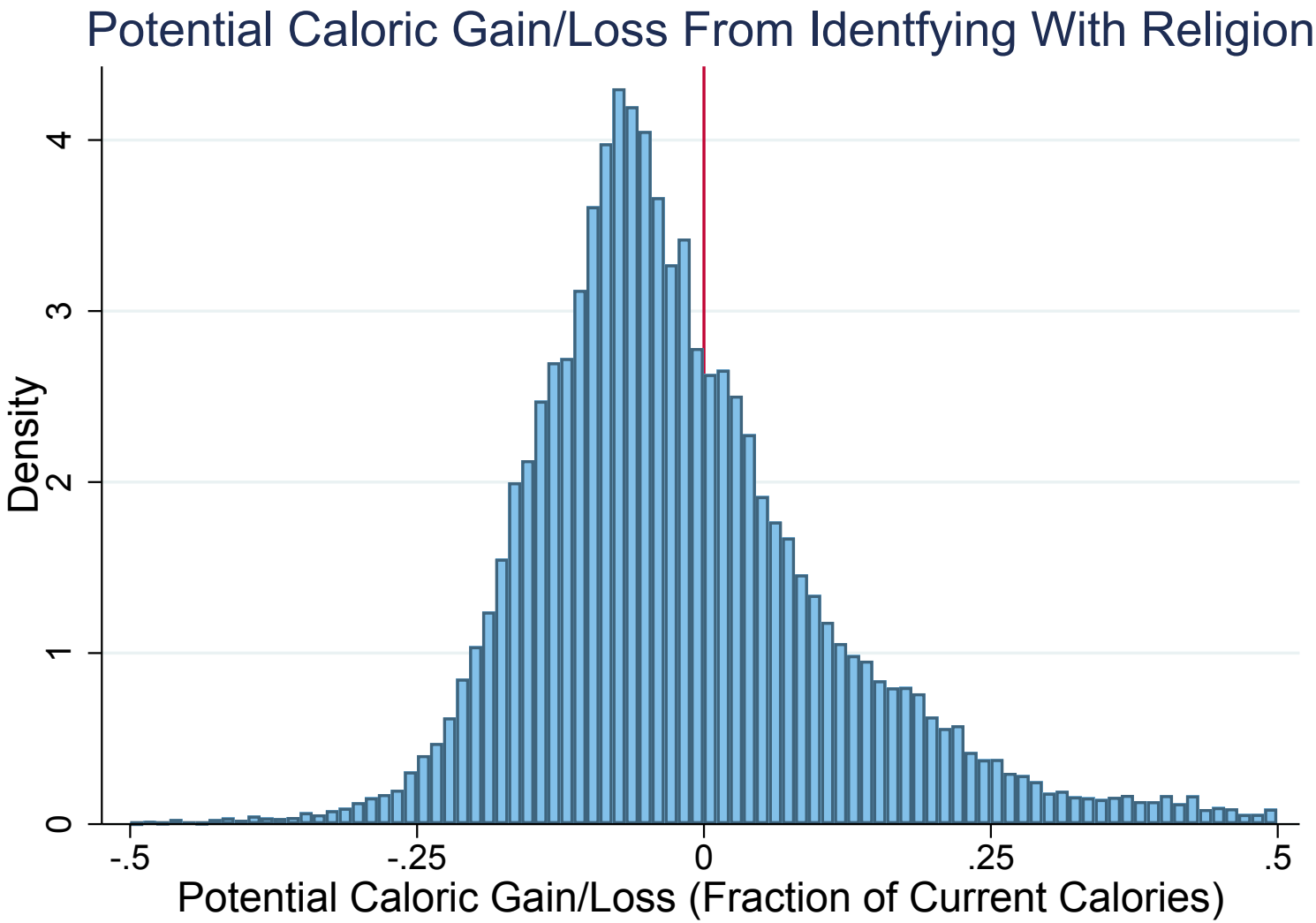
- Major changes in India between 1987 and 2000 spurred by 1991 economic reforms.
- Use estimates to quantify impacts of Δ status, price and conflict on:
  1. Identity choices
  2. Voting for religious and ethnic parties
  3. **Health: Caloric gains (or losses) due to identity changes**

$$dCalories_{ih} \approx calories\_per\_kg_i \times \frac{foodexp_h}{p_{ih}}(\overline{x_{ir}} - \overline{x_{is}})dP_r$$

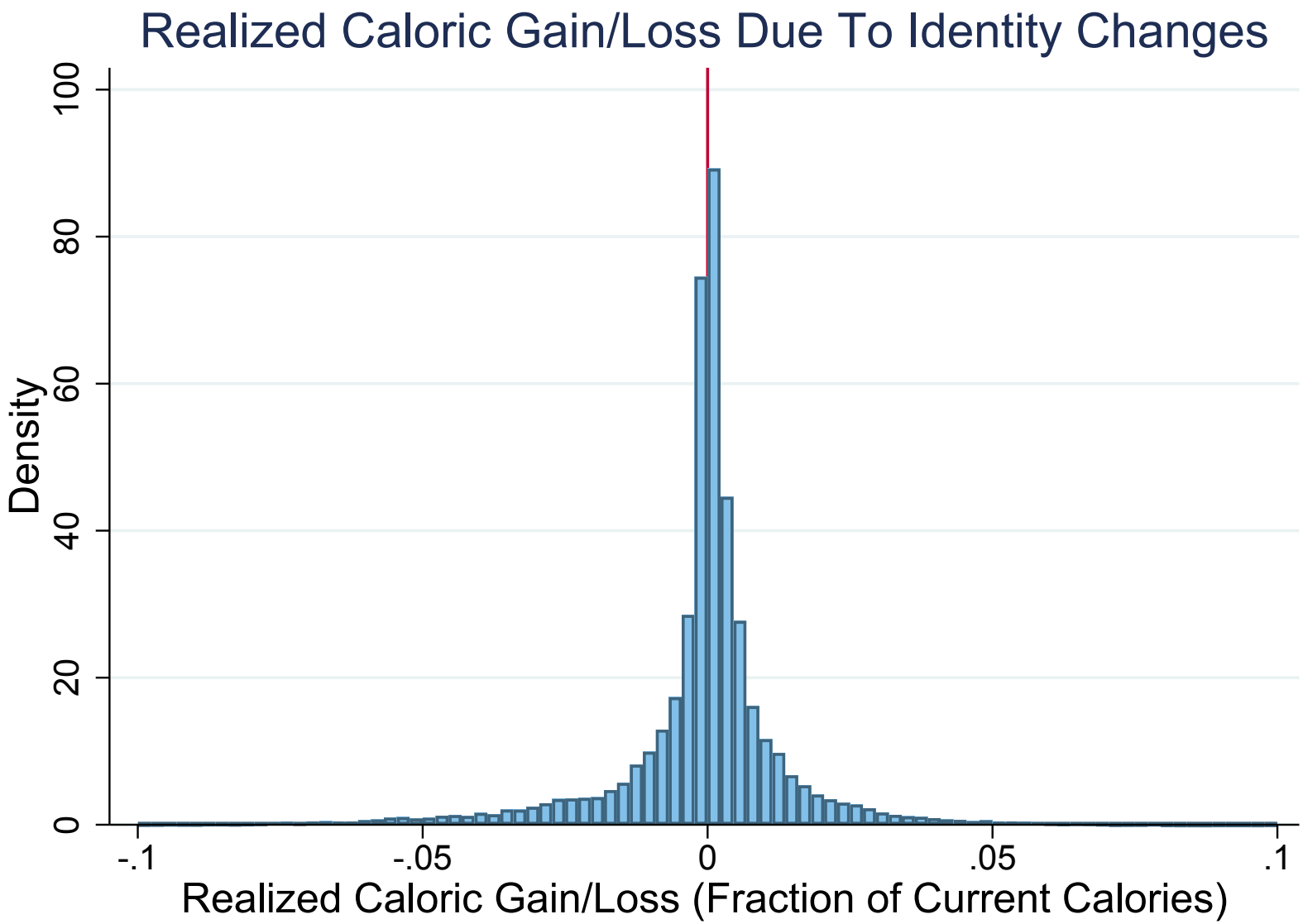
  4. Welfare: CV gains from endogenous identity.

Potential Caloric Gains from Identity Changes 1987-2000

Exercise: suppose everyone starts off identifying ethnically and shifts to religious identity.



Realized Caloric Gains from Identity Changes 1987-2000



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Calculating the Difference in Compensating Variations

- Consider shock to prices and income.
- Define $z_{JJ'}$ as the (proportional) increase in income required in post-shock period 1 under identity J' to maintain the utility level of period 0 under identity J:

$$V_{hJ'}(P_1, m_1 z_{JJ'}, y_{J'1}, \kappa_{hJ'1}; \overline{X_{J'}}) = V_{hJ}(P_0, m_0, y_{J0}, \kappa_{hJ0}; \overline{X_J})$$

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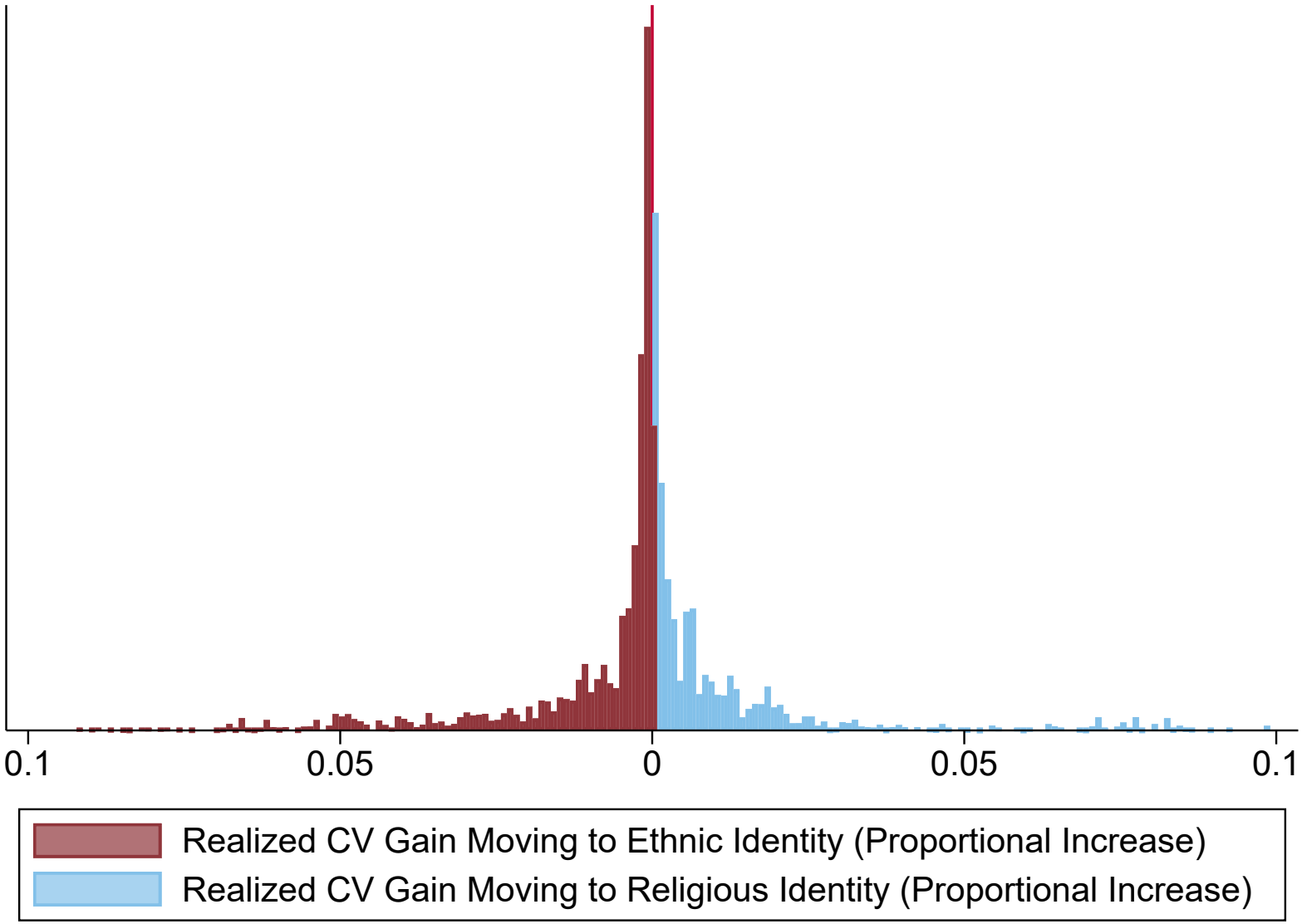
- Compute:

$$\ln z_{JJ} - \ln z_{JJ'} = \sum_i (\overline{x}_{iJ} - \overline{x}_{iJ'}) \ln p_{i1} - \frac{\Pi_i p_{i1}^{\beta_i}}{\delta_1} (\delta_2 (y_{J1} - y_{J'1}) + \delta_3 (\kappa_{J1} - \kappa_{J'1}))$$

by applying the linear approximation above and the estimated ηs.

Realized Welfare Gains from Endogenous Identity 1987-2000



Conclusion

- Identity, as revealed through consumption choices, appears to be endogenous.
  - Adjusts to forces highlighted by social Ψ (group status and salience)
  - and by standard price theory (the cost of identifying with a group).
- Quantitatively, costs particularly important
  - The conflict shocks were temporary and uncommon.
  - Changes in prices and occupational returns are ubiquitous & persistent.
  - Rationalizes banning beef by BJP?
  - Since Erdogan came to power, relative price of alcohol in Turkey more than tripled...
- More generally:
  - To understand consumption, it helps to understand identity.
  - Consumption behavior can also help us understand identification processes on a large scale.

Спасибо!

Recovered Identity Changes and Voting Behavior

	LHS Variable: Change in Vote Shares					
	Religious vs. Ethnic		Religious		Ethnic	State
	(1)	(2)	(3)	(4)	(5)	(6)
Change in Proportion Religious, district-religion	0.212***	0.210***	0.0544**	0.0495**		
	(0.0473)	(0.0470)	(0.0250)	(0.0246)		
Change in Proportion Religious, district					-0.222***	-0.340***
					(0.0593)	(0.0779)
Observations	519	519	636	636	280	331
Adjusted R^2	0.036	0.051	0.006	0.040	0.044	0.052
FE religion	No	Yes	No	Yes	No	No

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Conflict and Availability

	LHS Variable: Abstain from Consuming Good i					
	Cross-section			Panel		
	(1)	(2)	(3)	(4)	(5)	(6)
taboo × conflict	0.0430***	0.0467***	0.0490***	0.0599***	0.0635***	0.0677***
	(0.0112)	(0.0120)	(0.0114)	(0.0101)	(0.0128)	(0.0122)
taboo × conflict × non hindu/muslim butcher share	-0.173			0.00218		
	(0.222)			(0.0613)		
taboo × conflict × religious fractionalization		-0.0324			-0.0163	
		(0.0368)			(0.0375)	
taboo × conflict × hindu/muslim fractionalization			-0.0491			-0.0410
			(0.0410)			(0.0417)
Observations	1107484	1115292	1115292	1106292	1114116	1114116
Adjusted R^2	0.585	0.585	0.585	0.596	0.596	0.596
main effects and double interactions	Yes	Yes	Yes	Yes	Yes	Yes
log prices and total expenditure controls	Yes	Yes	Yes	Yes	Yes	Yes
district*product*round*quarter	Yes	Yes	Yes	Yes	Yes	Yes
district*religion*round*quarter	Yes	Yes	Yes	Yes	Yes	Yes
religion*state*product*round*quarter	Yes	Yes	Yes	No	No	No
religion*state*product*district*quarter	No	No	No	Yes	Yes	Yes

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Rural vs. Urban and Timing of Effect

	LHS Variable: Abstain from Consuming Good i		
	Panel		
	(1) All	(2) Urban	(3) Rural
taboo=1 × conflict past 2 quarters	0.0565***	0.0431**	0.0550***
	(0.0101)	(0.0194)	(0.0134)
taboo=1 × conflict present quarter	0.0501***	0.0587**	0.0293
	(0.0174)	(0.0293)	(0.0187)
Observations	1114116	347556	764344
Adjusted R^2	0.596	0.612	0.603
log prices and total expenditure controls	Yes	Yes	Yes
product*district*round*quarter	Yes	Yes	Yes
religion*district*round*quarter	Yes	Yes	Yes
religion*state*product*round*quarter	No	No	No
religion*state*product*district*quarter	Yes	Yes	Yes

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How Social Identity Affects Behavior

(Shayo, Annual Review of Eoconomics, 2020)

Table 1: Ingroup Bias

Domain (1)	**Study & Method**[a] (2)	**Outcome variables** (3)	**Main findings** (4)	**Bias higher when...** (5)
Allocation decisions & bargaining	LAB: Bernhard et al. 2006; Fehr et al. 2008; Tajfel et al. 1971; McLeish & Oxoby 2011; Bettencourt et al. 2001; Goeree et al. 2010; Iyengar & Westwood 2015; Jetten et al. 1996; Leider et al. 2009; Chen & Li 2009. FLD: Bauer et al. 2014; Fong & Luttmer 2009; Michelitch 2015.	Allocations in Tajfel reward matrices, dictator game (also with third party enforcer), and ultimatum game; negotiated taxi fare.	Larger allocations to ingroup and to socially close individuals; enforcers punish more when dictator is out-group or receiver is ingroup; higher minimum acceptance threshold for ingroup offers; lower taxi fare charged under common ethnicity & under common political affiliation during elections.	Exposure to inter-group conflicts; high ingroup status; ingroup norm of discrimination (vs. of fairness); older children; males; self-reported feeling of closeness to ingroup; elections along the relevant group lines.
Cooperation & trust	LAB: Bornstein & Ben-Yossef 1994; Bornstein 2003; Cacault et al. 2015; Charness et al. 2007; Eckel & Grossman 2005; Glaeser et al. 2000. FLD: Blouin & Mukand 2017; Falk & Zehnder 2013; Goette et al. 2006, 2012.	Behavior in Prisoner's Dilemma (also with third party enforcer), Battle of the Sexes, public good game; trust game; self-reported identification; partner choice.	Higher cooperation rates when playing with ingroup members and when this hurts the outgroup; enforcers punish defector more when partner is ingroup member; higher trust of co-ethnics and strangers from own district; common ethnicity increases likelihood of partner choice.	Competition with out-group; shared ingroup payoffs; presence of other ingroup members when game being played; natural group (vs. minimal group); participation in group activities; lower exposure to radio purportedly promoting national unity & anonymity (in Rwanda).
Labor markets	FLD: (Stauffer & Buckley, 2005; Terry & O'Brien, 2001). NAT: Åslund et al. 2014; Giuliano et al. 2009, 2011.	Hiring, promotion, dismissals & quits; supervisor evaluations; colleague attitudes.	Common employer-employee race or immigrant status improve employee outcomes; within-firm department match improves attitudes towards colleagues.	High ingroup status (for status-related attitudes), employer-employee residential proximity; in US South.

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How Social Identity Affects Behavior

(Shayo, Annual Review of Eoconomics, 2020)

Table 1 (Continued): Ingroup Bias

Education	NAT: Dee 2005; Fisman et al. 2018; Gershenson et al. 2016; Lavy et al. 2018. FLD: Feld et al. 2016; Rao 2018.	Teacher expectations and attitudes towards students; grading decisions; committee acceptance decisions; partner choices.	Common teacher-student race, religiosity, gender or nationality positively affect teacher evaluations and grading; common hometown increases acceptance to Chinese Academy of Sciences/Engineering; socioeconomic match increases probability of choosing less skilled partner.	In US South (gender and race biases); among males (religiosity bias); against students from lower socioeconomic status; less contact with out-group.
Productivity	NAT: Bandiera et al. 2005; Hjort 2014. FLD: Berg et al. 2017; Marx et al. 2018.	Units produced by worker/team; supply allocation to and between downstream workers; canvassing outcomes.	Upstream workers under-supply non-coethnic downstream workers and favor coethnics; team productivity higher when team members co-ethnic; relative pay decreases output only when competing against friends; common caste/socioeconomic status increases information dissemination; lower effort when supervisor is co-ethnic.	Exposure to inter-group conflict; fixed (vs. incentive) pay; individual (vs. team production) incentives.
Law enforcement	NAT: Antonovics & Knight 2009; Anwar et al. 2012; Donohue & Levitt 2001; Shayo & Zussman 2011, 2017.	Police vehicle searches and arrests; court convictions and rulings.	Officer-driver racial mismatch increases search & arrest; presence of black in jury pool eliminates racial conviction gap; same-ethnicity judge increases likelihood of winning civil case.	Experienced cops; minor offenses; exposure to inter-group conflict; bias does not decline with judge experience.
Finance	NAT: Fisman et al. 2017, Forthcoming; Grinblatt & Keloharju 2001; Jannati et al. 2018.	Loan approval; portfolio choice; earning forecasts by analysts.	Common loan officer-borrower religion/caste increases loan approval, size, and repayment; common investor-CEO ethnicity increases investment in firm; common analyst-CEO gender/ethnicity/political attitudes increases earning forecasts.	Non-savvy investors; exposure to inter-group conflicts.

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How Social Identity Affects Behavior

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Table 1 (Continued): Ingroup Bias

Public policy	NAT: Burgess et al. 2015; Eifert et al. 2010; Hodler & Raschky 2014; Luttmer 2001; Kramon & Posner 2016; Franck & Rainer 2012. LAB: Klor & Shayo 2010.	Children's educational and health outcomes; local road building; regional night-time luminosity; voting over redistribution.	Common ethnicity with political leader in Africa increases road building and children's education & health; common birth region with political leader increases night-time luminosity; support more redistribution when it benefits ingroup members.	No common dominant religion in country; weak/no democracy; poorly educated citizens; using narrower ingroup definition; low personal cost.
Sports	NAT: Parsons et al. 2011; Pope & Pope 2015; Price & Wolfers 2010. LAB: Hastorf & Cantril 1954.	Baseball umpire decisions; personal fouls called in NBA; fouls suffered/committed in UCL soccer; student evaluation of team behavior in college football.	Common umpire-pitcher ethnicity increases strike likelihood; common referee-player race reduces number of fouls called; common referee-player nationality improves foul ratio; interpretation of videoed game events biased in favor of own-university team.	Lower scrutiny of decisions; nationality-based bias larger when the player plays for the national team & when game is in player's home court; bias not lower for elite referees.
Attitudes	LAB: Brewer et al. 1993; Iyengar & Westwood 2015; Kinzler et al. 2007; Rudman et al. 2002; Sachdev & Bourhis 1987.	Implicit Association Test; reported attitudes towards in/out group members; infant looking-time at in/out group members and toy acceptance.	IAT: faster response time to dual categorization of 'positive' and 'ingroup'; more positive attitudes to ingroup members and objects; longer looking times at—and more toys accepted from—people with ingroup language and accent.	Higher group status; larger ingroup.

Notes:

[a] LAB=lab experiment, FLD=field/lab-in-the-field experiment, NAT= econometric analysis of naturally occurring data, COR=correlational.

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How Social Identity Affects Behavior

(Shayo, Annual Review of Eoconomics, 2020)

Table 2: Conformity to Ingroup Norms

Domain (1)	**Study & Method** (2)	**Outcome variables** (3)	**Main findings** (4)	**Conformity to group higher when...** (5)
Assessments and attitudes	LAB: Abrams et al. 1990; Castelli et al. 2001; Epley & Gilovich 1999; Mackie et al. 1992, 1990; Morgan et al. 2012; Pendry & Carrick 2001; Renkema et al. 2008; Stallen et al. 2012; Tong et al. 2008; Van Cappellen et al. 2011.	Numerical assessments (e.g. line length or letter frequencies), answers to math problems, stated attitudes, evaluations, aesthetic rankings.	Conformity to the ingroup response (including when it is objectively wrong).	Ingroup member uses stereotypes; high oxytocin levels; priming conformity; not priming non-conformity (mixed)[a]; priming existential threat; priming religion (for submissive subjects); inducing a good mood; after observing more instances of ingroup behavior; when the observed ingroup behavior is more consistent; harder task.
Mimicry	LAB: Bourgeois & Hess 2008; Gump & Kulik 1997; Lakin & Chartrand 2003; Lanzetta & Englis 1989; Van Der Schalk et al. 2011.	Facial expressions (measured by EMG) and other gestures (blind video coding).	Unconscious mimicry of ingroup member's behavior and facial expressions.	Cooperative (vs. competitive) interaction expected; common threat; ingroup-outgroup difference in mimicry larger for angry and sad expressions.
Economic games & tasks	LAB: Benjamin et al. 2010, 2016.	Elicited risk and time preferences; public good contributions; trust; generosity; effort in principal-agent game.	Priming ethnic group membership, religion and gender can shift behavior in the direction of (presumed) group norms, depending on task & identity.	
Honesty	LAB: Cohn et al. 2014, 2015.	Truthful reporting under monetary incentive to lie.	Priming banker (or criminal) identity causes dishonest behavior among bankers (or criminals).	

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How Social Identity Affects Behavior

(Shayo, Annual Review of Eoconomics, 2020)

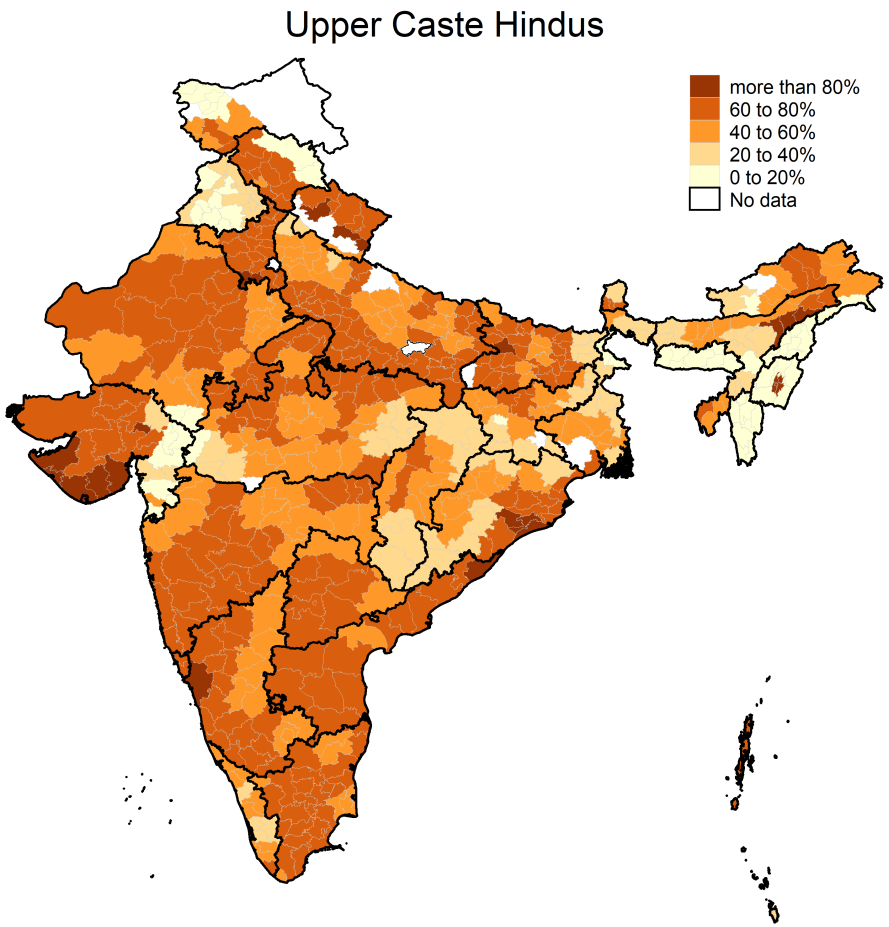
Table 2 (Continued): Conformity to Ingroup Norms

Consumer behavior	LAB: LeBoeuf et al. 2010; Reed 2004. NAT: Atkin et al. 2019; Forman et al. 2008.	Choices among products and services: purchasing decisions, buying intentions, product ranking.	Ingroup norms affect consumption decisions; choices and choice satisfaction depend on which group affiliation is more salient.	Product features are, or presented as, relevant for the salient group (mediated by level of identification); exposure to inter-group conflict; higher group status; lower cost of the group's typical bundle; product recommendations are from same-state residents.
Education	NAT: Bursztyn & Jensen 2015 FLD: Bursztyn & Jensen 2015; Afridi et al. 2015; Hoff & Pandey 2006. LAB: Shih et al. 1999	Student effort and performance; enrollment to SAT prep course; performance in incentivized exams.	Student behavior and performance tends towards (real or presumed) group typical performance.	Publicity of DM's actions; salience of group membership; DM cares about popularity.
Environ-mental conservation	FLD: Allcott 2011; Schultz et al. 2007; Nolan et al. 2008; Goldstein et al. 2008; Ferraro & Price 2013; Costa & Kahn 2013; Ayres et al. 2013. COR: Terry et al. 1999.	Consumption of a resource (water, electricity, hotel towels, gas); recycling (self reported).	Conformity to descriptive norms. Consumption decreases more among initially high consumers.	Group is more similar to DM (e.g. geographically); adding injunctive norms can attenuate "boomerang effects" [= increased consumption among initially low consumers][b]; DM is liberal (likely specific to energy conservation).
Voluntary contributions	FLD: Frey & Meier 2004; Chen et al. 2010.	Donation to charities; contributing online movie ratings.	Donate more when told higher proportion of population donated; increase number of movie ratings when below median, decrease when above.	Among people who donated in the past.
Voting	FLD: Gerber & Rogers 2009	Stated intention to vote	Higher turnout when told turnout was and is expected to be high (compared to low).	
Tax compliance	FLD: Hallsworth et al. 2017.	Whether and when overdue taxes were paid.	Tax payments increase when told most people pay on time (descriptive norm), or most people agree everyone should pay on time (injunctive norm).	Being told non-payers are very small minority; group is more similar to DM (in locality or in debt size).

Notes:
[a] Pendry & Carrick (2001) find an effect for priming non-conformity, Epley & Gilovich (1999) do not.

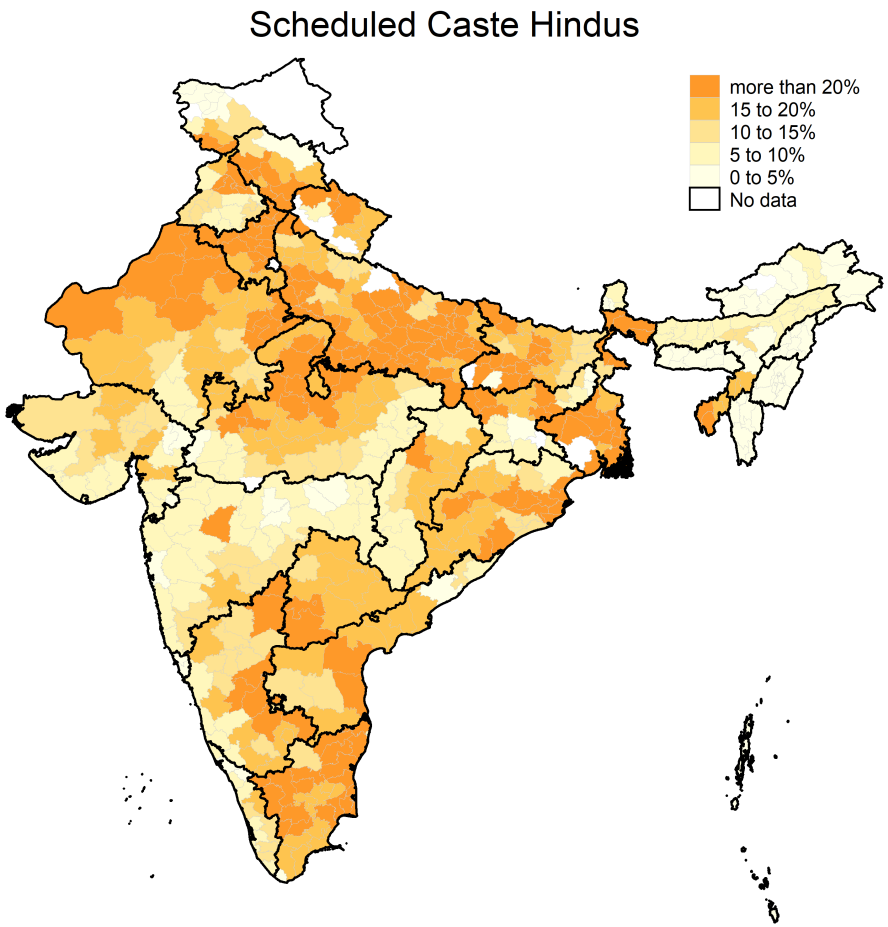
Back

Fraction of Upper Castes by District, 1999-2000



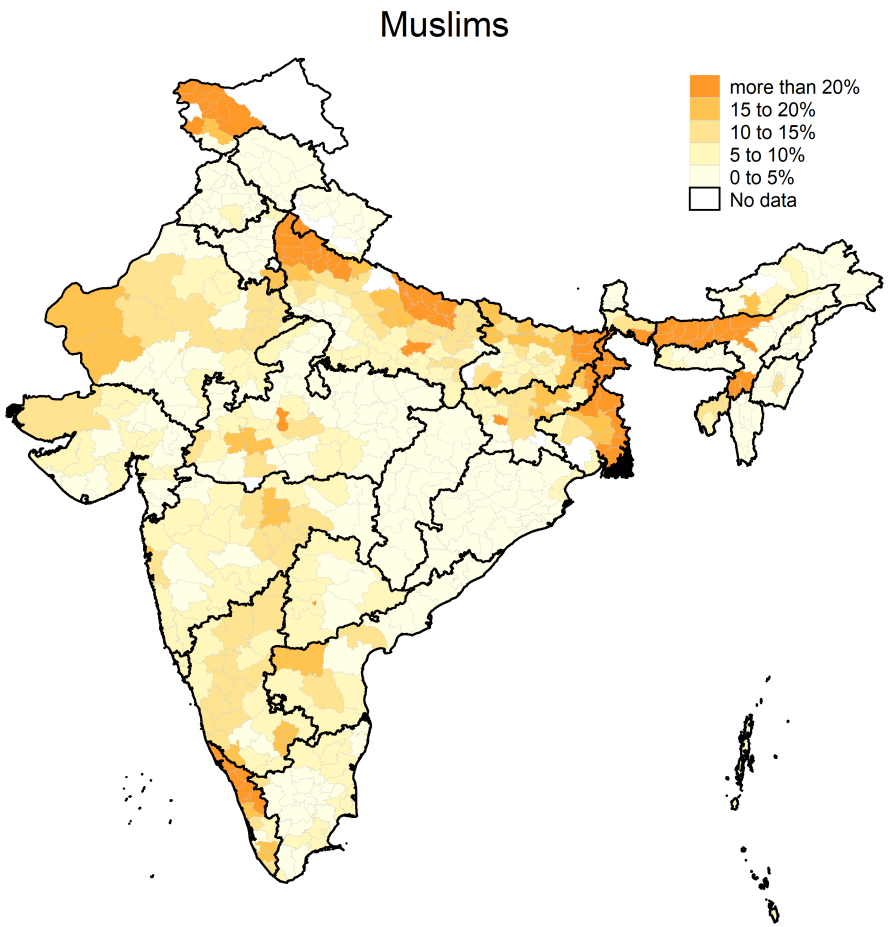
Back

Fraction of Scheduled Castes by District, 1999-2000



Back

Fraction of Muslims by District, 1999-2000



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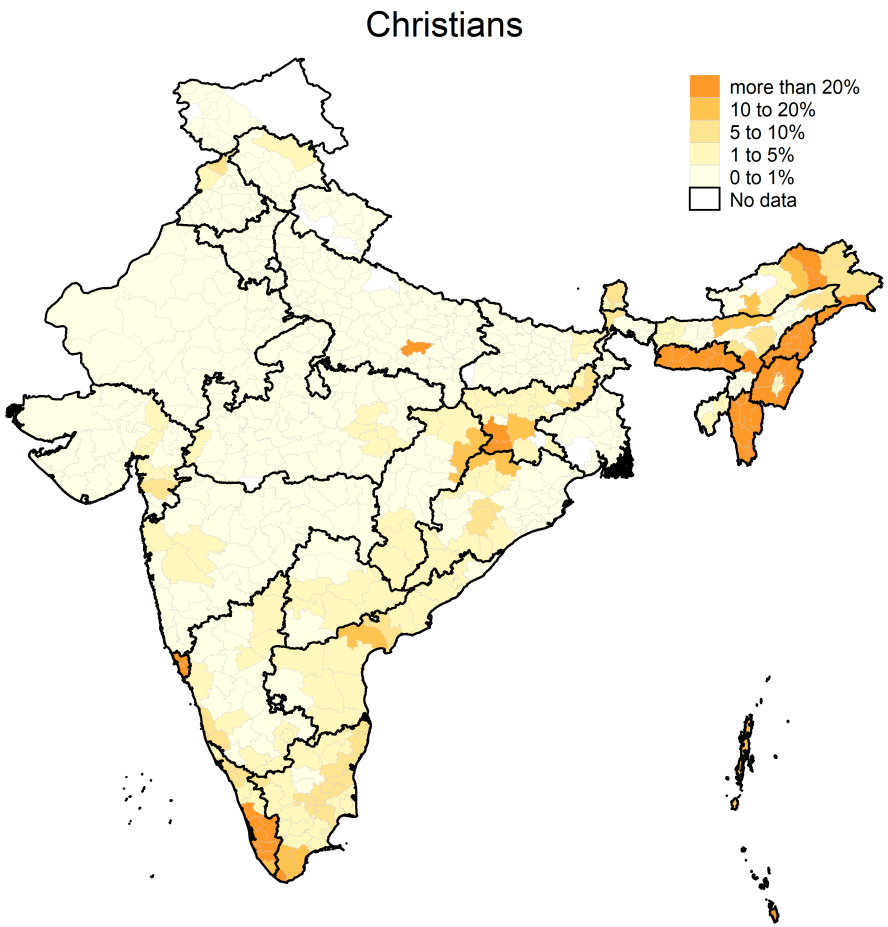
Fraction of Christians by District, 1999-2000



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Butcher Shares by Religion

	Butchers		Households	
	Count	Weighted Share	Count	Weighted Share
Hindus	703	0.514	284,905	0.827
Muslims	561	0.451	42,145	0.119
Christians	55	0.022	19,549	0.023
Sikhs	12	0.006	8,561	0.019
Jains	0	0.000	1,478	0.003
Budhists	4	0.005	3,175	0.006
Zoroastrians	1	0.000	126	0.000
Other Religions	6	0.004	3,593	0.004
Total	1,342	1	363,532	1

Note: Pooled sample from NSS rounds 43, 50 and 55. Butchers defined as households with primary occupation "butchers and meat preparers", and/or primary industry "slaughtering, preservation or preparation of meat" or "retail trade in meat, fish and poultry".

◂ Back2

Event study: 1993-1994

- Examine consumption before/after first conflict in region, relative to Hindu upper caste.

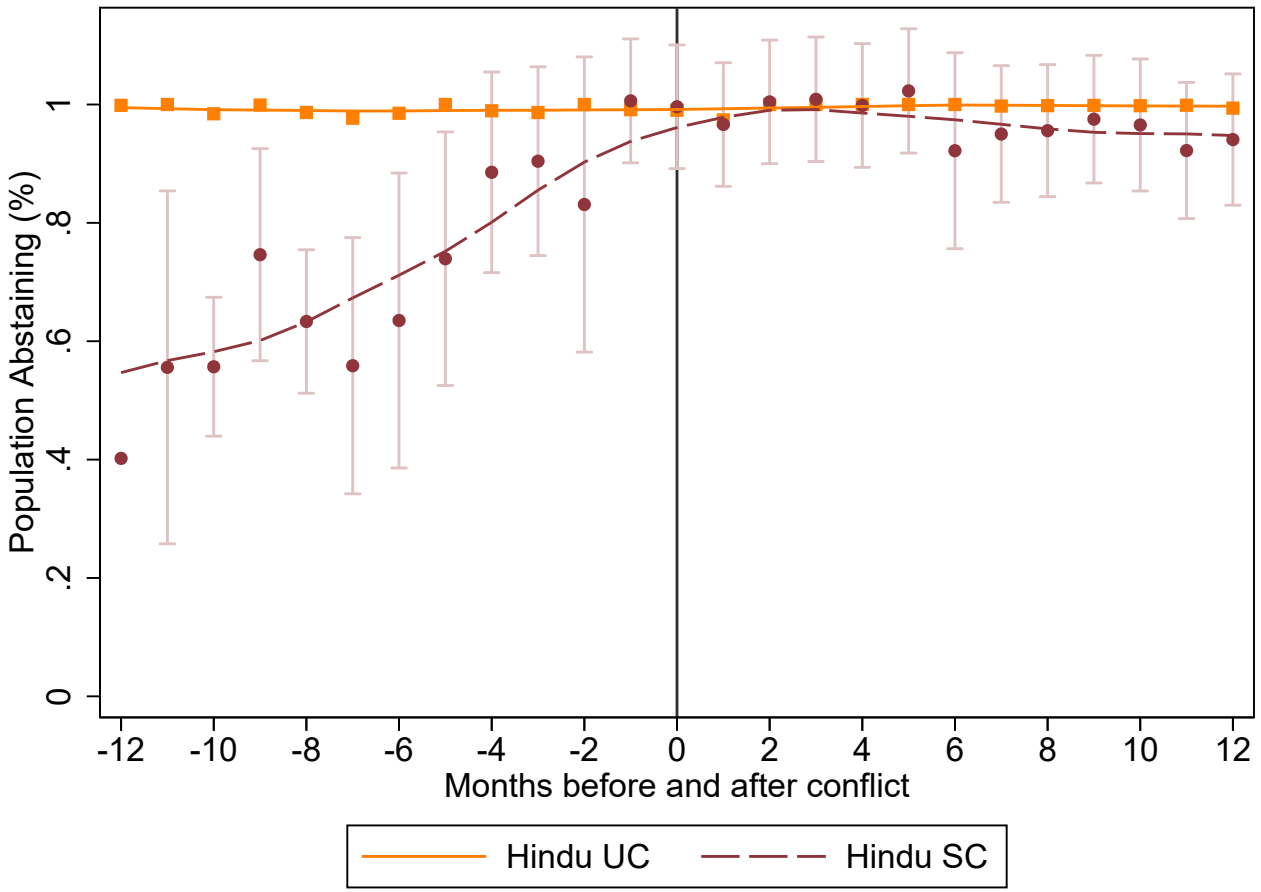
$$x_{hgt} = \sum_{m=-12}^{12} \theta_m^{SC} SC_h \times Conflict_{g,t-m} + \sum_{m=-12}^{12} \theta_m^{M} Muslim_h \times Conflict_{g,t-m} + SC_h + Muslim_h + \delta_{gt} + \gamma_1 \ln price_{ht} + \gamma_2 \ln realfoodexp_{ht} + \varepsilon_{hgt}$$

where

- $x_{hgt} \in \{0,1\}$ is indicator for non consumption of beef/pork by household h in region g at month t
- $Conflict_{g,t}$ = indicator for Hindu-Muslim riot in region g at month t
- $price_{ht}$ = local price of good, $realfoodexp_{ht}$ is total pc food expenditure deflated by Stone price index
- include region-month and religion FE (everything relative to Hindu UC); ε_{hgt} clustered by region*month.

◂ Back

Conflict and Conditional Beef Avoidance for Hindus



NSS round 50, conditional on prices, real incomes, religion FEs & regionXmonth FEs.

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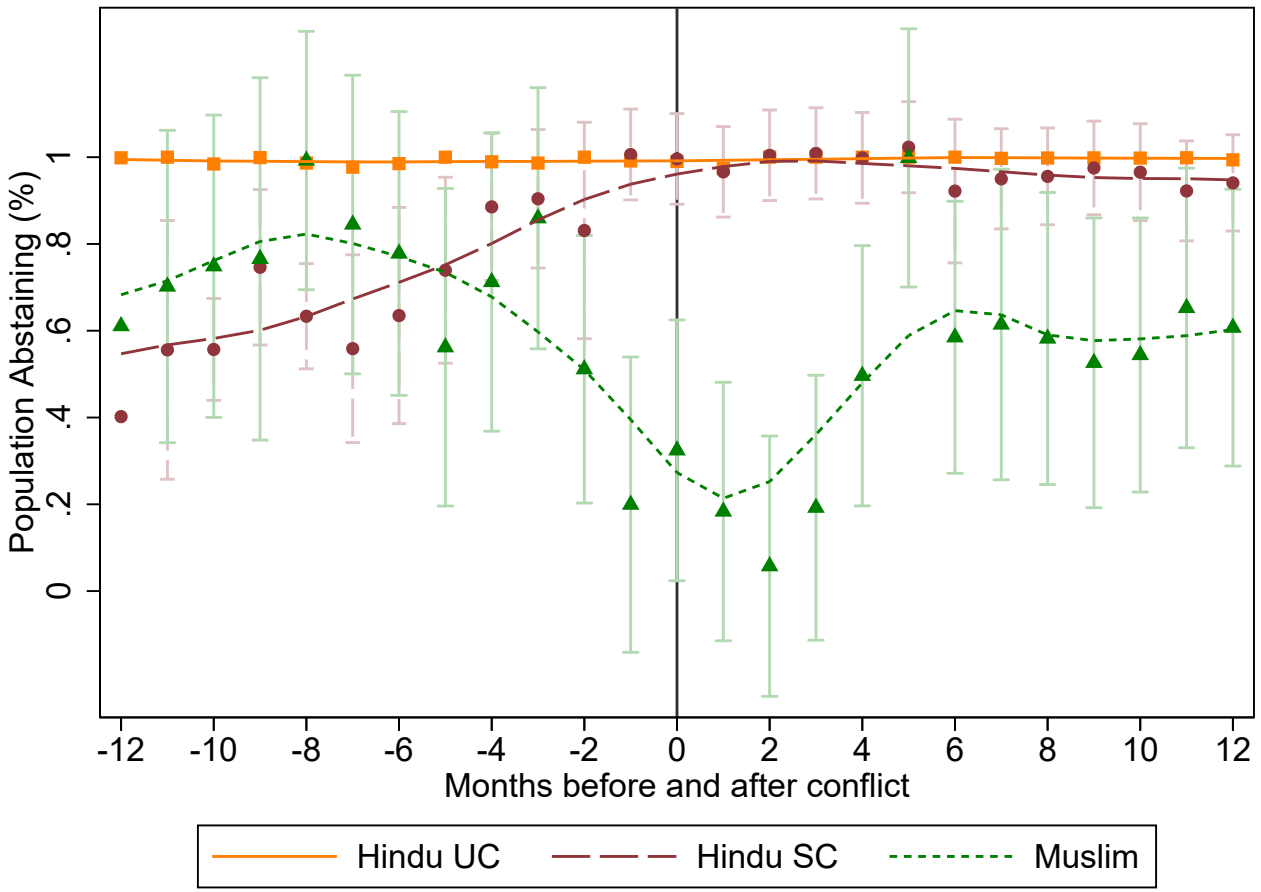
Conflict and Conditional Beef Avoidance



NSS round 50, conditional on prices, real incomes, religion FEs & regionXmonth FEs.

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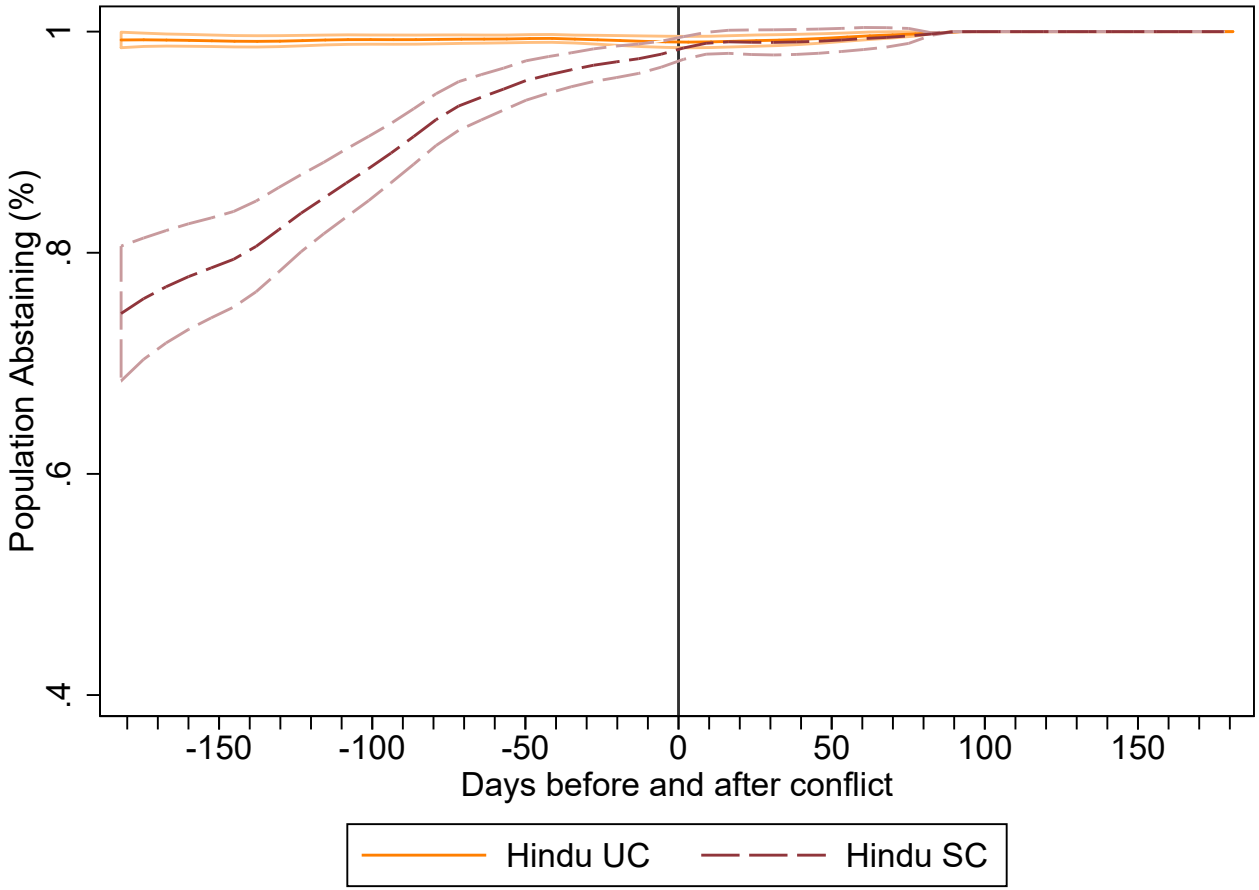
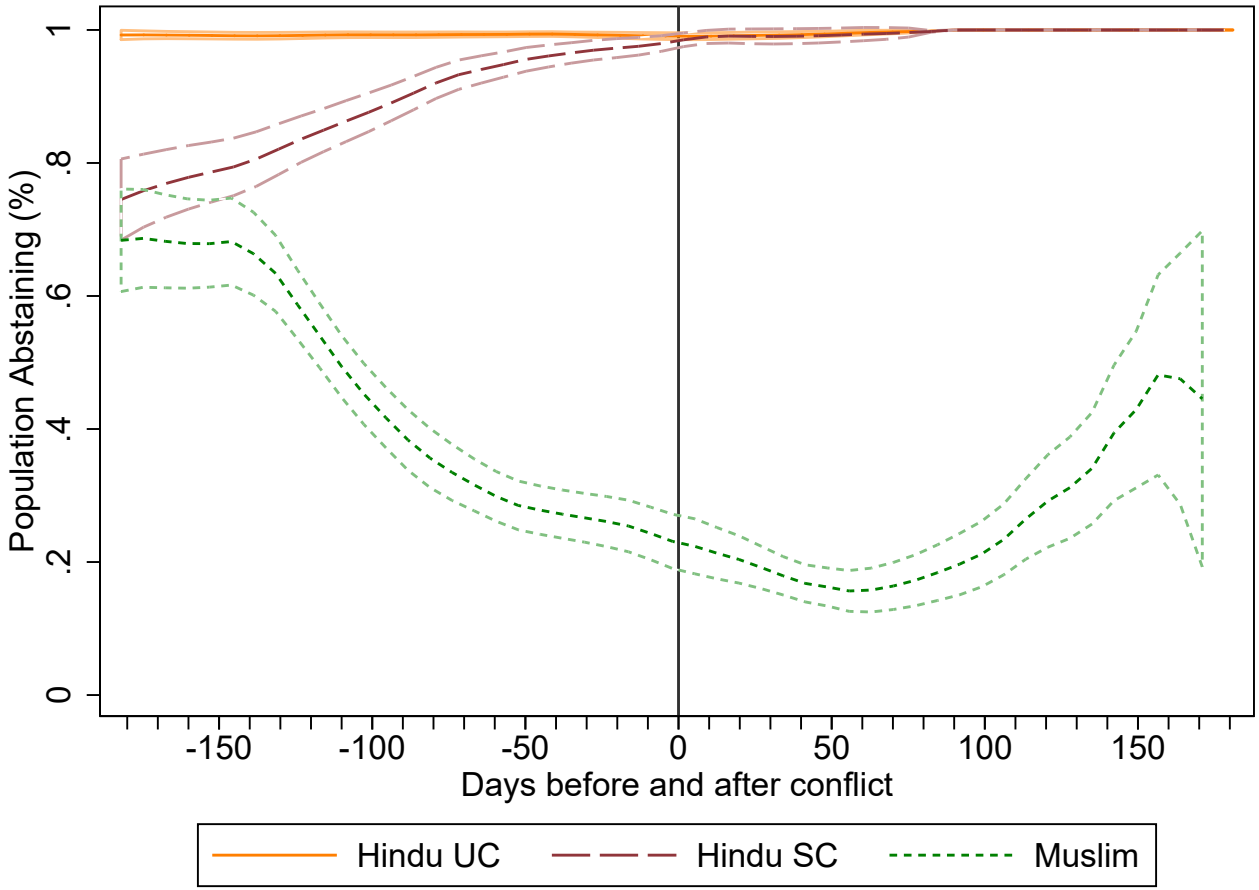
Conflict and Beef Avoidance for Hindus (Restricted)



NSS round 50, restricted to regions surveyed both before and after a conflict in a year interval.

Back

Conflict and Beef Avoidance (Restricted)



NSS round 50, restricted to regions surveyed both before and after a conflict in a year interval.

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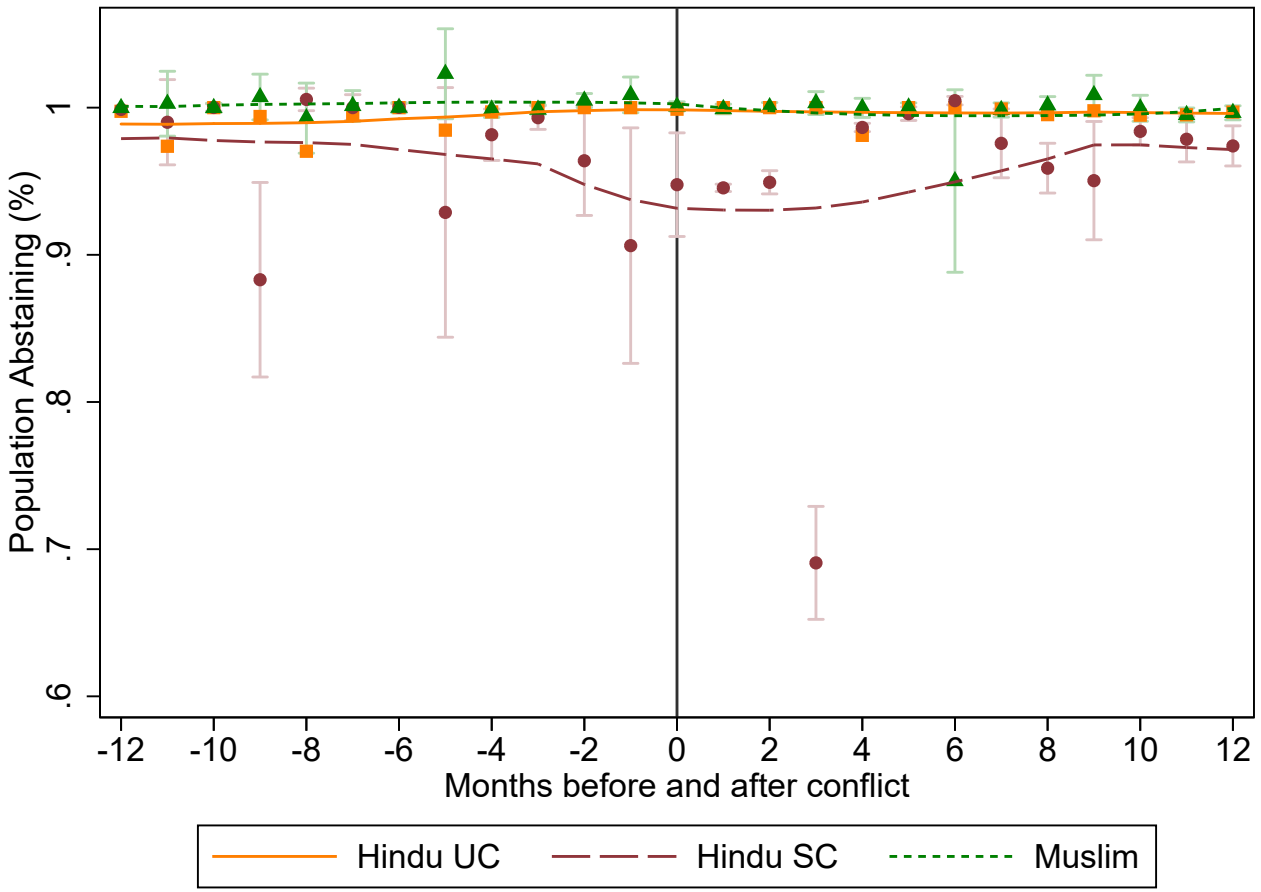
Conflict and Conditional Pork Avoidance



NSS round 50, conditional on prices, real incomes, religion FEs & regionXmonth FEs.

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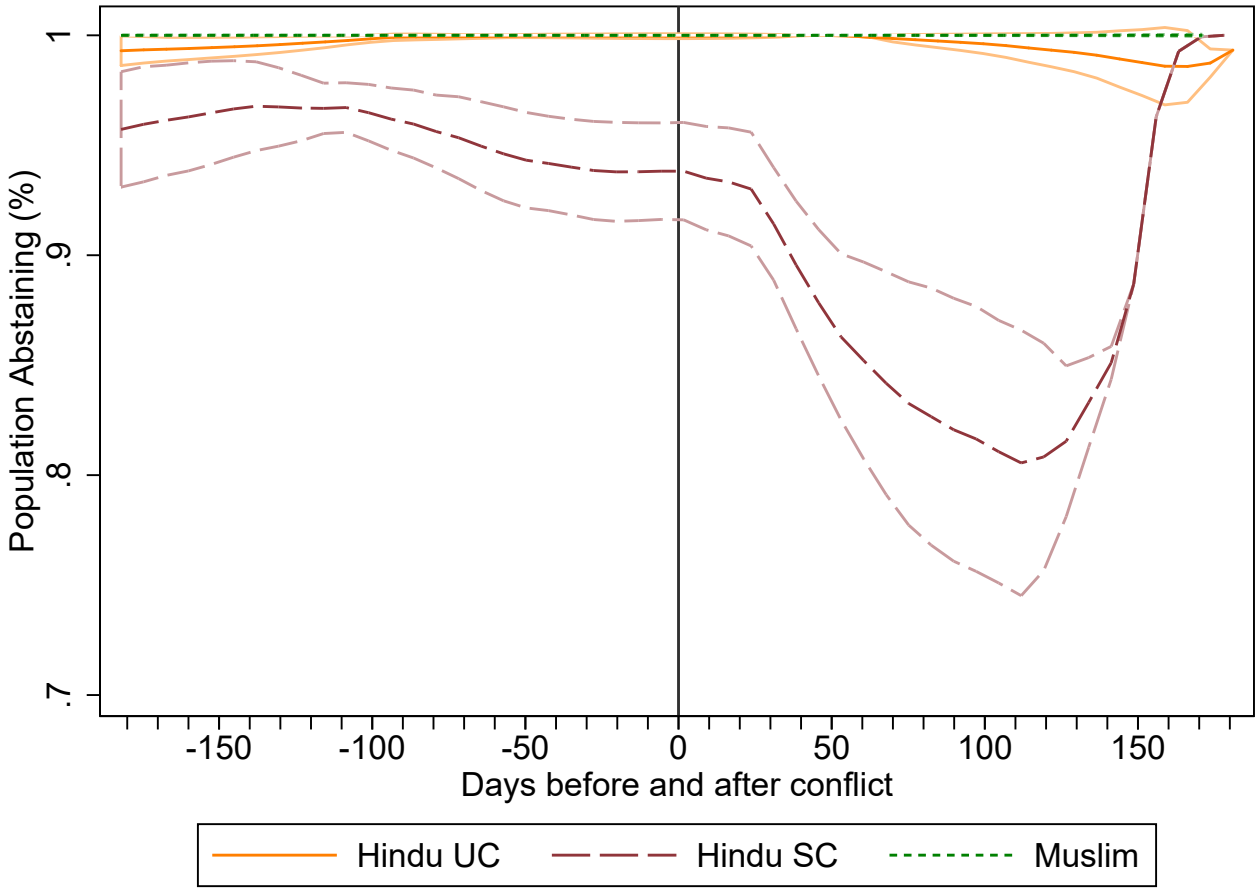
Conflict and Pork Avoidance (Restricted)



NSS round 50, restricted to regions surveyed both before and after a conflict in a year interval.

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Conflict and Beef Avoidance, High and Low Fractionalization

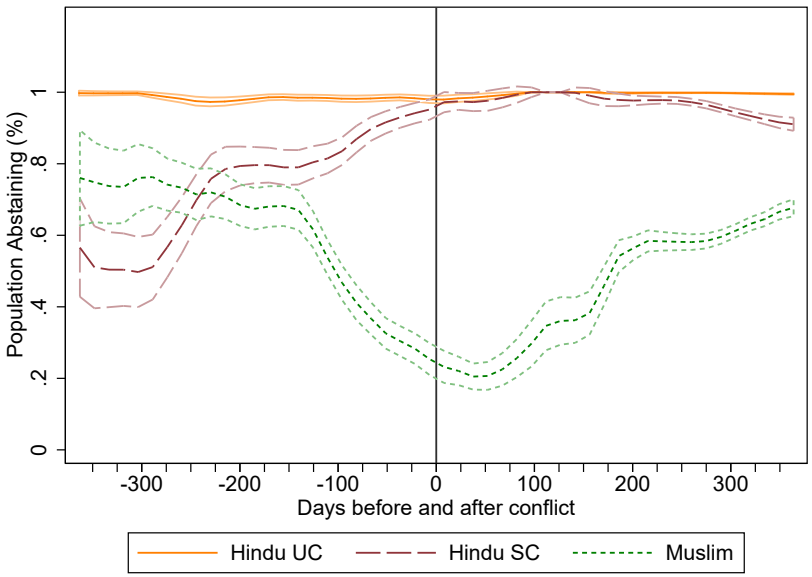


Figure: High Fractionalization

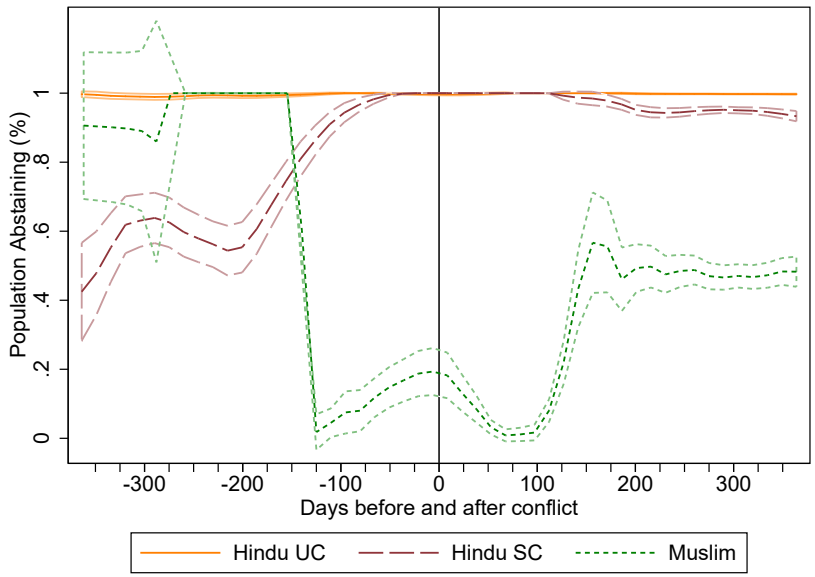


Figure: Low Fractionalization

Note: $Frac = 1 - \sum_r \pi_r^2$ where π_r is fraction of hh's in FSU belonging to religion r. *Frac* is thus the probability of randomly drawing two hh's that do not share the same religious taboo. Figures show above/below median *Frac* subsamples.

◂ Back

Conflict and Pork Avoidance, High and Low Fractionalization

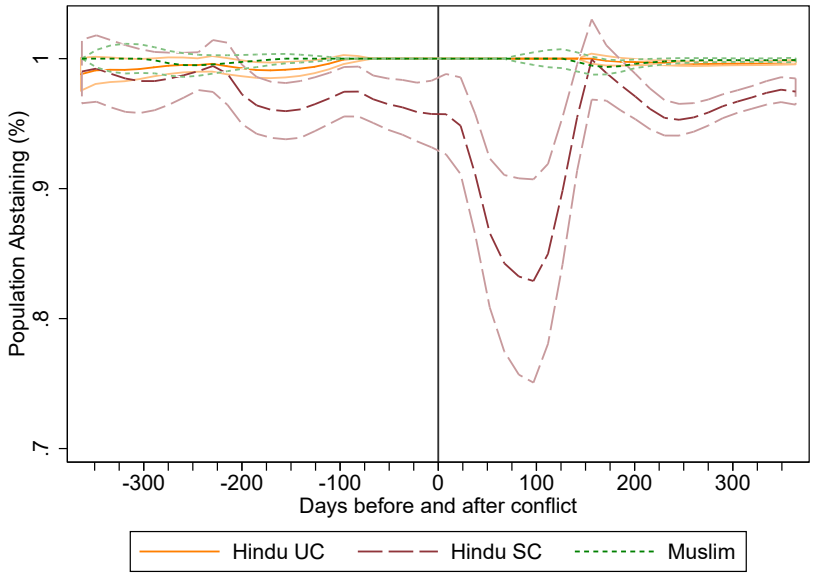
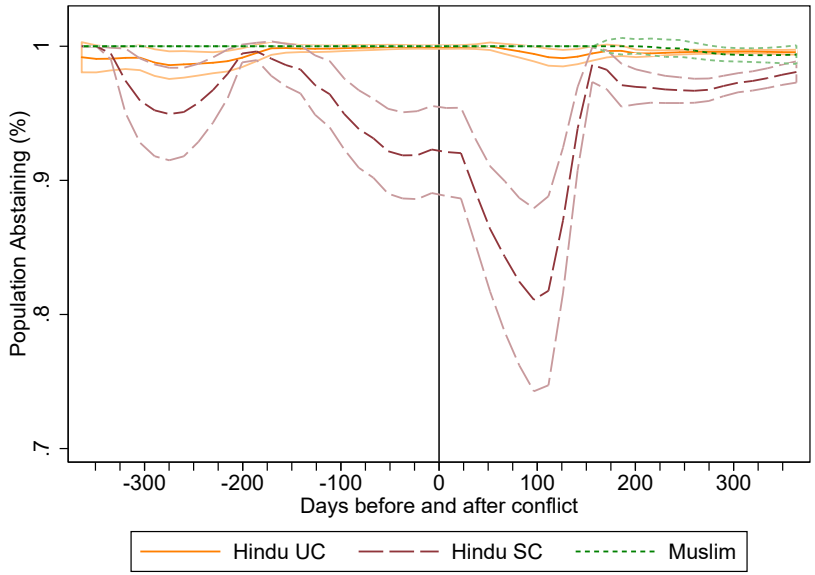


Figure: High Fractionalization



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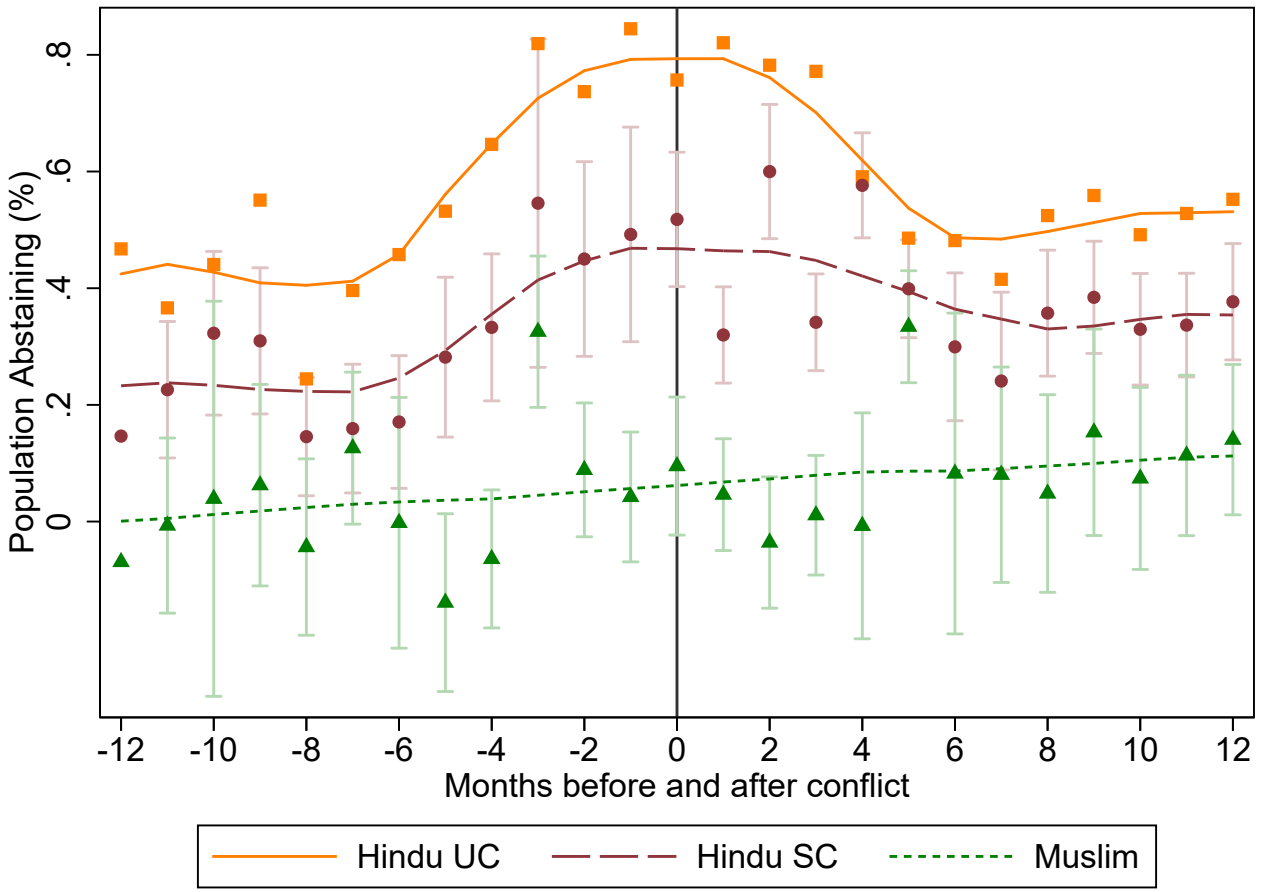
◂ Back

Conflict and Conditional Meat Avoidance



NSS round 50, conditional on prices, real incomes, religion FEs & regionXmonth FEs.

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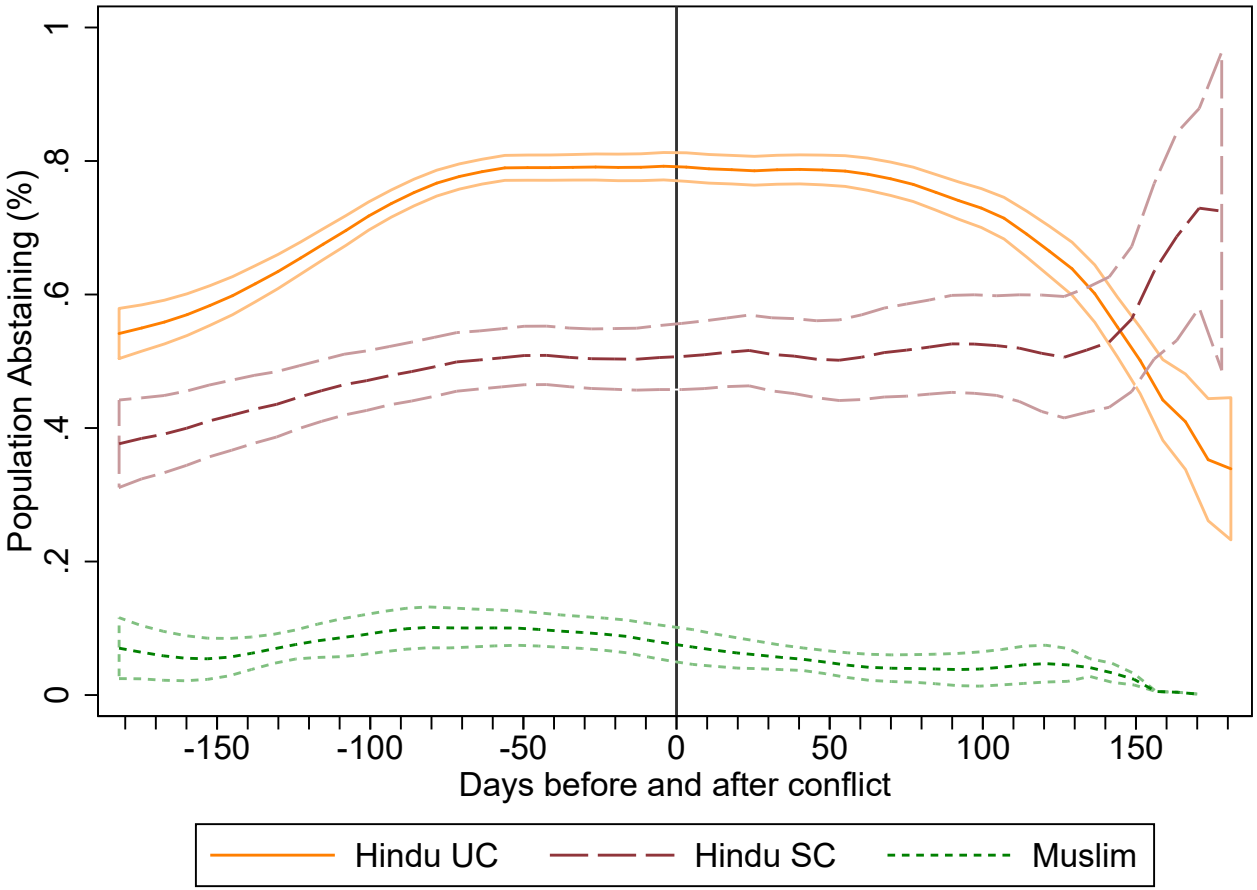
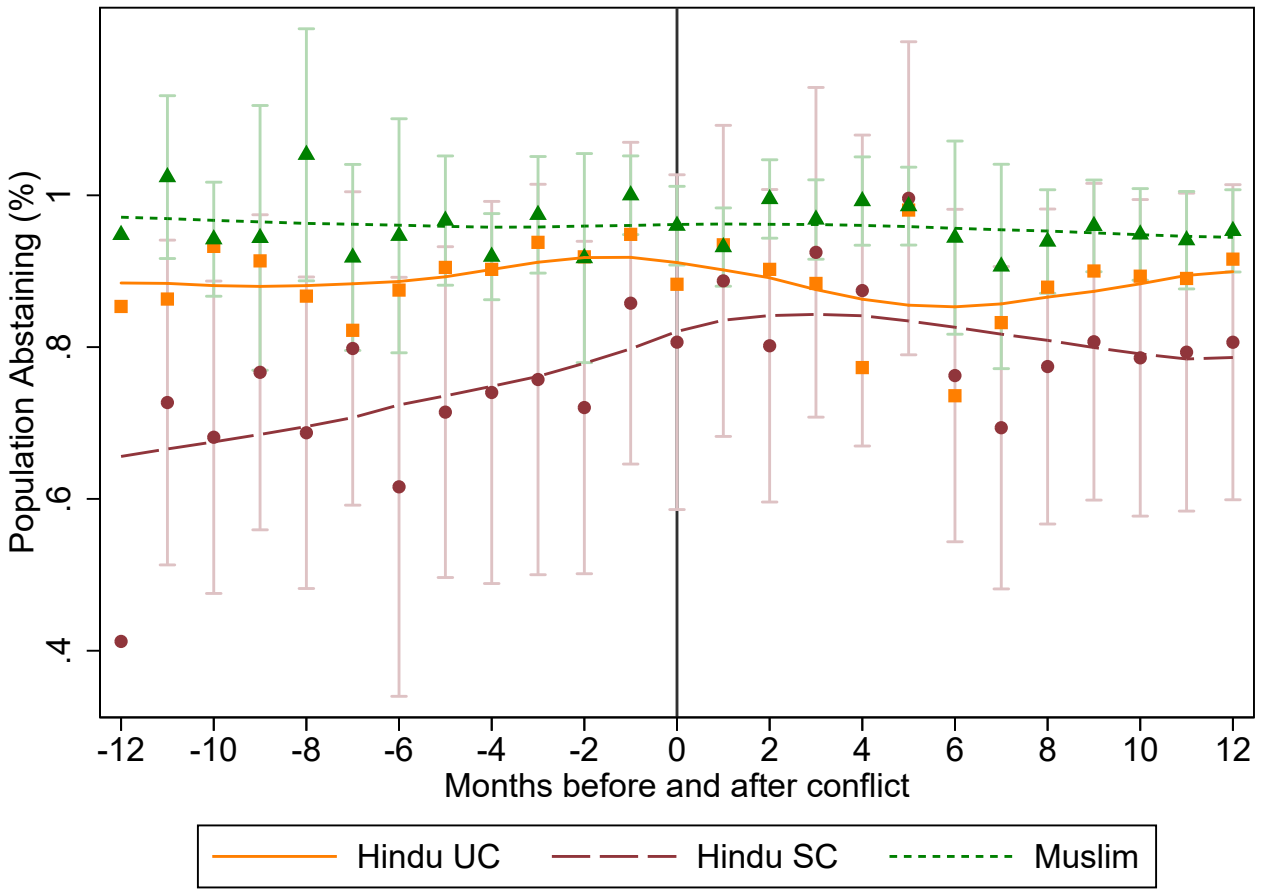
Conflict and Meat Avoidance (Restricted)



NSS round 50, restricted to regions surveyed both before and after a conflict in a year interval.

◂ Back

Conflict and Conditional Alcohol Avoidance



NSS round 50, conditional on prices, real incomes, religion FEs & regionXmonth FEs.

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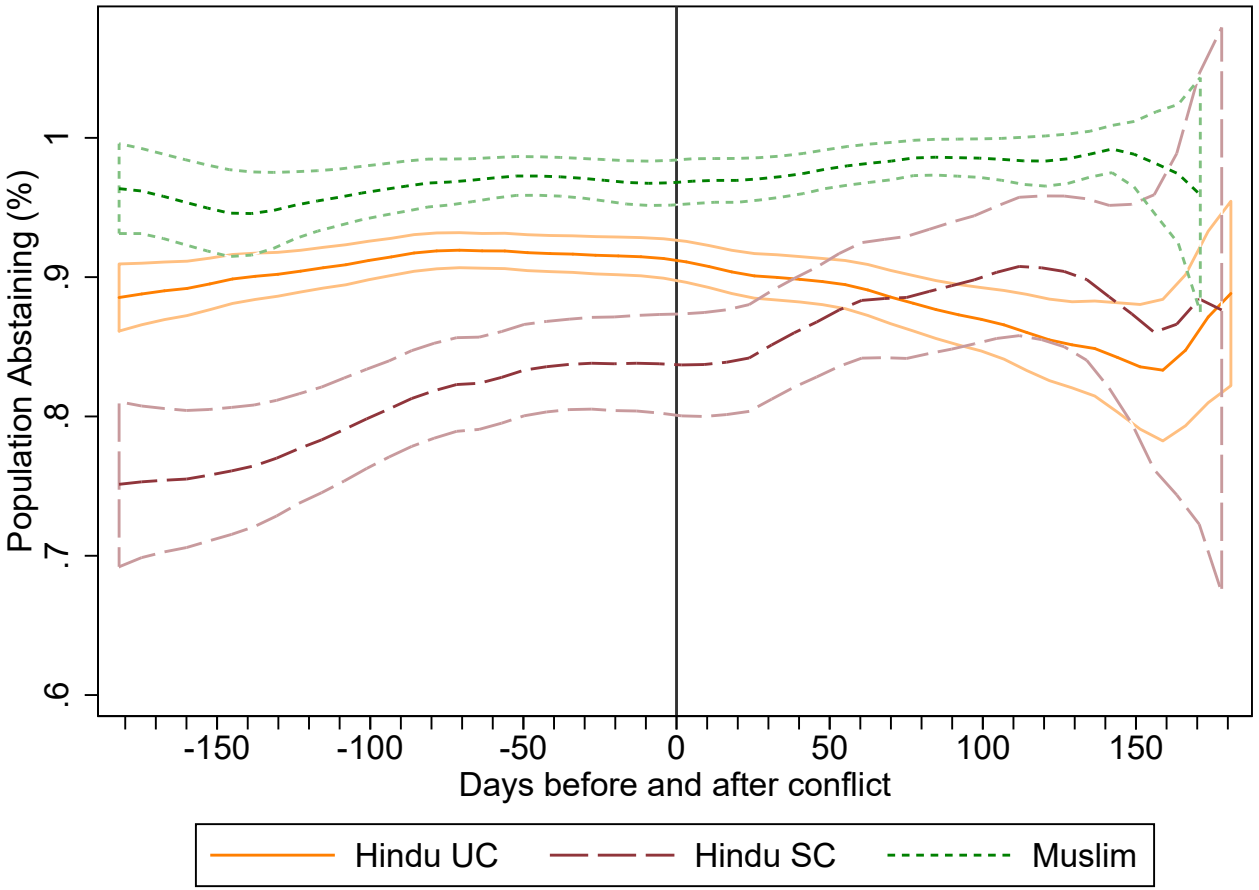
Conflict and Alcohol Avoidance (Restricted)



NSS round 50, restricted to regions surveyed both before and after a conflict in a year interval.

◂ Back

Conflict and Chicken Avoidance

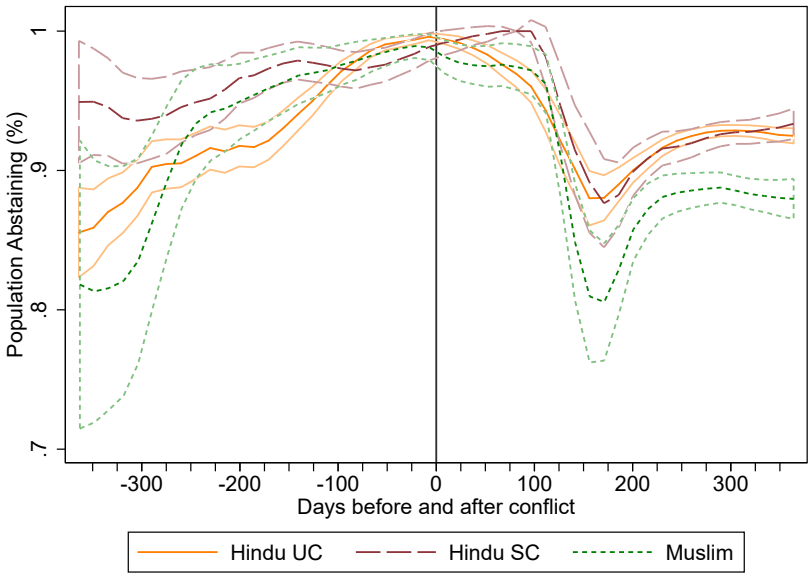


Figure: Unconditional

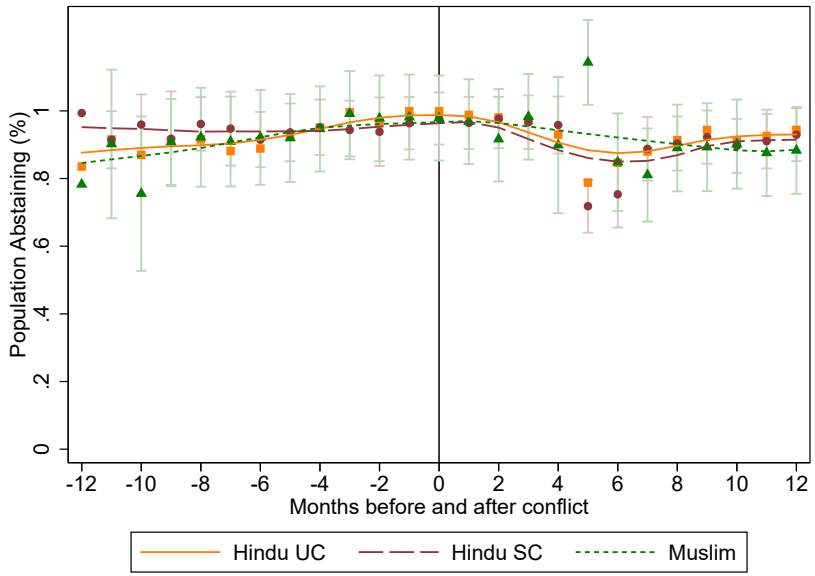


Figure: Conditional

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Conflict and Mutton Avoidance

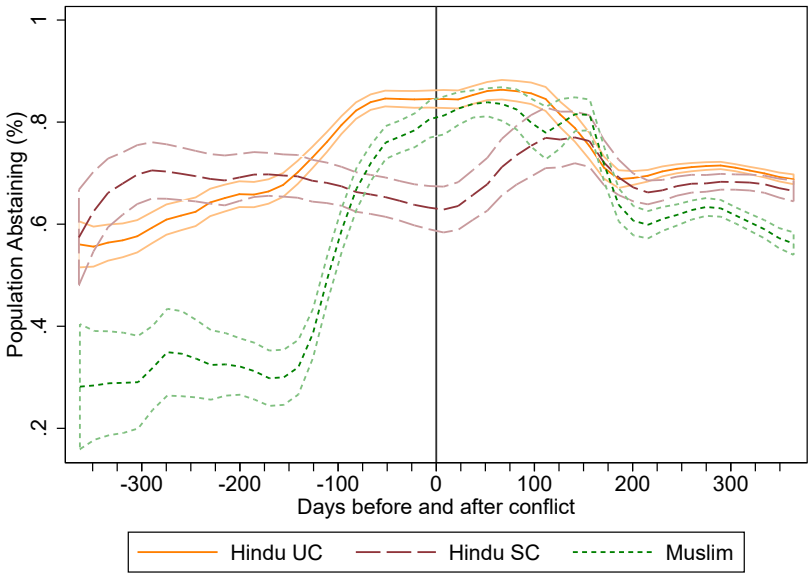

Figure: Unconditional

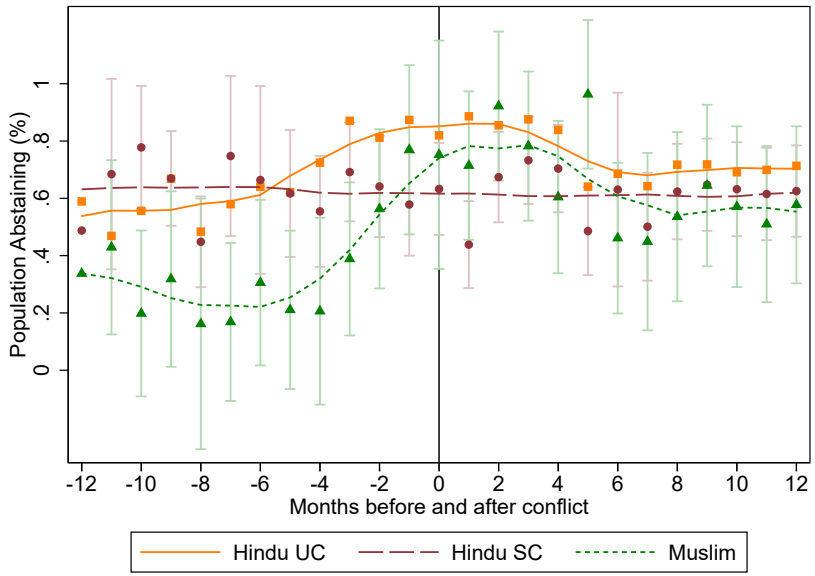

Figure: Conditional

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Two Other Religious Taboos

First: "Veg or Non-Veg?"

One can never obtain meat without causing injury to living beings... There is no greater sinner than a man who, outside of an offering to gods or ancestors, wants to make his own flesh thrive at the expense of someone else's.

Manusmriti, 5.48-5.52

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Pork Taboo

- *He has forbidden you only carrion, blood, the flesh of the swine, and that which has been offered to other than Allah.*

The Qur'an, Surah Al-Baqarah 2:173

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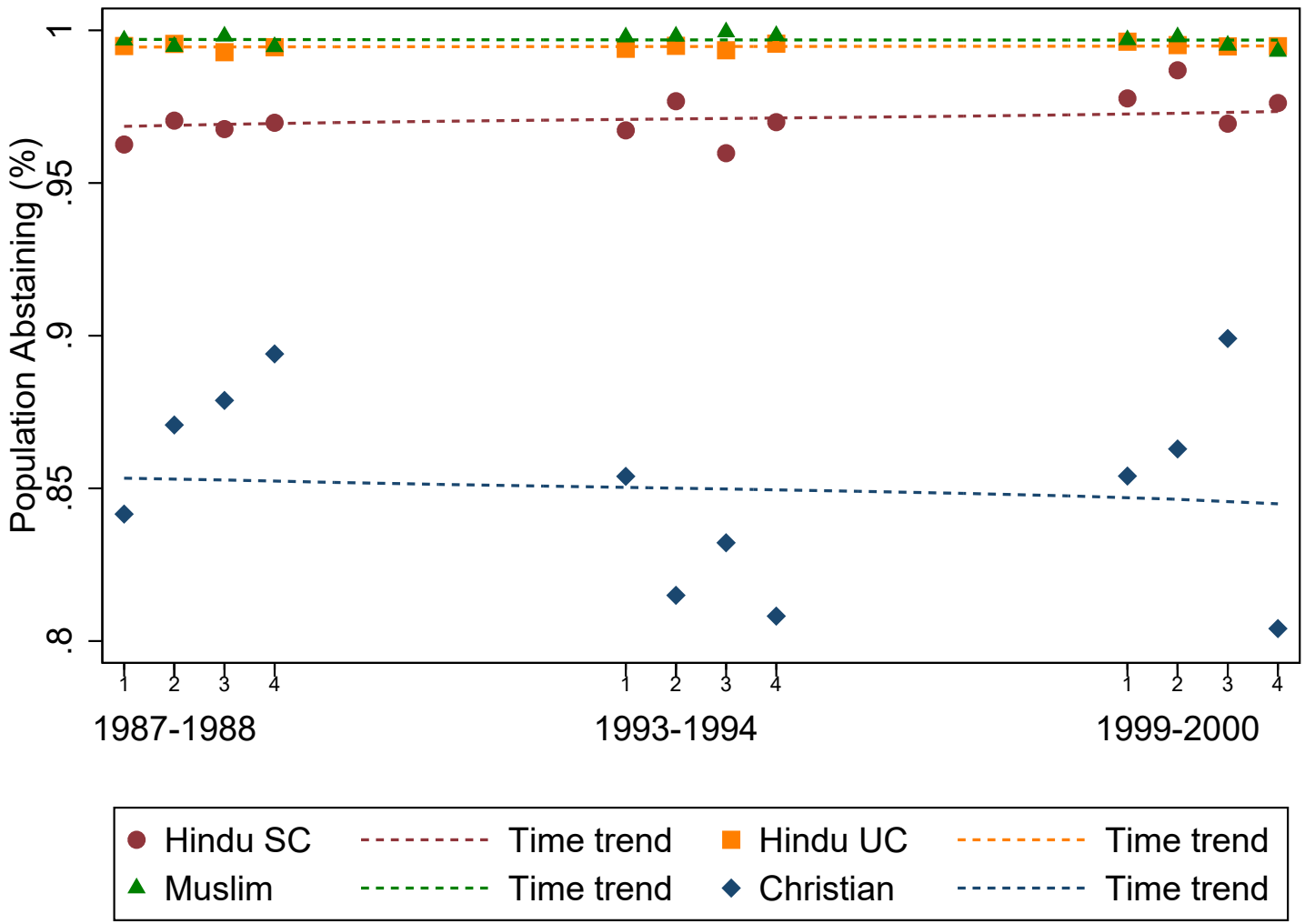
Proportion Not Consuming Pork by Religion



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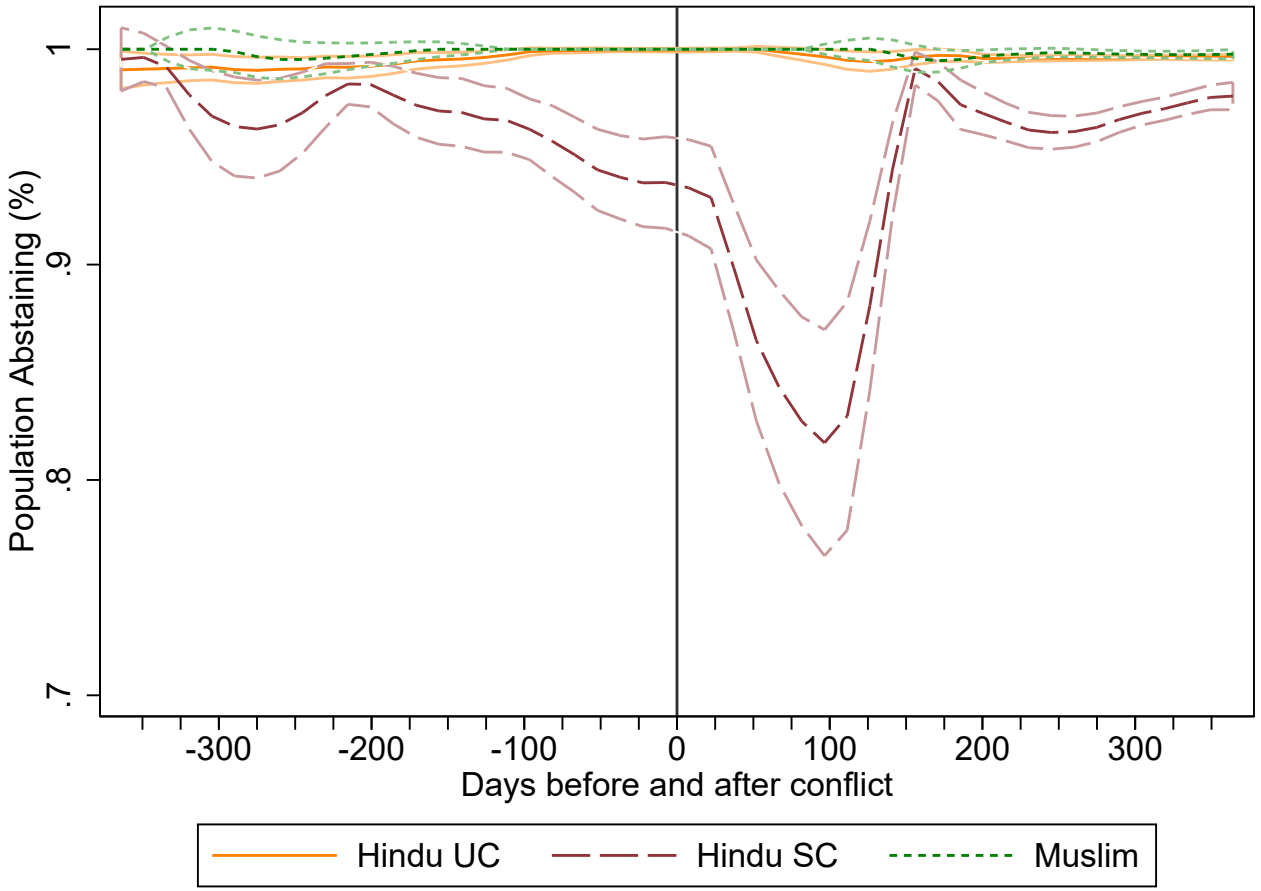
Conflict and Pork Avoidance



NSS round 50, fraction of population abstaining from meat consumption, unconditional.

▸ Pork Avoidance, Event Study with Controls ▸ Pork Avoidance, Restricted Event Study ◂ Back

Alcohol Taboo

- *Satan only wants to cause between you animosity and hatred through intoxicants and gambling and to avert you from the remembrance of Allah and from prayer. So will you not desist?*

The Qur'an, Surat 5:91

- *The wretched Brahmin who from this day, unable to resist the temptation, will drink wine shall be regarded as having lost his virtue, shall be reckoned to have committed the sin of slaying a Brahmin, shall be hated both in this and the other worlds.*

Mahabharata, Adi Parva, 76

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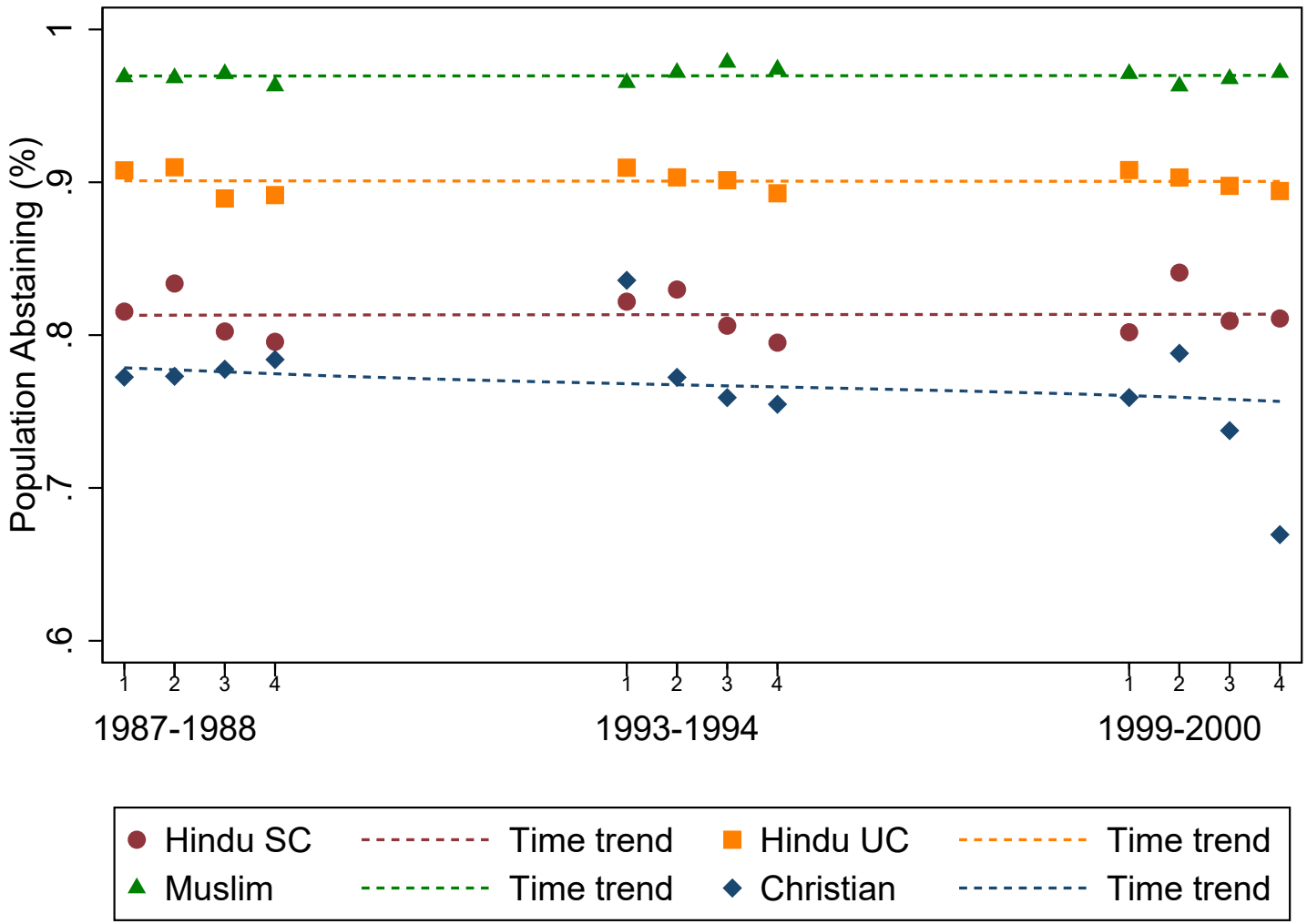
Proportion Not Consuming Alcohol by Religion



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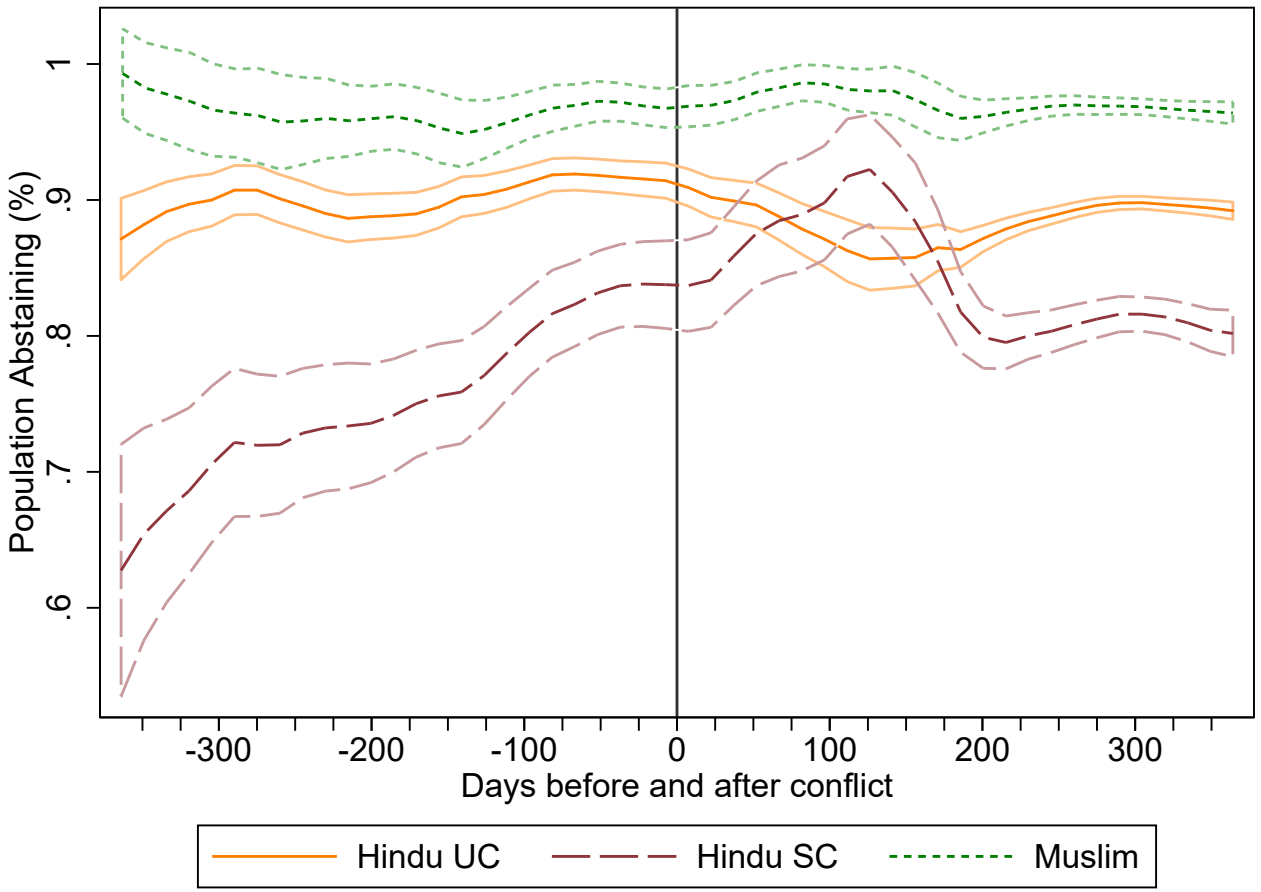
Conflict and Alcohol Avoidance



NSS round 50, fraction of population abstaining from alcohol consumption, unconditional.

▸ Alcohol Avoidance, Event Study with Controls ▸ Alcohol Avoidance, Restricted Event Study ◂ Back

Taboos and Number of Fatalities

	LHS Variable: Abstain from Consuming Good i		
	Baseline	Cross-section	Panel
	(1)	(2)	(3)
taboo=1	0.185***		
	(0.00360)		
taboo=1 × log fatalities	0.0439***	0.00782	0.0118**
	(0.00889)	(0.00587)	(0.00596)
Observations	1115640	1115292	1114116
Adjusted R^2	0.560	0.585	0.596
log prices and total expenditure controls	Yes	Yes	Yes
product*district*round*quarter	Yes	Yes	Yes
religion*district*round*quarter	Yes	Yes	Yes
religion*state*product*round*quarter	No	Yes	No
religion*state*product*district*quarter	No	No	Yes

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Taboos and Conflict (4 Quarter Leads and Lags)

	LHS Variable: Abstain from Consuming Good *i*		
	Panel		
	(1)	(2)	(3)
taboo=1 × conflict t-0 quarter	0.0527***	0.0522***	0.0517***
	(0.0172)	(0.0171)	(0.0168)
taboo=1 × conflict t-1 quarter		0.0381***	0.0378***
		(0.0141)	(0.0143)
taboo=1 × conflict t-2 quarter		0.0468***	0.0473***
		(0.0131)	(0.0132)
taboo=1 × conflict t-3 quarter		0.00630	0.00712
		(0.0131)	(0.0129)
taboo=1 × conflict t-4 quarter		-0.00995	-0.00918
		(0.0137)	(0.0138)
taboo=1 × conflict t+1 quarter			0.0209
			(0.0157)
taboo=1 × conflict t+2 quarter			0.00415
			(0.0170)
taboo=1 × conflict t+3 quarter			0.0237
			(0.0151)
taboo=1 × conflict t+4 quarter			-0.0218
			(0.0302)
Observations	1114116	1114116	1114116
Adjusted R^2	0.596	0.596	0.596
log prices and total expenditure controls	Yes	Yes	Yes
product*district*round*quarter	Yes	Yes	Yes
religion*district*round*quarter	Yes	Yes	Yes
religion*state*product*round*quarter	No	No	No
religion*state*product*district*quarter	Yes	Yes	Yes

◂ Back

Ethnic Goods and State Splits

- Did districts tilt consumption towards their ethnic cereal as highly salient state split approached?
- And more so in districts along new state border.

- For household h in district d, ethnicity (future state) s, in round-quarter t, consuming good i:

$$\text{CerealShare}_{ihdsqt} = \theta_1 \text{EthnicCereal}_{is} \times \text{Round}_{93-94} + \theta_2 \text{EthnicCereal}_{is} \times \text{Round}_{99-00} + \sum_j \gamma_{1ij} \ln price_{jht} + \gamma_{2i} \ln realfoodexp_{ht} + \delta_{is_o t} + \delta_{idq} + \varepsilon_{iht}$$

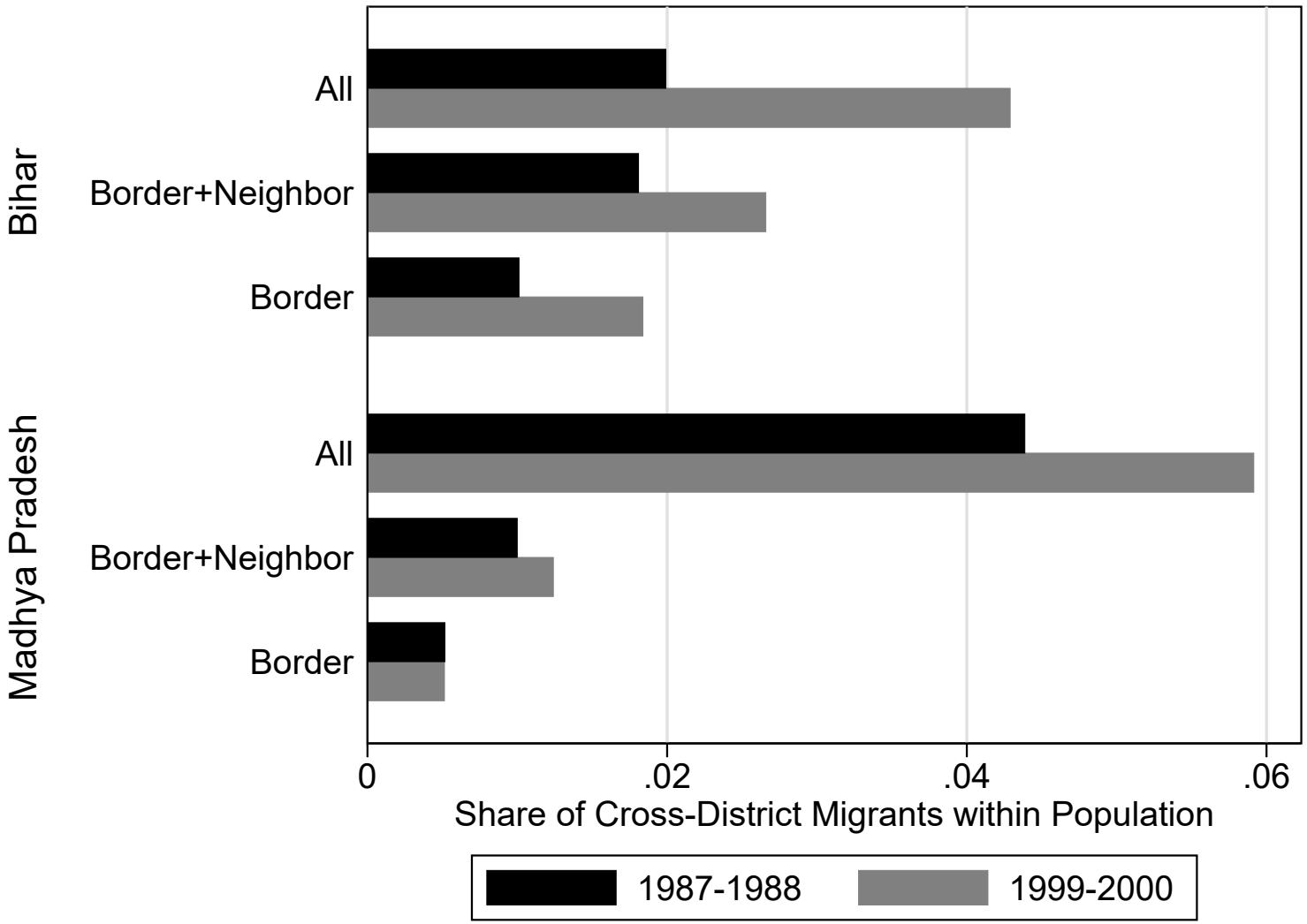
  - $\text{CerealShare}_{ihdsqt}$= share of cereal expend on $i \in \{$rice, wheat,other$\}$.
  - EthnicCereal_{is} = indicator for i being an ethnic cereal in future state s.
  - Round_{XX-XX} = indicator for each NSS survey round.
  - $\delta_{is_o t}$= fixed effects for old-state s_o-level supply/demand conditions.
  - δ_{idq} = fixed effects control for product-district-season level differences.
  - ε_{iht} clustered at dt level.

Ethnic Goods and State Splits

	LHS Variable: Share Spent on Cereal i				
	(1) All Regions	(2) Border Regions	(3) All Districts	(4) Border+Neighbor Districts	(5) Border Districts
Ethnic Cereal × 1987-1988	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)
Ethnic Cereal × 1993-1994	0.0300**	0.0374***	0	0	0
	(0.0130)	(0.0135)	(.)	(.)	(.)
Ethnic Cereal × 1999-2000	0.0691***	0.0760***	0.0553***	0.0623***	0.0929***
	(0.0124)	(0.0122)	(0.00858)	(0.0129)	(0.0180)
Observations	128023	70379	93114	39710	23730
Adjusted R^2	0.732	0.772	0.793	0.830	0.836
log prices and total expenditure controls	Yes	Yes	Yes	Yes	Yes
oldstate*round*quarter*product	Yes	Yes	Yes	Yes	Yes
region*quarter*product	Yes	Yes	No	No	No
district*quarter*product	No	No	Yes	Yes	Yes

- Note: All survey rounds occur *before* November 2000 split, so results not driven by state-level border taxes.
- No differential cross-district migration: ▸ Cross-District Migration ◂ Back

Cross-District Migration and State Splits



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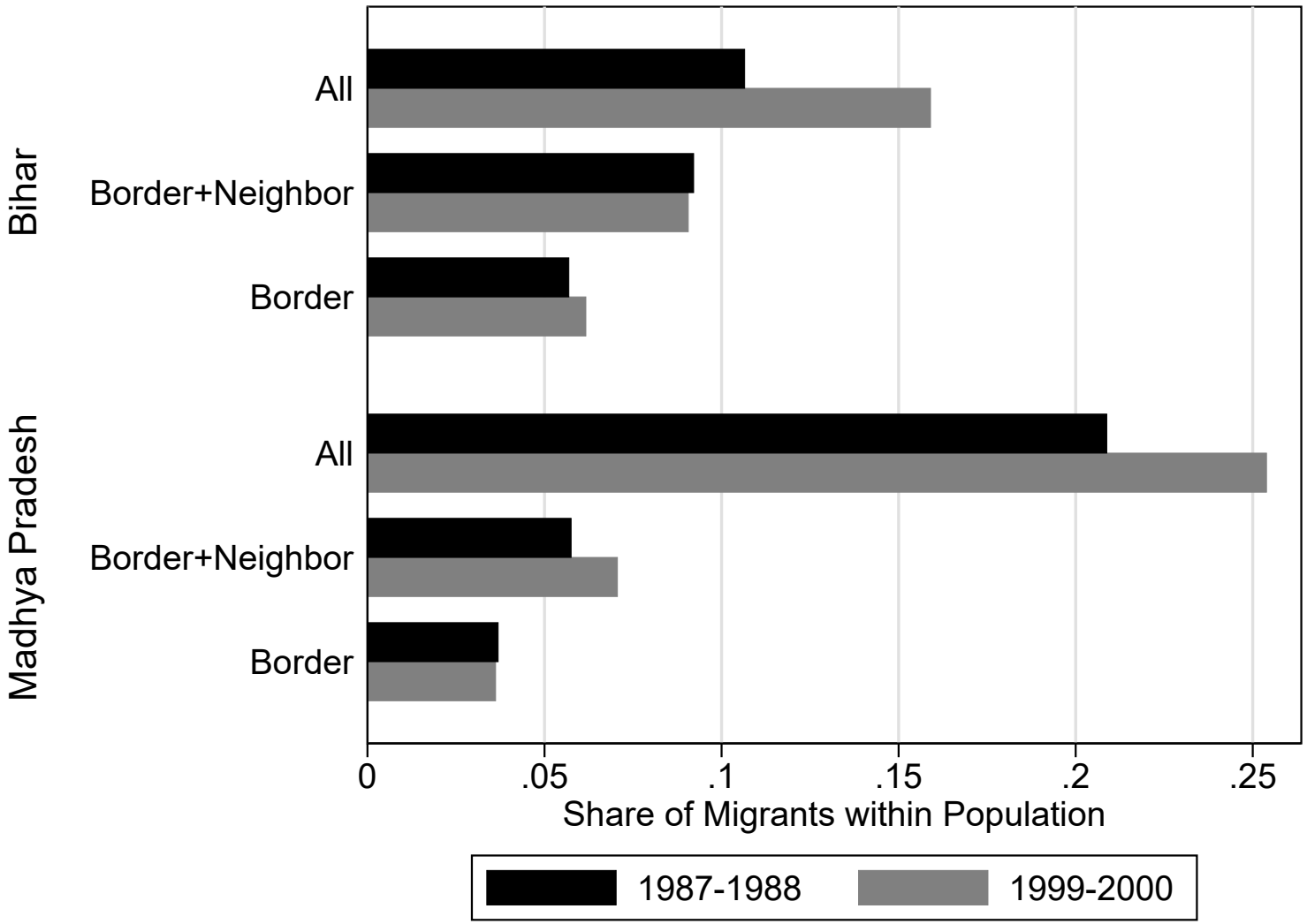
All Migration and State Splits



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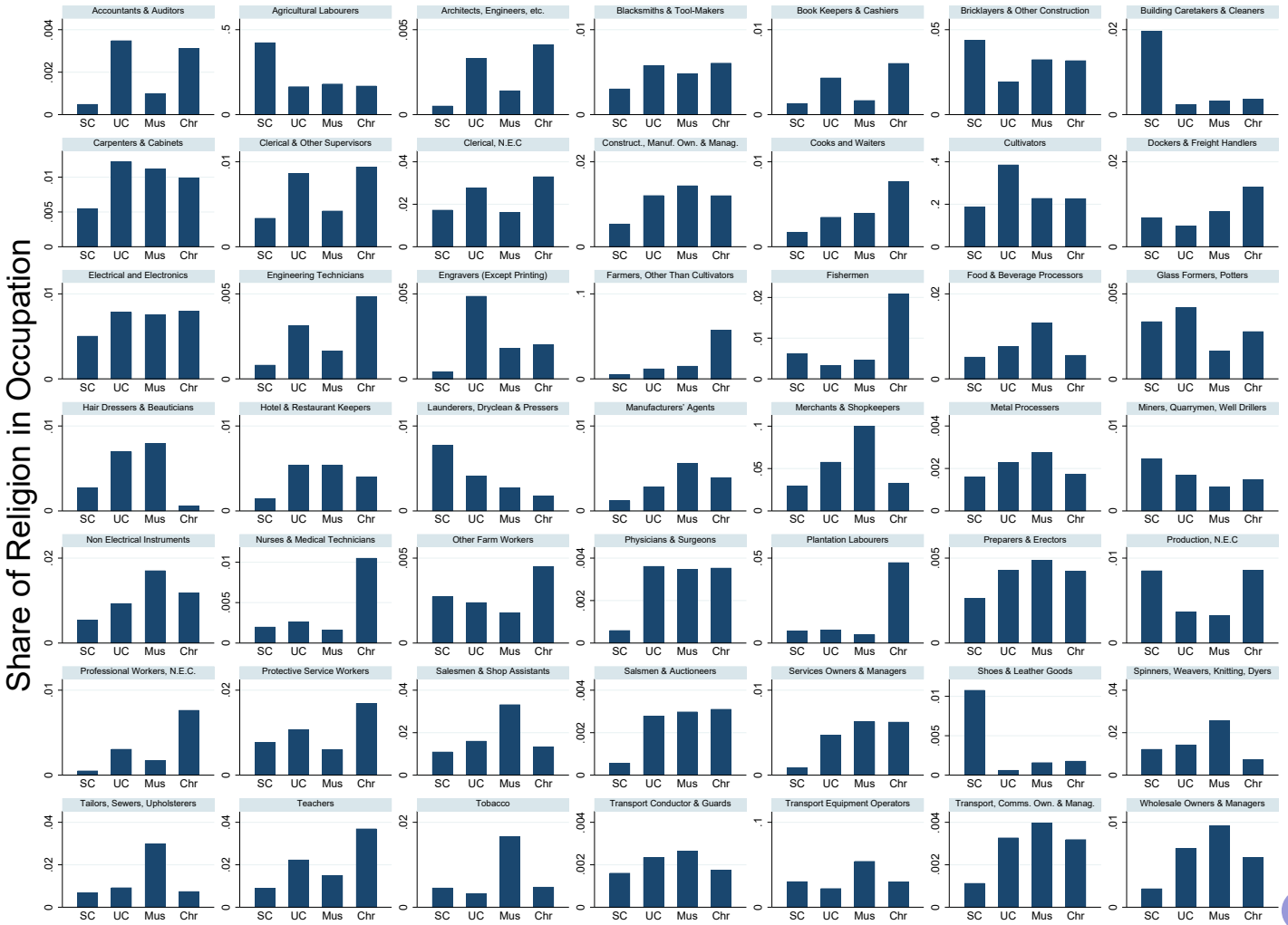
Heterogeneity in Occupational Shares by Religion, All Rounds



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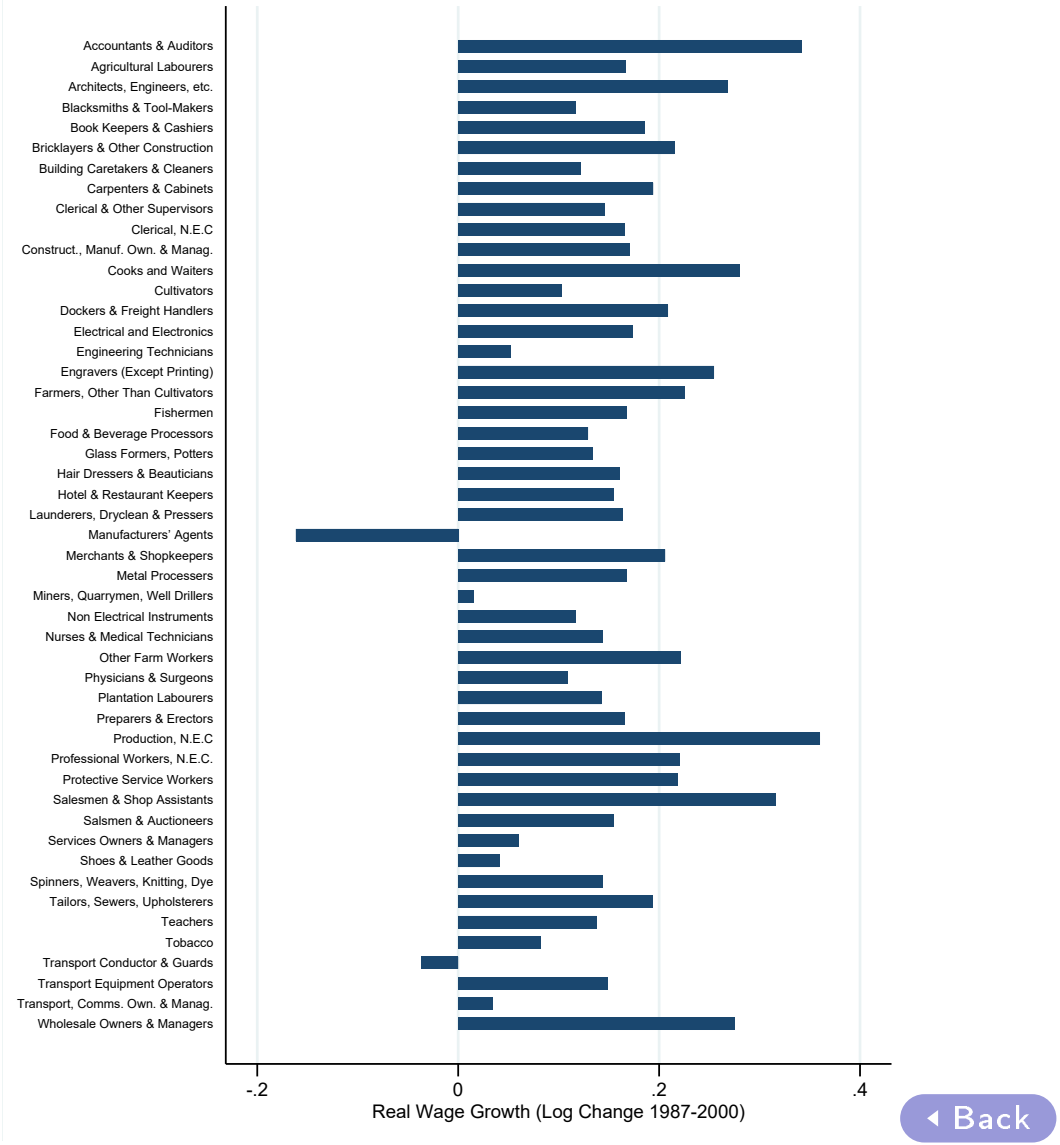
Heterogeneity in the Growth of Occupational Returns, 1987-2000



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Not Imposing Symmetry

	LHS Variable: Share Spent on Good i		
	(1) Baseline	(2) Cross-section	(3) Panel
$\overline{x_{ir}} \times (cost_r - cost_s)$	0.0836*	-0.340***	-0.388***
	(0.0479)	(0.0947)	(0.0980)
$\overline{x_{is}} \times (cost_r - cost_s)$	0.0410	0.586***	0.625***
	(0.0586)	(0.0935)	(0.0981)
$\overline{x_{ir}} \times (status_r - status_s)$	0.311***	0.152***	0.0486
	(0.0235)	(0.0239)	(0.0594)
$\overline{x_{is}} \times (status_r - status_s)$	-0.492***	-0.249***	-0.249***
	(0.0268)	(0.0279)	(0.0653)
$\overline{x_{ir}} \times conflict_r \ +/- \ 6 \ months$	0.586***	0.0869**	0.219**
	(0.0429)	(0.0362)	(0.0971)
$\overline{x_{is}} \times conflict_r \ +/- \ 6 \ months$	-0.408***	-0.147**	-0.592**
	(0.0650)	(0.0647)	(0.275)
Observations	32,523,464	32,515,776	32,435,920
Adjusted R^2	0.766	0.772	0.780
log price and total expenditure controls	Yes	Yes	Yes
district*product*round*quarter	Yes	Yes	Yes
religion*state*product*round*quarter	No	Yes	No
religion*state*product*district*quarter	No	No	Yes

◂ Back

By Religion

	LHS Variable: Share Spent on Good i		
	(1) Baseline	(2) Cross-section	(3) Panel
Hindu SC $\times(\overline{x_{ir}}-\overline{x_{is}})\times(cost_r-cost_s)$	0.201***	-0.631***	-0.656***
	(0.0557)	(0.134)	(0.125)
Hindu UC $\times(\overline{x_{ir}}-\overline{x_{is}})\times(cost_r-cost_s)$	-0.0905	-0.687***	-0.692***
	(0.0582)	(0.121)	(0.119)
Muslim $\times(\overline{x_{ir}}-\overline{x_{is}})\times(cost_r-cost_s)$	0.304***	-0.526***	-0.792***
	(0.0733)	(0.186)	(0.167)
Christian $\times(\overline{x_{ir}}-\overline{x_{is}})\times(cost_r-cost_s)$	-0.121	-0.696	-0.359
	(0.213)	(0.452)	(0.369)
Hindu SC $\times(\overline{x_{ir}}-\overline{x_{is}})\times(status_r-status_s)$	-0.0445	0.0388	-0.147
	(0.0436)	(0.0436)	(0.103)
Hindu UC $\times(\overline{x_{ir}}-\overline{x_{is}})\times(status_r-status_s)$	1.576***	0.839***	1.261***
	(0.0763)	(0.0891)	(0.268)
Muslim $\times(\overline{x_{ir}}-\overline{x_{is}})\times(status_r-status_s)$	0.356***	0.142***	0.342**
	(0.0576)	(0.0475)	(0.138)
Christian $\times(\overline{x_{ir}}-\overline{x_{is}})\times(status_r-status_s)$	0.202*	0.208**	0.673***
	(0.104)	(0.0846)	(0.258)
Hindu SC $\times(\overline{x_{ir}}-\overline{x_{is}})conflict_r$ $+/-$ 6 *months*	0.489***	0.0960***	0.236**
	(0.0510)	(0.0364)	(0.109)
Hindu UC $\times(\overline{x_{ir}}-\overline{x_{is}})conflict_r$ $+/-$ 6 *months*	0.533***	0.112**	0.280**
	(0.0579)	(0.0441)	(0.132)
Muslim $\times(\overline{x_{ir}}-\overline{x_{is}})conflict_r$ $+/-$ 6 *months*	0.591***	0.120***	0.377***
	(0.0520)	(0.0423)	(0.108)
Christian $\times(\overline{x_{ir}}-\overline{x_{is}})conflict_r$ $+/-$ 6 *months*	0	0	0
	(.)	(.)	(.)
Observations	32,523,464	32,515,776	32,435,920
Adjusted R^2	0.766	0.772	0.780
log prices and total expenditure controls	Yes	Yes	Yes
district*product*round*quarter	Yes	Yes	Yes
religion*state*product*round*quarter	No	Yes	No
religion*state*product*district*quarter	No	No	Yes

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