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

David Atkin, Eve Colson-Sihra and Moses Shayo

MIT, Hebrew U, Hebrew U
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...

- Health: As we will show, identity choice directly affects diet, with health implications particularly in developing countries (Atkin 2016).

- Electoral choices:
  - Inequality, Immigration $\implies$ increased national identity $\implies$ reduced support for redistribution (Shayo 2009).
  - Trade policy (Grossman-Helpman 2018), Brexit, Trump, Modi (India).
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).
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
  ⇒ 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?
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.

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 $y_J, \kappa_{hJ}$.

- $X_h = h'$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)).
Definition (Social Identity)

Individual \( h \) identifies with group \( J \in \{ A, B, \ldots \} \) if preferences can be represented by:

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\]

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

Two widely-discussed determinants of identification:

- **[Affective]:** \( y_J = \) status of group \( J \)
  - from Social Identity Theory (Tajfel & Turner (1979, 1986)).

- **[Cognitive]:** \( \kappa_{hJ} = \) 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.
More likely to tilt consumption towards $X_J$ (e.g., 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/taboo is lower ($p \cdot X_J \downarrow$).
   - Identity choice generates complementarities across goods
Three Implications of Endogenous Identity

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

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$\rightarrow$

- 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).
  - Effect of economic costs largely overlooked.
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
NSS Consumer Expenditure surveys:


- Record household 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 vs. 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).

⇒ India chose to draw state borders along ethno-linguistic lines.
Use state identifiers as ethnic identifiers.

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Choosing Identity
October 2019
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  ➞ India chose to draw state borders along ethno-linguistic lines.
  - Use state identifiers as ethnic identifiers.
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

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Pork Taboos in India—Hindus, Muslims and Christians

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Outline

1. Data

2. Demand for prominent identity goods
   - Salience shocks
   - Status shocks
   - Cost of identity goods

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Choosing Identity: Salience

First consider $k_{hJ} = \text{salience of } h\text{'s membership in } J$.

- 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)

Do we see a similar association in consumption data? Specifically: $k_{hr} \uparrow \Rightarrow \text{tilt } X_h \text{ towards prescribed } X_r$ (where $r$ is $h$’s religious group).

Not obvious: Standard econ: conflict affects consumption only via prices & incomes.
Choosing Identity: Salience

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Measuring Religious Conflict

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

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

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If $h$ choose between their two possible identities (religious and ethnic), choosing to identify more with religious identity $\implies$ 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 $\implies$ low beef consumption is part of a shared ethnic cuisine.
Conflict and Beef Avoidance

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

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

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

<table>
<thead>
<tr>
<th>Religious Identity</th>
<th>Beef</th>
<th>Pork</th>
<th>Non-veg</th>
<th>Alcohol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hindu Upper Caste</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Hindu Scheduled Caste</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muslim</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Christian</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

- 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 $i$:

\[
\text{Abstain}_{ihrdst} = \alpha_1 \text{Taboo}_{ir} + \alpha_2 \text{Conflict}_{rdt} + \alpha_3 \text{Taboo}_{ir} \times \text{Conflict}_{rdt} \\
+ \sum_j \gamma_{1i} \ln \text{price}_{jht} + \gamma_{2i} \ln \text{realfoodexp}_{ht} + \delta_{idt} + \delta_{rdt} + FEs + \varepsilon_{iht}
\]

- \text{Abstain}_{ihrdst} = \text{indicator for not consuming good } i.
- \text{Taboo}_{ir} = \text{indicator for good } i \text{ being a taboo for religion } r.
- \text{Conflict}_{rdt} = \text{Indicator for Hindu/Muslim conflict in district at the time of the survey or the preceding two quarters}
  \hspace{1cm} \text{ (Conflict}_{rdt} = 0 \text{ for } r = \text{Christian}).
- \ln \text{price}_{jht} = \text{village median price of taboo good, realfoodexp}_{ht} = \text{real per capita food expenditure}.
- \varepsilon_{iht} \text{ clustered at } rdt \text{ level.
Combining Taboos and Survey Rounds

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+ \sum_j \gamma_{1ij} \ln \text{price}_{jht} + \gamma_{2i} \ln \text{realfoodexp}_{ht} + \delta_{idt} + \delta_{rdt} + \text{FEs} + \epsilon_{rdt}
\]

- $\delta_{idt} =$ 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.
- $\delta_{rdt} =$ fixed effects for anything driving general local consumption by religion $r$. 

Combining Taboos and Survey Rounds

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

$$\text{Abstain}_{ihrdst} = \alpha_1 \text{Taboo}_{ir} + \alpha_2 \text{Conflict}_{rdt} + \alpha_3 \text{Taboo}_{ir} \times \text{Conflict}_{rdt} + \sum_j \gamma_{1ij} \ln \text{price}_{jht} + \gamma_{2i} \ln \text{realfoodexp}_{ht} + \delta_{idt} + \delta_{rdt} + FEs + \epsilon_{ih}t$$

- $FEs =$ Additional fixed effects. Two strategies, both within religion-ethnicity:

1. **“Cross section”** ($\delta_{irst}$): control for temporal shocks to adherence. Identifies off variation within state-quarter-year across districts.

2. **“Panel”** ($\delta_{irsdq}$): 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

<table>
<thead>
<tr>
<th></th>
<th>LHS Variable: Abstain from Consuming Good $i$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
</tr>
<tr>
<td></td>
<td>(1) All</td>
</tr>
<tr>
<td>taboo=1</td>
<td>0.181***</td>
</tr>
<tr>
<td></td>
<td>(0.00364)</td>
</tr>
<tr>
<td>taboo=1 × conflict</td>
<td>0.106***</td>
</tr>
<tr>
<td></td>
<td>(0.0162)</td>
</tr>
<tr>
<td>Observations</td>
<td>1115640</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.560</td>
</tr>
<tr>
<td>log prices and total expenditure controls</td>
<td>Yes</td>
</tr>
<tr>
<td>product<em>district</em>round*quarter</td>
<td>Yes</td>
</tr>
<tr>
<td>religion<em>district</em>round*quarter</td>
<td>Yes</td>
</tr>
<tr>
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</tr>
<tr>
<td>religion<em>state</em>product<em>district</em>quarter</td>
<td>No</td>
</tr>
</tbody>
</table>

- 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.

  \[ \implies \] If local butchers neither Hindu nor Muslim, easier to buy taboo food.

- Observe 1342 butchers across 7 religions in NSS:

- But: similar conflict effects where larger share of non Hindu/Muslim butchers.

- And: similar conflict effects in religiously homogeneous and fractionalized neighborhoods (FSU≈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 \textit{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

  - 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

  - 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 thirteenth 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:
→Wheat-eaters and rice-eaters (Chakravarti, 1974; Atkin, 2013).

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

  1. Identit y 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) ⇒ two shift-share strategies:

  - Cross-district variation in local occupational returns (national occupation shares by religion) addresses (1).
  - Occ. Sha res
  - Cross-round variation in national occupational returns (initial local occupation shares by religion) addresses (2).
  - Occ. Returns
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- Local status measures may be endogenous:
  1. Identity choices may drive local occupational mix.
  2. Shared identity may raise wages and hence status.

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  - Cross-district variation in local occupational returns (national occupation shares by religion)—addresses (1).
  - Cross-round variation in national occupational returns (initial local occupation shares by religion)—addresses (2).
Taboos and Group Status (Diff-in-Diff)

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

$$\text{Abstain}_{ihrdst} = \alpha_1 \text{Taboo}_{ir} + \alpha_2 \text{Status}_{rdt} + \alpha_3 \text{Taboo}_{ir} \times \text{Status}_{rdt}$$

$$+ \sum_j \gamma_{1ij} \ln \text{price}_{jht} + \gamma_{2i} \ln \text{realfoodexp}_{ht}$$

$$+ \delta_{idt} + \delta_{rdt} + FEs + \varepsilon_{iht}$$

1. **Status_{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 $\delta_{irst}$ ("cross section") FE: identify off local occupational wage differences.

2. **Status_{national-w(o)} = \sum_o \log w_{od-t} \theta_{odrt_0}**: uses national wages (leaving out $d$) of different occupations, & initial local occupational mix in my religion.
   - Standard Bartik. With $\delta_{irsdq}$ ("panel") FE: identify off status changes over rounds within religion-district-quarter driven by national occupational wage changes.
# Taboos and Group Status

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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>taboo=1</td>
<td>-0.179***</td>
</tr>
<tr>
<td></td>
<td>(0.0387)</td>
</tr>
<tr>
<td>$\text{taboo}=1 \times \text{status}_{rdt}^{\text{national,cc}(r)}$</td>
<td>0.120***</td>
</tr>
<tr>
<td></td>
<td>(0.0128)</td>
</tr>
<tr>
<td>$\text{taboo}=1 \times \text{status}_{rdt}^{\text{national,}(o)}$</td>
<td>0.489***</td>
</tr>
<tr>
<td></td>
<td>(0.0203)</td>
</tr>
<tr>
<td>Observations</td>
<td>1111072</td>
</tr>
<tr>
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<td>0.560</td>
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   - Status Shocks
   - **Cost of identity goods**

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5. Conclusions
The Cost of Identity

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

\[
\text{Abstain}_i = \alpha_1 \text{Taboo}_i + \alpha_2 \ln p_{iht} + \sum_{j \neq i \neq} \alpha_3 \ln p_{jht} + \alpha_4 \text{Taboo}_i \times \ln p_{iht} + \sum_{j \neq i} \alpha_5 \text{Taboo}_j \ln p_{jht} + \sum_{j \neq} \alpha_6 \text{Taboo}_j \ln p_{jht} + \gamma_2 \ln \text{realfoodexp}_{ht} + \delta_{idt} + \delta_{rdt} + \text{FEs} + \varepsilon_i \\
\alpha_4 < 0 \text{ if taboo demand less elastic, sign } \alpha_3 \neq \text{sign } \alpha_5 \text{ if less cross-price elastic.} \\
\alpha_7 > 0 \text{ consistent with identity creating complements among taboos.}
The Cost of Identity

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

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

$$\text{Abstain}_{ihrdst} = \alpha_1 \text{Taboo}_{ir} + \alpha_2 \ln p_{iht} + \alpha_3 \sum_{j \neq i} \ln p_{jht}$$
$$+ \alpha_4 \text{Taboo}_{ir} \times \ln p_{iht} + \alpha_5 \text{Taboo}_{ir} \sum_{j \neq i} \ln p_{jht}$$
$$+ \alpha_6 \sum_{j \neq i} \text{Taboo}_{jr} \ln p_{jht} + \alpha_7 \text{Taboo}_{ir} \sum_{j \neq i} \text{Taboo}_{jr} \ln p_{jht}$$
$$+ \gamma_2 i \ln \text{realfoodexp}_{ht} + \delta_{idt} + \delta_{rdt} + FEs + \varepsilon_{iht}$$

- $\alpha_4 < 0$ if taboo demand less elastic, sign $\alpha_3 \neq$ 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 $i$

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Cross-section</th>
<th>Panel</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>$\text{taboo}_i=1$</td>
<td>0.187***</td>
<td>0.170***</td>
<td>0.228***</td>
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<tr>
<td></td>
<td>(0.00359)</td>
<td>(0.0185)</td>
<td>(0.0158)</td>
</tr>
<tr>
<td>$\ln p_i$</td>
<td>0.0127***</td>
<td>0.0427***</td>
<td>0.0323***</td>
</tr>
<tr>
<td></td>
<td>(0.00270)</td>
<td>(0.00363)</td>
<td>(0.00488)</td>
</tr>
<tr>
<td>$\text{sum} \ln p_j$</td>
<td>-0.00294*</td>
<td>-0.0140***</td>
<td>0.00659*</td>
</tr>
<tr>
<td></td>
<td>(0.00167)</td>
<td>(0.00221)</td>
<td>(0.00367)</td>
</tr>
<tr>
<td>$\text{taboo}_i=1 \times \ln p_i$</td>
<td>-0.0382***</td>
<td>-0.0287***</td>
<td>-0.0457***</td>
</tr>
<tr>
<td></td>
<td>(0.00278)</td>
<td>(0.00454)</td>
<td>(0.00488)</td>
</tr>
<tr>
<td>$\text{taboo}_i=1 \times \text{sum} \ln p_j$</td>
<td>0.0146***</td>
<td>-0.0293***</td>
<td>0.00964***</td>
</tr>
<tr>
<td></td>
<td>(0.00171)</td>
<td>(0.00159)</td>
<td>(0.00282)</td>
</tr>
<tr>
<td>$\text{sum} (\ln p_j \times \text{taboo}_j)$</td>
<td>-0.0618***</td>
<td>-0.0142**</td>
<td>-0.00626</td>
</tr>
<tr>
<td></td>
<td>(0.00422)</td>
<td>(0.00626)</td>
<td>(0.00574)</td>
</tr>
<tr>
<td>$\text{taboo}_i=1 \times \text{sum} (\ln p_j \times \text{taboo}_j)$</td>
<td>0.0905***</td>
<td>0.0340***</td>
<td>0.0101*</td>
</tr>
<tr>
<td></td>
<td>(0.00171)</td>
<td>(0.00664)</td>
<td>(0.00575)</td>
</tr>
</tbody>
</table>

| Observations     | 1115640  | 1115640       | 1115640 |
| Adjusted $R^2$   | 0.560    | 0.560         | 0.568   |

- log prices and total expenditure controls: Yes, Yes, Yes, Yes, Yes, Yes, Yes, Yes
- product*district*round*quarter: Yes, Yes, Yes, Yes, Yes, Yes, Yes, Yes
- religion*district*round*quarter: Yes, Yes, Yes, Yes, Yes, Yes, Yes, Yes
- religion*state*product*round*quarter: No, No, No, Yes, Yes, No, No, No
- religion*state*product*district*quarter: 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 $\Rightarrow$ conflict
  3. Formalize the choice of identity
     $\Rightarrow$ can quantify changes in identity choices over our study period.
Write the (collective) household $h$ indirect utility when identifying with group $J \in \{r, s\}$ as:

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

Where $v_J(\cdot)$ is a utility function over vector of prices $p_i$, income $m_h$, and vector of $x_{ij}$'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 $\kappa_{hJ}$, and idiosyncratic shifter $\xi_{hJ}$.

A household chooses its ethnic identity if $V_{hs} > V_{hr}$, and religious identity if $V_{hs} \leq V_{hr}$.
Substituting AIDS indirect utility function for \( v_J(\cdot) \), observed budget share \( x_{hi} \) is:

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

where \( \tilde{x}_{ij} \equiv \bar{x}_{ij} - \beta_i \sum_i \bar{x}_{ij} \ln p_i \).

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

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

If \( \xi_{hJ} \sim \text{iid extreme value} \), probability of choosing religious identity \( r \) is

\[
P_r = (1 + e^{-(V_{hr} - V_{hs})})^{-1}.
\]
Admits linear approximation for small changes (i.e. $\xi_{hJ} \sim$ uniform):

$$x_{hi} = (\bar{x}_{ir} - \bar{x}_{is}) \left[ -\eta_1 (cost_{r|i} - cost_{s|i}) + \eta_2 (y_r - y_s) + \eta_3 (\kappa_{hr} - \kappa_{hs}) \right]$$

$$+ \text{price and income terms} + \text{FEs}$$

- $\bar{x}_j$ = 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 $\bar{x}_r$ and away from $\bar{x}_s$
### Linear Approximation: Results

**LHS Variable: Share Spent on Good \( i \)**

<table>
<thead>
<tr>
<th>Term</th>
<th>(1) Cross-section</th>
<th>(2) Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>((x_{ir} - x_{is}) \times (cost_r - cost_s))</td>
<td>-0.660***</td>
<td>-0.692***</td>
</tr>
<tr>
<td></td>
<td>(0.0975)</td>
<td>(0.102)</td>
</tr>
<tr>
<td>((x_{ir} - x_{is}) \times (status_r - status_s))</td>
<td>0.237***</td>
<td>0.222***</td>
</tr>
<tr>
<td></td>
<td>(0.0273)</td>
<td>(0.0639)</td>
</tr>
<tr>
<td>((x_{ir} - x_{is}) \times conflict_r + / - 6\ months)</td>
<td>0.0981***</td>
<td>0.273***</td>
</tr>
<tr>
<td></td>
<td>(0.0374)</td>
<td>(0.106)</td>
</tr>
</tbody>
</table>

- **Observations**: 32,515,776 (1) Cross-section, 32,435,920 (2) Panel
- **Adjusted \( R^2 \)**: 0.772 (1), 0.780 (2)
- **log price and total expenditure controls**: Yes (1), Yes (2)
- **district*product*round*quarter**: Yes (1), Yes (2)
- **religion*state*product*round*quarter**: Yes (1), No (2)
- **religion*state*product*district*quarter**: No (1), Yes (2)

- Similar coefficients when not imposing symmetry of \( x_{ir} \) & \( x_{is} \) effects
- Overall similar effects across religions (upper-caste more sensitive to status)
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
Implications and Counterfactuals


- Use estimates to quantify impacts of changes in status, price and conflict on:

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

     \[
     dP_r \approx -\hat{\eta}_1 d \sum_i (\bar{x}_{ir} - \bar{x}_{is}) \ln p_i + \hat{\eta}_2 d(y_r - y_s) + \hat{\eta}_3 d(\kappa_r - \kappa_s)
     \]

  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

Total Changes 1987-2000

Histogram of proportion of households changing identity by district-religion cells (mean: -0.65%)
Question: Are these identity changes (from consumption data) associated with changes in voting?
Voting for Religious and Ethnic Parties

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

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

Data:

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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

Change in Religious versus Ethnic Vote Share

Change in Proportion Identifying with Religion versus Ethnicity

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Recovered Identity Changes and Voting Behavior

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

\[ \beta = 0.212^{***}, \text{ s.e.} = 0.047, \text{ N} = 519 \]

Regression Table

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Quantifying the Sources of Identity Changes 1987-2000

Histograms of proportions of households changing identity in district-religion cells.

- Status Changes 1987-2000
- Cost Changes 1987-2000
- Conflict Changes 1987-2000
- Total Changes 1987-2000

Change in Proportion Identifying with Ethnicity

Change in Proportion Identifying with Religion
Implications and Counterfactuals

- Major changes in India between 1987 and 2000 spurred by 1991 economic reforms.

- Use estimates to quantify impacts of $\Delta$ 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

\[
dCalories_{ih} \approx calories\_per\_kg_i \times \frac{\text{foodexp}_h(x_{ir} - x_{is})}{p_{ih}} dP_r
\]

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

Potential Caloric Gain/Loss From Identifying With Religion

Potential Caloric Gain/Loss (Fraction of Current Calories)

Density

Potential Caloric Gain/Loss (Fraction of Current Calories)
Realized Caloric Gains from Identity Changes 1987-2000

Realized Caloric Gain/Loss Due To Identity Changes

Density

Realized Caloric Gain/Loss (Fraction of Current Calories)

Atkin, Colson & Shayo (MIT, HU) Choosing Identity October 2019
Implications and Counterfactuals

- Major changes in India between 1987 and 2000 spurred by 1991 economic reforms.

- Use estimates to quantify impacts of $\Delta$ 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
  4. Welfare: CV gains from endogenous identity
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 $J$:

$$V_{hJ'}(P_1, m_1 z_{JJ'}, y_{J'1}, \kappa_{hJ'1}; \bar{X}_{J'}) = V_{hJ}(P_0, m_0, y_{J0}, \kappa_{hJ0}; \bar{X}_J)$$
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 $J$:

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

- Compute:

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

by applying the linear approximation above and the estimated $\eta$s.

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Identity, as revealed through consumption choices, appears to be endogenous.

- Adjusts to forces highlighted by social $\Psi$ (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

<table>
<thead>
<tr>
<th>LHS Variable: Change in Vote Shares</th>
<th>Religious vs. Ethnic</th>
<th>Religious</th>
<th>Ethnic</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>Change in Proportion Religious, district-religion</td>
<td>0.212*** (0.0473)</td>
<td>0.210*** (0.0470)</td>
<td>0.0544** (0.0250)</td>
<td>0.0495** (0.0246)</td>
</tr>
<tr>
<td>Change in Proportion Religious, district</td>
<td>-0.222*** (0.0593)</td>
<td>-0.340*** (0.0779)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>519</td>
<td>519</td>
<td>636</td>
<td>636</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.036</td>
<td>0.051</td>
<td>0.006</td>
<td>0.040</td>
</tr>
<tr>
<td>FE religion</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

---

Atkin, Colson & Shayo (MIT, HU) | Choosing Identity | October 2019 | 64
### Conflict and Availability

<table>
<thead>
<tr>
<th>LHS Variable: Abstain from Consuming Good ( i )</th>
<th>Cross-section</th>
<th>Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>taboo × conflict</td>
<td>0.0430***</td>
<td>0.0467***</td>
</tr>
<tr>
<td></td>
<td>(0.0112)</td>
<td>(0.0120)</td>
</tr>
<tr>
<td>taboo × conflict × non hindu/muslim butcher share</td>
<td>-0.173</td>
<td>0.00218</td>
</tr>
<tr>
<td>taboo × conflict × religious fractionalization</td>
<td>-0.0324</td>
<td>-0.0163</td>
</tr>
<tr>
<td>taboo × conflict × hindu/muslim fractionalization</td>
<td>-0.0491</td>
<td>-0.0410</td>
</tr>
<tr>
<td>Observations</td>
<td>1107484</td>
<td>1115292</td>
</tr>
<tr>
<td>Adjusted ( R^2 )</td>
<td>0.585</td>
<td>0.585</td>
</tr>
<tr>
<td>main effects and double interactions</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>log prices and total expenditure controls</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>district<em>product</em>round*quarter</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>district<em>religion</em>round*quarter</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>religion<em>state</em>product<em>round</em>quarter</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>religion<em>state</em>product<em>district</em>quarter</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Back
## Rural vs. Urban and Timing of Effect

LHS Variable: Abstain from Consuming Good $i$

<table>
<thead>
<tr>
<th>Panel</th>
<th>(1) All</th>
<th>(2) Urban</th>
<th>(3) Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>taboo=1 × conflict past 2 quarters</strong></td>
<td>0.0565***</td>
<td>0.0431**</td>
<td>0.0550***</td>
</tr>
<tr>
<td></td>
<td>(0.0101)</td>
<td>(0.0194)</td>
<td>(0.0134)</td>
</tr>
<tr>
<td><strong>taboo=1 × conflict present quarter</strong></td>
<td>0.0501***</td>
<td>0.0587**</td>
<td>0.0293</td>
</tr>
<tr>
<td></td>
<td>(0.0174)</td>
<td>(0.0293)</td>
<td>(0.0187)</td>
</tr>
<tr>
<td>Observations</td>
<td>1114116</td>
<td>347556</td>
<td>764344</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.596</td>
<td>0.612</td>
<td>0.603</td>
</tr>
<tr>
<td>log prices and total expenditure controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>product<em>district</em>round*quarter</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>religion<em>district</em>round*quarter</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>religion<em>state</em>product<em>round</em>quarter</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>religion<em>state</em>product<em>district</em>quarter</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
# How Social Identity Affects Behavior

(Shayo, Annual Review of Economics, 2020)

## Table 1: Ingroup Bias

<table>
<thead>
<tr>
<th>Domain</th>
<th>Study &amp; Method</th>
<th>Outcome variables</th>
<th>Main findings</th>
<th>Bias higher when...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allocation decisions &amp; bargaining</td>
<td>LAB: Bernhard et al. 2006; Fehr et al. 2008; Tajfel et al. 1971; McLeish &amp; Oxoby 2011; Bettencourt et al. 2001; Goeree et al. 2010; Iyengar &amp; Westwood 2015; Jetten et al. 1996; Leider et al. 2009; Chen &amp; Li 2009. FLD: Bauer et al. 2014; Fong &amp; Luttmer 2009; Michelitch 2015.</td>
<td>Allocations in Tajfel reward matrices, dictator game (also with third party enforcer), and ultimatum game; negotiated taxi fare.</td>
<td>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 &amp; under common political affiliation during elections.</td>
<td>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.</td>
</tr>
<tr>
<td>Cooperation &amp; trust</td>
<td>LAB: Bornstein &amp; Ben-Yossef 1994; Bornstein 2003; Cacault et al. 2015; Charness et al. 2007; Eckel &amp; Grossman 2005; Glaeser et al. 2000. FLD: Blouin &amp; Mukand 2017; Falk &amp; Zehnder 2013; Goette et al. 2006, 2012.</td>
<td>Behavior in Prisoner’s Dilemma (also with third party enforcer), Battle of the Sexes, public good game; trust game; self-reported identification; partner choice.</td>
<td>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.</td>
<td>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 &amp; anonymity (in Rwanda).</td>
</tr>
</tbody>
</table>
## Table 1 (Continued): Ingroup Bias

<table>
<thead>
<tr>
<th>Category</th>
<th>Education</th>
<th>Productivity</th>
<th>Law enforcement</th>
<th>Finance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Teacher expectations and attitudes towards students; grading decisions; committee acceptance decisions; partner choices.</td>
<td>Units produced by worker/team; supply allocation to and between downstream workers; canvassing outcomes.</td>
<td>Police vehicle searches and arrests; court convictions and rulings.</td>
<td>Loan approval; portfolio choice; earning forecasts by analysts.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td>Upstream workers under-supply non-co-ethnic 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.</td>
<td>Officer-driver racial mismatch increases search &amp; arrest; presence of black in jury pool eliminates racial conviction gap; same-ethnicity judge increases likelihood of winning civil case.</td>
<td>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.</td>
</tr>
<tr>
<td><strong>In US South</strong></td>
<td>(gender and race biases); among males (religiosity bias); against students from lower socioeconomic status; less contact with out-group.</td>
<td>Exposure to inter-group conflict; fixed (vs. incentive) pay; individual (vs. team production) incentives.</td>
<td>Experienced cops; minor offenses; exposure to inter-group conflict; bias does not decline with judge experience.</td>
<td>Non-savvy investors; exposure to inter-group conflicts.</td>
</tr>
</tbody>
</table>
### How Social Identity Affects Behavior

*Shayo, Annual Review of Economics, 2020*

#### Table 1 (Continued): Ingroup Bias

<table>
<thead>
<tr>
<th>Public policy</th>
<th>NAT: Burgess et al. 2015; Eifert et al. 2010; Hodler &amp; Raschky 2014; Luttmer 2001; Kramon &amp; Posner 2016; Franck &amp; Rainer 2012. LAB: Klor &amp; Shayo 2010.</th>
<th>Children's educational and health outcomes; local road building; regional night-time luminosity; voting over redistribution.</th>
<th>Common ethnicity with political leader in Africa increases road building and children's education &amp; health; common birth region with political leader increases night-time luminosity; support more redistribution when it benefits ingroup members.</th>
<th>No common dominant religion in country; weak/no democracy; poorly educated citizens; using narrower ingroup definition; low personal cost.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sports</td>
<td>NAT: Parsons et al. 2011; Pope &amp; Pope 2015; Price &amp; Wolfers 2010. LAB: Hastorf &amp; Cantril 1954.</td>
<td>Baseball umpire decisions; personal fouls called in NBA; fouls suffered/committed in UCL soccer; student evaluation of team behavior in college football.</td>
<td>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.</td>
<td>Lower scrutiny of decisions; nationality-based bias larger when the player plays for the national team &amp; when game is in player's home court; bias not lower for elite referees.</td>
</tr>
<tr>
<td>Attitudes</td>
<td>LAB: Brewer et al. 1993; Iyengar &amp; Westwood 2015; Kinzler et al. 2007; Rudman et al. 2002; Sachdev &amp; Bourhis 1987.</td>
<td>Implicit Association Test; reported attitudes towards in/out group members; infant looking-time at in/out group members and toy acceptance.</td>
<td>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.</td>
<td>Higher group status; larger ingroup.</td>
</tr>
</tbody>
</table>

**Notes:**
[a] LAB=lab experiment, FLD=field/lab-in-the-field experiment, NAT= econometric analysis of naturally occurring data, COR=correlational.
### Table 2: Conformity to Ingroup Norms

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

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>FLD: Bursztyn &amp; Jensen 2015; Afridi et al. 2015; Hoff &amp; Panday 2006. LAB: Shih et al. 1999</td>
<td>Consumption of a resource (water, electricity, hotel towels, gas); recycling (self reported).</td>
<td>Conformity to descriptive norms. Consumption decreases more among initially high consumers.</td>
<td>Group is more similar to DM (e.g. geographically); adding injunctive norms can attenuate “boomerang effects” (= increased consumption among initially low consumers); DM is liberal (likely specific to energy conservation).</td>
</tr>
<tr>
<td>Environmental conservation</td>
<td>FLD: Allcott 2011; Schultz et al. 2007; Nolan et al. 2008; Goldstein et al. 2008; Ferraro &amp; Price 2013; Costa &amp; Kahn 2013; Ayres et al. 2013. COR: Terry et al. 1999.</td>
<td>Donation to charities; contributing online movie ratings.</td>
<td>Donate more when told higher proportion of population donated; increase number of movie ratings when below median, decrease when above.</td>
<td>Among people who donated in the past.</td>
</tr>
<tr>
<td>Voluntary contributions</td>
<td>FLD: Frey &amp; Meier 2004; Chen et al. 2010.</td>
<td>Whether and when overdue taxes were paid.</td>
<td>Tax payments increase when told most people pay on time (descriptive norm), or most people agree everyone should pay on time (injunctive norm).</td>
<td>Being told non-payers are very small minority; group is more similar to DM (in locality or in debt size).</td>
</tr>
<tr>
<td>Voting</td>
<td>FLD: Gerber &amp; Rogers 2009</td>
<td>Stated intention to vote</td>
<td>Higher turnout when told turnout was and is expected to be high (compared to low).</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
Fraction of Upper Castes by District, 1999-2000

Upper Caste Hindus

- more than 80%
- 60 to 80%
- 40 to 60%
- 20 to 40%
- 0 to 20%
- No data
Fraction of Muslims by District, 1999-2000
Fraction of Christians by District, 1999-2000

[Map of India with color coding indicating the fraction of Christians in each district, ranging from 0 to more than 20%]

More than 20%
10 to 20%
5 to 10%
1 to 5%
0 to 1%
No data
## Butcher Shares by Religion

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

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".
Event study: 1993-1994

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

\[ x_{htg} = \sum_{m=-12}^{12} \theta^SC SC_{ht} \times Conflict_{g,t-m} + \sum_{m=-12}^{12} \theta^M Muslim_{ht} \times Conflict_{g,t-m} \\
+ SC_{ht} + Muslim_{ht} + \delta_{gt} + \gamma_1 \ln price_{ht} + \gamma_2 \ln realfoodexp_{ht} + \epsilon_{htg} \]

where

- \( x_{htg} \in \{0, 1\} \) 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); \( \epsilon_{htg} \) clustered by region*month.
NSS round 50, conditional on prices, real incomes, religion FEs & regionXmonth FEs.
Conflict and Conditional Beef Avoidance

NSS round 50, conditional on prices, real incomes, religion FEs & region×month FEs.
NSS round 50, restricted to regions surveyed both before and after a conflict in a year interval.
NSS round 50, restricted to regions surveyed both before and after a conflict in a year interval.
Conflict and Conditional Pork Avoidance

NSS round 50, conditional on prices, real incomes, religion FEs & regionXmonth FEs.
 NSS round 50, restricted to regions surveyed both before and after a conflict in a year interval.
Figure: High Fractionalization

Note: \( \text{Frac} = 1 - \sum_r \pi_r^2 \) where \( \pi_r \) is fraction of hh’s in FSU belonging to religion \( r \). \( \text{Frac} \) is thus the probability of randomly drawing two hh’s that do not share the same religious taboo. Figures show above/below median \( \text{Frac} \) subsamples.
Conflict and Pork Avoidance, High and Low Fractionalization

Figure: High Fractionalization

Figure: Low Fractionalization

Note: $\text{Frac} = 1 - \sum_r \pi_r^2$ where $\pi_r$ 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 $\text{Frac}$ subsamples.
Conflict and Conditional Meat Avoidance

NSS round 50, conditional on prices, real incomes, religion FEs & regionXmonth FEs.
NSS round 50, restricted to regions surveyed both before and after a conflict in a year interval.
Conflict and Conditional Alcohol Avoidance

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

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

Figure: Unconditional

Figure: Conditional
Conflict and Mutton Avoidance

Figure: Unconditional

Figure: Conditional
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
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
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

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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
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

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<table>
<thead>
<tr>
<th>LHS Variable: Abstain from Consuming Good $i$</th>
<th>Baseline (1)</th>
<th>Cross-section (2)</th>
<th>Panel (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>taboo=1</td>
<td>0.185***</td>
<td>0.185</td>
<td>0.185</td>
</tr>
<tr>
<td></td>
<td>(0.00360)</td>
<td>(0.00410)</td>
<td>(0.00360)</td>
</tr>
<tr>
<td>taboo=1 × log fatalities</td>
<td>0.0439***</td>
<td>0.00782</td>
<td>0.0118**</td>
</tr>
<tr>
<td></td>
<td>(0.00889)</td>
<td>(0.00587)</td>
<td>(0.00596)</td>
</tr>
<tr>
<td>Observations</td>
<td>1115640</td>
<td>1115292</td>
<td>1114116</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.560</td>
<td>0.585</td>
<td>0.596</td>
</tr>
<tr>
<td>log prices and total expenditure controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>product<em>district</em>round*quarter</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>religion<em>district</em>round*quarter</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>religion<em>state</em>product<em>round</em>quarter</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>religion<em>state</em>product<em>district</em>quarter</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Panel</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>-------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>taboo=1 × conflict t-0 quarter</td>
<td>0.0527***</td>
<td>0.0522***</td>
<td>0.0517***</td>
</tr>
<tr>
<td></td>
<td>(0.0172)</td>
<td>(0.0171)</td>
<td>(0.0168)</td>
</tr>
<tr>
<td>taboo=1 × conflict t-1 quarter</td>
<td>0.0381***</td>
<td>0.0378***</td>
<td>0.0377***</td>
</tr>
<tr>
<td></td>
<td>(0.0141)</td>
<td>(0.0143)</td>
<td>(0.0134)</td>
</tr>
<tr>
<td>taboo=1 × conflict t-2 quarter</td>
<td>0.0468***</td>
<td>0.0473***</td>
<td>0.0472***</td>
</tr>
<tr>
<td></td>
<td>(0.0131)</td>
<td>(0.0132)</td>
<td>(0.0123)</td>
</tr>
<tr>
<td>taboo=1 × conflict t-3 quarter</td>
<td>0.00630</td>
<td>0.00712</td>
<td>0.00712</td>
</tr>
<tr>
<td></td>
<td>(0.0131)</td>
<td>(0.0129)</td>
<td>(0.0129)</td>
</tr>
<tr>
<td>taboo=1 × conflict t-4 quarter</td>
<td>-0.00995</td>
<td>-0.00918</td>
<td>-0.00918</td>
</tr>
<tr>
<td></td>
<td>(0.0137)</td>
<td>(0.0138)</td>
<td>(0.0138)</td>
</tr>
<tr>
<td>taboo=1 × conflict t+1 quarter</td>
<td>0.0209</td>
<td>0.0209</td>
<td>0.0209</td>
</tr>
<tr>
<td></td>
<td>(0.0157)</td>
<td>(0.0157)</td>
<td>(0.0157)</td>
</tr>
<tr>
<td>taboo=1 × conflict t+2 quarter</td>
<td>0.00415</td>
<td>0.00415</td>
<td>0.00415</td>
</tr>
<tr>
<td></td>
<td>(0.0170)</td>
<td>(0.0170)</td>
<td>(0.0170)</td>
</tr>
<tr>
<td>taboo=1 × conflict t+3 quarter</td>
<td>0.0237</td>
<td>0.0237</td>
<td>0.0237</td>
</tr>
<tr>
<td></td>
<td>(0.0151)</td>
<td>(0.0151)</td>
<td>(0.0151)</td>
</tr>
<tr>
<td>taboo=1 × conflict t+4 quarter</td>
<td>-0.0218</td>
<td>-0.0218</td>
<td>-0.0218</td>
</tr>
<tr>
<td></td>
<td>(0.0302)</td>
<td>(0.0302)</td>
<td>(0.0302)</td>
</tr>
</tbody>
</table>

Observations: 1114116

Adjusted $R^2$: 0.596

Endogenous controls:
- 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
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 $i$:

$$\text{CerealShare}_{ihdqs} = \theta_1 \text{EthnicCereal}_{is} \times \text{Round}_{93-94} + \theta_2 \text{EthnicCereal}_{is} \times \text{Round}_{99-00} + \sum_j \gamma_{1ij} \ln \text{price}_{jht} + \gamma_{2i} \ln \text{realfoodexp}_{ht} + \delta_{iso \cdot t} + \delta_{idq} + \epsilon_{ihht}$$

- $\text{CerealShare}_{ihdqs}$ = share of cereal expend on $i \in \{\text{rice, wheat, other}\}$.
- $\text{EthnicCereal}_{is}$ = indicator for $i$ being an ethnic cereal in future state $s$.
- $\text{Round}_{XX-XX}$ = indicator for each NSS survey round.
- $\delta_{iso \cdot t}$ = fixed effects for old-state $s_o$-level supply/demand conditions.
- $\delta_{idq}$ = fixed effects control for product-district-season level differences.
- $\epsilon_{ihht}$ clustered at $dt$ level.
### Ethnic Goods and State Splits

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

- **Note:** All survey rounds occur before November 2000 split, so results not driven by state-level border taxes.
- **No differential cross-district migration:**
Heterogeneity in Occupational Shares by Religion, All Rounds

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## Not Imposing Symmetry

<table>
<thead>
<tr>
<th></th>
<th>LHS Variable: Share Spent on Good $i$</th>
<th>(1) Baseline</th>
<th>(2) Cross-section</th>
<th>(3) Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\bar{x}_{ir} \times (cost_r - cost_s)$</td>
<td>0.0836*</td>
<td>-0.340***</td>
<td>-0.388***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0479)</td>
<td>(0.0947)</td>
<td>(0.0980)</td>
<td></td>
</tr>
<tr>
<td>$\bar{x}_{is} \times (cost_r - cost_s)$</td>
<td>0.0410</td>
<td>0.586***</td>
<td>0.625***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0586)</td>
<td>(0.0935)</td>
<td>(0.0981)</td>
<td></td>
</tr>
<tr>
<td>$\bar{x}_{ir} \times (status_r - status_s)$</td>
<td>0.311***</td>
<td>0.152***</td>
<td>0.0486</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0235)</td>
<td>(0.0239)</td>
<td>(0.0594)</td>
<td></td>
</tr>
<tr>
<td>$\bar{x}_{is} \times (status_r - status_s)$</td>
<td>-0.492***</td>
<td>-0.249***</td>
<td>-0.249***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0268)</td>
<td>(0.0279)</td>
<td>(0.0653)</td>
<td></td>
</tr>
<tr>
<td>$\bar{x}_{ir} \times conflict_r + / - 6$ months</td>
<td>0.586***</td>
<td>0.0869**</td>
<td>0.219**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0429)</td>
<td>(0.0362)</td>
<td>(0.0971)</td>
<td></td>
</tr>
<tr>
<td>$\bar{x}_{is} \times conflict_r + / - 6$ months</td>
<td>-0.408***</td>
<td>-0.147**</td>
<td>-0.592**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0650)</td>
<td>(0.0647)</td>
<td>(0.275)</td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>32,523,464</td>
<td>32,515,776</td>
<td>32,435,920</td>
<td></td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.766</td>
<td>0.772</td>
<td>0.780</td>
<td></td>
</tr>
</tbody>
</table>

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
<table>
<thead>
<tr>
<th>LHS Variable: Share Spent on Good</th>
<th>(1) Baseline</th>
<th>(2) Cross-section</th>
<th>(3) Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hindu SC × ((x_{ir} - x_{is})) × (cost(_r) - cost(_s))</td>
<td>0.201***</td>
<td>-0.631***</td>
<td>-0.696***</td>
</tr>
<tr>
<td>Hindu UC × ((x_{ir} - x_{is})) × (cost(_r) - cost(_s))</td>
<td>-0.0905</td>
<td>-0.667***</td>
<td>-0.692***</td>
</tr>
<tr>
<td>Muslim × ((x_{ir} - x_{is})) × (cost(_r) - cost(_s))</td>
<td>0.304***</td>
<td>-0.526***</td>
<td>-0.792***</td>
</tr>
<tr>
<td>Christian × ((x_{ir} - x_{is})) × (cost(_r) - cost(_s))</td>
<td>-0.121</td>
<td>-0.696</td>
<td>-0.359</td>
</tr>
<tr>
<td>Hindu SC × ((x_{ir} - x_{is})) × (status(_r) - status(_s))</td>
<td>-0.0445</td>
<td>0.0388</td>
<td>-0.147</td>
</tr>
<tr>
<td>Hindu UC × ((x_{ir} - x_{is})) × (status(_r) - status(_s))</td>
<td>1.576***</td>
<td>0.839***</td>
<td>1.261***</td>
</tr>
<tr>
<td>Muslim × ((x_{ir} - x_{is})) × (status(_r) - status(_s))</td>
<td>0.356***</td>
<td>0.142***</td>
<td>0.342**</td>
</tr>
<tr>
<td>Christian × ((x_{ir} - x_{is})) × (status(_r) - status(_s))</td>
<td>0.202*</td>
<td>0.208**</td>
<td>0.673***</td>
</tr>
<tr>
<td>Hindu SC × ((x_{ir} - x_{is})) conflict(_r) +/− 6 months</td>
<td>0.489***</td>
<td>0.0960***</td>
<td>0.236**</td>
</tr>
<tr>
<td>Hindu UC × ((x_{ir} - x_{is})) conflict(_r) +/− 6 months</td>
<td>0.533***</td>
<td>0.112**</td>
<td>0.280**</td>
</tr>
<tr>
<td>Muslim × ((x_{ir} - x_{is})) conflict(_r) +/− 6 months</td>
<td>0.591***</td>
<td>0.120***</td>
<td>0.377***</td>
</tr>
<tr>
<td>Christian × ((x_{ir} - x_{is})) conflict(_r) +/− 6 months</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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