Identity, Market Access, and Demand-led Diversification

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Paper Summary
An interactive guide addressing key concerns and highlighting contributions

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1 Summary

Core Research Question: How does social identity shape firm growth and market access through consumer preferences?

Main Finding: Identity-driven consumer preferences create demand segmentation that constrains firms' ability to achieve scale economies. Firms overcome these barriers through strategic workforce diversification—hiring employees from target customer groups to expand market reach.

Key Statistics:

- **30.8%** rate at which demand decays over social distance between castes
- **10-15%** reduction in average firm size due to identity preferences
- **5-8%** reduction in aggregate income due to identity barriers

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Question

"Is this just about India-specific caste issues?"
While we use India's caste system as a natural laboratory, our mechanism applies broadly to any setting with social fragmentation and consumer preferences for in-group sellers. Recent evidence shows similar patterns in the US (racial preferences on eBay, Airbnb), Sub-Saharan Africa (gender-based seller preferences), and financial markets (CEO-investor social connections). The theoretical framework generalizes to any form of social identity.

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2 Research Design & Identification

2.1 Causal Identification Strategy

Challenge: Consumer demand and a firm's market access and hiring are endogenously determined.
Solution: Rainfall shocks as exogenous demand shifters that affect certain caste groups relative to others.

How Rainfall Creates Identification:

1. **Asymmetric Income Effects:** Low-ranked caste households are poorer (demand is very elastic to income shocks) <u>and</u> work more in agriculture $\Rightarrow$ benefit more from good rainfall

2. **Demand Composition Shift:** Low-ranked caste household expenditure increases 8.6% relative to high-caste

3. **Firm Response:** Low-ranked caste firms see 13.4% revenue increase; firms adjust workforce composition to cater to newfound opportunity for sales to LC

Empirical Specification:

$$\log(y_{ft}) = \alpha + \beta_1 \cdot \text{Rainshock}_{dt} + \beta_{2,i} \cdot \text{Rainshock}_{dt} \times \text{caste}_i + \delta_{d,t} + \delta_{s,t} + \delta_i + \epsilon_{ft}$$

where $\beta_{2,LC}$ identifies the differential effect for low-ranked caste owned firms.

Question

"Aren't rainfall shocks just supply shocks to agriculture?"
We address this in multiple ways: (1) We exclude food manufacturing from our analysis, (2) Effects are strongest in non-agricultural sectors and services, (3) We show the mechanism works through demand composition changes, not agricultural supply, (4) Foreign demand shocks (placebo test) don't generate similar workforce adjustments.

2.2 Unique Dataset

MSME Survey 2006-07: 349,715 firms with employer-employee caste composition

Data Advantage: The MSME survey is the only nationally representative dataset that provides caste information for both employers AND employees, unavailable in other major Indian firm datasets (ASI, Prowess).

Question

"Why focus on small/medium firms? What about selection issues?"
Small/medium firms are where identity matters most—large multi-establishment firms are less likely to suffer from identity bias. Moreover, 95% of Indian firms are small/medium enterprises, making this the relevant margin for understanding aggregate effects. We show our results are stronger among the larger firms within our sample, contradicting simple selection stories.

2.3 Robustness Checks

Alternative Explanations Tested & Ruled Out:

- **Geographic Segregation:** Results hold in geographically integrated regions
- **Product Quality:** Effects persist when comparing similar-quality products across (proxied by input prices) castes

- **Information Frictions:** Strong effects even in homogeneous product markets (Rauch classification)
- **Financial Constraints:** No changes in borrowing or marginal revenue product of capital
- **Supply-Side Labor:** Effects concentrated in customer-facing sectors

> **Question**
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> **"Could this just be wealth-based segregation disguised as caste preferences?"**
> We control for household wealth (land ownership, meals per day, education) and the caste effect remains. We also restrict analysis to product markets where LC and HC firms produce similar-quality goods (using input prices as quality proxy)—results are quantitatively similar or stronger.

3 Key Empirical Findings

> **Finding 1: Identity Engel Curves**
> As high-caste employee share in a product market increases from 0 to 1, high-caste consumer expenditure increases by **12.6%** relative to low-ranked caste consumers.
> **Finding 2: Demand-Led Diversification**
> Larger firms in our sample are **30 percentage points** more likely than smaller firms to hire cross-caste employees. Own-caste hiring share falls from 85% (smallest firms) to 55% (largest firms) in our sample. This decline is faster in customer-facing sectors and among low-ranked caste owned firms.
> **Finding 3: Strategic Workforce Adjustment**
> After positive demand shocks, low-ranked caste firms increase low-ranked caste hiring. Moreover, high-caste firms increase hiring of low-ranked caste employees by **1.3-2.4 percentage points**. These results are stronger in competitive markets and in customer-facing sectors.

> **Question**
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> **"Are these effects economically meaningful or just statistically significant?"**
> The magnitudes are substantial: a 13.4% revenue increase represents significant firm growth in our context. Our calibrated model shows these micro-level effects aggregate to 5-8% reduction in total income.

4 Theoretical Framework

4.1 Model Innovation

Standard trade models assume firms' characteristics don't affect demand across markets. We introduce **demand spillovers**—hiring from one group affects product appeal to other groups.

4.2 Key Mechanisms

1. **Consumer Identity Preferences:** Utility from variety z produced by firm of group s' for consumer of group s:

$$q(z, s, s') = z \cdot \Psi(d^*_{s,s'}) = z \cdot e^{-\beta \sum_k (d_{s',s,k} - \Delta X_{s,k})^2}$$

2. **Endogenous Social Distance:** Firms choose optimal location $\Delta X^*_{s,k}$ to minimize distance to target consumers

3. **Trade-off:** Becoming closer to distant groups may alienate current customers

4. **Optimal Diversification:** Large firms find it profitable to serve diverse markets through strategic hiring

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Question

"How do you separate preferences from statistical discrimination or information frictions?"

We test this directly by examining products with different information content using (1) Rauch classification of product differentiation and (2) price dispersion measures. Identity effects remain strong even in homogeneous products where quality is easily observable, suggesting taste-based rather than statistical discrimination.

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5 Quantitative Results & Policy Implications

5.1 Model Calibration

Identification Strategy: We jointly estimate parameters by matching:

- Revenue elasticity to rainfall shocks (identifies β)
- Firm size distribution moments (identifies fixed costs)
- Cross-caste hiring patterns (identifies trading costs)

The calibrated model perfectly matches our causal revenue elasticity estimates and key moments in firm size distribution.

Key Calibrated Parameters:

- Share of firms hiring cross-caste: 38% (matches data)
- Demand decay over social distance: 30.8%

5.2 Policy Counterfactuals

Experiment 1: Eliminating Identity Preferences

- **Result:** Would increase average firm size by 10-15% and aggregate income by 5-8%
- **Mechanism:** Firms could access broader markets without demand constraints

Experiment 2: Reducing Cross-Caste Hiring Costs While Keeping Demand Segmentation

- **Policy:** Decline in the cost of hiring across caste
- **Result:** Doubles cross-caste hiring, increases firm size, enhances welfare through product variety
- **Mechanism:** Lower barriers $\Rightarrow$ more firms serve diverse markets $\Rightarrow$ greater competition and variety

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> **Question**
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> **"Don't within-group preferences have benefits? Your welfare calculations seem one-sided."**
> We acknowledge this limitation explicitly. Identity-based preferences may facilitate trust, risk-sharing, and learning within networks. Our results should be interpreted as the *efficiency costs* of these preferences. The net welfare effect depends on weighing these costs against potential benefits—precisely why we conclude that "policies to offset them should carefully weigh these gains against the efficiency costs."

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6 Contribution to Literature

6.1 Primary Contributions

- **Demand-Side Theory of Firm Size:** Complements supply-side explanations in misallocation literature (Hsieh & Klenow, 2014; Bento & Restuccia, 2017)

- **Novel Hiring Mechanism:** First to show demand-led workforce diversification—extends literature on workforce composition (Hjort, 2014; Holzer & Ihlanfeldt, 1998)

- **Causal Evidence:** Identifies taste-based discrimination in product markets using exogenous shocks—builds on Doleac & Stein (2013), Edelman & Luca (2014)

- **Quantitative Framework:** Provides welfare calculations for identity-based market segmentation—contributes to social networks and trade literature (Rauch, 2001; Combes et al., 2005)

> **Question**
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> **"How generalizable are these findings beyond India?"**
> While our setting is India, the mechanism applies wherever: (1) consumers have social identity preferences, (2) employee characteristics affect customer perceptions, and (3) firms face hiring flexibility. Evidence suggests this occurs across many contexts—US racial preferences in online markets, European immigrant integration, gender-based preferences in African markets. Our theoretical framework provides tools to analyze these settings quantitatively.

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7 Conclusion

This paper provides the first causal evidence and quantitative assessment of how social identity shapes firm growth and workforce composition through consumer preferences. By documenting demand-led workforce diversification and quantifying its aggregate costs, we offer both theoretical

insights and policy-relevant guidance for addressing efficiency losses from identity-based market segmentation.

The findings suggest that targeted short-term policies promoting workforce diversity may enhance economic efficiency.

For detailed methodology, robustness checks, and technical appendices, please see the full manuscript.