

How Unequal Access to Public Goods Reinforces Horizontal Inequality in India

ASLI DEMIRGUC-KUNT

LEORA KLAPPER

NEERAJ PRASAD



Summary

- I. Using National Sample Survey between 1993 and 2012, we find that inequality between caste and religion based groups is
 - Multi-Dimensional and
 - Persistent

- II. Using a new survey data we measure caste and religion based inequality in access to following government provided goods and services:
 - Public schools
 - Healthcare
 - Utilities
 - Identity cards
 - Issuance of driving license, and
 - Registration of land or property

Summary

III. We find that “**Consumption Inequality**”:

- has **decreased** between caste and religion based groups in states with low group based inequality in access to public goods and service
- has **increased** in states with high inequality in access to public goods and services

Introduction

➤ **Inequality Traps** : Children born in disadvantaged groups do not have the tools and the opportunities to grow out of poverty.

- World Development Report, 2006

➤ Governments attempt to break these inequality traps by providing universal goods and services that reduce inequality and promote social mobility.

- Barro, 1996; Owen and Weil, 1998; Ferreira, 2001; Alesina and La Ferrara, 2005

But what if the tools that are meant to level the playing field, cause inequality to persist?

Theoretical Motivation

- A traditional view of equity, efficiency, and distributive justice does not always preclude economic inequality.

-Rawls, 1971; Dworkin, 1981a; Dworkin, 1981b; Paes de Barros et al., 2009;
Ferreira et al., 2017; Huber, 2017

- This is because *unequal circumstances* and *innate differences* both contribute to economic inequality.

Theoretical Motivation

Two ways to separate circumstances from innate differences:

➤ **Vertical Inequality**: By measuring outcomes in early childhood. The underlying motivation is that for children, unlike adults, access implies opportunity. Children cannot be expected to make effort in order to gain access to basic goods and services.

- WDR 2006, Paes de Barros et al 2009

➤ **Horizontal Inequality**: To estimate inequality in outcomes by social groups, if groups are selected so that

- Group membership is assigned at birth, and
- Individuals cannot (or do not) self-select into groups, then the allocation of group membership is as-if random.

Measuring Horizontal Inequality

➤ Relative Consumption

$$BGI = \frac{(\text{Mean Consumption}_i - \text{Group Mean Consumption}_{i,j})}{\text{Group Mean Consumption}_{i,j}}$$

where, i denotes a state and j denotes a group.

➤ Odds Ratio

$$OR_i = \frac{a * d}{b * c}$$

where a equals the number of exposed cases, b equals the number of exposed non-cases, c equals the number of unexposed cases, d equals the number of unexposed non-cases, and i denotes the group

➤ Modified Theil

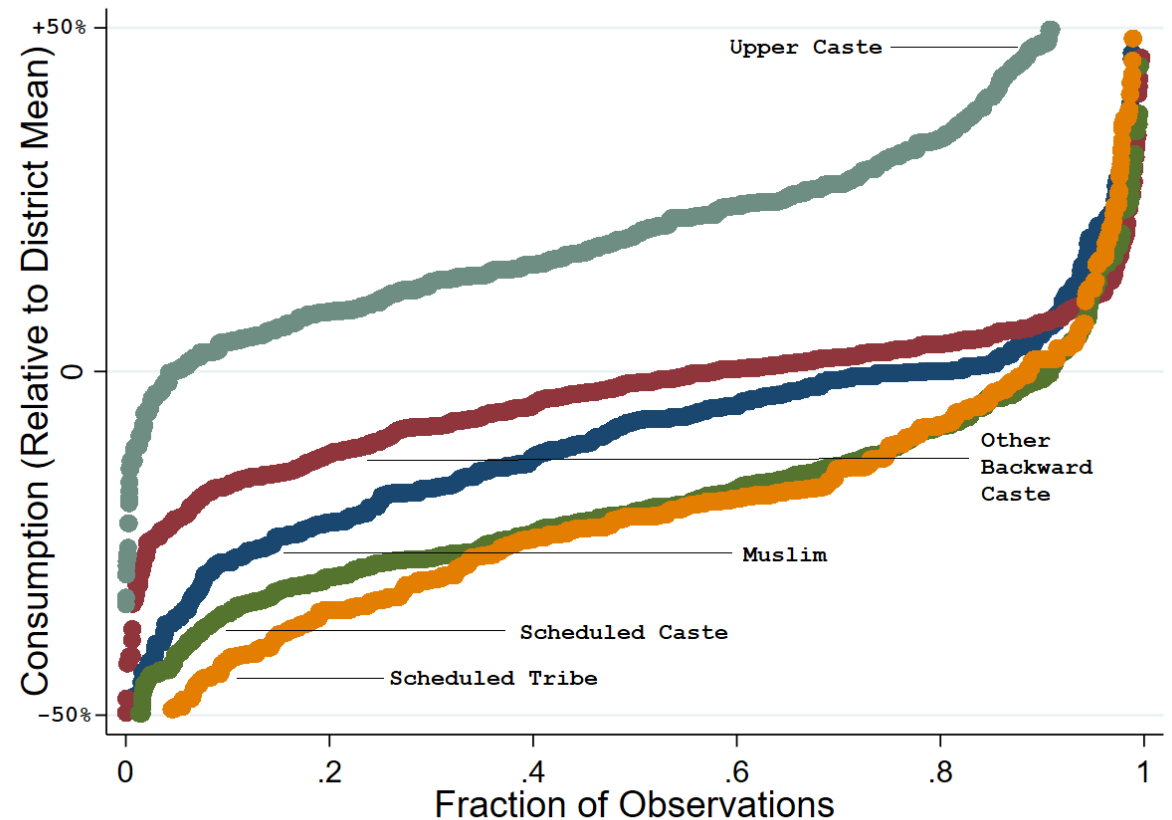
$$BGI - Theil = P_r \frac{\bar{y}_r}{y} \log \frac{\bar{y}_r}{y} + P_{r'} \frac{\bar{y}_{r'}}{y} \log \frac{\bar{y}_{r'}}{y}$$

Horizontal Inequality in India

Consumption: *The Percentage Difference Between District Mean Consumption and Group Mean Consumption.*

Summary Statistics:

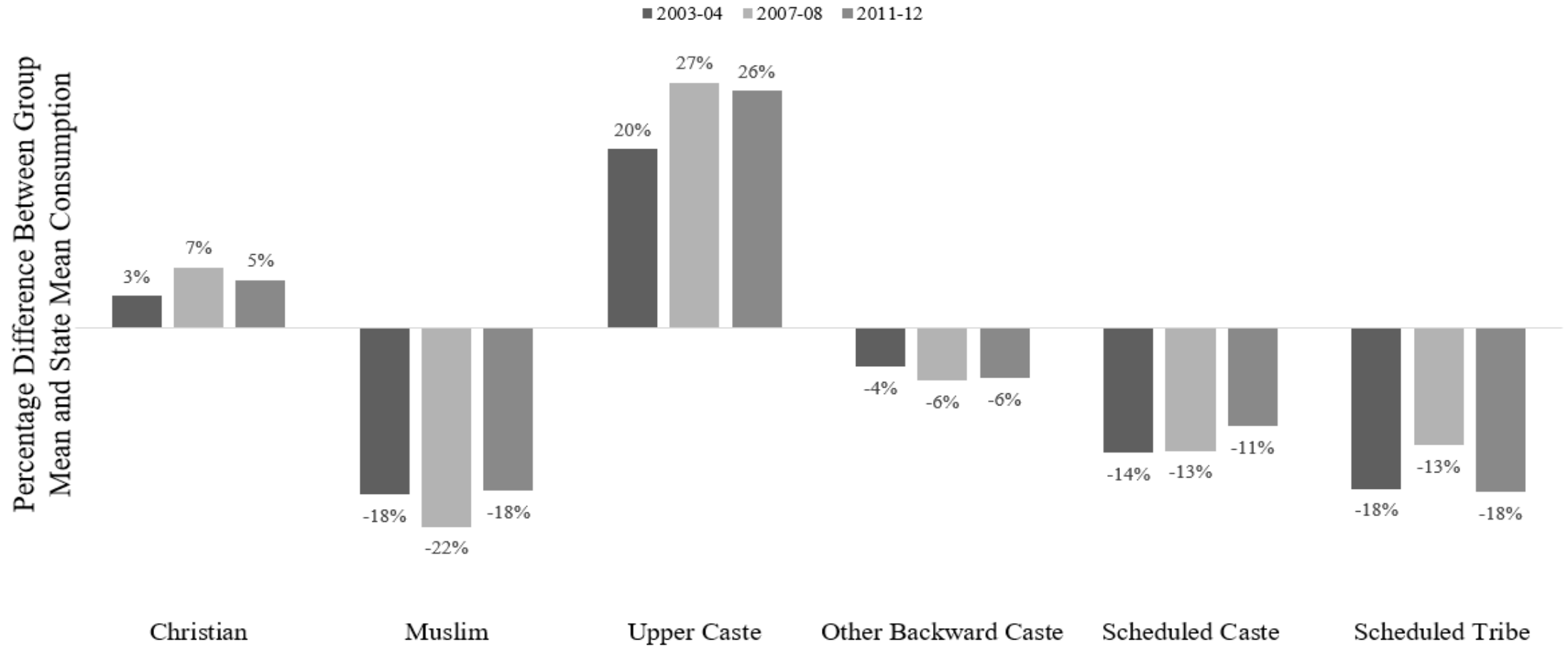
Group	Mean	N
Upper Caste	23.67%	1,358,063
Other Backward Caste	-3.2%	1,896,286
Muslim	-9.0%	746,261
Scheduled Caste	-18.5%	798,575
Scheduled Tribe	-20.0%	360,209



Horizontal Inequality is Multi-Dimensional

Inequality Dimension	Measures Odds of	ST	SC	OBC	UC Hindu
Consumption ¹	Being in the top 1\6 th in consumption	0.70	0.81	1.14	1.34
Occupation ¹	Being employed in a high skill or status job	0.37	0.41	0.76	2.56
Living Conditions ²	Living in a <i>pucca</i> ⁴ (permanent house)	0.18	0.60	1.03	2.76
	Using LPG as source of fuel for cooking ⁵	0.92	0.93	0.87	1.09
	Having access to electricity	0.72	0.54	0.88	2.91
Sanitation ²	Having underground or covered drainage ⁶	0.20	0.45	0.73	2.82
	Having a toilet with a flush and a septic tank ⁷	0.15	0.40	0.71	3.24
Education ³	Having English as a medium of instruction ⁸	0.18	0.39	0.70	2.37
	Not having to walk or cycle to school	0.37	0.59	0.88	1.98
	Professional or technical qualification	0.31	0.39	0.84	2.50
	Completed higher secondary school (12 th Grade)	1.05	0.70	1.80	1.02
Preventative Healthcare ²	Access to piped water	0.35	0.85	0.99	1.67
	Drinking water treated (UV, resin, reverse osmosis)	0.13	0.22	0.33	5.81
Healthcare ²	Health self-reported as 'good'	0.89	0.66	0.95	1.57
	Did not receive post-natal care	1.36	1.46	0.82	0.53

Horizontal Inequality is **Persistent**



India State Survey

- This paper uses data from a new module of questions – Measuring User Experience with Service Delivery – added to the “Gallup 2016 India State Survey.”
- Conducted by Gallup, Inc. on behalf of the World Bank.
- The indicators are based on responses for a sample of 14,000 adults in 14 Indian states: Andhra Pradesh (including Telangana), Bihar, Chhattisgarh, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Uttar Pradesh, and West Bengal.

India State Survey

This paper includes the following goods and services provided by the government:

- Government run or government aided schools.
- Government run hospitals, clinics, and health services.
- Registration of land/property.
- Issuance of driver's licenses.
- Access to utilities such as electricity, gas and water.
- Issuance of Identity cards:
 - Voter ID cards;
 - Aadhaar biometric cards.
- Except for identity cards, which are issued by the federal government, all others goods and services are delivered by the state government.

Measuring Access—What is meant by ‘Access’

‘Access=1’ is relatively easy to observe – those who applied for and obtained a government provided good or a service, had access.

However, the lack of access ‘Access=0’, is difficult to estimate.

- Include those who applied and did not obtain the service;
- Include those who did not apply but would have applied if they had the necessary know-how and resources needed to make an application;
- Exclude those who did not apply because they did not need the government provided good or service.

Estimating ‘Needs’

The second and the third types are difficult to identify. To disentangle those who do not apply because they are priced out from those who do not apply because they do not need the good or service, we need to identify ‘Need’: Where ‘Need=1’ implies that the respondent needs a good or a services, while ‘Need=0’.

- Type 1: Self-Reported Needs
- Type 2: Controlling for Lack of Affordability, Know-how, or Documents
- Type 3: Estimated Needs (For Access to Public Schools Only)

Research Design, Results, and Analysis

The following specification is used;

$$\begin{aligned} Access_{i,s} = & \beta_0 + \beta_1(\text{Individual-Level Gender})_{i,s} \\ & + \beta_2(\text{Individual-Level Caste-Category})_{i,s} \\ & + \beta_3(\text{Individual-Level Religion})_{i,s} \\ & + \beta'_4(\text{Controls})_{i,s} + \beta_5(\text{State-Level Controls})_s \\ & + \mu_s + \epsilon_{i,s} \end{aligned}$$

where, $Access_{i,s}$ measures access to public goods and services for individual 'i' in state 's'. The term μ_s is the random intercept. It is used to shift the intercept for each state and capture state level effects.

	(1)	(2)	(3)	(4)	(5)
	Type 1	Public Schools		Healthcare	
	Type 1	Type 2	Type 3	Type 1	Type 2
Scheduled Tribe	-0.161*	-0.116	-0.363***	0.019	0.103
	(0.083)	(0.078)	(0.088)	(0.084)	(0.080)
Scheduled Caste	-0.311***	-0.199***	-0.272***	-0.208***	-0.106**
	(0.053)	(0.050)	(0.057)	(0.056)	(0.054)
Muslim	-0.023	-0.052	-0.240***	-0.148**	-0.119*
	(0.068)	(0.064)	(0.072)	(0.073)	(0.071)
Christian	-0.013	-0.140	0.320	0.219	0.161
	(0.176)	(0.161)	(0.240)	(0.174)	(0.165)
Woman	-0.406***	-0.340***	-0.488***	-0.211***	-0.186***
	(0.040)	(0.037)	(0.043)	(0.042)	(0.040)
Income (In SD)	0.004	0.013	0.040**	0.043**	0.025
	(0.016)	(0.015)	(0.019)	(0.018)	(0.016)
Rural	-0.035	-0.074*	-0.152***	0.090*	0.056
	(0.046)	(0.043)	(0.050)	(0.049)	(0.046)
Illiterate	0.080*	0.062	0.044	0.221***	0.184***
	(0.045)	(0.042)	(0.048)	(0.048)	(0.046)
Log (State GDP)	-0.006	-0.110	-0.224	-0.217	-0.297
	(0.158)	(0.133)	(0.190)	(0.267)	(0.296)
% Below Poverty Line	-0.026**	-0.023**	-0.025*	-0.015	-0.016
	(0.011)	(0.009)	(0.013)	(0.019)	(0.021)
Infant Mortality Rate	0.006	0.001	-0.007	0.008	0.006
	(0.010)	(0.009)	(0.012)	(0.017)	(0.019)

Results and Analysis

➤ Access to public schools and healthcare is lower for members of the Scheduled Caste, Scheduled Tribe, and Muslims.

➤ Factors associated with having lower access to public schools include

- Being a member of the Scheduled Tribe (OR=0.70, 99% CI: 0.58, 0.82);
- Being a member of the Scheduled Caste (OR=0.76, 99% CI: 0.68, 0.85);
- Being a Muslim (OR=0.79, 99% CI: 0.68, 0.90)

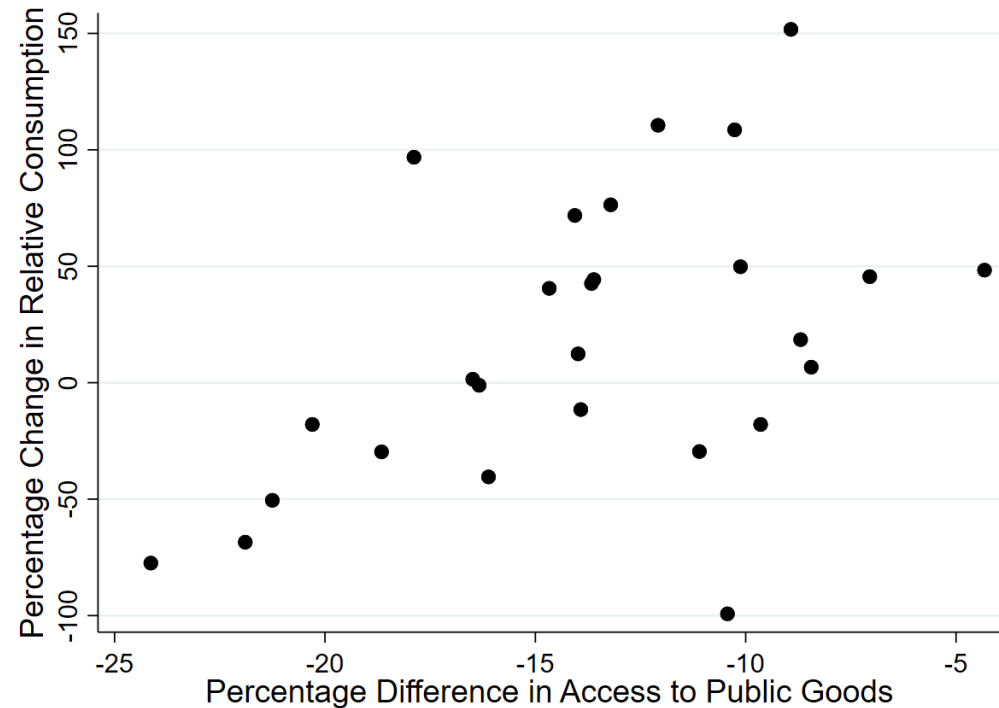
with the base residual population consisting of Upper Caste Hindus and members of the Other Backward Caste.

➤ Income is important only when there are no private alternatives.

Discussion

Applies only to deprived groups. The rationale is to study how inequality in access affected the relative performance of these individual groups. We find that:

- In states where inequality in access was relatively low, *deprived groups demonstrated a larger increase in consumption.*
- In states where inequality in access was relatively high, *inequality in consumption between deprived groups and the rest of population was more likely to increase.*



Thank You
