Ethnic Fragmentation, Public Good Provision and Inequality in India, 1988 - 2012

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  - Vast literature on the long shadow that caste identity still casts on the social, economic, and political life in India click here
- Consider a caste group as a separate ethnic group
- Study the impact of ethnic fragmentation on inequality (1988-2012)

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- Through these variables fragmentation can influence the distribution of economic outcomes

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  - If the rich in each social group have better access to economic opportunities - impact on vertical inequality

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- We focus on primary schools and health centres
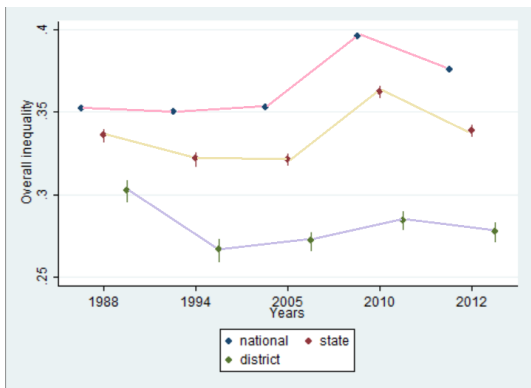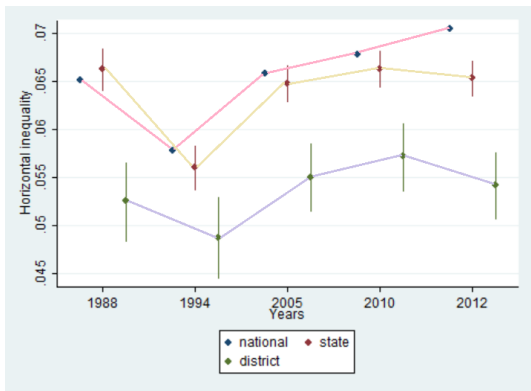
- Estimating equations:

$$I_{dst} = \alpha_s + \beta_t + \gamma_1 EFI_{dst} + X'_{dst}\gamma_2 + \alpha_s.t + \epsilon_{dst} \qquad (1)$$

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- Suggests economic policy has the potential to dampen the adverse consequences of a social demographic problem.

Table: Impact of ethnic fragmentation on overall inequality

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Gini	Gini	Gini	Gini	Gini	Gini	Theil	Theil	Theil	Theil	Theil	Theil
Ethnic frag	0.097***	0.082**	0.067**	0.070**	0.082**	0.087***	0.109**	0.107**	0.079*	0.083*	0.095**	0.100**
	(0.005)	(0.046)	(0.037)	(0.036)	(0.015)	(0.009)	(0.013)	(0.042)	(0.064)	(0.060)	(0.030)	(0.021)
Literacy rate		-0.016						-0.038				
		(0.336)						(0.119)				
Urbanisation		0.001***						0.000*				
		(0.000)						(0.074)				
Impce_dis		0.115***						0.162***				
		(0.000)						(0.000)				
Prim schools			-0.025***	-0.019***					-0.024***	-0.019***		
			(0.000)	(0.000)					(0.006)	(0.002)		
Prim health cntr			0.137						0.099			
			(0.300)						(0.534)			
Maternal health cntr				-0.127**						-0.128*		
				(0.044)						(0.094)		
P_sch X cfrag					-0.004***	-0.004***					-0.004***	-0.004***
					(0.000)	(0.000)					(0.000)	(0.000)
PHC X cfrag					-0.171*						-0.196*	
					(0.065)						(0.062)	
MHC X cfrag						-0.227***						-0.224**
						(0.005)						(0.013)
Round FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State level time trends	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Observations	1699	1592	1674	1674	1673	1673	1699	1592	1674	1674	1673	1673

p-values in parentheses

Notes: *Gini* and *Theil* are constructed at the district level using HH consumption expenditure data from various NSS rounds. Variable of interest, *Ethnic frag*, is the fragmentation index constructed using 1931 census. *Impce_dis* is the log of average consumption expenditure in a district. *Prim schools* denote the number of primary schools per thousand population in a district. *Prim health cntr* and *Maternal health cntr* denote the number of primary health centers and maternity health centers per 1000 population in a district. *P_sch X cfrag* is the interaction between *Prim schools* and *Ethnic frag*. *PHC X cfrag* is the interaction between *Prim health cntr* and *Ethnic frag*. MHC X cfrag is the interaction between *Maternal health cntr* and *Ethnic frag*. Standard errors are clustered at district level.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table: Impact of public goods provision on overall inequality

	(1) Gini	(2) Gini	(3) Gini
Prim schools	-0.006**		
	(0.043)		
Maternal health cntr		-0.125*	
		(0.082)	
Prim health cntr			-0.111*
			(0.093)
Literacy rate	-0.006	-0.007	-0.006
	(0.758)	(0.723)	(0.755)
Urbanisation	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)
lmpce_dis	0.115***	0.116***	0.116***
	(0.000)	(0.000)	(0.000)
Round FE	Yes	Yes	Yes
State FE	Yes	Yes	Yes
State level time trends	Yes	Yes	Yes
Observations	1874	1874	1874

p-values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table: Impact of ethnic fragmentation on within and horizontal inequality

	(1) Theil	(2) Theil	(3) Theil	(4) Theil	(5) Theil_wn	(6) Theil_wn	(7) Theil_wn	(8) Theil_wn	(9) Theil g	(10) Theil g	(11) Theil g
Ethnic frag	0.109**	0.107**	0.079*	0.083*	0.092**	0.088*	0.058	0.063	0.017	0.017	0.021
	(0.013)	(0.042)	(0.064)	(0.060)	(0.024)	(0.060)	(0.145)	(0.131)	(0.257)	(0.281)	(0.126)
Literacy rate		-0.038				-0.030				-0.010*	
		(0.119)				(0.189)				(0.051)	
Urbanisation		0.000*				0.000*				0.000	
		(0.074)				(0.069)				(0.514)	
Impce_dis		0.162***				0.150***				0.013***	
		(0.000)				(0.000)				(0.000)	
Prim schools			-0.024***	-0.019***			-0.025***	-0.020***			0.001
			(0.006)	(0.002)			(0.002)	(0.001)			(0.776)
Prim health cntr			0.099				0.078				0.021
			(0.534)				(0.562)				(0.620)
Maternal health cntr				-0.128*				-0.132*			
				(0.094)				(0.053)			
Round FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State level time trends	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes
Observations	1699	1592	1674	1674	1698	1591	1674	1674	1698	1591	1674

p-values in parentheses

Notes: Theil and its decompositions are constructed at the district level using HH consumption expenditure data from various NSS rounds. The first four columns are repeated from table 1 to clearly see whether the increase in inequality is driven by horizontal or vertical component. *Ethnic frag* is the fragmentation index constructed using 1931 census. *Impce_dis* is the log of average consumption expenditure in a district. *Prim schools* denote the number of primary schools per thousand population in a district. *Prim health cntr* and *Maternal health cntr* denote the number of primary health centers and maternity health centers per 1000 population in a district. Standard errors are clustered at district level.

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Robustness checks

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- NSS Census
  1987 1991
  1994 1991
  2004 2001
  2009 2001
  2012 2011

Table: Impact of ethnic fragmentation on overall inequality (without 1988)

	(1)	(2)	(3)	(4)	(5)
	Gini	Gini	Gini	Gini	Gini
Ethnic frag	0.136***	0.110***	0.115***	0.127***	0.130***
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)
Prim schools		-0.030***	-0.022***		
		(0.000)	(0.000)		
Prim health cntr		0.165			
		(0.229)			
Maternal health cntr			-0.117*		
			(0.060)		
P_sch X cfrag				-0.004***	-0.005***
				(0.000)	(0.000)
PHC X cfrag				-0.199**	
				(0.038)	
MHC X cfrag					-0.232***
					(0.007)
Round FE	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes
State level time trends	No	Yes	Yes	Yes	Yes
Observations	1373	1351	1351	1350	1350

p-values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table: Cross-Cuttingness

Consumption expenditure: Year:2011-12				
Group	Quart 1	Quart 2	Quart 3	Quart 4	Total
ST	3.91	3.08	3.25	2.37	12.61 (3.15)
SC	5.3	3.74	3.59	1.94	14.57 (3.64)
Others	15.78	18.20	18.15	20.69	72.82 (18.2)
Total	24.99	25.00	25.00	25.00	100.00

Conclusion

- Overall inequality is higher in more fragmented districts
- Lowered provision of public goods is the channel through which fragmentation manifests its impact
- However, there is no robust relationship between horizontal inequality and fragmentation
- Measurement of horizontal inequality in India depends critically on the data one uses.
- Additional research is still needed to understand which measure of horizontal inequality needs to be calculated