

## EC9AA Term 3: Lectures on Economic Inequality

**Debraj Ray**, University of Warwick, Summer 2023

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- **Slides 6:** Aspirations: The Roots of Inspiration and Frustration

### Decision Theory Based on Aspirations

#### ■ Aspirations-based models:

- The use of **milestones**, references or targets
- An emphasis on the **social basis** of those targets

#### ■ Close relatives:

- **Reference points** in behavioral decision theory  
But social determination of those reference points
- **Comparisons** with others (Veblen, Duesenberry, Frank)

The aspirations approach has its own set of specific predictions.

## Personal Origins

- **My own thinking** about aspirations comes from:
  - Development economics:
    - 1998 text: aspirations  $\mapsto$  frustration, inspiration, complacency ...
  - Ethnic and economic polarization
    - with Joan Esteban (1994, 1999)
  - The tunnel effect; the “capacity to aspire.”
    - Hirschman (1973) and Appadurai (2004)
  - Reinforcement learning in games:
    - with Jon Bendor and Dilip Mookherjee (1996, 1998, 2001)
  - And like any parent, **bringing up my own kids ...**

## The Lives of Others

- **Individual preferences fundamentally dependent on the lives of others:**
  - Absurd to think about inequality, unrest, conflict, etc. without this.
  - Those lives on ever-sharper display
    - Reduced doubling times, the internet, social media ...
  - Unclear if such exposure leads to betterment or to despair
    - Hirschman and Rothschild 1973
  - **“The French found their position all the more intolerable as it became better.”**
    - Tocqueville, 1856

## Hirschman's Tunnel



## Aspirations as Reference Points or Milestones

- **Aspirations:** a possibly multidimensional reference point.

$$\mathbf{a} = \Psi(\mathbf{y}, F),$$

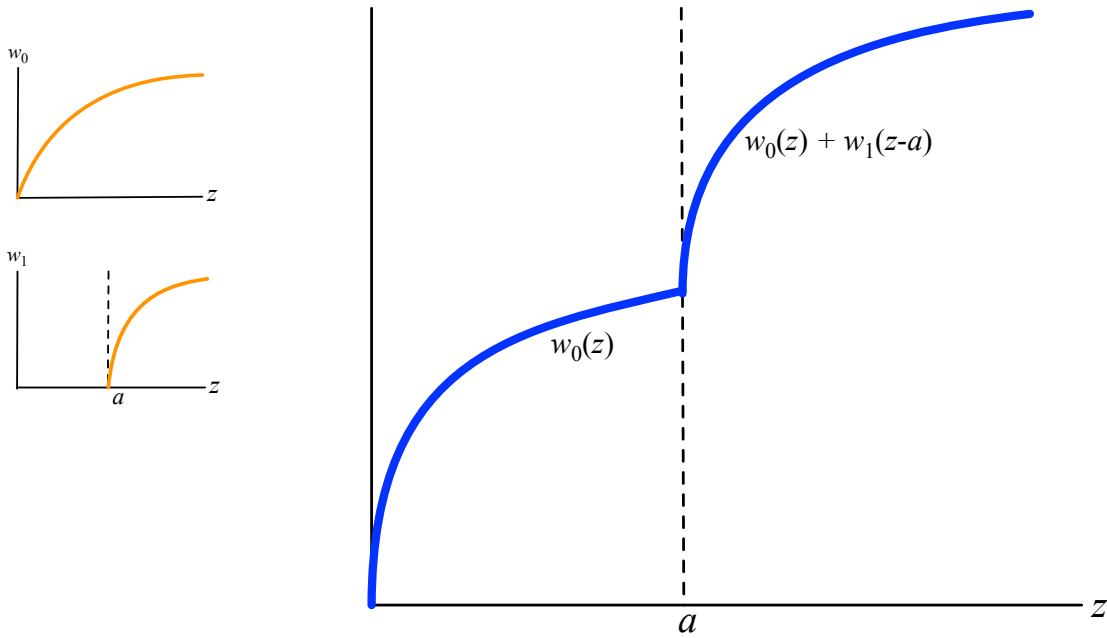
- $\mathbf{y}$  = **current** personal outcome,  $F$  = social distribution over outcomes.
- They anchor **individual payoffs**:

$$\underbrace{u(\mathbf{y} - \mathbf{k}(\mathbf{z}))}_{\text{current}} + \underbrace{w_0(\mathbf{z})}_{\text{future intrinsic}} + \underbrace{w_1(\mathbf{e})}_{\text{future aspirational}}$$

- where  $\mathbf{z}$  is **future** outcome, and  $\mathbf{e} = \max\{\mathbf{z} - \mathbf{a}, 0\}$ .

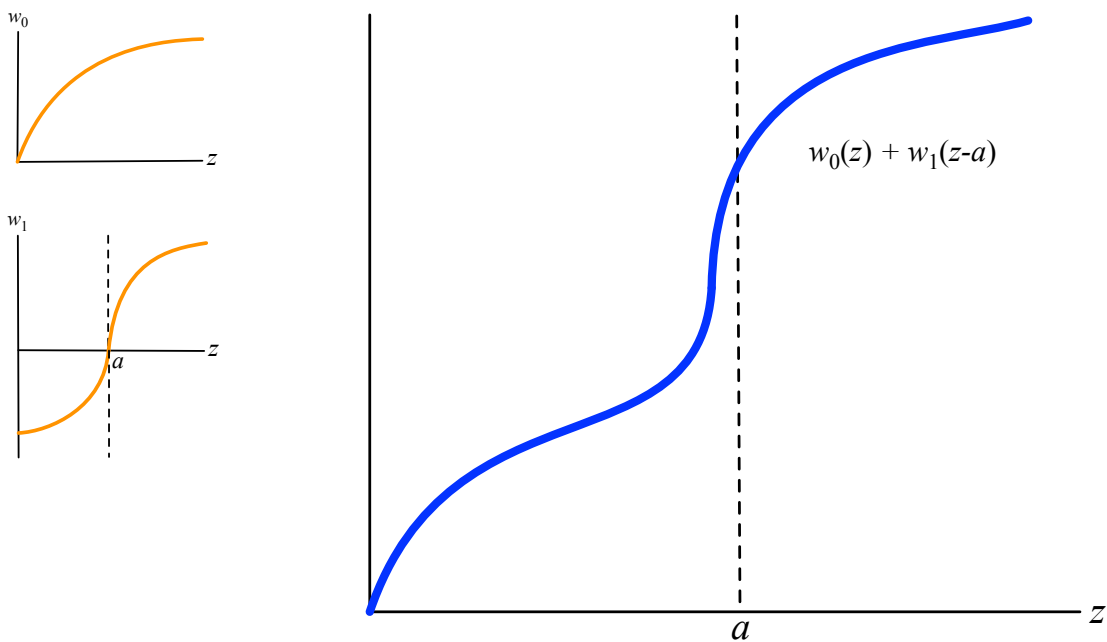
## Aspirations as Reference Points or Milestones

$$u(\mathbf{y} - \mathbf{k}(\mathbf{z})) + \underbrace{w_0(\mathbf{z}) + w_1(\mathbf{e})}_{\text{future}}$$



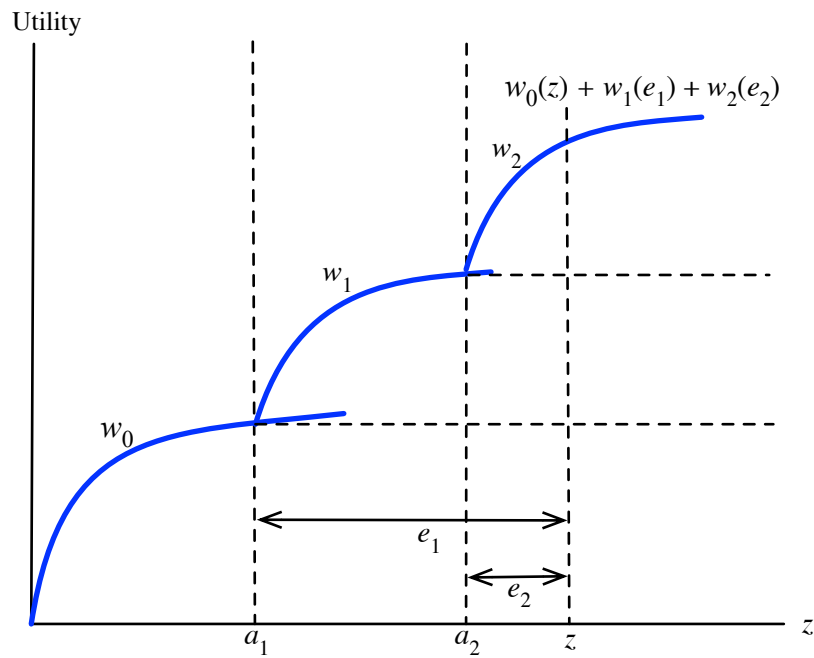
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$$u(\mathbf{y} - \mathbf{k}(\mathbf{z})) + \underbrace{w_0(\mathbf{z}) + w_1(\mathbf{e})}_{\text{future}}$$



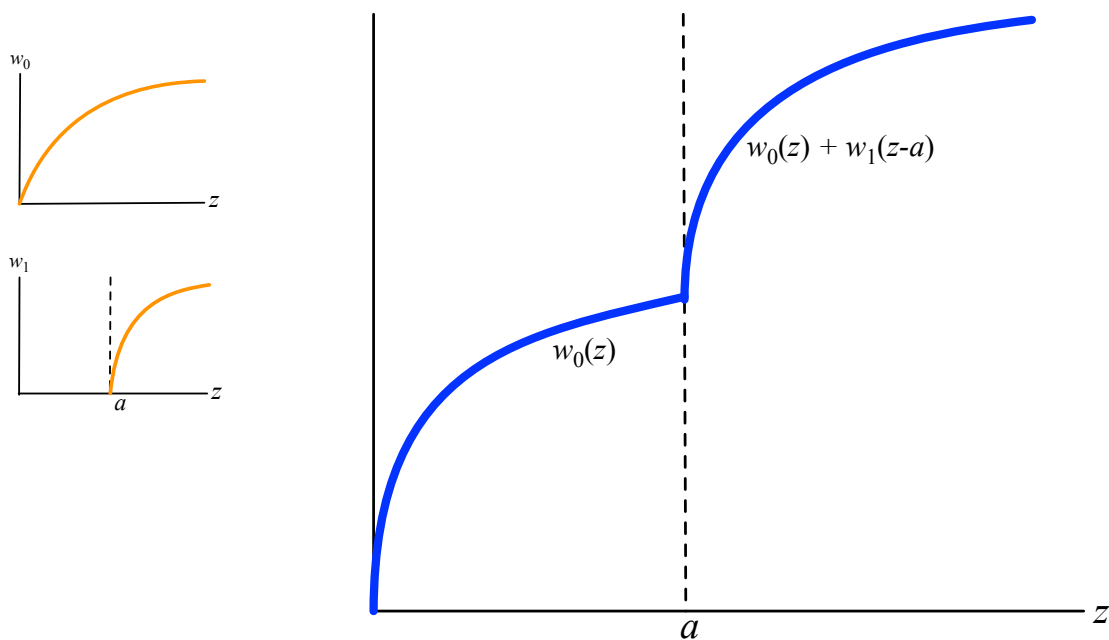
## Aspirations as Reference Points or Milestones

$$u(y - k(z)) + \underbrace{w_0(z) + w_1(e)}_{\text{future}}$$



## Aspirations as Reference Points or Milestones

$$u(y - k(z)) + \underbrace{w_0(z) + w_1(e)}_{\text{future}}$$



## Main Features

### ■ Society → individual goals:

- Do aspirations both serve to inspire and to frustrate?
- How would individuals react to high inequality?
- Can our aspirations be controlled? Psychology, policy.

### ■ Individual goals → society:

- How do individual reactions in turn generate society-wide outcomes?
- Investment, mobility, inequality, segregation ...

### ■ Economic failure and ethnic salience:

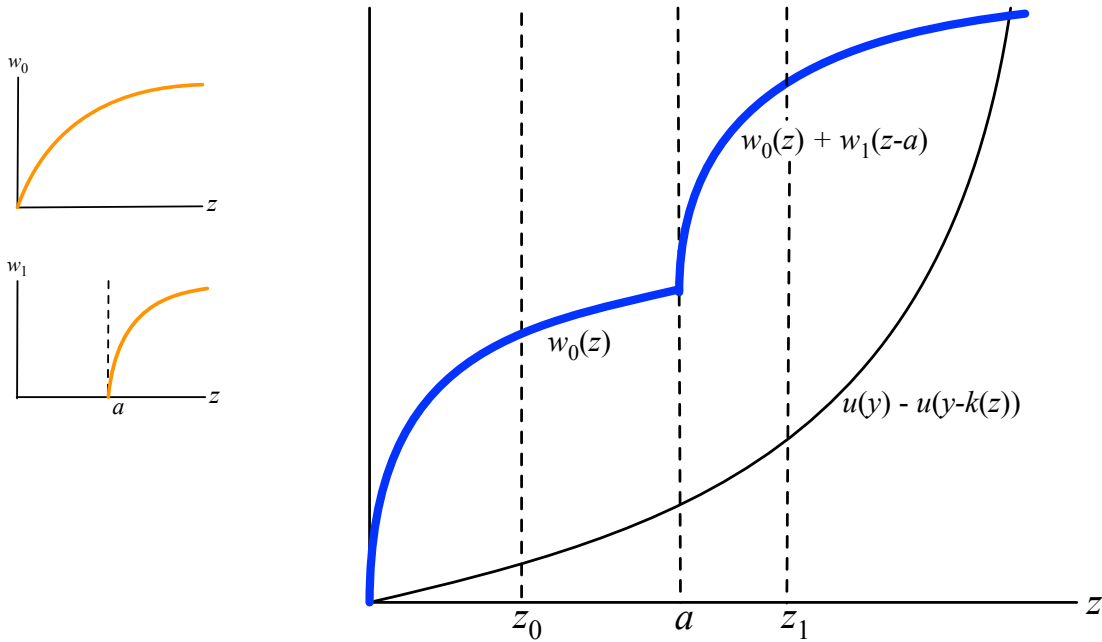
- Orthogonal spillovers into collective action or conflict;
- ethnic violence, anti-immigration sentiment, religious intolerance, BLM ...

## Inspiration and Frustration

$$\underbrace{u(\mathbf{y} - \mathbf{k}(\mathbf{z}))}_{\text{current}} + \underbrace{w_0(\mathbf{z}) + w_1(\mathbf{e})}_{\text{future}}$$

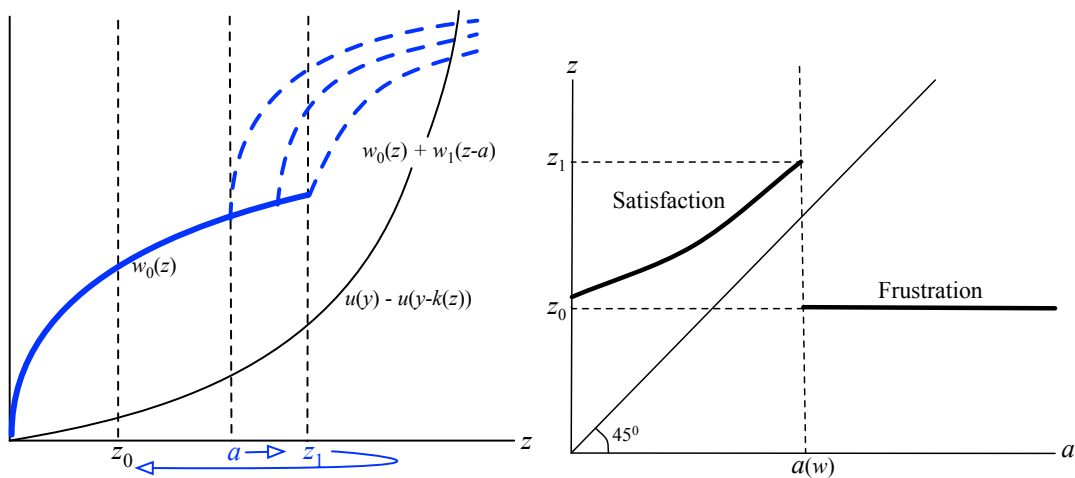
## Inspiration and Frustration

$$\underbrace{w_0(z) + w_1(e)}_{\text{future}} - \underbrace{[u(y) - u(y - k(z))]}_{\text{current}}$$



## Inspiration and Frustration

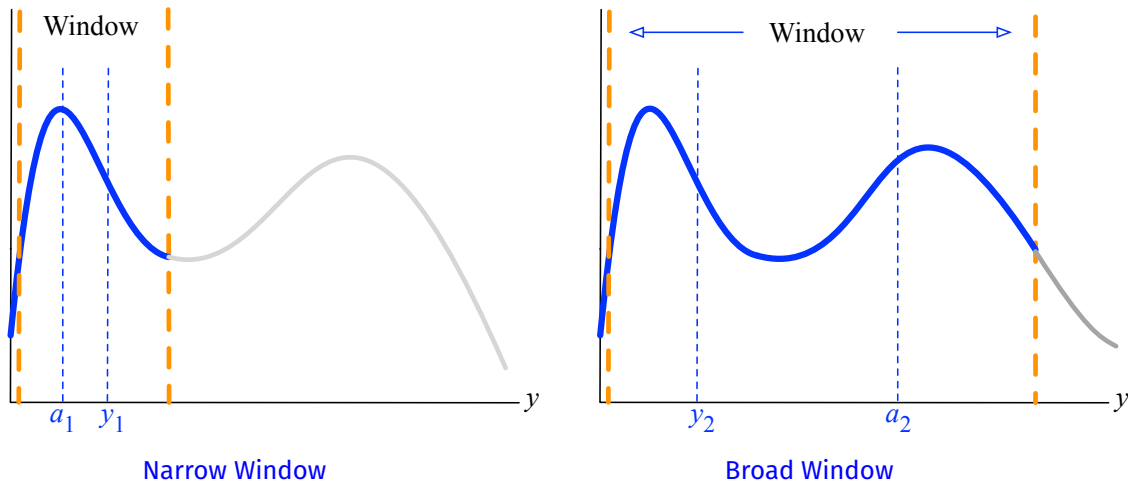
- The milestone nature of aspirations generates sudden tip-overs.



For every baseline  $y$ , there is a threshold  $a(y)$  below which aspirations are met, and above which frustrated. When met, investment grows with aspirations. But once frustrated, investment jump *discontinuously* downward and thereafter remain insensitive to or decline with aspirations.

## Society, Cognitive Windows and Aspirations

### ■ Both social distributions and cognitive windows matter for aspirations:



Segregated societies:

Wilson (1987)

Television societies:

Jensen and Oster (2009), La Ferrara, Chong, and Duryea (2012)

## Aspirations Failure

### ■ The drop in investment under an aspirations failure **has two interpretations:**

- A failure in the **capacity to aspire** Appadurai (2004)

Inability to aspire  $\Rightarrow$  unproductive decisions.

- A failure in actions arising from **unreachable aspirations** Ray (1998, 2006)

Impossible thresholds generated by cinema, television, social media ...

Or simply the everyday evidence of one's own eyes.

- A failed capacity to aspire, or a failed capacity to reach the unreachable?



## Aspirations Failure

- **The two failures**, not just a semantic question.
  - Failure to aspire ⇒ behavior under poverty unaffected by ambient affluence.
  - Failure to achieve ⇒ distributional changes would have impact.
  - Not to mention that aspirations need to move in opposite directions.
- **Important semantic issues as well.**
  - Is a person with aspirations failure more likely to say
    - “I have **unreachable socially-determined aspirations**, and so give up,” or
    - “I have **no aspirations**”?
    - Hard to imagine the former, even if the former is at the root of it.
    - Suggests **caution in eliciting direct responses** regarding aspirations.

## Aspirations Failure

- **The non-monotonic effects of aspirations:**
  - **Low aspirations among immigrant children in middle school in Italy:**
    - Raising educational and occupational aspirations is beneficial Carlana et al. (2018).
  - **Low-performing students in France:**
    - Aspirations ↓ ⇒ course repetition + high-school dropout ↓ Goux et al. (2017).
  - **High aspirations ⇒ disappointment, frustration, and social withdrawal**  
Clair and Benjamin (2011), Carter-Wall and Whitfield (2012), Gorard et al. (2012), Mukherjee 2017.

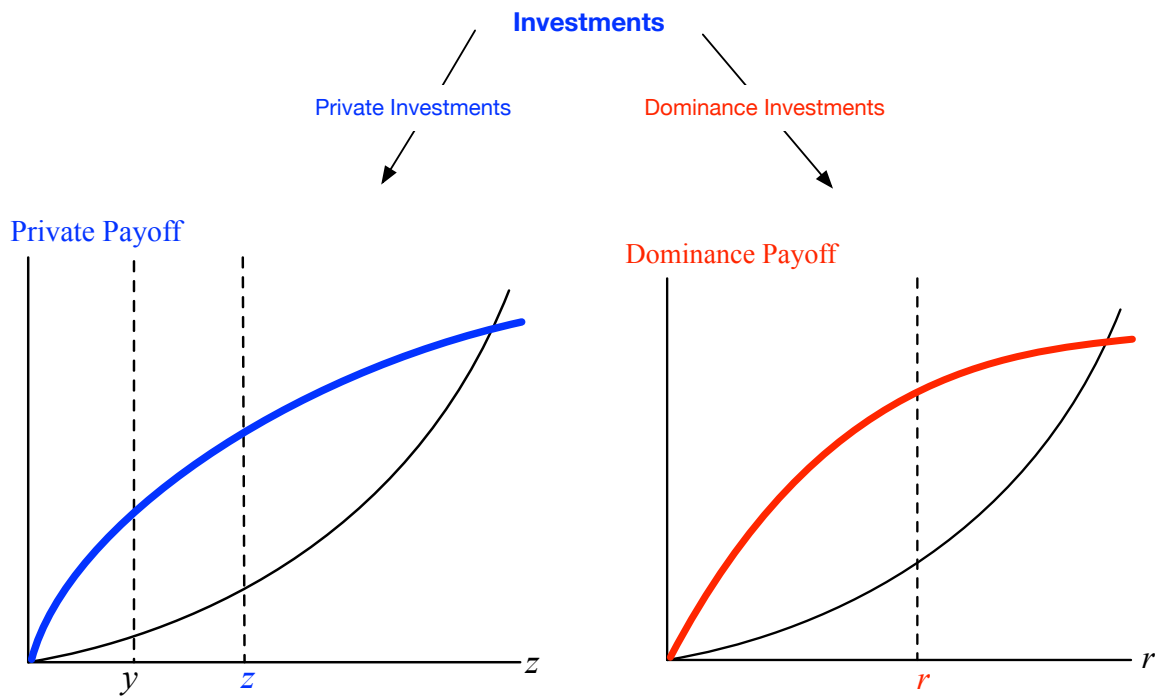
## Aspirations Failure

- Other evidence from **social psychology, sports, intertemporal planning ...**
  - Goals that lie ahead, but not too far ahead, provide the best incentives (Lockwood and Kunda 1997, Heath et al. 1999, Berger and Pope 2011).
  - E.g., young swimmers who age into the next competitive bracket swim slower when facing faster competition (Bernhardt and Bottan 2019).
  - Inverted-U between income-aspirations gap and proxies of future-oriented behavior; e.g., savings and intertemporal planning (Janzen et al. 2017).
  - All consistent with the idea that **moderate aspirations serve to motivate**, while aspirations that are **too high might discourage**.

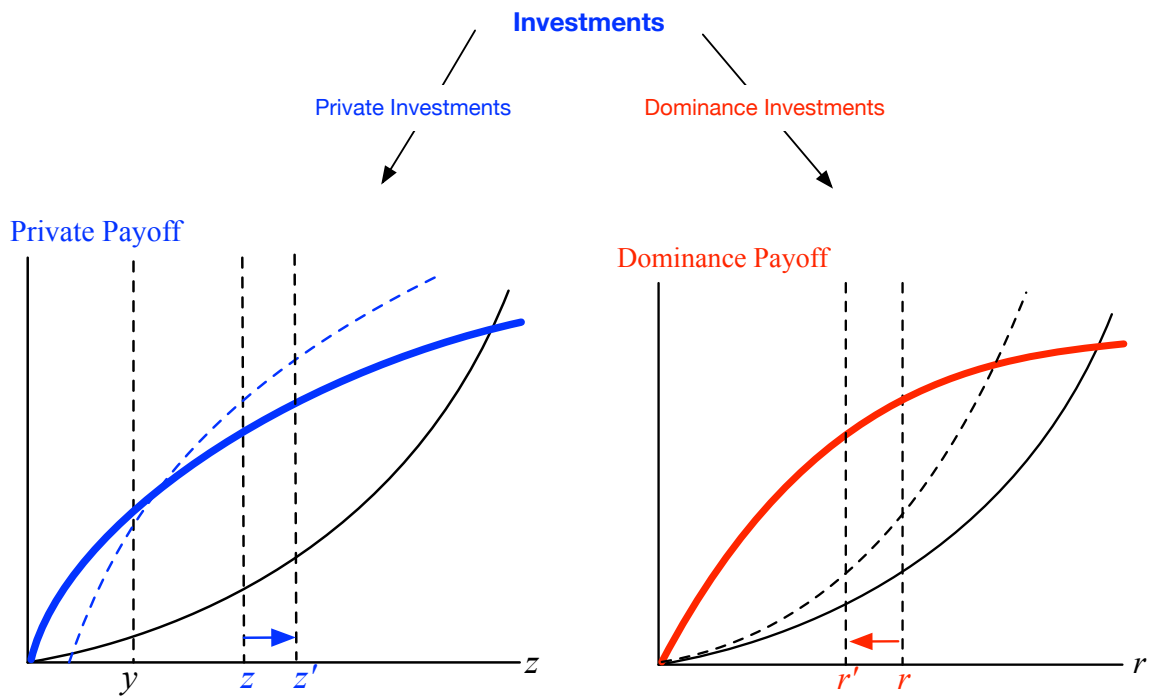
## Social Responses to Economic Change

- **Economic change, aspirations and conflict.** Two possibilities:
  - **Aspirations determined by group-level incomes**, so groups focal to begin with. (Mitra and Ray 2014, 2019 on Hindu-Muslim violence)
  - **Aspirations multidimensional**; failure along the economic dimension  
Economic frustration  $\Rightarrow$  social conflict.  
Will briefly discuss this second case here.
- **Two-dimensional aspirations:** (Genicot-Ray 2020):
  - 1: **economic** investments, typically private.
  - 2: **cultural/religious/nationalistic** investments, often group-based.

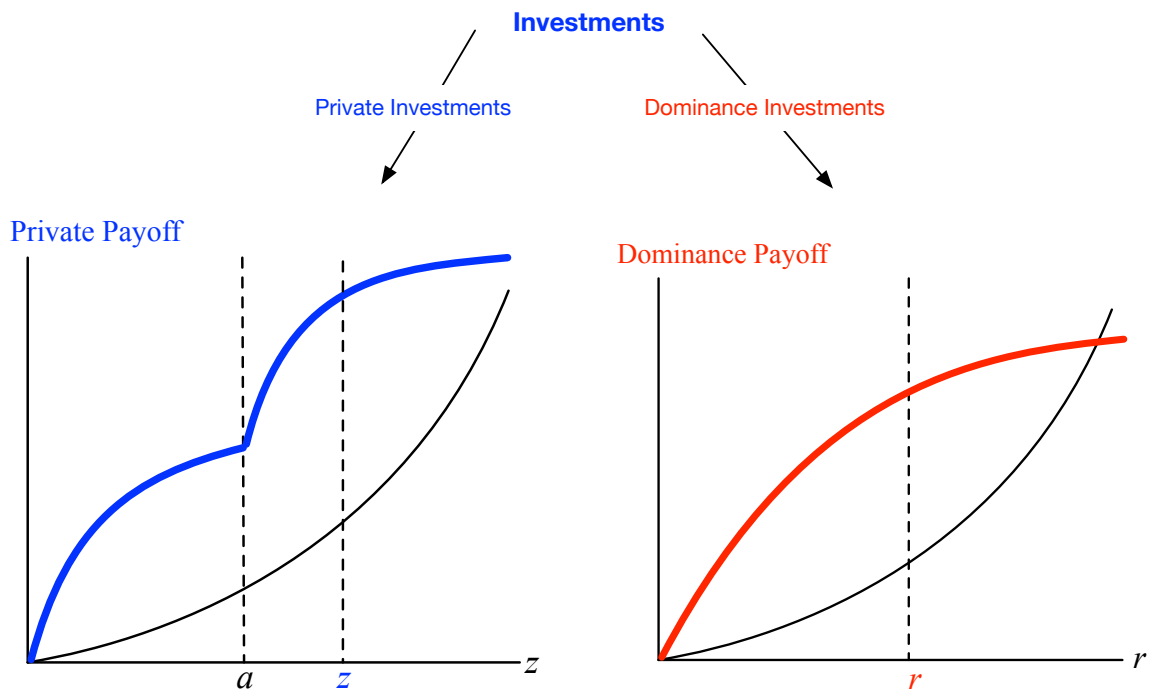
## Orthogonal Responses to Economic Inequality



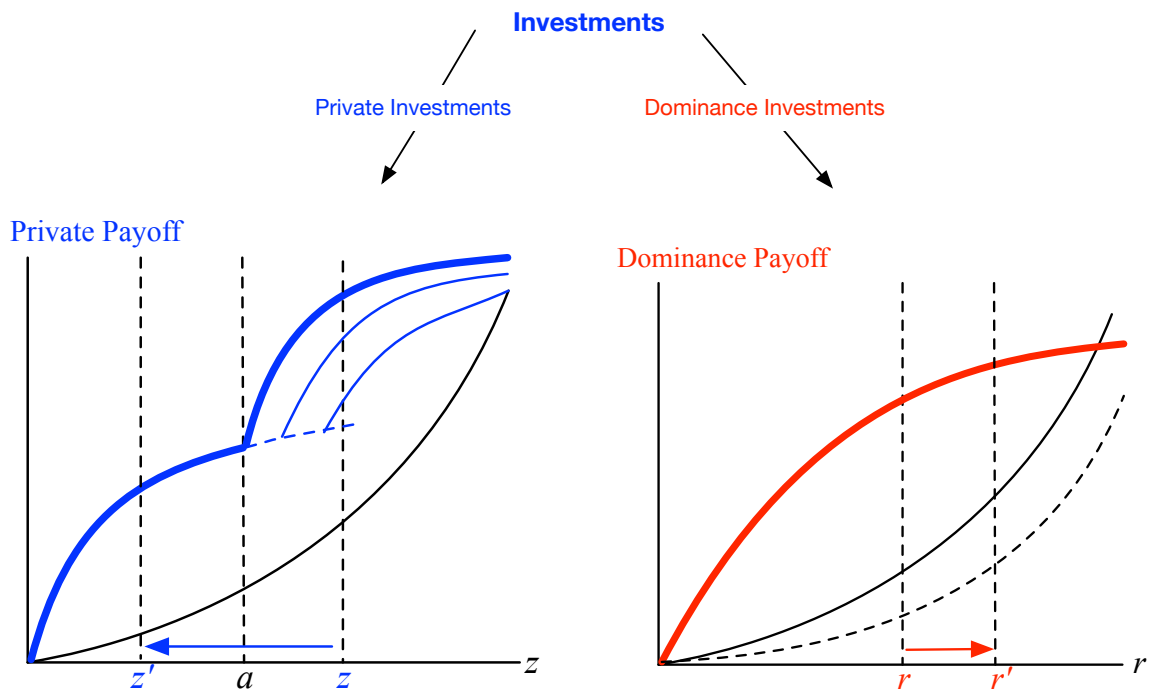
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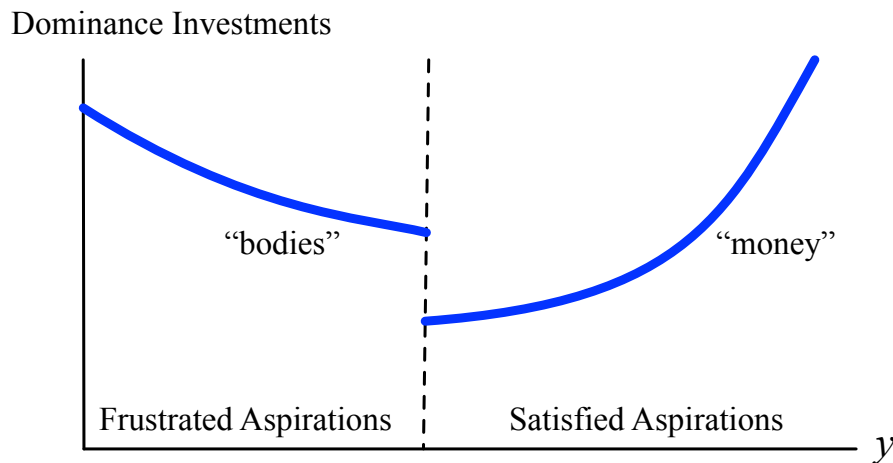
## Orthogonal Responses to Economic Inequality



## Orthogonal Responses to Economic Inequality



## Orthogonal Responses to Economic Inequality



- **Over the income cross-section**, dominance investments initially fall, dropping discontinuously as aspirations switch from failure to success; then rise again.
- With high economic inequality, **aggregate** dominance investments rise.

## A Contrasting Approach

- **Interaction between economic and non-economic conflict**
  - The “shocks  $\Rightarrow$  identity-priming” view Bonomi-Gennaioli-Tabellini 2021
  - The “inequality  $\Rightarrow$  secondary goals” view just discussed
- To some extent these are **complementary**
- To some extent **inconsistent**, if one places testable restrictions:  
such as the reaction to widening inequality

## An Illustration: Hindu-Muslim Violence

- Recurrent episodes of violence
  - Partition era of the 1940s, and earlier
  - Continuing through the second half of the twentieth century.
- Indian history, and the relative size of Hindu population, suggest:
  - Religion is a highly salient cleavage
  - Hindu groups generally dominant in propagating conflict
- Does economics (or income comparisons) have anything to do with this?

## Some Ethnographic Literature

- Thakore (1993) on Bombay riots [[land](#)]
- Das (2000) on Calcutta riots [[land](#)]
- Rajgopal (1987), Khan (1992) on Bhiwandi and Meerut riots [[textiles](#)]
- Engineer (1994), Khan (1991) on Jabbalpur, Kanpur, Moradabad [[bidis](#), [brassware](#)]
- Upadhyaya (1992) on Varanasi riots [[sari dealers](#)]
- Wilkinson (2004) on Varanasi [[wholesale silk](#)]
- Field et al (2009) on Ahmedabad [[housing](#)]

■ Hindu-Muslim income ratios (NSS exp data):

State	Exp.								
	H/M	1983		H/M	1987-8		H/M	1993-4	
		Min	Max		Min	Max		Min	Max
AP	0.99	0.96	1.09	0.99	0.92	1.17	0.99	0.84	1.16
Bihar	0.98	0.88	1.12	1.07	1.02	1.12	1.03	0.93	1.16
Gujarat	1.02	0.89	1.19	0.98	0.78	1.14	1.06	0.88	1.13
Haryana	1.2	1.07	1.53	0.96	0.85	1.05	1.60	1.39	1.93
Karnataka	0.98	0.84	1.19	1.00	0.83	1.07	1.01	0.69	1.15
Kerala	1.10	1.07	1.19	1.15	1.15	1.16	1.01	0.92	1.16
MP	0.92	0.78	1.38	0.86	0.71	1.04	0.88	0.62	1.16
Maharashtra	1.04	0.97	1.25	1.04	0.74	1.29	1.12	0.87	1.42
Orissa	0.69	0.36	1.04	0.85	0.58	0.93	0.96	0.73	1.13
Punjab	0.86	0.75	1.15	1.21	1.19	1.22	1.18	1.08	1.34
Rajasthan	0.97	0.43	1.18	1.02	0.46	1.19	1.22	1.06	1.35
Tamil Nadu	1.06	0.82	1.44	0.88	0.80	0.94	0.98	0.85	1.05
UP	1.12	1.01	1.23	1.11	0.95	1.54	1.08	0.93	1.31
West Bengal	1.18	1.05	1.26	1.21	1.05	1.31	1.25	1.07	1.38

## Some Ethnographic Literature

- Bombay riots [[land](#)] (Thakore 1993)
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- Jabbalpur, Kanpur, Moradabad riots [[bidis, brassware](#)] (Engineer 1994, Khan 1991)
- Varanasi riots [[sari dealers](#)] (Upadhyaya 1992)
- Varanasi riots [[wholesale silk](#)] (Wilkinson 2004)
- Ahmedabad [[housing](#)] (Field et al 2009)

■ **Example:** Engineer (1987) on **Meerut riots**:

“If [religious zeal] is coupled with economic prosperity, as has happened in Meerut, it has a multiplying effect on the Hindu psyche. The ferocity with which business establishments have been destroyed in Meerut bears testimony to this observation. Entire rows of shops belonging to Muslims ... were reduced to ashes.”

■ And yet...

■ Wilkinson (2004):

“Despite the disparate impact of riots on Hindus and Muslims, however, little hard evidence suggests that Hindu merchants and financial interests are fomenting anti-Muslim riots for economic gain...”

■ Horowitz (2001, p. 211):

“The role that commercial competition is said to play is said to be a covert, behind-the-scenes role, which makes proof or disproof very difficult.”

## Data

■ **Conflict data.** Varshney-Wilkinson (TOI 1950-1995)

- our extension (TOI 1996-2000).
- extension by Iyer et al (TOI 2001-2010)

■ **Income data.** NSS consumer expenditure data.

- Rounds 38 (1983), 43 (1987-8), 50 (1993-94), 55 (1999-2000), 61 (2004-2005).

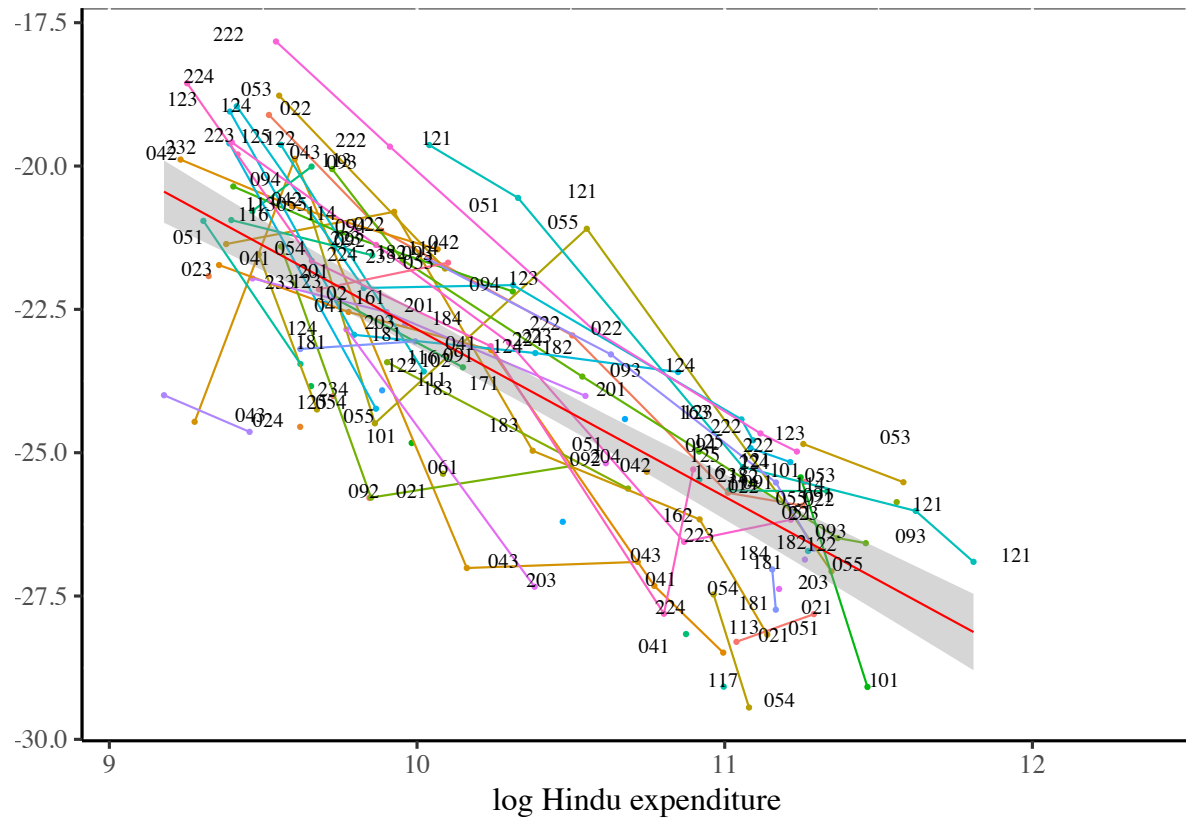
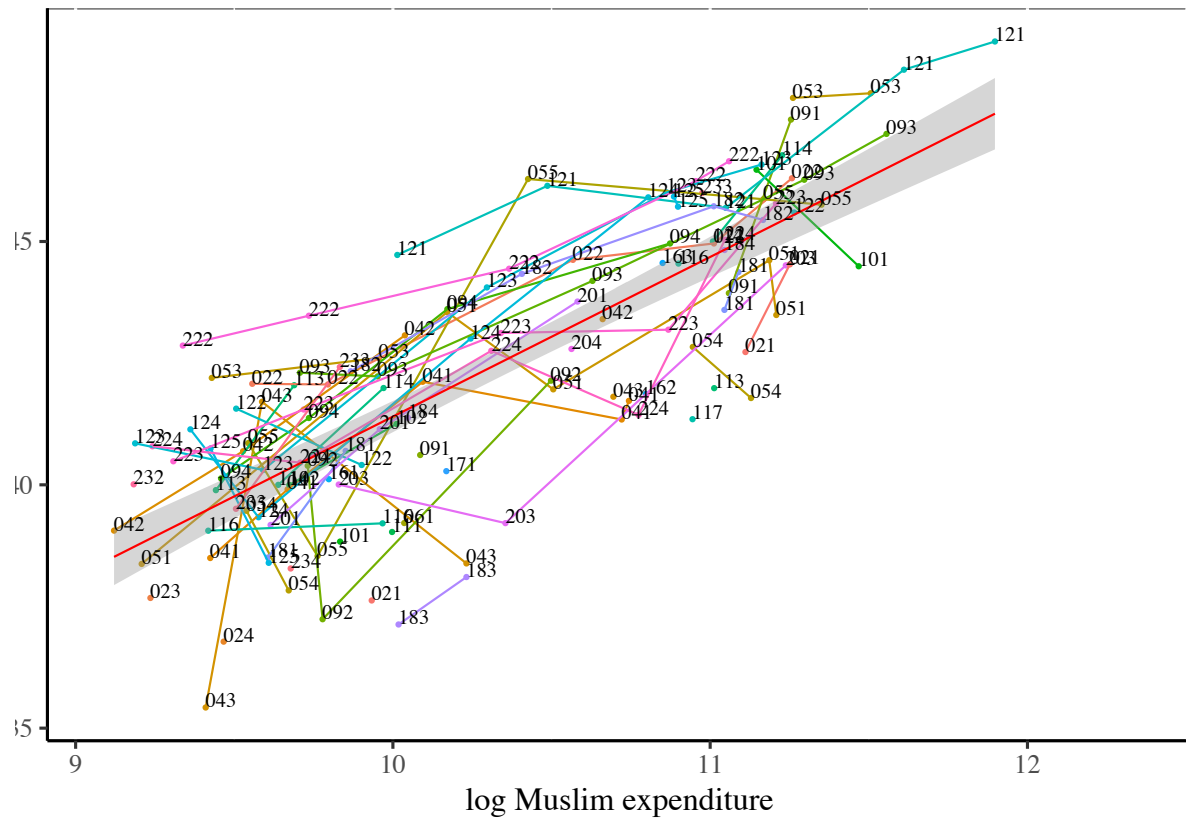
■ **Controls:**

- Various sources, in particular Reports of the Election Commission of India.

■ **Five-period panel** at the regional level; 55 regions.

- Poisson, negative binomial, OLS.





■ Casualties, 5-Year Average Starting Just After

	[Poiss]	[Poiss]	[NegBin]	[NegBin]	[OLS]	[OLS]
H Exp	***-7.87 (0.005)	***-6.82 (0.003)	** -2.79 (0.093)	-3.31 (0.131)	** -9.15 (0.033)	* -8.46 (0.085)
M Exp	***5.10 (0.000)	***4.67 (0.001)	**2.64 (0.040)	**3.87 (0.023)	***6.89 (0.006)	***9.52 (0.009)
Pop	4.28 (0.468)	3.91 (0.496)	0.62 (0.149)	0.74 (0.132)	-3.87 (0.614)	-1.23 (0.877)
RelPol	*5.55 (0.054)	*5.57 (0.056)	0.72 (0.763)	1.09 (0.715)	6.00 (0.470)	6.86 (0.408)
Gini H		-5.426 (0.317)		4.121 (0.521)		-14.473 (0.342)
Gini M		3.399 (0.497)		-5.952 (0.362)		-11.073 (0.451)
Lit, Urb	Y	Y	Y	Y	Y	Y

■ Muslim exp ↑ 1% ⇒ Cas ↑ 3–5%.

Hindu exp ↑ 1% ⇒ Cas ↓ -7– -3%.

## Variations

- Other measures of conflict (number of riots, killed)
- Three-period, five-period panel
- Urban alone, Ahmedabad included or excluded, BJP seatshare
- The use of Hindu-Muslim expenditure *ratios*.
- Examination of the lag structure.
- Political controls
- Endogeneity (instrument H-M exp ratio by national returns to occupations)
- Ruling out other interpretations; e.g., funding.
- Different regression specifications



## Varying Lags

	[1] Cas-2	[2] Cas-1	[3] Cas	[4] Cas+1	[5] Cas+2	[6] Cas+3
H exp	0.98 (0.687)	0.10 (0.968)	-0.11 (0.959)	***-6.83 (0.003)	***-11.11 (0.000)	***-10.23 (0.001)
M exp	-0.15 (0.915)	-0.68 (0.624)	*2.36 (0.085)	***4.67 (0.001)	***6.40 (0.000)	***8.32 (0.000)
Pop	5.18 (0.187)	7.36 (0.117)	**7.84 (0.018)	3.90 (0.507)	5.47 (0.385)	4.48 (0.410)
RelPol	-2.35 (0.440)	-0.87 (0.786)	**5.99 (0.038)	**5.63 (0.038)	**5.70 (0.038)	***6.40 (0.008)
BJP	Y	Y	Y	Y	Y	Y
Lit, Urb	Y	Y	Y	Y	Y	Y
Ginis	Y	Y	Y	Y	Y	Y

## Endogeneity

- **Reverse causation?** Anecdotal evidence on who suffers:
  - [Wilkinson 2004] 1985–1987: Muslims were 12% of the population, but suffered
    - 60% of the 443 deaths
    - 45% of the 2667 injuries
    - 73% of the estimated property damage
- **Omitted Variables?**
  - Gulf funding of conflict (via remittances)
  - Income recovery from past conflict

## Endogeneity

- Instrument: [Occupational Groupings](#)
  - 18 broad occupational categories from the NSS: (1) Agricultural Production and Plantations, (2) Livestock Production, (3) Fishing, (4) Mining and Quarrying (Coal; Crude Petrol and Natural Gas; Metal Ore; Other), (5) Manufacture of Food Products and Inedible Oils, (6) Manufacture of Beverages, Tobacco and Tobacco products, (7) Manufacture of Textiles (Cotton; Wool, Silk, Artificial; Jute, Veg. Fibre; Textile Products), (8) Manufacture of Wood and Wooden Products, (9) Manufacture of Paper, Paper Products, Publishing, Printing and Allied Industries, (10) Manufacture of Leather, and of Leather and Fur Products, (11) Manufacture of Rubber, Plastic, Petroleum, Coal ; Chemicals and Chemical Products, (12) Manufacture of Non-Metallic Mineral Products, (13) Basic Metal and Alloy Industries, (14) Manufacture of Metal Products and Parts, except Machinery and Transport Equipments, (15) Manufacture of Machinery, Machine Tools and Parts except Electrical Machinery, (16) Manufacture of Electrical Machinery, Appliances, Apparatus and Supplies and Parts, (17) Manufacture of Transport Equipments and Parts and (18) Other Manufacturing Industries.

## Endogeneity

- Instrument:
  - Construct average *national* returns for Hindus and Muslims in each category.
  - Use NSS [national](#) expenditure averages to do this.
  - Use [regional](#) employment to get H- and M-indices by region.

## IV regressions with H- and M-indices

	First Stage			Second Stage		
	Cas	Kill	Riot	Cas	Kill	Riot
M/H ind	***0.78 (0.001)	***0.78 (0.001)	***0.76 (0.002)			
M/H				***26.83 (0.004)	***24.97 (0.006)	***16.59 (0.010)
Pce	*-0.59 (0.079)	*-0.60 (0.082)	*-0.54 (0.089)	13.99 (0.131)	14.79 (0.115)	7.21 (0.188)
Pop	-0.16 (0.453)	-0.17 (0.445)	-0.22 (0.311)	3.81 (0.651)	1.71 (0.818)	3.40 (0.528)
RelPol	** -0.47 (0.046)	** -0.48 (0.042)	* -0.41 (0.087)	12.24 (0.174)	10.78 (0.195)	5.40 (0.348)
GiniH	***-1.29 (0.002)	***-1.28 (0.003)	***-1.37 (0.001)	1.82 (0.921)	8.22 (0.593)	1.10 (0.928)
GiniM	***2.77 (0.000)	***2.79 (0.000)	***2.77 (0.000)	** -67.18 (0.031)	** -72.74 (0.015)	** -44.73 (0.033)
BJP	Y	Y	Y	Y	Y	Y
Lit, Urb	Y	Y	Y	Y	Y	Y

## A General Malaise?

- A counter-view:
  - Rise in Muslim income just a proxy for overall Hindu stagnation.
  - Could imply an increase in social unrest quite generally
  - Therefore not interpretable as **directed** violence.
- Test by using GOI dataset on Crime in India
  - Has data on “all riots”.
  - (Doesn’t publish data on religious violence!)

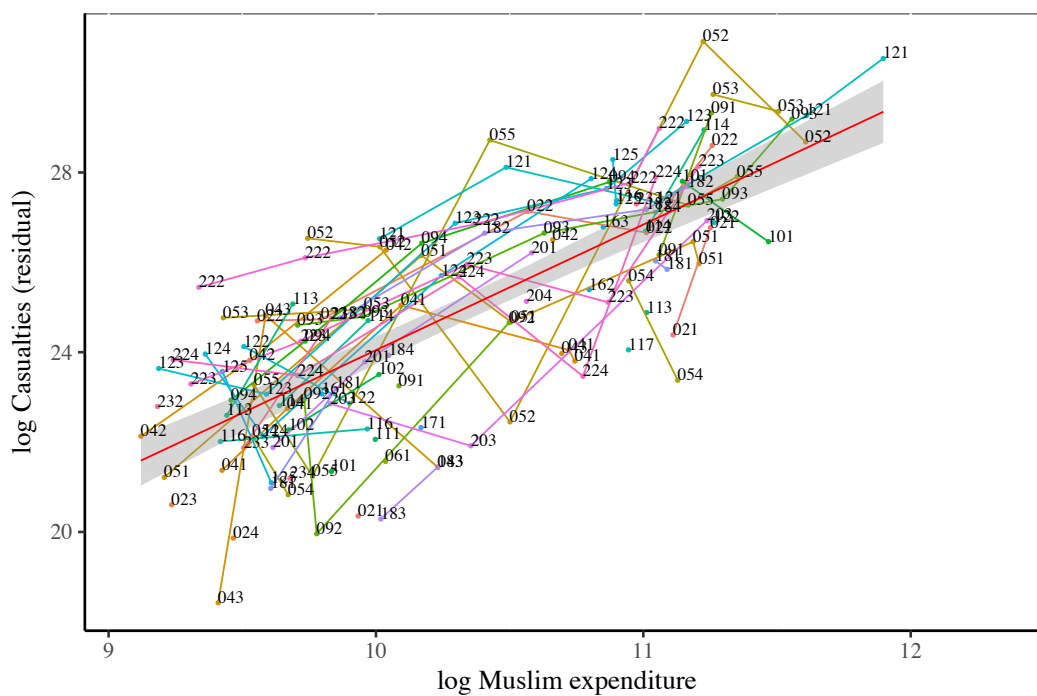
## A General Malaise?

Placebo using all conflict:

	[1] Poisson	[2] Poisson	[3] Neg. Bin.	[4] Neg. Bin.	[5] OLS	[6] OLS
HExp	<b>***0.75</b> (0.007)		-0.53 (0.448)		0.37 (0.467)	
MExp	-0.19 (0.301)		-0.12 (0.607)		-0.12 (0.617)	
M/H		-0.23 (0.202)		-0.09 (0.702)		-0.12 (0.642)
Pce		<b>*0.52</b> (0.072)		-0.68 (0.243)		0.39 (0.287)
Pop	0.06 (0.910)	0.06 (0.912)	0.50 (0.221)	0.52 (0.149)	0.73 (0.314)	0.70 (0.336)
RelPol	<b>*-0.64</b> (0.051)	<b>*-0.62</b> (0.056)	0.20 (0.721)	0.17 (0.744)	0.12 (0.839)	0.14 (0.815)
GiniH	<b>** -1.63</b> (0.046)	<b>* -1.56</b> (0.058)	0.85 (0.594)	0.84 (0.562)	0.19 (0.902)	0.14 (0.928)
GiniM	-0.74 (0.307)	-0.76 (0.293)	0.35 (0.717)	0.36 (0.671)	0.61 (0.441)	0.55 (0.495)
Lit, Urb	Y	Y	Y	Y	Y	Y

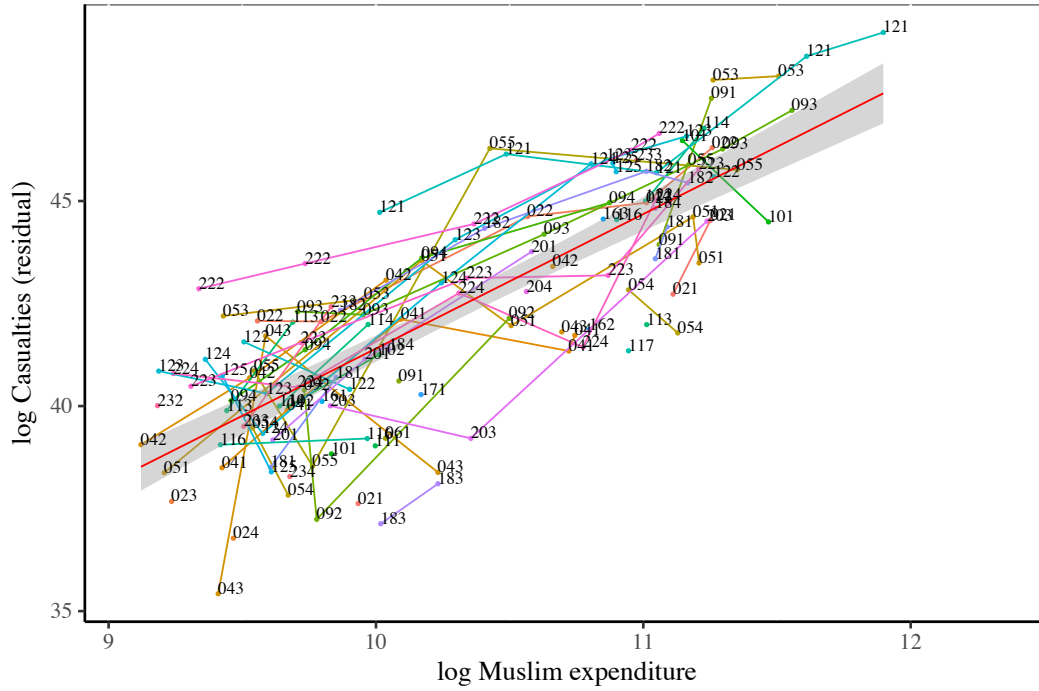
## Extension to Post-Gujarat, With Data till 2010

Muslim expenditure; all regions



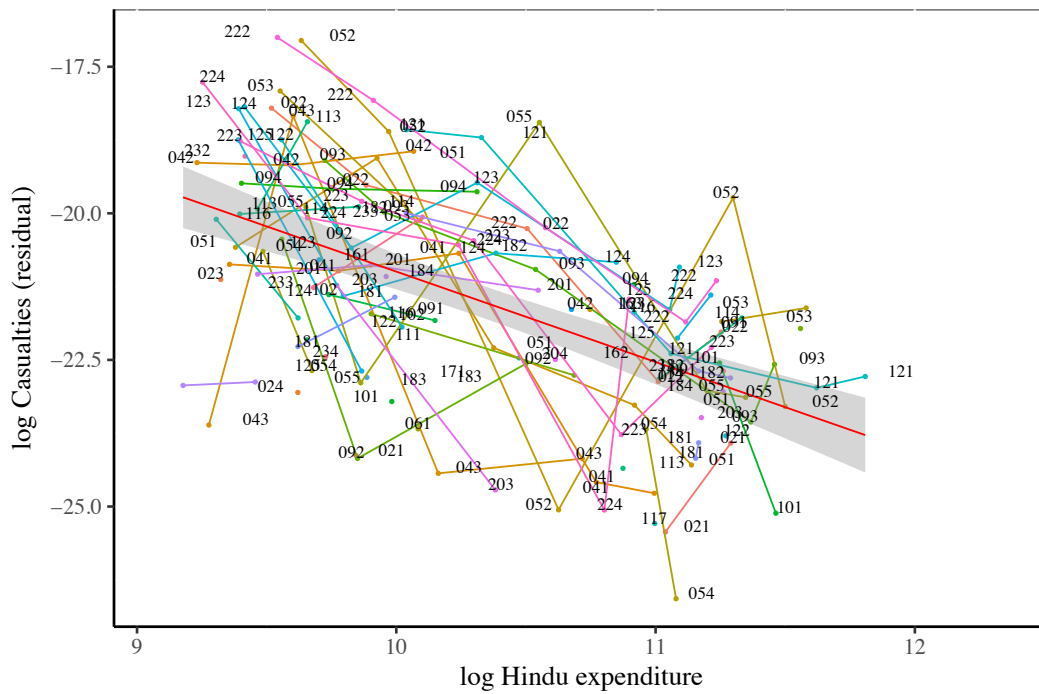
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Muslim expenditure; Ahmedabad excluded



## Extension to Post-Gujarat, With Data till 2010

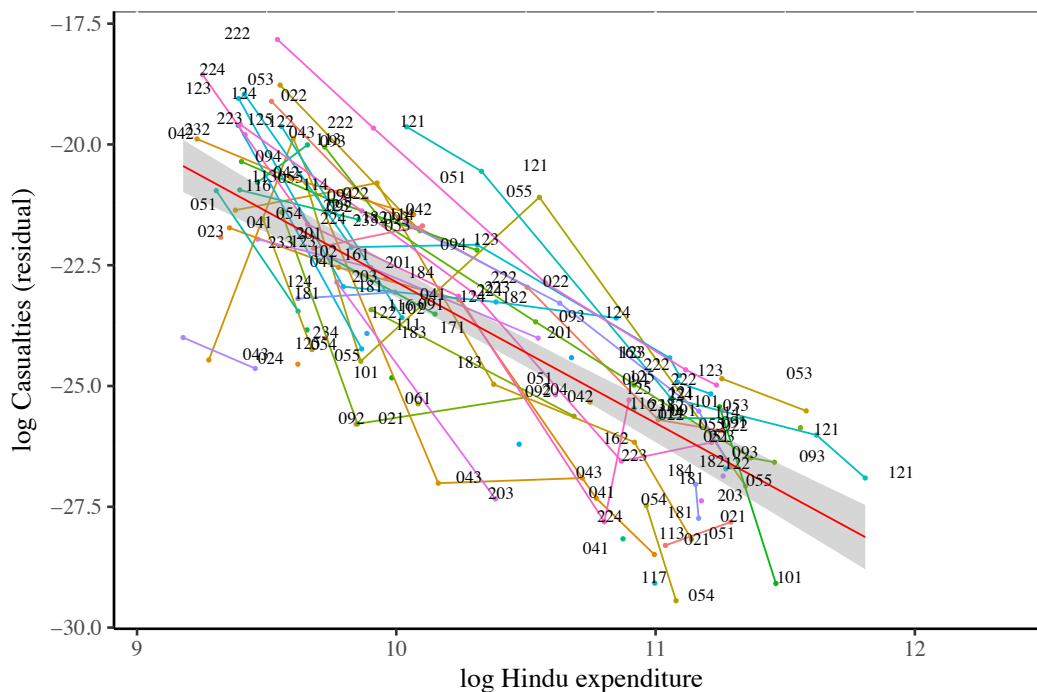
Hindu expenditure; all regions





## Extension to Post-Gujarat, With Data till 2010

Hindu expenditure; Ahmedabad excluded



### ■ 5-period Poisson FE (urban hh, excluding region containing Ahmedabad)

	[1]	[2]	[3]	[4]	[5]	[6]
H pce	***-3.420 (0.007)	***-4.076 (0.003)	** -3.460 (0.015)			
M pce	**1.662 (0.027)	**1.793 (0.025)	*2.010 (0.053)			
M/H				***1.874 (0.008)	***2.097 (0.003)	**2.051 (0.019)
Average Per-Capita Exp.				** -2.266 (0.027)	** -2.772 (0.023)	-2.419 (0.139)
Pop	0.240 (0.831)	1.141 (0.294)	1.156 (0.281)	0.333 (0.768)	1.246 (0.249)	1.251 (0.241)
RelPol	**2.306 (0.038)	***3.745 (0.000)	***3.732 (0.000)	*2.122 (0.070)	***3.551 (0.000)	***3.574 (0.001)
Primary Edu.		***0.087 (0.006)	***0.087 (0.007)		***0.088 (0.005)	***0.089 (0.005)
Gini H			-2.213 (0.520)			-1.699 (0.593)
Gini M			-1.406 (0.551)			-0.317 (0.896)
BJP LS seatshare	**1.260 (0.037)	***1.637 (0.003)	***1.621 (0.003)	**1.319 (0.032)	***1.705 (0.002)	***1.710 (0.002)
Log-Likelihood	-4,875.09	-4,361.15	-4,325.55	-4,784.98	-4,259.42	-4,247.07
Number of observations	224	224	224	224	224	224

## Summary

### ■ An entire research program can be built around the aspirations framework:

#### ■ We've discussed here:

- aspirations failures and psychological poverty traps
- connections to social conflict
- socio-economic mobility

#### ■ Other topics include:

- co-evolution of growth and inequality (Bogliacino and Ortoleva 2016, Genicot and Ray 2017)
- the impact of segregation on incentives (Mookherjee, Napel and Ray 2008)
- risk-taking, doubling-down under bad shocks (Genicot and Ray 2020)
- Optimal goal-setting (Schwenkenberg 2010, Besley 2017, Mohammadi 2022)
- aspirations and policy (Kearney 2016, Goux 2017, La Ferrara 2019 )
- self-esteem (Parsa and Ray, in prep.)