

Lecture 1: Aspirations

The Roots of Inspiration and Frustration

Debraj Ray



With [Garance Genicot](#) (Georgetown)

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Decision Theory Based on Aspirations

■ Aspirations-based models:

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

■ Close relatives:

- **Reference points** in behavioral decision theory
E.g., “personal equilibrium” (Kőszegi-Rabin)
- **Relativistic comparisons** (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 investment, frustration, conflict, etc. without this.
- The lives of others on ever-sharper display
 - Reduced doubling times, television, social media ...
- Unclear if such exposure leads to ambition or to despair.
 - “The French found their position all the more intolerable as it became better.”

Tocqueville, 1856

Hirschman's Tunnel



Aspirations as Social Reference Points

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

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

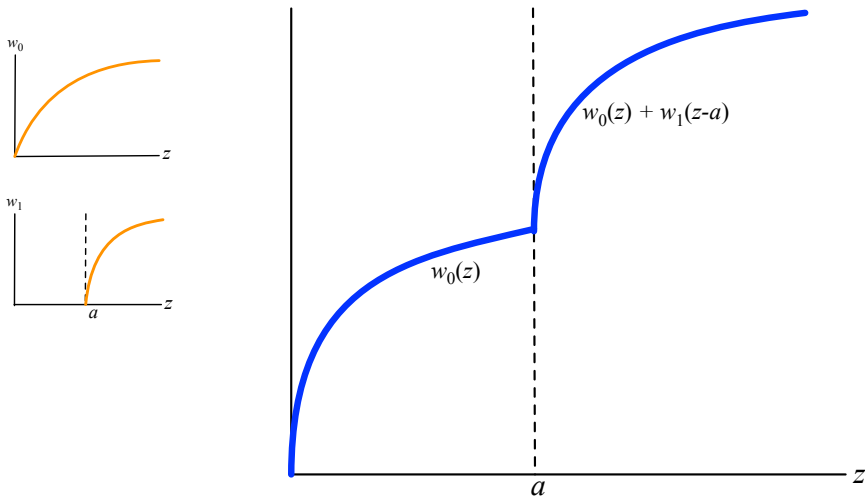
- \mathbf{y} = current **personal** outcome, F = **social** distribution over outcomes.
- Aspirations \mapsto **individual payoffs**:

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

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

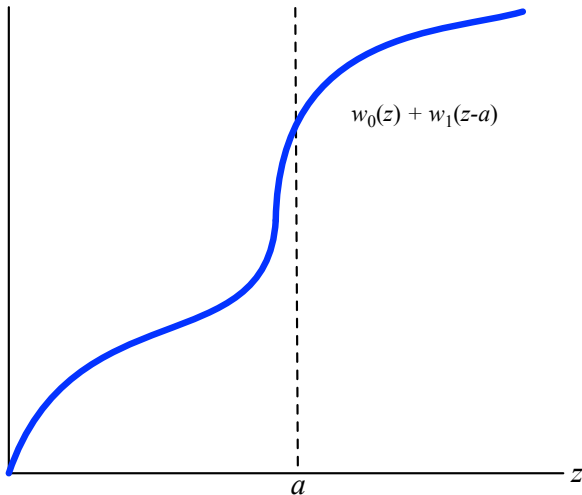
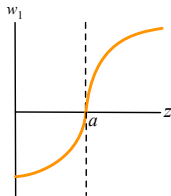
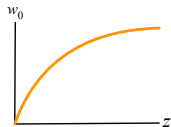
Aspirations Over Future Income

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



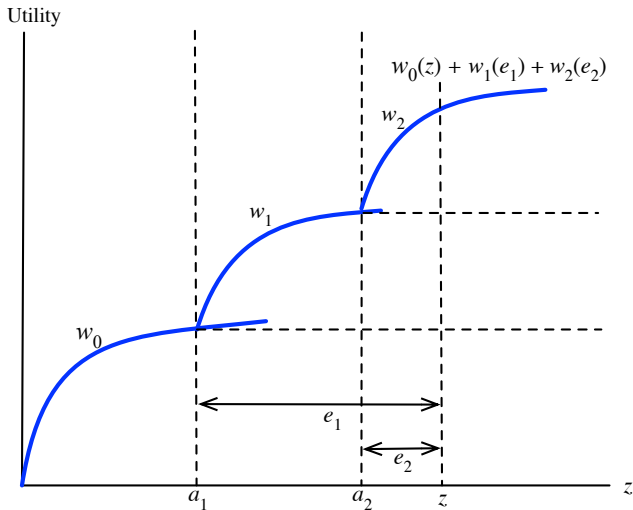
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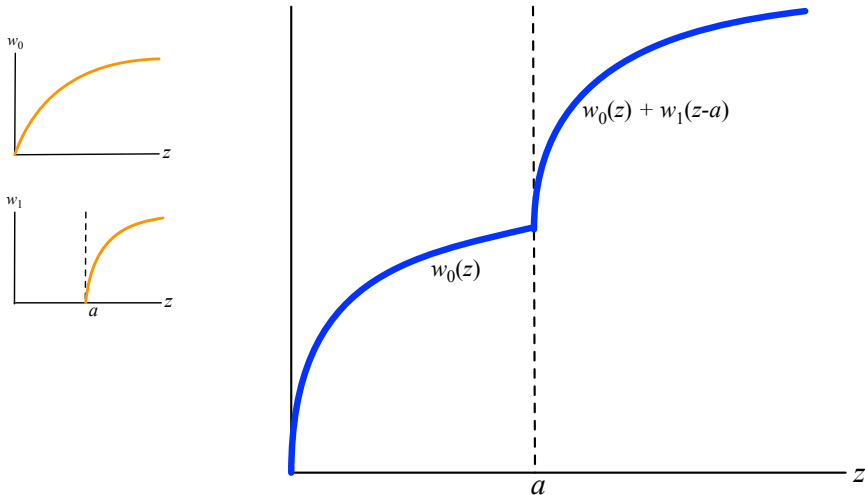
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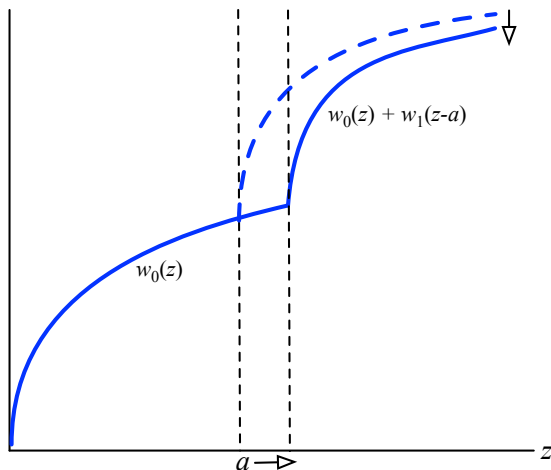
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Aspirations Over Future Income

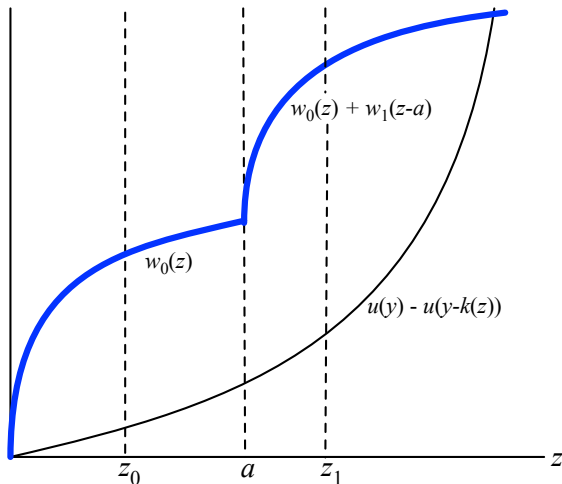
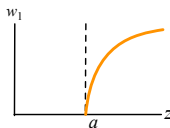
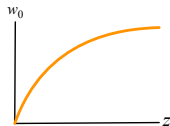
- **Remark.** Higher aspirations always bad for happiness in the short-run:

hedonic treadmill; see, e.g., Stutzer 2004



Inspiration and Frustration

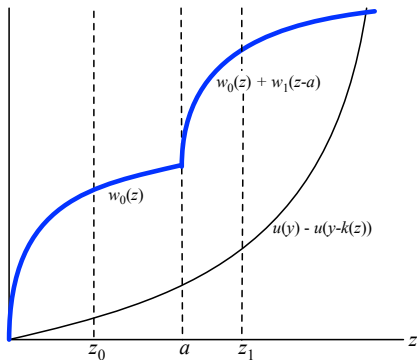
$$\underbrace{w_0(\mathbf{z}) + w_1(\mathbf{e})}_{\text{future}} - \underbrace{[u(\mathbf{y}) - u(\mathbf{y} - \mathbf{k}(\mathbf{z}))]}_{\text{current}}$$



- Solve two FOC; compare.

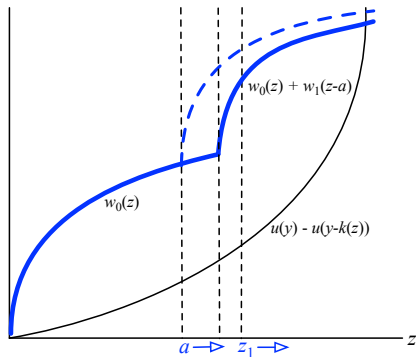
Inspiration and Frustration

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



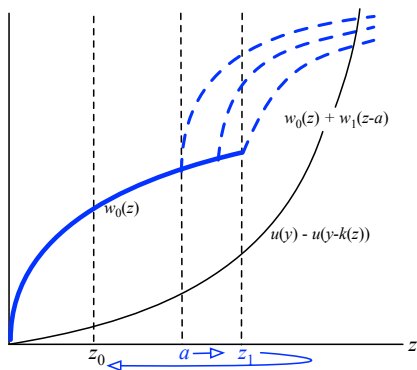
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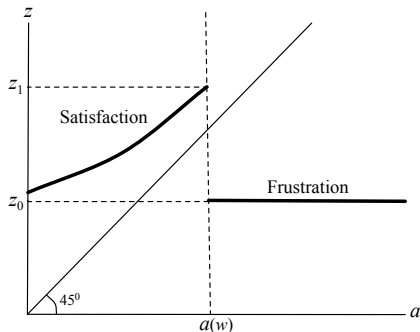
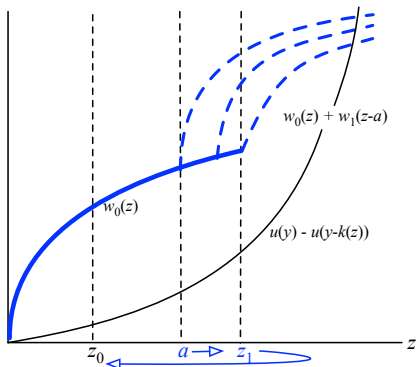
Inspiration and Frustration

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



Inspiration and Frustration

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



Proposition 1

For every wealth w , there is a threshold $a(w)$ below which aspirations are met, and above which frustrated. When met, investment grows with aspirations. But once frustrated, investment jumps downward and thereafter remains insensitive to or declines with aspirations.

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 \Rightarrow behavior under poverty unaffected by ambient affluence.
 - Failure to achieve \Rightarrow 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.

Aspirations \mapsto Nonmonotonic Effects

■ Education:

- 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 $\downarrow \Rightarrow$ course repetition + high-school dropout \downarrow Goux et al. (2017).
- 1958 National Child Development Study (United Kingdom):
 - Follows 17,000+ people born in one week of 1958: at 7, 11, 16, 23, ..., 55.
Aspirations correlated with achievements, over and above socioeconomic background and ability, but failed aspirations \mapsto lower subjective well-being
Lekfuangfu and Odermatt (2022).

Aspirations \mapsto Nonmonotonic Effects

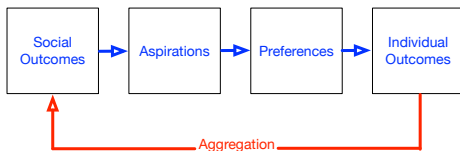
- Other evidence from **social psychology, sports, intertemporal planning** ...
- Goals that lie ahead, but not too far ahead, provide the best incentives
(Lockwood and Kunda 1997, Heath et al. 1999, Berger and Pope 2011).
- E.g., young swimmers who age into the next competitive bracket swim slower when 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).
- On frustrated aspirations, see also
Clair and Benjamin (2011), Carter-Wall and Whitfield (2012), Gorard et al. (2012), Mukherjee (2017).

Structure on Aspirations Formation

$$a = \Psi(y, F)$$

- Assume that Ψ is continuous, and
- [nondecreasing] $y \uparrow \Rightarrow a$ cannot fall.
- [range-bound] $\min\{y, \min F\} \leq \Psi(y, F) \leq \max\{y, \max F\}$.
- [scale-invariant] $\lambda \Psi(y, F) = \Psi(\lambda y, F^\lambda)$ for $\lambda > 0$. [$F^\lambda(\lambda y) = F(y)$.]
- [socially monotone] $\Psi(y, F') > \Psi(y, F)$ when F' strictly FOSD F .

Aspirations and Distribution: Joint Evolution



- Start with F_t . Let $a_t(y) = \Psi(y, F_t)$ for every $y \in \text{Supp } F_t$.
- At income y , choose continuation $z \in [0, y]$ to max

$$u(y - k(z)) + w_0(z) + w_1(\max\{z - a_t(y), 0\}).$$

Can add stochastic shocks as well.

- F_{t+1} new distribution \mapsto recursive equilibrium sequence $\{F_t\}$.

Proposition 2

A recursive equilibrium exists.

Questions

- Persistent or growing inequality, or convergence?
- Connections between initial distribution and subsequent growth.
- **These are old themes in economics.**
- **Equalization:** Inequality an ongoing battle between convergence and “luck.”
 - Solow 1956, Brock-Mirman 1972, Becker-Tomes 1979, 1986, Loury 1981...
- **Disequalization:** Markets intrinsically create and maintain inequality.
 - Ray 1990, Banerjee-Newman 1993, Galor-Zeira 1993, Ljungqvist 1993, Freeman 1996,
Mookherjee-Ray 2000 ...

Two Approaches to the Disqualification Theme

■ Constraints:

- credit and insurance constraints
- stochastic shocks
- nonconvexity in feasible set (nutrition, health, education, investments)

■ Psychology

- lack of or biases in information
- temptation, lack of self-control, inability to commit
- failed aspirations (just one of many components)

Persistent Inequality in the Solow Setting

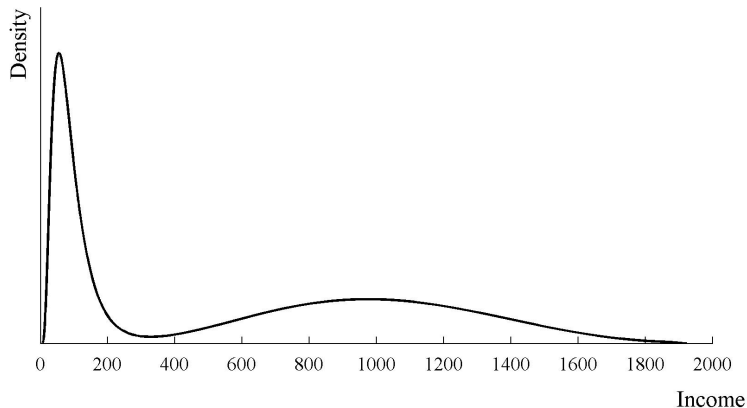
■ **Solow model:** $k(0) = 0$, $k(z)$ is increasing, differentiable and strictly convex, and $\lim_{z \rightarrow \infty} k'(z) > 1$.

Proposition 3

Assume aspirations are nondecreasing, range-bound, scale-invariant and socially monotone, and that $k(z) > z$ for z large enough (Solow setting). Then a stationary distribution cannot involve perfect equality, and in all stationary states with constant dynastic wealths, the wealth distribution is bimodal.

Persistent Inequality in the Solow Setting

- **Convergence clubs and polarization** Durlauf-Johnson 1995, Quah 1993, 1996, Durlauf-Quah, 1999, Esteban-Ray 1994, Wolfson 1994.



Const-elasticity u : $\sigma = 0.8$, $\delta = 0.8$ and $\pi = 1$; $k(z, \theta)$ derived from $f(k, \theta) = \theta(A/\beta)k^\beta$, where $\beta = 0.8$, $A = 4$ and θ lognormal mean 1. a = average of own y and mean y .

Persistent Inequality in the A-K Setting

- Introducing the canonical A-K setting:
 - Linear production: $k(z) = \rho z$, with $\rho \in (0, 1)$.
 - Constant-elasticity utility: u , w_0 and w_1 .

Persistent Inequality in the A-K Setting

Proposition 4

A-K setting, aspirations nondecreasing, range-bound, scale-invariant and socially monotone. F_0 initial distribution with compact support. Then there are just two possibilities:

I. Convergence to Perfect Equality. All wealths grow asymptotically at common rate g_* , and normalized incomes y_t/g_*^t converge to a single point independent of $y_0 \in \text{Supp } F_0$.

Or there is

II. Persistent Divergence. F_t “separates” into two components. Convergence occurs within each cluster. Across clusters, there is progressively widening inequality. Overall, relative inequality never settles: despite the within-group convergence, it increases without bound.

Growth Comparison. The growth factor in each cluster is smaller than g_* .

Persistent Inequality in the A-K Setting

- Outline of the argument:
- Define aspirations ratio $r(y, F) \equiv \Psi(y, F)/y$.

Observation 5

Assume scale invariance and social monotonicity. Then for each F , $r(y, F)$ declines in y .

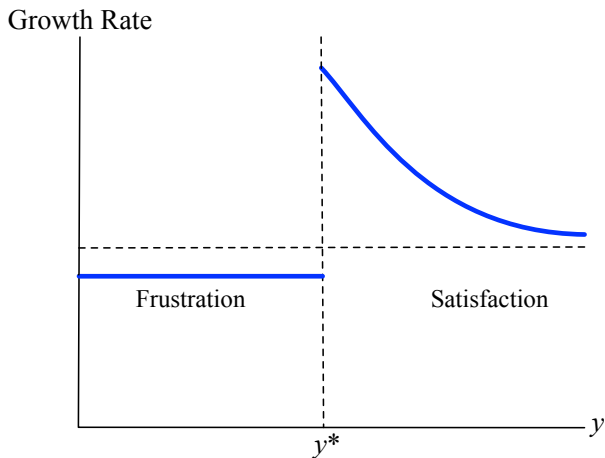
Observation 6

There is a unique ratio r^ such that for $r \equiv a/y > r^*$, wealth grows at rate \underline{g} , and for all $r \equiv a/y < r^*$, wealth grows at rate $g(r)$.*

$g(r) \uparrow$ in r , but larger and bounded away from \underline{g} in r .

Persistent Inequality in the A-K Setting

- Combining Observations 5 and 6:



Other Contexts for Aspirations

- **Optimal goal-setting** (Schwenkenberg 2010, Besley 2017, Mohammadi 2022)
- **Educational policy** (Kearney 2016, Goux 2017, La Ferrara 2019)
- **Segregation and incentives** (Mookherjee, Napel and Ray 2008)
- **Doubling-down** under bad shocks (Genicot and Ray 2020)
- **Single-digit lotteries: the patterns of risk-taking**
- **Self-esteem** (Parsa and Ray, in prep.)
- **Aspirations-based play** in dynamic games (Karandikar et al 1996)

Aspirations and Collective Action

- Consider two groups, 1 and 2. For any person with income y in group 1 (say):

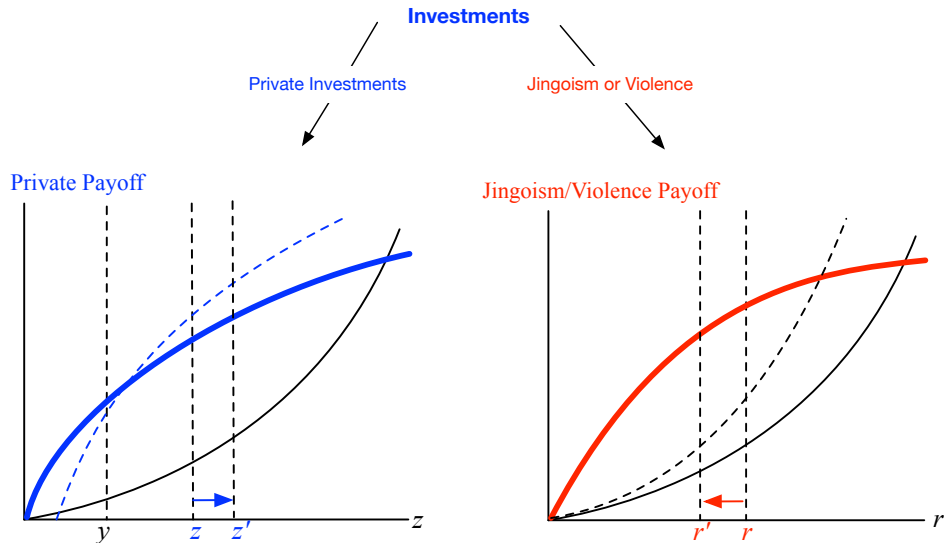
$$a_1 = \Psi_1(y, F_1, F_2) = \Psi_h(y, \mu_1 \tilde{F}_1, \mu_2 \tilde{F}_2)$$

- where μ_j = mean for group j , and \tilde{F} = normalized F with mean 1.
- **Example** [peer effects]: only μ_j matters for person in j .
- Munshi and Myaux (2006) on fertility norms in Bangladesh.
- **Example** [rivalry]: only μ_{-j} matters for person in j .
- Mitra and Ray (2014) on religious violence in India.

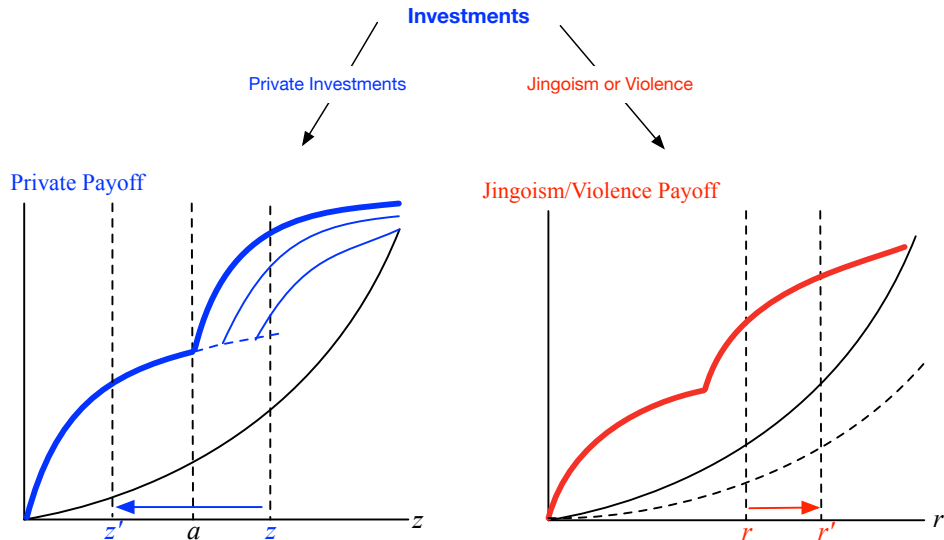
Aspirations and Collective Action

- **Budget constraint:** $y = k(z) + ty + c$.
- t : fraction time spent in cultural/religious/nationalistic action, often group-based. [Note: role of political leaders and the free-rider problem.]
- $k(z)$ investment, privately chosen as before.
- **Two interpretations:**
 - **Jingoism:** $\int_1 t$ could feed collective “cultural aspirations” (a_1 is a 2d vector).
 - **Violence:** $\int_1 t$ could reduce $\mu_2 \Rightarrow a_1$ falls.

Multidimensional Aspirations and Economic Inequality



Multidimensional Aspirations and Economic Inequality



Multidimensional Aspirations: Postscript

- **Two contrasting viewpoints:**
 - The “shocks \Rightarrow identity-priming” view Bonomi-Gennaioli-Tabellini 2021
 - The “inequality \Rightarrow secondary goals” view just discussed
- To some extent **complementary**
- To some extent **inconsistent**:
 - e.g., reaction to widening inequality

Group-Based Aspirations and Cross-Group Rivalry

- Analogous results apply to changes in mean incomes:
- Effect of μ_1 and μ_2 on r_1 .

Proposition 7

- *An increase in own income μ_1 reduces violence r_1 directed against rival.*
 - *An increase in rival income μ_2 increases violence r_1 directed against rival.*
- Of course, Proposition 7 applies to **both** groups so that tends to muddle things, but ...

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
- Using Proposition 7 as a **test for which group propagates conflict.**

Some Ethnographic Literature

- Bombay riots [[land](#)] (Thakore 1993)
- Calcutta riots [[land](#)] (Das 2000)
- Bhiwandi and Meerut riots [[textiles](#)] (Rajgopal 1987, Khan 1992)
- 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 (1950-1995) + Mitra-Ray (1996-2000) + Iyer et al (2001-2010)

■ Income data from the NSS, proxied by expenditures:

- [38]1983, [43]1987-8, [50]1993-4, [55]1999-0, [61]2004-5.

■ Matching:

- Each round to 4 years just after it.

■ Controls including BJP presence:

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

■ Five-period panel:

- 55 regions of 14 major Indian states > 90% of the population.

Empirical Specification

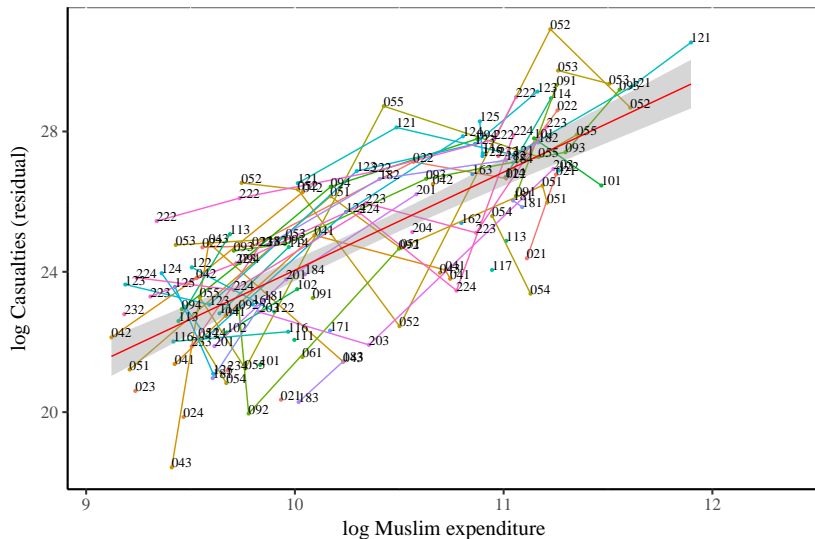
- Basic specification is Poisson count :

$$\mathbb{E}(\text{Count}_{i,t} | \mathbf{X}_{it}, \gamma_i, \tau_t) = \gamma_i \exp(\mathbf{X}_{it}'\beta + \tau_t)$$

- \mathbf{X}_{it} = Hindu-Muslim incomes and controls
- γ_i and τ_t = region and time fixed effects.
- Also NB, OLS, and IV.
- Details in Mitra and Ray (2014, 2019).

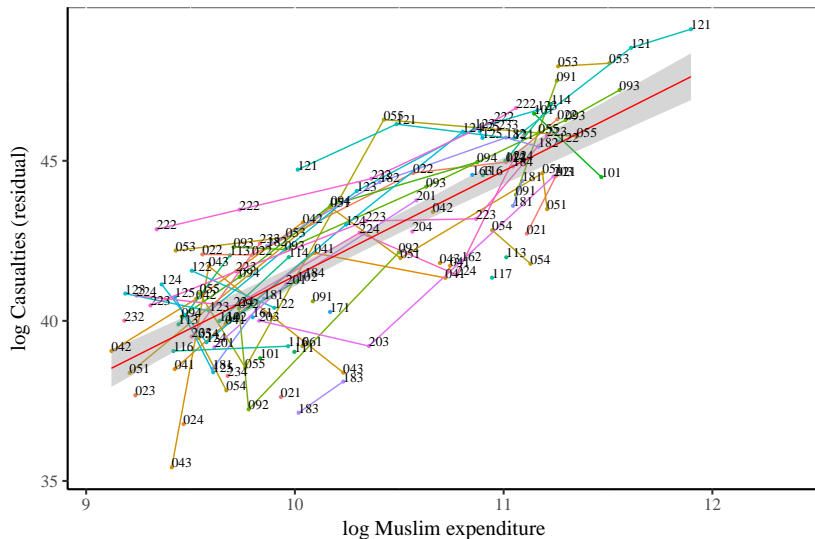
Group Income and Conflict

Muslim expenditure; all regions



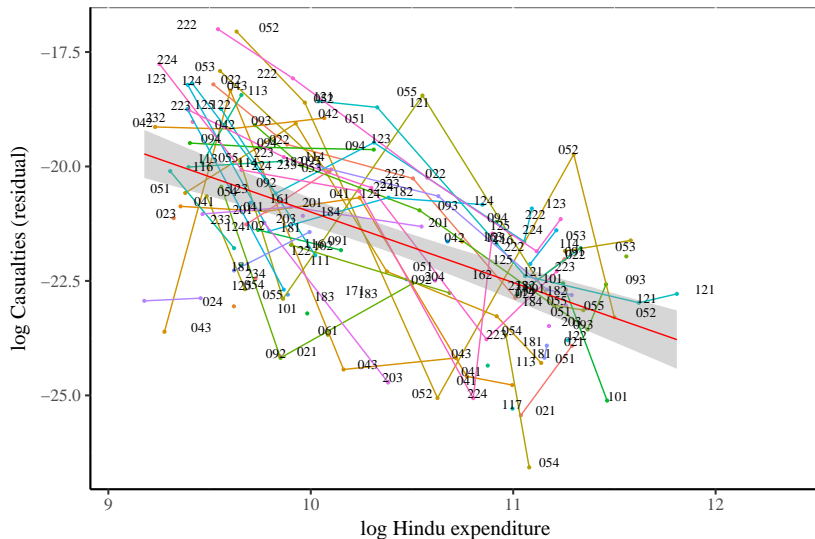
Group Income and Conflict

Muslim expenditure; Ahmedabad excluded



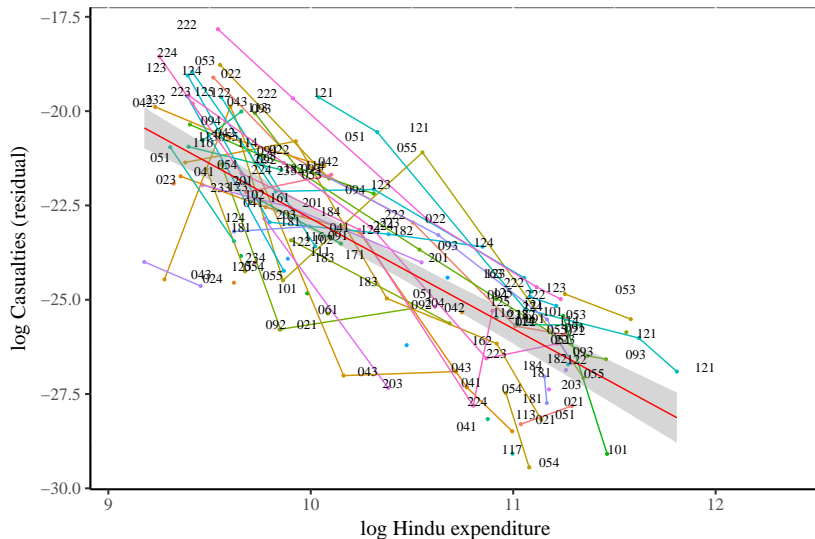
Group Income and Conflict

Hindu expenditure; all regions



Group Income and Conflict

Hindu expenditure; Ahmedabad excluded



Poisson FE (urban hh, excluding 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

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

Summary

- A theory of **aspirations formation**:
 - Emphasizes the **social** foundations of individual aspirations
 - Relates those aspirations to investment and growth.
 - Such behavior can be aggregated, thus closing the model.
- Central feature: **aspirations can both incentivize and frustrate**.
 - This approach is tractable and may be useful in other contexts:
 - Personal and parental goal-setting, education policy, segregation, the role of social media, patterns of risk-taking, notions of self-esteem, quantity-quality shift in fertility choice, even game theory ...