Aspirations, Inequality & Social Conflict

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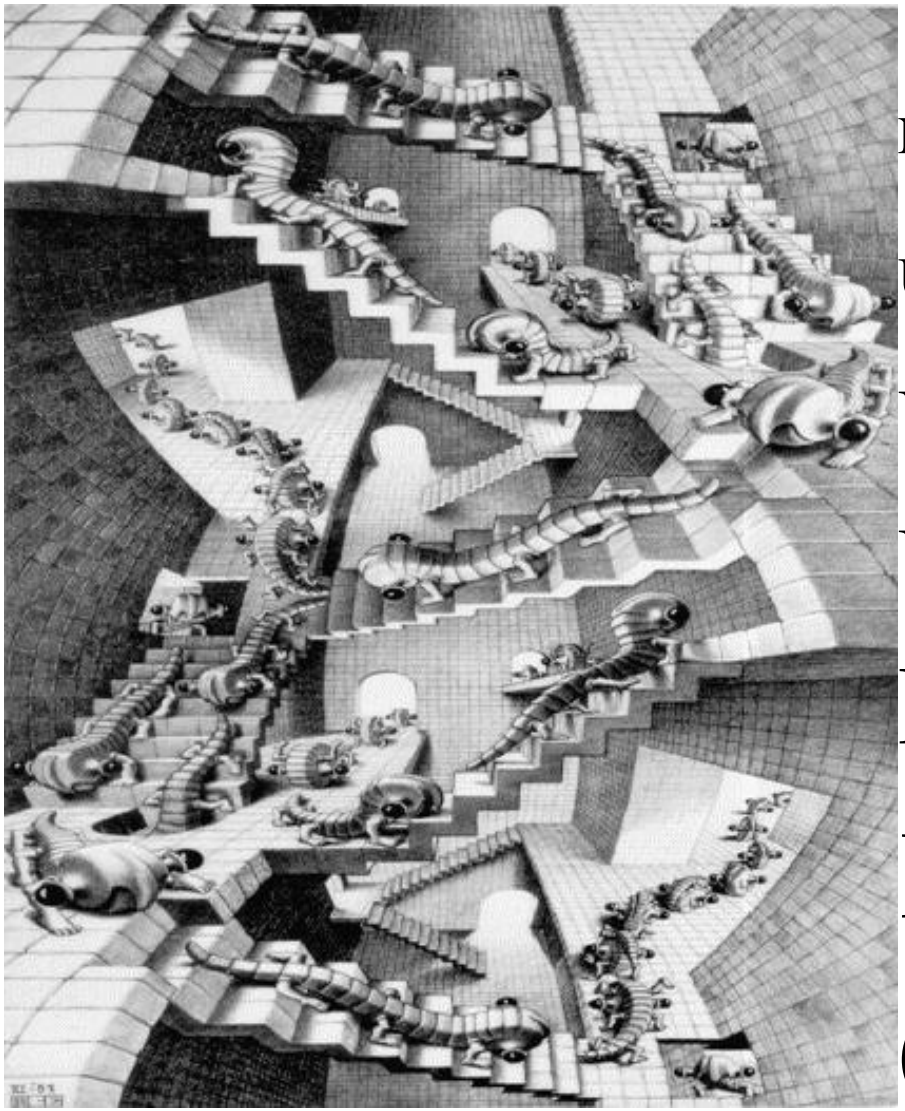
The Development Treadmill



Netherlands, 1350-1800, **350**

United Kingdom, 1700-1870, **150**

United States, mid-19th c, **47**

United States, mid-20th c, **35**

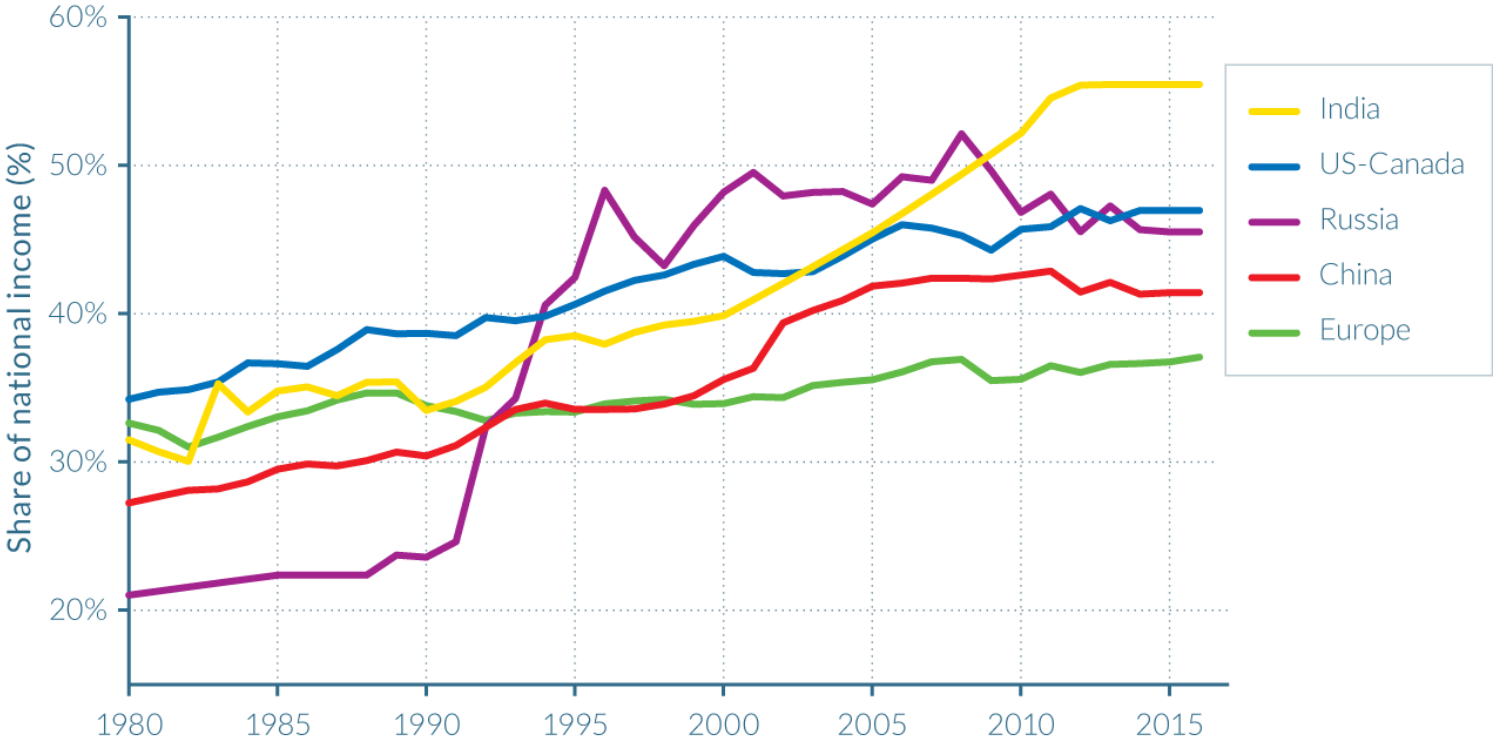
Brazil, mid-1960s, **18**

Korea, late 1960s, **11**

China, 1980→, **7–9**

Rapid *and* Uneven Growth

- To that ever-tilting treadmill, add uneven growth.



Source: WID.world (2017). See wir2018.wid.world/methodology.html for data series and notes.

In 2016, 47% of national income was received by the top 10% in US-Canada, compared to 34% in 1980.

Rise of Social Media

- In addition, the lives of others are increasingly on display

Social basis of individual preferences

- Aspirations and frustrations are socially generated.
- Unclear if this exposure leads to betterment or to despair.
- Hirschman's tunnel parable

Genicot and Ray (2017)

- Two-way interaction:

- Aspirations $\rightarrow$ inspiration or frustration $\rightarrow$ investment

  (which shapes growth, distribution and aggregate outcomes)

- Aggregate outcomes $\rightarrow$ aspirations

  (aspirations are shaped by the lives of others around us)

Literature

- Internal constraints on growth and stagnation:
  - The capacity to aspire: Appadurai 2004, Ray 1998, 2006
  - Poverty and cognitive function: Mani, Mullainathan, Shafir and Zhao 2013
  - Psychological poverty traps Banerjee-Mullainathan 2010, Bernheim-Ray-Yeltekin 1999, 2013

- To be contrasted with external constraints:
  - Nonconvexities: Azariadis-Drazen 1990, Dasgupta-Ray 1986
  - Imperfect credit markets: Banerjee-Newman 1993, Galor-Zeira 1993

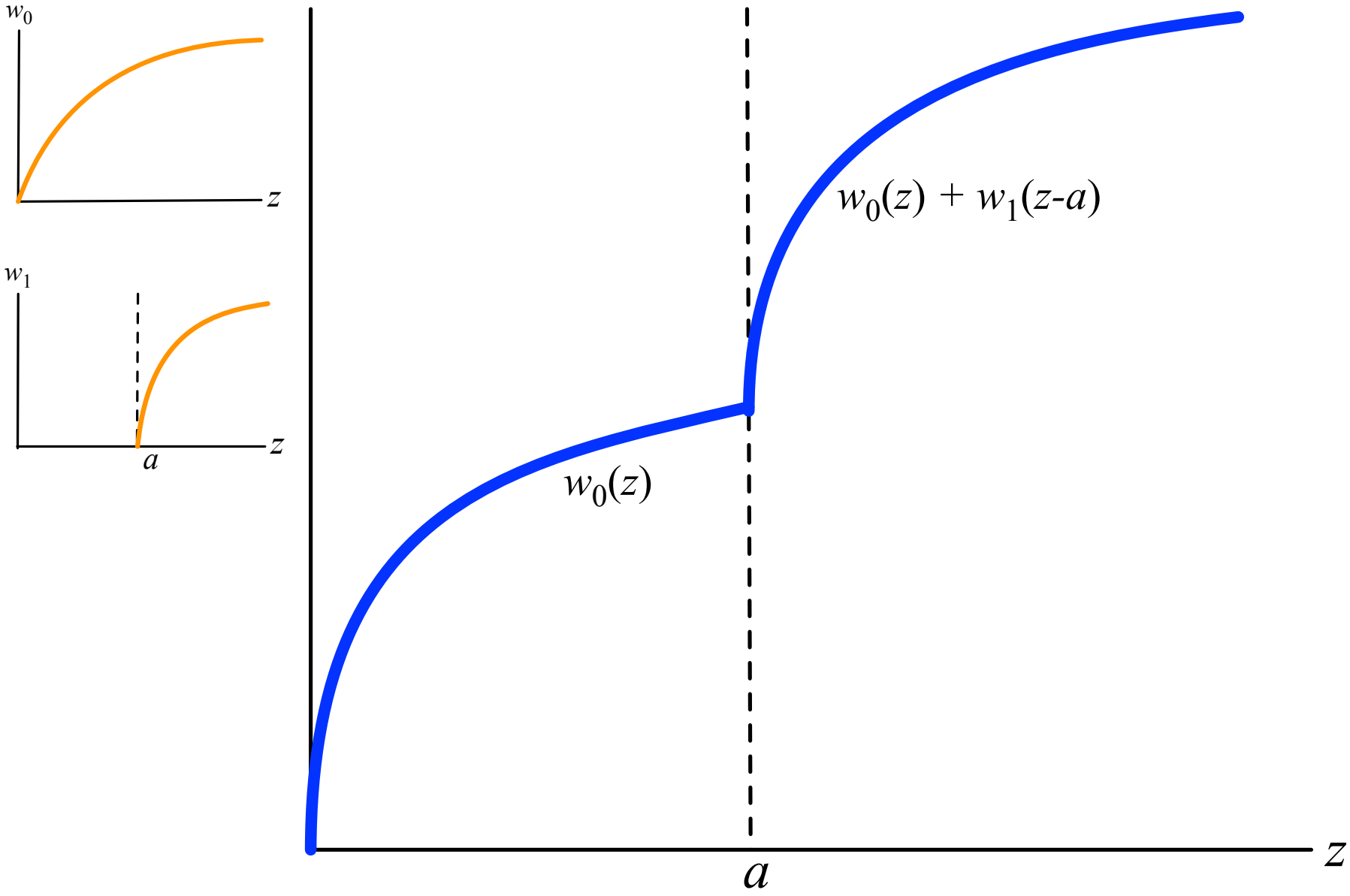
The Setting

- Dynasties: single-parent single-child strings
- Lifetime income or wealth y; $y = c + k$.
- $f(k) = z =$ wealth of child. Process continues forever.
- Preferences:

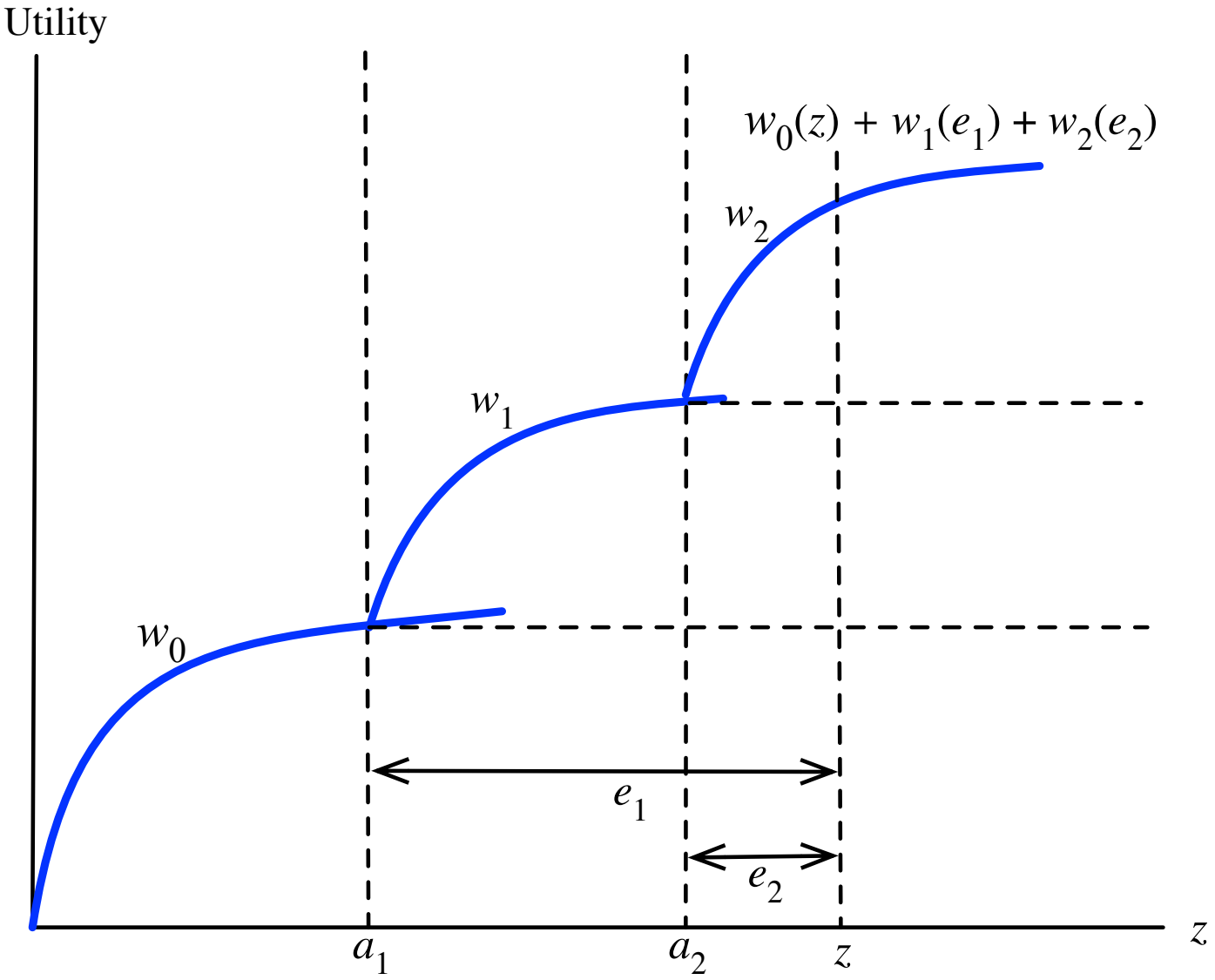
$$u(c) + w_0(z) + \sum_{i=1}^{n} w_i(e_i),$$

- where $e_i = \max\{z - a(i), 0\}$
- and $\mathbf{a} = (a(1), \ldots, a(n))$ are milestones or aspirations.
- w_0 intrinsic utility; w_i milestone utility.
- Increasing, smooth, concave; unbounded steepness at zero.

Aspirations as Milestones: A single-dimensional illustration



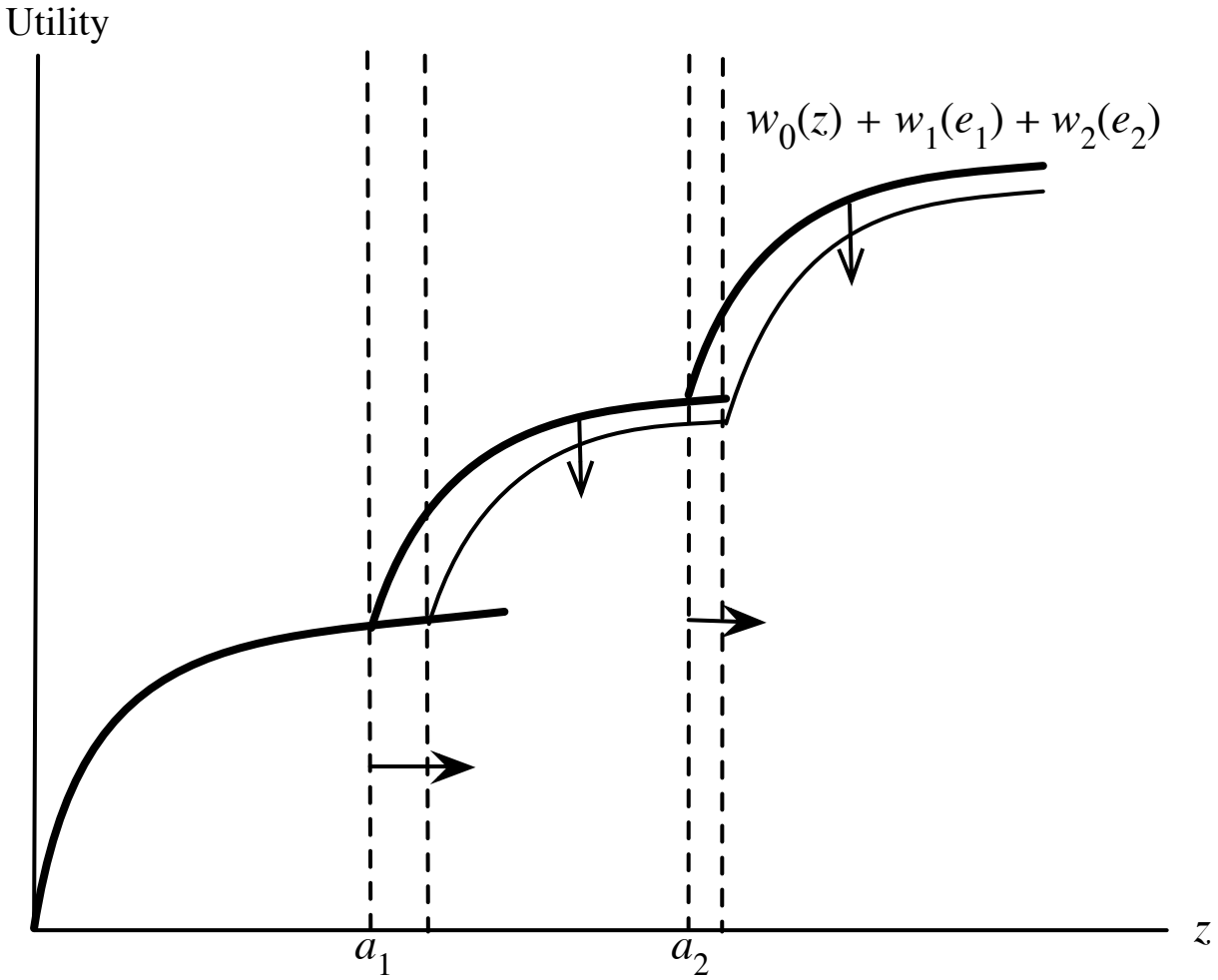
Aspirations as Milestones: $\mathbf{a} = (a_1, a_2)$



- Notes:

  - The entire map **a** is always "present," though different components are relevant at different income levels.

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



The Formation of Aspirations

$$\mathbf{a} = \Psi(y, F) \in \mathrm{R}^n, \text{ for given } n \geq 1,$$

where F is current distribution of lifetime incomes.

- $n = 1$ a leading special case: single-step aspirations.
- $n > 1$: different milestones become salient with higher wealth.

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

- continuous (in weak convergence topology on distributions)
- $\min F \leq a(1) \leq \cdots \leq a(n) \leq \max F$.
- nondecreasing (in FOSD on distributions)
- nondecreasing in y
- $\lambda \Psi(y, F) = \Psi(\lambda y, \lambda F)$ for $\lambda > 0$.

Embedding Aspirations into the Growth Model

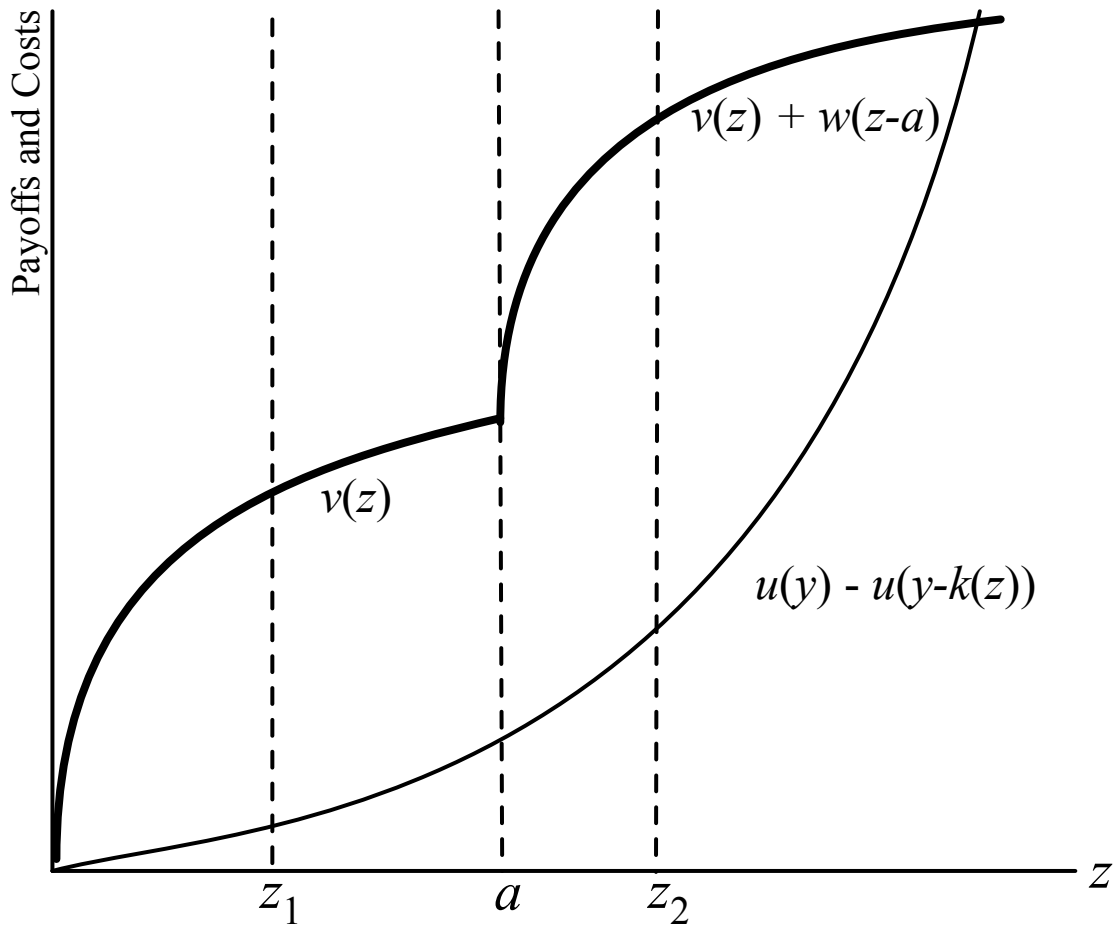
- Start with wealth distribution F_t at date t.
- $\mathbf{a}_t = \Psi(y, F_t)$.
- Person with income y chooses z to maximize

$$u(y - k(z)) + w_0(z) + \sum_{i=1}^{n} w_i(\max\{z - a(i), 0\})$$

  over tomorrow's wealth $z \in [0, f(y)]$, where $k(z) \equiv f^{-1}(z)$.
- Starting from F_0, recursively generates a sequence $\{F_t\}$:
- an equilibrium.

- Analysis combines two partial-equilibrium pieces:
- Aspirations $\rightarrow$ investment
- Wealth $\rightarrow$ investment

Aspirations → Investment



- At most one "local" solution on either side of *a*.
- Compare, and pick the one with the higher payoff.

- Easily extended to n-step aspirations.

- At most $n+1$ possible choices for z, $z_j \in (a(j), \infty)$:

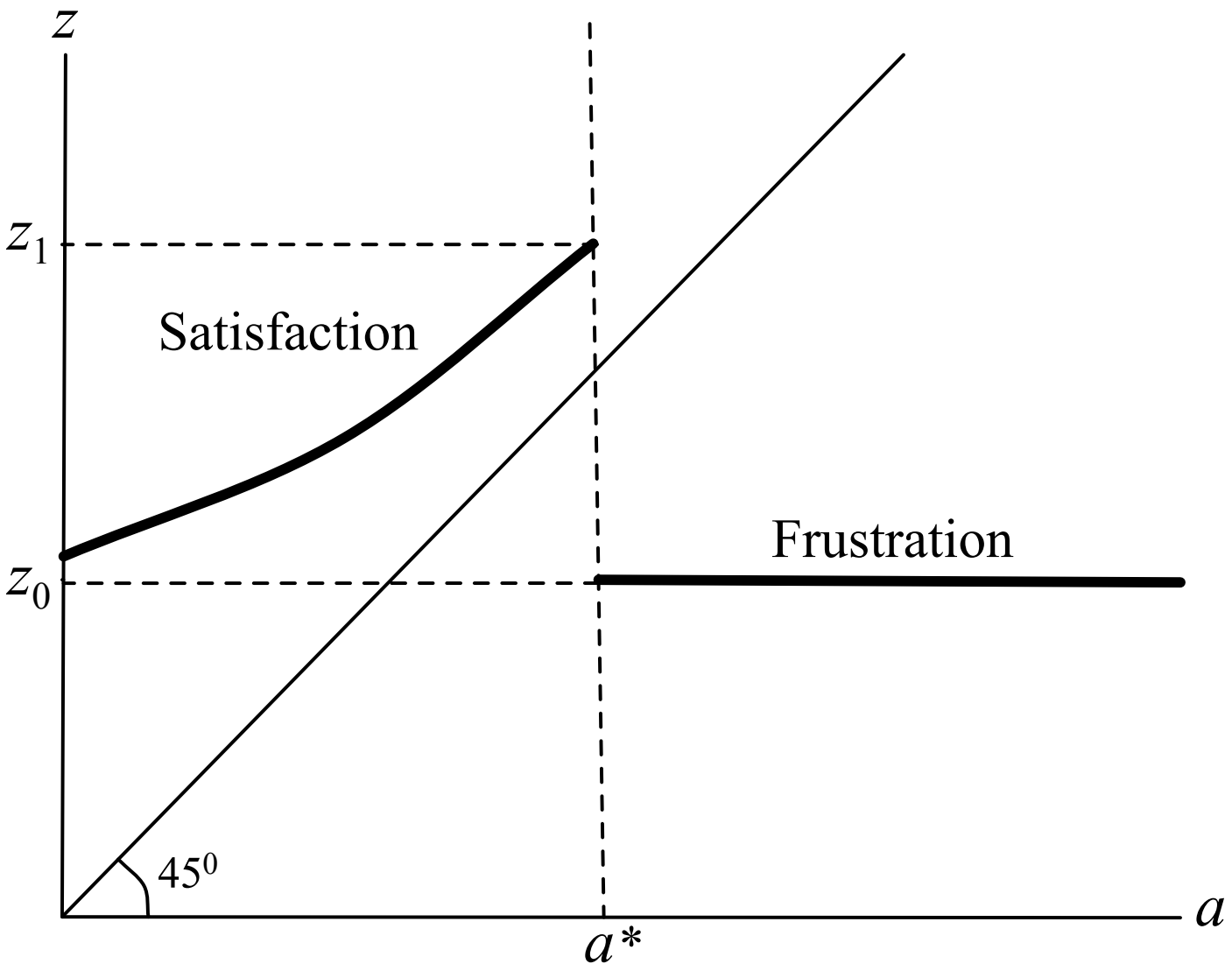
$$\sum_{i=0}^{j} w_i'(z_j - a(i)) = u'\left(y - k(z_j)\right) / f'(k(z_j)).$$

- Aspiration $a(i)$ is satisfied if $z \geq a(i)$, frustrated if not.

- Proposition 1.

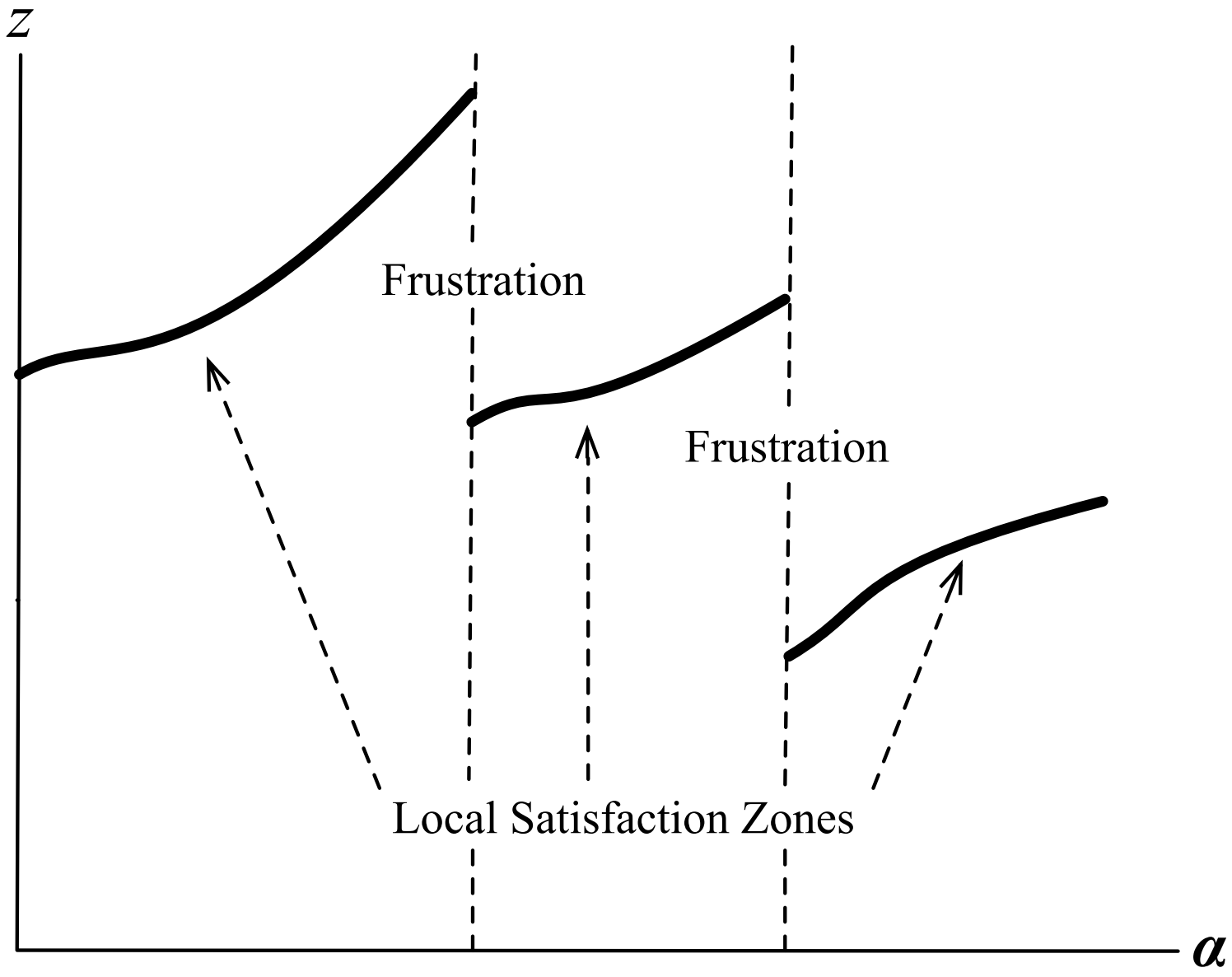
- Fix current wealth. Under single-step aspirations, there is a unique threshold value of the milestone below which aspirations are satisfied, and above which they are frustrated.

- As long as aspirations are satisfied, wealth and growth rise with the milestone. Once aspirations are frustrated, wealth is insensitive to the milestone.



- "The French found their position all the more intolerable as it became better." de Tocqueville, 1856

- Extension to multi-step aspirations



Wealth $\rightarrow$ Investment

- Introducing the canonical linear model:
  - Linear production: $f(k) = \rho k$.
  - Constant-elasticity utility:

$$u(c) = c^{1-\sigma}, \sigma < 1$$

$$w_0(z) = \delta z^{1-\sigma}$$

$$w_i(e_i) = \delta \pi_i e_i^{1-\sigma}$$

- Person with income y chooses z to maximize

$$\left(y-\frac{z}{\rho}\right)^{1-\sigma}+(z)^{1-\sigma}+\sum_{i=1}^{n}\pi_i\left(\max\{z-a(i),0\}\right)^{1-\sigma}.$$

- Person with aspiration ratios $r(i)=y/a(i)$ chooses $g=z/y$ to maximize

$$\left(1-\frac{g}{\rho}\right)^{1-\sigma}+(g)^{1-\sigma}+\sum_{i=1}^{n}\pi_i\left(\max\{g-\frac{1}{r(i)},0\}\right)^{1-\sigma}$$

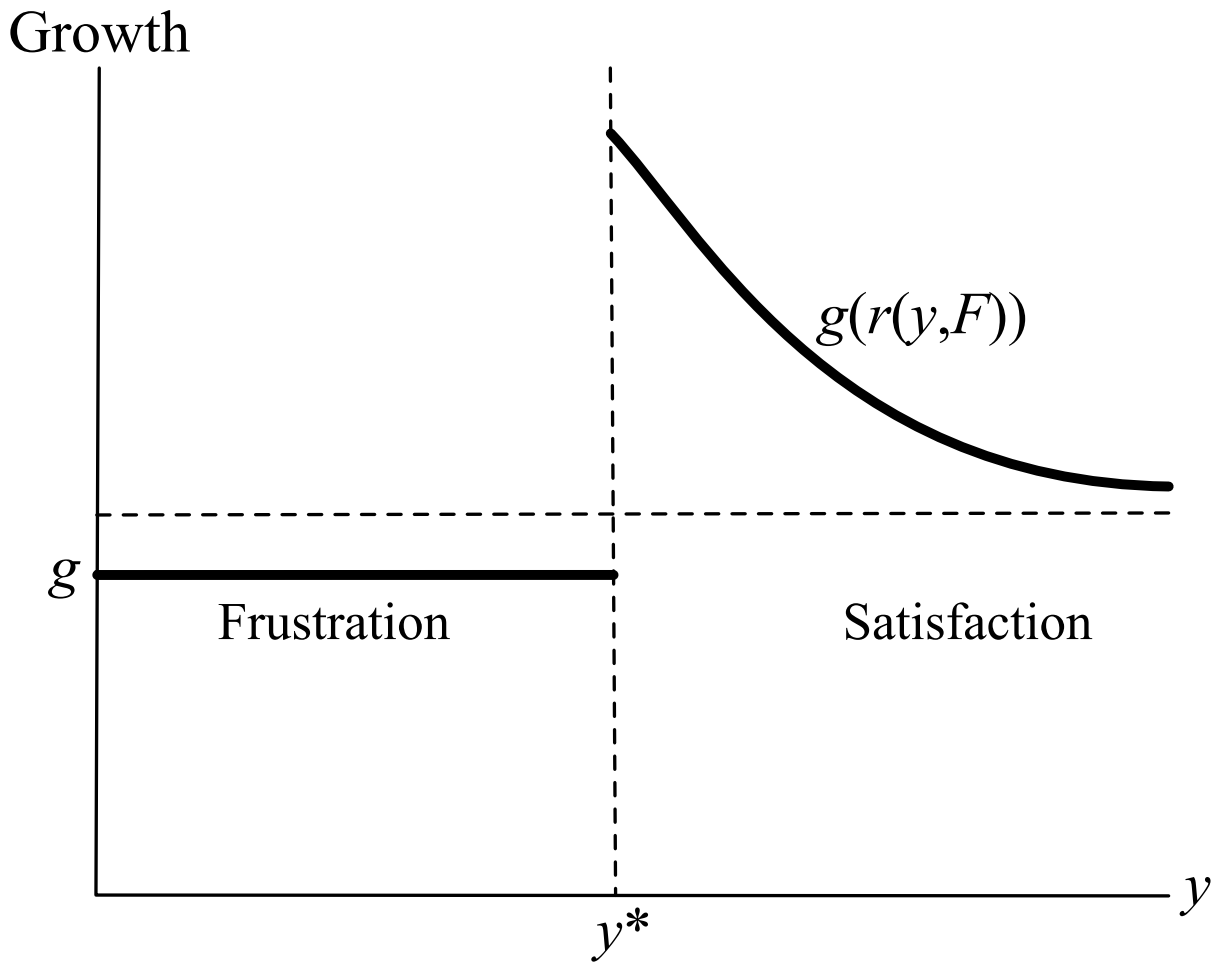
Growth Solutions

- With single aspiration a:
- Solution g depends on the ratio $r = y/a$.
- Social sensitivity of $\Psi \to r(y)$ increasing.
- Failed; $\underline{g}$ independent of r.
- Satisfied; $g(r)$ depends on r.

- Proposition 2. Fix single milestone a in canonical linear model.

- Then there is a unique $y(a)$ such that for $y < y(a)$, wealth grows at rate $\underline{g}$, and for all $y > y(a)$, wealth grows at rate $g(y/a)$.

- $g(y/a) \downarrow$ in y, but larger and bounded away from $\underline{g}$ in y.



The Multi-Step Case

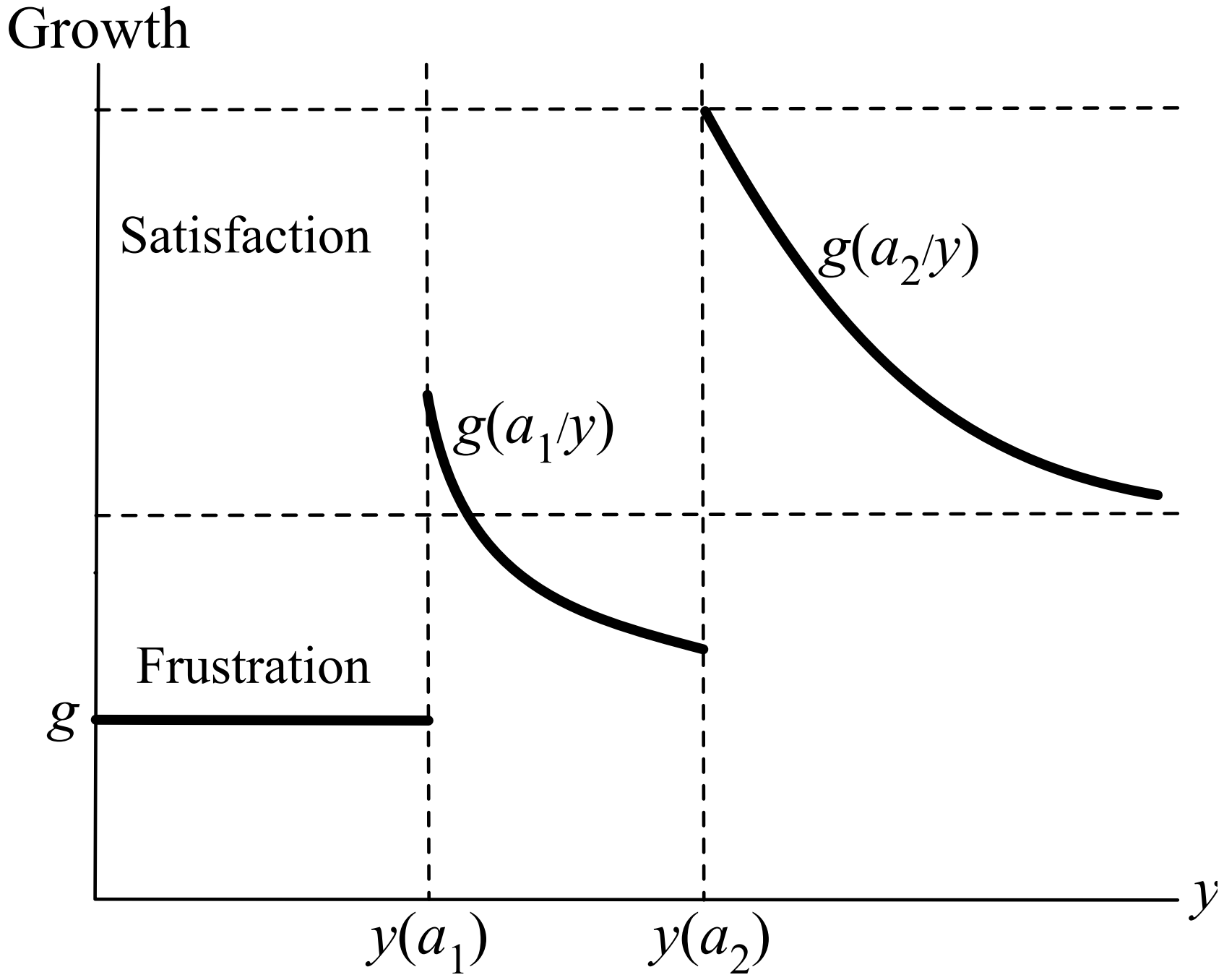
- "Globally frustrated" individuals have constant growth $\underline{g}$.

- For two individuals with same (nonempty) satisfied aspirations, $g \downarrow$ as $y \uparrow$.

- Succession of wealth thresholds at which g jumps up.

- Growth incidence curve has rising and falling segments.

- Overall tendency: g rises with wealth, because each decline is bounded below by a rate that exceeds the lower bound of the previous segment.


Growth
Satisfaction
$g(a_2/y)$
$g(a_1/y)$
Frustration
g
y
$y(a_1)$
$y(a_2)$

General Equilibrium:

- Persistent or growing inequality, or convergence?
- Connections between initial distribution and subsequent growth.

General Equilibrium: 1. Solow model:

- Distribution F^* such that $\{F^*, F^*, F^*, \ldots\}$ equilibrium from F^*.
- Natural setting: incomes in compact support, as in Solow model:

[C] $f(x) > x$ for x small enough and $f(x) < x$ for x large enough.

- Proposition 3.
- Under Assumption C, there exists a steady state distribution.
- No steady state can involve perfect equality of wealth.

Clustering in Steady State

- A steady state must have inequality, but has local clusters.
- Assume condition for unique steady state without aspirations.
- Proposition 4. With n-step aspirations:
- Steady state consists of at least 2 and at most $n+1$ mass points.
- In particular, the single-step case exhibits bimodal steady states.

General Equilibrium: 2. Endogenous Growth

- Return to canonical linear model:
  - constant-elasticity utility, linear production.
- Begin with single-step aspirations.
- An uninteresting case:
  - F_0 is such that everyone is frustrated at date 0.
  - By linear homogeneity of Ψ, must have perpetual decay.
  - We don't consider this case.

Ultimate Equality | Perpetually Widening Inequality

- Proposition 5. Assume that not everyone is frustrated at date 0. Then either there is

I. Convergence to Perfect Equality. There is $g^* > 1$ such that y_t/g^{*t} converges to a single point independent of $y_0 \in \text{Supp } F_0$; or

II. Persistent Divergence. F_t "separates" into two components that grow at different rates.

- In Case II, relative inequality never settles, it perpetually widens.

  Cf. Piketty-Saez 2003, Atkinson-Piketty-Saez 2011, Piketty 2014

- But equality has faster g^* than any of these growth rates.

- Note: Both cases contrast strongly with the Solow setting where balanced growth applies (stable inequality).

Multi-dimensional Aspirations Ray ⓡ Genicot (2019)

- $\mathbf{y} = \{y_k\}_0^K$ vector of outcome variables for an individual: wealth, education levels and health status....

- $\mathbf{a} = \{a_k\}_0^K$ set of reference points for individual accomplishments.

- Aspirations are fundamentally *social* as well as personal:

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

where $\mathbf{y}$ = personal outcomes, and F = social distribution of those outcomes.

- $\mathbf{x} = \{x_l\}_1^L$ vector of investments in order to achieve
- $\mathbf{z}$ anticipated future outcomes (live in the same space as $\mathbf{y}$)

- Payoffs: Given $\mathbf{a}$ and $\mathbf{y}$, choose $(\mathbf{x}, \mathbf{z}) \in T(\mathbf{y})$ to maximize:

$$u(\mathbf{y}, \mathbf{x}) + w_0(\mathbf{z}) + w_1(\mathbf{e}),$$

- $e_k = \max\{z_k - a_k, 0\}$ are the *excess* of z_k over the threshold a_k
- w_1 represents "aspirational utility"

Two-way interaction :

- Aspirations $\Rightarrow$ inspiration or frustration $\Rightarrow$ investment, collective action
- Investment, collective action $\Rightarrow$ growth and distribution $\Rightarrow$ aspirations.

- Aspirations are generally multidimensional.
  - [individual]: income, self-esteem, health, education, housing
  - [collective]: public goods, power, religious/cultural/ethnic dominance.
- ... and a research program can be built around this framework:
  - poverty traps (Appadurai 2004, Dalton et al 2016, Ray 1998, 2006)
  - growth and inequality (Bogliacino and Ortoleva 2016, Genicot and Ray 2017)
  - risk-taking
  - scapegoating (Genicot and Ray 2019 & in progress)
  - violent conflict (Mitra and Ray 2014)
  - fertility choice (Genicot and Ray 2019)
  - appropriate goal-setting (Schwenkenberg 2010, Kearney 2016, Besley 2017, Goux 2017)

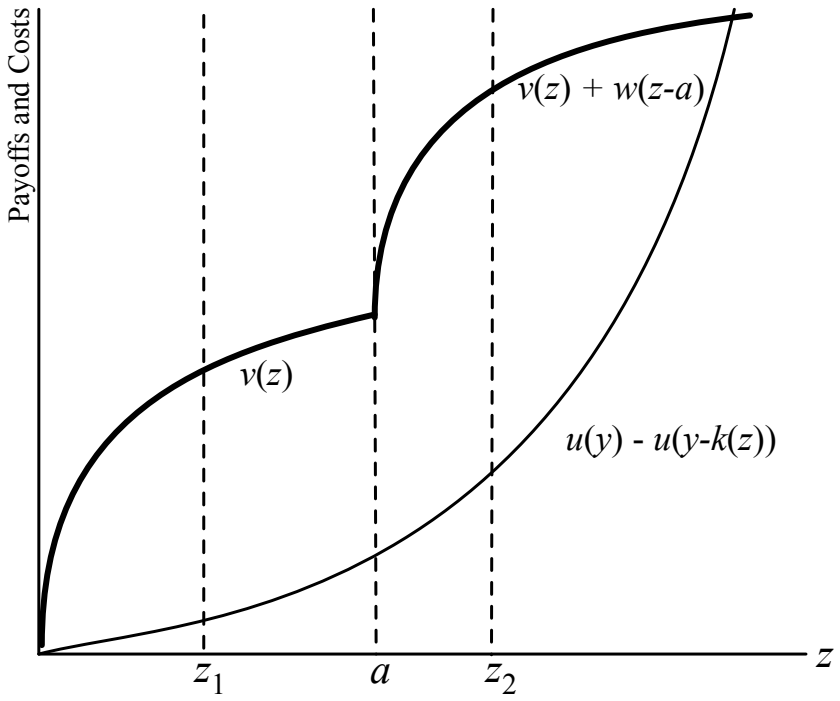
Aspirations and Conflict

- 1. Are aspirations determined by our social surroundings, or can we control them? (Ray 2006, Jensen and Oster 2009, Schwenkenberg 2010, Mookherjee-Napel-Ray 2010, Beaman 2012, Ferrara, Chong, and Duryea (2012), Besley 2017, Doepke-Zilibotti 2017)

- 2. Can we use these ideas to understand the swell of discontent in societies that exhibit rapid changes in per-capita income? (Mitra and Ray 2014, 2018)

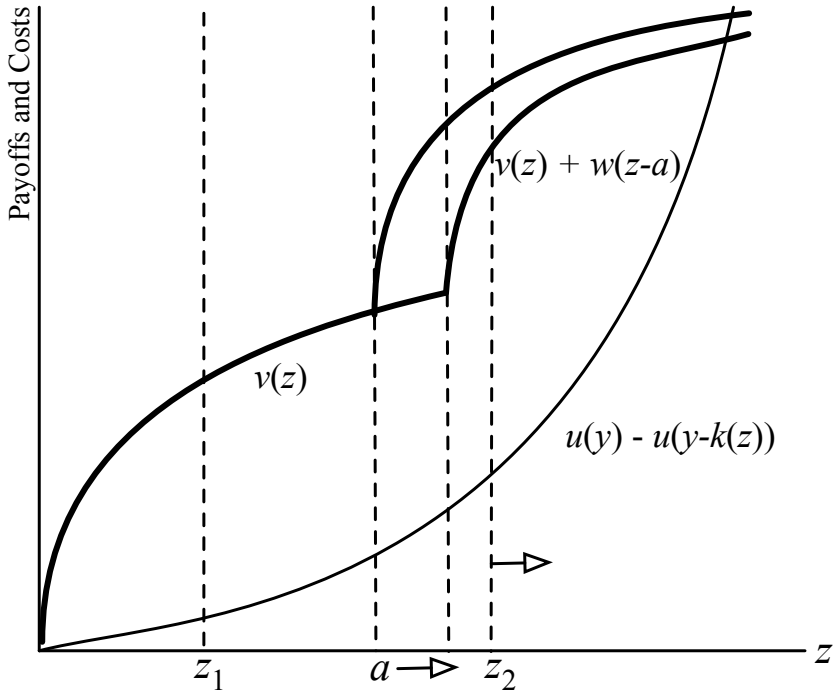
- 3. If uneven growth leads to social unrest via the channel of frustrated aspirations, do we expect those frustrations to be directed against those that benefit the most from growth, or against a third party?

- 4. Are political leaders who are unable (or unwilling) to control high and rising economic inequality, able to create "second-best" release valves by directing animosities in "orthogonal directions"?


Payoffs and Costs
v(z) + w(z-a)
v(z)
u(y) - u(y-k(z))
z
z1
a
z2

Aspirations, Inspiration and Frustration

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



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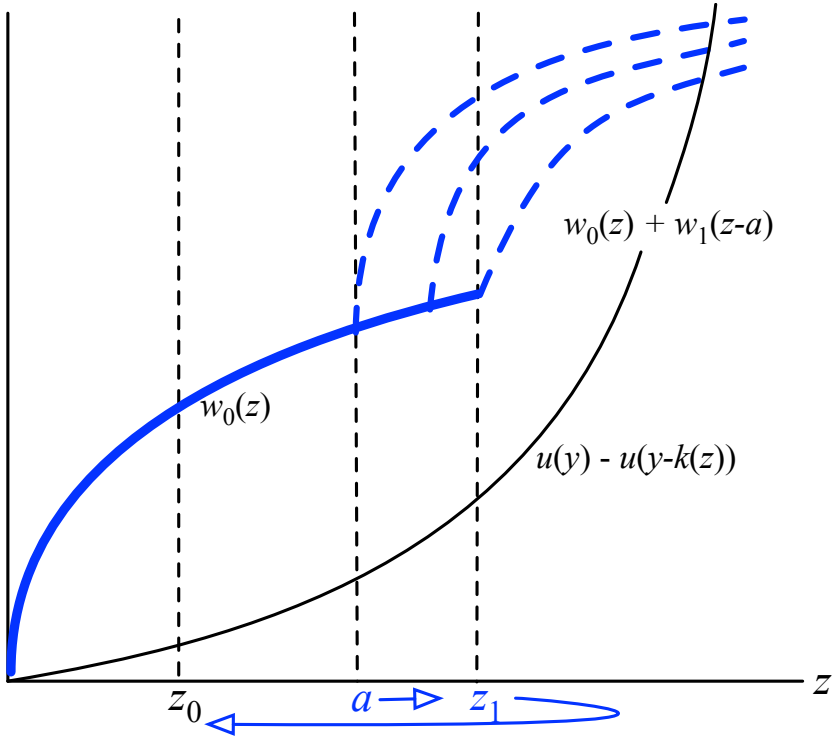

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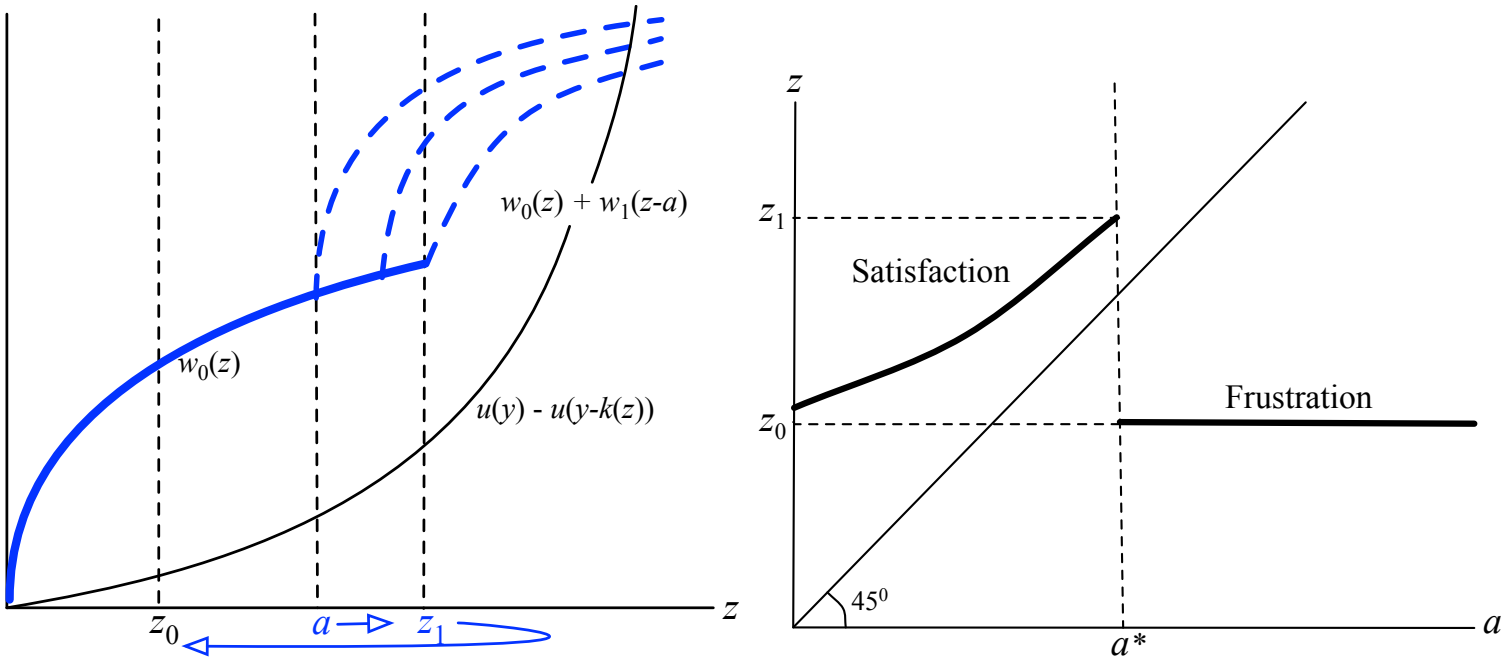

- For every wealth level, there is a threshold for the aspirational milestone below which the milestone is met, and above which it is frustrated. When the milestone is met, investment grows with aspirations. But once aspirations are frustrated, investment must jump *discontinuously* downward and thereafter remain insensitive to or decline with aspirations.

Consolation Prizes: Orthogonal Responses to Economic Inequality

- Scapegoating (Dollard et al 1939)

- a group unable to achieve their goals can redirect its frustration and aggression at a group that is not the causal agent of the frustration.

- Consider a two-dimensional aspirations framework:

- Dimension 1: economic catch-up, with associated investment x.

- Dimension 2: cultural, religious, nationalistic dominance, with associated investment r.

- For each income and ethnicity, choose "investments" (x, r) to maximize

$$u(y-x-r)+w_0(z)+w_1\left(\max\{z-a,0\}\right)+S(r)$$

- where w_0 and w_1 are the usual aspirational payoffs

- and $S(r)$ is a "superiority payoff" over potential rival (any increasing function).

$$u(y-x-r)+w_0(z)+w_1\left(\max\{z-a,0\}\right)+S(r)$$

- Note: the function $S(r)$ typically endogenous, but ignore for now.

- Proposition. As economic inequality increases, so that μ increases relative to ℓ, "dominance investments" initially fall with inequality and then rise — generally in a discontinuous fashion after a critical threshold is crossed.

- Possible applications: domestic violence & hate crime

Discussion

- Why does the aspirations-based model deliver this prediction?

  - In a "concave setting," an increase in inequality must increase the marginal return to investment, thereby unambiguously *reducing the orthogonal response*.

  - Here, x discontinuously drops. The freed-up resources are then deployed "sideways," towards the pursuit of another, relatively reachable objective.

- Is inequality unambiguous in its effects?

  - No. Higher inequality initially spurs more investment of the economic kind. But, risk of phase of collective action as inequality continues to rise.

  - With extremely high inequality, conflict could fall again owing to income effects.

- What is the role of leadership?

  - Development of a social marker, solving coordination problems.