

Fairness and Redistribution

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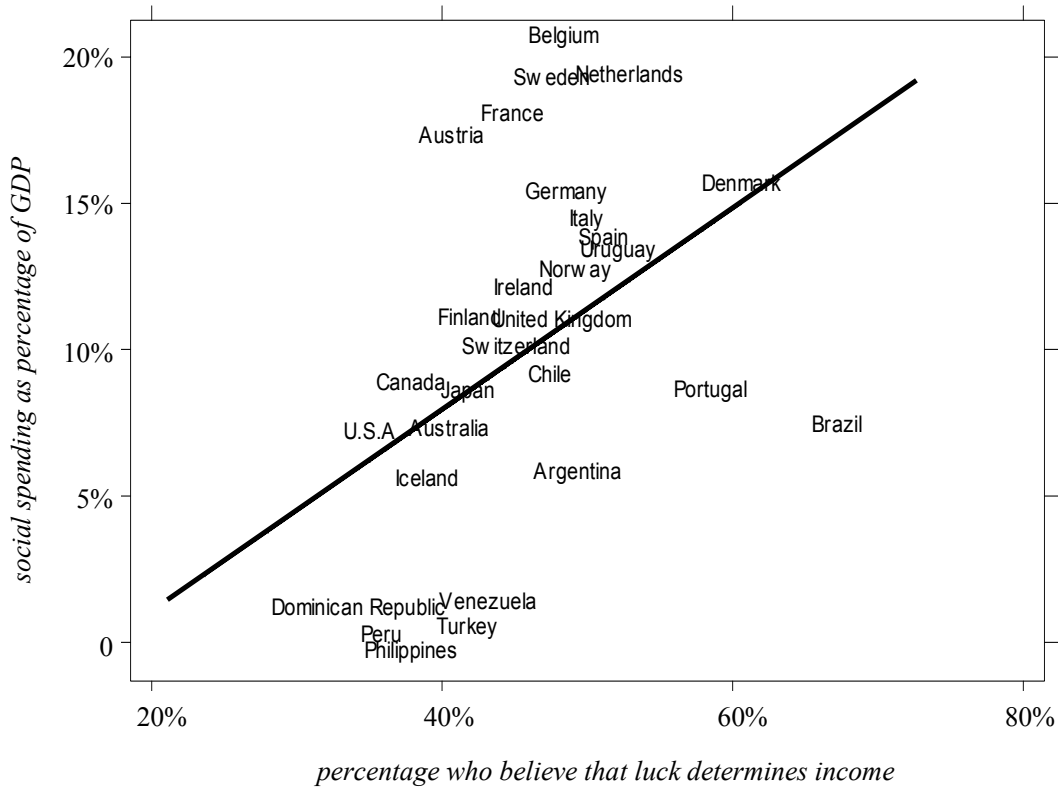
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MOTIVATION / INTRODUCTION

- Inequality much higher in the United States than in Europe
... yet, redistribution much lower in the United States than in Europe
- Perhaps small differences in (unobserved) fundamentals
... yet, large differences in **perceptions, attitudes, and outcomes**
- People concerned about **fairness**, not just equality!



THIS PAPER

- Evidence suggests that

$$\text{gov policies} = F(\text{fairness of econ outcomes})$$

- But, why do beliefs about fairness differ so much across countries?
- Who is right, the Americans who think that effort determines success, or the Europeans who think that it is mostly luck?

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- Evidence suggests that

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- But, why do beliefs about fairness differ so much across countries?
- Who is right, the Americans who think that effort determines success, or the Europeans who think that it is mostly luck?
- **Beliefs are endogenous**

$$\text{fairness in equilibrium} = G(\text{gov policies})$$

MAIN RESULT

interaction between redistributive policies and fairness



a politico-economic complementarity



amplifies the effect of exogenous differences

or even leads to **multiple equilibria**

LAYOUT

1. Introduction

2. Evidence

inequality – redistribution – fairness

3. Basic Model

static economy – multiple equilibria

4. History Dependence

dynamic economy – multiple steady states

5. Corruption and Rent-Seeking

reinterpreting luck – novel multiplicity

6. Concluding Remarks

Table 1

Effect of belief that luck determines income on aggregate social spending
(cross-country data)

Dependent variable: Social spending as percent of GDP				
	1	2	3	4
Mean belief that luck determines income	32.728*** (2.925)	32.272*** (3.064)	36.430*** (3.305)	31.782** (2.521)
Gini coefficient		-0.306* (1.724)	-0.238* (1.739)	-0.115 (0.613)
GDP per capita			3.148 (1.348)	4.754 (1.548)
Majoritarian			0.493 (0.184)	0.031 (0.011)
Presidential				-4.24 (1.392)
Latin America	-6.950*** (3.887)	-4.323 (1.472)	-2.992 (0.941)	0.413 (0.098)
Asia	-9.244*** (6.684)	-6.075** (2.153)	-0.808 (0.142)	4.657 (0.618)
Constant	-3.088 (0.590)	7.907 (1.396)	-25.207 (1.152)	-41.401 (1.425)
Observations	29	26	26	26
Adjusted R-squared	0.431	0.494	0.495	0.496

Table 2

The effect of belief that luck determines income on individual political orientation
(individual data)

Dependent variable: Being left on the political spectrum			
	1	2	3
Individual belief that luck determines income		0.541*** (3.69)	0.607*** (3.78)
Income	-0.01*** (7.20)	-0.009*** (3.31)	-0.009*** (3.88)
Years of education	-0.004*** (3.79)	-0.002 (0.74)	0.000 (0.07)
City population	0.01*** (7.43)	0.01*** (4.29)	0.009*** (4.40)
White	0.036 (4.83)	0.051*** (3.13)	0.033** (2.11)
Married	-0.026*** (3.22)	-0.03*** (2.97)	-0.032*** (3.11)
No. of children	-0.009*** (3.63)	-0.01*** (3.09)	-0.013*** (3.59)
Female	-0.044*** (6.93)	-0.043*** (3.43)	-0.039*** (3.39)
US resident	-0.125*** (12.14)	-0.096*** (3.31)	-0.051 (1.37)
Age group 18-24	0.11*** (6.19)	0.078*** (3.41)	0.007*** (3.11)
Age group 25-34	0.131*** (11.73)	0.116*** (7.23)	0.114*** (7.00)
Age group 35-44	0.126*** (12.03)	0.117*** (8.96)	0.12*** (9.27)
Age group 45-54	0.085*** (7.98)	0.081*** (6.37)	0.08*** (6.03)
Age group 55-64	0.039*** (3.55)	0.038*** (3.25)	0.037*** (3.00)
Constant	0.347*** (16.15)	0.045 (0.62)	0.218 (1.64)
Observations	20269	16478	14998
R-squared	0.03	0.03	0.04

EXPERIMENTAL EVIDENCE

- Ferh and Schmidt (2001) etc:
 - dictator games \leadsto altruism
 - ultimatum games \leadsto negative reciprocity
 - gift-exchange games \leadsto positive reciprocity
 - public-good games \leadsto cooperation on punishment
- Hoffman and Spitzer (1985), Hoffman et al (1998), Ball et al (1996), Clark (1998):
 - outcomes sensitive on whether role/status is random or earned
 - redistribution sensitive on whether initial incomes random or earned
- Psychologists, sociologist, political scientists:
 - belief in a just world, demand for fairness

“one should deserve what he gets, and get what he deserves”

BASIC MODEL

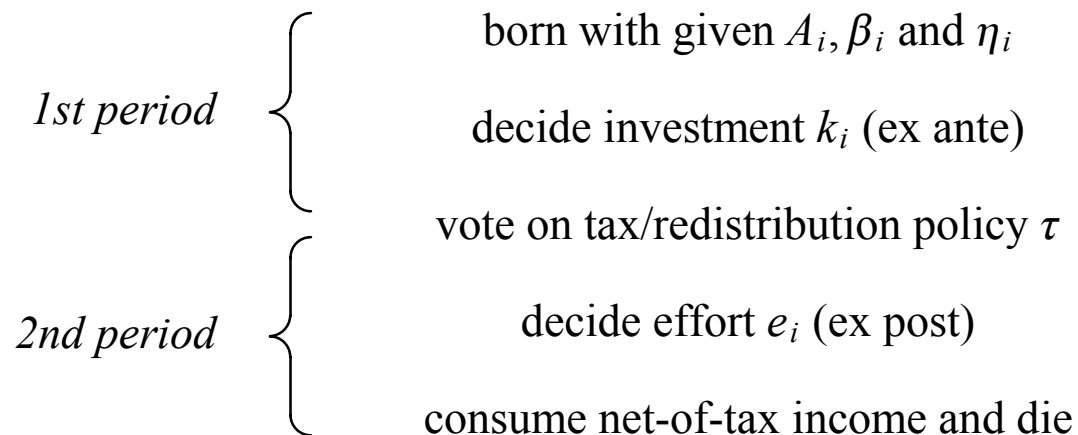
- No intergenerational links (static economy)
- Large number of agents ($i \in [0, 1]$)
- Heterogeneity in willingness to work (β_i) or talent (A_i)
 \rightsquigarrow justified variation in income
- Heterogeneity in luck (η_i)
 \rightsquigarrow unjustified variation in income
- Utility from both own consumption (c_i) and fairness of economic outcomes (Ω)
- Government = median voter

INCOME AND TIMING

- Pre-tax income or wealth:

$$y_i = A_i[\alpha k_i + (1 - \alpha)e_i] + \eta_i$$

- Two periods of life



PREFERENCES AND BUDGETS

- Preferences

$$U_i = u_i - \gamma \Omega$$

u_i = utility from own choices (private good)

$$u_i = u_i(c_i, k_i, e_i) = c_i - \frac{1}{\beta_i} \left[\frac{\alpha}{2} k_i^2 + \frac{1-\alpha}{2} e_i^2 \right]$$

Ω = disutility from social injustice (public good)

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Ω = disutility from social injustice (public good)

- Household and government budgets

$$c_i = (1 - \tau)y_i + G$$

$$G = \tau \int_i y_i$$

FAIR OUTCOMES AND SOCIAL INJUSTICE

- Fair or ideal outcomes

$$\hat{c}_i \equiv \hat{y}_i \equiv A_i[\alpha k_i + (1 - \alpha)e_i] = y_i - \eta_i$$

$$\hat{u}_i \equiv u(\hat{c}_i, k_i, e_i)$$

- Common measure of social injustice

$$\Omega \equiv \int_i [u_i - \hat{u}_i]^2 = \int_i [c_i - \hat{c}_i]^2$$

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$$\Omega \equiv \int_i [u_i - \hat{u}_i]^2 = \int_i [c_i - \hat{c}_i]^2$$

- Assuming that \hat{y}_i and η_i are independent

$$\Omega = \tau^2 \text{Var}(\hat{y}_i) + (1 - \tau)^2 \text{Var}(\eta_i)$$

- If income distribution was exogenous and $\min \Omega$ was the only policy goal

$$\frac{1 - \tau}{\tau} = \frac{\text{Var}(\hat{y}_i)}{\text{Var}(\eta_i)}$$

← *optimal tax decreases with
signal-to-noise ratio*

INCOME DISTRIBUTION

- Optimal investment/effort choices

$$k_i = (1 - \tau^e)A_i\beta_i$$

$$e_i = (1 - \tau)A_i\beta_i$$

where τ^e = expected, τ = actual tax rate.

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- Fair and actual income

$$\hat{y}_i = \beta_i A_i^2 [1 - \alpha\tau^e - (1 - \alpha)\tau]$$

$$y_i = \hat{y}_i + \eta_i$$

- Equilibrium income distribution

$$\frac{\text{Var}(\hat{y}_i)}{\text{Var}(\eta_i)} = \frac{\sigma^2}{v^2} [1 - \alpha\tau^e - (1 - \alpha)\tau]^2$$

← *signal-to-noise ratio
decreases with tax distortion*

where $\sigma^2 = \text{Var}(\beta_i A_i^2)$ and $v^2 = \text{Var}(\eta_i)$.

OPTIMAL REDISTRIBUTION

- The optimal tax

$$\tau = \arg \max_{\tau} [\text{median}\{U_i\}]$$

$$\Rightarrow \tau = F(\tau^e; \alpha, \gamma, \sigma, \nu, \Delta)$$

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where

$$\Delta \equiv \text{mean}\{\beta_i A_i^2\} - \text{median}\{\beta_i A_i^2\}$$

GENERAL EQUILIBRIUM

- A politico-economic equilibrium is a (stable) fixed point

$$\tau^* = F(\tau^* ; \cdot) \quad \text{with } F_\tau < 1$$

- Fairness is necessary and sufficient for multiplicity:

$\Delta = 0 = \gamma$	\Rightarrow	unique equilibrium with $\tau^* = 0$
$\Delta > 0 = \gamma$	\Rightarrow	unique equilibrium with $\tau^* > 0$
$\gamma > 0$	\Rightarrow	possibly multiple equilibria with $\tau^* > 0$

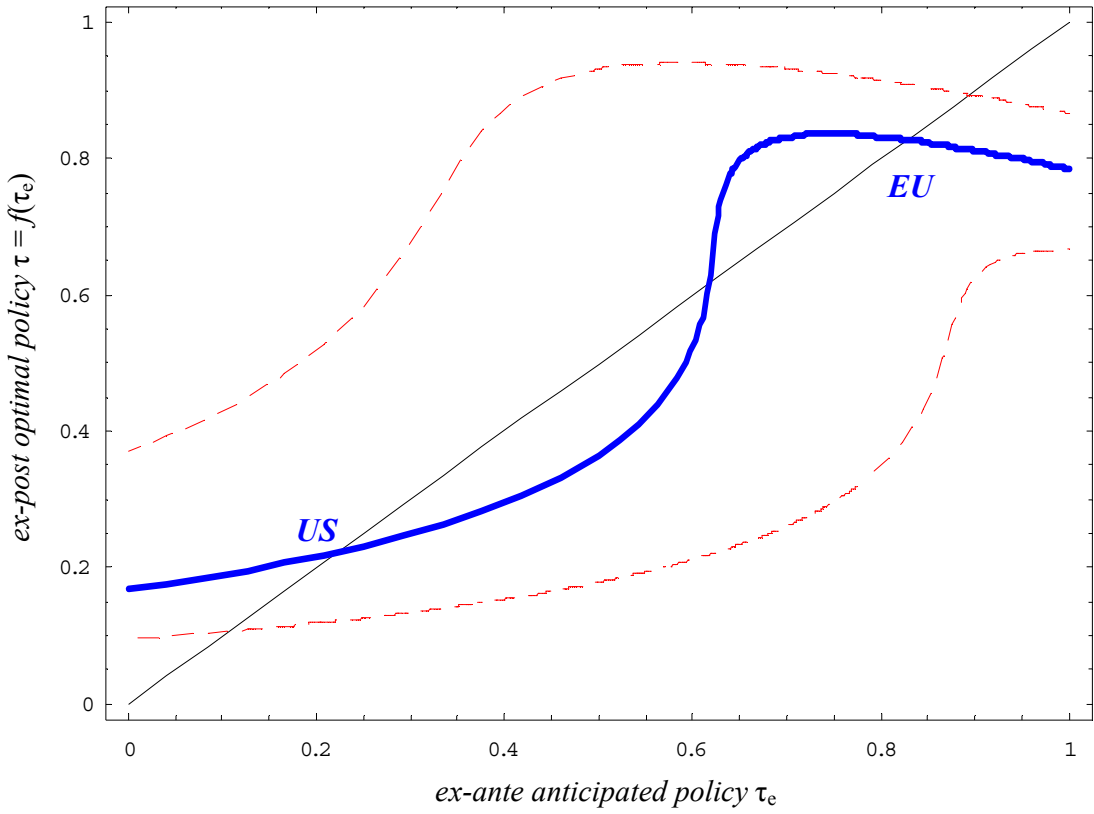


Figure 2

EXTENSION I: HISTORY DEPENDENCE

- Non-overlapping generations $t \in \{\dots, -1, 0, 1, \dots\}$
- Each generation lives one period and chooses its own tax policy
- Altruistic intergenerational transfers (bequests, parental investment, etc)

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- Each generation lives one period and chooses its own tax policy
- Altruistic intergenerational transfers (bequests, parental investment, etc)
- Preferences

$$U_t^i = u_t^i - \gamma \Omega_t$$

$$u_t^i = (c_t^i)^{1-\alpha} (k_t^i)^\alpha - \frac{1}{\beta_t^i} (e_t^i)^2$$

- Wealth and budgets

$$y_t^i = k_{t-1}^i + A_t^i e_t^i + \eta_t^i$$

$$c_t^i + k_t^i = (1 - \tau_t) y_t^i + G_t$$

$$G_t = \tau_t \int_i y_t^i$$

SOCIAL INJUSTICE

- In the absence of redistribution

$$y_t^i = k_{t-1}^i + A_t^i e_t^i + \eta_t^i = \sum_{s \leq t} \alpha^{s-t} A_s^i e_s^i + \sum_{s \leq t} \alpha^{s-t} \eta_s^i$$

- Fair component of wealth

$$\hat{y}_t^i \equiv \sum_{s \leq t} \alpha^{s-t} A_s^i e_s^i$$

- Social injustice

$$\Omega_t = \tau_t^2 \text{Var}(\hat{y}_t^i) + (1 - \tau_t)^2 \text{Var}(y_t^i - \hat{y}_t^i)$$

- **History** $\{\tau_s\}_{s \leq t}$ **matters**

$$\frac{\text{Var}(\hat{y}_t^i)}{\text{Var}(y_t^i - \hat{y}_t^i)} = \frac{\text{Var}\left[\sum_{s \leq t} \alpha^{s-t} (1 - \tau_s) \beta_s^i A_s^{i2}\right]}{\text{Var}\left[\sum_{s \leq t} \alpha^{s-t} \eta_s^i\right]}$$

STEADY STATES

- In general, $\tau_t = f(\tau_{t-1}, \tau_{t-2}, \tau_{t-3}, \dots)$
- Suppose $\tau_s = \bar{\tau}$ for all $s < t$. Then

$$\frac{\text{Var}(\hat{y}_t^i)}{\text{Var}(y_t^i - \hat{y}_t^i)} = \frac{\sigma^2}{v^2} [1 - \alpha \bar{\tau} - (1 - \alpha)\tau_t]^2$$

- The equilibrium tax is

$$\tau_t = F(\bar{\tau}; \cdot)$$

where F is the same function as in the static model

- **The fixed points of F now correspond to steady states**

*The steady state at which an economy rests
depends on history or culture*

EXTENSION II: CORRUPTION

- Agents can engage in two kinds of activities:
 - a productive activity (**work**)
 - a rent-seeking activity (**corruption**)
- Larger governments \rightsquigarrow more room for corruption
- **Heterogeneity** in both productive and rent-seeking abilities
- **Fairness:** income is justifiable only if from work

CORRUPTION

- Reinterpreting “luck” as corruption:

with a desire for fairness, multiple steady states

- Novel result: **self-sustained corruption**

multiple steady states even without a desire for fairness,
provided skewness in distribution of rent-seeking abilities

- Contrast with Meltzer-Richard:

unique steady state if there is neither a concern for fairness
nor skewness in the distribution of rent-seeking abilities

CONCLUDING REMARKS

- Observed versus unobserved luck
- Importance of (new) fairness concept for both normative and positive analysis
- Endogenize preference for fairness
- Amador, Angeletos, Werning (2004): Mirrlees with two types of inequality