Fairness and Redistribution

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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!
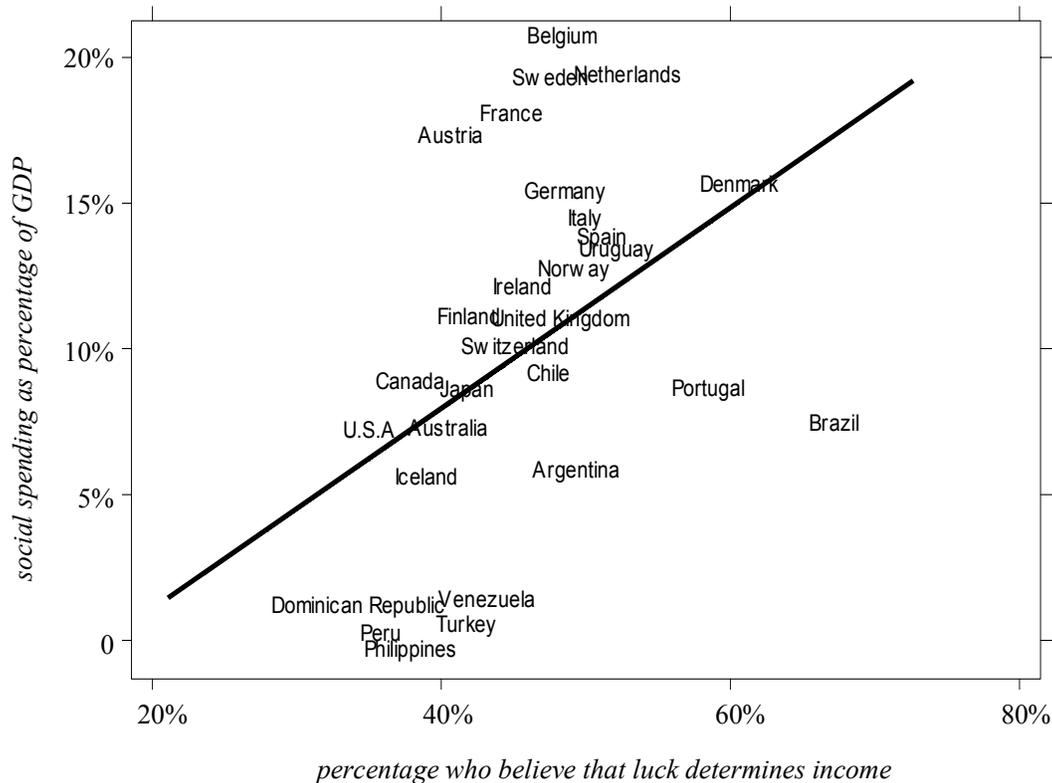
Figure 1

Reproduced from Alesina, Gleaser and Sacerdote (2001). This scatterplot illustrates the positive cross-country correlation between the percentage of GDP allocated to social spending and the fraction of respondents to the *World Value Survey* who believe that luck determines income.

THIS PAPER

- Evidence suggests that

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

- 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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- Who is right, the Americans who think that effort determines success, or the Europeans who think that it is mostly luck?

- **Beliefs are endogenous**

$$\textbf{fairness in equilibrium} \;=\; \textbf{G}\big(\textbf{ gov policies }\big)$$

MAIN RESULT

interaction between redistributive policies and fairness

$\Downarrow$ $\quad$ $\Downarrow$

a politico-economic complementarity

$\Downarrow$ $\quad$ $\Downarrow$
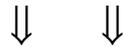
amplifies the effect of exogenous differences

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***	32.272***	36.430***	31.782**
	(2.925)	(3.064)	(3.305)	(2.521)
Gini coefficient		-0.306*	-0.238*	-0.115
		(1.724)	(1.739)	(0.613)
GDP per capita			3.148	4.754
			(1.348)	(1.548)
Majoritarian			0.493	0.031
			(0.184)	(0.011)
Presidential				-4.24
				(1.392)
Latin America	-6.950***	-4.323	-2.992	0.413
	(3.887)	(1.472)	(0.941)	(0.098)
Asia	-9.244***	-6.075**	-0.808	4.657
	(6.684)	(2.153)	(0.142)	(0.618)
Constant	-3.088	7.907	-25.207	-41.401
	(0.590)	(1.396)	(1.152)	(1.425)
Observations	29	26	26	26
Adjusted R-squared	0.431	0.494	0.495	0.496

Courtesy of Alberto Alesina, George_Marios Angeletos, and the American Economic Association. Used with permission.

Source: Total social spending is social spending as a percentage of GDP, from Persson and Tebellini (2000); original source: IMF. Majoritarian, presidential, and age structure are from Persson and Tabellini (2002). Ethnic fractionalization is from Alesina et al (2002). Mean belief that luck determines income is constructed using World Value Survey data for 1981-97 from the Institute for Social Research, University of Michigan. This variable corresponds to the response to the following question: "In the long run, hard work usually brings a better life. Or, hard work does not generally bring success; it's more a matter of luck and connections." The answers are coded 1 to 10. We recoded on a scale 0 to 1, with 1 indicating the strongest belief in luck.

Robust t statistics in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

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

Source: The dependent variable is constructed using data from the World Value Survey. It is a 0 to 1 indicator for whether the respondent classifies himself/herself as being on the left of the political spectrum. The question is formulated as follows: "In political matters, people talk of left and right. How would you place your views on this scale, generally speaking?" The respondent is given a scale 1 to 10, 1 being the most leftist. We classified as leftist anyone who answered with a score of 5 or below. All other individual characteristics are also from World Value Survey.

Absolute value of t statistics in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

EXPERIMENTAL EVIDENCE

- Ferh and Schmidt (2001) etc:

    dictator games $\rightsquigarrow$ altruism

    ultimatum games $\rightsquigarrow$ negative reciprocity

    gift-exchange games $\rightsquigarrow$ positive reciprocity

    public-good games $\rightsquigarrow$ 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
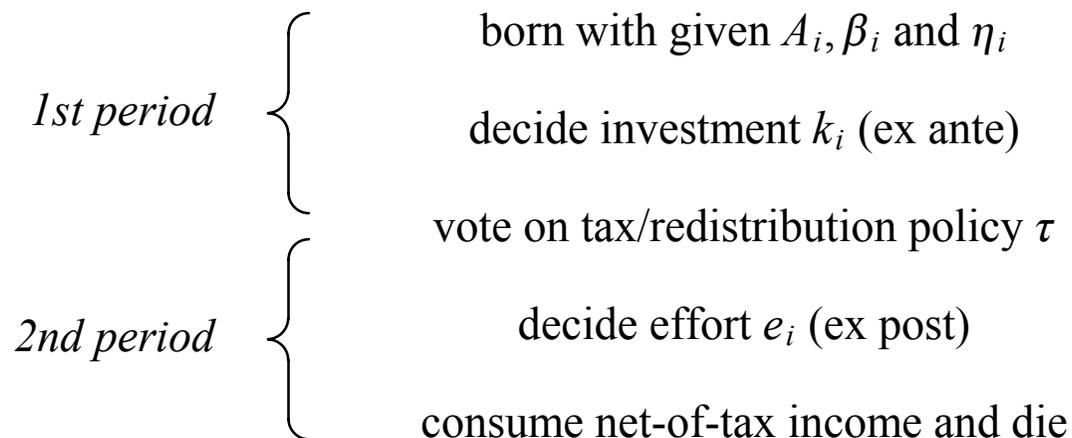
1st period
{
born with given A_i, β_i and η_i

decide investment k_i (ex ante)
}

2nd period
{
vote on tax/redistribution policy τ

decide effort e_i (ex post)

consume net-of-tax income and die
}

PREFERENCES AND BUDGETS

- Preferences

$$\boxed{U_i \;=\; u_i \;-\; \gamma\,\Omega}$$

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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- 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

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

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

- Common measure of social injustice

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

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- Common measure of social injustice

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

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

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

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

$$\boxed{\frac{1 - \tau}{\tau} = \frac{\text{Var}(\widehat{y}_i)}{\text{Var}(\eta_i)}} \quad \leftarrow \quad \textit{optimal tax decreases with signal-to-noise ratio}$$

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

- Fair and actual income

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

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

- Equilibrium income distribution

$$\boxed{\frac{\text{Var}(\widehat{y}_i)}{\text{Var}(\eta_i)} = \frac{\sigma^2}{v^2}[1 - \alpha\tau^e - (1 - \alpha)\tau]^2} \quad \leftarrow \quad \textit{signal-to-noise ratio}$$

decreases with tax distortion

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

OPTIMAL REDISTRIBUTION

- The optimal tax

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

$$\Rightarrow \quad \boxed{\;\tau \;=\; F\big(\; \tau^e \;;\; \alpha, \gamma, \sigma, v, \Delta \;\big)}$$
$$\pm \qquad +\;+\;-\;+\;+$$

where

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

GENERAL EQUILIBRIUM

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

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

- 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 $\tau^* > 0$
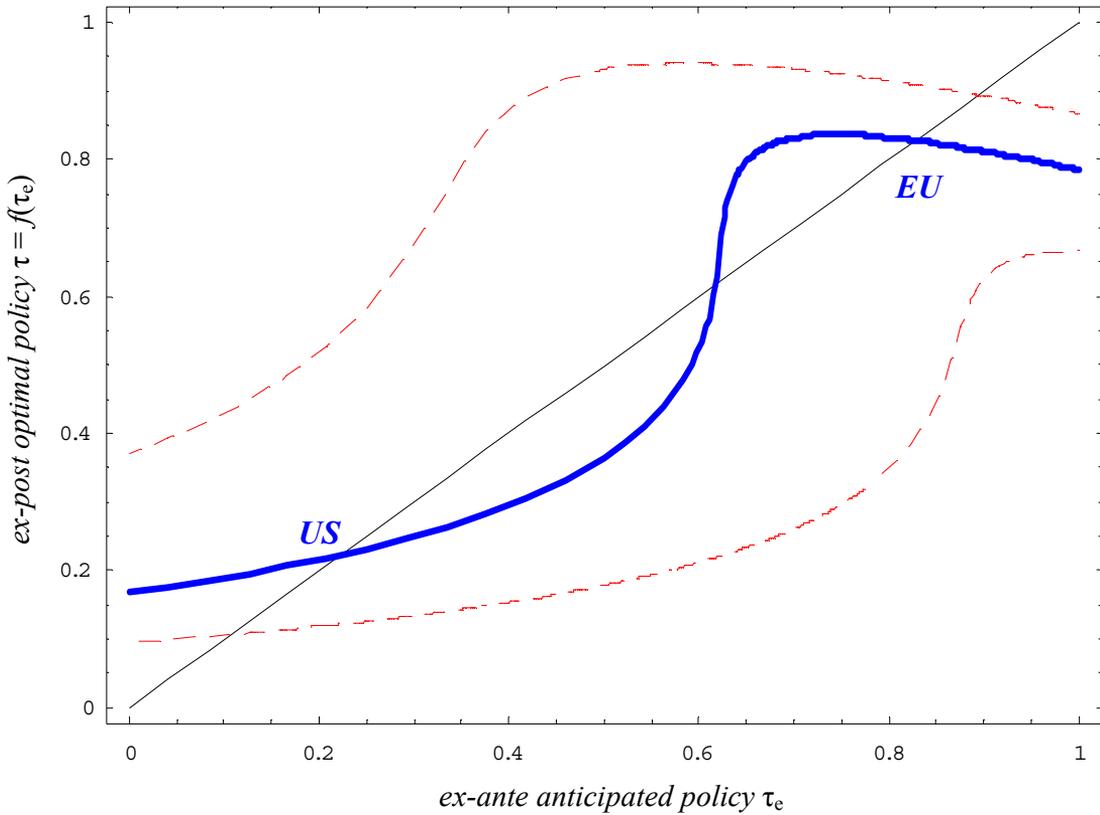
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Figure 2

EXTENSION I: HISTORY DEPENDENCE

- Non-overlapping generations $t \in \{\ldots, -1, 0, 1, \ldots\}$

- Each generation lives one period and chooses its own tax policy

- Altruistic intergenerational transfers (bequests, parental investment, etc)

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- Non-overlapping generations $t \in \{\ldots, -1, 0, 1, \ldots\}$

- 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**

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

STEADY STATES

- In general, $\tau_t = f(\tau_{t-1}, \tau_{t-2}, \tau_{t-3}, \ldots)$

- Suppose $\tau_s = \overline{\tau}$ for all $s < t$. Then

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

- The equilibrium tax is

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

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, multpiple steady states

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

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

- Contrust 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

14.05 Intermediate Macroeconomics

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