The Political Economy of Redistribution ‘ under Democracy

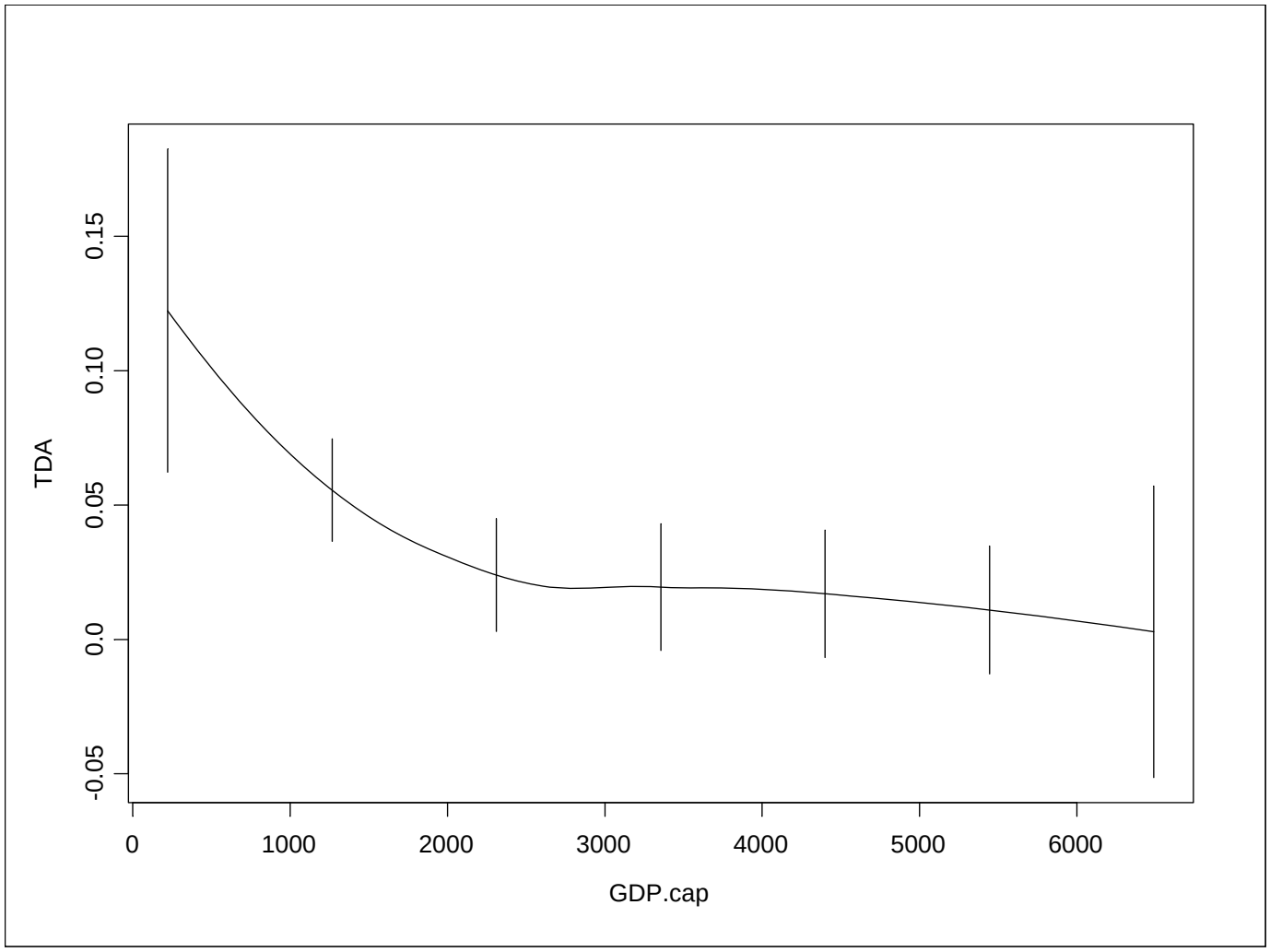
Jess Benhabib and Adam Przeworski

- We want to ask what redistributions of income and assets are feasible in a democracy, given the initial assets and their distribution. The question is motivated by the possibility that if redistribution is insufficient for the poor or excessive for the rich, they may turn against democracy. In turn, if no redistribution simultaneously satisfies the poor and the wealthy, democracy cannot be sustained. Hence, the corollary question concerns the conditions under which democracy is sustainable.
- We need political economy context-where elections can take place, and outcomes reflect the preferences of the median voter. The setup is distinct from distributional conflict models of interest groups, and also distinct from models of multiple equlibria arising out of coordination problems.

- We have previously explored the hypothesis of non-homogeneity in political dynamics: that economic and political decisions are wealth dependent, and that rich countries are not simply homothetic blow-up of poor countries. Adam Przeworski has done empirical work showing that the hazard rate of democracy (transitions from democracy to dictatorship) declines with income. Benhabib and Aldo Rustichini explored, in a game theoretic context, the role of wealth in social conflict.
- Our hypothesis will be that preferences embody this non–homogeneity: Democracy is a luxury good. Explanations in terms of preferences are justifiably suspect. We are driven to it because of two facts: Democracy is more likely, indeed certain, to survive in wealthy countries, andno plausible rival hypothesis eliminates the role of income in sustaining democracy.

So income matters and it is not a proxy for something else. We explore rival hypotheses in the next slides.

The probability that a democracy would survive rises steeply in per capita income. Between 1950 and 1999, the probability that a democracy would die during any year in countries with per capita income under $1,000 (1985 PPP dollars) was 0.0845, so that one in twelve died. In countries with incomes between $1,001 and $3,000, this probability was 0.0362, for one in twenty-eight. Between $3,001 and $6,055, this probability was 0.0163, one in sixty-one. And no democracy ever fell in a country with per capita income higher than that of Argentina in 1975, $6,055. This is a startling fact, given that throughout history about seventy democracies collapsed in poorer countries, while thirty-seven democracies spent over 1000 years in more developed countries and not one died.



Transitions to dictatorship by Y/L

Why is democracy more likely to survive in richer countries?

Some explanations are sociological:

(1)Social structure becomes more complex and conflicts are decentralized because of overlapping cleavages (Coser).

(2) Middle class becomes larger, attenuating the conflict between the poor and the rich (Modernization theory).

(3) Working class becomes larger and it defends democracy because democracy allows it to struggle for higher wages and better working conditions (Therborn, Rueschemayer and Stevens).

Some are socio-psychological:

(1) Education makes people like democracy (Lipset)

(2) Political participation makes people accept outcomes of competition in which they took part.

Pure psychological:

(1) Wealth makes people "moderate." (Lipset)

Explanation based on preferences :

"The general income level of a nation also affects its receptivity to democratic norms. If there is enough wealth in the country so that it does make too much difference whether some redistribution takes place, it is easier to accept the idea that it does not matter greatly which side is in power. But if loss of office means serious losses for major groups, they will seek to retain office by any means available." Lipset (1960).

Transitions to dictatorship, as a function of per capita income and rival variables

	Non	Educ	Complex	ELF	Partic	Ineq
Cnst	-1306	-0.777	2.575	-1.013	-0.748	-0.803
	(0.116)	(0.200)	(1.197)	(0.152)	(0.433)	(0.640)
Y/L	-0.226	-0.182	-0.195	-0.175	-0.227	-0.273
	(0.042)	(0.063)	(0.110)	(0.040)	(0.095)	(0.086)
Rival	–	-0.0816	-5.509	-0.637	-0.7150	-0.0050
		(0.0504)	(1.770)	(0.251)	(0.7344)	(0.0140)
N	2423	1085	1201	2234	581	771
TD	47	30	10	46	12	14

Production

$$y_t = rk_t$$

Initial Wealth Distribution

$$\sum_{i=1}^{n} v_{t_0}^i = 1, \quad k_t^i = v_t^i k_t.$$

Redistribution Through Taxation

$$y_t^i = (1-\tau_t) r v_t^i k_t + n^{-1}\tau_t r k_t = (1-\tau_t) r k_t^i + n^{-1}\tau_t r k_t$$

$$\tau_s \in [0, \tilde{\tau}], \text{ where } \tilde{\tau} \leq 1 \text{ for all } s \ .$$

Agents

Assumption $\tau_s \leq \tilde{\tau}_s < 1$, $s = t_0 + 1, t_0 + 2, \ldots,$ where t_0 is the initial period.

Assumption $\beta^{\frac{1}{\sigma}}(r(1-\tilde{\tau}_s))^{\frac{1-\sigma}{\sigma}} < 1$, $\beta^{\frac{1}{\sigma}} r^{\frac{1-\sigma}{\sigma}} <$

$$V^i(k_t^i) = \max_{c_i} \frac{(c_t^i)^{1-\sigma} - (1-b^j)}{(1-\sigma)} + \beta V^i(r(1-\tau_t)k_t^i + q_t^i - c_t^i)$$

$$c_t^i = \lambda_t^i \left(r(1-\tau_t)k_t^i + \left(q_t^i + \sum_{j=t+1}^{\infty} q_j^i \prod_{s=t+1}^{j} (r(1-\tau_s))^{-1} \right. \right.$$

$$\lambda_t^i = \lambda_t = \left(1 + \sum_{j=t+1}^{\infty} \prod_{s=t+1}^{j} \beta^{\frac{1}{\sigma}} (r(1-\tau_s))^{\frac{1-\sigma}{\sigma}} \right)^{-1}$$

Define b^s as the per period utility cost to the group that successfully establishes a dictatorship, and b^u as the per period utility cost to the other group. Losers suffer at least as much under autocracy than the winners, and perhaps more.

Assumption $b^u \geq b^s \geq 0$ and $b^u > 0$ under dictatorship, $b^u = b^s = 0$ under democracy.

Endogenizing Transfers

$$k_t = \left(\prod_{s=1}^{t} g_s\right) k_0$$

$$q_0^i = n^{-1}\tau_0 r k_0, \qquad q_t^i = n^{-1}\tau_t r k_t = n^{-1}\tau_t r\left(\prod_{s=1}^{t} g_s\right) k$$

$$c_t^i = \lambda_t \left(\begin{array}{c} (1-\tau_t) r k_t^i + \\ n^{-1}\left(\tau_t + \sum_{j=t+1}^{\infty} \tau_j \prod_{s=t+1}^{j} g_s (r(1-\tau_s))^{-1}\right) r k_t \end{array} \right.$$

Summing over agents,

$$k_{t+1} = r\left(1 - \lambda_t - \lambda_t\left(\sum_{j=t+1}^{\infty} \tau_j \prod_{s=t+1}^{j} \frac{g_s}{r(1-\tau_s)}\right)\right) k_t$$

$$g_{t+1} = r\left(1 - \lambda_t - \lambda_t\left(\sum_{j=t+1}^{\infty} \tau_j \prod_{s=t+1}^{j} g_s (r(1-\tau_s))^{-1}\right)\right)$$

If taxes were constant, $g_s = r(1-\lambda_s)(1-\tau)$

Dynamics of Shares: $v_t^i = \frac{k_t^i}{k_t}$

$$\frac{k_{t+1}^i}{k_{t+1}} \frac{k_{t+1}}{k_t} = (1-\tau_t)(1-\lambda_t) r \frac{k_t^i}{k_t} + n^{-1} r \tau_t (1-\lambda_t)$$

$$- n^{-1} r \lambda_t \left(\sum_{j=t+1}^{\infty} \tau_j \prod_{s=t+1}^{j} g_s (r(1-\tau_s))^{-1} \right)$$

$$v_{t+1}^i = \left((g_{t+1})^{-1} r (1-\lambda_t)(1-\tau_t) \right) v_t^i +$$

$$(g_{t+1})^{-1} r n^{-1} \left(\tau_t (1-\lambda_t) - \lambda_t \sum_{j=t+1}^{\infty} \tau_j \prod_{s=t+1}^{j} \frac{g_s}{r(1-\tau_s)} \right)$$

Even if shares change, their ordering is unaffected, and the median voter will be the same agent in each period.

If $\tau_s = \tau$, then $\lambda_s = \lambda$; then

$$v_{t+1}^i = g^{-1} r (1-\tau)(1-\lambda) v_t^i = v_t^i$$

Political Constraints

We study the political constraints on the median voter that prevent him from implementing his preferred tax scheme:

If the median voter is poorer than the average, he prefers the tax sequence $\tau_{t_0} = 1$ and $\tau_{t_0+s} = 0$ for $s = 1, 2, \ldots,$ (immediate full redistribution).

If the median voter is richer than the average, he wants $\tau_{t_0+s} = 0$ for $s = 0, 1, 2, \ldots$ (no redistribution ever).

We will proceed under the assumption that the median voter is poor.

Pivotal Agents

There is a wealthy pivotal agent w, whose share of initial capital, larger than the average share, is denoted by $v_{t_0}^w$. He prefers the tax scheme $\tau_{t_0+s} = 0$ for $s = 0, 1, 2, \ldots$.

In turn, the poor pivotal agent, p, has an initial share of capital smaller than or equal to the share of the median voter: $v_{t_0}^p \leq v_{t_0}^M$. This agent wants $\tau_{t_0} = 1$ and $\tau_{t_0+s} = 0$ for $s = 1, 2, \ldots$, a complete redistribution resulting in equal shares in the first period, followed by zero taxes afterwards.

The pivotal agents can mobilize their constituency (agents with $v_{t_0}^i \leq v_{t_0}^p$ for p, agents with $v_{t_0}^i \geq v_{t_0}^w$ for w) to attempt a revolt: If in any period the pivotal agents receive less discounted utility under democracy than the expected value of a revolt aimed at instituting an authoritarian regime, they will revolt.

Assumption Let t_a be the first period in which an authoritarian regime is established. Then $\tau_{t_a} \in [0,1]$, and $\tau_s \in [0,\tilde{\tau}_s]$, where $\tilde{\tau}_s < 1$ for all $s > t_a$.

This assumption allows the pivotal agent who initiates successful revolt to reset initial taxes when she reverts to an authoritarian regime. We assume, for simplicity, that once established, an authoritarian regime lasts forever.

The success of a revolt is probabilistic

We assume that if the right-wing wealthy agents revolt, the revolution will succeed with probability π, but the left-wing poor agents will counter-revolt and may come to power with probability $1 - \pi$.

Similarly, if the left revolts, the revolution will succeed with probability $1 - \pi'$, but the right will counter-revolt and may come to power with probability π'.

Of course it may be reasonable to assume that it makes no difference whether the right or the left initiates the revolution, in which case we can set $\pi = \pi'$.

Democracy is sustained if the median voter accommodates the right and the left by setting taxes that deter both of the pivotal agents from attempting to establish an authoritarian regime.

We also assume that the agents suffer a loss of utility under dictatorship. The utilities of the agents are given by

$$(1-\sigma)^{-1}(c^{1-\sigma}-1)+(1-\sigma)^{-1}b^{j},$$

where $j=s,u,$ and $\sigma>1.$ We set the parameters $b^{u}>0,\ b^{s}\geq 0$ under dictatorship, and we set them to zero under democracy, where b^{s} is the per period utility cost to the group that successfully establishes a dictatorship, and b^{u} is the per period utility cost to the other group. We also assume the losers suffer at least as much under autocracy as the winners, and perhaps more.

Assumption $\sigma>1,$ and $b^{u}\geq b^{s}\geq 0,\ b^{u}>0$ under dictatorship, while $b^{u}=b^{s}=0$ under democracy.

We say that democracy is sustainable if there exists a feasible tax sequence $\{\hat{\tau}_s\}_{t_0}^{\infty}$such that neither of the pivotal agents prefer to attempt a revolt for any $t \geq t_0$.

We say that democracy is unsustainable if there exists no feasible tax sequence such that one of the pivotal agents prefers to attempt a revolt for some $t \geq t_0$.

The discounted utility under democracy of agent j at time t_0, given taxes $\{\tau_s\}_{t_0}^{\infty}$, is:

$$V\left(k_{t_0}, k_{t_0}^j, \{\tau_s\}_{t_0}^{\infty}, t_0\right) = Max_{\{\tau_t\}_{t=t_0}^{\infty}} \left(\frac{\lambda_{t_0}^{1-\sigma}}{1-\sigma}\right) \cdot$$

$$\left(\left(\left(\begin{array}{c} (1-\tau_{t_0})v_{t_0}^j + n^{-1}\tau_{t_0} + \\ n^{-1}\sum_{j=t_0+1}^{\infty} \tau_j \prod_{s=t_0+1}^{j} \frac{g_s}{r(1-\tau_s)} \end{array} \right) rk_{t_0} \right)^{1-\sigma} \right.$$

$$\left. \left(1 + \sum_{n=t_0+1}^{\infty} \beta^{n-t_0} \left(\prod_{s=t_0+1}^{n} (\beta r(1-\tau_s))^{\frac{1}{\sigma}} \right)^{1-\sigma} \right) \right)$$

$$- (1-\sigma)^{-1}(1-\beta)^{-1}$$

The median voter preserves democracy by:

$$Max_{\{\tau\}_{t_0}^{\infty}} V\left(k_{t_0}, k_{t_0}^{M}, \{\tau_s\}_{t_0}^{\infty}, t_0\right)$$

subject to, for all $t \geq t_0$,

$$V\left(k_{t_0}, k_{t_0}^{w}, \{\tau_s\}_{t_0}^{\infty}, t_0\right)$$
$$\geq \frac{\pi}{1-\sigma}\left(\tilde{\lambda}_t^{-\sigma}(rv_t^w)^{1-\sigma}k_t^{1-\sigma} - (1-\beta)^{-1} + B^s\right)$$
$$+ \frac{(1-\pi)}{1-\sigma}\left(\tilde{\lambda}_t^{-\sigma}(rn^{-1})^{1-\sigma}k_t^{1-\sigma} + (1-\beta)^{-1} + B^u\right)$$

and

$$V\left(k_{t_0}, k_{t_0}^{p}, \{\tau_s\}_{t_0}^{\infty}, t_0\right)$$
$$\geq \frac{(1-\pi')}{1-\sigma}\left(\tilde{\lambda}_t^{-\sigma}(rn^{-1})^{1-\sigma}k_t^{1-\sigma} + (1-\beta)^{-1} + B^s\right)$$
$$+ \frac{\pi'}{1-\sigma}\left(\tilde{\lambda}_t^{-\sigma}(rv_t^p)^{1-\sigma}k_t^{1-\sigma} - (1-\beta)^{-1} + B^u\right)$$

where $\tilde{\lambda}_t = 1 - \beta^{\frac{1}{\sigma}} r^{\frac{1-\sigma}{\sigma}}$ because under dictatorship the rich prefer $\{\tau_s\}_{t_0}^{\infty} = \{0, 0, ..\}$ and the poor prefer $\{\tau_s\}_{t_0}^{\infty} = \{1, 0, ..\}$.

With $\sigma > 1$, $B^j = (1-\beta)^{-1} b^j > 0$, $j = s, u,$: the group successfully establishing dictatorship looses $\frac{B^s}{1-\sigma}$ and the other group looses $\frac{B^u}{1-\sigma}$.

We assume that $\beta r > 1$ to assure that the growth rate for the tax sequence $\{\tau_t, 0, 0, \ldots\}$, is positive: $g = (\beta r)^{\frac{1}{\sigma}} > 1$.

Theorem *There exists* $\hat{k}(\pi, \pi')$ *and* $\tilde{k}(\pi, \pi')$, $\tilde{k}(\pi, \pi') \geq \hat{k}(\pi, \pi') \geq 0$, *such that democracy is sustainable for* $k_{t_0} \geq \tilde{k}(\pi, \pi')$, *and democracy is unsustainable for* $k_{t_0} < \hat{k}(\pi, \pi')$.

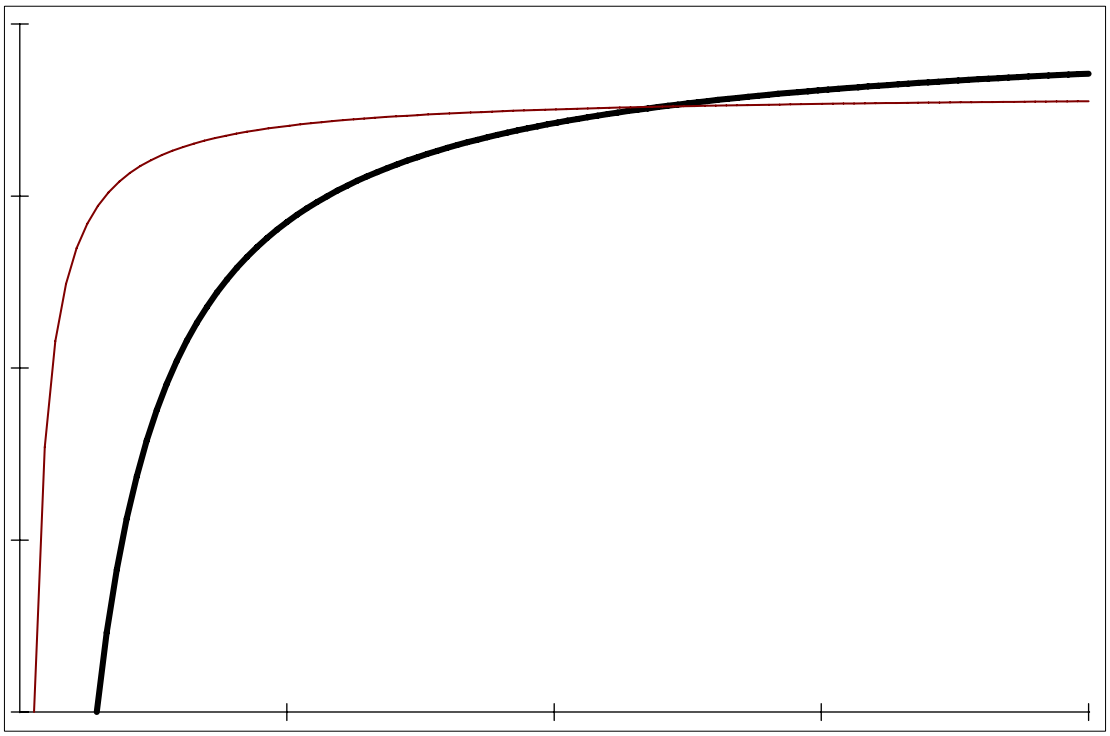
For a given an initial capital stock, democracy will be sustainable if wealth is sufficiently equally distributed, or if the probability of a successful revolution is sufficiently small:

Corollary *Democracy is always sustainable (i) if* v^w *and* v^p *are sufficiently close to* n^{-1}, *that is, if income distribution is sufficiently equal, or (ii) if distribution is unequal, that is* $v^w > n^{-1} > v^p$, *but* π *and* $1 - \pi'$ *are sufficiently small, that is, if the probability of a successful revolt for both of the pivotal agents is small.*

To inquire whether higher stocks of capital allow for higher levels of redistribution. We will say that the tax sequence $\{\tau'_{t_0}, \tau'_{t_0+1}, \tau'_{t_0+2}, \ldots\}$ is "more redistributive" than $\{\tau_{t_0}, \tau_{t_0+1}, \tau_{t_0+2}, \ldots\}$ if $1 \geq \tau'_{t_0+i} \geq \tau_{t_0+i}$, $i = 0, 1, \ldots$ and $\tau_{t_0+j} > \tau_{t_0+j}$ for some j. This of course is not a complete ranking of tax sequences, but sufficient for our purposes.

Corollary *Let $\{\tau_{t_0}, \tau_{t_0+1}, \tau_{t_0+2}, \ldots\}$ be a tax sequence with $\tau_{t_0} < 1$ for which democracy is sustainable from initial stock k_{t_0}, and let $\{\tau'_{t_0}, \tau_{t_0+1}, \tau_{t_0+2}, \ldots\}$, $\tau'_{t_0} > \tau_{t_0}$, be a "more redistributive" sequence that is not sustainable from initial stock k_{t_0}. Then democracy is sustainable with the more redistributive tax sequence $\{\tau'_{t_0}, \tau_{t_0+1}, \tau_{t_0+2}, \ldots\}$ for some $k'(\tau'_{t_0}) > k_{t_0}$.*

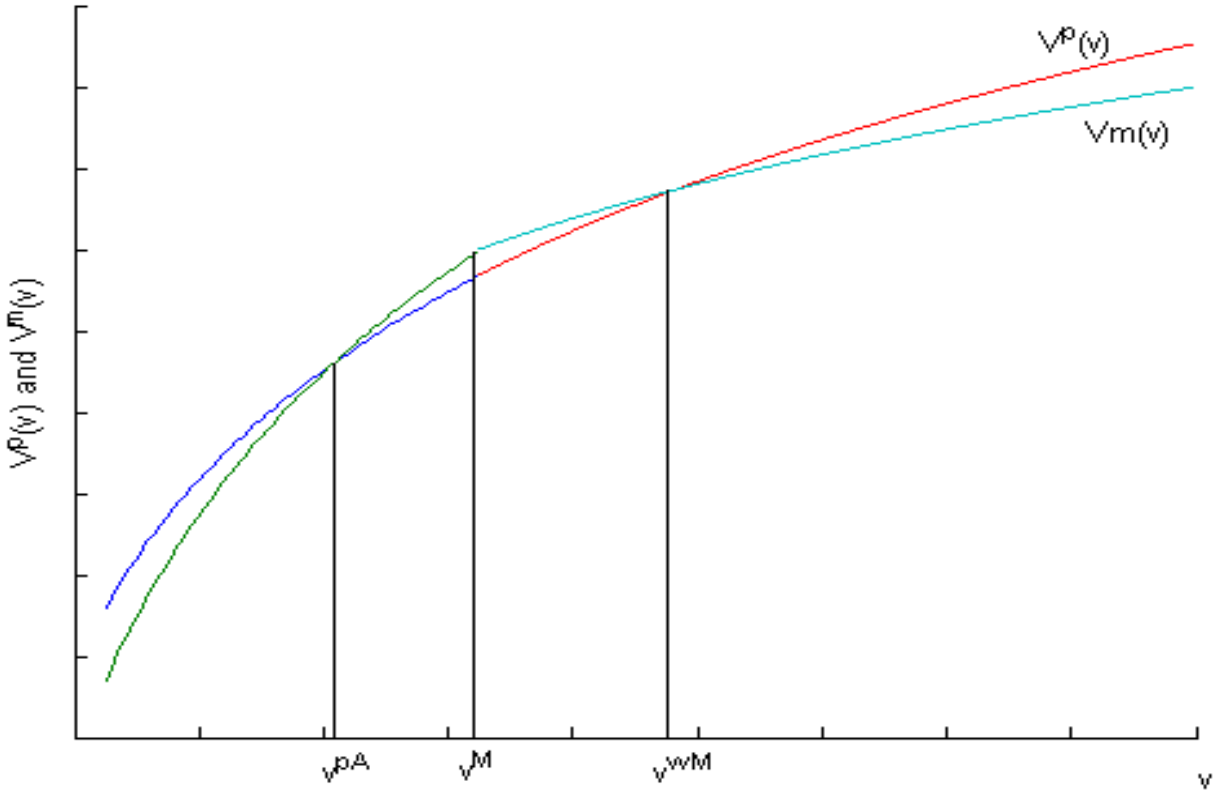
$\sigma = 2, r = 1.08, \beta = .95, v^w = .2, n = 10, B = 2, \tau_s = \tau = .1, \pi = 1$



When capital, consumption are low, MU is high, redistributing capital has large impact on utility: gain overwhelms fixed utility loss of dictatorship. When capital is high utility gain of revolution is smaller than utility loss of dictatorship, so rich do not revolt. If probability of successful revolution drops, thick line drops, but intersection remains. Analysis for the poor agent if $v^p = 0.1,$ is analogous.

Coalitions of Rich and Poor

Theorem *There is no feasible tax sequence that a majority coalition of the rich and poor could propose to Pareto improve the utilities of the coalition over the tax sequence proposed by the median voter.*



Double-Cross

Results are the following:

(1) Democracies survive in wealthy countries. People have more to lose from dictatorship when they are wealthier. As a result, they are less prone to turn against democracy in affluent countries.

(2) In the extreme, democracy survives at any income if its wealth distribution is sufficiently egalitarian or if neither group can establish dictatorship.

(3) Democracies survive at lower average capital stock in more equal societies. In poor and unequal countries there exist no redistribution scheme which would be accepted both by the poor and the wealthy. Hence, democracy cannot survive.

(4) The wealthier a country is, the more redistribution it can implement under democracy.

New: Ruling Elites and Accountability

•A ruling elite sets a constant tax (tribute). It consumes or accumulates the tax proceeds optimally to maximize the utility of its members. The probability of being relected depends on the tax rate set: the $\Pr = 0$ if $\tau > \hat{\tau}$, and $\Pr = 1$ otherwise. Consumers behave optimally as in the model above.

•If not relected, the rulers exit with a share of wealth α, which may be higher than or equal to the average wealth.

• The threshold $\hat{\tau}$ is institutionally set. If set to yield utility to the rulers equal that of the representative agent, the ruling elite sets a maximum tax rate $\bar{\tau}$ and then exits,and in equilibrium so do its successors (an efficiency wage argument). So it is better to set the threshold tax to a higher level, making the rulers indifferent between soaking the public and exiting, and setting the tax rate to assure re-election (with high

probability?).

- So $\hat{\tau}$ is a *political accountibilty parameter* and α is a *judicial accountibility parameter*.
- Results:
- Political accountibility (setting $\hat{\tau}$ right) significantly improves welfare and growth relative to no accountibility (i.e. dictatorship)
- It comes close to the optimum of $\tau = 0$.