

Democracy as an Equilibrium

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March 29, 2001

Abstract

Observation shows that while democracy is fragile in poor countries, it is impregnable in affluent ones. To explain this pattern, I develop a model in which political parties propose redistributions of incomes, observe the result of an election, and decide whether to comply with the outcome or to launch a struggle for dictatorship. Democracy prevails in affluent societies because too much is at stake in turning against it. More income can be redistributed in affluent than in poor countries without threatening democracy. Limits on redistribution arise endogenously, so that constitutions are not necessary for democracy to endure. A democratic culture characterizes the equilibrium.

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For comments I am grateful to Jess Benhabib, Jim Fearon, Anna Harvey, Stephen Holmes, Marek Kamiński, Bernard Manin, Jonathan Nagler, Joanne Fox-Przeworski, Molly Przeworski, John Roemer, Peter Rosendorff, Ignacio Sánchez-Cuenca, Shanker Satyanath and members of the MacArthur Network on the Economics of Inequality, particularly Roland Benabou and Sam Bowles.

1. Introduction

No democracy ever fell in a country with a per capita income higher than that of Argentina in 1975, \$6,055.¹ This is a startling fact, given that throughout history about seventy democracies collapsed in poorer countries. In contrast, thirty five democracies spent over 1000 years under more affluent conditions and not one died. Affluent democracies survived wars, riots, scandals, economic and governmental crises, hell or high water.

The probability that democracy survives increases monotonically in per capita income. Between 1951 and 1990, the probability that a democracy would die during any particular year in countries with per capita income under \$1000 was 0.1636, which implies that their expected life was about six years. Between \$1001 and \$3000, this probability was 0.0561, for an expected duration of about eighteen years. Between \$3001 and \$6055, the probability was 0.0216, which translates into about 46 years of expected life. And what happens above \$6055 we already know: democracy lasts for ever.

Table 1: Transitions to Dictatorship, by the Electoral Winners and Losers, by Per Capita Income

<i>Incomerange</i>	<i>All</i>	<i>Prob</i>	<i>ByWinners</i>	<i>Prob</i>	<i>ByLosers</i>	<i>Prob</i>	<i>Cases</i>
–1000	18	0.1636	9	0.0818	9	0.0818	110
1001 – 3000	28	0.0561	6	0.0120	22	0.0441	499
3001 – 6055	8	0.0216	0	0.0000	8	0.0216	370
6055–	0	0.0000	0	0.0000	0	0.0000	762

Moreover, as Table 1 shows, dictatorships established by electoral incumbents occurred at lower incomes than those founded by the forces out of office. In very poor countries, the probabilities are exactly equal that a dictatorship would be established by the electoral winners or losers. In countries with intermediate income levels, between \$1001 and \$6055, the electoral losers are much more likely to do so. Above \$6055 neither side does.

The purpose of this article is to explain these facts.

¹All the dollar figures refer to 1985 purchasing power parity dollars, from Penn World Tables, release 5.6.

2. How Democracy Works

2.1. Assumptions

A society with per capita income $y \geq 1$, measured roughly in multiples of \$250², consists of three types of income earners: poor, middle, and rich. The types are indexed by $i \in P, M, R$; their proportions in the society are π_i . These types may be identifiable by their occupations but also by their ethnic, regional, or religious affiliations. What matters is that incomes of the poor and the middle are lower than the average, while incomes of the rich are higher than the average, so that $\alpha_P \leq \alpha_M < 1 < \alpha_R$, where α_i is a share of the average income. The subsistence (non-market income) share is $s \leq \alpha_P$.

Two political parties (or coalitions thereof) compete in elections: a left party, L , represents the poor and a right party, R , the rich. Since they compete for votes of the middle class, in an electoral equilibrium both parties may end up quite centrist. Hence, they are "left" and "right" only insofar as the poor (rich) are never worse off when the left (right) party wins than when it loses. Moreover, a party may bear a religious, tribal, or regional label and still be a left (right) party as long as its constituency are people who are poor (rich). Since each party represents a particular type, parties are also indexed by $i \in L, R$.

Parties propose to redistribute incomes. They have two sets of instruments. They can either alter market incomes, by instruments such as minimum wage, union legislation, labor-market regulation, monetary policy, or trade policy, or they can transform post-fisc incomes by taxes and transfers. The left party proposes to tax the rich at the rate τ_L , to transfer ΔM_L to each middle type and the rest to the poor. The right party offers to reduce incomes of the poor at the rate τ_R , to transfer ΔM_R to each middle type and the rest to the rich. Given some tax rates and transfers to the middle class, a party may be taxing its own supporters. Note that, contrary to standard models, (1) policies affect market incomes, (2) redistribution can be from the poor to the rich, (3) even if parties converge in the sense of offering the same transfers to the middle types, the tax rates they propose may still be different.

Taxes are subject to two incentive constraints. One is that the post-redistribution share must give everyone at least subsistence income. The second is that if the post-redistribution share of the rich types were lower than of the middle types,

²The lowest per capita income in the PWT 5.6 data set is \$257.

the former would not utilize a part of their endowments but produce incomes of the middle types.

Once the electoral platforms are announced, the probability that the left party wins is known to be p but the result of an election remains uncertain. Once votes are cast, and the left party obtains vote share v . Someone is declared the "winner" according to a rule that defines what constitutes electoral victory. For example, the rule may be that whoever happens to win a majority of votes is the winner, so that the probability that the left party wins according to this rule is $p = \Pr(v > 1/2)$. Outcomes of elections are indexed by $j = 1, 2 : j = 1$ if the left party wins and $j = 2$ when the right party does.

The designation of "winners" and "losers" is an instruction to the parties as to what they should and should not do: The winners should move into a White, Pink, or Blue House or perhaps even a palace; while there should not redistribute too much, and should hold elections again. The losers should not move into the House, should accept what they are given, and participate in elections again.

Parties decide whether to obey these instructions or to rebel against them. The reason compliance is problematic is that voting is an imposition of a will over a will (Schmitt, 1988). Elections authorize compulsion: they empower governments, the rulers, to seize money from some and give it to others, to put people in jail, and sometimes even to take their life. This is what "ruling" is (Kelsen 1988, Bobbio 1984). Authorized to coerce, the electoral winners promote their values and interests against those of electoral losers. Hence losers lose. As Condorcet (1986: 22) pointed out, "what is entailed in a law that was not adopted unanimously is submitting people to an opinion which is not their or to a decision which they believe to be contrary to their interest."³ And while winners win, they still suffer limitations on their power. Rather than exercise moderation and risk losing office by holding elections, they can extract more or not hold elections.

If both the winners and the losers obey the result of an election, production occurs, incomes are redistributed according to the winning platform, and a new election is called. For the moment, it is sufficient to think that the post-distribution shares of each type i given the result of the election, j , are some s_{ij} .

If either party rebels, a conflict ensues. What happens depends on the balance of military force: the political posture of the military or the actual physical force

³ "il s'agit, dans une loi qui n'a pas été votée unanimement, de soumettre des hommes à une opinion qui n'est pas la leur, ou à une décision qu'ils croient contraire à leur intérêt...."

of supporters. The probability that a rebellion of the left party succeeds is q and that the right party is victorious ($1 - q$). Democracy may survive even if one party rebels. But if the rebelling party wins or if both parties turn against democracy, a dictatorship is established.

Under dictatorship, the victorious party redistributes incomes by giving subsistence income to those defeated and distributing the rest among its supporters.⁴ If the left party becomes the dictator, it gives a share s_L to each of the poor and a share s to everyone else. The right dictatorship gives a share s_R to each rich and a share s to the rest.

But dictatorships not only redistribute income: they use force to repress their opponents. Concentration camps, gulags, internment camps (Buru Island in Indonesia after 1964, Dawson Island in Chile after 1973, Robben Island in South Africa), the Cambodian "killing fields," the Argentine "disappearances" are a standard repertory of dictatorial rule. And even where such barbarism is less rampant, the threat of imprisonment, torture, or death is sufficiently foreboding that, even if those dominated by a dictatorship would receive the same income as the electoral losers, their expected utility does not increase homogeneously. The same income generates lower utility when one's physical integrity is threatened.

Given this assumption, the utility function is

$$U(C) = \frac{C^{\mu(1-\sigma)}}{1-\sigma}, \sigma \neq 1,$$

$$U(C) = \mu \log C, \textit{otherwise}.$$

with $\mu = 1$ under democracy or dictatorship of one's own party and $\mu < 1$ under dictatorship of the other party. Hence, the coefficient of relative risk aversion is $1 - \mu(1 - \sigma)$.⁵

To recapitulate, two parties compete in elections proposing to redistribute incomes. Once the platforms are announced, voting takes place. One of the

⁴Dictatorships can be narrow, self-selective, or broad. A narrow dictatorship treats as enemies everyone other than its own types, that is, the poor for the left party and the rich for the right party. A self-selective one treats as enemies all those who voted for the other party. A broad dictatorship, finally, includes the middle types in addition to the core supporters of the victorious party. For reasons spelled out below, I assume for the moment that dictatorships are narrow.

⁵Since no generality is lost, I analyze the model for the log function, $U(C) = \mu \log C$. However, given the metric on y , the model is best parametrized when $\sigma = 0.6$, which is the value used in the numerical illustration.

parties is declared winner. Both the winner and the loser decide whether to obey the election result or to turn against democracy. If both obey, incomes are redistributed and another election takes place. If at least one rebels, either democracy survives or a dictatorship is established.

2.2. Income Accounting

If Party L wins an election, $j = 1$, each poor voter gets

$$s_{P1}y = \left[\alpha_P + \frac{\tau_L \pi_R \alpha_R - \Delta M_L (1 - \pi_P - \pi_R)}{\pi_P} \right] y,$$

and each rich voter gets

$$s_{R1}y = (1 - \tau_L) \alpha_R y.$$

If Party R wins, $j = 2$, each poor voter gets

$$s_{P2}y = (1 - \tau_R) \alpha_P y,$$

and each rich voter gets

$$s_{R2}y = \left[\alpha_R + \frac{\tau_R \pi_P \alpha_P - \Delta M_R (1 - \pi_P - \pi_R)}{\pi_R} \right] y.$$

Under dictatorship, income depends on its scope. If dictatorship is broad, then

$$s_{L}y = \frac{1 - s\pi_R}{1 - \pi_R} y \text{ and } s_{R}y = \frac{1 - s\pi_P}{1 - \pi_P} y.$$

If dictatorship is narrow, then

$$s_{L}y = \frac{1 - s(1 - \pi_P)}{\pi_P} y \text{ and } s_{R}y = \frac{1 - s(1 - \pi_R)}{\pi_R} y.$$

Obviously, a narrow dictatorship is superior to a broad one.

2.3. When Does Democracy Survive?

This is a simple repeated two-stage game. In the first stage, parties propose redistributions. Once the result of an election is known, they decide whether to accept the result of an election given the redistribution plan of the winner.

Consider the second stage. Since the states are fully characterized by $j = 1, 2$, the strategy of party i maps $\{y, j, A_{-ij}\}$ onto A_{ij} , $\theta_{ij} : \{y, j, A_{-ij}\} \rightarrow A_{ij}$, $A \in \{Obey, Rebel\}$. The reason j appears in A_{-ij} is that when choosing the strategy for the current period, each party must consider the future, which is identical except for j . Say Party L lost the current election and the victorious Party R obeys. Party L must consider whether if it wins Party R will accept the defeat. The left party may accept the current defeat if it expects the right party to accept its defeat but not if the right party will rebel if it loses.

Associated with each strategy is a present value $V_{ij} = V(\theta_{ij})$, in which the future is discounted at $0 < \rho < 1$. Hence, depending on j , the value of each strategy is

$$V_{i1} = \max_{\theta_{i1}} \{O_{i1}(\theta_{i1}) + \rho[pV_{i1} + (1-p)V_{i2}]\},$$

or

$$V_{i2} = \max_{\theta_{i2}} \{O_{i2}(\theta_{i2}) + \rho[pV_{i1} + (1-p)V_{i2}]\}.$$

These are two pairs of simultaneous equations, which solve as

$$V_{i1} = \frac{1 - \rho(1-p)}{1 - \rho} O_{i1} + \frac{\rho(1-p)}{1 - \rho} O_{i2},$$

and

$$V_{i2} = \frac{\rho p}{1 - \rho} O_{i1} + \frac{1 - \rho p}{1 - \rho} O_{i2},$$

where O_{ij} is the value of the current outcome.

Let $1 - \rho(1-p) \equiv W_1$, $\rho p \equiv W_2$. Suppose Party R opts for democracy whether it wins or loses, so that $\theta_{Rj}^* = Obey$, $j = 1, 2$. If Party L opts for democracy in state j , the value of P types is

$$V_{Pj}(\theta_{Pj} = obey | \theta_{Rj}^* = obey) = \frac{1}{1 - \rho} [W_j U_{P1} + (1 - W_j) U_{P2}].$$

If Party L rebels, the value of P types is

$$V_{Pj}(\theta_{Pj} = rebel | \theta_{Rj}^* = obey) = \frac{1}{1-\rho} \{W_j[qU(sLy) + (1-q)U_{P1}] + (1-W_j)[qU(sLy) + (1-q)U_{P2}]\}.$$

Hence, Party L rebels in state j if

$$U(sLy) > W_j U_{P1} + (1 - W_j) U_{P2}.$$

Since $U(sLy) > U_{P1} \geq U_{P2}$,⁶ this is always true. Hence, the best response of Party L to democratic strategy of Party R is to rebel, whether $j = 1$ or $j = 2$.

Suppose Party R rebels in either state, so that $\theta_{Rj}^* = Rebel$. If Party L opts for democracy in state j , the value of P types is

$$V_{Pj}(\theta_{Pj} = obey | \theta_{Rj}^* = rebel) = \frac{1}{1-\rho} \{W_j[qU_{P1} + (1-q)U(sy)] + (1-W_j)[qU_{P2} + (1-q)U(sy)]\},$$

while if Party L rebels, the value is

$$V_{Pj}(\theta_{Pj} = rebel | \theta_{Rj}^* = rebel) = \frac{1}{1-\rho} [qU(sLy) + (1-q)U(sy)].$$

Again, the best response of Party L to rebellion by Party R is to rebel.

⁶To see that, when dictatorship is narrow, $U(sPy) > U_{P1}$, note that U_{P1} assumes the highest value when $\Delta M_1 = 0$ and $\tau_1 = 1 - \frac{\alpha_M}{\alpha_R}$. Substitutions yield

$$\frac{1 - s(1 - \pi_P)}{\pi_P} > \alpha_P + \left(1 - \frac{\alpha_M}{\alpha_R}\right) \frac{\alpha_R \pi_R}{\pi_P}$$

or

$$1 - s(1 - \pi_P) > \alpha_P \pi_P + (\alpha_R - \alpha_M) \pi_R.$$

But $\alpha_P \pi_P + \alpha_R \pi_R = 1 - \alpha_M \pi_M$, so that this condition can be rewritten as

$$1 - s(1 - \pi_P) > 1 - \alpha_M (\pi_M + \pi_R).$$

In turn, $\pi_M + \pi_R = 1 - \pi_P$, so that the condition for $U(sPy) > U_{P1}$ is

$$(\alpha_M - s)(1 - \pi_P) > 0,$$

which is always true.

Thus, the left party has a dominant strategy, which is to rebel whether the right party obeys or rebels.

The same is not necessarily true for Party R . Going through the same steps shows that the right party rebels in state j if

$$U(s_{Ry}) > W_j U_{R1} + (1 - W_j) U_{R2}.$$

The sign of this inequality is not obvious.⁷ If this inequality does not hold, the equilibrium is for Party L to rebel and for Party R to defend democracy. Yet such equilibria are likely to be ephemeral. Whenever Party L rebels, dictatorship is established with the probability q and democracy survives with the probability $1 - q$. Hence, the expected life of democracy is $1/q$, which means that democracy is likely to fall after a few periods even if q is relatively low. In turn, when this inequality does hold, the dominant strategy of both types is to rebel.

The $\{\text{Rebel}, \text{Rebel}\}$ equilibrium, however, is inefficient whenever

$$W_j U_{P1} + (1 - W_j) U_{P2} > q U(s_{Ly}) + (1 - q) U(sy)$$

and

$$W_j U_{R1} + (1 - W_j) U_{R2} > (1 - q) U(s_{Ry}) + q U(sy).$$

When both inequalities hold, democratic equilibria can be sustained by punishment strategies in which if one party rebels, the other party immediately seeks to establish its dictatorship as well. These punishment strategies are credible since for both parties the best response to a rebellion is to rebel.

Hence, we have established the following:⁸

⁷It holds for $j = 1, 2$ if

$$\log \frac{1 - s(1 - \pi_R)}{\pi_R} >$$

$$W_j \log(1 - \tau_1) \alpha_R + (1 - W_j) \log \left[\alpha_R + \frac{\tau_2 \pi_P \alpha_P - \Delta M_2 (1 - \pi_P - \pi_R)}{\pi_R} \right],$$

⁸Note that the expected tenure of dictatorship does not matter. Suppose that the dictatorship will last T periods. Then the condition, for the right party, is that

$$\frac{1}{1 - \rho} [W_j U_{R1} + (1 - W_j) U_{R2}] \geq \frac{1 - \rho^{T+1}}{1 - \rho} [(1 - q) U(s_{Ry}) + q U(sy)] + \frac{\rho^{T+1}}{1 - \rho} [W_j U_{R1} + (1 - W_j) U_{R2}]$$

which is the same for any T .

Proposition 2.1. (1) When the value of democracy is higher for both parties than the expected value of conflict when both parties rebel, the democratic equilibrium $\{Obey, Obey\}$ is sustained by punishments in which the parties revert to dominant strategies. (2) When the value of democracy is lower for both parties than the expected value of mutual conflict, the only equilibrium is $\{Rebel, Rebel\}$.

These are not the only equilibria. We have already seen that under some conditions an ephemeral equilibrium $\{Rebel, Obey\}$ ensues. But it is also possible that one of the parties obeys the election result regardless whether it wins or loses, while the other party obeys only when it wins.

2.4. Comparative Statics with Regard to Income

Suppose the left party won the election. The right party obeys as long as

$$W_1 U(s_{R1}y) + (1 - W_1) U(s_{R2}y) \geq EU_R(rebel, rebel),$$

or

$$W_1 \log(1 - \tau_L)\alpha_R + (1 - W_1) \log\left[\alpha_R + \frac{\tau_R \pi_P \alpha_P - \Delta M_R (1 - \pi_P - \pi_R)}{\pi_R}\right] \\ - (1 - q) \log \frac{1 - s(1 - \pi_R)}{\pi_R} - \mu q \log s \geq q(\mu - 1) \log y.$$

Since the left-hand side of this inequality does not depend on y and the right-hand side declines in y , for any pair of redistribution rates (τ_L, τ_R) there exists an income level, $y_{R1}(\tau_L, \tau_R)$, such that the right party accepts an electoral defeat at all $y \geq y_{R1}$. In turn, the left party accepts the electoral victory if

$$W_1 U(s_{P1}y) + (1 - W_1) U(s_{P2}y) \geq EU_P(rebel, rebel),$$

or

$$W_1 \log\left[\alpha_P + \frac{\tau_L \pi_R \alpha_R - \Delta M_L (1 - \pi_P - \pi_R)}{\pi_P}\right] + (1 - W_1) \log(1 - \tau_2)\alpha_P - q \log \frac{1 - s(1 - \pi_P)}{\pi_P} \\ - (1 - q)\mu \log s \geq (1 - q)(\mu - 1) \log y,$$

which defines y_{L1} .

Analogously, when the right party wins, the left obeys if $y \geq y_{P2}$ and the right accepts its victory if $y \geq y_{R2}$. This is sufficient to establish the following.

Proposition 2.2. Let y_{ij} be the income threshold above which party i accepts the outcome j of an election. Let $y_j = \max_i y_{ij}$ and let $y_H = \max_j y_j$. Then, if $y \geq y_H$, both parties obey the result of an election regardless of its outcome. If $y_{ij} \leq y < y_{-i,j}$, one party obeys while the other rebels. If $y < \min_{ij} y_{ij}$, both parties rebel.

Thus, for any society, characterized by a distribution of incomes, electoral institutions, and relations of military force, and for any redistribution, there exists an income threshold, y_H , above which democracy survives regardless of the outcome of an election. In turn, at some intermediate levels of income, one party may accept the result while the other rebels.

The intuition behind this conclusion is that in affluent countries even the electoral losers have too much at stake to risk being defeated in a struggle over dictatorship. In poor societies there is little to distribute, so that a party that moves against democracy and is defeated has relatively little to lose. But in affluent societies, the gap between the well-being of electoral losers and of people oppressed by a dictatorship is large. Thus, even if the income a particular group expects when it rebels is higher than the income it expects under democracy, the possibility of losing the struggle over dictatorship is foreboding in affluent societies. As per capita income increases, the dictatorial lottery becomes more uncertain relative to the democratic lottery. Hence, at some level of income, democracy is better than dictatorship. Thus, given the relations of military force, it is risk aversion that motivates everyone in affluent societies to obey the results of electoral competition.

To see this argument, examine Figure 1A, which portrays as a function of per capita income the instantaneous utilities of being a dictator, of having won an election, of having lost an election, and of being dominated by a dictatorship, all for the poor. As per capita income increases, so do the stakes in attempts to subvert democracy, where by "stakes" I mean the difference between losing an election and losing a conflict over dictatorships. As a result, you see in Figure 1B that the value of democracy increases faster in average income than the value of dictatorship, both for the electoral winners and for the losers. All this is also true for the rich.

This result also sheds light on the role of economic crises in threatening democratic regimes. What matters is not the rate of growth per se but the impact of economic crises on the level of per capita income. Each country has some threshold of income above which democracy survives independently of election results.

Economic crises matter if they result in income declining from above to below this threshold but not when they occur at income levels below or well above this threshold. In Trinidad&Tobago, per capita income fell by 34 percent between 1981 and 1990 but the 1990 income was still \$7,769 and democracy survived. In New Zealand, income fell by 9.7 percent between 1974 and 1978, but the 1978 income was \$10,035. Yet in Venezuela, which enjoyed democracy during forty-one years, per capita income declined by 28 percent from 1978 to 1989, when it reached \$5,919, and continued to fall since then. Hence, this decline may be responsible for the emergence of anti-democratic forces in that country.

The value of democracy for the electoral winners is higher than for the losers. Hence, it is possible that a party would prefer democracy when it wins the election but not when it loses. Examine again Figure 1B. At low income levels, the left party rebels against democracy whether it wins or loses the election. At intermediate income levels, electoral winners accept the result but electoral losers turn against democracy. Then, above some income level, the party obeys the results even if it lost. Note that this result reproduces the empirical patterns reported in Table 1.

If one party obeys only if it wins while the other party accepts when it loses, results of elections are obeyed, but only because they turned out in a particular way. One should thus expect to observe countries in which the same party repeatedly wins elections and both the winners and the losers obey the electoral decisions, but in which the winners would not accept the verdict of the polls had it turned differently. Such instances represent what Alvarez et al. (1996) called the "Botswana" case. Relying on Przeworski's (1991) view that democracy is a regime in which incumbents lose elections and leave office when they lose, Alvarez et al. do not consider such cases democratic, even if Dahl (1971), for whom the fact that elections are contested and free is sufficient, would have. Note, however, that Alvarez et al. may have erred when they relied on future developments to classify regimes retrospectively, reasoning, for example, that since the Japanese Liberal Democratic Party was willing to relinquish office when it lost in 1993, it would have done so had the party lost earlier. But if such equilibria occur in the intermediate income range, then it may have been true that even if the Japanese incumbents were willing to relinquish office when the country was already developed, they would not have tolerated a defeat when Japan was still relatively poor. In Malaysia in 1969, for example, the ruling party, having won the two previous elections by a large margin, came to the brink of defeat, and its reaction was to close the legislature, establish martial law, and rewrite the electoral rules to make

sure that this unpleasant event would not occur in the future.

2.5. Income Redistribution

In the first stage parties propose redistributions $(\tau_i, \Delta M_i)$ anticipating the strategies at the second stage.

Definition 2.3. The rebellion constraint facing the left party is a tax rate $\tau_L = \bar{\tau}_L(\tau_R)$ such that $W_j U_{R1}(\bar{\tau}_L) + (1 - W_j) U_{R2}(\tau_R) = EU_R(rebel, rebel)$. Analogously, the rebellion constraint facing the right party is a tax rate $\tau_R = \bar{\tau}_R(\tau_L)$ such that $W_j U_{P1}(\tau_L) + (1 - W_j) U_{P2}(\bar{\tau}_R) = EU_P(rebel, rebel)$.

Definition 2.4. The incentive constraint facing the left party is a tax rate $\tau_L = \tau_L^*$ such that the post-redistribution income of the rich is not lower than that of the middle types. The incentive constraint facing the right party is $\tau_R^* = 1 - s/\alpha_P$.

Consider now the equilibrium redistribution rates. Note first that since the rich will never vote for the left party and the poor for the right party, whatever the transfers to the middle class, neither party will ever choose redistribution rates other than either $\bar{\tau}_i$ or τ_i^* . Suppose the right party proposes τ_R such that the right would obey if it was taxed at $\bar{\tau}_L(\tau_R)$. If $W_1 U_{P1}(\bar{\tau}_L(\tau_R)) + (1 - W_1) U_{P2}(\tau_R) \geq EU_P(rebel, rebel)$, or $y \geq y_{L1}(\bar{\tau}_L, \tau_R)$, the left party proposes $\tau_L = \bar{\tau}_L(\tau_R)$. Suppose now that the left party proposes τ_L . If $W_2 U_{R1}(\tau_L) + (1 - W_2) U_{R2}(\bar{\tau}_R(\tau_L)) \geq EU_R(rebel, rebel)$, or $y \geq y_{R2}(\tau_L, \bar{\tau}_R)$, the right party proposes $\tau_R = \bar{\tau}_R(\tau_L)$. Hence,

Proposition 2.5. Equilibrium tax rates are:

$$\tau_i = \begin{cases} \min(\bar{\tau}_i, \tau_i^*), & i \in L, R, \text{ if } y \geq y_{L1}(\bar{\tau}_L, \bar{\tau}_R), y_{R2}(\bar{\tau}_L, \bar{\tau}_R), \\ \tau_i^* > \bar{\tau}_i & \text{otherwise.} \end{cases}$$

Finally,

Proposition 2.6. The rebellion constraints $(\bar{\tau}_L, \bar{\tau}_R)$ increase in y .

The value of $\bar{\tau}_L$ is given implicitly by

$$\log(1 - \bar{\tau}_L) = \text{terms without } y - (1 - q)(1 - \mu) \log y,$$

implying that $\partial\bar{\tau}_L/\partial y > 0$. In turn, the value of $\bar{\tau}_R$ is given by

$$\log(1 - \bar{\tau}_R) = \text{terms without } y - (1 - q)(1 - \mu) \log y,$$

so that, again, $\partial\bar{\tau}_R/\partial y > 0$.

Consider first a poor society, with $y = 1$. Democracy is sustained only if (for simplicity, I assume $\Delta M_i = 0$)

$$\begin{aligned} & \frac{\log s_R - W_j \log(1 - \tau_L)\alpha_R - (1 - W_j) \log(\alpha_R + \tau_R\pi_P\alpha_P/\pi_R)}{\log s_R - \mu \log s} \leq q \\ & \leq \frac{W_j \log(\alpha_P + \tau_L\pi_R\alpha_R/\pi_P) + (1 - W_j) \log(1 - \tau_R)\alpha_P - \mu \log s}{\log s_L - \mu \log s} \end{aligned}$$

Several results follow. First, democracy cannot be always sustained in a poor society. Suppose the left won and does not tax the rich at all, $\tau_L = 0$. Then democracy still survives only if the left is not too weak or too strong militarily. In turn, as τ_L increases, the right party rebels even as q approaches 1. The same is true if the right wins and taxes at τ_R . Hence, unless the military force is relatively balanced, democracy cannot survive in a poor society.

Secondly, both the lower and the upper bound on q increase in τ_L , which implies that as the military force of the left increases, so must the tax rate on the rich. In turn, both bounds decrease in τ_R , which means that as the military strength of the left declines, the redistribution to the rich increases. When one side has an overwhelming military power, it turns against democracy. But even when military power is more balanced, democracy survives in poor countries only if the expected redistribution reflects the balance of military force. If democracy is to survive in poor countries, political power must correspond to the military strength. Note that this was the ancient justification of majority rule. According to Bryce (1921:25-26; italics supplied), Herodotus used the concept of democracy “in its old and strict sense, as denoting a government in which the will of the majority of qualified citizens rules, ... *so that physical force of the citizens coincides (broadly speaking) with their voting power.*” Condorcet as well, while interpreting voting in modern times as a reading of reason, observed that in the ancient, brutal times, authority had to be placed where the force was.⁹

⁹“Lorsque l’usage de soumettre tous les individus à la volonté du plus grand nombre, s’introduisit dans les sociétés, et que les hommes convinrent de regarder la décision de la pluralité

Finally, note the effect of income distribution: as α_R increases and α_P declines, both bounds on q decline¹⁰. Hence, if a poor society is highly unequal, democracy survives only if the rich are militarily powerful and are not threatened by redistribution. As incomes become more equal, democracy survives when the poor are militarily stronger and redistribute some income in their favor.

Established in 1947, when the country had a per capita income of \$556, democracy survived in India. An explanation in terms of the model is the following. Per capita income in India was very low in 1947 and it grew only slowly since then. But income distribution was highly egalitarian in India - as of 1951, the ratio of the top to the bottom quintile was 6.14 - and it became even more egalitarian by 1990, when this ratio was 4.30. The military were apolitical, so that neither side could not rely on their support. Electoral chances are more difficult to assess: while the Congress Party won several elections after the Independence with an overwhelming share of seats, it never won more than 50 per cent of votes. Some redistribution in favor of the poor occurred.

To summarize, (1) democracy survives in a poor society only if military force is relatively balanced, (2) redistribution must follow the relations of military force, and (3) in poor societies that are originally unequal, democracy survives only if the rich are militarily dominant and inequality is perpetuated, while in more equal societies democracy survives when the poor are militarily stronger and inequality is being reduced. Note that poor unequal societies constitute a trap, in the sense that democracy survives only if inequality is perpetuated.

I focus on the poor societies because poverty constrains: democracy survives only if redistribution of income reflects the balance of military forces. As income becomes large, democracy survives under a broad range of redistributions. Since greater wealth makes the risk of rebellion more costly, larger redistribution is possible in affluent societies before the electoral losers are willing to rebel. In sufficiently affluent societies, the rebellion constraint may not bind, since the incentive constraints may bite first. Democracy always survives in sufficiently affluent societies.

Finally, note that these results do not depend on any particular model of electoral competition. Yet the fact that parties are better off winning than losing

comme la volonté de tous, ils n'adoptèrent pas cette méthode comme un moyen d'éviter l'erreur et de se conduire d'après des décisions fondées sur la vérité: mais ils trouvèrent que, pour le bien de la paix et l'utilité générale, *il falloit placer l'autorité où étoit la force...*" (Condorcet 1986: 11; italics mine).

¹⁰Note that $\pi_P\alpha_P + \pi_M\alpha_M + \pi_R\alpha_R = 1$, so that $\partial\alpha_P/\partial\alpha_R = -\pi_R/\pi_P$.

elections and that in order to win they must compete for middle class votes raises the income threshold above which democracy survives. If they did not have to compete for the votes of the middle class, political parties representing the poor and the rich would accept democracy at lower income levels.

3. Extensions and Interpretations

3.1. A Summary

Here, then, is what we learned, first with regard to conditions under which democracy survives and, secondly, about income redistributions feasible under democracy:

(1) Democracy always survives in affluent societies.

(2) Democracy can survive in poor societies but only under special conditions, namely, when no party enjoys overwhelming military power and patterns of redistribution reflect military strength.

(3) There are situations in which election results are obeyed by both parties only when one of them wins an election but not when it loses.

(1) In some poor societies, all redistributions of income cause one of the parties to rebel.

(2) As income increases, the range of redistributions feasible under democracy widens. In sufficiently affluent societies, democracy survives whether elections result in no redistribution or they generate sizeable redistribution.

(3) In affluent societies, incentive constraints may limit the degree of redistribution.

To illustrate the main results, consider now a specific society. The poor constitute 40 percent of the population (and the electorate), the middle are another 40 percent, and the rich make the remaining 20 percent. Each of the poor has an income equal to $1/2$ of the average income; the income of each of the middle is $3/4$ of the average, and each rich has an income 2.5 times the average. This is thus a moderately unequal society. The subsistence income is $1/4$ of the average income. The probability that the left party wins any election is 0.75 and the odds that the right party would defeat the left in a conflict over dictatorship are 1.5 to 1. Hence, the left party is stronger electorally but the right party enjoys support greater support of the military.¹¹

¹¹In the numerical illustration both parties transfer to each middle type the same amount,

Suppose now that this society is very poor: the average income is \$250 ($y = 1$), about that of Burma in 1951. The left party wins an election. The right party tolerates democracy only as long as the rich are taxed at a rate lower than 0.24. But this is not enough for the left party to be satisfied with having won the election. The left party accepts an electoral victory only if it can tax the rich at the rate of 0.76. Hence, either the left party rebels or it taxes the rich at 0.76 percent and the right party rebels. Democracy cannot be sustained if the left party wins. Suppose the right party wins. It accepts victory only if it does not have to tax its own members at a rate higher than 0.125. But the left party accepts an electoral defeat only if the victorious right party were willing to tax the rich at 0.45 percent. Hence, democracy cannot be sustained if the right party wins either. Whatever tax rates are proposed and implemented, election results are never obeyed. Democracy is not possible in this stylized society when it is poor.

While the rich are willing to tolerate a higher tax rate in somewhat wealthier countries, the situation changes somewhat only if the country has a per capita income of at least \$3,500 ($y = 14$), roughly that of Costa Rica in 1990, Malta in 1976, or Malaysia in 1979. Now there are combinations of tax rates which induce the left party to accept democracy if it wins, while the right party complies with the results whether it wins or loses. The victorious left party can tax the rich at the rate of 0.33, knowing that, had it lost, the tax on the rich would have been only 0.165, and that it would have rebelled. Hence, election results are obeyed if the left party wins but not if it loses.

The situation is again somewhat different if the country has an income of \$4,250 ($y = 17$), that of Mauritius in 1985 or Brazil in 1986. The left party accepts a victory and the right party accepts a defeat when the left party taxes the rich at 0.31, while in the case of its victory the right party would have taxed the rich at 0.155 and the left party would have rebelled. What is different is that now election results are also obeyed by both parties if the right party wins and imposes on its own members a tax of 0.18, knowing that if the left party were to win, it would tax at the rate of 0.36 and the right would have rebelled. When the right party wins, it cannot impose on its own members a rate lower than 0.18 because the left party would rebel against any lower rate given than it lost, and the right party prefers to tax the rich at 0.18 rather than risk an immediate conflict

which equals the revenue the left party collects from taxing the rich, divided equally among all non-rich. Thus the platforms "converge" in the sense of standard party competition models. But in this story, offering the same to the median voter does not imply that the tax rates proposed by the two parties are the same.

over dictatorship. Yet the right party knows that were it to lose, the rich would be taxed at 0.36 and it would rebel. Note that these are two distinct situations, conditioned on the current electoral victory of either party. If the left wins and imposes a tax rate of 0.31, the right is not be willing to tax its own members at 0.18 were it to win: the right accepts the defeat planning to tax its members only at 0.155. In turn, if the right party wins and taxes the rich at 0.18, the left party accepts the defeat planning to tax the rich at 0.36, not 0.31, were it to win.

The magic of affluence first appears when our stylized country has an income of about \$4,750 ($y = 19$), say that of Barbados in 1971 or Uruguay in 1987. At this income level, there is a pair of taxes such that election results are obeyed by both parties whether either wins or loses. The left party taxes the rich at 0.34, the right party taxes them at 0.17, and democracy survives regardless of election results. But these are the only tax rates which make democracy possible. Any deviation would cause someone to rebel had it lost.

When per capita income is even higher, \$6250 ($y = 25$), that of Austria in 1965 and Bulgaria in 1990, democracy survives unconditionally under a broader range of tax rates. The left can still tax the rich at 0.35 while the right taxes the rich at 0.175. But now it is also possible for the right to reduce the incomes of the poor without causing them to rebel. Indeed, the right can reduce the incomes of the poor at the rate of 0.13, while still taxing the rich at 0.13, given that the left taxes the rich at the rate of 0.37 when it wins.

Finally, let us jump to \$25,000, the per capita income of the United States or Switzerland in the late 1990s. Now all kinds of redistributive schemes can be implemented without threatening democracy. The left party can tax the rich at a rate as low as 0.14, while the right taxes the rich at 0.07 and does not reduce incomes of the poor. But democracy also survives when the left taxes the rich at 0.43, while the right right taxes the rich at 0.05 and reduces the income of the poor at the rate of 0.42. Hence, democracy survives even when elections lead to a major redistribution of income.

Table 2 summarizes this example with regard to the rates of redistribution feasible under democracy. The first three columns give the tax rates and the last two show the percentages of total income which are redistributed if either party wins. We know that if our stylized country has a per capita income lower than $y = 19$, there is no redistribution of income which would make democracy survive independently of election results. At $y = 19$, there is a unique redistribution scheme under which both parties comply unconditionally. At $y = 25$, different redistribution schemes are already possible, notably a victorious right party can

reduce incomes of the poor without causing the left party to rebel. At $y = 100$, democracy survives whether little or a lot depends on an outcome of elections. At $y = 1000$, democracy survives even when no incomes are redistributed as well as when the degree of redistribution is large.

Table 2: Redistributions of Income Feasible Under Democracy

y	τ_L	τ_{RR}	τ_R	<i>Left</i>	<i>Right</i>
1					
19	0.35	0.18	0	17.5	9.0
25	0.31	0.16	0	15.5	8.0
	0.37	0.13	0.13	18.5	9.1
100	0.14	0.07	0	7.0	3.5
	0.43	0.05	0.42	21.5	11.5
1000	0	0	0	0	0
	0.48	0.06	0.45	24.0	12.0

Note: τ_{RR} is the rate at which the right party taxes the rich.

While the total share of taxes in GDP is far from an ideal measure of redistribution, it is striking that under democracy this share increases steeply in income (See Table 3). Milanovic (1999) reports that the degree of income redistribution is sizeable in the OECD countries and that countries with more unequal distributions of market incomes redistribute more through the fisc. Yet several poor democracies which have a much more unequal income distribution redistribute almost no income (Cortés 1997, Deininger and Squire 1996). In general, while systematic data seem impossible to obtain, poor democracies seem to redistribute much less than affluent ones. The explanation must be that the rebellion constraint is very tight in poor countries.

Table 3: Tax Share in GDP, by Per Capita Income and Regime

<i>Income</i>	<i>All Mean</i>	<i>All N</i>	<i>Democracy Mean</i>	<i>Democracy N</i>	<i>Dictatorship Mean</i>	<i>Dictatorship N</i>
-1000	12.2	364	9.3	21	12.6	343
1001 – 3000	16.8	604	15.3	189	17.4	415
3001 – 6000	19.7	395	19.8	171	19.7	224
6001–	26.0	598	28.0	526	11.7	72
<i>All</i>	19.4	1961	23.4	907	15.9	1052

Note: Tax share from WDI99; income from PWT5.6a; regime from ACLP.

3.2. The Role of Electoral Chances

The explanation in terms of risk-aversion must be distinguished from that focusing on the role of electoral chances. Electoral chances depend on the relative distribution of the three types, on non-economic preferences (say the left party is secular, the right party is confessional, and the population tends to be religious), and on the electoral system.

Przeworski (1991) argued that democracy is sustained when the losers in a particular round of the electoral competition have sufficient chances to win in the future to make it attractive for them to wait rather than to rebel against the current electoral defeat. The argument was that when the value of electoral victory is greater than the expected value of dictatorship which, in turn, is greater than the value of electoral defeat, then political actors will accept a temporary electoral defeat if they have reasonable prospects to win in the future. In the light of the model developed here, such prospects are neither sufficient nor necessary for democracy to survive. In poor countries, they are not sufficient. Above some income level, in turn, losers accept an electoral defeat even when they have no chance to win in the future, simply because even permanent losers have too much to risk in turning against democracy. Political forces are "deradicalized" because they are "bourgeoisified."

Yet the distribution of electoral chances has a powerful effect on the income threshold above which losers accept the verdict of elections. Assume that everything is the same in our stylized country except for the electoral system. Clearly, the more likely is the left party to win elections, the lower is the threshold above which it accepts democracy.¹² At the same time, the more likely is the left to win, the higher is the threshold at which the right party opts for democracy. Hence, the effect of electoral chances on y_H is not obvious. As income increases, however, the range of electoral chances under which democracy survives widens. Hence, poverty is a constraint on feasible electoral institutions. If democracy is to survive in a relatively poor country, electoral institutions must be designed so as to allocate chances in a very specific way. In more affluent countries, in turn, institutional design is much less important for the survival of democracy.

¹²Hence, à la Acemoglu and Robinson (2001), extensions of franchise defuse the revolutionary threat of the left.

3.3. The Role of Election Results

What difference does it make that rulers are elected by votes, not by a lottery?¹³ To study the impact of vote distribution on the stability of democracy, the basic model must be modified in two ways. First, assume that the probability that a dictatorial attempt is successful depends on the numbers supporting a particular party in the election¹⁴ Secondly, assume that when a conflict over dictatorship breaks out, anonymity is lifted, so that each party can identify its supporters and its opponents and distribute the spoils of dictatorship appropriately. As shown in the Appendix 2, democracy is more fragile when the left party overwhelmingly or loses by a narrow margin.

When the left party wins by a wide margin, it has a good chance of being successful in an *autogolpe*, while the right party is attracted by the eventuality that its dictatorship would be narrow, so that the payoff per member would be high. Hence, both parties rebel. When the left party loses by a small margin, it has a fair chance of being successful in an insurrection and its dictatorship would be quite narrow. In turn, when the right party wins by a large margin, it has a good chance of establishing its dictatorship but this dictatorship would be broad and thus unattractive to the rich. Finally, when the left party wins by a small margin, it enjoys the spoils of victory, while its chance of establishing a dictatorship is not great. Hence, democracy prevails when the right party wins overwhelmingly or when the left party wins by a small margin.

Note that Przeworski et al. (2000: 135) report that democracy is twice as likely to collapse when one party holds more than two-thirds of seats in the legislature than when no party controls as many seats¹⁵. Remember, however, that these results apply only below some income threshold.

¹³For many differences other than those relevant here, see Manin (1998).

¹⁴Once anyone starts fighting, non-participation is not a feasible option: if you do not fight, you will certainly lose. As Sartre (1960) pointed out, the people who lived along the Faubourg St. Antoine took arms to destroy the Bastille because if they had not taken arms, they would have ended in the Bastille. (See also Kalyvas 1999: 267).

¹⁵They also report that presidential democracies are much more vulnerable when the plurality is between 1/3 and 1/2 of seats, which is what the model predicts, but parliamentary regimes are not. Why it would be so, I do not know.

3.4. On the Role of Constitutions

By "constitutions," I mean only those rules that are difficult to change, because they are protected by super-majorities or by some other devices. Note that in some countries, such as contemporary Hungary, constitutional rules can be changed by a simple majority, while in other countries, such as Germany, some clauses of the constitution cannot be changed at all.

Constitutions are neither sufficient nor necessary for democracy to survive. Constitutions are not sufficient because agreeing to rules does not imply that results of their application will be respected. We have seen that under a variety of conditions, parties obey electoral verdicts only as long as they turn out in a particular way. Hence, the contractarian theorem – "if parties agree to some rules, they will obey them" or "if they do not intend to obey them, parties will not agree to the rules" (Buchanan and Tullock 1962, Calvert 1994)¹⁶ - is false. If one party knows that it will be better off complying with the democratic verdict if it wins but not when it loses while the other party prefers democracy unconditionally, parties will agree to some rules knowing full well that they may be broken. Under such conditions, a democracy will be established but it will not be self-enforcing.

To see that constitutions are not necessary, note that above some income threshold democracy survives even though the rules of redistribution are chosen by each incumbent. Hence, democratic government is limited not because of some exogenous rules but for endogenous reasons: either because of the rebellion or the incentive constraint, whichever bites first. In equilibrium a democratic government obeys some rules that limit redistribution, but the rules that are self-enforcing are those that satisfy either constraint.

Alternatively, assume that the rule defining what constitutes an electoral victory is no longer that a party has to win a majority of votes but some other number increasing in votes, say a majority of legislative seats. Suppose that under the current rule the expected value of democracy is so low for the left party that it opts for dictatorship whether it won or lost the election. Say it won the current election and it manipulates the electoral rules to its advantage. The conditions for a democratic equilibrium to hold then would be that its supporters would prefer

¹⁶ According to Calvert (1994: 33), "Should players explicitly agree on a particular equilibrium of the underlying game as an institution, and then in some sense end their communication about institutional design, they will have the proper incentives to adhere to the agreement since it is an equilibrium.... Any agreement reached is then automatically enforced (since it is self-enforcing), as required for a bargaining problem."

democracy under a new rule which that makes the right party indifferent between democracy and dictatorship.

Hence, the rules that regulate the functioning of a democratic system need not be immutable or even hard to change. After all, in France successive incumbents changed electoral rules eleven times since 1875. When a society is sufficiently wealthy, the incumbents in their own interest moderate their distributional zeal and tolerate fair electoral chances.

Weingast (1997) may still be correct in claiming that the constitution is a useful device to coordinate actions of electoral losers when the government engages in excessive redistribution or excessive manipulation of future electoral chances. Yet the constitution is not a contract, because there are no third parties to enforce it (Hardin 1989). Democratic rules must be thought of as endogenous (Calvert 1994, 1995).

3.5. Laws Constitute Equilibria

Even if fixed exogenous rules are neither sufficient nor necessary for democracies to survive, laws do play a role in constituting democratic equilibria. Calvert (1994) goes too far when he claims that institutions are just descriptions of equilibria in pre-existing situations.¹⁷ For democracies to exist, political parties must know at least how to interpret the results of voting; that is, they must be able to read any share of votes (or seats) as a "victory" or "defeat." Hence, the rule that defines victory is "constitutive" in the sense of Searle (1995): it enables behaviors that would not be possible without it, namely, a peaceful alternation in office. This rule plays a twofold role: (1) A democratic equilibrium may exist under this rule but need not under other rules. For example, an equilibrium may exist when the rule is that a party is the winner if it receives a majority of votes but not if the rule were that it obtains one-third. (2) Given one rule, a different party may be "the winner" that given some other rule under which a democratic equilibrium also exists. Hence, the particular rule both enables a democratic equilibrium and picks one among several equilibria possible.

Conversely, given a society characterized by a level and distribution of income, there is some set of rules which will be obeyed by the electoral winners and losers regardless of the distribution of votes. Some rules are self-enforcing. Moreover,

¹⁷In Calvert's example, the institution that induces a cooperative equilibrium is the "director." This equilibrium would not have occurred in the original situation he describes without the institution of the "director." Hence, it is not an equilibrium of the underlying situation.

even if the rules are endogenous, it is always a particular law that political forces obey. As Kornhauser (1999: 21) puts it, "The legal structure identifies which of many equilibria the players will in fact adopt. The enactment of a law results in the institution of a new equilibrium."

3.6. Equilibrium Culture

In a democratic equilibrium, the protagonists obey the verdicts of the polls and limit their actions to those enabled by law. They participate in a competition that is regulated by rules and they obey the results; they are law abiding; they act so as to perpetuate democracy. Moreover, neither the winners or the losers engage each time in the calculations imputed to them in the model. Democracy, in a well-worn phrase, is "the only game in town." All this is just a description of the equilibrium, "equilibrium culture."

There is nothing wrong with such descriptions, but only as long as they are not infused with causal interpretations: it is one thing to describe the equilibrium actions and beliefs as a "culture" and another to claim that this culture is what generates the equilibrium.¹⁸ Yet it is just a small step to transform these observable actions into motivations, to say that democracy lasts because individuals are motivated by a sense of duty to accept outcomes of competition in which they participate, because they respect the normativity of the law, because they cherish democracy, because their behavior is driven by habit. If a democratic equilibrium is sustained by a strategic pursuit of self-interest, then in equilibrium the political actors are law abiding. But this does not mean that the equilibrium is supported by the motivation to obey the law. In equilibrium people learn to behave out of habit, just as we learn to stop at a crossroad on seeing a red light. Only if something happens that disturbs the habit – the Algerian war in France, the Aldo Moro affair in Italy – political forces may actually calculate. Hence, in affluent countries, democracy is taken for granted. But this does not imply that it is not based on a calculation.¹⁹

¹⁸This ambiguity is most apparent in Weingast's (1997) attempt to reconcile different explanations of democratic stability.

¹⁹This conclusion is buttressed by the following observation. The hazard rates – the probabilities that a democracy would die after some years given that it survived until then – decline in the age of democracy: a patterns which may be misinterpreted as some kind of "habituation." It would be misinterpreted, since the hazard rates are constant once they are controlled for per capita income. Hence, what makes older democracies survive is just that they are wealthier.

Situations induced by interests and those generated by culture look the same. Hence, observing equilibria is not sufficient to identify the mechanism which generates them. But any plausible cultural story would have to account for the relation between the stability of democracy and income.

3.7. Why Democracy?

One, last, question needs to be considered, namely, why do we have democracies at all? Suppose that a democratic equilibrium holds. In equilibrium, each party has definite expectations as to what it will receive now and in the future; it attaches a fixed value to future life under democracy. Why would they not simply agree to divide the present and future income according to these expectations and go on for ever without holding elections and, conceivably, alternating in office? Note that if they are risk-averse, they would be better off being assured of these expected values rather than getting more some of the time and less at other times. The reason, in my view, is that it is impossible to write a complete contract that would specify every contingent state of nature. In turn, leaving the residual control – over issues not explicitly regulated by contract – to one of the parties would generate increasing returns to power. Endowed with residual control, the party could not commit itself not to use the advantage to undermine the strength of the adversaries in an open conflict, that is, to manipulate the balance of military force. Hence, to avoid violence, the conflicting political forces adopt the following device: agree over those issues that can be specified and allow the residual control to alternate according to specified probabilities. In this sense, the constitution specifies the chances in electoral competition, but elections decide who holds residual control.

In the end, the miracle of democracy is that conflicting political forces obey the results of voting. Incumbents risk their control of governmental offices by holding elections. Losers wait for their chance to win office. Conflicts are regulated, processed according to rules, and thus limited. This is not consensus, yet not mayhem either. Just limited conflict; conflict without violence (Hampton 1994). Ballots are “paper stones,” as Frederick Engels once observed.

4. Appendix

4.1. Comparative statics with regard to p

Proposition 4.1. The range of p under which democracy survives increases in y .

Consider the case when Party L wins (the other case is analogous). The range of p under which democracy survives is given by

$$1 - \frac{\log s_{P1} - q \log s_L - (1 - q)\mu \log s}{\rho(\log s_{P1} - \log s_{P2})} - \frac{(1 - q)(1 - \mu) \log y}{\rho(\log s_{P1} - \log s_{P2})} \leq p \leq$$

$$1 - \frac{(1 - q) \log s_R + q\mu \log s - \log s_{R1}}{\rho(\log s_{R2} - \log s_{R1})} + \frac{q(1 - \mu) \log y}{\rho(\log s_{R2} - \log s_{R1})}.$$

Thus, the lower bound decreases while the upper bound increases in y .

Finally, considering this expression with regard to q leads to

Proposition 4.2. The range of p under which democracy survives moves with q .

Hence, electoral chances must reflect military strength.

4.2. Self-selective dictatorships with endogenous chances

Consider now dictatorships which are self-selective, in the sense that they distribute the spoils only to people who supported the party in the election. Moreover, dictatorships come about when parties turn into armies, so that the probability that Party L would win a struggle for dictatorship is qv and the probability that Party R would win is $(1 - qv)$.

The expected value of rebellion for the left if the right rebels is now

$$EU_P(\text{rebel}|\text{rebel}) = qv \log \frac{1 - s(1 - v)}{v} + (1 - qv)\mu \log sy,$$

while for the right if the left rebels it is

$$EU_R(\text{rebel}|\text{rebel}) = (1 - qv) \log \frac{1 - sv}{1 - v} + qv\mu \log sy.$$

EU_P is concave increasing in v at all y . EU_R is convex increasing in v at low y and it first declines and then increases in v at high y . Moreover, EU_R increases steeply in the vicinity of $v \rightarrow 1$.

Hence, if Party R wins the election with a large margin, so that v is low, then both parties accept the electoral result: Party R because its supporters are satisfied with the electoral victory and Party L because it has a very small chance

of being successful if an insurrection. If v is closer to $1/2$, Party L rebels: it lost the election but it has a fair chance of establishing a relatively narrow dictatorship. If v is somewhat larger than $1/2$, so that Party L wins, democracy prevails. Given that Party L now collects the fruits of electoral victory, the chances that Party L could stage a successful *autogolpe* are still not sufficient for their supporters to risk it. In turn, since Party R obtained support still large enough that it would not gain very much having to distribute the spoils of dictatorship to all its members, Party R abstains from staging an insurrection. Finally, when v is close to 1, Party R is attracted by a narrow dictatorship while Party L has a good chance of establishing its own. Figure 2 illustrates these equilibria

5. References

Acemoglu, Daron, and James A. Robinson. 2000. "Why Did the West Extend the Franchise? Democracy, Inequality, and Growth in Historical Perspective." *Quarterly Journal of Economics*.

Alvarez, Mike, José Antonio Cheibub, Fernando Limongi, and Adam Przeworski. 1996. "Classifying Political Regimes." *Journal of International Comparative Development* 31: 3-36.

Barro, Robert J. 1997. *Determinants of Economic Growth*. Cambridge, MA: MIT Press.

Bobbio, Norberto. 1984. *The Future of Democracy*. Minneapolis: University of Minnesota Press.

Bryce, James. 1921. *Modern Democracies*. London.

Buchanan, James, and Gordon Tullock. 1962. *The Calculus of Consent: Logical Foundations of Constitutional Democracy*. Ann Arbor: University of Michigan Press.

Calvert, Randall. 1994. "Rational Actors, Equilibrium, and Social Institutions." In J. Knight and I. Sened (eds.), *Explaining Social Institutions*. Ann Arbor: University of Michigan Press.

Calvert, Randall. 1995. "The Rational Choice Theory of Social Institutions: Cooperation, Coordination, and Communication." In Jeffrey S. Banks and Eric A. Hanushek (eds.), *Modern Political Economy* (pp. 216-268). New York: Cambridge University Press.

Condorcet. 1786 (1785). "Essai sur l'application de l'analyse a la probabilité des décisions rendues a la pluralité des voix." In *Sur les élections et autres textes*. Textes choisis et revus par Olivier de Bernon. Paris: Fayard.

Cortés, Fernando. 1997. *La distribución del ingreso en Mexico en épocas de estabilización y reforma económica*. Guadalajara, Mexico: CIESAS.

Dahl, Robert. 1971. *Polyarchy: Participation and Opposition*. New Haven: Yale University Press.

Deininger, K., and L. Squire. 1996. "A New Data Set Measuring Income Inequality." *World Bank Economic Review* 10: 565-591.

Hampton, Jean. 1994. "Democracy and the Rule of Law." In Ian Shapiro (ed.), *The Rule of Law, Nomos XXXVI*: 13-45.

Hardin, Russell. 1989. "Why a Constitution?" In Bernard Grofman and Donald Witman (eds.), *The Federalist Papers and the New Institutionalism* (pp. 100-120). New York: Agathon Press.

Helliwell, John. 1994. "Empirical Linkages Between Democracy and Economic Growth." *British Journal of Political Science* 24: 225-248.

Kalyvas, Stathis. 1999. "Wanton and Senseless? The Logic of Massacres in Algeria." *Rationality and Society* 11: 243-285.

Kelsen, Hans. 1988 (1929). *La Démocratie. Sa Nature-Sa Valeur*. Paris: Economica.

Kornhauser, Lewis A. 1999. "The Normativity of Law." *American Law and Economics Review* V1 N1/2: 3-25.

Milanovic, Branko. 1999. "Do More Unequal Countries Redistribute More? Does the Median Voter Hypothesis Hold?" Washington, D.C.: The World Bank. Manuscript.

Przeworski, Adam. 1991. *Democracy and the Market. Political and Economic Reforms in Eastern Europe and Latin America*. New York: Cambridge University Press.

Przeworski, Adam, Mike Alvarez, José Antonio Cheibub, and Fernando Limongi. 2000. *Democracy and Development: Political Regimes and Material Welfare in the World, 1950-1990*. New York: Cambridge University Press.

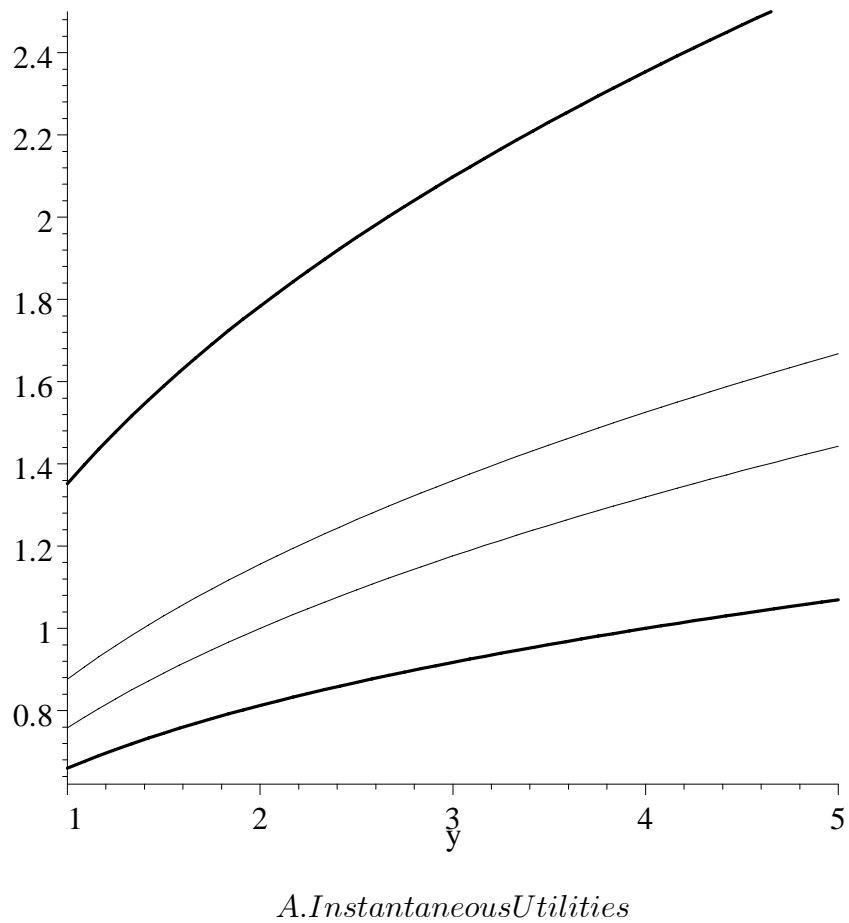
Sartre, Jean-Paul. 1960. *Critique de la raison dialectique*. Paris: Gallimard.

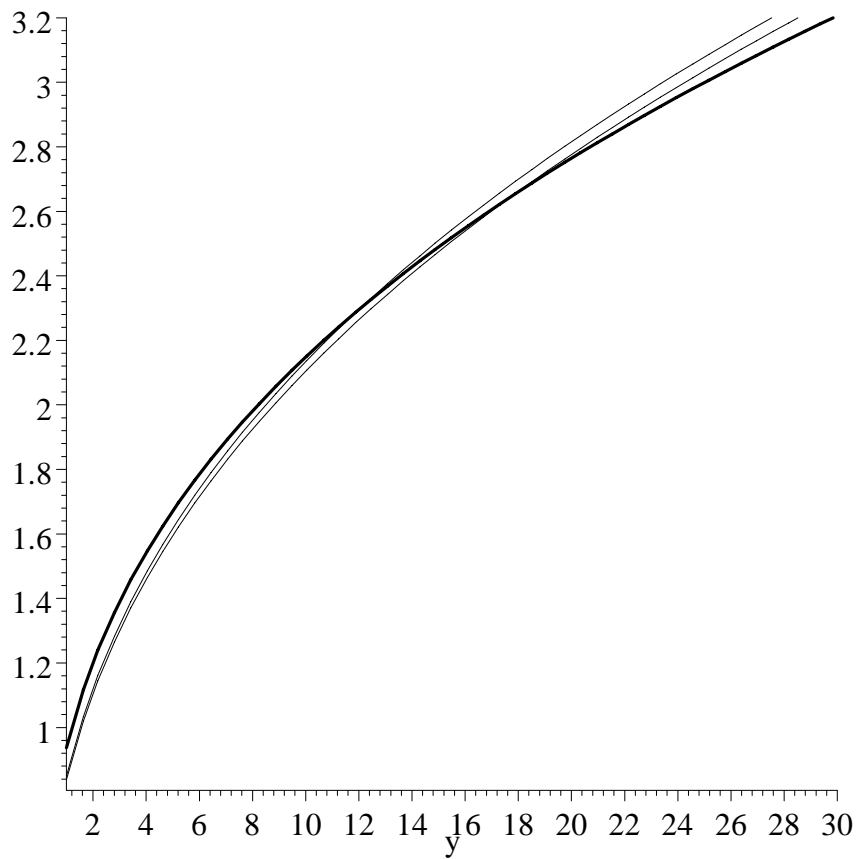
Schmitt, Karl. 1988. *The Crisis of Parliamentary Democracy*. Cambridge: MIT Press.

Searle, John R. 1995. *The Construction of Social Reality*. New York: Free Press.

Weingast, Barry R. 1997. "Political Foundations of Democracy and the Rule of Law." *American Political Science Review* 91: 245-263.

Figure 1: Illustrative values for the poor of being the dictator, winning and losing elections, and being dominated by dictatorship, as a function of per capita income.





B.ValueFunctions, i = 1, 2

Figure 2. Illustrative equilibria as a function of the vote share of Party L , at medium income level.

