

Why Democracy Survives in Affluent Societies?

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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 groups 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. Electoral chances matter but only in countries with medium income levels. Limits on redistribution arise endogenously, so that constitutions are not necessary for democracy to endure. A democratic culture characterizes the equilibrium, but culture is an effect, not a cause.

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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 just between 1951 and 1990 fifty-four democracies collapsed in poorer countries. In contrast, thirty one democracies spent 762 years in wealthier countries 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. In countries with per capita income under \$1000, the probability that a democracy would die during a particular year 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.

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 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.

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

Income range	All	Prob	Per Capita Income		Prob	By Losers	Prob	Cases
			By Winners	By Losers				
-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	

The purpose of this article is to explain these facts.

The reason the durability of democracy 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

¹These are 1985 purchasing power parity dollars.

to others, to keep people in jail, 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’s or to a decision which they believe to be contrary to their interest.”² Why would losers accept the verdict of the polls, rather than rise against it? And while winners win, they still suffer limitations on their power. Why would they exercise moderation and risk losing office by holding elections, rather than extract more or not hold elections?

To make the paper accessible, having specified the assumptions of the model in Part 2, I present immediately its conclusions and discuss broader implications in Part 3. Hence, a mathematical reader may wish to read first the proofs presented in Part 4. Some specific issues are clarified and additional proofs are provided in the Appendix.

2. Assumptions

2.1. Democracy

Democracy works like this:

(1) Political forces, organized in parties, compete for governmental offices by offering policies. There are two parties (or coalitions thereof), indexed by $i = 1, 2$. Each party offers a policy τ_i (which may be multidimensional). Given the platforms (τ_1, τ_2) , the results of the election are uncertain. When elections are held at time t , dice are thrown and the result is a distribution of vote among parties, v_{it} .

(2) Results of elections are interpreted according to some rule which designates winners and losers. Under rule $\Theta(v)$, whichever party or coalition gets $v_{it} > \Theta$, which for the moment I will take to be $1/2$, is the “winner.“ Hence, the probability that a party i wins is $p_i = \text{pr}(v_i > \Theta)$.

(3) 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 *palais*; while there should take not more

²“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....“

than what they proposed and should hold elections again. The losers should not move into the House and should accept getting what they are given.

Democracy, by definition, lasts if these instructions are obeyed. The democratic equilibrium is a correlated one: Players jointly designate “winners“ and “losers“ with probabilities \mathbf{p} . Hence, elections are a centralized mechanism. Once results are known, however, each player decides independently whether or not to obey the instructions inherent in these designations. A democratic equilibrium holds if they do, that is, if the best response of the losers to the compliance by the winners is to comply and vice versa.

2.2. The Electorate

Democracies function in particular societies. While the description of democracy provided above is generic, it must be embedded in social conditions:

(1) Per capita income is y , where income is normed in such a way that the lowest possible income is $y = 1$, which corresponds to about \$250 (1985 PPP dollars).

(2) The electorate is normed to 1. Voters are of three types:

A proportion $0 < \pi_R < 1/2$ consists of voters who are rich. Each rich voter has an income $\alpha_R y$, $\alpha_R > 1$. The rich are **R** types. Rich people always vote for Party 2.

A proportion $0 < \pi_P < 1/2$ consists of voters who are poor. Each poor voter has an income $\alpha_P y$, $\alpha_P < 1$. The poor are **P** types. They always vote for Party 1.

Finally, the remaining proportion, $1 - \pi_R - \pi_P$, are middle class. They have incomes $\alpha_M y$, $\alpha_P \leq \alpha_M < 1 < \alpha_R$. Even if members of this group may have the same income as the **P** types, they can be distinguished and, importantly, they can be separately targeted by redistributive policies. They are the **M** types. Given any (τ_1, τ_2) , the **M** types vote for Party 1 with the probability $z_t \in [0, 1]$ drawn from some distribution.

The total proportion of votes for Party 1 is thus

$$v_t = \pi_P + z_t(1 - \pi_P - \pi_R).$$

The probability that Party 1 wins a particular election is given by

$$\mathbf{p} = \text{pr}(v_t > 1/2).$$

Throughout the paper, the subscript $i = 1, 2$ denotes respectively the electoral victory of Party 1 or Party 2.

2.3. Redistributive Policies Under Democracy

In the election campaign parties propose to redistribute incomes. They have two sets of instruments. Since disposable income equals market income plus transfers minus taxes, 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 transfers and taxes.

Specifically:

(1) Party 1 proposes to tax the R types at the rate τ_1 , and to transfer the tax revenue, which is $\tau_1(\pi_R\alpha_R Y)$, to the P and M types. The post-redistribution income of each rich type if Party 1 wins is thus $(1 - \tau_1)\alpha_R Y$.

(2) Party 2 proposes to reduce the incomes of the P types at the rate τ_2 , to collect $\tau_2(\pi_P\alpha_P Y)$. Party 2 can also tax its own members. The revenue is divided among the R and the M types. The post-redistribution income of each poor type when Party 2 wins is $(1 - \tau_2)\alpha_P Y$.

Taxes are subject to two constraints. Since collaboration of P types is necessary to generate the incomes of the rich, the R types are concerned that the P types must be able to work, which means that they must obtain at least Sy , where S is the subsistence share. Hence, the highest rate at which Party 2 would want to tax the poor is $\tau_2 = 1 - \frac{s}{\alpha_P}$. In turn, Party 1 must be concerned that if the post-redistribution income of the R types were to be lower than of the M types, the rich would not utilize a part of their endowment and generate only α_M . Appendix 1 shows the conditions under which this constraint is binding. For the moment, it is sufficient to note that the post-distribution income of the electorally victorious P types may be maximized at some $\tau_1 < 1$. I will refer to this condition as the "incentive constraint."

The disposable incomes of each type when either party wins an election depend, therefore, on the distribution of market incomes and the rates of redistribution. They are given in Appendix 5.1. For the moment, it is sufficient to think of average-income multiples of type $j = P, M, R$ in cases Party 1 or Party 2 wins an election as some S_{ij} . Hence, the instantaneous utility of each type under democracy is $U(S_{ij}y)$.

2.4. Dictatorship

What do dictatorships do to people they defeat? There are two ways of thinking about it: in terms of incomes and in terms of threat to lives.

Consider income. The democratic government is limited in what it can do to the electoral losers. Even if the laws that regulate redistribution of income are endogenous, that is, even if they can be altered by each incumbent, the incumbents must anticipate that excessive redistribution would cause the losers to rebel (see below). True, dictators are also constrained by the fear of rebellion. But dictatorships monopolize the access to arms: they rule because they control military force. Hence, the ability of the opponents to overthrow a dictatorship is lower than democracy and the limits to rule are less binding. There are, thus, good reasons to think that incomes of people dominated by dictatorships are lower than incomes of electoral losers in countries with the same per capita incomes. This argument leads us to think that the income of people dominated by a dictatorship is not larger than that of electoral losers. I will assume, therefore, that this income is Sy .

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 massive, the threat of imprisonment, torture, or death is so foreboding that, even if those dominated by a dictatorship receive a constant multiple of the average income, their expected utility does not increase homogeneously. The same income generates lower utility when one's physical integrity is threatened.

This threat to lives is best formalized by a somewhat non-orthodox utility function, namely,

$$U(C) = \begin{cases} \frac{C^{\mu(1-\sigma)}}{1-\sigma} & \text{for } \sigma \neq 1 \\ \mu \log C & \text{otherwise} \end{cases}$$

where $1 - \mu(1 - \sigma)$ is the coefficient of relative risk aversion and

$$\mu = \begin{cases} 1 & \text{for democracy and one's own dictatorship} \\ < 1 & \text{for dictatorship of the other party} \end{cases}$$

The utility of whoever is dominated by a dictatorship is thus³

³Note that no income is lost in conflicts over dictatorship. The reason is that introducing the cost of fighting, whether as a constant or as a share of current income, makes no difference for the qualitative results. Moreover, income is treated as exogenous with regard to regimes, an assumption supported by recent empirical studies (Helliwell 1994, Barro 1997, Przeworski et al. 2000).

$$U(\text{sy}) = \frac{(\text{sy})^{\mu(1-\sigma)}}{1-\sigma}, \mu < 1.$$

Dictatorships can be broad, narrow, or self-selective (the payoffs to members of dictatorships are given in Appendix 5.1):

(1) A broad dictatorship includes the M types. Such a dictatorship gives sy to each person excluded (R types for dictatorship of Party 1, P types for dictatorship of Party 2) and distributes the rest among its core supporters and the M types.

(2) A narrow dictatorship includes only the core supporters of a party. It gives sy to everyone else.

(3) A self-selective dictatorship is a dictatorship of all electoral supporters of a party, v for Party 1 and $(1-v)$ for Party 2. The assumption here is that anonymity is lifted during the struggle for dictatorship, so that each party can identify its supporters. This dictatorship gives sy to each of its electoral opponents and distributes the rest among its electoral supporters.

A related issue is whether the probability of winning a struggle over dictatorship depends on its base of popular support. One can think that this probability depends only on the posture of the professional military or, where arms are not monopolized, on the distribution of guns. The probability that Party 1 wins the conflict over dictatorship is then q and the probability that Party 2 wins is $1-q$, so that $0 < q \leq 1$ represents the relations of physical force. When $q = 1/2$, everyone is equally strong or the military are politically neutral. When $q < 1/2$, the rich have a privileged access to arms.⁴ But one can also think that numbers of supporters matter, so that the probability that Party 1 triumphs is qv . Since the latter assumption introduces mathematical complications, I first develop a model in which dictatorships are either broad or narrow and the probability of winning a conflict over dictatorship depends only on the posture of the military. Then, in Appendix 5.4, I study the case of self-selective dictatorships in which the probability that a party triumphs depends as well on its base of electoral support.

⁴Two comments are needed here. First, by "access to arms," I mean either the actual military strength of the respective parties or the political postures of the professional military forces. Hence, the rich may have a "privileged access to arms" if the armed forces are willing to act against the poor. Secondly, I do not think that being the electoral incumbent determines the access to arms: there are about as many instances in which the armed forces moved against the incumbent governments as cases in which they obeyed orders of governments to repress electoral losers.

Note that dictatorship of Party 1 will be denoted by the subscript P, while the dictatorship of Party 2 by the subscript R.

3. Conclusions, Extensions, and Implications

3.1. Summary

The main conclusions are as follows:

(1) Save for some special, and implausible, conditions democracy always survives in affluent societies⁵. The reason is that even the electoral losers have too much at stake to risk being defeated in a struggle over dictatorship.

(2) Democracy can survive in poor societies but only under very special conditions, namely, when incomes are relatively equal, the military are apolitical, and the electoral chances are balanced.

(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.

(4) Balance of electoral chances is not sufficient to sustain democracy in poor countries and not necessary to sustain it in affluent ones. Nevertheless, the income threshold above which democracy survives is lower when electoral chances are balanced.

(5) Election results matter for the survival of democracy in countries at medium income levels. Democracy is more difficult to sustain when the party of the poor wins an election by an overwhelming margin or loses by a small margin.

(6) Limitations on redistribution arise endogenously. In poor countries, any redistribution threatens democracy. In affluent countries, democracy survives regardless of the extent of redistribution, so that redistribution is tempered only by incentive considerations.

(7) Constitutions are neither sufficient nor necessary for democracy to survive.

⁵This is true unless: (1) the poor are only mildly risk averse, income distribution is very unequal, and the poor enjoy preponderant military power or (2) the rich are only mildly risk-averse, income distribution is equal, and the rich enjoy preponderant military power. But we know that the distribution of factor incomes is quite egalitarian in wealthy societies. Hence, exception (1) is not likely to apply. In turn, we also have evidence that utility functions are highly concave in income (Frank 1997), which is sufficient to eliminate both exceptions even without considering military relations. Hence, the conclusion that democracy survives in affluent societies for reasons of pure economic interests is robust.

(8) Democratic equilibria can be characterized in cultural terms. Nevertheless, even if equilibrium actions can be described as a "culture," the equilibrium is supported by interests, not by cultural norms.

In the remainder of this section, I explain and interpret these conclusions and their implications.

3.2. Why democracy survives in affluent societies?

For each country, characterized by the distribution of market incomes, the electoral institutions, and the relations of military force, there is some threshold of per capita income, y^H , above which both the electoral winners and the electoral losers unconditionally accept the results of elections, with the redistributive consequences they entail. Hence, democracy survives at all $y \geq y^H$

The reason everyone opts for democracy in affluent societies is that too much is at stake to risk a rebellion. In poor societies there is little to distribute, so that a party that moves against democracy and is defeated has little income to lose. But in affluent societies, the gap between incomes of electoral losers and of people oppressed by a dictatorship becomes 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 a struggle over dictatorship is foreboding in affluent societies. As per capita income increases, the dictatorial lottery becomes gradually more uncertain in relation to the democratic lottery. Hence, at some level of income, democracy is better than dictatorship. 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 P types. 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. Secondly, note in Figure 1B that the expected income under democracy is always either lower or higher than the expected income under dictatorship, depending on the value of q , that is, the relations of military power. But, observe in Figure 1C, that given that the stakes entailed in rebelling increase faster in income, the expected value (that is, the ex ante utility) of democracy rises faster in income than the value of dictatorship, unless q is high. Finally, note in Figure 1D that the value of democracy depends on whether the P types won or lost the current election; hence, for some per capita

incomes the value of democracy for the P types is higher than that of dictatorship if Party 1 had won the election but lower if it had lost it. All this is also true for the R types.

This argument is supported by some direct evidence. Przeworski et al. (2000) report that between 1950 and 1990 in countries with incomes of less than \$3,000, the average labor share under dictatorships was 32.2 percent, almost identical to the 32 percent in democracies. But in countries with per capita incomes between \$3,000 and \$8,000, the average labor share under dictatorships was 33.7 percent and under democracies 39.6 percent. Since output per worker is also lower in affluent dictatorships, this means is that when the two countries had the same per capita incomes, an average worker in dictatorial Singapore was earning \$4,433 and in democratic Austria \$5,991, one-third more; an average Mexican worker was earning \$3,192 compared to the \$4,917 of a Portuguese worker, again at the same levels of average income. In turn, the incomes of those who would have been rich under democracy were much lower under communist dictatorships: communists confiscated property and distributed earned incomes quite equally.

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, y^H . 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 \$7769 and democracy survived. In New Zealand, income fell by 9.7 percent between 1974 and 1978, but the 1978 income was \$10035. Yet in Venezuela, which enjoyed democracy during forty-one years, per capita income declined by 28 percent from 1978 to 1989, when it reached \$5919, and continued to fall since then. Hence, this decline may be responsible for the emergence of anti-democratic forces in that country.

3.3. When democracy survives in poor societies?

Democracy can survive in poor countries but only if income distribution is quite egalitarian and both military and electoral chances are balanced. In a poor country, the rich have little to gain from establishing a dictatorship. In turn, if the distribution of market incomes is quite equal, the poor have something to lose if they were to fail in an attempt against democracy. If the electoral chances are

about equal, neither party expects to lose repeatedly. When neither side enjoys preponderant military power, turning against democracy is too risky.

One reason democracy is fragile in poor countries is that at low income levels electoral chances must not be very different from 50-50 (see below). Yet electoral chances must reflect the distribution of military power: the higher the relative military power of a party, the better must be its electoral prospects. Hence, when in poor countries the military power is unequal - the military take sides - the circle cannot be squared: since one party has a viable option of dictatorship, it must be compensated with high electoral chances, but unequal electoral chances make democracy intolerable for the permanent losers.

Established in 1947, when the country had a per capita income of \$556, democracy survived in India. An explanation in terms of the model might be 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. Hence, the model implies that the poor supported democracy even if per capita income was low because their multiple of this income was very high. In turn, the rich supported democracy because they have little to gain by establishing a dictatorship. The military were apolitical.

This interpretation is supported by the experience of two other poor democracies that lasted at least a couple of decades: the Philippines, where democracy was established in 1947, when per capita income was \$697, and where it survived until 1965, by which time income reached \$1217, and Brazil, where democracy was founded in 1946 at \$917 and where it collapsed in 1964 at \$1889.⁶ In the Philippines, per capita income rose substantially but inequality increased sharply: the ratio of the top to the bottom quintile increased from 7.42 in 1957 to 16.00 in 1965. In terms of the model, this means that the poor may have turned against democracy in spite of growth because their income multiple declined sharply. The militarily dominant rich, in turn, preferred to extract income from the poor through "crony" dictatorship rather than to satisfy the rebellion constraint. Finally, in Brazil income grew rapidly but its distribution was always extremely unequal - in 1960, the quintile ratio was 18.72 - so that the same story as in the Philippines may apply.⁷

⁶Note that in the United States in 1830 the per capita income was about \$1100 (as always 1985 PPP dollars).

⁷Clearly, the 1964 coup in Brazil was in my terms a coup by the rich: wages fell by about 40

3.4. Apparent democracies

Under a variety of circumstances, particularly at intermediate income levels, electoral results are obeyed by one party when it wins but not when it loses. If the other party accepts when it loses, results of elections are obeyed, but only because they turned out in a particular way.

The value of democracy for the P and the R types depends on the result of the current election: 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 Figure 1D, for the case when $q = 0.5$. At low income levels, the P types rebel against democracy whether they win or lose the election. At intermediate income levels, electoral winners accept the result but electoral losers turn against democracy. Then, beyond some income level, the P types obey the results even if they lost. Note that this result reproduces the empirical patterns reported in Table 1.

Suppose that the R types accept an electoral defeat under the conditions under which the P types accept a victory but would rebel against a defeat (or vice versa). One should then expect to observe countries in which the same party repeatedly wins elections and both the winners and the losers obey the electoral results, 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 as well, 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

per cent in its aftermath. But the democratic posture of the poor was at best ambiguous. See Figueredo (1993).

electoral rules to make sure that this unpleasant event would not occur in the future.

3.5. 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 the non-economic preferences of the M types (say Party 1 is secular, Party 2 is confessional, and the M types tend to be religious), and on electoral rules.

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 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 not necessary. Above some income level, losers will 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, y^H , above which losers accept the verdict of elections (See Appendix 5.3). Compare Figures 2A and 2B, which assume that redistribution is moderate. In Figure 2A, where each party has a 50-50 chance to win an election, the winners of the current election accept the result if per capita income is greater than about 2 and the losers accept it when per capita income is about 4. In Figure 2B, one party is certain to win and the other to lose all the future elections. The former accepts the victory even in the poorest country, while the latter accepts it only when per capita income is about 100. Hence, the distribution of electoral chances does matter for the survival of democracy in all but very poor or very rich societies. One way to read the destabilization of the Chilean democracy is that a series of electoral reforms enfranchised the poor and removed the electoral protection from the rich.

Thus, the mere prospect of alternation in office can avoid violence. To see this argument in its starkest form, assume that governments are selected by a toss of

a coin: “heads“ mean that the incumbents should remain in office, “tails“ that they should leave. Thus, it is a reading of the toss which designates “winners“ and “losers.“ Note that when the authorization to rule is determined by a random device, citizens have no electoral sanction, prospective or retrospective, and the incumbents have no electoral incentives to behave well while in office. Any link between elections and representation is severed. Yet the very prospect that governments would alternate may induce the conflicting political forces to comply with the rules rather than engage in violence. Even if the value of the current loss is lower than the one period value of dictatorship, if the current losers have a sufficient chance to win in the future, they are better off continuing to comply with the verdict of the coin toss than fighting for power. And if the winners prefer democracy, then regulating conflicts by a coin toss is self-enforcing. Bloodshed is avoided by the mere fact that, à la Aristotle, political forces expect to govern in turn.

Democracy is more difficult to sustain when the electoral force of the parties diverges from their military force. When one party has bleak electoral prospects but it enjoys a military advantage, it expects little of democracy but has a fair chance to establish its dictatorship. Hence, if democracy is to survive, electoral prospects must correspond to 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.⁸

3.6. The role of election results

Yet we do not use random devices; we vote. What difference does it make? 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

⁸“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 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).

attempt is successful depends on the numbers supporting a particular party in the election, so that the probability that Party 1 succeeds is qv and the probability that Party 2 does is $1 - qv$.⁹ 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 5.4, democracy is more fragile when Party 1 wins overwhelmingly or loses by a narrow margin.

When Party 1 wins by a wide margin, it has a good chance of being successful in an *autogolpe*, while Party 2 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 Party 1 loses by a small margin, it has a fair chance of being successful in an insurrection and its dictatorship would be still quite narrow. In turn, when Party 2 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 *R* types. Finally, when Party 1 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 Party 2 wins overwhelmingly or when Party 1 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 seats¹⁰. Remember, however, that these results apply only below some income threshold.

3.7. Redistribution

An electoral incumbent faces two constraints to redistribution. One stems from the fear that if redistribution is large, the electoral losers would turn against democracy. I will call this the "rebellion constraint." Say Party 1 wins an election.

⁹Once 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). Nevertheless, caveats apply: (1) perhaps some people do succeed in remaining neutral and (2) perhaps some people switch sides, that is, vote for one party but support the dictatorship of another, although I do not quite see why the latter would occur.

¹⁰They 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.

If the R types are to accept the electoral defeat, Party 1 can extract at most at the rate $\bar{\tau}_1$, such that the value of democracy to the rich when they lost an election and are taxed at $\bar{\tau}_1$ is exactly equal to the expected value of their dictatorship. If Party 1 prefers democracy when the tax rate is not greater than $\bar{\tau}_1$, then $\bar{\tau}_1$ is the rebellion constraint.

The second constraint is purely economic: if redistribution reduces the supply of investment or of labor services or if it causes distortions in some other ways, then the income-maximizing degree of redistribution will be mitigated by these deadweight costs. Hence, the tax rate which maximizes the income of the electoral winners is some $\tau^* < 1$. Let this be the "incentive constraint."

Now, in poor societies the rebellion constraint bites quickly. In turn, in affluent societies risk aversion drives the electoral losers to accept democracy even when redistribution resulting from elections is extensive. Hence, the scope of income redistribution that would not threaten democracy is narrower in poorer countries. Since in affluent countries democracy is sustained under any tax rates, incentive constraint bites first.

While the total share of taxes in GDP is not an ideal measure of redistribution, it is striking that under democracy this share increases steeply in income. Moreover, as the model predicts, in poor countries the tax share is larger under dictatorships.

Table 2: Tax Share in GDP, by Per Capita Income and Regime

Income	All Mean	All N	Democracy Mean	Democracy N	Dictatorship Mean	Dictatorship N
-1000	12.24	364	9.27	21	12.61	343
1001 - 3000	16.77	604	15.34	189	17.42	415
3001 - 6000	19.73	395	19.78	171	19.68	224
6001 -	25.95	598	28.00	526	11.71	72
All	19.36	1961	23.38	907	15.94	1052

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

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 Mexico, which has a much more unequal income distribution redistributes almost no income (Cortés 1997, Deininger and Squire 1996). In general, while systematic data seem impossible to obtain, poor countries seem to redistribute much less than affluent ones.

3.8. On the Role of Constitutions

By "constitutions," I mean only those rules that are difficult to change, either 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 some 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)¹¹ - is false. If both parties know that they will be better off complying with the democratic verdict if it turns out in a particular way but not otherwise, they will agree to some rules knowing full well that they may break them. Under such conditions, a democracy will be established but it will not be self-enforcing.

To show that constitutions are not necessary, just note that we have already seen 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 Θ defining what constitutes an electoral victory is no longer $v > 1/2$ but $\Theta(v) > 1/2$, Θ increasing in v . One obvious interpretation is that Θ represents legislative seats. Suppose again that under the current rule Θ the expected value of democracy is so low for Party 1 that it opts for dictatorship whether it won or lost the election. Say it won the current election and it manipulates the electoral rules so as to increase $\Theta|v$. The conditions for a democratic equilibrium to hold would then be that the P types would prefer

¹¹According 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 if the rule of victory were $\bar{\Theta}$, which is a rule that makes the R types indifferent between democracy and dictatorship. And, again, when the society is affluent, democracy survives.

Hence, democracy survives in wealthy societies whether the democratic rules are fixed once and for all or can be manipulated by each successive incumbent. 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 will 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 the actions of the 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, Przeworski 1991). Democratic rules must be thought of as endogenous (Calvert 1994, 1995).

3.9. 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 are institutions are just descriptions of equilibria in pre-existing situations.¹² 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 Θ is "constitutive" in the sense of Searle (1995): it enables behaviors that would not be possible without it, namely, a peaceful alternation in office. The rule Θ plays a twofold role: (1) A democratic equilibrium may exist when the rule is Θ but may not exist were the rule some Θ^* . For example, an equilibrium may exist when the rule is that Party 1 is the winner if $v > 1/2$ but not if the rule were $v > 1/3$. (2) Given the rule Θ , say $v > 1/2$, a different party may be "the winner" that under some other rule Θ' , say $v > 2/5$, under which a democratic equilibrium also exists. Hence, the rule Θ both enables a democratic equilibrium and picks one among several equilibria possible.

¹²In 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.

To put it 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, even if the rules are endogenous, it is always a particular law that political forces obey. The normativity of law is thus due to the fact that it enables the equilibrium in which the protagonists obey the particular law in their interests. 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."

3.10. Equilibrium Culture

Claiming that democracy lasts when it is in the interest of everyone to comply with its rules need not exclude the possibility that democracy might still survive in some societies even when important political forces would be better off turning against it. Democracies may be supported by values even when they fail to accommodate interests: the space of democratic equilibria may be larger than those analyzed here. Yet the mere fact that democratic equilibria can be described in cultural terms is not sufficient to attribute a causal role to 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.¹³ 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, not rationality. If a democratic equilibrium is sustained by a strategic pursuit of self-interest, then

¹³This ambiguity is most apparent in Weingast's (1997) attempt to reconcile different explanations of democratic stability.

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 when you 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.¹⁴

3.11. The Miracle of 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 – 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 q . 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 limits on incumbents and their 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,

¹⁴This 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.

processed according to rules, and thus limited. This is not consensus, yet not mayhem either. Just limited conflict; conflict without killing (Hampton 1994). Ballots are “paper stones,” as Frederick Engels once observed.

4. Proofs

4.1. Equilibria

This is a repeated two-stage game. The timing at each time t is as follows. In the first stage, parties propose the rates of redistribution (τ_1, τ_2) and transfers to the M types, $(\Delta M_1, \Delta M_2)$. Voting takes place, yielding a result $v(\tau_1, \tau_2, \Delta M_1, \Delta M_2)$, which is read according to rule Θ to designate winners and losers. In the second stage, winners and losers decide whether to **obey** the instructions inherent in these designations or to **rebel**. If they both obey, production occurs, the winner redistributes incomes according to τ_i , and a new election is held. If either of them rebels, no redistribution occurs until the conflict is resolved, that is, either democracy survives or a dictatorship is established, to last forever.¹⁵

For reasons spelled out below, I assume that the second-stage decision of Party 1 depends only on the preferences of the P types, while the decision of Party 2 depends only on the preferences of the R types. A second-stage strategy $\theta_{vj} : \{y, v, A_{-j}\} \rightarrow A_j$ of type $j = P, R$, is a series of actions $A_j \in \{\text{Obey}, \text{Rebel}\}$ in each state $\{y, v\}$. When $v > \Theta$, Party 1 wins the election, $i = 1$, and when $v \leq \Theta$, Party 2 wins, $i = 2$. When only the electoral victory, but not the vote magnitude matters, the states are fully characterized by $i = 1, 2$, so that the strategy of each type maps $\{y, i, A_{-j}\}$ onto A_{ij} , $\theta_{ij} : \{y, i, A_{-j}\} \rightarrow A_{ij}$. The game is separable in the sense that the states $\{y, v\}$ do not depend on previous actions.

Associated with each strategy is a present value $V_{ij}(\theta)$, in which the future is discounted at $0 < \rho \leq 1$, of the consequences of all future actions of j . A Nash equilibrium is a pair of strategies $\{\theta_j^*, \theta_{-j}^*\}$ such that

$$V_{ij}(\theta_j^*, \theta_{-j}^*) \geq V_{ij}(\theta_j, \theta_{-j}^*) \text{ for all } A_j \in \{\text{Obey}, \text{Rebel}\}$$

$$V_{i,-j}(\theta_j^*, \theta_{-j}^*) \geq V_{i,-j}(\theta_j^*, \theta_{-j}) \text{ for all } A_{-j} \in \{\text{Obey}, \text{Rebel}\}$$

¹⁵Acemoglu and Robinson (2000) consider a model of regime dynamics that includes transitions to democracy.

Let the value of the outcome in the current round for type j , given the result of the election i , be O_{ij} , to be defined below. The Bellman equations for each type are then

$$V_{1j} = \max_{\theta_{1j}} \{O_{1j} + \rho[pV_{1j} + (1-p)V_{2j}]\},$$

and

$$V_{2j} = \max_{\theta_{2j}} \{O_{2j} + \rho[pV_{1j} + (1-p)V_{2j}]\}.$$

These are two pairs of simultaneous equations, which solve as

$$V_{1j} = \frac{1 - \rho(1-p)}{1-\rho} O_{1j} + \frac{\rho(1-p)}{1-\rho} O_{2j},$$

and

$$V_{2j} = \frac{\rho p}{1-\rho} O_{1j} + \frac{1-\rho p}{1-\rho} O_{2j}.$$

The values of the current outcomes depend on the strategies of each type. Let $\theta = 1$ when a party obeys the election result and $\theta = 0$ when it rebels. Then

$$\begin{aligned} O_{iP} = & \theta_{iP} \theta_{iR}^* U(P_i) + \theta_{iP} (1 - \theta_{iR}^*) [qU(P_i) + (1-q)U(\text{sy})] \\ & + (1 - \theta_{iP}) \theta_{iR}^* [qU(D_P) + (1-q)U(P_i)] + (1 - \theta_{iP}) (1 - \theta_{iR}^*) [qU(D_P) + (1-q)U(S)], \end{aligned}$$

$$\begin{aligned} O_{iR} = & \theta_{iP}^* \theta_{iR} U(R_i) + \theta_{iP}^* (1 - \theta_{iR}) [qU(R_i) + (1-q)U(D_R)] \\ & + (1 - \theta_{iP}) \theta_{iR}^* [qU(\text{sy}) + (1-q)U(R_i)] + (1 - \theta_{iP}) (1 - \theta_{iR}^*) [qU(\text{sy}) + (1-q)U(D_R)]. \end{aligned}$$

Let $\frac{1-\rho(1-p)}{1-\rho} \equiv A_1$, $\frac{\rho p}{1-\rho} \equiv A_2$. Suppose Party 2 opts for democracy whether it wins or loses, so that $\theta_{iR}^* = 1$, $i = 1, 2$. If Party 1 opts for democracy in state i , the value of P types is

$$V_{iP}(\theta_{iP} = 1 | \theta_{iR}^* = 1) = A_i U(P_1) + (1 - A_i) U(P_2).$$

If Party 1 opts for dictatorship, the value of P types is

$$V_{iP}(\theta_{iP} = 0 | \theta_{iR}^* = 1) = A_i[qU(D_P) + (1-q)U(P_1)] + (1-A_i)[qU(D_P) + (1-q)U(P_2)].$$

Hence, P types rebel if

$$U(D_P) > A_i U(P_1) + (1 - A_i) U(P_2) \equiv V(P_i).$$

Since $U(D_P) > U(P_1) \geq U(P_2)$, this is always true. Hence, the best response of the P types to democratic strategy of Party 2 is to rebel, whether $i = 1$ or $i = 2$.

Suppose Party 2 rebels in either state, so that $\theta_{iR}^* = 0$, $i = 1, 2$. If Party 1 opts for democracy in state i , the value of P types is

$$V_{iP}(\theta_{iP} = 1 | \theta_{iR}^* = 0) = A_i[qU(P_1) + (1-q)U(sy)] + (1-A_i)[qU(P_2) + (1-q)U(sy)],$$

while if Party 1 rebels, the value is

$$V_{iP}(\theta_{iP} = 0 | \theta_{iR}^* = 0) = qU(D_P) + (1 - q)U(sy).$$

Hence, the best response of the P types to rebellion by Party 2 is to rebel.

Thus, P types have a dominant strategy, which is to rebel whether Party 2 obeys or rebels.

The same is not necessarily true for the R types. Going through the same steps shows that the R types rebel in state i if

$$U(D_R) > A_i U(R_1) + (1 - A_i) U(R_2) \equiv V(R_i).$$

But since $U(R_1) \geq 1$, the sign of this inequality is not obvious. It holds for $i = 1, 2$ if

$$\left(\frac{1 - S(1 - \pi_R)}{\pi_R}\right)^{1-\sigma} \geq \left(\frac{1 - SV}{1 - V}\right)^{1-\sigma} \geq \left(\frac{1 - S\pi_P}{1 - \pi_P}\right)^{1-\sigma} > A_i[(1 - \tau_1)\alpha_R]^{1-\sigma} + (1 - A_i)\left[\alpha_R + \frac{\tau_2\pi_P\alpha_P - \Delta M_2(1 - \pi_P - \pi_R)}{\pi_R}\right]^{1-\sigma},$$

where the three fractions on the left-hand side of the strict inequality sign

the expected income multiple under democracy in states $i = 1, 2$ (see Appendix 5.1).

Hence, a broad dictatorship is attractive to the R types only under special conditions, namely, in societies in which income distribution is relatively egalitarian (α_R is low), redistribution is high, and the electoral chances of Party 2 (as measured by $1 - p$) are low. In more unequal societies, the rich would not opt for a broad dictatorship unless they are almost certain to lose elections and to be heavily taxed: even if there were to be heavily taxed when they lose an election, if they have some chance to win elections in the future, their expected income under democracy will be higher than if they had to share the spoils of dictatorship with the M types.

Hence, if Party 2 can establish only a broad dictatorship then, save for rare circumstances, the equilibrium is for Party 1 to rebel and for Party 2 to defend democracy. Yet such equilibria are likely to be ephemeral. Whenever Party 1 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.

If dictatorships are self-selective or if the R types can establish a narrow dictatorship,¹⁶ then $U(D_R) > V(R_i)$ under a broad variety of conditions, and the dominant strategy of both types is to rebel.

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

$$U(D_p) > V(P_i) > qU(D_P) + (1 - q)U(\text{sy}) \equiv V(D_P)$$

and

$$U(D_R) > V(R_i) > (1 - q)U(D_R) + qU(\text{sy}) \equiv V(D_R).$$

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:

¹⁶Or if the dictatorship of Party 2 can discriminate between the rich and the middle class: a possibility which is not treated formally here.

Proposition 4.1. (1) When $V(P_i) > V(D_P)$ and $U(D_R) > V(R_i) > V(D_R)$, the democratic equilibrium $\{\text{Obey}, \text{Obey}\}$ is sustained by punishments in which the parties revert to dominant strategies. (2) When $V(P_i) < V(D_P)$ and $V(R_i) < V(D_R)$, the only equilibrium is $\{\text{Rebel}, \text{Rebel}\}$.

These are not the only equilibria. We have already seen that when $U(D_R) < V(R_i)$, an ephemeral equilibrium $\{\text{Rebel}, \text{Obey}\}$ 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. Say $V(P_i) > V(D_P)$ for $i = 1, 2$, and $V(R_2) > V(D_R)$, but $V(R_1) < V(D_R)$. Then election results will be obeyed if Party 2 wins but not when it loses.

4.2. Comparative Statics with Regard to Income

4.2.1. Preliminaries

To determine the impact of per capita income on the survival of democracy, we need to study with regard to income the inequalities

$$V(P_i) > V(D_P) \text{ and } V(R_i) > V(D_R).$$

I will consider only narrow dictatorships, on the ground that if any type prefers democracy to its narrow dictatorship, then it also prefers it to its self-selective and broad dictatorship.

To simplify the analysis, the following observation is helpful. Whatever the values of democracy are, all of their components either contain the term $\frac{y^{1-\sigma}}{1-\sigma}$. Hence, one can always write the terms that represent the democratic future as

$$V(P_i, R_i) = A_i U(P_1, R_1) + (1 - A_i) U(P_2, R_2) = [A_i s_{1j}^{1-\sigma} + (1 - A_i) s_{2j}^{1-\sigma}] \frac{y^{1-\sigma}}{1-\sigma} \equiv L(P_i, R_i) \frac{y^{1-\sigma}}{1-\sigma},$$

where s_{ij} are the multiples of average income accruing each type when Party 1 or Party 2 wins, as specified in Appendix 5.1. This is convenient, since $L(\cdot)$ is a constant value for each type under a democracy characterized by the distribution of factor incomes, the probability that Party 1 wins elections, and the rates of redistribution.

4.2.2. P Types

Consider first the P types. When Party 1 wins an election, that is, when $v > 1/2$, their value of democracy is $V(P_1)$, while when they lose an election, $v \leq 1/2$, their value of democracy is $V(P_2)$. The appropriate condition can be rewritten as

$$\frac{1}{1-\sigma}L(P_i) \geq \frac{1}{1-\sigma} \left[q \left(\frac{1 - S(1 - \pi_P)}{\$P} \right)^{1-\sigma} + (1-q)S^{\mu(1-\sigma)}y^{(\mu-1)(1-\sigma)} \right] \equiv \frac{1}{1-\sigma}K_P(y).$$

when $\sigma \geq 1$. Since $L(P_i)$ SConsid

When $\sigma < 1$, $L(R_i) > 1$ for $i = 1, 2$, the polynomial $k_R(y)$ assumes the value $k_R(1)$ at $y = 1$, and its value declines monotonically in y , to the $\lim_{y \rightarrow \infty} k_R(y) = (1 - q) \left(\frac{1 - s(1 - \pi_R)}{\pi_R} \right)^{1 - \sigma}$. In turn, when $\sigma > 1$, $L(R_i) < 1$ and $k_R(y)$ increases without bounds from $k_R(1)$. Note that we are looking for equilibria under the condition that $U \left(\frac{1 - s(1 - \pi_R)}{\pi_R} y \right) > U(R_1)$, since otherwise the "ephemeral" equilibria ensue.

Proposition 4.3. (1) If $\sigma < 1$ and $L(R_i) > k_R(1)$ or if $\sigma > 1$ and $k_R(1) < L(R_i)$, R types prefer democracy at all income levels. (2) If $\sigma < 1$ and $(1 - q) \left(\frac{1 - s(1 - \pi_R)}{\pi_R} \right)^{1 - \sigma} < L(R_i) < k_R(1)$ or if $\sigma > 1$ and $L(R_i) > k_R(1)$, R types prefer dictatorship in poor countries and democracy in affluent ones. (3) If $\sigma < 1$ and $L(R_1) < (1 - q) \left(\frac{1 - s(1 - \pi_R)}{\pi_R} \right)^{1 - \sigma}$, R types prefer dictatorship at all income levels. (4) In the remaining cases, preferences of the R types depend on the result of an election.

Again, this proposition boils down to a simple conclusion, namely, that the rich opt for democracy in affluent societies unless they are only mildly risk averse when income distribution is quite equal and they enjoy high military power. The picture looks the same as Figure 3.

4.2.4. M Types

There are two ways to think of the M types. I assumed that they do not form a party of their own, casting votes for the party of the poor or the party of the rich on grounds of morality, religion, authority, or what not. But it has been a matter of some controversy whether or not the middle class has an autonomous capacity to mount a coup against democracy, a "middle class coup" in the language of Nun (1976). If one assumes it does have this capacity, then the strategic postures of the M types are similar to those of the P types. But it is more interesting to think that the middle class cannot overthrow democracy on their own but can only support dictatorial attempts by workers or the rich.

The M types benefit under either broad dictatorship. But the probability of victory and the payoffs to each of its supporters are different for the two dictatorships. Comparing the expected values of these dictatorships shows that the M types are almost indifferent between the two dictatorships in very poor countries (since there is little to redistribute anyway) but in wealthier countries they prefer the dictatorship of the P types if

$$\frac{1}{1 - \sigma} \frac{q}{1 - q} \geq \frac{1}{1 - \sigma} \left(\frac{1 - S\pi_P}{1 - S\pi_R} \frac{1 - \pi_R}{1 - \pi_P} \right)^{1 - \sigma},$$

and they prefer the dictatorship of the R types otherwise, where $>$ holds for $\sigma < 1$ and $<$ for $\sigma > 1$. Since it is safe to think that there are more P types than the rich, $\pi_P > \pi_R$, the value of the expression in parentheses on the right side is always larger than 1. Hence, if the relations of military force are balanced, $q = 1/2$, the petite bourgeoisie prefers to join the rich: their dictatorship is narrower and hence per person payoff is higher. Yet we have seen that the R almost never prefer a broad dictatorship to democracy and in those rare circumstances when they do, it is in part because the M types are highly likely to vote for Party 1 (p is high). Hence, if the support of the petite bourgeoisie were necessary for the rich to succeed in establishing their dictatorship, the R types would not be willing to pay the price of sharing the spoils of dictatorship. In turn, while the P types under some circumstances do prefer a broad dictatorship to democracy, they also prefer a narrow dictatorship to a broad one. Moreover, the P types are more willing to turn against democracy when their electoral prospects are low, that is, when the M types are likely to vote for the party of the rich (p is low). Hence, even if the chances that the P types would succeed in establishing a dictatorship were to depend on the support of the petite bourgeoisie, they would be buying the support of a politically unreliable ally. In the end, the petite bourgeoisie is an unwelcome companion on the road to dictatorship, which may explain the phenomenon of "Poujadism": authoritarian movements of the lower middle class that do not find support among other sectors of society and do not succeed in establishing an authoritarian order.

4.2.5. Democratic Equilibria

To simplify things, I assume that the middle class cannot subvert democracy on its own. Here is the main result. Given the distribution of market incomes, the probability of winning elections, and the relative military powers, each type has some threshold income, y_j^H , $j = P, R$, above which it unconditionally obeys the election result whenever the other type does. The democratic threshold for the P types is defined implicitly by setting $L(P_2) = k_P(y_P^H)$ and for the R types by setting $L(R_1) = k_R(y_R^H)$. Thus, democracy survives at all $y \geq y^H = \max_j y_j^H$.

Proposition 4.4. *When $y \geq y^H$, Party 1 opts for democracy if Party 2 does while Party 2 prefers democracy if Party 1 does, unless $\sigma < 1$ and $L(P_2) < q(\frac{1-s(1-\pi_P)}{\pi_P})^{1-\sigma}$ or $L(R_1) < (1-q)(\frac{1-s(1-\pi_R)}{\pi_R})^{1-\sigma}$.*

The part $\sigma > 1$ is simple. We know from 4.2 that the P types will always opt for democracy in wealthy countries and from 4.3 that the R types will. Hence,

at some sufficiently high income levels, the \mathbf{P} types opt for democracy given that the \mathbf{R} types do and vice versa. When $\sigma < 1$, that is, the protagonists are only mildly risk-averse, it is necessary that military relations be balanced. Otherwise, the party which enjoys military support may opt for dictatorship when it is only mildly risk averse.

These are not the only equilibria in which no one rebels against the electoral verdict. All the results we have established thus far assumed the strategic posture of each type is the same whether their party won or lost the election. But under a variety of conditions, the preferences of each type may depend on $i = 1, 2$, that

second stage. Consider the case when Party 1 wins an election in a society which has a per capita income y . Democracy survives if the tax rate $\tau_1 = \bar{\tau}_1$ is such that

$$L(R_1|\bar{\tau}_1, \tau_2) = k_R(y)$$

and

$$L(P_1|\bar{\tau}_1, \tau_2) \geq k_P(y).$$

Note that if $L(R_1|\bar{\tau}_1, \tau_2) = k_R(y)$ for some $\tau_2 \geq \bar{\tau}_2$, then $L(R_2|\bar{\tau}_1, \tau_2) \geq k_R(y)$ for any $\tau_2 \geq \bar{\tau}_2$. Hence, if Party 2 were to win, it would set the redistribution rate at $\tau_2 = \bar{\tau}_2$, such that $L(P_2|\bar{\tau}_1, \bar{\tau}_2) = k_P(y)$. And since $L(P_1|\bar{\tau}_1, \bar{\tau}_2) \geq k_P(y)$, Party 1 will obey when it loses. Hence, the rates of redistribution emerge endogenously under the "rebellion constraint" $(\bar{\tau}_1, \bar{\tau}_2)$ and the equilibrium is $\{\text{Obey}, \text{Obey}\}$ when y is sufficiently high.

The "rebellion constraint," that is, the rate of redistribution which is possible without causing the electoral loser to rebel, increases in income. Specifically,

Proposition 4.6. *The tax rates $\{\bar{\tau}_1, \bar{\tau}_2\}$ increase in y .*

It is easy to show that $\partial L(R_1)/\partial \tau_1 < 0$ while $\partial k_R/\partial y < 0$. Hence, the condition $L(R_1|\bar{\tau}_1, \bar{\tau}_2) = k_R(y)$ will be satisfied at higher val

$$U(P \mid \text{Party1wins}) = U(P_1) = U\left\{\left[\alpha_P + \frac{\tau_1\pi_R\alpha_R - \Delta M_1(1 - \pi_P - \pi_R)}{\pi_P}\right]y\right\},$$

and each rich voter gets

$$U(R \mid \text{Party1wins}) = U(R_1) = U\{(1 - \tau_1)\alpha_R y\}.$$

If Party 2 wins an election, each poor voter gets

$$U(P \mid \text{Party2wins}) = U(P_2) = U\{(1 - \tau_2)\alpha_P y\},$$

and each rich voter gets an equal share of what is left after taxing workers and paying off the petite bourgeoisie, or

$$U(R \mid \text{Party2wins}) = U(R_2) = U\left\{\left[\alpha_R + \frac{\tau_2\pi_P\alpha_P - \Delta M_2(1 - \pi_P - \pi_R)}{\pi_R}\right]y\right\}.$$

The condition that $R_1 \geq M_1$ implies that

$$(1 - \tau_1)\alpha_R \geq \alpha_M + \Delta M_1,$$

so that

$$\tau_1 \leq 1 - \frac{\alpha_M + \Delta M_1}{\alpha_R}.$$

This constraint bites if

$$\Delta M_1 \leq \alpha_R - 2\alpha_M,$$

which means in unequal societies.

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

$$U(D_P) = U\left\{\frac{1 - S\pi_R}{1 - \pi_R}y\right\} \text{ and } U(D_R) = U\left\{\frac{1 - S\pi_P}{1 - \pi_P}y\right\}.$$

If dictatorship is narrow, then

$$U(D_P) = U\left\{\frac{1 - s(1 - \pi_P)}{\pi_P}y\right\} \text{ and } U(D_R) = U\left\{\frac{1 - s(1 - \pi_R)}{\pi_R}y\right\}.$$

If dictatorship is self-selective, then

$$U(D_P) = U\left\{\frac{1 - s(1 - v)}{v}y\right\} \text{ and } U(D_R) = U\left\{\frac{1 - sv}{1 - v}y\right\}$$

5.2. Redistribution of Income

The purpose of this appendix is to illustrate the claims that (1) redistribution of income will be limited even when it is left to the discretion of each incumbent, (2) generically, no redistribution will induce democracy in poor countries, and (3) the rebellion constraint bites earlier in poorer countries.

Consider first the conditions for democracy to survive in the poorest country, with $y = 1$. For simplicity, suppose that neither party transfers income to the M types. When Party 1 wins the current election, these conditions are

$$\begin{aligned} & \frac{1}{1-\sigma} \{ [1 - \rho(1 - \mathfrak{p})] [\alpha_P + \tau_1 \frac{\pi_R \alpha_R}{\pi_P}]^{1-\sigma} + \rho(1 - \mathfrak{p}) [(1 - \tau_2) \alpha_P]^{1-\sigma} \\ \geq & \frac{1}{1-\sigma} [\mathfrak{q} (\frac{1 - \mathfrak{s}(1 - \pi_P)}{\pi_P})^{1-\sigma} + (1 - \mathfrak{q}) \mathfrak{s}^{\mu(1-\sigma)}] \end{aligned}$$

for Party 1 and

$$\begin{aligned} & \frac{1}{1-\sigma} \{ [1 - \rho(1 - \mathfrak{p})] [(1 - \tau_1) \alpha_R]^{1-\sigma} + \rho(1 - \mathfrak{p}) [\alpha_R + \tau_2 \frac{\pi_P \alpha_P}{\pi_R}]^{1-\sigma} \\ \geq & \frac{1}{1-\sigma} [(1 - \mathfrak{q}) (\frac{1 - \mathfrak{s}(1 - \pi_R)}{\pi_R})^{1-\sigma} + \mathfrak{q} \mathfrak{s}^{\mu(1-\sigma)}] \end{aligned}$$

for Party 2. These conditions can be rewritten in terms of \mathfrak{q} , the relations of military power, as

$$\mathfrak{q} \leq \mathfrak{f}_1[\pi_P, \alpha_P, \pi_R, \alpha_R; \tau_1, \tau_2, \mathfrak{p}(\tau_1, \tau_2); \rho, \sigma]$$

for Party 1 and

$$\mathfrak{q} \geq \mathfrak{f}_2[\pi_P, \alpha_P, \pi_R, \alpha_R; \tau_1, \tau_2, \mathfrak{p}(\tau_1, \tau_2); \rho, \sigma]$$

for Party 2. Unless both conditions are satisfied simultaneously, one party rebels. These conditions are untractable analytically, but here are the results of simulation. Since these conditions are more likely to be satisfied when the parties are highly risk-averse, I take $\sigma = 2$. I assume $\pi_P = 0.4, \pi_R = 0.2$. In an unequal society, characterized by $\alpha_P = 0.3, \alpha_M = 0.7, \alpha_R = 3$, a democratic equilibrium occurs only when $\mathfrak{q} \leq 0.13$. In a relatively equal society, $\alpha_P = 0.8, \alpha_M = 0.8, \alpha_R = 1.8$, democratic equilibrium occurs only when $\mathfrak{q} \leq 0.22$. To put it differently,

when \mathfrak{q} is larger than these threshold values, one of the parties rebels under all redistribution rates, regardless of electoral chances.

To understand how the rebellion constraint opens up as a function of income, consider an initial income distribution given by $\alpha_P = 0.5, \alpha_R = 3$, with $\pi_R = 0.2$ and $\pi_P = 0.4$. Let $\sigma = 0.6, \mu = 0.75, \mathfrak{p} = 0.6$, and $\mathfrak{q} = 0.3333$. Let $y = 10$. Assume Party 1 won the election. How much income can the incumbent P types redistribute at $y = 10$ without causing the R types to rebel? It turns out that the R types are indifferent between accepting the electoral defeat and rebelling when $\bar{\tau}_1 = 0.39$, given that $\tau_2 = 0.25$. And the P types prefer democracy with $\bar{\tau}_1 = 0.39, \tau_2 = 0.25$ to dictatorship at $y = 10$. Suppose now that Party 2 wins an election at $y = 10$. At $\bar{\tau}_1 = 0.39, \tau_2 = 0.25$, the victorious R types prefer democracy at all $y \geq 3$; hence they prefer it at $y = 10$. How much can Party 2 increase τ_2 without causing the P types to rebel, given that $\tau_1 = 0.39$? It cannot increase it at all: the P types are already at the indifference limit. Hence, $\bar{\tau}_2 = 0.25$, and the pair of tax rates $\{\bar{\tau}_1 = 0.39, \bar{\tau}_2 = 0.25\}$ supports a democratic equilibrium at $y = 10$. Any unilateral deviation would make one type to rebel. Hence, $\{\bar{\tau}_1, \bar{\tau}_2\}$ is a rebellion constraint. For endogenous reasons, the redistribution of income is limited even when it is left to the discretion of each incumbent. Figure 4 represent the equilibria that would transpire given the parameter values used for this illustration, with $\tau_1 = 0.39, \tau_2 = 0.25$.

The pair $\bar{\tau}_1 = 0.39, \bar{\tau}_2 = 0.25$ is not the only one that supports democratic equilibria at $y = 10$. For example, a pair $\bar{\tau}_1 = 0.29, \bar{\tau}_2 = 0$ also does. In general, it must be true that $\partial\bar{\tau}_1/\partial\bar{\tau}_2 > 0$ and $\partial\bar{\tau}_2/\partial\bar{\tau}_1 > 0$. But, given \mathfrak{p} , $\bar{\tau}_1$ cannot be too high. If $\bar{\tau}_1$ is high, then the R types will rebel at $y = 10$ when Party 1 wins; if τ_2 is so high as to prevent the R types from rebelling, then the P types will rebel when they lose. In turn, at $y = 100$ the rebellion constraint is much more slack. For example, a pair $\bar{\tau}_1 = 0.56, \bar{\tau}_2 = 0.67$ supports the democratic equilibrium.

5.3. Comparative statics with regard to \mathfrak{p}

Proposition 5.1. *For the P types y_P^H declines in \mathfrak{p} , while for the R types y_R^H increases in \mathfrak{p} .*

Hence, the democratic threshold is lower in countries in which the electoral chances are relatively balanced.

Proposition 5.2. *The range of \mathfrak{p} under which democracy survives increases in y .*

Consider the case when Party 1 wins (the other case is identical). The range of \mathfrak{p} under which democracy survives is given by

$$1 - \frac{U(S_{1P}) - qU(D_P)}{\rho[U(S_{1P}) - U(S_{2P})]} + \frac{1 - q}{\rho[U(S_{1P}) - U(S_{2P})]} U(\text{sy})y^{\sigma-1} \geq \mathfrak{p} \geq$$

$$1 - \frac{(1 - q)U(D_R) - U(S_{1R})}{\rho[U(S_{2R}) - U(S_{1R})]} - \frac{q}{\rho[U(S_{2R}) - U(S_{1R})]} U(\text{sy})y^{\sigma-1}.$$

Since $y^{\sigma-1}$ declines (increases) in y and everything else is a constant (and the denominators of the terms containing q change signs when $\sigma > 1$), the interval for \mathfrak{p} opens up as income increases.

Proposition 5.3. *The range of \mathfrak{p} under which democracy survives moves with q .*

Another way to rewrite the same condition is

$$1 - \frac{U(S_{1P}) - U(\text{sy})y^{\sigma-1}}{\rho[U(S_{1P}) - U(S_{2P})]} + q \frac{U(D_P) - U(\text{sy})y^{\sigma-1}}{\rho[U(S_{1P}) - U(S_{2P})]} \geq \mathfrak{p} \geq$$

$$1 - \frac{U(D_R) - U(S_{1R})}{\rho[U(S_{2R}) - U(S_{1R})]} + q \frac{U(D_R) - U(\text{sy})y^{\sigma-1}}{\rho[U(S_{2R}) - U(S_{1R})]}.$$

Hence, as q increases, so does the bound on \mathfrak{p} .

5.4. 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 1 would win a struggle for dictatorship is qv and the probability that Party 2 would win is $(1 - qv)$.

The polynomial k_P is now a function of v :

$$k_P(v, y) = \frac{1}{1 - \sigma} \left\{ qv \left(\frac{1 - S(1 - v)}{v} \right)^{1-\sigma} + (1 - qv) S^{\mu(1-\sigma)} y^{(\mu-1)(1-\sigma)} \right\}.$$

The impact of v is twofold. The higher the share of the vote cast for Party 1, the higher the probability that it would win the struggle for dictatorship. But

the larger the coalition that supports the dictatorship, the smaller the income of each supporter. Yet k_P increases monotonically in v for all $y \geq 1$:

$$\frac{\partial k_P}{\partial v} = \frac{q}{1-\sigma} \left\{ \left(s + \frac{1-s}{v} \right)^{-\sigma} \left(s + \sigma \frac{1-s}{v} \right) - s^{\mu(1-\sigma)} y^{(\mu-1)(1-\sigma)} \right\} > 0.$$

Hence, the P types may accept democracy when they lose with a very low v , say $\pi_P \leq v \leq v_2(y) \leq 1/2$, but they may still opt for dictatorship when they lose having obtained $v_2(y) < v \leq 1/2$. Similarly, they may prefer democracy at some $1/2 < v \leq v_1(y)$, but may opt for dictatorship if $1/2 < v_1(y) < v \leq 1 - \pi_R$.

Since k_P increases in v , we know, however, that the P types prefer democracy at all $\pi_P \leq v \leq 1 - \pi_R$ if $L(P_1) > k_P(v = 1 - \pi_R)$ and $L(P_2) > k_P(v = 1/2)$. We also know that the P types prefer democracy when they win and dictatorship when they lose if $L(P_1) > k_P(v = 1 - \pi_R)$ and $L(P_2) < k_P(v = 1/2)$. Finally, we know that the P types prefer dictatorship at all $\pi_P \leq v \leq 1 - \pi_R$ if $L(P_1) < k_P(v = 1/2)$ and $L(P_2) < k_P(v = \pi_P)$.

Now, note that when the appropriate conditions hold, P types opt for democracy over their broad dictatorship in sufficiently affluent societies. Since their broad dictatorship corresponds to $v = 1 - \pi_R$ and since $k_P(v = 1 - \pi_R) > k_P(v = 1/2) > k_P(v = \pi_P)$, it must be true that at some $y \geq y_P^H$ the P types accept election results regardless of what they are. In poorer societies, in turn, P types may prefer dictatorship to democracy regardless of elections results or may condition their strategy on the results.

The expected value of the dictatorship of Party 2 to each of its supporters, in turn, is

$$k_R(v, y) = \frac{1}{1-\sigma} \left\{ (1 - qv) \left(\frac{1 - sv}{1 - v} \right)^{1-\sigma} + qv s^{\mu(1-\sigma)} y^{(\mu-1)(1-\sigma)} \right\},$$

with the derivative

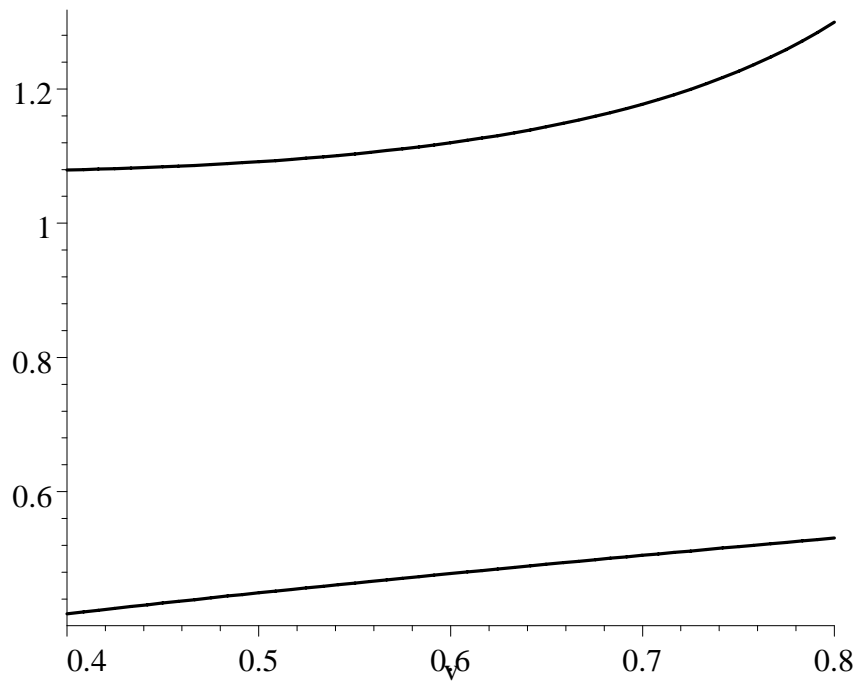
$$\frac{\partial k_R}{\partial v} = \frac{1}{1-\sigma} \left\{ \left(\frac{1 - sv}{1 - v} \right)^{-\sigma} \frac{1}{1 - v} \left[-q(1 - sv) + (1 - qv)(1 - \sigma) \frac{1 - s}{1 - v} \right] + qs^{\mu(1-\sigma)} y^{(\mu-1)(1-\sigma)} \right\}.$$

This derivative is positive for $0 < v < 1$ unless q is high. When q is high, the function $k_R(v, y)$ reaches a minimum, where the value of v associated with the minimum declines in y . Hence, in moderately affluent countries in which the poor enjoy preponderant military power, the rich may be encouraged by having gotten a large vote share to rebel against democracy. But when they receive a large vote share, their dictatorship is quite broad and they prefer democracy. Hence,

I proceed on the assumption that $\partial k_R / \partial v$ is positive throughout in the range $\pi_P \leq v \leq 1 - \pi_R$.

Examine Figure 5.2, which is intended to illustrate the different possibilities that ensue at medium income levels. If v is very low, so that Party 2 wins the election, then both parties accept the electoral result: Party 2 because its supporters are satisfied with the electoral victory and Party 1 because it has a very small chance of being successful if it launches an insurrection. If v is closer to $1/2$, Party 1 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 1 wins, democracy prevails. Given that Party 1 now collects the fruits of electoral victory, the chances that Party 1 could stage a successful *autogolpe* are still not sufficient for their supporters to risk it. In turn, since Party 2 obtained support still large enough that it would not gain very much having to distribute the spoils of dictatorship to all its members, Party 2 abstains from staging an insurrection. Finally, when v is close to $1 - \pi_R = 0.8$, Party 2 is attracted by a narrow dictatorship while Party 1 has a good chance of establishing its own.

Figure 5.2. Illustrative equilibria as a function of the vote share of Party 1, at medium income level.



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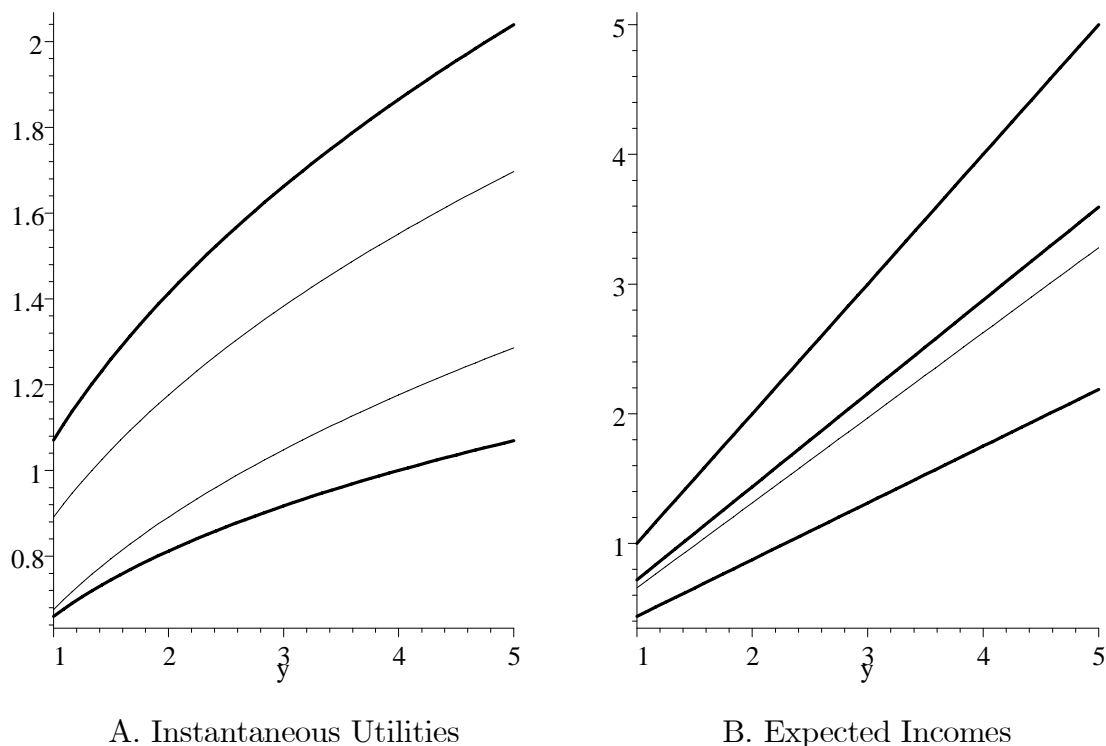
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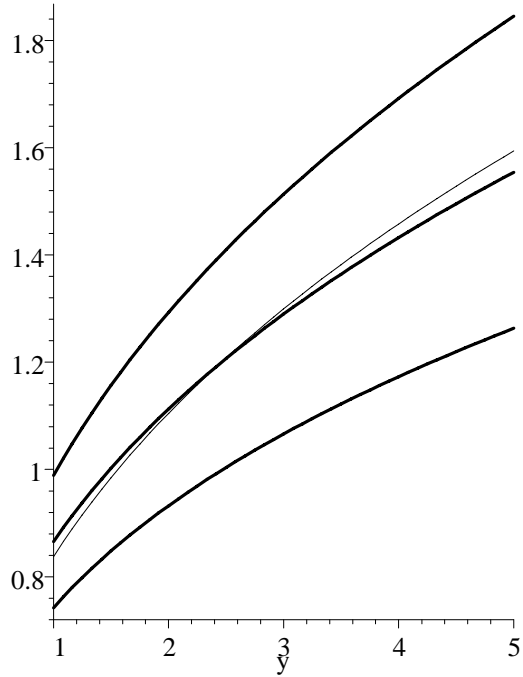
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Figure 1: Illustrative Values for the P types of Being the Dictator, Winning and Losing Elections, and Being Dominated by Dictatorship, as a Function of Per Capita Income.

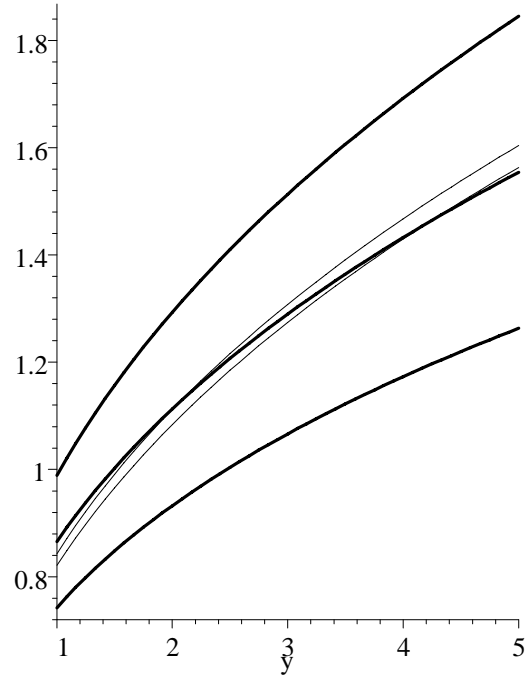
$$\begin{aligned} \tau_1 &= 0.39, \tau_2 = 0.25, \rho = 0.9, \mathbf{p} = 0.75 \\ \pi_P &= 0.4, \pi_R = 0.2, \alpha_R = 3, \alpha_P = 0.5 \\ \sigma &= 0.6, \mu = 0.75, \mathbf{s} = 0.25 \end{aligned}$$

Thick lines represent values of dictatorship. In panel A, where $\mathbf{q} = 0.5$, the upper thick line represents the value of being the dictator and the lower thick line the value of being dominated by one. Thin lines represent democracies. In panels A and D, the upper thin line represents the value of democracy when the P types win an election and the lower thin line when they lose.





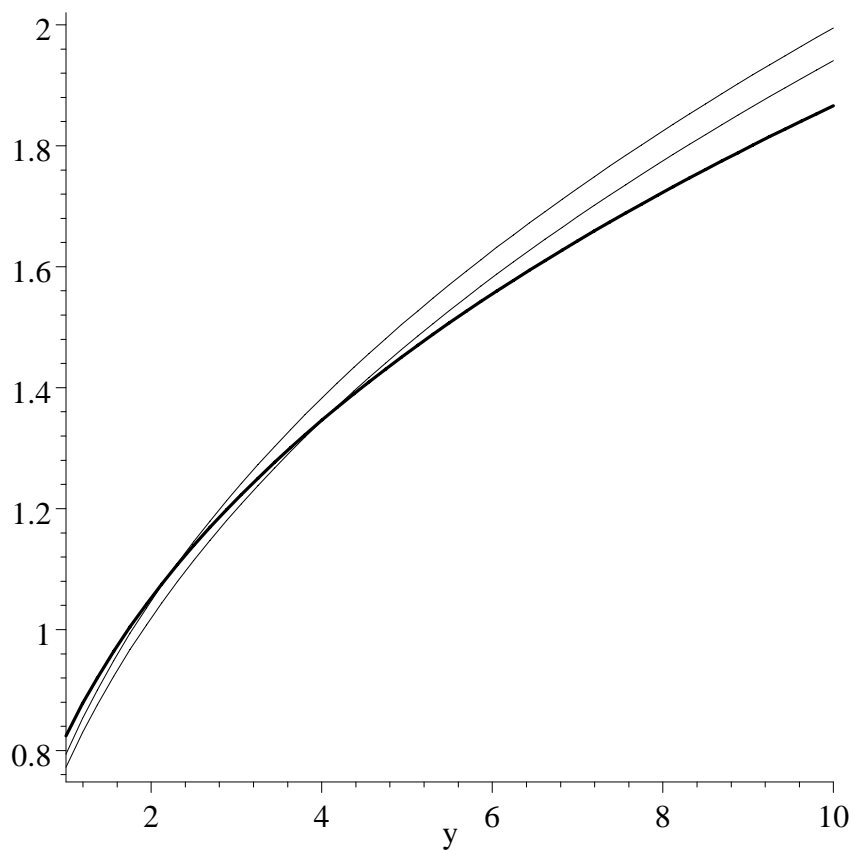
C. Expected Values



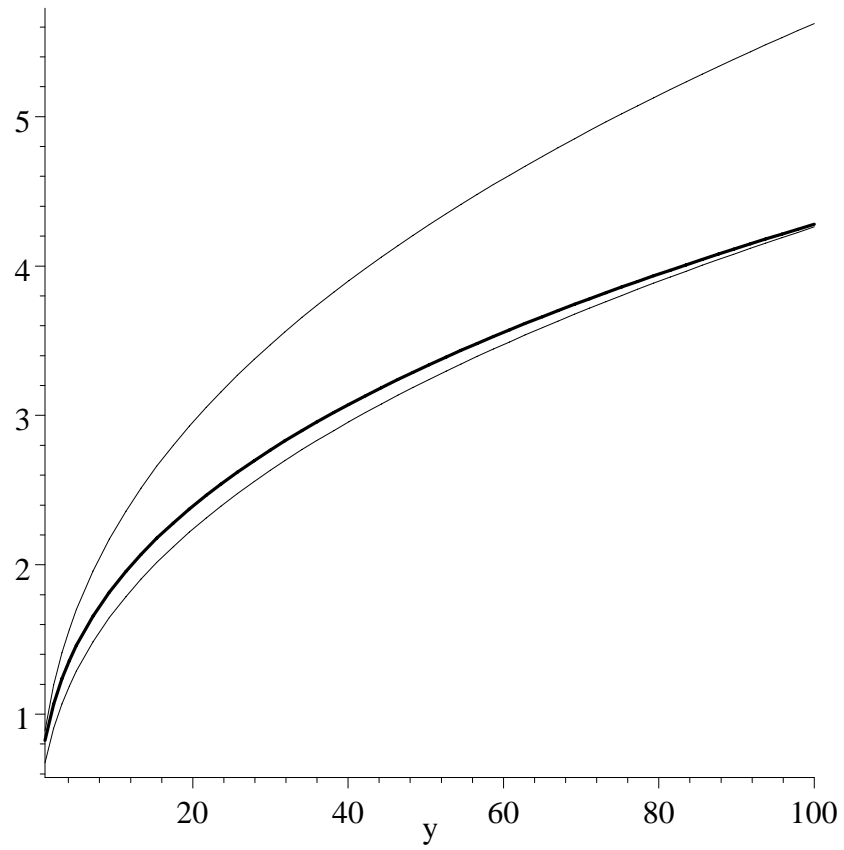
D. Value Functions, $i = 1, 2$

Figure 2: Present values of winning and losing an election and the expected value of dictatorship, given electoral chances. $\tau_1 = 0.39, \tau_2 = 0.25$.

Thick lines represent dictatorship, with $q = 0.4$. Thin lines represent democracies. The upper thin lines represents the value of democracy when the P types win an election and the lower thin line when they lose.



A. Equal chances

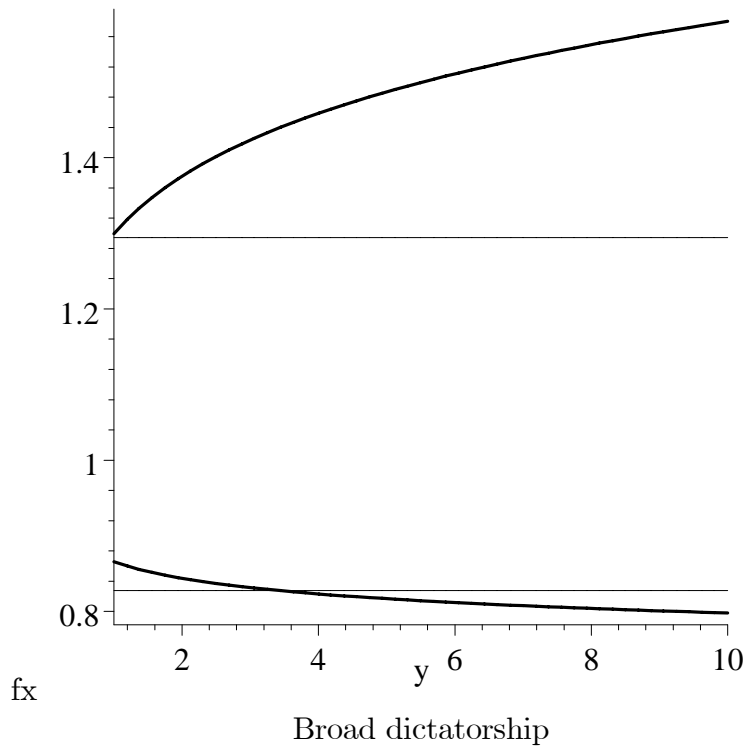


B. One party certain to win

Figure 3: Conditions under which P types opt for democracy over a broad or a narrow dictatorship.

$$\begin{aligned} \tau_1 = 0.39, \tau_2 = 0.25, \rho = 0.9, p = 0.6 \\ \pi_P = 0.4, \pi_R = 0.2, \alpha_R = 2.5 \implies \alpha_P = 0.625 \\ \mu = 0.75, s = 0.5, q = 0.5 \end{aligned}$$

Thick lines represent the value of dictatorship, $k_P(y)$. Thin lines represent the value of democracy when the P types lose the election, $L(P_2)$. Upper parts of each panel are for $\sigma = 1.5$, lower parts for $\sigma = 0.6$.



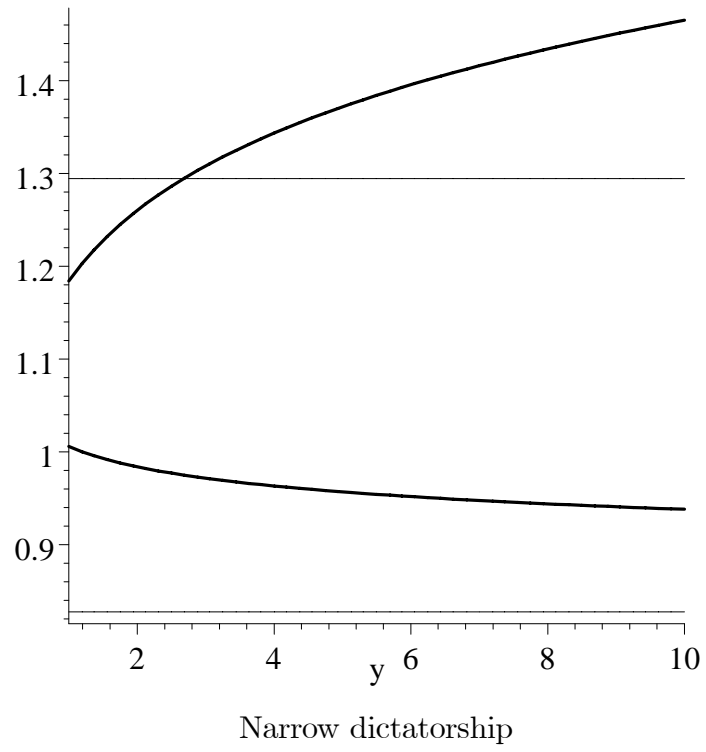


Figure 4: An illustrative equilibrium for narrow dictatorships.

$$\begin{aligned} \tau_1 &= 0.39, \tau_2 = 0.25, \rho = 0.9, \mathbf{p} = 0.6 \\ \pi_P &= 0.4, \pi_R = 0.2, \alpha_R = 3 \implies \alpha_P = 0.5 \\ \sigma &= 0.6, \mu = 0.75, \mathbf{s} = 0.5\mathbf{q} = 0.3333 \end{aligned}$$

High values are for R types, low values for P types. Thick lines represent $\mathbf{k}_j(\mathbf{y})$. Continuous thin lines represent \mathbf{L}_j when a party wins the election; dotted lines when it loses.

