Inequality under Democracy: Explaining "The Left Decade" in Latin America *

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Abstract

Inequality is generally thought to affect the electoral fortunes of the Left, yet the theory and evidence on the question is unclear. This is the case even in Latin America, a region marked by enormous inequalities and by the stunning return of the Left over the last decade. We address this shortcoming. Our game-theoretic model reveals that the probability that the Left candidate is elected follows an inverted U shape relationship. At low levels of inequality, the rich do not bribe any voters and poor voters are increasingly likely to vote for the Left candidate based on redistributive concerns. At high levels of inequality, the rich want to avoid redistribution and bribe poor voters, causing the Left candidate to be elected with decreasing probability. We find support for our hypothesis, using elections in 18 Latin American countries from 1978 to 2008.

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The combination of inequality and democracy tends to cause a movement to the Left everywhere. This was true in Western Europe from the end of the century until after World War II; it is true today in Latin America. The impoverished masses vote for the type of policies that, they hope, will make them less poor.

-Jorge Castañeda 2006

High inequalities bias the political rules of the game and mold polities in favor of the wealthy and privileged. [T]hey do so (to different degrees) whether regimes are authoritarian or democratic.

-Terry Karl 2003

1 Introduction

Over the last decade, the Left in Latin America has been on a roll. Starting with Chávez's breakthrough victory in Venezuela in 1999, Leftist governments quickly surged to power in the largest three countries in the region: Chile (2000), Argentina (2003), and Brazil (2003). Despite Latin America's well-deserved reputation for electoral volatility (e.g. see Roberts and Wibbels 1999), in each of these countries Leftist governments were also re-elected with overwhelming support. Meanwhile, the Left has continued to chalk up a string of impressive victories throughout the rest of the region, including: Uruguay (2005), Bolivia (2006), Costa Rica (2006), Ecuador (2006), Nicaragua (2007), Guatemala (2008), and, most recently, Paraguay (2008). Even in the handful of countries where Leftist parties have not yet managed to win power, the Left has also been on the rise. In Mexico, the PRD's presidential candidate, López Obrador lost the 2006 elections by a hair. In the same year, Peru's Left-wing candidate, Ollanta Humala, came out ahead the first round, losing in the second round by just a little more than 5% of the vote to the Center-Left APRA candidate, Alan García. In Colombia, arguably the Right's biggest stronghold in Latin America, the new Leftist party, Alternative Democratic Pole, did unexpectedly well in the last elections (Castañeda and Navia 2007).

Not surprisingly, Latin America's sudden swerve to the Left has generated a considerable amount of interest.[1] Whereas much of the early academic debates centered primarily on conceptual issues – are there

[1]Both *Foreign Affairs* (May/June 2006 Volume 85) and the *Journal of Democracy* (October 2006 Volume 17, No 4)

one, two, or multiple "Lefts" in Latin America?–, scholars also quickly set about trying to explain the Left's stunning electoral success. A central claim of the emerging literature has been that the rise of the Left in Latin America is somehow linked to the failure of the so-called "Washington Consensus." Neo-liberal reforms may have helped to end bouts of hyper-inflation in the early 1990s, but because these policies ultimately failed to generate sustainable growth, alleviate poverty, and ameliorate the vast inequalities that mark much of the region, the Left is now reaping the benefits. At the same time, however, there has been a noticeable reluctance to attribute too much causal weight for the Left's recent success to underlying structural economic conditions, particularly inequality. After all, if Latin America has long been the most unequal region in the world, why is the Left, which is essentially defined by its commitment to redistribution, only now being elected?

Yet, as we argue in this paper, posing the question in this way is problematic for at least two major reasons. First, from an empirical point of view, we concur that inequality is, and has long been, shockingly high throughout Latin America. But, we also contend that because the distribution of wealth varies both across countries and over time it is premature to dismiss inequality as part of the causal story. Second, from a theoretical point of view, we are intrigued by the apparent inconsistencies that mark discussions about just how inequality shapes political outcomes under democracy. Consider the two quotes cited above. If Castañeda is right, inequality in Latin America and elsewhere should simply drive poor voters who are in the majority to elect politicians that will redistribute resources. If Karl is correct, however, the situation is bleaker. Harkening back to Michel's "Iron Law of Oligarchy," Karl's intuition is that the more the "haves" have the more resistance they will mount to keep the "have-nots" from gaining power; hence the cycle of inequality continues, regardless of regime type.

In this paper, we contend that both views tap into something essential about inequality under democracy, but neither is wholly satisfying. To explain why, we develop a game theoretic model that shows how under competitive democracy the incentives of the poor to support the Left and the rich to block it depend on the level of inequality. Our game contains a finite number of voters, divided into two groups: the rich and the poor. Two candidates, called the Right and the Left candidates respectively, compete for office. There is a single decision taken by the elected politician: the level of a tax, to be redistributed lump-sum

published a series of articles related to the rise of the Left. Also in 2006 the Latin American Program at the Woodrow Wilson Center at Princeton launched a three-year project entitled, "The 'New Left' and Democratic Governance in Latin America." In 2008, Harvard University sponsored a conference on the same theme, entitled, "Latin America's Left Turn: Causes and Consequences."

to all citizens. Candidates are purely ideological and offer the platform favored by their constituency (the rich and the poor, respectively). Candidates also differ on other dimensions, which we summarize by a valence shock incurred by all citizens. Following an important line of literature (Olson 1971), we assume that the rich, being a smaller group, are better able to solve their collective action problem to form a lobby, which can offer bribes to get the candidate on the Right elected.

Then we show that the probability that the Left candidate is elected follows an inverted U shape relationship. At relatively low levels of inequality, redistribution is low enough that it is not optimal for the rich lobby to offer any bribes. Since redistribution increases with inequality, the median voter (who is poor) is increasingly willing to vote for the Left candidate. When inequality is sufficiently high, the rich lobby bribes a minimum winning coalition of voters. As inequality increases, the lobby's willingness to get the candidate on the Right elected increases, since it fears greater and greater redistribution, and consequently offers enough bribes to decrease the probability that the Left candidate is elected.

In focusing on the level of inequality as our main causal variable, our theory contributes to a well established literature in comparative politics (Muller and Seligson 1987; Alesina and Perotti 1996; Boix 2003; Acemoglu and Robinson 2000; 2001; 2006). But, whereas the bulk of this work concentrates on the effects of inequality on democratization and regime change, we join in the emerging effort to explore the effects of inequality once the rules of democracy are already in place (cf. Ziblatt 2008). Using a political economy approach, the twist to our theory lies in explaining precisely how the level of inequality continues to affect political outcomes in environments such as present-day Latin America, where regime change–to put it bluntly– is no longer an option.

The model closest to ours is Acemoglu and Robinson (2008), who show how elites can influence political outcomes even if they do not have the legal (or de jure) advantage. They compare the elite's rate of success in democracy and non-democracy and study, among other things, the way that this rate of success varies with the size of the stakes for determining economic policy (which we could translate, in our framework, as inequality). They conclude that the probability that a pro-poor policy is implemented in a democracy is strictly decreasing with the size of stakes for determining economic policy. By contrast, we predict that this probability should first be increasing and then decreasing with inequality. The difference comes from our treatment of the process for determining economic policy. In Acemoglu and Robinson (2008), an individual can increase the probability that his favorite outcome is implemented only by investing in de

facto power (through practices such as intimidation, lobbying and vote-buying). Given that the poor face an insurmountable collective action problem, they do not invest in de facto power. Only the rich invest in de facto power and, naturally, as the size of the stakes increases, they invest more in de facto power and the likelihood that the pro-poor policy is implemented goes down. In our model, an individual can influence the electoral outcome by exercising his de jure power (i.e. by voting). As inequality increases, the poor are more willing to vote for redistribution. For low enough levels of inequality, the benefit of exercising de facto power for the rich is too low, compared to its cost, so that the poor's increasing willingness to vote for the Left party is solely operating and translates into a higher likelihood that the Left party is elected. Only when the rich do invest in de facto power (through vote-buying) does their increased resistance to redistribution determine the electoral outcome.

More generally, our model provides a new angle to understanding the relationship between inequality and redistribution. Meltzer and Richard (1981) argue that the expansion of the franchise explains the rise of the Welfare State in the West: as the median voter gets poorer, then the political equilibrium favors greater redistribution. Subsequent evidence on the matter has been inconclusive at best (see in particular Benabou 1996 and Perotti 1996 and the discussion in Persson and Tabellini 2000, pp.52, 121-123).[2] In a recent article, Iversen and Soskice (2006) go a long way toward toward resolving the specific question of why Leftist parties get elected in advanced industrial democracies, arguing that PR systems are more favorable for the Left than majoritarian systems. But this argument has limited reach in explaining variation in a region such as Latin America, where all countries have presidentialist systems. Another common feature of politics in Latin America is the relatively weak rule of law, which makes such countries vulnerable to vote-buying. We exploit this feature in our explanation of the rise of the Left in the last decade.

On that note, our model also contributes to a rich literature on vote-buying.[3] Our model is distinctive for its assumption that the lobby represents a given group of voters (and maximizes their ex ante utility), combined with the fact that there is some uncertainty about the preferences of the electorate, and the

[2]Other solutions to the Meltzer and Richard (1981) puzzle include Campante (2007). In his model, ideological parties pick a platform, compete for campaign contributions from voters and the policy implemented is a weighted average of the policy platforms, with weights given by the vote share of each party. He shows that at high levels of inequality, redistribution decreases because parties propose platforms preferred by wealthier individuals, who can offer greater contributions. Interestingly, the model predicts an inverted-U shape relationship between inequality and redistribution.

[3]The first paper modeling vote-buying (by a lobby) may be Snyder (1991). Seminal papers include Groseclose and Snyder (1996) and Banks (2000), studying the optimal size of a winning coalition when two groups can bribe voters. A few papers have approached political campaign promises in the framework of a Colonel Blotto game. Myerson (1993) studies a game where two parties spend a fixed budget in bribing voters for their support, assuming that the budget has to hold in expectation only. More recent contributions in the vote-buying literature include Dal Bo (2007) and Dekel, Jackson and Wolinsky (2008).

emphasis on redistributive politics, where inequality is a measure of the stakes of the election.

Substantively, our story is consistent with the broad finding that clientelism targets the poor. The major explanations of such a finding contrast clientelistic parties with programmatic parties, where the former offer private benefits to voters in exchange for their vote, while the latter promise to implement (public good) programs.[4] It is argued that poor voters are more susceptible to clientelistic offers either because of their greater risk aversion (Kitschelt 2000; Wantchekon 2003) or because of diminishing marginal utility of income (Dixit and Londregan 1996; Calvo and Murillo 2004; see Stokes 2008 for a review of both literatures). Elaborating on recent work by Nazareno et al. (2006; 2008), which casts doubt on the risk aversion approach, our model identifies a new set of general conditions linking poverty and clientelism, which does not rely on risk-aversion or on dimishing marginal utility of income. Rather, we show that *if* the particular benefits are paid for by relatively affluent voters *and if* they are handed out to maximize the expected fortune of relatively affluent voters, then they will necessarily be targeted to poor voters.

The remainder of the paper unfolds as follows. Section 2 presents our formal model. The next section tests our model against several alternative explanations using an original cross-national time-series dataset on elections in eighteen Latin American democracies between 1978 and 2008. In addition to finding strong support for our main hypothesis, we bring fresh evidence to bear on a series of alternative hypotheses rooted in theories ranging from retrospective voting and democratic consolidation to post-Cold War politics and the legacy of mass-mobilizing party systems. Section 4 summarizes our results and discusses several implications that emerge from our analysis. Proofs, tables and figures are relegated to the appendix.

2 Model

2.1 Set-Up

There is a set N of voters, who belong to one of two groups, the rich or wealthy (W) and the poor (P). Write $g(i)$ as the group of individual i ($g(i) \in \{W, P\}$). The poor constitute the larger group in the population. Let $|S|$ be the size of set of individuals S. We have $|P| > |W|$ and $|N|$ odd.

[4]For a formal model of parties choosing between offering private goods and public goods, see Lizzeri and Persico (2001).

The income of individual i is $y^{g(i)}$, where

$$\begin{aligned} y^W &= \frac{\theta}{|W|}y \\ y^P &= \frac{(1-\theta)}{|P|}y \end{aligned}$$

where θ is an index of income inequality ($\theta \in (\frac{|W|}{|N|}, 1)$), y is the total income in the economy.

There is a single political decision taken by the government, an income tax rate τ, with the proceeds redistributed equally to all members of society. Taxation produces a deadweight loss of $C(\tau)\frac{y}{|N|}$. We assume that this cost of taxation is null when there is no tax ($C(0) = 0$), increasing in the tax rate ($C'(\tau) > 0$) and increasing at an increasing rate ($C''(\tau) > 0$), with tax rates close to 1 being prohibitively inefficient ($C'(1) > 1$). Call $ny^{g(i)}(\tau)$ the net income of an individual i when a tax rate τ is implemented. We have

$$ny^{g(i)}(\tau) = (1-\tau)y^{g(i)} + (\tau - C(\tau))\frac{y}{|N|}$$

There are two candidates c running for election, one candidate represents the poor and is called the Left candidate ($c = L; g(L) = P$) and another represents the wealthy and is called the Right candidate ($c = R; g(R) = W$). The Left candidate wants to maximize redistribution to the poor, while the Right candidate wants to maximize redistribution to the wealthy.[5] The utility of a candidate c is written succinctly:

$$u^c(\tau) = ny^{g(c)}(\tau) - ny^{g(c)}(0)$$

Citizens evaluate candidates on the tax policy that they expect them to implement and on a series of other dimensions. Let there be a aggregate valence shock s for the Right candidate (experienced by all citizens). Let $F(s)$ be the cdf of s and $f(s)$ the corresponding pdf. We assume that s follows a logistic distribution with mean $\mu \geq y$.[6]

We assume that the poor, due to the larger size of their group, face a relatively more serious collective

[5] A candidate who seeks to maximize redistribution for members of his group has the same preferences over tax rates as a candidate who wants to maximize the net income of members his group (i.e. the preferences over tax rates would be the same as in a citizen-candidate model where the utility function is $u^c(\tau) = ny^{g(c)}(\tau)$). We keep the current set-up to emphasize that candidates care about 'making a difference', i.e. maximizing redistribution to their group.

[6] We assume that s follows a logit distribution so as to match the empirical estimation of section 3. We also assume that $\mu \geq y$, which generates relatively low probability that a Left candidate is elected (as observed in the data).

action problem than the rich (Olson 1971). As a consequence, there is a single lobby, Wl, which represents the interests of the wealthy. The lobby attempts to affect the election outcome through offering targeted benefits to voters or, more precisely, a 'bribing schedule' $b(.) : \{1...|N|\} \to \mathbb{R}_+$. In this baseline model, bribes are credible promises which are paid if and only if the Right candidate is elected. We can interpret this set-up in different ways, each capturing some aspects of clientelism as surveyed in the literature. First, it captures the disbursement of patronage benefits, i.e. the transfer of government resources if and only if the Right party is elected. Second, it captures a set-up where private goods are offered prior to the election and the lobby can costlessly punish every voter who received such bribes if the Right party is not elected.[7] Vote-buying is assumed to an inefficient transaction, so that if the Right candidate is elected, the total cost to the lobby is $\gamma \sum_{i \in N} b(i)$, where $\gamma \in \left(1, \frac{|P|}{\frac{|N|+1}{2} - |W|}\right)$.[8]

The wealthy lobby maximizes the ex ante utility of all wealthy citizens minus the cost of providing bribes. Assuming that a tax rate τ^L, τ^R are the tax rate proposed by the Left and the Right candidate, respectively, and the bribing schedule is $b(.)$, then the lobby's payoff is:

$$u^{Wl}(\tau^L, \tau^R, b(.)) = \sum_{i \in W} \left[\int_{s:E=L} n y^W(\tau^L) dF(s) + \int_{s:E \neq L} \left(n y^W(\tau^R) + s + b(i) \right) dF(s) \right] - \sum_{i \in N} \int_{s:E \neq L} \gamma b(i) dF(s)$$

where $E \in \{L, R\}$ is the outcome of the election. Let $v(i, b(i), s)$ be the voting decision of individual i as a function of the bribe offered to him by the lobby, $b(i)$, and the aggregate preference shock s. $v(.,.,.) : \{1...|N|\} \times \mathbb{R}_+ \times \mathbb{R} \to \{L, R\}$.

2.2 Timing

1. Wealthy lobby picks a bribing schedule $b(.)$ to offer to voters

2. The valence shock s is realized

[7] We should note that the main conclusion of the model, as outlined in corollary 1, are robust to different specifications of vote-buying. A natural alternative would be to assume that bribes to individual i are contingent on individual i's vote. This set-up raises some difficulties. First, it assumes that the lobby can monitor individual votes, which is strictly more difficult to achieve. Second, it generates multiple voting equilibria, as voters face a coordination problem when they are offered positive bribes but prefer the Left candidate to be elected. Nevertheless, under some relatively general restrictions on the way that this coordination problem is solved, we obtain a unique equilibrium outcome, producing the result in corollary 1. Also, we could model bribes as an *investment* in the electoral success of the Right party, shifting the distribution of the preference shock s for the Right candidate by $b(i)$. In this case, the cost of a bribe would be paid up front by the lobby, but the benefits would accrue to the targeted voter only if the Right candidate is elected. Corollary 1 continues to hold in that set-up.

[8] We assume that $\gamma > 1$ only to ensure that there is a unique optimal bribing schedule. If $\gamma = 1$, we still obtain that there is a unique outcome of the voting game and the results go through. We assume $\gamma < \frac{|P|}{\frac{|N|+1}{2} - |W|}$ as a sufficient condition to our main corollary, as explained below.

3. Citizens pick their voting decision $v(.,.,.)$

4. Election outcome E is realized

5. Elected candidate implements the tax policy τ and payoffs are realized

2.3 Solution Concept

We solve for a subgame-perfect equilibrium and we let voters pick weakly undominated strategies. Let $\{\sigma^{Wl}, \{\sigma^i\}_{i=1}^{|N|}, \sigma^L, \sigma^R\}$ be a strategy combination, where $\sigma^{Wl} = b(.)$ is the bribing schedule by the wealthy lobby; $\{\sigma^i\}_{i=1}^{|N|}$ are the voting decisions for each individual, $\sigma^i = v(i, b(i), s)$; $\sigma^L = \tau^L$ and $\sigma^R = \tau^R$ are the tax policies of each candidate. The strategy combination $\{\sigma^{Wl}, \{\sigma^i\}_{i=1}^{|N|}, \sigma^L, \sigma^R\}$ is a subgame-perfect equilibrium if strategies form a Nash equilibrium in each proper subgame. Moreover, voting decisions are weakly undominated if they satisfy the following restriction. Write the net benefit of the Left candidate for individual i, when he is offered a bribe $b(i)$ and the aggregate preference shock is s, as $n(i, b(i), s) = ny^{g(i)}(\tau^L) - ny^{g(i)}(\tau^R) - s - b(i)$. Then weakly undominated strategies require that $v(i, b(i), s) = L$ if and only if $n(i, b(i), s) \geq 0$.[9] Write * for equilibrium strategies.

2.4 Solution of the Model

We solve the game backwards. The tax rate implemented by a candidate c solves the following problem:

$$\tau^c = \arg\max_{\tau} ny^{g(c)}(\tau) - ny^{g(c)}(0)$$

We get $\tau^R = 0$ since $\theta > \frac{|W|}{|N|}$, while τ^L satisfies

$$C'(\tau^L) = 1 - \frac{|N|}{|P|}(1 - \theta) \tag{1}$$

with the property that $\frac{\partial \tau^L}{\partial \theta} > 0$ since $C''(.) > 0$.

Moving up, consider the voting decision. It is clear that there is a (generically) unique election outcome.

Claim 1 *The Left candidate is elected if and only if there is a majority of voters for whom* $n(i, b(i), s) \geq 0$.

Proof. *Obvious, since individual* i *votes for candidate* $c = L$ *if and only if* $n(i, b(i), s) \geq 0$. ■

[9] Voting strategies are undetermined in the case where $n(i, b(i), s) = 0$, but there is no problem in assuming that the voter votes for the Left candidate in this case, which happens with probability 0.

Moving up, consider the decision by the lobby to offer bribes. First, we can show the following claim:

Claim 2 *In any equilibrium, there is a set of poor voters P_+, such that the following conditions hold:* (i) $\sum_{i \in N} b^*(i) = \sum_{i \in P_+} b^*(i)$, (ii) $|P_+| = \frac{|N|+1}{2} - |W|$, (iii) *there is a* $0 \leq b_P \leq \left[ny^P(\tau^L) - ny^P(0)\right] - \left[ny^W(\tau^L) - ny^W(0)\right]$ *such that for all* $i \in P_+$, $b^*(i) = b_P$.

Proof. *See the appendix.* ■

This claim shows that, in any equilibrium, the lobby only buys off poor voters (i), the set of poor voters who receive bribes form a minimum-winning coalition with the wealthy (ii), and every voter who receives targeted benefits receive the same level of benefits (iii). The intuition behind these results is as follows. First, the cheapest coalition for the lobby, to get the Right candidate elected, consists of all wealthy citizens and a minimum-winning coalition of the poor. Since every poor voter has the same income, anyone targeted by the lobby should receive the same level of benefits.

But why does the wealthy lobby only target poor voters? It is clear that bribes should only target marginal supporters to affect the election outcome. Initially, these voters are poor since rich voters are a minority and care the most about getting the Right candidate elected. But there is a level of bribes offered to some set of poor voters (P_+) that is high enough that these poor voters care as much about the election of the Right candidate as wealthy voters. To increase the probability that the Right candidate is elected, the lobby should increase the bribes offered to poor voters, but should also offer some bribes to wealthy voters, who from then on become marginal supporters for the Right candidate. Why are these bribes unacceptable? They cannot be offered in any equilibrium because the only cases where bribes offered to wealthy voters affect the election outcome are those where the preference shock is so much in favor of the Left candidate that the wealthy voters would not want the Right candidate to be elected (ex ante). Since the lobby maximizes the ex ante utility of wealthy voters, it never wants to get the candidate elected in those cases.

This result is interesting in its own right given a consistent finding in the large literature on clientelism, which states that private benefits typically target the poor. Scholars have advanced various explanations for this phenomenon, including risk-aversion and diminishing marginal utility of income. The current set-up offers a simple explanation which shows that neither of these factors is necessary for the finding. *If* the particular benefits are paid for by relatively affluent voters *and if* they are handed out to maximize

the expected fortune of relatively affluent voters, then they will be targeted to poor voters. Targeting relatively affluent voters only increases the probability of the Right candidate being elected in cases where the preference shock is too much in favor of the Left candidate, in the minds of relatively affluent voters.

Given the relatively simple structure of the optimal bribing schedule, we can show the following proposition:

Proposition 1 *There is a unique optimal bribing schedule b_P^* for any value of inequality θ. Moreover, there is a value $\overline{y}$ such that for any $y > \overline{y}$, there is a value $\overline{\theta} \in \left(\frac{|W|}{|N|}, 1\right)$ such that (a) for any $\theta \in [\frac{|W|}{|N|}, \overline{\theta}]$, $b^*(i) = 0$ for all i and (b) for any $\theta \in (\overline{\theta}, 1]$, there is a set $P_+ \subset P$, with $|P_+| = \frac{|N|+1}{2} - |W|$, such that*

$$b^*(i) = \begin{cases} b_P^* & \text{for } i \in P_+ \\ 0 & \text{otherwise} \end{cases}$$

where b_P^* is given implicitly by

$$\left[\frac{|N|+1}{2} - |W|\right] \gamma \left[(1 - F(\overline{s})) + f(\overline{s}) b_P\right] = |W| \left[ny^W(0) - ny^W(\tau^L) + \overline{s}\right] f(\overline{s}) \tag{2}$$

where

$$\overline{s} = ny^P(\tau^L) - ny^P(0) - b_P$$

Proof. *See the appendix.* ■

This proposition states that there is a unique optimal bribing schedule. The lobby always targets bribes to a minimum winning coalition, as shown in claim 2. Whenever these bribes are positive, the optimal amount equates the marginal cost of a bribe (the left-hand side of (2)) to the marginal benefit of a bribe (the right hand side of (2)). The marginal cost of a bribe takes into account the fact that bribes are targeted to a group of poor people of size $\frac{|N|+1}{2} - |W|$, that they cost γ to provide due to inefficiency of vote-buying, and that they increase the total cost of vote-buying if marginally lower bribes would have been accepted (which happens with probability $1 - F(\overline{s})$) or if they affect the election outcome (parametrized by the density $f(.)$ evaluated at $\overline{s}$). The marginal benefit of a bribe to the lobby sums over all wealthy citizens ($|W|$) the level of redistribution avoided ($ny^W(0) - ny^W(\tau^L)$) and the valence shock experienced ($\overline{s}$) if a marginal increase in bribes affects the election outcome (parametrized by the density $f(.)$ evaluated at $\overline{s}$).

It is clear that if inequality is low enough ($\theta < \overline{\theta}$), the wealthy lobby does not offer any bribe. To see this, note that the marginal benefit of a bribe converges to (at most) 0 when the distribution of income converges to perfect equality ($\theta = \frac{|W|}{|N|}$), since the Right and Left parties converge to the same proposed tax rate. The marginal cost of a bribe, however, is strictly bounded away from 0, since the wealthy lobby must target a strictly positive number of poor voters to affect the election outcome. Therefore, there are levels of inequality low enough that the wealthy lobby does not offer any bribe.

We also state that if income is sufficiently high ($y > \overline{y}$), there are levels of inequality high enough that the wealthy lobby does offer some bribes ($\overline{\theta} < 1$). To see this, note that if the distribution of income is perfectly unequal ($\theta = 1$), the marginal benefit of bribes is strictly increasing in income. In other words, given that the tax rate is fixed for a given level of inequality (1), if the rich own all the economy's income, then the *amount* of redistribution avoided from getting the Right candidate elected increases with income. Moreover, if the distribution of income is perfectly unequal, the marginal cost of a bribe is decreasing in income for a level of bribes of 0. To see this, note that when bribes are equal to 0, the cost of marginally affecting the election outcome is 0. Moreover, as income increases, the poor are more reluctant to vote for the Right candidate, so that it is less likely that the Right candidate would have been elected without any bribe. Therefore, there are levels of income sufficiently high that the wealthy lobby offers some bribes when inequality is high enough.

Consider the case where the wealthy lobby offers some bribes ($\theta > \overline{\theta}$). As redistribution increases with inequality, the rich certainly have a greater incentive to get the candidate on the Right elected, but by the same token the poor have a greater incentive in getting the candidate on the Left elected. It may seem that the net effect of inequality on the probability that the candidate on the Left is ambiguous, but we can show in the following corollary that this is not the case:

Corollary 1 *The probability that the Left candidate is elected is increasing with inequality when inequality is below the cut-off $\overline{\theta}$ and decreasing with inequality when inequality is above the cut-off $\overline{\theta}$. In other words,* $\frac{\partial prob(E=L)}{\partial \theta} \gtrless 0 \Leftrightarrow \theta \lesseqgtr \overline{\theta}$

Proof. *See the appendix.* ■

This corollary gives us the main prediction of the model: an inverted U shape relationship between inequality and the probability that the Left candidate is elected (see figures 1 through 3 for a graphical

illustration). At low levels of inequality, the lobby does not offer any bribe to poor voters. The probability that the Left candidate is elected is then increasing with inequality, since redistribution is increasing with inequality and redistributive concerns are more likely to overwhelm any other consideration (captured in the preference shock s) for the poor median voter. When inequality increases above $\overline{\theta}$, the rich are willing to pay more to get the Right candidate elected, but the poor are also more reluctant to vote for the Right candidate. Which effect dominates? Given that taxes are inefficient, the cost of redistribution for the rich is greater than the benefit of redistribution for the poor. Therefore, the rich's resistance to inequality dominates, if vote-buying is not too inefficient (recall that the cost of producing a bribe of b_P is γb_P, so that the cost of producing a bribe to the minimum-winning coalition of the poor is lower than the cost of compensating all poor voters if $\gamma < \frac{|P|}{\frac{|N|+1}{2}-|W|}$). Put succinctly, as inequality increases, the probability that the Left candidate is elected decreases.

3 Empirical Analysis

3.1 Data

To examine whether our theoretical predictions are borne out empirically, we have assembled a cross-national time-series dataset on Latin American elections covering 18 countries in the region. The dataset contains a total of 102 elections spanning the entire third wave democratization period from 1978-2008. Our dependent variable, $Left_{it}$, is a dummy variable designed to capture the ideology of the elected president in a given country i and year t.[10] Note that here we are focusing on explaining the rise of "pure" Left governments, that is, candidates who ran on a platform centered around redistribution. Thus, we exclude catch-all parties, such as AD in Venezuela or the Liberal party in Colombia, as well as Center-Left alliances, such as the UCR-FREPASO Alianza in Argentina.

[Table 1 about here]

Table 1 lists the twenty Leftist Presidents in our dataset. Consistent with the "rise of the Left" narrative that dominates the literature, most of these presidents were elected (and some re-elected) post 2000. The

[10]To code the Left, we used a variety of sources on party ideologies in Latin America including Coppedge (1997), when available, Castañeda 2006; Cleary 2006 and Weyland 2008. We focus on the election of Left candidates, as opposed to the vote share of the Left candidate, as it is the main variable of interest in constructing the model and establishing the comparative statics.

four exceptions to this pattern are Alan García, who was elected President of Peru in 1985, Daniel Ortega, leader of the FSLN revolutionary party, elected as President in Nicaragua in 1985, Jaime Paz Zamora, elected President of Bolivia in 1989, and Rodrigo Borja, elected President of Ecuador in 1988.[11]

Perhaps the biggest empirical challenge to testing our theory has been to identify adequate measures of inequality. As Houle (2008) notes, there are several reasons to prefer measuring inequality using labor share measures rather than standard Gini coefficients. In particular, because Gini coefficients are constructed by the countries themselves, with some countries reporting pre-tax income distribution and others post-tax income distribution, inter-country comparisons are problematic. That said, the problem we confront with using labor share measures is that there are simply no available data for more recent years. To make the dataset as current as possible, we employ the United Nations University's World Institute for Development Economics Research (UNU-WIDER) database. This database builds on the former Deininger and Squire study and collects Gini data from a wide range of sources.[12] From these data, we constructed our main independent variables, $Inequality_{it-1}$ and $Inequality^2_{it-1}$, by taking the raw inequality measure from the closest year before any election year t in country i. If there are no measures available prior to the election, we take the closest future measure of inequality[13]. If there is more than one measure for inequality for a given country year, we take the average.

Latin America, as many observers have previously noted, is the most unequal region in the world (Karl 2003). Indeed, it is for this very reason that scholars often consider inequality as one of the main underlying structural conditions for the Left's success in Latin America (Castañeda 2006; Cleary 2006; Levitsky and Roberts 2008). Yet, the key point here is that inequality also varies substantially within Latin America both over time and, most especially, across countries. Thus, while the mean inequality level for the region is 50.94, the inequality scores range from a low of 36.85, reported for Peru in 1990, to a high of 65.35 reported for Ecuador in 1979.

[11]Note that we have not included Alan García's second government (2006-present) as a Leftist government. In this second election, Ollanta Humala was the Leftist candidate, while Garcia moved more the Center.

[12]It has been used in comparative studies in the field, for example Huber et al. (2006). We are aware of the difficulty in making comparisons across countries and time using the UNU-WIDER database, but we see it as our best available option. The Standardized Income Inequality Data (SIDD), described in Babones and Alvarez-Rivadulla (2007), tackles such issues of comparability, but we have decided against using its latest version (SIDD-3) for the same reason that we did not use the data on labor shares. For 8 of the 18 countries, SIDD-3 reports a single value of inequality for the whole time period; for all the remaining countries, the Gini coefficient is extrapolated (and staying constant) from about the mid-1990s onwards. This is problematic as we try to explain the rise of the Left in the last decade.

[13]We had to use this only for one observation, the 1990 election in Nicaragua, since the first available measure of inequality is from 1993.

[Table 2 about here]

Table 2 underscores this point by listing countries according to their mean levels of inequality and by the peak level and peak year of inequality for each country. Bearing out the overall claim that the relationship between inequality and democracy is more complex than commonly noted, countries with the lowest average levels of inequality include some of the countries considered among the most stable and prosperous in the region, such as Uruguay and Costa Rica, but also some of the region's most troubled cases, including Venezuela, El Salvador, and Paraguay. Likewise, at the highest levels of inequality we find some of the region's wealthiest and highest performing democracies (Chile and Brazil) alongside of some of the poorest and least functional governments (Bolivia and Honduras).

In the vast majority of these countries, just as critics of neo-liberalism claim, inequality rose sharply in the mid and late 1990s.[14] Yet, in accordance with what our theory predicts, we also see that inequality within the region has also converged in the last decade. In other words, inequality has decreased in high-inequality countries (such as Brazil) and increased in low-inequality countries (such as Argentina and Uruguay; see Figure 4).

Moreover, note that in most of these cases the relationship between the Left winning and inequality is not monotonic. Rather in the majority of countries the Left wins when inequality levels are already relatively low compared to peak levels. In Brazil and Chile, centrist incumbent governments had already started to bring inequality levels down from record highs prior to the Left coming to power. Likewise, in Paraguay, Guatemala, Costa Rica, Bolivia, and Ecuador notice that inequality is already trending downward by the time the Left wins power. While the descriptive patterns of the relationship between the Leftist turn and inequality for individual countries are broadly reassuring, we now turn to regression analysis to test systematically our theory. As part of this effort, we also include a host of additional variables to control for several alternative explanations for the Left's success.

[14]The three exceptions to this trend are Guatemala, Nicaragua, and Brazil.

3.2 Alternative Hypotheses and Control Variables

3.2.1 Incumbency and Economic Voting

One of the most compelling alternative accounts connects the recent success of the Left in Latin America to a standard retrospective theory of voting behavior (e.g. Panizza 2005; Cleary 2006; Levitsky and Roberts 2008; Murillo et al 2008). Following this logic, Levitsky and Roberts (2008) point out that the economic downturn in Latin America between 1998-2002 led voters to reject incumbents. In their words, "Latin America's Left turn may be as much a product of anti-incumbent voting as it was a product of "Left" voting" (*Ibid.* 2008: 25). Because most incumbents in the region were Right or Center-Right, this ushered in an era of new Left-wing governments, many of which have been reelected subsequently due to the economic turnaround in the region post 2003 (*Ibid.* 2008: 24-26).

In this vein, Murillo et al. (2008) consider both whether the likelihood of the Left vote share increases when Right-wing governments are in power (incumbent rotation) and whether the likelihood of the Left vote share increases in response to the economic successes or failures achieved by a Right incumbent government (incumbent performance). Whereas the authors finds modest support for the incumbent rotation hypothesis (the effect of a Right-wing incumbent on Left-wing candidate voter share is between 6 to 12 percentage point increase), evidence for the incumbent performance hypothesis is more mixed. The inability of Right incumbents to control inflation benefits the Left, but so, it seems, does high growth produced by Right governments (*Ibid.* 2008: 25). Thus, we are left with the rather puzzling result that voters in Latin America punish Rightist incumbents for high inflation, but do not reward them for high growth.

Here we assess the first of these hypotheses by constructing a dummy variable, $Right\_Incumbent_{it}$, which is coded on the basis of the incumbent president's ideology prior to the election year we wish to explain. Similar to the coding of the Left variable, we used the same sources to code the ideology of the incumbent president. Where elections were held for the first time, we code the ideology of the dictatorship for the incumbent ideology (which is usually, but not always, Right-wing). To control for the direct effects of the economy on vote choice, we employ two economic variables, $Growth_{it-1}$ and $Inflation_{it-1}$, based on lagged data reported by the World Bank. To explore whether incumbents are punished/rewarded for economic performance, we then construct two additional variables, $Growth\_Dir_{it-1}$ and $Inflation\_Dir_{it-1}$, by multiplying each of the economic variables, $Growth_{it-1}$ and $Inflation_{it-1}$, by 1 when the incumbent is

Left and by -1 when the incumbent is Right.[15]

3.2.2 Party System and Mass Mobilization

Another explanation for the rise of the Left takes a more historical view, focusing on the legacy of labor and the capacity for mass mobilization. Building on a pioneering study by Roberts (2002), which distinguishes between elite-mobilizing and mass-mobilizing party systems, Cleary (2006) argues that the recent success of the Left in Latin America has largely been confined to countries with a tradition of mass-mobilizing party systems (Argentina, Bolivia, Brazil, Chile, Peru, and Venezuela). The logic of the argument is that even in contexts where the Left has been weakened (either through direct military repression in the 1970s or through the indirect vagaries of the market economy in the 1980s and 1990s) the new post-2000 Left is able to draw on some latent capacity among the poorer sectors for organization and mobilization.

To explore whether the party system legacy affects the likelihood that the Left will win power, we construct the dummy variable $Mass\_Mob_i$, which is coded 1 for countries Roberts (2002) identifies as mass-mobilizing (Argentina, Bolivia, Brazil, Chile, Mexico, Nicaragua, Peru, Venezuela, El Salvador and Guatemala) and 0 for countries identified as elite-mobilizing (Colombia, Costa Rica, Dominican Republic, Ecuador, Honduras, Panama, Paraguay, Uruguay).[16]

3.2.3 Age of Democracy and Cold War

A different type of historical explanation concentrates instead on the transformation of the Left and democratic consolidation. Chávez aside, one of the most prominent features of the Left in Latin America today is moderation. A recent paper by Weyland (2008) underscores the relative continuity between the neo-liberal economic policies implemented by the Right and those being implemented by today's Left. Consider the case of Chile. Lagos and Bachelet may share the same party as Allende, but both Presidents have been wholly committed to the market model implemented under Pinochet and attempt to soften the "hard edges" of capitalism mostly by using a mix of different social policies (*Ibid.* 2008: 17). Likewise, despite the fierce anti-neoliberal rhetoric of his campaign, current Ecuadorian President Rafael Correa has

[15]This is a standard approach to evaluating the effect of economic variables on incumbents (see Fair 1978, 1996).

[16]Note that Roberts (2002) does not include El Salvador and Guatemala, but to avoid losing observations from our dataset, we have coded them as elite-mobilizing countries. Our results, reported below, however, are robust to specifications that exclude both countries.

thus far refused to end dollarization. Weyland points out that even Chávez, with his supposed commitment to 21st century socialism, has not enshrined redistributionary policies into law, using them instead as a source of patronage to generate votes (*Ibid.* 2008:9).

While the moderation of the new Left may disappoint some stalwart Leftist ideologues, others interpret it as sign of healthy democracy. Drawing on Boix's (2003) logic about the constraints that mobile capital impose, Cleary (2006) notes that today's Left in Latin America is far less threatening to the Right and, as a result, far more appealing to citizens who earlier rightly feared that electing the Left was tantamount to triggering a military coup. In the same vein, Castañeda (2006) notes the transformation of the Left following the end of the Cold War. The Left in Latin America today is surely less associated with the Russian Revolution, than with Western European social democracy. As Murillo et al (2008) suggest however, the process of incorporating the Left into peaceful democratic politics is also linked with amount of time that each country has spent under democracy. Perhaps because citizens and elites in older democracies have had more time to update their beliefs about the relatively moderate nature of the post-Third Wave Left, the expectation is that the Left is more likely to win votes as democracy ages.

To control for these influences, we construct the continuous variable $Age\ of\ Democracy_{it}$, which records the number of years that each country has spent under democracy since the last democratic transition for a given election year. We assess the impact of the international context on the probability of the Left winning by creating a dummy variable, $ColdWar_t$, which is coded "1" for elections prior to 1990, and "0" for elections from 1990 onwards.

3.3 Analysis

Table 3 presents the models used to test our hypotheses alongside several alternative explanations. Given that our dependent variable, $Left_{it}$, is dichotomous, we employ standard logit models and estimate robust standard errors, clustering by country.

[Table 3 about here]

A central implication from our theory concerns the effect that the level of inequality has on the probability of the Left winning in a given country i at year t. Specifically, we predict an inverted U-shaped

relationship where the probability of a Leftist president getting elected increases in inequality up to the point where the rich face incentives to bribe poor voters and then decreases thereafter. Thus, we run a maximum likelihood estimation of the following logit model, $prob(\text{Left elected}) = \Lambda(X\beta) = \frac{\exp(X\beta)}{1+\exp(X\beta)}$, where

$$X\beta = \beta_0 + \beta_1 Inequality_{it-1} + \beta_2 (Inequality_{it-1})^2 + \beta_{3-N} Control\ Variables_{it}$$

Evidence would be consistent with our hypothesis if the sign of the coefficient for $Inequality_{it-1}$ is positive and the sign for $Inequality^2_{it-1}$ is negative, indicating an inverted U-shape effect. This is precisely what we find, with the coefficients getting the correct sign and achieving a level of significance of .01 or better. Figure 5, which plots the probability of the Left winning against the level of income distribution, clearly shows the inverted U-shaped pattern that we predict. This figure is based on the parameter values obtained in model 3, looking at a country in the post cold war period, with age of democracy taking its average value in this period, with a Right-wing incumbent, in a non-mass mobilizing country, and growth, inflation taking their average value in the whole sample. With these countries, the probability of a Left government being elected is increasing until the country has a Gini coefficient of about 52, and decreasing from then on.

[Figure 5 about here]

Whereas our results remain significant and unchanged throughout each specification, the same cannot be said of some of the other hypotheses. For instance, we find no evidence that either the end of the Cold War or the age of democracy has any effect on the likelihood that a Left-wing president will come to power. $ColdWar_t$ fails to achieve significance in both Models 2 and 3, and, contrary to what the hypothesis predicts, the sign is positive most of the time. $Age\ of\ Democracy_{it}$ does not seem to matter for the Left either. Although the sign is in the right direction, positive, the coefficient never achieves statistical significance. One possible explanation is that more mature democracies also tend to be more centrist. Of the three oldest democracies in Latin America, Costa Rica, Colombia, and Venezuela, only the latter has ever had a successful "Left" party, as opposed to Center-Left parties such as the PLN, the Liberal Party, and the AD. Indeed, this may be why Murillo et al (2008: 23), who use a different measure of the Left, find a slightly enhanced, albeit still quite muted, effect of the age of democracy of the Left's vote share.

Turning to economic voting, in Model 2 the sign for $Inflation_{it-1}$ is in the expected direction. Although it does not achieve statistical significance, substantively inflation does appear to exert a modest negative effect on the Left's chances for success. For example, if we hold all other values at their means and increase inflation from the mean by one standard deviation, the Left's probability of success declines from around 8 percent to less than 1 percent. Like Murillo et al (2008), however, we find scant evidence that the Left benefits when Right-wing candidates fail to deliver growth.[17]

Yet contrary to Murillo et al.(2008), we find no evidence for the simple incumbent rotation hypothesis. Indeed, in both models 2 and 3 the coefficients for $Right\_Incumbent_{it}$ are negative, nearly achieving statistical significance in Model 2. Substantively, the effect is also rather large. Holding all other variables at their mean and setting $Right\_Incumbent_{it}$=0 the Left's chances are around 1 in 4. Assume the Right is in power, however, and the Left's chances decline to less than 1 in 10. Thus, despite the pervasive chants of "que se vayan todos," we find little systematic support here for the "throwing the rascals out" hypothesis.[18]

In Model 3 neither of the coefficients, $Inflation\_Dir_{it-1}$ or $Growth\_Dir_{it-1}$, are statistically significant, but at least both are now in the direction expected by the retrospective voting hypothesis. Specifically, the negative coefficient for $Inflation\_Dir_{it-1}$ accords with the prediction that the Left will be hurt either when a Left-wing incumbent has failed to tame inflation or when a Right-wing incumbent has succeeded and benefit otherwise. Conversely, the positive coefficient for $Growth\_Dir_{it-1}$ fits with the claim that the Left benefits from a Left-wing predecessor generating growth and a Right-wing predecessor failing to do so.

Despite the recent trend towards electing Left-wing presidents in several elite-mobilizing countries, our results provide the first statistical confirmation of the Roberts-Cleary mass-mobilizing hypothesis. In all three of the models presented, $Mass\_Mob_i$ is positive and statistically significant at the .05 level or better. Substantively, the effects are also quite large. Holding all other independent variables at their mean, the probability of a Left wing president getting elected in a country with no legacy of elite-mobilizing is around

[17] A reason that our results differ from the previous literature on the effects of inflation and growth may also lie in our somewhat more restrictive coding of the dependent variable (cf. Stokes 2001; Murillo et al 2008)

[18] Although we currently lack the data to test it, it would be interesting to explore whether Samuels (2004) recent work on how election timing effects the ability of Latin American voters to hold presidents accountable affects this result. One refinement then to the original incumbent hypothesis would be to see if we find an incumbent rotation effect in concurrent elections, but not non-concurrent elections.

4 percent. Switch the legacy to one in which parties traditionally mobilize on class lines and the probability jumps to 21 percent. Nevertheless, from a theoretical standpoint it remains to be explained both why and how either class cleavages suddenly emerge in traditionally elite-mobilizing systems (such as Ecuador) or why the Left manages to attract votes in the apparent absence of class cleavages.

4 Conclusion

Inequality under democracy shapes the electoral fortunes of the Left. Most scholars would surely agree with this statement, at least in the broadest sense. But, to date, neither the theory nor the facts in support of this claim have been particularly clear. Perhaps as a result, the new literature on the Left in Latin America tends to treat inequality as an underlying constant, and not as a particularly useful variable for explaining when, where, or why the Left wins or loses.

This paper takes a different tack. On a theoretical level, we supply a clear set of micro-foundations linking income distribution to the Left's chances for success. Using a comparative statics approach, we show that inequality has a non-monotonic effect on the Left's likelihood of success. At low levels of inequality the poor have relatively too little to gain in electing the Left. At high levels of inequality the rich have too much to lose. Thus, we argue, the Left is most likely to win office if inequality is somewhere in-between the two extremes. On an empirical level, we then bring fresh systematic evidence to bear both on our own prediction and several alternative hypotheses. Overall, our findings underscore that while other factors-most especially the legacy of mass mobilization–matter, the level of income distribution has a profound effect on whether the Left succeeds or fails.

In identifying the mechanism through which inequality influences electoral outcomes under democracy, our theory also generates several additional questions for future research. One obvious extension is to explore systematically whether higher levels of inequality are related to clientelism, corruption and fraud. Current studies show tentative evidence in favor of this hypothesis (Ziblatt 2008), but more work remains to be done. Another, perhaps more interesting, extension harkens back to our initial discussion of the "Iron Law of Oligarchy." By showing how inequality affects the rich and poor's incentives, our approach potentially provides a more nuanced understanding of the conditions under which governments seek to ameliorate inequality once they are in office. Starting with Right incumbents, for example, our model suggests that if the government simply wants to maintain power it will have less incentive to lower inequality

below a certain threshold. At the same time, the fact that bribing is also costly for the rich suggests a possible explanation for why empirically we often observe that inequality falls before Left governments are elected.

Conversely, how Left-wing governments attempt to deal with inequality depends especially on where they are located on our "curve." At higher levels of inequality, our theory suggests that the Left should be particularly anxious to lower income disparities. At lower levels, however, the incentives may become perverse: if lower inequality actually decreases the demand for the Left, then reducing income disparities beyond a certain point may carry adverse electoral consequences for incumbents. Of course, we are quick to highlight that in most of Latin America it is likely that few Leftists will ever find themselves in this awkward (and rather fortunate) position. Still, we cannot help but note that one of the few cases where inequality under a Left government actually increases is Venezuela, which also happens to be one of the countries with the lowest level of inequality in the region. More generally, such observations clearly require rigorous future testing, but they hint at a plausible theoretical reason for the divergent conclusions that scholars have so far reached not only about whether inequality matters for the Left, but whether the Left matters for inequality (see for example Kaufman and Segura-Ubiergo 2001, Remmer 2002 and Huber et al. 2006).

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5 Appendix

Proof. (Proof of claim 2). Recall the definition of the net benefit of the Left candidate for individual i who is offered a bribe $b(i)$ and preference shock s, $n(i, b(i), s)$. Let $I(z)$ be the set of voters i such that $n(i, b(i), s) \leq z$. Call $M(b(.))$ the set of decisive voters m for a given bribing schedule $b(.)$, where m satisfies either (i) $|I(n(m, b(m), s))| = \frac{|N|+1}{2}$ or (ii) $|I(n(m, b(m), s))| > \frac{|N|+1}{2}$ and for any $z < n(m, b(m), s)$, $|I(z)| < \frac{|N|+1}{2}$.

Claim 2.1: Let $P_+(b^*(.)) = \{i \in P | b^*(i) > 0\}$ and $W_+(b^*(.)) = \{i \in W | b^*(i) > 0\}$. $P_+(b^*(.)) \cup W_+(b^*(.)) \subset M(b^*(.))$.

Assume not, i.e. there exists i' such that $b^*(i') > 0$ but $i' \notin M(b^*(.))$. Fix $m \in M(b^*(.))$. Then consider the bribing schedule $b'()$ such that $b'(i) = b^*(i)$ for any $i \neq i'$ and $b'(i') = b^*(i') - \varepsilon$, where $\varepsilon > 0$ is such that $n(i', b^*(i') - \varepsilon, s) < n(m, b^*(m), s)$ if $n(i', b^*(i'), s) < n(m, b^*(m), s)$ and $n(i', b^*(i') - \varepsilon, s) > n(m, b^*(m), s)$ if $n(i', b^*(i'), s) > n(m, b^*(m), s)$ (it is clear that there exists an $\varepsilon > 0$ satisfying these conditions). It is easy to check that $M(b'(.)) = M(b^*(.))$, so that $n(m, b'(m), s) \geq 0 \Leftrightarrow n(m, b^*(m), s) \geq 0 \Leftrightarrow s \leq \overline{s}$, where $\overline{s} \equiv ny^{g(m)}(\tau^L) - ny^{g(m)}(0) - b^*(m)$. Therefore,

$$u^{Wl}(\tau^L, \tau^R, b'(.)) - u^{Wl}(\tau^L, \tau^R, b^*(.)) \geq (1 - F(\overline{s}))(\gamma - 1)\varepsilon > 0$$

Claim 2.2: If $P_+(b^*(.)) \neq \emptyset$, *then* $|P_+(b^*(.))| = \frac{|N|+1}{2} - |W|$ *and there exists* b_P *such that* $b^*(i) = b_P$ *for any* $i \in P_+(b^*(.))$.

It is clear by claim 2.1 that if $P_+(b^*(.)) \neq \emptyset$, then there exists b_P such that $b^*(i) = b_P$ for any $i \in P_+(b^*(.))$. Also, it is clear by claim 2.1 that if $P_+(b^*(.)) \neq \emptyset$, then $|P_+(b^*(.))| \geq \frac{|N|+1}{2} - |W|$. Let $|P_+(b^*(.))| > \frac{|N|+1}{2} - |W|$. Now we distinguish between two cases.

First assume that $n(i', b^*(i'), s) \leq n(i'', b^*(i''), s)$ for any $i' \in W$, $i'' \in P_+(b^*(.))$. In this case, the lobby has a profitable deviation to a bribing schedule $b'(.)$ such that $b'(i'') = 0$ and $b'(i) = b^*(i)$ for any $i \neq i''$ (for some $i'' \in P_+(b^*(.))$). Then there exists $m \in M(b^*(.)) \cap M(b'(.))$ where $n(m, b^*(m), s) \geq 0 \Leftrightarrow n(m, b'(m), s) \geq 0 \Leftrightarrow s \leq \overline{s}$, for some finite $\overline{s}$ and, therefore,

$$u^{Wl}(\tau^L, \tau^R, b'(.)) - u^{Wl}(\tau^L, \tau^R, b^*(.)) = (1 - F(\overline{s}))\gamma b^*(i'') > 0$$

and the deviation is profitable.

Second assume that there exists $i' \in W$, $i'' \in P_+(b^*(.))$ such that $n\left(i', b^*\left(i'\right), s\right) > n\left(i'', b^*\left(i''\right), s\right)$. Using claim 2.1, $b^*(i') = 0$ and

$$b^*(i'') > \left[ny^P(\tau^L) - ny^P(0)\right] + \left[ny^W(0) - ny^W(\tau^L)\right] \tag{3}$$

Then the lobby has a profitable deviation to a bribing schedule $b'(.)$ such that $b'(i) = b^*(i)$ for any $i \notin \{i', i''\}$, $b'(i'') = 0$ and

$$b'(i') = b^*(i'') - \left(\left[ny^P(\tau^L) - ny^P(0)\right] + \left[ny^W(0) - ny^W(\tau^L)\right]\right) \tag{4}$$

Indeed, then there exists $m \in M(b^*(.)) \cap M(b'(.))$ where $n\left(m, b^*\left(m\right), s\right) \geq 0 \Leftrightarrow n\left(m, b'\left(m\right), s\right) \geq 0 \Leftrightarrow s \leq \overline{s}$, for some $\overline{s}$. Therefore,

$$u^{Wl}(\tau^L, \tau^R, b'(.)) - u^{Wl}(\tau^L, \tau^R, b^*(.)) = \left[1 - F(\overline{s})\right]\left[b'(i') + \gamma\left(b^*(i'') - b'(i')\right)\right] > 0$$

since (3) and (4) imply $b^*(i'') > b'(i') > 0$.

Claim 2.3: If $W_+(b^*(.)) \neq \emptyset$, then $W_+ = W$ and there exists b_W such that $b^*(i) = b_W$ for any $i \in W$, where b_W satisfies

$$ny^P(\tau^L) - ny^P(0) - b_P = ny^W(\tau^L) - ny^W(0) - b_W \tag{5}$$

By claims 2.1 and 2.2, if $W_+(b^*(.)) \neq \emptyset$, then $|P_+(b^*(.))| = \frac{|N|+1}{2} - |W|$ so that $W_+(b^*(.)) = W$. Claim 2.1 implies that bribes b_P and b_W must satisfy (5).

Claim 2.4: $W_+(b^*(.)) = \emptyset$.

Assume not. By claim 2.1 and 2.3, $W_+(b^*(.)) = W \subset M(b^*(.))$. Consider another schedule $b'(i)$ where $W_+(b'(.)) = \emptyset$, $|P_+(b'(.))| = \frac{|N|+1}{2} - |W|$ and

$$ny^P(\tau^L) - ny^P(0) - b'(i'') = ny^W(\tau^L) - ny^W(0)$$

for any $i'' \in P_+(b'(.))$. By claim 2.1, $W \subset M(b'(.))$.

Now pick $i' \in W$. The Left candidate is elected under bribing schedule $b^*(.)$ if and only if $n\left(i', b^*\left(i'\right), s\right) \geq 0 \Leftrightarrow s \leq \overline{s} \equiv ny^W(\tau^L) - ny^W(0) - b^*(i')$ and the Left candidate is elected under bribing schedule $b'(.)$ if and only if $n\left(i', b'\left(i'\right), s\right) \geq 0 \Leftrightarrow s \leq \overline{\overline{s}} \equiv ny^W(\tau^L) - ny^W(0)$. Naturally, $b^*(i') > 0$ implies that $\overline{s} < \overline{\overline{s}}$.

Therefore,

$$u^{Wl}(\tau^L,\tau^R,b^*(.))-u^{Wl}(\tau^L,\tau^R,b'(.))=\int_{\overline{\overline{s}}}^{\overline{\overline{s}}}\left(\sum_{i\in W}\left[ny^W(0)+s-(\gamma-1)\,b^*(i)-ny^W(\tau^L)\right]-\gamma\sum_{i\in P}b^*(i)\right)dF(s)$$
$$-\int_{\overline{\overline{s}}}^{\infty}\left((\gamma-1)\sum_{i\in W}b^*(i)+\gamma\sum_{i\in P}\left[b^*(i)-b'(i)\right]\right)dF(s)$$

so that

$$u^{Wl}(\tau^L,\tau^R,b^*(.))-u^{Wl}(\tau^L,\tau^R,b'(.))<\sum_{i\in W}\left[\int_{\overline{s}}^{\overline{\overline{s}}}ny^W(0)+s-ny^W(\tau^L)dF(s)\right]<0$$

The first inequality follows from $\sum_{i\in P}b^*(i)>\sum_{i\in P}b'(i)>0$, $\sum_{i\in W}b^*(i)>0$ and $\gamma>1$ and the second follows from the definition of $\overline{\overline{s}}$. ■

Proof. (Proof of proposition 1). The problem for the lobby can be written as

$$\max_{b_p}v(b_P;\theta,y)=-\left[\frac{|N|+1}{2}-|W|\right]\gamma b_p(1-F(\overline{s}))+|W|\left[\int_{-\infty}^{\overline{s}}ny^W(\tau^L)dF(s)+\int_{\overline{s}}^{\infty}\left(ny^W(0)+s\right)dF(s)\right] \tag{6}$$

such that

$$0\leq b_P\leq\left[ny^P(\tau^L)-ny^P(0)\right]+\left[ny^W(0)-ny^W(\tau^L)\right] \tag{7}$$

where

$$\overline{s}=ny^P(\tau^L)-ny^P(0)-b_P \tag{8}$$

We have

$$\begin{aligned}\frac{\partial v(b_P;\theta,y)}{\partial b_P} &= -\left[\frac{|N|+1}{2}-|W|\right]\gamma\left(1-F\left(\overline{s}\right)\right) \\ &\quad +f(\overline{s})\left[-\left[\frac{|N|+1}{2}-|W|\right]\gamma b_P+|W|\left[ny^W(0)-ny^W(\tau^L)+\overline{s}\right]\right]\end{aligned} \tag{9}$$

and

$$\begin{aligned}\frac{\partial^2 v(b_P;\theta,y)}{\partial b_P^2} &= -\left[\frac{|N|+1}{2}-|W|\right]\gamma f\left(\overline{s}\right) \\ &\quad -f(\overline{s})\left[\left[\frac{|N|+1}{2}-|W|\right]\gamma+|W|\right] \\ &\quad -f'(\overline{s})\left[-\left[\frac{|N|+1}{2}-|W|\right]\gamma b_P+|W|\left[ny^W(0)-ny^W(\tau^L)+\overline{s}\right]\right]\end{aligned} \tag{10}$$

Now note from (9) that $\frac{\partial v(b_P;\theta,y)}{\partial b_P}<0$ for any $b_P>\overline{b}_P$, where

$$\overline{b}_P=\left(\frac{|W|}{\left(\frac{|N|+1}{2}-|W|\right)\gamma+|W|}\right)\left[\left[ny^P(\tau^L)-ny^P(0)\right]+\left[ny^W(0)-ny^W(\tau^L)\right]\right]$$

and note from (10) that $\frac{\partial^2 v(b_P;\theta,y)}{\partial b_P^2}<0$ for any $b_P\in\left[0,\overline{b}_P\right]$, given that $f'(\overline{s})>0$ (since $f(.)$ is the logistic distribution function, with mean $\mu\geq y>ny^P(\tau^l)-ny^P(0)-b_P$ for any $b_P\geq 0$). Given that $\overline{b}_P<\left[ny^P(\tau^L)-ny^P(0)\right]+\left[ny^W(0)-ny^W(\tau^L)\right]$, it follows that there is a unique optimal bribe $b_P^*\in\left[0,\overline{b}_P\right]$ and the upper bound in (7) is not binding.

We want to characterize cases where the lower bound in (7) is binding. Note that for any $b_P\in\left[0,\overline{b}_P\right]$, the marginal benefit of a bribe is increasing with inequality:

$$\begin{aligned}\frac{\partial^2 v(b_P;\theta,y)}{\partial b_P\partial\theta} &= \left(\frac{dny^P(\tau^L)-ny^P(0)}{d\theta}\right)f(\overline{s})\left(\left[\frac{|N|+1}{2}-|W|\right]\gamma+|W|\right) \\ &\quad +\left(\frac{dny^W(0)-ny^W(\tau^L)}{d\theta}\right)f(\overline{s})|W| \\ &\quad +\left(\frac{dny^P(\tau^L)-ny^P(0)}{d\theta}\right)f'(\overline{s})\left[-\left[\frac{|N|+1}{2}-|W|\right]\gamma b_P+|W|\left[ny^W(0)-ny^W(\tau^L)+\overline{s}\right]\right] \\ &> 0\end{aligned} \tag{11}$$

The inequality follows from the following observations: $f'\left(\overline{s}\right)>0$, $b_P\leq\overline{b}_P$ and, using the envelope theorem,

$$\begin{aligned}\frac{dny^P(\tau^L)-ny^P(0)}{d\theta} &= \frac{d}{d\theta}\left(\left(1-\tau^L\right)y^P+\left(\tau^L-C(\tau^L)\right)\frac{y}{|N|}-y^P\right) \\ &= \left[-y^P+(1-C'(\tau^L))\frac{y}{|N|}\right]\frac{\partial\tau^L}{\partial\theta}-\tau^L\frac{\partial y^P}{\partial\theta} \\ &= -\tau^L\frac{\partial y^P}{\partial\theta}>0\end{aligned} \tag{12}$$

$$\begin{aligned}\frac{dny^W(0)-ny^W(\tau^L)}{d\theta} &= \frac{d}{d\theta}\left(y^W-\left(\left(1-\tau^L\right)y^W+\left(\tau^L-C(\tau^l)\right)\frac{y}{|N|}\right)\right)\\ &= \left[y^W-(1-C'(\tau^L))\frac{y}{|N|}\right]\frac{\partial\tau^L}{\partial\theta}+\tau^L\frac{\partial y^W}{\partial\theta}\\ &= \left[y^W-y^P\right]\frac{\partial\tau^L}{\partial\theta}+\tau^L\frac{\partial y^W}{\partial\theta}>0 \end{aligned} \tag{13}$$

Also note that

$$\begin{aligned}\frac{\partial v(b_P;\frac{|W|}{N},y)}{\partial b_P} &= -\left[\frac{|N|+1}{2}-|W|\right]\gamma\left(1-F\left(-b_P\right)\right)\\ &\quad -f(-b_P)b_P\left[\left[\frac{|N|+1}{2}-|W|\right]\gamma+|W|\right]\\ &< 0\end{aligned}$$

so that, by continuity, there exists $\overline{\theta}>\frac{|W|}{|N|}$ such that $b_P^*=0$ if $\theta\in(\frac{|W|}{|N|},\overline{\theta}]$.

Now let us establish that there exists $\overline{y}$ such that for any $y>\overline{y}$, $\overline{\theta}<1$. Note that

$$\frac{\partial v(0;1,y)}{\partial b_P}=-\left[\frac{|N|+1}{2}-|W|\right]\gamma\left[1-F\left(\left(\tau^L-C(\tau^L)\right)\frac{y}{|N|}\right)\right]+f\left(\left(\tau^L-C(\tau^L)\right)\frac{y}{|N|}\right)\tau^L y$$

so that

$$\begin{aligned}\frac{\partial^2 v(0;1,y)}{\partial b_P\partial y} &= \frac{\left(\tau^L-C(\tau^L)\right)}{|N|}\left(\left[\frac{|N|+1}{2}-|W|\right]\gamma f\left(\left(\tau^L-C(\tau^L)\right)\frac{y}{|N|}\right)+f'\left(\left(\tau^L-C(\tau^L)\right)\frac{y}{|N|}\right)\tau^L y\right)\\ &\quad +f\left(\left(\tau^L-C(\tau^L)\right)\frac{y}{|N|}\right)\tau^L\\ &\quad >0\end{aligned}$$

since $f'(.)>0$, $\tau^L-C(\tau^L)>0$. Therefore, the marginal benefit of bribes, evaluated at a level of bribes of 0, is increasing in income at the extreme level of inequality. By continuity, there exists $\overline{y}$ such that for any $y>\overline{y}$, $\frac{\partial v(0;1,y)}{\partial b_P}>0$ and, therefore, $\overline{\theta}<1$.

Now assume that $y>\overline{y}$. b_P^* solves the first-order condition $\frac{\partial v(b_P^*;\theta,y)}{\partial b_P}=0$. ■

Proof. (Proof of corollary 1). $prob(E=L)=F\left(ny^P(\tau^L)-ny^P(0)-b_P^*\right)$. For any $\theta<\overline{\theta}$, $b_P^*=0$ so that

$$\frac{\partial prob(E=L)}{\partial\theta}=f\left(ny^P(\tau^L)-ny^P(0)\right)\frac{d\left(ny^P(\tau^L)-ny^P(0)\right)}{d\theta}>0$$

since $f\left(ny^P(\tau^L) - ny^P(0)\right) > 0$ and $\frac{d\left(ny^P(\tau^L) - ny^P(0)\right)}{d\theta} > 0$ by (12).

For any $\theta > \overline{\theta}$, $b_P^* > 0$ is given by $\frac{\partial v(b_P^*;\theta,y)}{\partial b_P} = 0$, using (9):

$$\frac{\partial prob(E=L)}{\partial \theta} = f\left(ny^P(\tau^L) - ny^P(0) - b_P^*\right)\left[\frac{d\left(ny^P(\tau^L) - ny^P(0)\right)}{d\theta} - \frac{\partial b_P^*}{\partial \theta}\right]$$

Using the implicit function theorem on $\frac{\partial v(b_P^*;\theta,y)}{\partial b_P} = 0$, using (9), we get $\frac{\partial b_P^*}{\partial \theta} = -\frac{\frac{\partial^2 v(b_P^*;\theta,y)}{\partial b_P \partial \theta}}{\frac{\partial^2 v(b_P^*;\theta,y)}{\partial b_P^2}}$. Using (10), (11) and with some manipulations, we get

$$\frac{d\left(ny^P(\tau^L) - ny^P(0)\right)}{d\theta} - \frac{\partial b_P^*}{\partial \theta} = \frac{-f(\overline{s})}{\frac{\partial^2 v(b_P^*;\theta,y)}{\partial b_P^2}}\left[\frac{dny^P(\tau^L) - ny^P(0)}{d\theta}\left[\frac{|N|+1}{2} - |W|\right]\gamma - \frac{dny^W(0) - ny^W(\tau^L)}{d\theta}|W|\right]$$

If $\left[\frac{|N|+1}{2} - |W|\right]\gamma < |P|$, then

$$\begin{aligned}
& \frac{dny^P(\tau^L) - ny^P(0)}{d\theta}\left[\frac{|N|+1}{2} - |W|\right]\gamma - \frac{dny^W(0) - ny^W(\tau^L)}{d\theta}|W| \\
< \quad & \frac{dny^P(\tau^L) - ny^P(0)}{d\theta}|P| - \frac{dny^W(0) - ny^W(\tau^L)}{d\theta}|W| \\
= \quad & -yC'(\tau^L)\frac{\partial \tau^L}{\partial \theta} \\
< \quad & 0
\end{aligned}$$

Since $f(\overline{s}) > 0$, $\frac{\partial^2 v(b_P^*;\theta,y)}{\partial b_P^2} < 0$, then for $\theta > \overline{\theta}$

$$\frac{\partial prob(E=L)}{\partial \theta} < 0$$

■

Table 1:
Leftist Presidents in Latin America, 1978-2008

Country	Year	President	Party
Argentina	2003	N. Kirchner	PJ/FPV
Argentina	2007	C. Kirchner	PJ/FPV
Bolivia	1989	Paz Zamora	MIR
Bolivia	2006	Morales	MAS
Brazil	2003	Lula	PT
Brazil	2006	Lula	PT
Chile	2000	Lagos	Socialist
Chile	2006	Bachelet	Socialist
Dom Republic	2000	Mejia	DRP
Ecuador	1988	Borja	ID
Ecuador	2007	Correa	Alianza Pais
Guatemala	2008	Colom	UNE
Nicaragua	1985	Ortega	FSLN
Nicaragua	2007	Ortega	FSLN
Paraguay	2008	Lugo	Patriotic Alliance for Change
Peru	1985	Garcia	APRA
Uruguay	2005	Vazquez	Frente Amplio
Venezuela	1999	Chavez	MVR
Venezuela	2001	Chavez	MVR
Venezuela	2007	Chavez	MVR/PSUV

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Table 2:
Countries Mean Inequality Level, Peak Inequality Level and Peak Inequality Year

Country	Average Inequality	Peak Level of Inequality	Peak Year of Inequality
Uruguay	43.15	46.16	2005
Venezuela	43.52	47.63	2007
Costa Rica	46.28	49.88	2002
Argentina	46.99	53.26	2003
El Salvador	48.68	55.11	1999
Peru	49.71	58.70	1980
Paraguay	51.38	57.52	2003
Mexico	52.12	59.3	2000
Guatemala	52.13	56.18	1991; 1996
Nicaragua	52.39	53.74	1985; 1990; 1997
Panama	53.75	56.30	1999
Ecuador	54.23	65.35	1979; 1984
Chile	54.32	57.00	1990
Colombia	54.34	60.63	1998
Honduras	54.67	56.66	1990
Bolivia	52.60	59.27	2002
Brazil	59.17	62.1	1990
Dominican Republic	NA	NA	NA

Table 3:
Logit Analysis of the Probability of Left Success in Presidential Elections

	Model 1	Model 2	Model 3
Inequality$_{it-1}$	2.11 (.72)**	2.30 (.86)**	2.38 (.66)***
Inequality$_{it-1}$ *^2*	-.02 (.01)**	-.02 (.01)**	-.02 (.01)***
ColdWar$_t$		.59 (.69)	-.07 (.78)
Age of Democracy$_{it}$		.04 (.03)	.04 (.03)
Right_Incumbent$_{it}$		-1.49 (.84)	-1.01 (.72)
Inflation$_{it-1}$		-.00 (.00)	
Growth$_{it-1}$		.00 (.09)	
Inflation_Dir$_{it-1}$			-.00 (.00)
Growth_Dir$_{it-1}$			.08 (.08)
Mass_Mob$_i$		1.81 (.59)**	1.60 (.55)**
Constant	-55.07 (17.45)**	-61.68 (22.88)**	-63.49 (18.09)***
N	102	102	102

* p<0.05; **p<0.01; ***p<0.001 (two-tailed test)

Figure 1: Net Benefit of Voters for the Left candidate: Capturing the Effect of Increased Inequality

(from a low level of inequality)

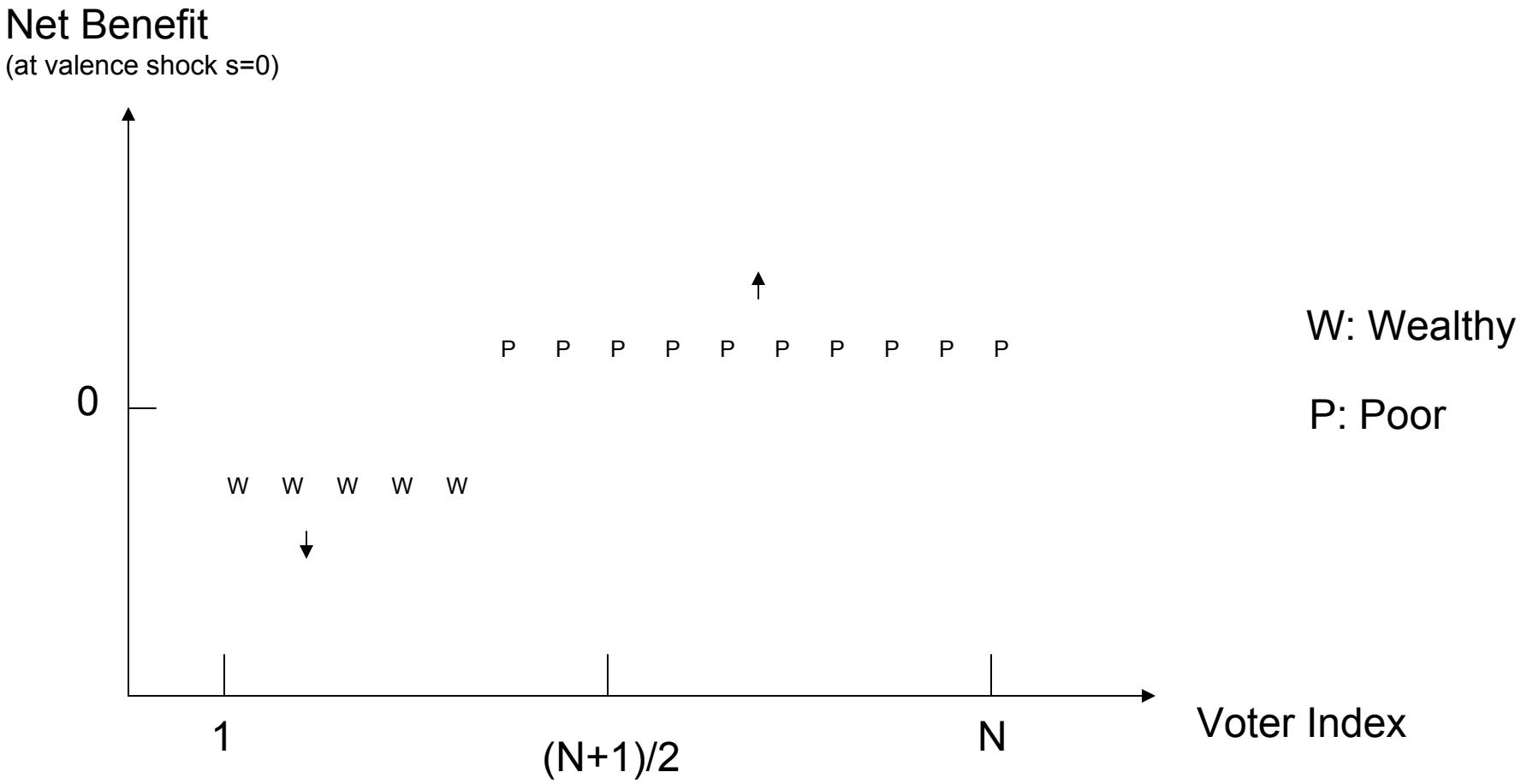

Figure 2: Net Benefit of Voters for the Left candidate: Capturing the Effect of Increased Inequality

(from a high level of inequality)

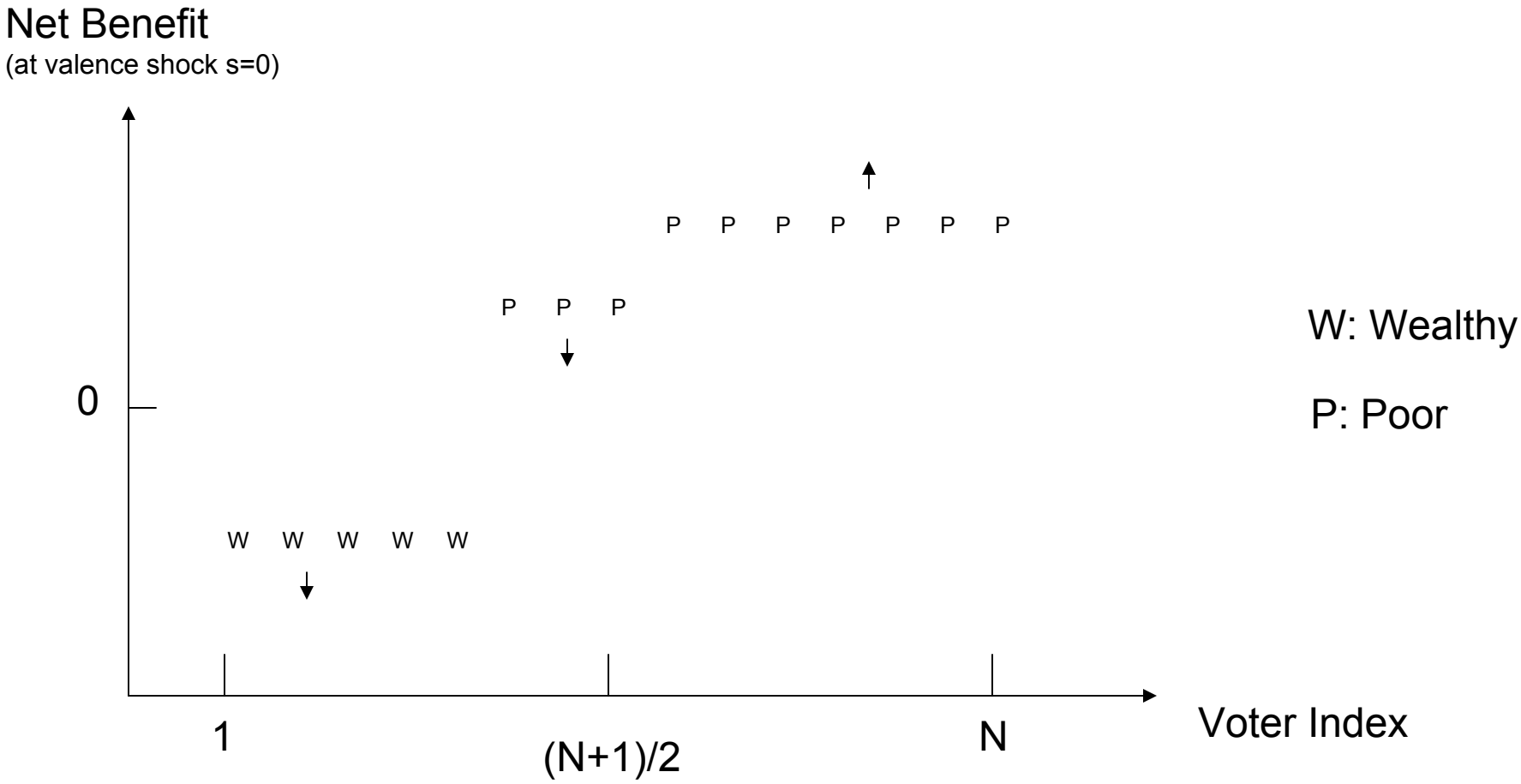

Figure 3: Predicted Probability that the Left candidate is Elected As a Function of Inequality

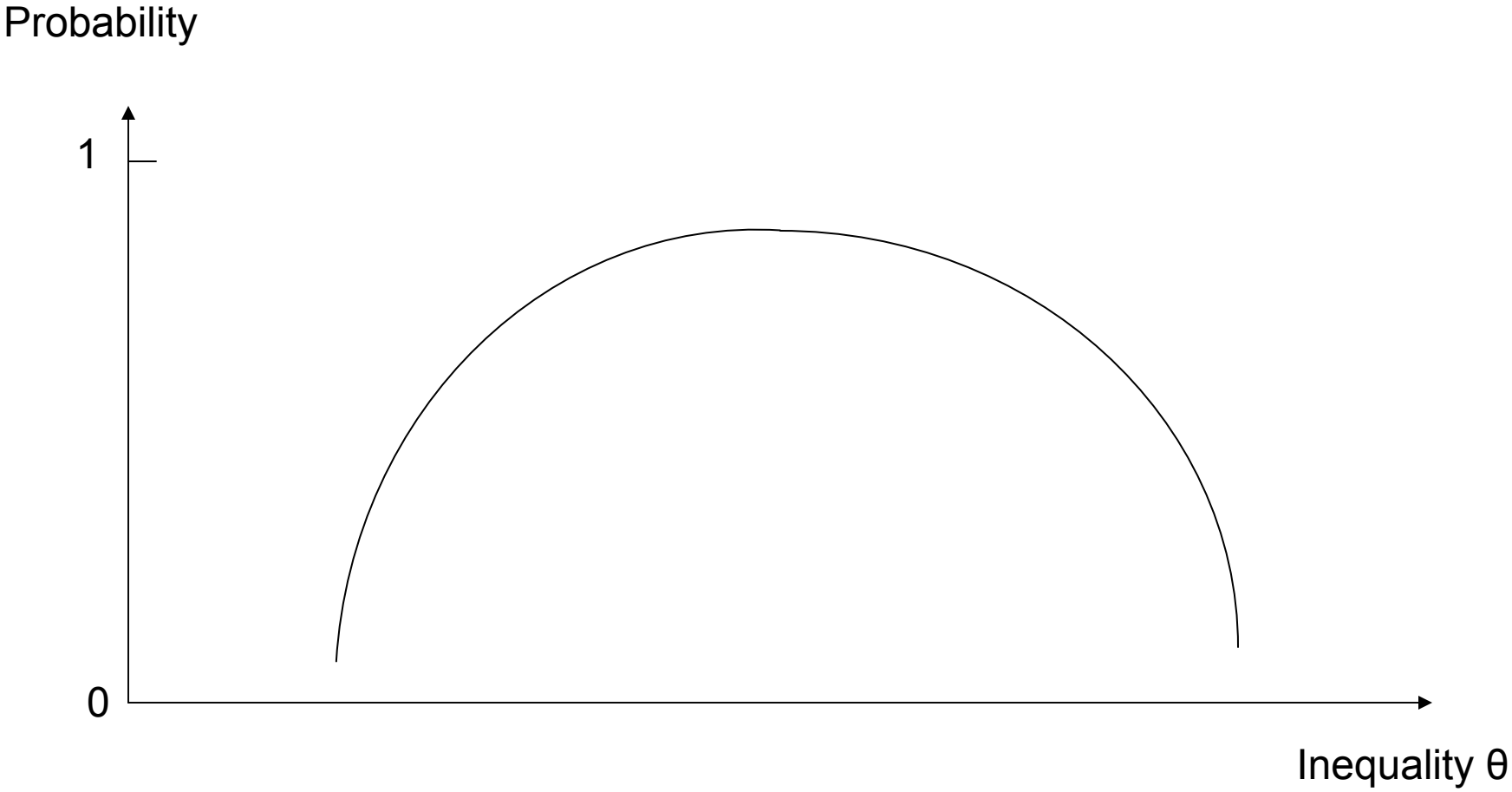

Figure 4: Inequality in Argentina, Brazil and Uruguay

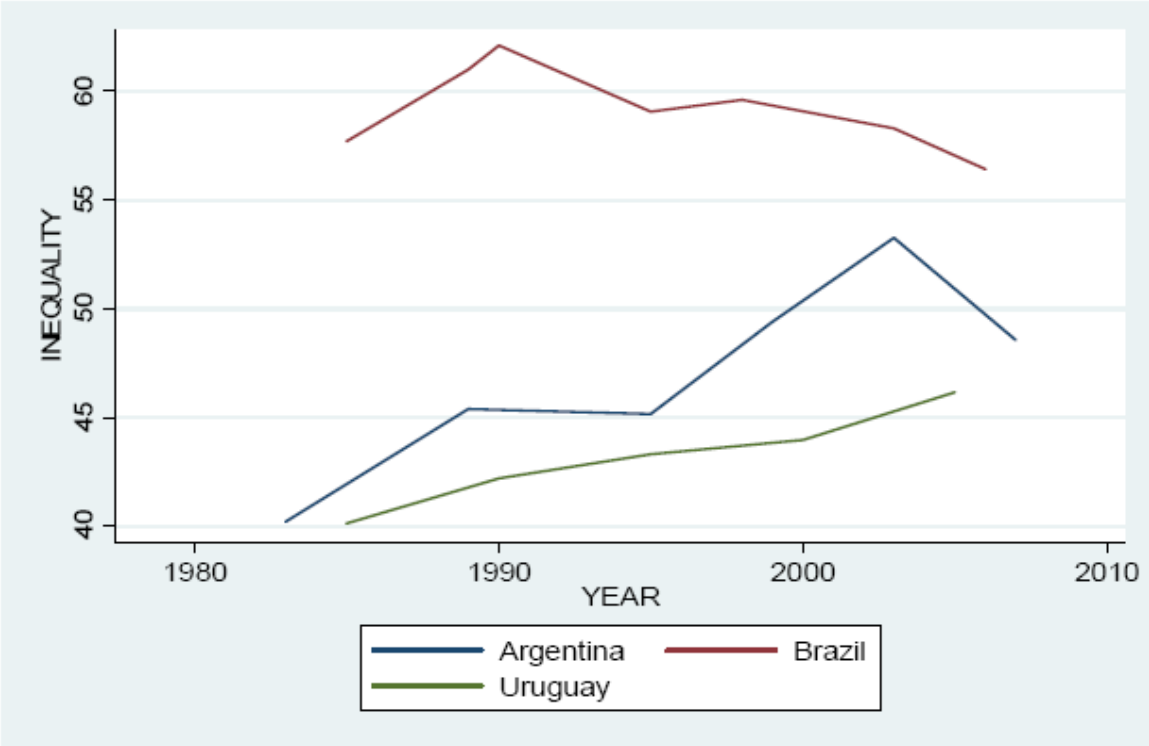

Figure 5: Predicted Probability that a Left Government is Elected as a Function of Inequality
(model 3)