

Explaining Lula: Loss-averse voters, Retrospective Evaluations and Convergence to Low Inflation Policy

Renata Rizzi

Universidade de São Paulo

April 2009

Abstract

By adapting a standard electoral competition model to reflect characteristics of the Brazilian electorate (uneducated, low-income, no partisan attachment, hyper-inflation trauma), this paper succeeds in making sense of Lula's staggering political moderation and sky-high popularity. Two assumptions are incorporated to the Downsian model: voters are loss-averse and use retrospective evaluations to guide their vote. The main theoretical result obtained is the slow but steady convergence of the policy variable to its median value (without commitment by politicians or coordination among voters). An application of the model shows that inflation control should be office-seeking policymakers' top-priority.

JEL Classification: D72, D81, D82, H10, P16

Ph.D. candidate, Universidade de São Paulo. Email: rrizzi@usp.br

1. Motivation

"That's my man right here. Love this guy. He's the most popular politician on Earth."

Barack Obama's comments on Lula - April, 2009 – G20 Summit

The moderation in Lula's political attitude and positioning over the past twenty years was staggering. Between 1989 and 2002, he took part in four presidential elections¹. In 1989, the radical-left union leader Lula received 16.1% of the votes with an anti-elite platform that included the suspension of external debt payments and an extremely aggressive land reform plan. During the 2002 campaign, a pragmatic Lula compromised to respect the agreements between the Brazilian Government and the IMF and released a "Letter to the People of Brazil", in which he promised to control inflation, respect investors, honor contracts and preserve the primary surplus. He was able to expand PT's span of alliances and to attract private financing for his campaign (declared contributions were of less than R\$2 million in 1994 and exceeded R\$20 million in 2002²). Lula was elected with 46.4% of the votes in the first round and 61.4% in the second round.

Once in office, President Lula adhered almost completely to his rival Fernando Henrique Cardoso's fiscal and monetary policies, which he used to call the "accursed legacy"³. He truly maintained the terms of the 1999 agreement with the IMF and even increased the primary surplus target from 3.75% to 4.25%. He appointed a former CEO of Boston Fleet and member of an opposition party head of the Central Bank. And finally, he sponsored strict inflation targeting (with extremely high and unpopular interest rates) and responsible sovereign debt management. He did all this despite severe pressure by some wings of his leftist party.

Lula was reelected in 2006 with 46.6% of the votes in the first round and 60.8% in the second round. In the end of 2008, Lula's popularity, in terms of the share of the electorate that approves his performance, was of 84%⁴. The evolution of his popularity seems to be correlated with the levels of inflation, employment, government expenditures and minimum wage (see figures 1 to 4).

The purpose of this paper is to build a political economy model that both reflects the Brazilian "micro" reality and produces the stylized facts above.

¹ Besides running for the state government of São Paulo in 1982 and for congressman in 1986.

² Tribunal Superior Eleitoral (www.tse.gov.br).

³ I use the translation in Samuels (forthcoming) of the expression "herança maldita", in Portuguese.

⁴ Pesquisa CNI-IBOPE, December 2008 (www.cni.org.br).

2. Introduction

What is the “micro” reality like?

- Brazilian voters are uneducated. 22.6% are illiterate or semi-illiterate. 82.3% possess less than secondary education. Only 3.5% have higher education⁵.
- The “*party system is highly fragmented; electoral volatility is comparatively high; more than one-third of its sitting legislators change parties during a term; and individualism, clientelism, and personalism, rather than programmatic appeals, dominate electoral campaigns.*” (Samuels, 2006; p. 1)
- In 2002, “*almost two-thirds of Brazilians expressed no partisan preference; about one in four Brazilians expressed a party preference for the PT; and about one in ten Brazilians expressed a preference for one of Brazil's many other parties.*” (Samuels, 2006; p. 5)
- Voting is obligatory for all citizens older than eighteen.
- Electoral campaigns are privately financed.
- GDP per capita is relatively low.
- Hyper-inflation is a trauma.

The set up I propose is a variation of the traditional unidimensional spatial model of electoral competition. As in Downs (1957), the unique objective of parties is to win elections. The government “*is an entrepreneur selling policies for votes instead of products for money*”. Voters are rational and “*each of them views elections strictly as means of selecting the government most beneficial to him*”. They have imperfect information but need to compare their expectations on future action by the incumbent (which they base on his past actions) to their expectations on future action by other candidates.

In Downs (1957), electors discover a correlation between each party’s announced ideology and the policies they actually implement when in power and vote accordingly. Parties “move” their ideologies along the political scale in order to get more votes and that is how full convergence of policies emerges from electoral competition. Downs (1957) recognizes that imperfect knowledge is a key factor in the analysis. And it is likely to persist, because the marginal benefit for a voter of acquiring information is infinitesimal (equal to the probability that his vote will determine which

⁵ Electorate Statistics in year 2008, Tribunal Superior Eleitoral (www.tse.gov.br).

party governs). Hence, it is rational to be uninformed⁶. Downs (1957) uses this line of thought to justify the approximation voters perform when they make use of party identification as a shortcut.

I model non-ideological and uneducated⁷ voters who have no information on politicians' preferences and capabilities and no partisan attachment⁸. In order to determine how they vote, I propose two behavioral assumptions which I consider pertinent for the case of Brazil: retrospective voting and loss aversion.

Public opinion literature has recently gone beyond the paradigm of minimalism⁹ and started to focus on how citizens overcome information shortfalls in order to vote as if they were fully informed¹⁰. Two strands of argument have been developed. One, based on Condorcet's "jury theorem", claims that the aggregation of many imperfectly informed decisions into a collective one produces a miraculous canceling out of errors¹¹. The other sustains that voters rely on cues and information shortcuts to make their choice. Retrospective evaluations of the economy (Key, 1966 and Fiorina, 1981) and party identification (Robertson, 1976) are two generally cited sources of political cues.

In order to perform what Fiorina (1981) calls "*Simple Retrospective Evaluations*" (based mainly on personal finance and direct experiences), voters only need to judge their own past experiences¹². In Fiorina (1981)'s words, even uninformed citizens "*typically have one comparatively hard bit of data: they know what life has been like during the incumbent's administration.*" And the more they are conscious of their ignorance, the more they are likely to employ retrospective voting as a cost-efficient information shortcut.

Bendor et al. (forthcoming) accurately point out that retrospective voters are not rational. They don't form rational expectations of what incumbents will do and they sometimes punish an incumbent for negative changes in welfare that are not under his control (like exogenous shocks to the economy). I

⁶ This notion is known in the political science literature as the principle of "rational ignorance".

⁷ In the sense that they possess limited information processing capabilities and have no familiarity with politics or economics.

⁸ Campbell et al. (1960) and Miller and Shanks (1996) have linked the level of partisanship to education. Samuels (2006) has associated Brazilians partisanship (or lack thereof) to the degree of motivation to acquire political information and participate in the political life.

⁹ According to which mass publics don't pay attention to politics, have minimal levels of political information and minimal stability of their political preferences.

¹⁰ Bartels (1996) is a great reference for this paragraph.

¹¹ Which would work if individual errors were random, not correlated and had an expected value of zero.

¹² Achen and Bartels (2006)'s argument that voters' perceptions may be skewed by partisan biases is not applicable because I model no partisanship.

partly address both criticisms by assuming that voters are rational but subject to cognitive¹³ and informational constraints. They have no alternative but to form adaptive expectations with respect to the incumbent and unintentionally act in a tit-for-tat manner¹⁴.

Now, say the incumbent performed well during his administration from a certain voter's perspective. Why then doesn't this voter play the lottery to try and elect a politician that may perform even better than the incumbent? That is where the loss-aversion hypothesis comes into play. In order to theoretically support this premise, I draw on the behavioral economic approach typified by prospect theory, developed by Kahneman and Tversky (1979) as an alternative to expected utility theory. In prospect theory, the value function has three essential characteristics: i) reference dependence: value is assigned to gains and losses from some status quo point, rather than to final assets, ii) loss aversion: the function is concave for gains (risk aversion), convex for losses (risk seeking) and steeper for losses than for gains, and iii) diminishing sensitivity: the marginal value of both gains and losses decreases with their size¹⁵.

Loss aversion implies status quo bias (Samuelson and Zeckhauser, 1988). Voters prefer a good sure thing to a probabilistic better thing. So in the model, voters first check if the incumbent politician was "good to them". If the answer is yes, they reelect him (or his party), even if some other candidate announces a platform equal to their optimum. Otherwise, they go and compare the candidates from other parties to make their choice. Without the need to coordinate, these voters retaliate the incumbent if he does not cooperate. And cooperate with him otherwise. The resulting structure is the same as the one in Ferejohn (1986)'s political agency model but stemming from different assumptions¹⁶. In both models, voters don't even consider other candidates if the incumbent is pleasing them. In Ferejohn (1986), it happens because voters have a punish/reward strategy (though coordination is not discussed). In the model proposed here, it happens because voters' aversion to loss holds them back.

¹³ In the sense that they were not given the opportunity to develop through formal education.

¹⁴ If voters had information on politicians' preferences and capabilities and were educated enough to process this information, they would be indifferent between candidates. Voters would be able to compute the single optimal strategy for politicians (median voter theorem) and infer they would all behave in the same way if elected.

¹⁵ The theory is very useful to explain some frequently observed behaviors which are inconsistent with standard economic rationality, like the disposition effect, the reflection effect, among others. See Quattrone and Tversky (1988).

¹⁶ Ferejohn (1986) assumes politicians are all identical and equally unreliable (their preferences differ from those of voters). Voters act as principals, who see elections as a referendum on the incumbent. They use retrospective voting to discipline politicians.

Anyhow, in case the incumbent fails to please a voter¹⁷, I assume he will select the candidate who has higher campaign expenditures (and here preelectoral politics and strategies by candidates may play an indirect role attracting campaign contributions¹⁸).

Now, when does a voter consider an incumbent was “good” to him? I define an incumbent was good to a certain voter if he has, during his term, moved the value of the policy variable closer to that voter’s bliss point - even if the policy implemented is far away from such point. This specification implies that voters may be pleased by policy moves that don’t necessarily produce their individual optimum. Consequently, pleasing one voter does not entail upsetting every other voter with different preferences. In Ferejohn (1986)’s cake sharing problem¹⁹, giving more to a certain voter will necessarily displease all the other voters since less will be left to be divided among them. In the median voter theorem, setting policy at the median voter’s bliss point only pleases the median voter himself. And nobody else.

So the set up proposed here is quite convenient. Also because it informs us whether more or less than 50% of the voters will support a certain move by the incumbent (which is sufficient information to determine the result of the referendum). Both these features allow for the reputational equilibrium to work, as a disciplining mechanism that ultimately substitutes the inexistent ability to commit. A necessary condition for a reputational enforcement mechanism to exist is that the payoff structure of the voters must be such that it is always possible for the incumbent to cooperate, or to implement a policy move that reelects him. Otherwise the incumbent will have no incentives not to deviate.

In the next section I present a unidimensional policy space model (“theoretical model”) with one type of voter and extract some theoretical results. Section 4 describes a two-dimensional policy space model with three groups of voters (“applied model”). Section 5 shows how it is calibrated and presents the main results and section 6 concludes.

¹⁷ I assume all politicians have the capacity to implement policies as they desire. So the move by the incumbent is not a signal of his capacity (as in Rogoff, 1990). It is rather a signal of the direction in which he is likely to move next period.

¹⁸ See Samuels (2001) for an analysis of this issue applied to Brazil.

¹⁹ Ferejohn (1986) examines the case of N voters, with the incumbent having to decide on how to divide the national pie among them (a vector of transfers). This specification does not result in an equilibrium with a reputational enforcement mechanism because voters compete with each other and the threat to the incumbent is weakened.

The main theoretical result I obtain is the slow but steady convergence of the policy variable to the neighborhood of its median value. In a unidimensional policy space deterministic setting, there is always a solution to the incumbent's problem of selecting a strategy which reelects him. The simulation of the applied model generates outcomes that match the recent history of presidential elections in Brazil. An intuitive finding is that inflation control is the major driver of political popularity in the country. That happens because the rich and the poor classes, which have opposing interests with respect to government expenditures, currently represent comparable shares of the population (29.4% and 19.0%, respectively). While the middle-class (which could determine the electorate preference) can be considered indifferent to the level of government expenditures (because it pays some taxes but benefits from public spending too). Therefore, according to the model, inflation control should be office-seeking policymakers' top-priority.

3. Unidimensional Policy Space Model – Theoretical Model

Politicians are purely office-motivated and cannot commit. There is an incumbent politician indexed by IN and two candidates indexed by $P = \{A, B\}$. The policy variable is g , defined over the interval of real numbers: $g \in [g_{min}, g_{max}]$. All politicians have constant and rational preferences defined on sequences of rents (r), according to:

$$U_s = E_s \sum_{t=s}^{\infty} \beta^{t-s} u(r) = \sum_{t=s}^{\infty} \beta^{t-s} \cdot p_{p_t} \cdot u(r), \quad (1)$$

where each period corresponds to one complete electoral cycle (one term²⁰), $\beta \in [0, 1]$ is a discount factor, p_{p_t} is the probability of holding office in a given period and r is the exogenous constant rent a politician receives in each period he stays in office. When a politician is not in office, r equals zero.

Politicians (including IN) know that voters' payoffs are based on distance preferences and have information on each voter's bliss point. The levels of g at the beginning and at the end of a term are g_b and g_e , respectively.

²⁰ Generalization to shorter periods is straightforward. Political cycles are not the focus of this paper.

Voters are uneducated, uninformed, non-ideological and loss-averse. They have no information on the preferences or capacity of politicians. All they observe is how policies actually implemented by the incumbent affect their lives. There is a continuum of voters distributed over the interval of real numbers $G = [g_{\min}, g_{\max}]$. Let $F(g)$ be the fraction of voters with bliss point $g_i^* \leq g$ and suppose $F(g_{\min}) = 0$ and $F' > 0$. Given a period t , with corresponding g_b and g_e , a voter with bliss point g_i^* obtains the following payoffs:

$$v(g_b, g_e, g_i^*) = \begin{cases} 1, & \text{if } |g_b - g_i^*| > |g_e - g_i^*| \\ 0, & \text{if } |g_b - g_i^*| \leq |g_e - g_i^*| \end{cases} \quad (2)$$

The median value of g , g_m , is such that $F(g_m) = 1/2$. Turnout is assumed to be 100%. The timing of events is as follows: i) with g_b given, IN implements a certain policy g_e , ii) A and B announce their platforms, g_A and g_B (which are irrelevant), and make campaign expenditures e_A and e_B , iii) elections are held and voter i chooses:

$$\begin{aligned} \text{IN} & \quad \text{if } v(g_b, g_e, g_i^*) = 1; \\ \text{A} & \quad \text{if } v(g_b, g_e, g_i^*) = 0 \text{ and } e_A > e_B, \text{ and} \\ \text{B} & \quad \text{if } v(g_b, g_e, g_i^*) = 0 \text{ and } e_B \geq e_A. \end{aligned} \quad (3)$$

Thus the incumbent politician sets his policy so as to maximize the probability of reelection, while other candidates seek to maximize funding for their campaigns (their perspective will not be explored in this paper).

The probability of reelection (payoff function for IN) can be written as:

$$p_{IN} = \text{prob} \left[\int_G v(g_b, g_e, g_i^*) di > \frac{1}{2} \mid g_b \right] \quad (4)$$

Note that, because the assumptions generate a “tit-for-tat” referendum on the incumbent, the integral should always be compared to $\frac{1}{2}$, no matter how many candidates compete in the election and how they behave. Additionally, maximizing the probability of reelection in the deterministic case is the same as maximizing the share of votes.

I make some extra assumptions regarding potential moves by incumbents. The change in the value of the policy variable, or size of the move, δ , is constrained by two limitations: i) incumbents are not able to implement moves that imply a δ higher than a given δ_{\max} because it is not feasible and ii) there is a threshold for policy fine-tuning equal to δ_{\min} , beyond which voters do not observe the move. So $\delta \in [\delta_{\min}, \delta_{\max}]$. Additionally, if an incumbent has to decide upon two different moves that yield the same probability of reelection, he will always choose the one that generates a higher share of votes. If both produce the same share of votes, he will choose the move which implies a smaller change in g .

3.1. Deterministic Equilibrium

To define the equilibrium, it is only necessary to understand the strategies chosen by the candidates, since voters play in an automatic retrospective manner as described in (3). Candidates A and B’s strategy is to maximize their campaign expenditures (how they do that is not the focus of this paper). The incumbent, IN, chooses a strategy which maximizes p_{IN} with g_b and $F(\cdot)$ given. Let $S_{IN}(g_b, g_m) = [d_s, \delta_s]$ denote IN’s strategy, formed by a vector of direction and size of move ($d = +1$ for a move of g from g_b towards g_m , $d = -1$ for a move of g from g_b in the opposite direction of g_m and $d = 0$ for no move).

Proposition 1: Given g_b, g_m, δ_{\min} and the interval $[g_{\min}, g_{\max}]$:

$$i) \quad \text{if } |g_m - g_b| \geq \delta_{\min} \Rightarrow S_{IN} = [+1, \delta_{\min}] \text{ and } p_{IN} = 1 \quad (5)$$

$$ii) \quad \text{if } |g_m - g_b| < \delta_{\min} \Rightarrow S_{IN} = [0, 0] \text{ and } p_{IN} = 0 \quad (6)$$

Proof: See Appendix and figure 6.

Corollary 1: *The policy variable g converges to the neighborhood of the median value, g_m , at a velocity of δ_{min} per term.*

Corollary 2: *An incumbent is reelected n times before losing power in the deterministic setting.*

$$\text{Where } n = \text{floor}(|g_m - g_b| / \delta_{min}) \quad (7)$$

Corollary 3: *If fine-tuning of policy is perfect (δ_{min} is infinitesimal) and provided reelection is allowed indefinitely (not necessarily reelection of the candidate, but of the party), the incumbent politician (or party) will stay in office permanently in a deterministic setting.*

3.2. Stochastic version

Bartels (2008) correctly states that “voters have great difficulty judging which aspects of their own and the country’s well-being are the responsibility of elected leaders and which are not.” In some occasions, voters blame the incumbent politician for the negative effects on welfare caused by economic downturns, which are not controllable by the incumbent.

This additional information constraint can be incorporated to the model in different ways. One possibility is to change expression (3) by assigning a probability to the event of a voter choosing IN even though $v(g_b, g_e, g_i^*) = I$ for such voter. Equation (3) becomes:

$$\begin{aligned}
 \text{IN} & \quad \text{if } v(g_b, g_e, g_i^*) = I, \text{ with probability } p_s; \\
 \text{A} & \quad \text{if } v(g_b, g_e, g_i^*) = 0 \text{ and } e_A > e_B, \text{ or} \\
 & \quad \text{if } v(g_b, g_e, g_i^*) = I, \text{ with probability } (1 - p_s) \text{ and } e_A > e_B; \text{ and} \\
 \text{B} & \quad \text{if } v(g_b, g_e, g_i^*) = 0 \text{ and } e_A > e_B, \text{ or} \\
 & \quad \text{if } v(g_b, g_e, g_i^*) = I, \text{ with probability } (1 - p_s) \text{ and } e_B \geq e_A.
 \end{aligned} \quad (8)$$

Where p_s is defined as the “state effect on voter” and assumes different values for each direction of change in the state of the world: p_b when the state changes for better, p_w when it changes for worse and p_e when it remains stable.

Though IN knows the stochastic process governing nature’s choice, this specification does not imply any changes in IN’s strategy relative to the deterministic case. It only increases the frequency with which power changes hands. To make the model more realistic, I also add an exogenous ex-post multiplier to the size of the move chosen by IN. I define the effective move, δ_{eff} , as:

$$\delta_{eff} = \delta_s \cdot r_s.$$

Where δ_s is the move originally chosen by IN and r_s is defined as the “state effect on policy”, assuming different values for each change in the state of the world: r_b , r_w and r_e .

The timing of events is as follows: i) with g_b given, IN chooses a certain policy g_e (which implies a certain δ_s), ii) A and B announce their platforms, g_A and g_B (which are irrelevant), and make campaign expenditures e_A and e_B , iii) nature plays and chooses the state of the world (p_s and r_s are determined), iv) the effective move in g is implemented ($\delta_{eff} = \delta_s \cdot r_s$), (v) elections are held and voter i chooses according to (8). IN is partially able to mitigate the uncertainty by choosing:

$$\delta_s' = \delta_s / \min(r_b, r_w, r_e) \tag{9}$$

The effective move implemented after r_s is revealed will be:

$$\delta_{eff} = \delta_s' / r_s = [\delta_s / \min(r_b, r_w, r_e)] / r_s \tag{10}$$

In equilibrium, Proposition 1 will hold, but policy will be magnified in all states of the world so as to maximize the expected value of (4) (since moving g does not engender any cost for IN). The outcome of elections will be probabilistic and Corollaries 2 and 3 will no longer hold.

4. Two-dimensional Policy Space Model with Three Groups of Voters - Applied Model

This section describes a particular model that I use to study the Lula phenomenon presented in the first section. No theoretical results will be drawn.

The policy space consists of two variables: government expenditures and inflation (G and π). $G \in [G_{\min}, G_{\max}]$ and $\pi \in [\pi_{\min}, \pi_{\max}]$. Voters are classified as rich, middle class and poor. These groups are homogeneous and their respective shares in the total population are: α_r , α_m and α_p ²¹. The preferences of each group are reflected in the following median values for each variable:

	Poor	Middle-class	Rich
G_m	G_{max}	<i>N.A.</i>	G_{min}
π_m	π_{min}	π_{min}	π_{min}

The priorities of the three different classes are devised conveniently so as to sidestep difficulties arising from the multiplicity of policy dimensions. To keep the model two-dimensional, G is used as a proxy for taxes when considering the rich class. The middle-class is assumed to be indifferent with respect to G (from one side they pay some taxes and from the other they benefit from public expenditures).

The decision rules of the different classes are shown below. Policy variables are always displayed in the order (G, π). U stands for “up” and D for “down”.

²¹ It is as if there were only three individuals with different weights.

Poor		Middle-class		Rich	
(U, D)	$v = v_{high}$	(U, D); (D, D)	$v = v_{high}$	(D, D)	$v = v_{high}$
(U, U); (D, D)	$v = v_{mid}$	(D, U); (U, U)	$v = v_{low}$	(U, D); (D, U)	$v = v_{mid}$
(D, U)	$v = v_{low}$			(U, U)	$v = v_{low}$

At a certain t , given G_b and π_b , IN is faced with a four-element set of actions and respective payoffs:

Strategy	Expected Payoff
(U, U)	p_{INuu}
(D, D)	p_{INdd}
(D, U)	p_{INdu}
(U, D)	p_{INud}

The economy evolves according to a Markov process and goes through good, regular and bad times.

Transition probabilities are given by:

$$\begin{array}{l}
 \textit{good} \\
 \textit{regular} \\
 \textit{bad}
 \end{array}
 \begin{bmatrix}
 t_{gg} & t_{gr} & t_{gb} \\
 t_{rg} & t_{rr} & t_{rb} \\
 t_{bg} & t_{br} & t_{bb}
 \end{bmatrix}
 \quad (11)$$

The state effects on policy, s_b, s_w, s_e , and on voters, p_b, p_w, p_e are given.

IN's problem is illustrated graphically in figure 7. IN will select the strategy which maximizes the expected value of (4). Note that, regardless of the strategy selected by IN, the optimal size of the moves will be:

$$\delta_G = \delta_{Gmin} / \min(r_b, r_w, r_e) \quad (12)$$

$$\delta_\pi = \delta_{\pi min} / \min(r_b, r_w, r_e) \quad (13)$$

So that there will be no risk of implementing a move that voters cannot observe ex-post. The effective changes in the policy variables after nature plays r_s will be:

$$\delta_{G_{eff}} = \delta_G / r_s = [\delta_{G_{min}} / \min(r_b, r_w, r_e)] / r_s \quad (14)$$

$$\delta_{\pi_{eff}} = \delta_{\pi} / r_s = [\delta_{\pi_{min}} / \min(r_b, r_w, r_e)] / r_s \quad (15)$$

Based on (11), the table below shows the probabilities attached to each change in state given the current state:

	Better	Stable	Worse
Good	0	t_{gg}	$t_{gr} + t_{gb}$
Regular	t_{rg}	t_{rr}	t_{rb}
Bad	$t_{br} + t_{bg}$	t_{bb}	0

For both policy variables, the expected values of the effective changes will be conditional on the current state of nature:

$$E(\delta_{eff} | w = g) = \delta \cdot [t_{gg} \cdot r_e + (t_{gr} + t_{gb}) \cdot r_w] \quad (16)$$

$$E(\delta_{eff} | w = r) = \delta \cdot [t_{rg} \cdot r_b + t_{rr} \cdot r_e + t_{rb} \cdot r_w] \quad (17)$$

$$E(\delta_{eff} | w = b) = \delta \cdot [t_{bb} \cdot r_e + (t_{br} + t_{bg}) \cdot r_b] \quad (18)$$

The incumbent will chose the strategy which generates the highest share of votes (sv) from:

$$sv_{INuu} = [\alpha_p \cdot v_{mid} + (\alpha_r + \alpha_m) \cdot v_{low}] \quad (19)$$

$$sv_{INdd} = [\alpha_p \cdot v_{mid} + (\alpha_r + \alpha_m) \cdot v_{high}] \quad (20)$$

$$sv_{INud} = [\alpha_r \cdot v_{mid} + (\alpha_p + \alpha_m) \cdot v_{high}] \quad (21)$$

$$sv_{INdu} = [\alpha_r \cdot v_{mid} + (\alpha_p + \alpha_m) \cdot v_{low}] \quad (22)$$

5. Calibration and Results

The values of α_r , α_m and α_p are based on FGV (2008). The recent evolution of the shares is presented in figure 8.

α_p	19.0%
α_m	51.6%
α_r	29.4%

The decision rules of the different classes are fixed ad-hoc and the state effects on voters are set residually so that the share of votes predicted by the model matches the actual numbers of the five presidential elections held from 1989 until today²²: ideal

Poor		Middle-class		Rich	
(U, D)	$v = 0.75$	(U, D); (D, D)	$v = 0.75$	(D, D)	$v = 0.75$
(U, U); (D, D)	$v = 0.50$	(D, U); (U, U)	$v = 0.50$	(U, D); (D, U)	$v = 0.50$
(D, U)	$v = 0.20$			(U, U)	$v = 0.20$

p_b	0.85
p_e	0.80
p_w	0.75

For illustration purposes only, figure 5 shows how voters' personal experiences affect their opinion. Manacorda et al. (2009) find that beneficiary households of PANES anti-poverty program in Uruguay are 21 to 28 percentage points more likely to favor the current government.

The output Markov process transition matrix is taken from Alfaro and Kanczuk (2005):

$$\begin{matrix} good \\ regular \\ bad \end{matrix} \begin{bmatrix} 0.5 & 0.5 & 0 \\ 0.05 & 0.90 & 0.05 \\ 0.5 & 0.5 & 0 \end{bmatrix}$$

²² Methodologically speaking, this is not an ideal practice. However, it is the only alternative available given the scarcity of information on the decisions of voters.

This matrix generates the following change-of-state table:

	Better	Stable	Worse
Good	0	0.5	0.5
Regular	0.05	0.90	0.05
Bad	1	0	0

I calibrate the state effects on policies for illustration purposes only. The results I obtain are not affected by them because they are limited to the magnifying effect on the moves by IN. I show an example of the potential impact of uncertainty on the decision of δ_G . Supposing $r_b = 0.75$, $r_e = 0.50$ and $r_w = 0.25$, IN would set $\delta_G = \delta_{Gmin} / 0.25 = 4 \times \delta_{Gmin}$. If nature played “better”, the effective move, δ_{Geff} , would be $\delta_{Geff} = 0.75 \times 4 \times \delta_{Gmin} = 3 \times \delta_{Gmin}$. Analogously, if nature played “stable”, $\delta_{Geff} = 0.50 \times 4 \times \delta_{Gmin} = 2 \times \delta_{Gmin}$. Finally, if nature played “worse”, $\delta_{Geff} = 0.25 \times 4 \times \delta_{Gmin} = \delta_{Gmin}$. This simple exercise suggests this model correctly predicts the procyclicality of government expenditures observed in emerging economies (Talvi and Végh, 2000, Lane, 2003, Kaminsky et al., 2004).

The expected payoffs for IN, for each strategy, conditional on the current state of nature are:

	Good	Regular	Bad
(U, U)	19.9%	20.6%	21.8%
(D, D)	54.4%	56.2%	58.0%
(U, D)	52.4%	54.1%	55.8%
(D, U)	22.3%	23.1%	23.8%

The strategy chosen by IN will then be (D, D). However, due to the small difference between the expected payoffs under (D, D) and (U, D), IN may well choose to implement (U, D). Under (U, D) it will probably be easier to conciliate the demands of all agents who expect to receive compensation (in the form of political and/or pecuniary favors) for political and/or pecuniary support prior to elections.

The realized payoffs for different changes in state are:

	Better	Stable	Worse
(U, U)	21.8%	20.6%	19.3%
(D, D)	59.7%	56.2%	52.7%
(U, D)	57.5%	54.1%	50.7%
(D, U)	24.5%	23.1%	21.6%

The message is that reelection will only happen when IN implements (D, D) or (U, D), i.e. inflation control. But the good news (for IN) is that it will happen regardless of the evolution of the economy. This result is obviously conditional on the calibration of parameters chosen and should not be regarded as definitive.

I now display the results of real past elections and the outcomes predicted by the applied model. Unfortunately, the sample is too small and does not allow for calibration to be based on a large set of values. Therefore, the good fit of the model may contain some circularity.

Year	Incumbent	Winner	G_b^{23}	G_e	π_b^{24}	π_e	u_b^{25}	u_e	Strategy played	Change in state	Official candidate reelected?	Theory predicts reelection?	Official candidate share of votes (real)	Official candidate share of votes (model)
1989	Sarney	Collor	100	188	209%	1,864%	12.4%	6.7%	(U, U)	Better	NO	NO	4.4%	21.8%
1994	Itamar	FHC	100	112	1,149% ²⁶	929%	14.4%	12.6%	(U, D)	Better	YES	YES	54.3%	57.5%
1998	FHC	FHC	100	120	929%	2%	12.6%	17.4%	(U, D)	Worse	YES	YES	53.1%	50.7%
2002	FHC	Lula	100	102	2%	15%	17.4%	18.5%	(U, U)	Worse	NO	NO	38.6%	19.3%
2006	Lula	Lula	100	105	15%	3%	18.5%	14.2%	(U, D)	Better	YES	YES	60.8%	57.5%

²³ Index of government expenditures per capita in real terms (= 100 at the beginning of each term).

²⁴ Inflation as measured by INPC index.

²⁵ Unemployment in the São Paulo Metropolitan Region only. Measured by Seade (there was a change in the methodology used to compute national figures during the period studied)

²⁶ Because Collor was impeached, the begin values for Itamar correspond to the year of 1992, when he took power.

In any case, the theoretical predictions of the model seem to reflect well the recent Brazilian electoral history. Inflation control has been a key driver for popularity. And there has been steady increase in real per capita government expenditures. Although this paper does not look at G in detail, changes in its composition have also played a role, in the spirit of Drazen and Eslava (2005). Figure 9 shows an example.

7. Conclusion

The aim of this paper was to build a political economy model that both reflected the Brazilian “micro” reality and produced an outcome that could rationalize the Lula phenomenon. The main questions are: i) how could a radical-left union leader, who used to defend debt default and aggressive land reform, make it to power by promising to implement policies he used to condemn? ii) why has he, once in office, completely adhered to the fiscal and monetary policies of his rival predecessor? and finally, iii) how did he become “the most popular politician on Earth”²⁷?

The profile of the Brazilian electorate is part of the answer. Voters are uneducated (22.6% are illiterate or semi-illiterate; 82.3% possess less than secondary education), partisanship is weak, per capita income is low and hyper inflation is a trauma. The other part of the answer lies in Lula. He corroborates the assumption that politicians are purely office-motivated. The staggering moderation in his political positioning could not be due to anything else. Lula’s platform went from “macroeconomics of populism” (Dornbusch and Edwards, 1990) to Washington Consensus non-stop. The charismatic leader figured out how to maintain his popularity sky-high and is (obviously) doing it. His strategy is no secret to anyone: low inflation and high government expenditures, particularly Bolsa Família transfers.

The proposed model builds on two assumptions that I believe reflect the Brazilian case accurately. Voters are loss-averse and use retrospective evaluations to decide on their votes. Both premises are justifiable given the low-information, low-education, low-income environment in Brazil. I first build a unidimensional theoretical model that resembles Ferejohn (1986), but is based on rather different arguments. I find that the policy variable converges slowly to the neighborhood of its

²⁷ Barack Obama at the G20 Summit, April 2009.

median value. Until it does, politicians are reelected continuously in a deterministic setting. I then construct, calibrate and simulate a stochastic two-dimensional policy space model with three groups of voters (rich, middle-class and poor). The key message of this exercise is that inflation control is the major driver of political popularity in Brazil. That happens because the rich, poor and middle classes' preferences on government expenditures produce a net effect close to indifference. Therefore, according to the model, inflation control should be office-seeking policymakers' top-priority. I compare the predictions of the model to empirical evidence and it works well for the recent Brazilian presidential electoral history. Yet another appealing feature of the model is that it can generate the procyclicality of government expenditures generally observed in emerging economies.

It is worth emphasizing that the results obtained with the applied model are conditional on parameters calibrated with very little information. They should, therefore, not be regarded as definitive. An interesting and opportune road for future research would be to deeper explore the following statement by Bacha (2004): *"the success of Lula's government will depend on the result of a race between the drop of his popularity, on one hand, and the improvement of the economy, on the other."* Bacha (2004) wrote this in another context, but his conjecture just became up-to-date again.

References

- Achen, C., Bartels, L., 2006. It Feels Like We're Thinking: The Rationalizing Voter and Electoral Democracy. Annual Meeting of the American Political Science Association, Philadelphia.
- Alfaro, L., Kanczuk, F., 2005. Sovereign Debt As A Contingent Claim: A Quantitative Approach. *Journal of International Economics*. 65, 297-314.
- Bacha, E., 2004. Elementos para uma Economia Política das Reformas no Governo Lula. *Revista de Economia Política* 24 (1), 93.
- Bartels, L. M., 1996. Uninformed votes: Information effects in presidential elections. *American Journal of Political Science* 40 (1), 194-230.
- Bartels, L. M., 2008. How stupid are we, really? What Voters Know and — More Importantly — How They Vote. *Wilson Quarterly*. Autumn.
- Bendor, J., Kumar, S., Siegel, D., forthcoming. Adaptively Rational Retrospective Voting. *Journal of Theoretical Politics*.
- Campbell, A., Converse, P., Miller, W., Stokes, D., 1960. *The American Voter*. New York: John Wiley.
- Dornbusch, R., Edwards, S., 1989. The macroeconomics of populism in Latin America. Policy Research Working Paper Series 316, The World Bank.
- Downs, A., 1957. *An Economic Theory of Democracy*. New York: Harper.
- Drazen, S., Eslava, M., 2005. Electoral Manipulation Via Expenditure Composition: Theory and Evidence. NBER Working Paper 11085.
- Ferejohn, J., 1986. Incumbent performance and electoral control. *Public Choice* 50 (1), 5-25.
- FGV. 2008. *A Nova Classe Média*. Neri, M. (Coord.), Rio de Janeiro: FGV/IBRE.
- Fiorina, M. P., 1981. *Retrospective Voting in American National Elections*. New Haven, London: Yale University Press.
- Kahneman, D., Tversky, A., 1979. Prospect theory: An analysis of decision under risk. *Econometrica* 47 (2), 263-292.
- Kaminsky, G., Reinhart, C., and Végh, C. (2004), *When It Rains It Pours: Procyclical Capital Flows and Macroeconomic Policies*, NBER Working Paper 10780.

- Key, V. O. Jr., 1966, "The Responsible Electorate: Rationality in Presidential Voting, 1936 - 1960". Cambridge, MA: Harvard University Press.
- Lane, P. R., 2003. "Business Cycles and Macroeconomic Policy in Emerging Market Economies," *International Finance*, Blackwell Publishing, vol. 6(1), pages 89-108, Spring.
- Manacorda, M., Miguel, E., Vigorito, A., 2009. Government Transfers and Political Support. NBER Working paper 14702.
- Miller, W., Shanks, J., 1996. *The New American Voter*. Cambridge: Harvard University Press.
- Quattrone, G. A., Tversky, A., 1988. Contrasting rational and psychological analyses of political choice. *The American Political Science Review* 82 (3), 719-736.
- Robertson, D., 1976. Surrogates for Party Identification in the Rational Choice Framework. In *Party Identification and Beyond: Representations of Voting and Party Competition*. London: Wiley.
- Rogoff, K., 1990. Equilibrium Political Budget Cycles. *American Economic Review* 80, 21-36.
- Samuels, D. 2001. Money, Elections and Democracy in Brazil. *Latin American Politics and Society*, 48.2.
- Samuels, D. 2006. Sources of Mass Partisanship in Brazil. *Latin American Politics and Society* 48(2): 1-27.
- Samuels, D. forthcoming. *Brazilian Democracy under Lula and the PT. Constructing Democratic Governance in Latin America 3rd Edition*.
- Samuelson, W., Zeckhauser, R., March 1988. Status quo bias in decision making. *Journal of Risk and Uncertainty* 1 (1), 7-59.
- Talvi, E., Végh, C., 2000. Tax Base Variability and Procyclical Fiscal Policy. NBER Working Paper 7499.

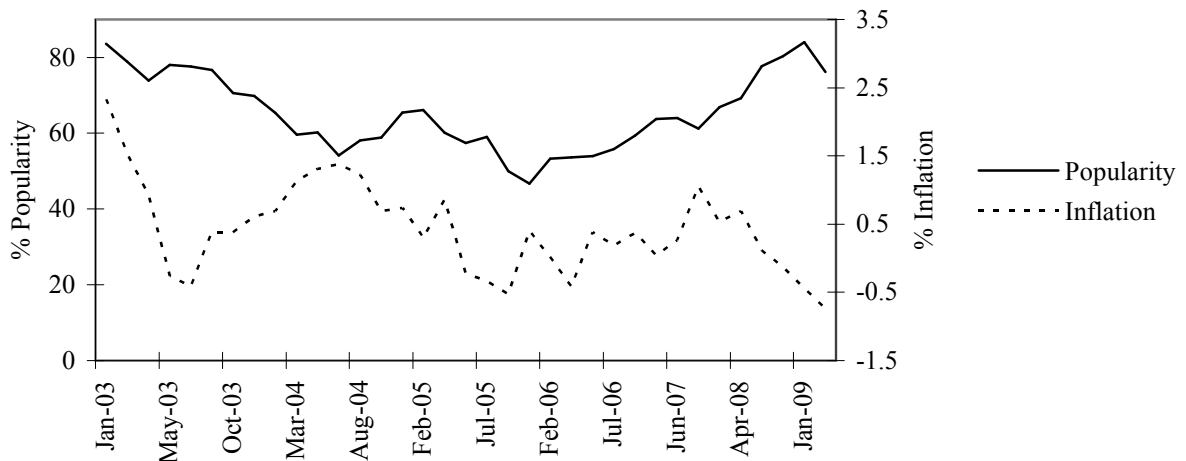
Appendix

Proof of Proposition 1:

Item i): If $S_{IN} = [0, 0] \Rightarrow v(g_b, g_e, g_i^*) = 0 \Rightarrow p_{IN} = 0$. If $S_{IN} = [-1, \delta]$ (figure 6b), the share of voters who approve the move is $F[(g_b + g_e) / 2]$, which is, by definition, smaller than $F(g_m) = 0.5$. That is because g_e will be closer to a voter with bliss point to the left of $(g_b + g_e) / 2$ than g_b was. If $S_{IN} = [1, \delta]$ (figure 6a), the share of voters who approve the move is $F[1 - (g_b + g_e) / 2]$, which is, by definition, higher than $F(g_m) = 0.5$. As for the optimal size of δ , note that the share of votes of IN decrease by $(g_b + g_e) / 2$ when he moves g towards g_m . Therefore, the smaller the move, the better $\Rightarrow S_{IN} = [1, \delta_{min}]$ is the optimal strategy for IN.

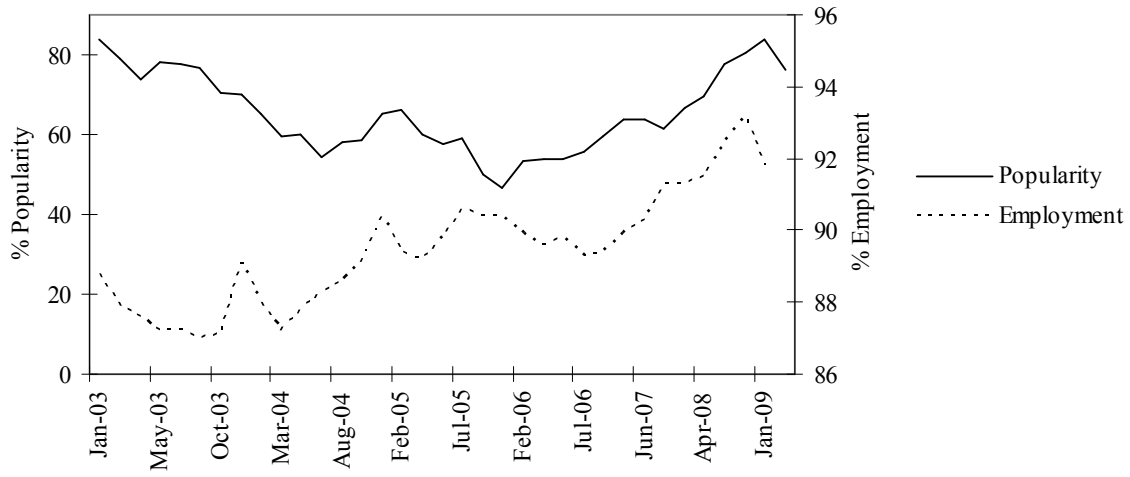
Item ii): This follows from the assumption that voters do not observe moves that change g by less than δ_{min} . Suppose $|g_b - g_m| < \delta_{min}$. Then $|g_e - g_m| = \delta_{min} - |g_b - g_m|$. Therefore $|g_b - g_m| - |g_e - g_m| < \delta_{min} - \delta_{min} + |g_b - g_m| < \delta_{min}$. So the benefit of such move would not be observable to voters. Because of the assumption that if an incumbent has to decide upon two different moves that yield the same probability of reelection and the same share of votes, he will choose the move which implies a smaller change in g , the optimal strategy for IN will be inaction. \square

Figure 1: Lula's Popularity (% Approval) and Inflation (IGP-M % Variation)



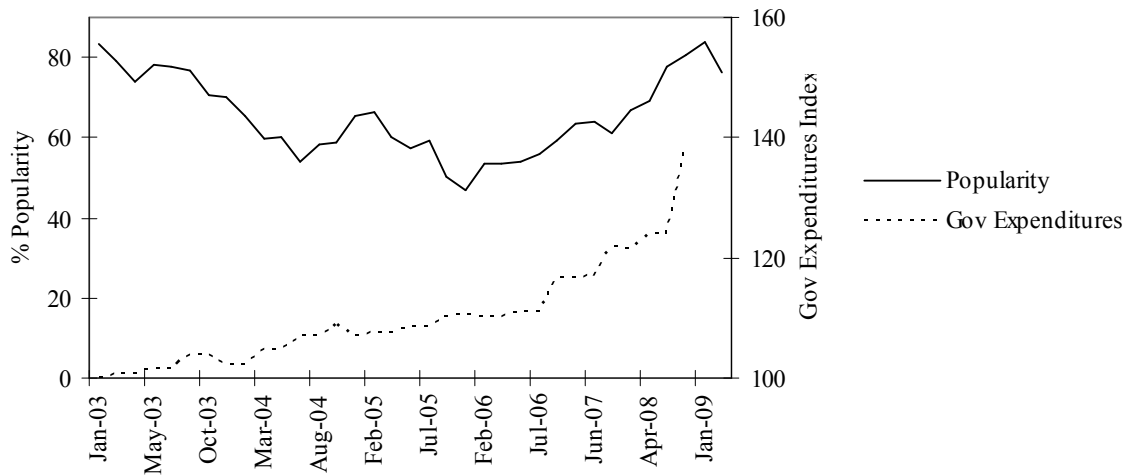
Source: Instituto Sensus (www.sensus.com.br) and Banco Central do Brasil

Figure 2: Lula's Popularity (% Approval) and % Employment²⁸



Source: Instituto Sensus (www.sensus.com.br) and Banco Central do Brasil

Figure 3: Lula's Popularity (% Approval) and Real Government Expenditures Index (= 100 in Jan 2003²⁹)

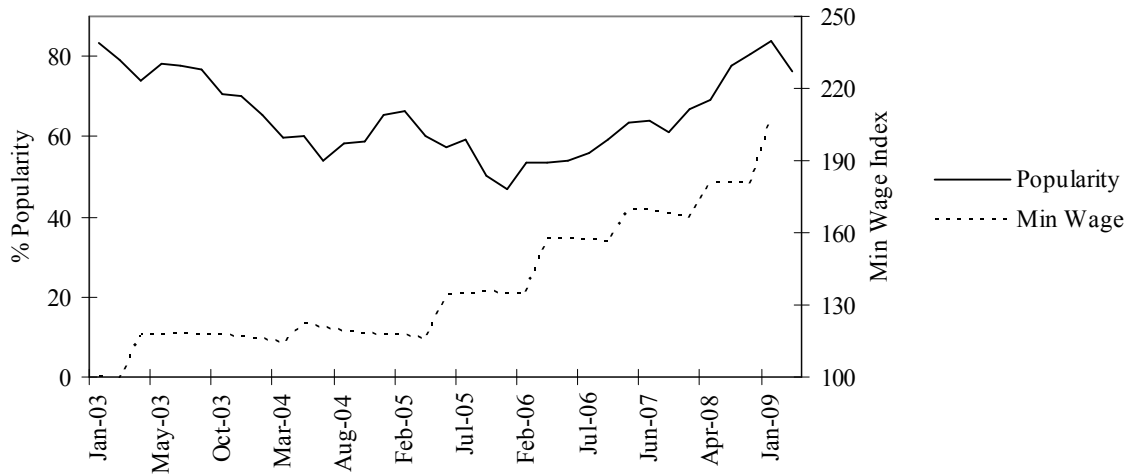


Source: Instituto Sensus (www.sensus.com.br) and IPEADATA

²⁸ One hundred minus IBGE's metropolitan areas 30-day unemployment rate.

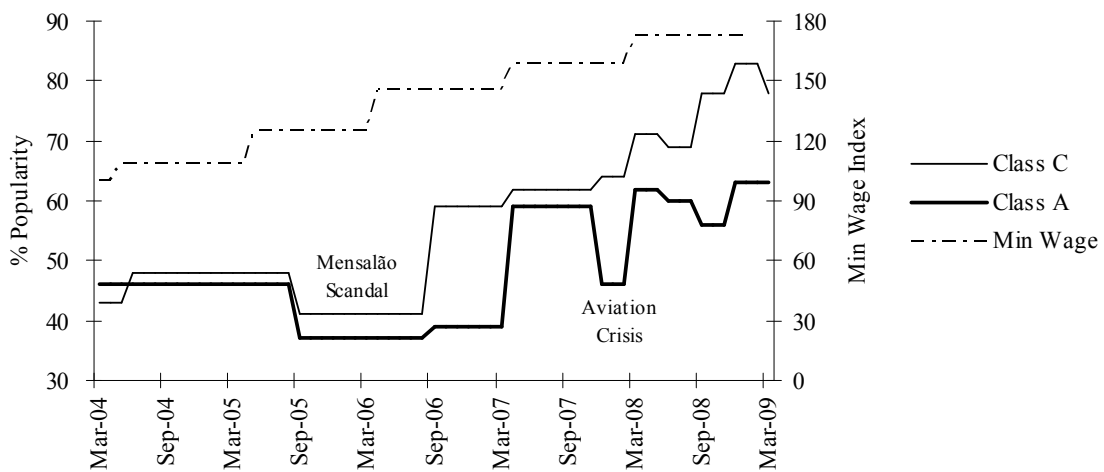
²⁹ Deflated using GDP deflator.

Figure 4: Lula's Popularity (% Approval) and Minimum Wage Index (= 100 in Jan 2003³⁰)



Source: Instituto Sensus (www.sensus.com.br) and IPEADATA

Figure 5: Lula's Popularity for Classes A and C and the Minimum Wage (Index = 100 in March-2004)



Source: CNI-Ibope and IPEADATA

³⁰ Deflated using IGP-M.

Figure 6a

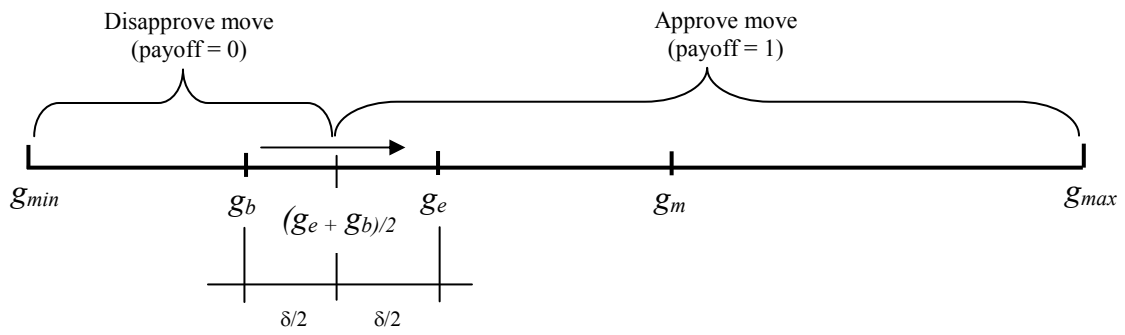


Figure 6b

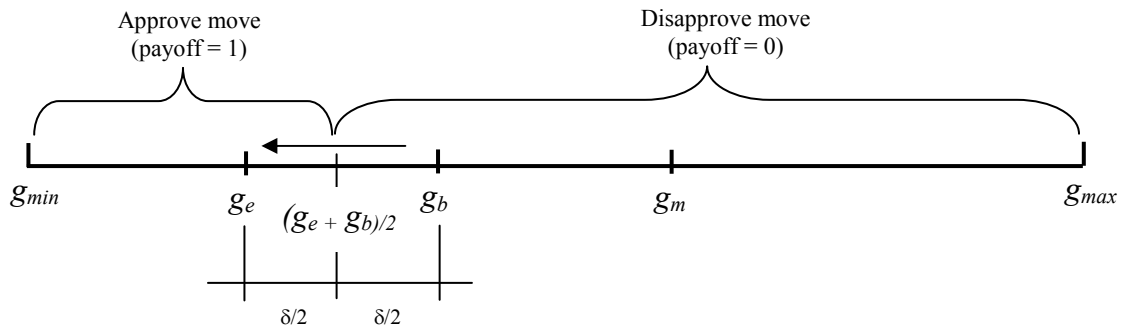


Figure 7: Incumbent's Set of Actions

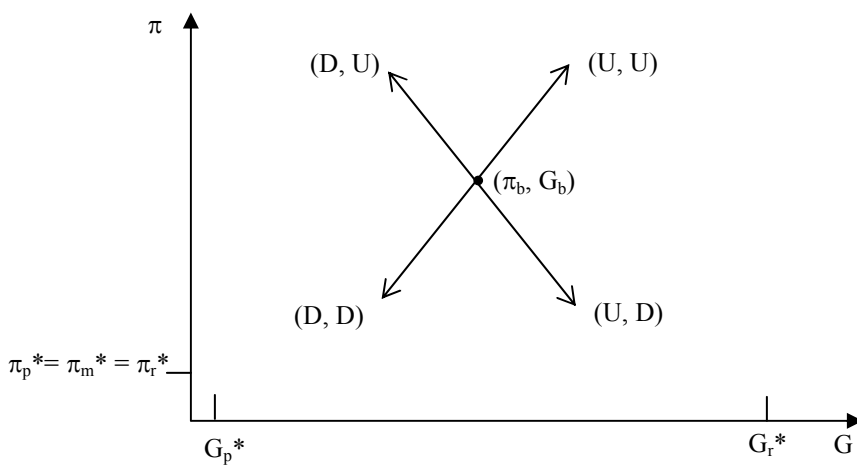
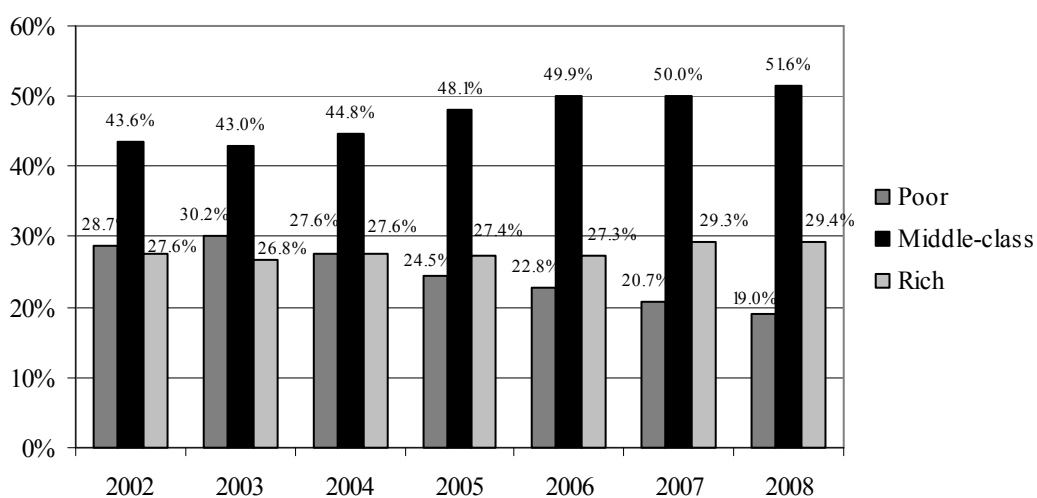
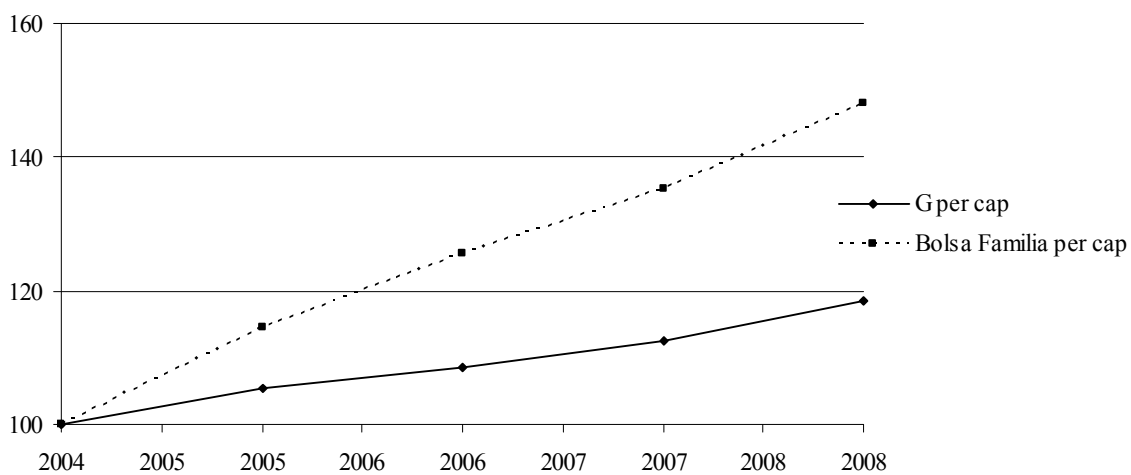


Figure 8: Evolution of Economic Classes – Share of Total Population



Source: FGV (2008)

Figure 9: Government Expenditures per Capita and Bolsa Familia³¹ Transfers Per Capita (Index = 100 in 2004)



Source: IPEADATA and www.portaltransparencia.gov.br

³¹ Anti-poverty program that extends financial aid to poor families provided that the children attend school and are vaccinated.