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Policy Reversals: A Democratic Nixon and a Republican Clinton

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Abstract

We develop a model in which political parties but not voters are informed about which policies induce the optimal outcome for the voters. Policies can be located on the real line. Parties are policy-oriented, and have polarized preferences, i.e., any leftward move of the implemented policy is preferred by the left-wing party, and any rightward move by the right-wing party. Parties have to precommit to policy platforms before the election. We divide the equilibrium set into two classes, according to whether or not the public can infer the optimal policy from the platforms the parties choose. In every equilibrium and every individual election, the right-wing party proposes a platform that is at the right of the one proposed by the left-wing party. However, in revealing, or separating, equilibria, the policy position of the right-wing party when it gets to win the election is at the left of the one implemented by the left-wing party when it wins in turn. This result partly explains some observed electoral episodes in which the winning party is the one which seems in principle least identified with the policies wished for by the electorate.

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> The Democrats used to be the party of the welfare state, of misgovernment-as-usual, of a tendency to believe that the poor and the unconventional and even the criminal deserved more sympathy than average Americans. ... Mr. Clinton has abandoned these positions. He has ended guaranteed welfare, and proclaimed the era of big government over. He has trumpeted his tough policies on crime. He has talked little about helping gays or feminists or poor blacks, addressing himself instead to the concerns of the middle class. ... Mr. Clinton has stolen many Republican ideas, just as Nixon governed like a Democrat. ("A Democratic Nixon?," The Economist, November 2nd, 1996)

1. Introduction

The last presidential election in the United States has witnessed the triumph by a comfortable margin of a traditionally left-leaning party in spite of the rising influence on public opinion of the policy proposals of their right-wing counterpart. Starting in the 1992 election but even more so in the last campaign, the Democratic Party's electoral position has tilted toward the right, and voters have supported the Democratic Party to pursue policies that are, at least in principle, closer to their opponents' favorite policies.[1] Indeed, there is a number of episodes in which important policy shifts have been supported by the electorates on parties or candidates whose traditional position were to oppose such policies. Other examples are market-oriented reforms in Latin America. Throughout the region,

[1] Of course, in the U.S. the administration's influence on policy is affected by the composition of Congress, a fact emphasized by Alesina and Rosenthal [1996].

radical trade liberalization and fiscal adjustment have been implemented by the parties or candidates which had proved in the past penchants for populism and interventionism.[2]

These episodes raise the question of why voters would end up supporting a political party to implement a set of policies that appear to be far from the party's ideal policies rather than a political party whose ideology favors such policies. Following Cukierman and Tommasi [1996a,b], who first construct a model of such a phenomenon, we call this seemingly unlikely choice a *policy reversal* and formulate a model of electoral competition which accounts for it.

In the present model, the utility of voters depends on the outcome of the policy adopted by the winning party. The voters are interested in the outcome of policies rather than in the policies themselves. Political parties are represented as having distinct and polarized preferences on outcomes, and hence on policies.[3] The political parties have better information than the voting public about the likely outcome of different policies.

The parties simultaneously announce and commit to their policy platforms, after obtaining some information about the correspondence between policies and

[2]See, e.g., Rodrik [1993].

[3]See, e.g., Wittman [1983, 1990] and Calvert [1985].

outcomes. The voters do not have the information that the parties obtained. Instead, they observe the announced platforms and then decide which party to vote for. The policy announced by the winning party is implemented.

Two remarks about the setup are in order. First, the assumption that the parties are better informed than the public reflects the fact that politicians deal frequently with public policy issues, but for most other people it is irrational to become politically well-informed (Downs [1957]). Since the voters are uncertain about the relationship between policies and outcomes, they might end up supporting very different policies according to the information revealed to them by politicians.[4]

Second, while the assumption that the parties commit to their platforms is made for simplicity, we can think of it as the result of "announcement costs," such as future punishment by voters for past indiscretions (Banks [1990]). It should be noted also that our analysis would remain unchanged if there is a one-to-one correspondence between the proposed platform and the implemented policy.

We distinguish two types of equilibria, non-revealing equilibria and revealing equilibria. In non-revealing equilibria, voters are unable to infer the information

[4]Existing papers sharing a similar setup include Harrington [1993], Roemer [1994], Schultz [1996], and Martinelli [1996].

held by the parties since both parties do not condition their policy announcements on the received information. In revealing equilibria, the voters are able to infer the information held by the parties from their policy announcements, and use this information in order to decide which party to support.

In all equilibria, the platform of the right-wing party is located at the right of that of the left-wing party in every single election. That is, in every single election, policy platforms are ordered as we could expect from the ideological positions of the parties. Revealing equilibria, however, exhibit a paradoxical feature: the right-wing party implements policies that are at the left of the policies implemented by the left-wing party. Different parties win in different states of the world.

In revealing equilibria the information shared by the parties serves as a correlation device for the parties' policy platforms. There are two types of revealing equilibria, according to whether policy platforms are positively correlated or negatively correlated with the "state of the world" (i.e. the median voter's preferred policy platform if he/she learns the information held by the parties). In all positive correlation equilibria, the median voter supports the left-wing party when the revealed information favors the right-leaning policies, and vice versa. As a result, we observe the paradox of policy reversals.

Roughly speaking, the above outcome is supported as an equilibrium outcome by the following location choices of the parties and belief formation of the voters. Suppose that the signal favors the right-leaning policy (the other case is similarly taken care of). In this case, it is proven, in the equilibrium, that the policy position of the left-wing party is on the lefthand side of the median voter's bliss point, while the position of the right-wing party is on the righthand side, and they are equally distant from the bliss point. If the right-wing party moves toward the median voter's bliss point, then the voters' beliefs are changed so that they put a positive probability on the other signal and still favors the position of the left-wing party. The movement in the opposite direction does not change the outcome. The left-wing party has no incentive to move, either. If it moves to the left, then it loses the election, and the opponent implements the policy. It has no incentive to move to the right since it wins the election anyway.

The logic behind the nonexistence of other revealing equilibria with positive correlation is complicated as there are many candidates for equilibria which should be eliminated. In this introduction, we mention only an intuitive reason for the result that the moderate wins for certain, i.e., the left-wing (resp. right-wing) party wins with probability one when the signal favors the right-leaning (resp.

left-leaning) policies.

Suppose, in an equilibrium with positive correlation, that the right-wing party wins with a positive probability when the signal favors the right-leaning policies. We divide the argument into two cases. First, if this party's policy position is located at the right of the median voter's bliss point, then the left-wing party has an incentive to move toward the right just enough to win the election for certain. In doing so, it does not have to worry about an unfavorable shift of voters' beliefs since they already have the worst beliefs for the party.

Second, if the right-wing party is located either at the bliss point or on the lefthand side of it, then it wins the election for certain. In this case, the left-wing party has an incentive to mislead the public by switching to the platform that it would take if the realized signal favors the left-leaning policies. Thus, the right-wing party cannot win with a positive probability if its favorite state is realized.

Revealing equilibria with negative correlation between platforms and the state of the world are even more paradoxical. In this case, both the left-wing party and the right-wing party change their platforms further to the left if the state of the world favors the adoption of right-wing policies. We show, however, that among revealing equilibria only those with positive correlation survive a requirement similar in flavor to renegotiation-proofness, which we call credibility. Credibility requires that no party announces a platform which it would like to renege on after the election is over and the median voter, *a fortiori*, a majority, would be willing to go along with such a deviation from announced policy platforms.

We have clear-cut welfare implications when we measure welfare in terms of the expected payoff of the median voter. First of all, every revealing equilibrium with positive correlation is more efficient than any non-revealing equilibrium and any revealing equilibrium with negative correlation. Moreover, among revealing equilibria with positive correlation, the farther the two implemented platforms are apart, the higher is welfare.

It is useful to compare our model with Cukierman and Tommasi's earlier work. Cukierman and Tommasi [1996a] explain policy reversals in a context in which the incumbent government, but not the challenger, has better information than voters about the relation between policies and outcomes. In a related paper, Cukierman and Tommasi [1996b] explain policy reversals in the context that the party in power must submit a policy proposal to a referendum. In both cases, the driving force of their result is that voters are willing to accept right-leaning policies only when they are proposed by a left-wing incumbent: "if even the left-wing party favors the rightward shift, we must favor it too." For this argument to work, it must be the case that the policy reversal is observed only when there is an extreme shock to an economy so that even the incumbent prefers to move in the direction it normally dislikes. The setup of our model is different from theirs in that we have two informed parties competing for the electorate. In our model, policy reversals are observed even when the optimal policy of the left-wing party is unambiguously tilted to the left. Reversals occur not because everyone likes it, but because one of the two parties reluctantly moves toward the policies it dislikes in order to win the election.

The rest of the paper is organized as follows. Section 2 builds a model with the features described above. Section 3 characterizes and discusses non-revealing equilibria. Section 4 does a similar analysis for revealing equilibria. Section 5 presents some extensions. Section 6 concludes the paper.

2. Model

Consider a society with two parties, denoted by L and R, and a large number of voters. They play an election game. In the beginning, nature chooses one of two possible states, -1 and 1. We assume that both states occur with the same probability. After observing the state, the two parties simultaneously propose a platform, given by a real number. In the next stage, voters vote for one of the two parties. Before they vote, they observe the platforms of the parties but not the state of nature. The party which obtains the majority of the votes wins the election and carries out the proposed platform.

If the state is $s = -1, 1$, and if the implemented policy is located at x, then the outcome y is assumed to be given by

$$y = x - s.$$

Thus, the policy position $x = s$ always induces the outcome $y = 0$.

There are three types of voters: the first two types are partisan, i.e. they have the same preferences as the parties, one group always supports Party L, and the other Party R. We assume that none of the partisan types has a majority.

The third type is composed of nonpartisan voters with one voter being a swing voter, who is assume to determine the outcome of the election.[5] In what follows, we ignore voters other than the swing voter.

[5]This assumption is justified if we further assume that the other non-partisan voters have kinked linear, single-peaked and symmetric preferences as we see below, that they form the belief in the same way as the swing voter, and that they vote sincerely. The analysis remains unchanged if we consider a cluster of such swing voters.

The swing voter's payoff if the outcome is y is given by

$$-|y|.$$

That is, $y = 0$ is the bliss point of the swing voter. Therefore, in terms of the implemented policy, we have the following. If the proposed platform of the winning party is $x \in \Re$, and if the state is s ($s = -1, 1$), then the swing voter's payoff is given by

$$-|x - s|.$$

Note that s is identified with the swing voter's most preferred policy.[6] The swing voter is assumed to be an expected payoff maximizer. We use policy positions instead of actual outcomes of those policies in the following argument.

Parties L and R are policy-oriented and have lexicographic preferences. They first care about the actual implemented policy irrespective of which party is elected. If the payoffs from the chosen policies are identical, each party prefers winning the election to losing it. The (first-order) payoff functions for Party L and Party R are $u_L(x)$ and $u_R(x)$, respectively. We assume that both are strictly concave, u_L is strictly decreasing in x, and u_R is strictly increasing in x. Also, for

[6]Linear preferences are assumed for the sake of simplicity. The results will not change (with the exception of the welfare ordering) if the swing voters' payoff function is single-peaked and symmetric around the state of the world.

the sake of simplicity, we keep symmetry by assuming $u_L(-\delta) = u_R(\delta)$ for all δ. One example is $u_L(x) = -\exp(x)$, $u_R(x) = -\exp(-x)$.[7]

We consider Bayesian Nash equilibria of this election game, with trembling hand perfection for the second stage. These trembles correspond to some (arbitrarily) small uncertainty about how voters would vote, which precludes complete convergence of policy platforms in equilibrium.[8] We focus on the equilibria in which the parties use pure strategies but the swing voter does not necessarily do so.[9] In the following analysis, we restrict our attention to the case in which voters vote sincerely. Since the choice of the swing voter will always determine the winner of the election, the swing voter is also called the median voter.

The above restrictions reduce our description of an equilibrium to $((x_L^-, x_L^+), (x_R^-, x_R^+), \mu, q)$. In this expression, x_P^- (respectively x_P^+) is the platform proposed by Party $P = L, R$ when it receives the signal -1 (respectively 1). Next, $\mu : \Re^2 \to [0,1]$ is a belief system which maps the proposed platforms of the two parties to the voters' subjective probability of the true state's being -1. Finally,

[7]For the sake of simplicity, we assume that the payoffs of the parties do not depend upon s. The analysis and the results will not change at all if the utility functions shift in a parallel manner. The qualitative results will not change even if we consider other shifts as long as we keep the basic assumptions such as monotonicity and concavity.

[8]Trembling hand perfection cannot be applied to this game directly since there are a continuum of strategies for the parties. Therefore, we use trembles only for the voting strategies.

[9]We can purify voters' strategies if we consider a cluster of swing voters. Of course, the result would not change then.

$q : \Re^2 \to [0,1]$ is the strategy of the swing voter: $q(x_L, x_R)$ is the probability of Party L's winning when Parties L and R propose x_L and x_R, respectively.

A profile $((x_L^-, x_L^+), (x_R^-, x_R^+), \mu, q)$ constitutes an *equilibrium* if:

- there exists a sequence $\{q^k\}$ of functions from $\Re^2$ into $(0,1)$ which converges uniformly to q such that for each k, for $s = -1, 1$, and for any $x'_L \in \Re$,

$$\begin{aligned} & q^k(x_L^s, x_R^s)u_L(x_L^s) + (1 - q^k(x_L^s, x_R^s))u_L(x_R^s) \\ \geq \; & q^k(x'_L, x_R^s)u_L(x'_L) + (1 - q^k(x'_L, x_R^s))u_L(x_R^s), \end{aligned}$$

  and the equality implies $q^k(x_L^s, x_R^s) \geq q^k(x'_L, x_R^s)$, and for any $x'_R \in \Re$,

$$\begin{aligned} & q^k(x_L^s, x_R^s)u_R(x_L^s) + (1 - q^k(x_L^s, x_R^s))u_R(x_R^s) \\ \geq \; & q^k(x_L^s, x'_R)u_R(x_L^s) + (1 - q^k(x_L^s, x'_R))u_R(x'_R), \end{aligned}$$

  and the equality implies $q^k(x_L^s, x_R^s) \leq q^k(x_L^s, x'_R)$;

- if $x_L^- = x_L^+$ and $x_R^- = x_R^+$ hold, then $\mu(x_L^-, x_R^-) = 1/2$; otherwise, $\mu(x_L^-, x_R^-) = 1$, and $\mu(x_L^+, x_R^+) = 0$;

- $q(x_L, x_R) \begin{cases} = 1 & \text{if } E_L^\mu(x_L, x_R) > E_R^\mu(x_L, x_R), \\ \in [0,1] & \text{if } E_L^\mu(x_L, x_R) = E_R^\mu(x_L, x_R), \\ = 0 & \text{if } E_L^\mu(x_L, x_R) < E_R^\mu(x_L, x_R) \end{cases}$

  where $E_L^\mu(x_L, x_R) = \mu(x_L, x_R)(-|x_L + 1|) + (1 - \mu(x_L, x_R))(-|x_L - 1|)$, and $E_R^\mu(x_L, x_R) = \mu(x_L, x_R)(-|x_R + 1|) + (1 - \mu(x_L, x_R))(-|x_R - 1|)$.

In this definition, $E_P^{\mu}(x_L, x_R)$ is the expected payoff of the median voter if Party $P = L, R$ wins and implements x_P. We will say that an equilibrium is *non-revealing* if each party proposes the same platform irrespective of states, i.e., both $x_L^- = x_L^+$ and $x_R^- = x_R^+$ hold. Conversely, we will say that an equilibrium is *revealing* if $x_L^- \neq x_L^+$ or $x_R^- \neq x_R^+$ hold.

Before we go to each class of equilibria, it is worthwhile to mention the following lemma. It states that for each signal (i.e., in every election) the platform proposed by the left-wing party is at the left of the one proposed by the right-wing party. No policy reversal is observed in any single election.

Lemma 2.1. *In any equilibrium* $((x_L^-, x_L^+), (x_R^-, x_R^+), \mu, q)$, $x_L^- < x_R^-$ *and* $x_L^+ < x_R^+$ *hold.*

Proof: We proceed by contradiction. If $x_L^- > x_R^-$, then the party which wins with a positive probability has an incentive to deviate. Suppose that Party L wins with a positive probability. Then by setting its policy at x_R^-, it obtains x_R^- for sure, which is better than a combination of x_R^- and $x_L^- > x_R^-$.

If $x_L^- = x_R^-$, then we have

$$\begin{aligned} & q^k(x_L^-, x_R^-)u_L(x_L^-) + (1 - q^k(x_L^-, x_R^-))u_L(x_R^-) \\ = \quad & u_L(x^-) < q^k(x'_L, x_R^-)u_L(x'_L) + (1 - q^k(x'_L, x_R^-))u_L(x_R^-) \end{aligned}$$

for any $q^k(\cdot,\cdot) \in (0,1)$ and any $x'_L < x^-$. Therefore, the first equilibrium condition (perfection) is violated, i.e., one cannot find a sequence q^k for which incentive constraints are satisfied. Other cases are proven in the same manner. □

Note that according to the lemma no equilibrium in the model exhibits full convergence. The fact that uncertainty about voters' responses leads to departures from full convergence when parties are policy-oriented has been well understood since the work of Wittman [1983] and Calvert [1985]. Our lemma extends their results to a situation in which voters' preferences over policies are influenced by parties' platforms.

3. Non-revealing equilibria

In these equilibria, Parties L and R make different proposals from each other, say, x_L and x_R, respectively, but each of them sticks to the same platform regardless of the state. Hence, no information is revealed to voters on the equilibrium path.[10]

We claim the following:

Proposition 3.1. *$((x_L, x_L), (x_R, x_R), \mu, q)$ is an equilibrium for some μ and q if and only if $x_L < x_R$ and one of the following three conditions is satisfied:*

[10]Note, however, that the nonrevealing equilibria described below require voters to learn from the parties' platforms off the equilibrium path.

(i) $(x_L + x_R)/2 \geq -1$, *and* $x_R \leq 1$;

(ii) $(x_L + x_R)/2 \leq 1$, *and* $x_L \geq -1$;

(iii) $x_L = -1 - \delta$, $x_R = 1 + \delta$ *for some* $\delta > 0$, *and*

$$u_L(1 - \delta) \leq \tfrac{1}{2}\left[u_L(x_L) + u_L(x_R)\right].$$

A typical non-revealing equilibrium outcome in terms of policy positions is described in Figure 3.1.

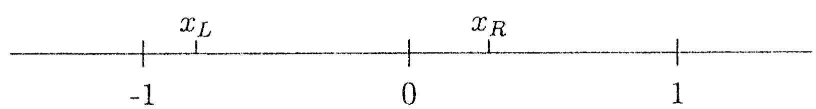

Figure 3.1: Non-revealing equilibrium (i)

To show the if-part, we assume the condition and find appropriate μ and q. First, let $\mu(x_L, x_R) = 1/2$ and

$$q(x_L, x_R) = \begin{cases} 1 & \text{if } x_L + x_R > 0, \\ 1/2 & \text{if } x_L + x_R = 0, \\ 0 & \text{if } x_L + x_R < 0. \end{cases}$$

As for out-of-equilibrium beliefs, we assume[11]

$$\mu(x'_L, x'_R) = \begin{cases} 1 & \text{if } x'_L = x_L,\ x'_R \neq x_R, \\ 0 & \text{if } x'_L \neq x_L,\ x'_R = x_R, \\ 1/2 & \text{otherwise.} \end{cases}$$

Values of $q(\cdot,\cdot)$ for out-of-equilibrium platforms are easily obtained from the assumed beliefs.

In case (i), whenever Party L deviates, the outcome will be either x_R or something that is to the right of x_R. Thus, the left party has no incentive to deviate. Party R has no incentive to deviate, either. Indeed, if the party deviates, voters believe that the state is -1, and in order to beat Party L, Party R has to move to the left if it is supposed to win with positive probability in the equilibrium, in which case it is worse off. (Checking for perfection in this and the following cases is straightforward but tedious, so is relegated to Appendix 1.)

Case (ii) is the mirror image of case (i). In case (iii), an alternative for Party L is to set its platform just right of $1 - \delta$ to obtain the median voter's support with probability one. The condition stated in (iii) implies that this deviation does not give the party a higher payoff. The same argument holds for Party R.

To show the only-if-part, note first that $x_L < x_R$ is guaranteed by the lemma. Suppose that $(x_L + x_R)/2 < -1$. Then Party R has an incentive to switch to

[11]This is an extreme belief system. In general, we can construct more realistic belief systems in which beliefs change "gradually" as platforms change.

$x_R + \varepsilon$ for a sufficiently small $\varepsilon > 0$. For any belief, $x_R + \varepsilon$ is strictly preferred to x_L by the median voter. Therefore, Party R does not fail to win and obtains something better than before. The case of $(x_L + x_R)/2 > 1$ is similarly taken care of.

Next, suppose that $x_R > 1$ without satisfying $x_L + x_R = 0$. Consider the case $x_L + x_R < 0$ first. In this case, x_R is preferred to x_L by the median voter. Then Party L has an incentive to move to a platform between 1 and x_R. By this movement, it can capture the median voter under any belief, and it is better off. In case $x_L + x_R > 0$, Party R has an incentive to deviate for a similar reason.

Finally, suppose that $x_L = -1 - \delta$, $x_R = 1 + \delta$ for some $\delta > 0$, but we have the reverse of the strict inequality of (iii), i.e.,

$$u_L(1 - \delta) > \tfrac{1}{2}\left[u_L(x_L) + u_L(x_R)\right].$$

In this case, Party L has an incentive to set its platform just right of $1 - \delta$ to obtain the median voter's support with probability one. The above inequality now implies that this deviation gives the party a higher payoff.

4. Revealing equilibria

These equilibria exhibit a paradoxical phenomenon: the policy platform carried out by the right-wing party is located at the left of the policy platform carried out by the left-wing one. Note that Lemma 1 is still valid, namely, in each state of the world, the right party proposes a platform which is at the right of the one proposed by the left party at each state, i.e., $x_L^- < x_R^-$ and $x_L^+ < x_R^+$. It is that when we compare the platforms of the winning parties across time, Party L's platform is located at the right of Party R's platform.

There are two subclasses of revealing equilibria. In one subclass, the implemented policy and the state of nature are positively correlated, while in the other, the correlation is negative. We consider the two subclasses in that order.

4.1. Revealing equilibria with positive correlation

In these equilibria, the left party wins the election with probability one if $s = 1$, *i.e.*, the state of the world favors the adoption of right wing policies, and the right party wins if $s = -1$. In other words, the "wrong" party wins every election. Voters, however, benefit from the fact that the policy platforms of both parties are positively correlated with the state of the world. The discussion in Section 5 makes clear that these equilibria are the best in terms of the median voter's welfare.

Proposition 4.1. *Suppose that* (x_L^-, x_L^+) *and* (x_R^-, x_R^+) *satisfy the following for some* $q^* \in (0,1)$:

(i) $x_L^- < x_R^- < x_L^+ < x_R^+$,

(ii) $(x_L^- + x_R^-)/2 = -1$, *and* $(x_L^+ + x_R^+)/2 = 1$,

(iii) $u_L(x_L^+) > q^* u_L(x_L^-) + (1 - q^*) u_L(x_R^+)$,

(iv) $u_R(x_R^-) > q^* u_R(x_L^-) + (1 - q^*) u_R(x_R^+)$.

Assume further

(v) $q(x_L^-, x_R^-) = 0$, $q(x_L^+, x_R^+) = 1$, *and* $q(x_L^-, x_R^+) = q^*$.

Then, there exist μ *and* q *such that* $((x_L^-, x_L^+), (x_R^-, x_R^+), \mu, q)$ *is an equilibrium.*

A typical situation looks like the one in Figure 4.1.

To prove Proposition 4.1, first let $\mu(x_L^-, x_R^-) = 1$, and $\mu(x_L^+, x_R^+) = 0$. These are beliefs on the outcome path. They imply that Party R wins if $s = -1$, and

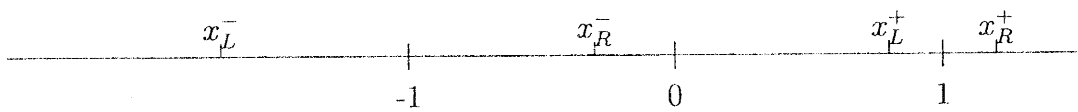

Figure 4.1: Revealing equilibrium: positive correlation case

Party L if $s = 1$. Next, let μ be given by

$$\mu(x'_L, x'_R) = \begin{cases} 1 & \text{if } x'_L = x_L^- \text{ or } x_L^+, \text{ and } x'_R \neq x_R^-, x_R^+, \\ 0 & \text{if } x'_L \neq x_L^-, x_L^+, \text{ and } x'_R = x_R^- \text{ or } x_R^+, \\ \mu^* & \text{if } (x'_L, x'_R) = (x_L^-, x_R^+), \\ 1/2 & \text{otherwise,} \end{cases}$$

where μ^* satisfies

$$\mu^*|x_L^- + 1| + (1 - \mu^*)|x_L^- - 1| = \mu^*|x_R^+ + 1| + (1 - \mu^*)|x_R^+ - 1|, \qquad (4.1)$$

or

$$\mu^* = \frac{-|x_R^+ - 1| + |x_L^- - 1|}{-|x_R^+ - 1| + |x_L^- - 1| - |x_L^- + 1| + |x_R^+ + 1|}.$$

Such a μ^* exists between zero and one due to Conditions (i) and (ii). We will prove that Party L does not have an incentive for a unilateral deviation. The incentive constraint for Party R is checked in the same manner. Suppose first that the state is -1. In this state, if Party L moves to $x'_L \leq x_R^-$, then $\mu(x'_L, x_R^-) = 0$ holds, and x_R^- is still chosen. If, on the other hand, it moves to the right of x_R^-, there will be no gain, either. Suppose next that the state is 1. There is no incentive to move further right. If it moves to $x'_L < x^+_L$, then we have two possibilities, $x'_L \neq x^-_L$ and $x'_L = x^-_L$. If $x'_L \neq x^-_L$ holds, then $\mu(x'_L, x^-_R) = 0$, and therefore, $|x'_L - 1| > |x^+_R - 1|$ implies x^+_R is chosen. If $x'_L = x^-_L$ holds, then we have $\mu(x'_L, x^+_R) = \mu(x^-_L, x^+_R) = \mu^*$, and equation (4.1) implies the median voter is indifferent between the two alternatives. So we are allowed to let $q(x^-_L, x^+_R) = q^*$. Then, Condition (iii) implies that Party L has no incentive to choose x^-_L if the state is 1. (Checking for perfection is tedious so is relegated to Appendix 2.)

Next, we show that there exists at least some revealing equilibria characterized above. To find one, it is sufficient to prove that there exist (x^-_L, x^+_L), (x^-_R, x^+_R), q and q^* which jointly satisfy (i)-(v). Suppose that x^-_R and x^+_L are given by

$$x^-_R = -\varepsilon,\ x^+_L = \varepsilon,$$

respectively, where $\varepsilon > 0$ will be chosen to be sufficiently small, and that x^-_L and x^+_R are given by

$$x^-_L = -2 + \varepsilon,\ x^+_R = 2 - \varepsilon,$$

respectively. Note that Conditions (i) and (ii) are satisfied for any sufficiently small $\varepsilon > 0$. Let $q^* = 1/2$. Condition (v) is simply assumed. It now suffices to show that (iii) and (iv) hold for a sufficiently small $\varepsilon > 0$. Due to the strict concavity of u_L, we have

$$u_L(0) > \tfrac{1}{2}u_L(-2) + \tfrac{1}{2}u_L(2).$$

The continuity of u_L (which is a direct consequence of strict concavity on $\Re$) implies that

$$u_L(\varepsilon) > \tfrac{1}{2}u_L(-2+\varepsilon) + \tfrac{1}{2}u_L(2-\varepsilon)$$

holds for a sufficiently small $\varepsilon > 0$. Condition (iii) is proven. Condition (iv) is the mirror image of (iii) and satisfied for the same ε.

4.2. Revealing equilibria with negative correlation

These equilibria are even more paradoxical than those with positive correlation. In these equilibria, the right party wins the election when the state of the world favors right wing policies, and the left party when the state of the world favors left wing policies. However, both the left party and the right party shift their policy platforms to the left if the state of the world favors the adoption of right wing policies. Hence, the "correct" party wins the election, but it does it with the "wrong" policy platform. As a result, the median voter may end up being worse off than in an equilibrium in which no information held by the parties is revealed (see Section 5). The discussion in Section 5 shows that these equilibria do not satisfy a requirement related to the credibility of parties' commitment to their electoral platforms.

Proposition 4.2. *Suppose that* (x_L^-, x_L^+) *and* (x_R^-, x_R^+) *satisfy the following for some* $q^{**} \in (0,1)$*:*

(i)' $x_L^+ < x_R^+ < x_L^- < x_R^-$,

(ii)' $(x_L^- + x_R^-)/2 \le 1$, *and* $(x_L^+ + x_R^+)/2 \ge -1$,

(iii)' $u_L(x_L^-) > q^{**}u_L(x_L^+) + (1 - q^{**})u_L(x_R^-)$,

(iv)' $u_R(x_R^+) > q^{**}u_R(x_L^+) + (1 - q^{**})u_R(x_R^-)$.

Assume further

(v)' $q(x_L^-, x_R^-) = 1$, $q(x_L^+, x_R^+) = 0$, *and* $q(x_L^+, x_R^-) = q^{**}$.

Then there exist μ *and* q *such that* $((x_L^-, x_L^+), (x_R^-, x_R^+), \mu, q)$ *is an equilibrium.*

To prove Proposition 4.2, first let $\mu(x_L^-, x_R^-) = 1$, and $\mu(x_L^+, x_R^+) = 0$, the beliefs on the outcome path. For other beliefs, let μ satisfy:

$$\mu(x'_L, x'_R) = \begin{cases} 1 & \text{if } x'_L = x_L^- \text{ or } x_L^+, \text{ and } x'_R \neq x_R^-, x_R^+, \\ 0 & \text{if } x'_L \neq x_L^-, x_L^+, \text{ and } x'_R = x_R^- \text{ or } x_R^+, \\ \mu^{**} & \text{if } (x'_L, x'_R) = (x_L^+, x_R^-), \\ 1/2 & \text{otherwise,} \end{cases}$$

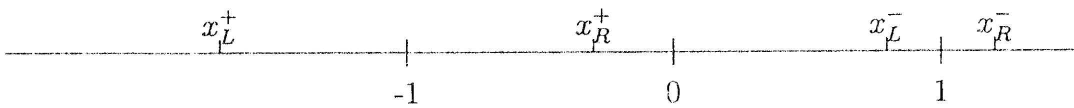

Figure 4.2: Revealing equilibrium: negative correlation case

where μ^{**} satisfy

$$\mu^{**}|x_L^+ + 1| + (1 - \mu^{**})|x_L^+ - 1| = \mu^{**}|x_R^- + 1| + (1 - \mu^{**})|x_R^- - 1|, \qquad (4.2)$$

or

$$\mu^{**} = \frac{-|x_R^- - 1| - |x_L^+ - 1|}{-|x_R^- - 1| + |x_L^+ - 1| - |x_L^+ + 1| + |x_R^- + 1|}.$$

This μ^{**} is between zero and one due to Conditions (i)' and (ii)' above. For this value of μ^{**}, the median voter is indifferent between x_L^+ and x_R^-. Therefore, any probability $q(x_L^+, x_R^-)$, in particular, q^{**}, is consistent with the equilibrium condition. As in the previous case, it is verified that there exists at least some revealing equilibria as characterized above.

4.3. Nonexistence of other revealing equilibria

Proposition 4.3. *There are no revealing equilibria other than those described by Propositions 4.1 and 4.2.*

Suppose that $((x_L^-, x_L^+), (x_R^-, x_R^+), \mu, q^*)$ is a revealing equilibrium. We know from Lemma 2.1 that $x_L^- < x_R^-$ and $x_L^+ < x_R^+$. We divide our analysis into two cases. First, let us assume that $x_L^- < x_R^+$ holds. This corresponds to the case of positive correlation equilibria. Recall its equilibrium conditions (i)-(v). We show that each condition is necessary.

Suppose $(x_L^+ + x_R^+)/2 \neq 1$. If $(x_L^+ + x_R^+)/2 > 1$ holds, then when the signal is 1, L has an incentive to deviate to $x_L^+ - \varepsilon$ for a small $\varepsilon > 0$ and win the election with a more favorable platform. If $(x_L^+ + x_R^+)/2 < 1$ holds, then R will win the election with its platform x_R^+ when $s = 1$. In this case, in order for L not to deviate to $x_L^- < x_R^+$, its probability of winning at (x_L^-, x_R^+) must be zero. However, if this is the case, then R would have an incentive to deviate from x_R^- to x_R^+ when $s = -1$. Thus, $(x_L^+ + x_R^+)/2 < 1$ cannot be the case. Similarly, $(x_L^- + x_R^-)/2 = -1$ should hold. Condition (ii) is established. Under (ii), if $q(x_L^+, x_R^+) < 1$ (respectively $q(x_L^-, x_R^-) > 0$) holds, then L (respectively R) has an incentive to move its platform toward the right (respectively left) by a sufficiently small $\varepsilon > 0$ and win the election for sure. This establishes Condition (v). If (iii) is violated, then L switches to x_L^- when it gets $s = 1$. Similarly, if (iv) is violated, then R switches to x_R^+ when it gets $s = -1$. Finally, if $x_R^- > x_L^+$ holds, if $q(x_L^+, x_R^-) < 1$, then R switches to x_R^- when it gets $s = 1$. On the other hand, if $q(x_L^+, x_R^-) > 0$, then L switches to x_L^+ when it gets $s = -1$. Thus, at least one of them has an incentive to deviate, which establishes Condition (i). Hence, all Conditions (i)-(v) are necessary if $x_L^- < x_R^+$ holds.[12]

Next, assume $x_L^- > x_R^+$ holds. This corresponds to the negative correlation case. First of all, Condition (i)' holds by the assumption and the lemma. To check Condition (ii)', suppose $(x_L^+ + x_R^+)/2 < -1$ holds. Then, R has an incentive to move its platform toward the right by a sufficiently small $\varepsilon > 0$. If, on the other hand, $(x_L^- + x_R^-)/2 > 1$ holds, then L has an incentive to move its platform toward the left by $\varepsilon > 0$. If (iii)' does not hold, then L has an incentive to switch to x_L^+ when the signal is -1. Similarly, if (iv)' does not hold, then R switches to x_R^- when the signal is 1. Finally, if Condition (v)' is violated, it implies that the median voter does not vote for his favorite platform. Hence, Conditions (i)'-(v)' are necessary.

[12]Note that we require the inequalities in (iii) and (iv) to hold strictly. Some slack between the LHS and the RHS of the inequalities is required in order to satisfy the first equilibrium condition, as it is clear from Appendix 2. The same holds true with respect to Conditions (iii)' and (iv)'.

5. Additional Remarks

5.1. Credibility of commitment

In revealing equilibria, the information shared by the parties about the state of nature serves as a signal leading to correlated play by the parties. However, a subclass of revealing equilibria exhibit the seemingly unnatural feature of a negative correlation between policy platforms and the state of nature. Note that negative correlation equilibria require the left party, if it wins, to pursue a policy platform that is to the right of the state of the world. (The opposite happens if the right party wins.) Hence, both the winning party and the median voter could be made better off if the party in office were allowed to renegotiate its policy platform. Our commitment assumption becomes suspect in these equilibria because it does not seem reasonable to assume that voters would punish a party for a move that would benefit them. This leads one to think that a sensible requirement to ask of an equilibrium is that commitment should be credible in the sense that in case of winning a party would not modify its policy platform even if the median voter were willing to go along with such a decision.

In particular, we will say that an equilibrium $((x_L^-, x_L^+), (x_R^-, x_R^+), \mu, q)$ is *credible* if for $s = -1, 1$, and for $P = L, R$, there is no x' such that $u_P(x') > u_P(x_P^s)$

and

$$\mu(x_L^s, x_R^s)(-|x' + 1|) + (1 - \mu(x_L^s, x_R^s))(-|x' - 1|)$$
$$> \mu(x_L^s, x_R^s)(-|x_P^s + 1|) + (1 - \mu(x_L^s, x_R^s))(-|x_P^s - 1|).$$

In words, we say that an equilibrium is credible if, after the election is over and whatever the result of the election, there is no policy platform different from the one prescribed by the equilibrium that makes both the winning party and the median voter better off. In revealing equilibria, the credibility requirement boils down to $x_L^- \leq -1, x_L^+ \leq 1, x_R^- \geq -1, x_R^+ \geq 1$. It is easy to see that

Proposition 5.1. *Revealing equilibria with positive correlation are credible, while revealing equilibria with negative correlation are not.*

(With respect to non-revealing equilibria, credibility imposes the further constraint on Conditions (i) and (ii) that $x_L \leq 0, x_R \geq 0$.)

5.2. Welfare

If we identify welfare with the payoff to the median voter, we can state the following:

Proposition 5.2. *Welfare is higher in revealing equilibria with positive correlation than in any other equilibrium.*

Indeed, in revealing equilibria with positive correlation the median voter's expected payoff is given by

$$-\tfrac{1}{2}|x_R^- + 1| - \tfrac{1}{2}|x_L^+ - 1|.$$

Since in this subclass of equilibria we have $-1 < x_R^- < x_L^+ < 1$, the median voter's expected payoff is greater than -1. In revealing equilibria with negative correlation, the median voter's expected payoff is given by

$$-\tfrac{1}{2}|x_R^- - 1| - \tfrac{1}{2}|x_L^+ + 1|.$$

Since in this subclass of equilibria we have $-1 < x_R^+ < x_L^- < 1$, the expected payoff is smaller than -1. Finally, if a non-revealing equilibrium satisfies either (i) or (ii) of Section 3, the expected payoff is -1, while if it satisfies (iii), the expected payoff is $-1 - \delta$ where δ is positive. Thus, if one of the best equilibria is played, policy reversals are necessarily observed. We can consider revealing equilibria with positive correlation to be "focal" to the extent that they are the best for voters.

5.3. A larger number of states

A question arises as to whether it is reasonable to assume that the number of signal values is two, and as to how robust our results are if the number is more than two. First, we think that a model with two possible signal values is a good representation of the situations in which parties (and especially voters) can only get a rough idea of the direction in which policy should be moving, e.g., low state intervention in the economy versus pervasive intervention (Harrington [1993] makes a similar point).

Second, it can be shown that for any finite number of states a (pure strategy) completely revealing equilibrium with positive correlation should exhibit policy reversals in the sense that the left-wing (resp. right-wing) party should win the election with probability one when the state of the world is the most favorable for the adoption of right-leaning (resp. left-leaning) policies, and that the left-wing (resp. right-wing) party implements the policy which is the farthest right (resp. left) among all the implemented policies in the equilibrium. The intuition for this result is the same as the one that underlies Proposition 4.1: when the most extreme signal to the right is observed, the left-wing party will move to the right far enough to win the election with probability one because there is no way in which out-of-equilibrium beliefs can "penalize" it for doing so.

6. Concluding Remarks

We present a spatial model of electoral competition with asymmetric information between parties and voters. Unlike previous work using a similar setup,[13] we describe the complete set of (pure strategy) equilibria. Moreover, we show that, when parties get to observe one of two possible signals, one favoring the adoption of left-leaning policies and the other favoring the adoption of right-leaning policies, all revealing equilibria exhibit policy reversals. That is, the policies implemented by the left-leaning party when it gets to win the election are located to the right of the policies implemented by the right-wing party. Reversals are observed only across elections: in each election, no reversal is observed, *i.e.*, the platform proposed by the left party is always located at the left of that proposed by the right party.

Revealing equilibria in our model require that voters' beliefs "penalize" the deviating party by giving more weight to the state of the world it dislikes, ignoring the evidence about the state of the world that can be extracted from the other party's action. In particular, in positive correlation equilibria, the party that is playing "radical" does not gain anything by moderating its behavior because if it

[13]See, e.g., the references in footnote 3.

did so, the voters would think that the state of the world is the one that favors the opposing party.

In a similar situation, Schultz [1996] has suggested that voters' beliefs after a deviation should be consistent with the non deviating party's strategy. This implies that their beliefs remain unchanged if only one party deviates. The refinement proposed by Schultz would be plausible if voters were limited to interpret observed deviations as the result of uncorrelated "mistakes" by the parties.

We have two reservations about using this refinement. First, unfortunately, this constraint on out-of-equilibrium beliefs would rule out all the equilibria, both revealing and non-revealing ones, in our setup. Second, if we start discussing the stories that justify particular refinements, we can think of other explanations for deviations that seem equally valid as the story that justifies Schultz' refinement. For example, a possibility of correlated deviations due to additional signals like sunspots observed only by the parties justifies the kind of belief revision used in our argument. Other examples are payoff uncertainty, and uncertainty about the possible signals received by the parties. In this sense, our model can be interpreted as a limit case of a model where other signals and states of the world are possible but unlikely.

We would like to conclude the paper by further discussing the relation of our work with that of Cukierman and Tommasi [1996a,b]. Cukierman and Tommasi's explanation of policy reversals relies on the enhanced credibility of an incumbent when it advocates policies that is expected to oppose on ideological grounds. Our explanation, on the contrary, relies on the incentives that electoral competition gives to each party to behave as either a "moderate" or a "radical" according to the private information that the parties get. A question remains as to which of the two explanations is more plausible in reality. In Latin American countries, where incumbents enjoy better access to information, and where popular approval of policies is usually obtained after elections are over and not in the course of them, Cukierman and Tommasi's account seems more compelling. On the other hand, in countries like US, where two equally powerful parties compete for the government, and where electoral platforms carry some weight in the design of actual policies, our story might be more plausible. Needless to say, the two driving forces can coexist in reality, and we regard their model and ours as complements rather than substitutes.

Appendix 1

This appendix establishes that the non-revealing equilibria described by Proposition 3.1 satisfy the first equilibrium condition (perfection). We consider explicitly case (i), with $x_L + x_R < 0$ (see Figure 3.1). All other cases are analogous.

According to the specified beliefs, if both parties propose their equilibrium actions, voters believe that the two states are equally likely (and vote for the right party). If only the left-wing party deviates, voters will believe that the state of the world is 1. Hence,

$$q(x'_L, x_R) = \begin{cases} 0 & \text{if } x'_L < x_R \text{ or } x'_L > 2 - x_R, \\ 1/2 & \text{if } x'_L = x_R \text{ or } x'_L = 2 - x_R, \\ 1 & \text{if } x_R < x'_L < 2 - x_R. \end{cases}$$

(To save on notation, we let $q(\cdot,\cdot) = 1/2$ whenever the voters are indifferent between the two parties and the equilibrium does not require them to vote in a particular way).

To check for perfection, consider

$$q^k(x'_L, x_R) = \begin{cases} \varepsilon^k \left(\frac{u_L(x_L) - u_L(x_R)}{u_L(x'_L) - u_L(x_R)} \right) & \text{if } x'_L < x_L, \\ \varepsilon^k & \text{if } x_L \leq x'_L < x_R \text{ or } x'_L > 2 - x_R, \\ 1/2 & \text{if } x'_L = x_R \text{ or } x'_L = 2 - x_R, \\ 1 - \varepsilon^k & \text{if } x_R < x'_L < 2 - x_R. \end{cases}$$

for $k = 1, 2, \ldots$ and some $\varepsilon \in (0, 1)$. Clearly, the sequence $q^k(\cdot, x_R)$ converges uniformly to $q(\cdot, x_R)$. Moreover, it verifies that for each k and for any $x'_L \in \Re$

$$q^k(x_L, x_R)u_L(x_L) + (1 - q^k(x_L, x_R))u_L(x_R)$$

$$\geq \; q^k(x'_L, x_R)u_L(x'_L) + (1 - q^k(x'_L, x_R))u_L(x_R),$$

and the equality implies $q^k(x_L, x_R) \geq q^k(x'_L, x_R)$.

Similarly, if only the right party deviates, voters will believe that the state of the world is -1. Hence,

$$q(x_L, x'_R) = \begin{cases} 0 & \text{if } x'_R = x_R \text{ or } |x'_R + 1| < |x_L + 1|, \\ 1/2 & \text{if } x'_R = x_L \text{ or } x'_R = -2 - x_L, \\ 1 & \text{if } x'_R \neq x_R \text{ and } |x'_R + 1| > |x_L + 1|. \end{cases}$$

To check for perfection, consider

$$q^k(x_L, x'_R) = \begin{cases} \varepsilon^k & \text{if } x'_R = x_R \text{ or } |x'_R + 1| < |x_L + 1|, \\ 1/2 & \text{if } x'_R = x_L \text{ or } x'_R = -2 - x_L, \\ 1 - \varepsilon^k & \text{if } x'_R < x_R \text{ and } |x'_R + 1| > |x_L + 1|, \\ 1 - \varepsilon^k \left(\frac{u_R(x_R) - u_R(x_L)}{u_R(x'_R) - u_R(x_L)} \right) & \text{if } x'_R > x_R. \end{cases}$$

for $k = 1, 2, ...$ and some $\varepsilon \in (0, 1/2)$. The sequence $q^k(x_L, \cdot)$ converges uniformly to $q(x_L, \cdot)$. Moreover, it verifies that for each k and for any $x'_R \in \Re$

$$q^k(x_L, x_R)u_R(x_L) + (1 - q^k(x_L, x_R))u_R(x_R)$$

$$> \; q^k(x_L, x'_R)u_R(x_L) + (1 - q^k(x_L, x'_R))u_R(x'_R).$$

Finally, when both parties deviate, voters believe that the two states are equally likely. Hence, we can take $q^k(x'_L, x'_R) = q(x'_L, x'_R) = 1/2$.

Appendix 2

This appendix establishes that the revealing equilibria described by Propositions 4.1 and 4.2 satisfy the first equilibrium condition. We consider explicitly a revealing equilibrium with positive correlation as described by Proposition 4.1 (see Figure 4.1). The proof for a revealing equilibrium with negative correlation is analogous.

For the sake of brevity, we restrict our attention to the case in which the left-wing party deviates at $s = 1$. Other cases are taken care of in a similar manner. To check the first equilibrium condition for the present case, let $q(x'_L, x_R^+)$ be given by

$$q(x'_L, x_R^+) = \begin{cases} 1 & \text{if } x_L^+ \leq x'_L < x_R^+, \\ 1/2 & \text{if } x'_L = x_R^+, \\ q^* & \text{if } x'_L = x_L^-, \\ 0 & \text{if } x'_L \neq x_L^- \text{ and } x'_L < x_L^+ \text{ or } x'_L > x_R^+. \end{cases}$$

Note that this is consistent with other equilibrium conditions. To check the perfection of the equilibrium, consider

$$q^k(x'_L, x_R^+) = \begin{cases} 1 - \varepsilon^k & \text{if } x_L^+ \leq x'_L < x_R^+, \\ 1/2 & \text{if } x'_L = x_R^+, \\ q^* & \text{if } x'_L = x_L^-, \\ \varepsilon^k \left(\frac{u_L(x_L^+) - u_L(x_R^+)}{u_L(x'_L) - u_L(x_R^+)} \right) & \text{if } x'_L \neq x_L^- \text{ and } x'_L < x_L^+, \\ \varepsilon^k & \text{if } x'_L > x_R^+. \end{cases}$$

for $k = 1, 2, \ldots$ and some $\varepsilon > 0$ satisfying

$$\varepsilon \leq 1 - q^*(u_L(x_L^-) - u_L(x_R^+))/(u_L(x_L^+) - u_L(x_R^+)).$$

(Condition (iii) implies that the RHS of the above inequality is strictly positive). The sequence $q^k(\cdot, x_R^+)$ converges uniformly to $q(\cdot, x_R^+)$. Moreover, it verifies that for each k and for any $x'_L \in \Re$, we have

$$\begin{aligned} & q^k(x_L^+, x_R^+)u_L(x_L^+) + (1 - q^k(x_L^+, x_R^+))u_L(x_R^+) \\ \geq \ & q^k(x'_L, x_R^+)u_L(x'_L) + (1 - q^k(x'_L, x_R^+))u_L(x_R^+), \end{aligned}$$

and the equality implies $q^k(x_L^+, x_R^+) \geq q^k(x'_L, x_R^+)$.

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