Public Choice 74: 207–219, 1992.

Incumbency effects in political campaigns*

SIMON P. ANDERSON
GERHARD GLOMM
Department of Economics, University of Virginia, Charlottesville, VA 22901

Received 29 May 1990; accepted 5 February 1991

Abstract. In this paper we examine two effects of incumbency. First, an incumbent may have an advantage in creating a favorable image in the eyes of the voters. Second, the incumbent may have to chose a position before the challenger; this second aspect of incumbency is modelled as Stackelberg leadership. In the model two candidates run for election by choosing a position in an ideological spectrum. Voters care about candidates' chosen positions as well as non-policy attributes of candidates, which we call charisma. Charismata are not known when candidates choose policy positions; they are only revealed on election day so that winning is not usually a certain prospect. Candidates care about the probability of winning but they also dislike compromising their own ideals.

We find that the incumbent's equilibrium position is closer to his/her own ideal point than the equilibrium position of the game when moves are simultaneous. Also, for sufficiently large charismatic differences a natural leadership regime prevails: the candidate with the large charismatic advantage prefers being a leader to being a follower and the opponent prefers being a follower. If the difference in charismata is small both players prefer to be followers

1. Introduction

In U.S. congressional elections an overwhelming majority of incumbent candidates is reelected; challengers are rarely able to unseat incumbents.[1] There are various explanations for incumbency advantages. Incumbents have access to opportunities not available to challengers, such as free mailings to constituents, photo opportunities with foreign leaders, etc. They may also have better fund-raising capabilities, which can translate into a better image. Incumbents might also be perceived as less risky prospects by risk averse voters (see Bernhardt and Ingberman, 1985). Samuelson (1984, 1987) argues that one reason incumbents tend to get reelected more frequently than they get ousted is simply because they have been revealed preferred in previous elections as better candidates.

In this paper, we lump together all of these advantages into a single variable

* This is a revised version of Thomas Jefferson Discussion Paper 199. We are grateful to participants of the Public Economics Workshop at the University of Virginia and to an anonymous referee for helpful comments on earlier versions of this paper. John Chilton and Doug Mitchell have also given us exceptionally fine detailed suggestions for improvements. The usual caveat applies.

we term the incumbent's *charisma advantage*. This is modelled as a random variable which is only realized at election time, since various events may intervene during the course of the campaign to alter the perceived charisma of each candidate (for example, the press may reveal the candidate has a mistress, or she/he may perform unexpectedly well in a debate). In addition to charisma, voters care also about policy platforms. The other feature of incumbency, which has received scant attention in the literature, is that incumbents must typically choose policy positions in advance of challengers. This we model as Stackelberg leadership: the first mover (incumbent) chooses his/her position anticipating how this affects the second mover's position.

Several versions of Stackelberg models have been analyzed in political science contexts, although virtually none has considered the incumbent-challenger problem in this manner. For example, Edelman (1990) looks at two candidates who choose locations simultaneously but play a Stackelberg game against a PAC which makes campaign contributions. Similarly, Austen-Smith (1987) considers simultaneous choice by candidates who "play Stackelberg" with regard to two firms making campaign contributions. Closer to our set-up, Palfrey (1984) has two parties choosing positions simultaneously, but before a third party.[2] Enelow (1990) has a single incumbent facing two challengers, but the incumbent's position is exogenously fixed. One paper which does model incumbency as Stackelberg leadership is due to Bernhardt and Ingberman (1985). However, they find the Stackelberg equilibrium is the same as the Nash equilibrium (if indeed the latter exists!). Indeed, this property would seem to be true for many spatial voting models, and may help explain the lack of consideration of Stackelberg models in the literature. We should stress that this equivalence property is an artifact of the special assumptions typically made. Stackelberg equilibria in such restrictive models therefore do not provide much additional insight into the problem of incumbency.

In this paper, we present a model in which the Stackelberg equilibrium differs from the Nash equilibrium. The three essential ingredients of the model are (i) probabilistic voting (see Coughlin, 1990) for a survey, and the references therein), (ii) policy-minded candidates (surveyed by Wittman, 1990), and (iii) Stackelberg leadership.

In the model, candidates choose their platforms before voters have fully evaluated the candidates' charismata. Voters care both about policy positions and charisma. As in Mitchell (1987), candidates value both the probability of being elected and compromisation of their own ideals.[3] We find both the Nash equilibrium and the Stackelberg equilibrium positions and election probabilities. It is shown that "political differences" tend to be greater in the Stackelberg (incumbent-challenger) case. Furthermore, we find that a "natural leadership" regime, whereby the incumbent actually prefers moving first to moving second, while the challenger is also best off under this timing structure, exists if the charismatic advantage of the leader is great enough.

In Section 2 we describe the model. Section 3 contains calculations of the Nash equilibrium locations of the candidates and comparative static results under the assumption that the two candidates move simultaneously. In particular we show how changes in the expected value and in the variance of candidates' charismata affect equilibrium locations and probabilities of winning. Section 4 models incumbency as Stackelberg leadership. There we compare equilibrium locations and probabilities of winning in the Stackelberg game and the simultaneous-move game. We also calculate the advantages (disadvantages) conferred on a candidate by Stackelberg leadership. Section 5 contains concluding remarks.

2. The model

Two candidates are running for office. Each candidate chooses a platform position $x_i \in \mathbb{R}$, $i = 1,2$, with $x_1 \leq x_2$. A second characteristic of each candidate, in addition to the ideological position, is a set of non-policy features such as integrity, leadership, intelligence, physical appearance, etc. We refer to the collection of these non-policy features as charisma. The voters' evaluations of these non-policy features are not fully revealed to the candidates when they choose their respective positions. At the time platform positions are chosen, the candidates' perceptions of voters' utility functions are random variables. We think of ideological positions being chosen at the beginning of a campaign and only during the course of the campaign are certain non-policy characteristics revealed.

We shall assume that voters' choices are influenced by both the charismata of the candidates and their platforms. Moreover we shall suppose there exists a median voter for whom the ideal candidate would have the platform x_m, which, without loss of generality we can normalize to zero ($x_m = 0$). We assume that if the median voter votes for candidate 1 (2) then all voters whose preferred platforms are to the left (right) of the median voter also cast their ballots for candidate 1 (2). This essentially amounts to assuming that preferences are sufficiently regular that no cross-overs occur.[4] Hence the candidate chosen by the median voter wins the election.

The median voter elects the candidate whom he/she prefers, i.e., the candidate that yields him/her the higher utility. There are two components which determine utility: charisma and platform.

We model the median voter's election time evaluation of candidate i's *charisma* by the sum $\alpha_i + \epsilon_i$ where ϵ_i is a random variable with mean zero, and α_i is the median voter's evaluation of candidate i's expected charisma, which is known at the beginning of the campaign before ideological positions are chosen. Second, the median voter evaluates candidate i's *ideological position* according to the distance function $\tilde{f}(|x_i|)$ which is assumed to be increasing in the distance $|x_i|$. The utility of the median voter if candidate i is elected is

$$u(x_i) = \alpha_i + \epsilon_i - \tilde{t}(|x_i|), i = 1,2. \quad (1)$$

The median voter prefers candidate 1 over candidate 2 if and only if $\alpha_i + \epsilon_i - \tilde{t}(|x_1|) > \alpha_2 + \epsilon_2 - \tilde{t}(|x_2|)$. For candidate 1 to win, it must happen that the median voter votes for candidate 1, so that the probability that candidate 1 is elected is given by

$$\begin{aligned} P_1(x_1,x_2) &= \text{Prob}(\epsilon_2 - \epsilon_1 \leq \alpha_1 - \alpha_2 + \tilde{t}(|x_2|) - \tilde{t}(|x_1|) \\ &= F(\alpha + \tilde{t}(|x_2|) - \tilde{t}(|x_1|)) \end{aligned} \quad (2)$$

where F is the c.d.f. of $\epsilon = \epsilon_2 - \epsilon_1$ and where $\alpha \equiv \alpha_1 - \alpha_2$ is the charisma advantage of candidate 1. It is easy to check that $P_1(x_1,x_2)$ is an increasing function of x_1 if $x_1 < 0$, but that $P_1(x_1,x_2)$ is a decreasing function of x_1 if $x_1 > 0$.[5] Thus candidate 1 increases the probability of getting elected as she/he moves towards the median, but decreases it if she/he moves past the median.

Two factors contribute to candidate utility. The first is the probability of winning the election. The second factor for candidate i is the distance $|x_i - \bar{x}_i|$ between the platform position actually adopted, x_i, and some point $\bar{x}_i$ which is the candidate's ideal point. We let $\bar{x}_1 < 0 < \bar{x}_2$, and assume that an increase in $|x_i - \bar{x}_i|$ decreases the candidate's utility. We can now write the utility functions of the two candidates as $U^1(P_1,|x_1 - \bar{x}_1|)$ and $U^2(1 - P_1,|x_2 - \bar{x}_2|)$.

It is clear that candidate 1, if she/he moves away from $\bar{x}_1$ at all will not move towards the left since such a move is both intrinsically distasteful and lowers the probability of getting elected. Furthermore, as argued above, the probability of getting elected, hence utility, decreases as the candidate moves past the median. Consequently, it suffices to consider candidates' strategies in the intervals $[\bar{x}_1,0]$ and $[0,\bar{x}_2]$, respectively. There can be no equilibrium elsewhere.

The two candidates non-cooperatively choose ideological positions (in the intervals $[\bar{x}_1,0]$ and $[0,\bar{x}_2]$ respectively) to maximize their respective utility functions. Without further assumptions on the utility functions, not much headway can be made in characterizing equilibrium locations. For the remainder of this paper we assume that the distance component in the median voter's utility function is linear, that is, $\tilde{t}(|x_i|) = t|x_i|$ with $t > 0$, and that the distribution of $\epsilon \equiv \epsilon_2 - \epsilon_1$ is uniform on $[-c,c]$. Secondly, we assume that the candidates' utility functions depend multiplicatively on the probability of winning and a linear function $(1 - \beta|x_i - \bar{x}_i|, \beta > 0)$ of the distance between the candidate's actual position and his preferred position. One interpretation of this utility function is in terms of expected utility. A candidate receives a utility payoff of $1 - \beta|x_i - x_i|$ if elected (with probability P_i) and zero otherwise.

In Section 3 we assume that the two candidates choose their respective platform positions simultaneously. In Section 4 we take up the case of an incumbent who chooses his/her platform position before the challenger chooses his/hers. Of course, a rational incumbent will take into consideration how the challenger reacts to his/her choice of platform position. We model this as a game between a Stackelberg leader and follower.

3. Simultaneous location choice

In this section we assume that each candidate i simultaneously chooses x_i to maximize $U^i(P_i, |x_i - \bar{x}_i|)$ knowing that the opponent behaves analogously, where $P_2 = 1 - P_1$. We are thus considering a Nash equilibrium for this game.

Under the assumption that voter disutility is linear in distance, the probability that candidate 1 wins is $P_1(x_1,x_2) = F(\alpha + t(x_1 + x_2))$ (cf. (2) with $x_1 < 0 < x_2$ and $\tilde{t}(|x|) = tx$). Note that this is an increasing function of each candidate's platform choice: for $x_1 < 0 < x_2$, a rise in x_1 will bring candidate 1 closer to the median whereas a rise in x_2 will take his/her rival further away. Under the additional assumption that $\epsilon \equiv \epsilon_2 - \epsilon_1$ is uniformly distributed on $[-c,c]$, the probability that 1 wins is (for $x_1 \leq 0 \leq x_2$)

$$P_1(x_1,x_2) = \begin{cases} 0 & \text{for } x_1 + x_2 \leq -(\alpha + c)/t \\ \frac{1}{2c}[\alpha + c + t(x_1 + x_2)] & \text{for } -(\alpha + c)/t \leq x_1 + x_2 \leq \frac{c-\alpha}{t} \\ 1 & \text{for } x_1 + x_2 \geq (c-\alpha)/t \end{cases} \tag{3}$$

and, residually, the probability that 2 wins is $P_2(x_1,x_2) = 1 - P_1(x_1,x_2)$.

The candidates' utility functions are given by

$$U^i(x_1,x_2) = P_i(x_1,x_2)[1 - \beta|x_i - \bar{x}_i|], \; i = 1,2, \tag{4}$$

where $\beta > 0$. Notice that the utility function U^i is quadratic in x_i so long as the corresponding value of P_1 is strictly between zero and one. We are primarily interested in interior solutions $(x_1,x_2) \in]\bar{x}_1, 0[\times]0, \bar{x}_2[$ with $P_1 \in]0, 1[$. Although corner solutions are possible outcomes under some parameter values, and indeed are interesting in their own right, they are not our main concern here.

When the reaction functions of the two candidates yield interior values (in the above sense), they are given by first-order conditions as

$$x_1 = \frac{1}{2}\{\beta^{-1} + \bar{x}_1 - \frac{\alpha + c}{t} - x_2\} \tag{5}$$

and

$$x_2 = \frac{1}{2} \{ -\beta^{-1} + \bar{x}_2 + \frac{c-\alpha}{t} + x_1 \} \tag{6}$$

and the equilibrium locations of the two candidates are (again assuming interior solutions)

$$x_1^N = \beta^{-1} + \frac{2}{3} (\bar{x}_1 - \frac{\bar{x}_2}{2}) - \frac{\alpha}{3t} - \frac{c}{t} \tag{7}$$

and

$$x_2^N = -\beta^{-1} + \frac{2}{3} (\bar{x}_2 - \frac{\bar{x}_1}{2}) - \frac{\alpha}{3t} + \frac{c}{t} \tag{8}$$

where the superscript N denotes equilibrium values of the simultaneous (Nash) game. In equilibrium the probability that candidates 1 is elected is[6]

$$P_1 (x_1^N, x_2^N) = \frac{1}{6c} [\alpha + 3c + t(\bar{x}_1 + \bar{x}_2)]. \tag{9}$$

The probability of candidate 1 winning is therefore increasing with his/her charismatic advantage, α. Higher α also induces candidate 1 to stay closer to his/her preferred position, $\bar{x}_1$, but induces the opponent to move further from $\bar{x}_2$. In the model, an increase in the variance of $\epsilon \equiv \epsilon_2 - \epsilon_1$ is equivalent to an increase in c. It is interesting to note that a candidate with a sufficiently large charismatic advantage benefits from a small variance of ϵ: if $\alpha + t(\bar{x}_1 + \bar{x}_2) > 0$ the probability that candidate 1 wins is a decreasing function of c. But a candidate with a sufficiently large charismatic disadvantage benefits from a large variance of ϵ: if $\alpha + t(\bar{x}_1 + \bar{x}_2) < 0$ then the probability that candidate 1 wins is an increasing function of c. Finally, if c rises, then both candidates choose positions closer to their preferred points.

So far we have only considered solutions in the interior of $[\bar{x}_1, 0] \times [0, \bar{x}_2]$. Such an equilibrium is illustrated in Figure 1. There are, however, possible corner solutions. In Figure 1, each of the corners of the rectangle ABCD can be an equilibrium when the parameters are chosen appropriately. Note that one such boundary solution involves minimum differentiation between the candidates with both candidates choosing locations at 0.

4. Strategic aspects of incumbency

In this section we assume that the incumbent chooses the ideological position before the challenger. Naturally, the incumbent takes the optimal reaction by the challenger, the follower, into consideration. Thus we model the behavior

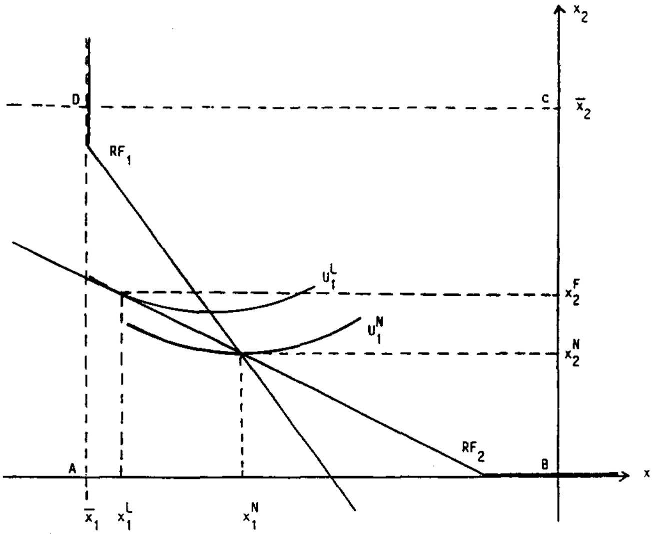

Figure 1. Illustration of the reaction functions' indifference curves for player 1, Nash equilibrium and Stackelberg equilibrium, with $P_1(x_1,x_2) \in]\,0,1$ [for all $(x_1,x_2) \in]\,\bar{x}_1,0[\times]0, \bar{x}_2[$.

of the incumbent as Stackelberg leadership and the challenger is assumed to be a Stackelberg follower.

Suppose that candidate 1 is the incumbent and acts as a Stackelberg leader (is the first mover). Substitution of candidate 2's reaction function from Section 3 into candidate 1's utility function yields

$$U^1(x_1) = P_1(x_1,x_2(x_1))[1-\beta(x_1-\bar{x}_1)]$$

where $x_2(x_1) = \frac{1}{2}\,(-\beta^{-1}+\bar{x}_2+\frac{c-\alpha}{t}-x_1)$ is candidate 2's reaction function (from section III, equation (6)) in a neighborhood of an interior solution. Taking the derivative of U^1 with respect to x_1 and solving for x_1 yields the (interior) solution to the incumbent's problem as

$$x_1^L = \beta^{-1} + \frac{1}{2}\,(\bar{x}_1-\bar{x}_2) - \frac{\alpha}{2t} - \frac{3c}{2t} \tag{10}$$

and it is then easy to obtain the challenger's location as

$$x_2^F = -\beta^{-1} + \frac{1}{4}\,(-\bar{x}_1+3\bar{x}_2) - \frac{\alpha}{4t} + \frac{5c}{4t}\,. \tag{11}$$

When

$$t(\bar{x}_1 + \bar{x}_2) + \alpha\, \epsilon] - 3c,\ 5c[\tag{12}$$

the probabilities of getting elected are strictly between zero and one for both candidates and $1 - \beta|\bar{x}_i - x_i| > 0$ both for the leader and follower. Furthermore for $x_1^L \in]\bar{x}_1, 0[$ we require

$$t(\bar{x}_2 - \bar{x}_1) > 2t\beta^{-1} - \alpha - 3c > t(\bar{x}_1 + \bar{x}_2) \tag{13}$$

and for $x_2^F \in]0, \bar{x}_2[$ we need

$$t(3\bar{x}_2 - \bar{x}_1) > 4t\beta^{-1} + \alpha - 5c > t(\bar{x}_1 + \bar{x}_2). \tag{14}$$

Conditions (12) through (14) therefore ensure an interior solution to the leader-follower game. Letting x_1^N denote candidate 1's location in the simultaneous game in Section 3 (equation (7)) we obtain

$$x_1^N - x_1^L = \frac{1}{6}(\bar{x}_1 + \bar{x}_2) + \frac{\alpha}{6t} + \frac{c}{2t}.$$

$$= \frac{c}{t} P_1(x_1^N, x_2^N),$$

which is positive as long as all solutions are interior. Being a leader induces candidate 1 to locate closer to his/her ideal point than in the game with simultaneous moves. Since candidate 2's reaction function is downward-sloping, a move by candidate 1 towards the end of the spectrum leads candidate 2 to move closer to his/her end of the ideological spectrum. This model thus predicts that polarization between candidates is larger when an incumbent runs against a challenger than if two candidates, who previously did not hold office, run against each other.

In modelling incumbency as Stackelberg leadership, it is natural to ask if such incumbency confers advantages or disadvantages on the candidate and the challenger. We examine two aspects of this question. First we ask how leadership affects the probabilities of winning. Second we calculate the equilibrium levels of utility for both players and determine whether a player would rather be a leader or a follower.

Since under leadership candidate 1 moves away from the political center and since the opponent's move away from the center is less than the incumbent's (the slope of the reaction function is $-1/2$), being a leader seems to put the incumbent at a relative disadvantage. Indeed the probability that candidate 1 is elected when moves are simultaneous is $\frac{1}{6c}[\alpha + 3c + t(\bar{x}_1 + \bar{x}_2)]$ but when candidate 1 is a leader that probability is $\frac{1}{8c}[\alpha + 3c + t(\bar{x}_1 + \bar{x}_2)]$. However, when comparing the probabilities of getting elected of the leader and follower we find that the leader is less likely to win only if his/her charismatic advantage (α) is relatively small. For example, when the two party bases are symmetrical about zero, i.e. $\bar{x}_1 + \bar{x}_2 = 0$, then the probability of winning the election is lower for the leader than for the follower if and only if $\alpha < c$. This condition is equivalent to there being a positive probability that the incumbent has less charisma than the challenger at the time of the election since $\alpha - c$ is the lower bound on the charisma differential $\alpha - \epsilon$. Thus our model predicts that the incumbent, the leader, has a higher than 50% chance of winning the election only if he/she has a sufficiently large charismatic advantage.

Now consider the equilibrium levels of utility for both players. For ease of notation we only consider the symmetrical case and set $\bar{x}_1 = -1/2$, $\bar{x}_2 = 1/2$. The equilibrium level of utility for candidate 1, if he/she is the leader is

$$U_1^L = \frac{\beta}{16ct}[\alpha + 3c]^2 \tag{16}$$

and the equilibrium level of utility for player 2, the follower is

$$U_2^F = \frac{\beta}{32ct}[-\alpha + 5c]^2. \tag{17}$$

Note that U_1^L is increasing in α and U_2^F is decreasing in α under the parameter restriction (12). That is, a greater charismatic advantage for the leader is beneficial to the leader and detrimental to the follower.

We argued earlier that if an election takes place between incumbent and a challenger it is reasonable to assume that the incumbent acts as a leader and that the challenger acts as a follower. If leadership, however, confers a disadvantage the incumbent may well try to pursue actions which can prevent that disadvantage. Perhaps the incumbent can create ambiguity about his record and his political position. When the race is between two candidates who have not held office before, each candidate may prefer to announce a position early and act as a Stackelberg leader or he may prefer to announce a position late and so act as a follower.

If candidate 1 acts as a follower (and candidate 2 acts as a leader) the equilibrium level of utility for candidate 1 is (replacing $-\alpha$ by α in (17))

$$U_1^F = \frac{\beta}{32ct}[\alpha + 5c]^2. \tag{18}$$

Comparing the equilibrium levels of utility for candidate 1 in equations (16) and (18) reveals that candidate 1 prefers to be a follower over being a leader if and only if $\alpha \in](-1-2\sqrt{2})c, (-1+2\sqrt{2})c[$. However, the lower limit is not appropriate as (14) is violated. Again, if we restrict attention to the case in which $\alpha \geq 0$, which by symmetry we can do without loss of generality, we see that if α is small, that is if $\alpha < (2\sqrt{2}-1)c \approx 1.83c$ both players prefer to be followers. If $\alpha > (2\sqrt{2}-1)c$, then player 1 prefers being a leader to being a follower and player 2 prefers being a follower to being a leader.[7] We may call this a *natural leadership regime*. Such natural leadership cannot arise in the simplest spatial voting models where each voter chooses the candidate closer to his/her ideal position and where candidates aim to maximize votes. In this context the incumbent (as first mover) cannot do better than the follower since the latter can always position himself/herself between the leader and at least 50% of the voters[8] (see Caplin and Nalebuff, 1988).

If the player with a large charisma advantage moves first, he/she chooses a location close to the ideal point, inducing the opponent to also choose a location close to his/her own ideal point. The opponent does not prefer to act as a leader since his/her own low charisma would lead him/her to locate far away from the ideal point (i.e., near the median voter) which in utility terms is worse than being a follower. That is, high charisma provokes a candidate to act boldly as leader and lead a move to polar positions; a leader with low charisma acts timidly and remains near the center inducing a high-charisma follower to stay fairly central to protect against election loss.

In the above analysis we have assumed (via conditions (12)–(14)) that all solutions are interior. Of course, it is easy to think of examples of corner solutions. For example, if $\beta = 0$ candidates care only about the probability of winning and both leader and follower locations are at the position of the median voter; there is no natural leadership – indeed neither candidate cares who leads and the outcome is the same as in the game with simultaneous moves. Alternatively, for $\beta > 0$ and for sufficiently large α, the leader chooses to locate at the party base. For the Stackelberg equilibrium in which player 1 is the leader and player 2 is the follower to be an interior solution, the following two conditions must be satisfied (see (13) and (14)): (i) $x_1^L = \beta^{-1} - 1/2 - \frac{\alpha}{2t} - \frac{3c}{2t} \in]-1/2,0[$ and (ii) $x_2^F = -\beta^{-1} + \frac{1}{2} - \frac{\alpha}{4t} + \frac{5c}{4t} \in]0,1/2[$. For sufficiently large α, more precisely for $\alpha > (2\sqrt{2}-1)c$, we concluded that a natural leadership regime prevails. For these calculations to be meaningful it must be the case that the solution is interior when the roles of the two players are reversed that is when player 1 acts as a follower and player 2 acts as a leader. By symmetry it suffices to check that $x_1^L \in]-1/2,0[$ and $x_2^F \in]0,1/2[$ when α is replaced by $-\alpha$ in equations (10) and (11). This yields the following two conditions: (iii) $\beta^{-1} - 1/2 + \frac{\alpha}{2t} - \frac{3c}{2t} \in]-1/2,0[$ and (iv) $-\beta^{-1} + \frac{1}{2} + \frac{\alpha}{4t}$

$+ \frac{5c}{4t} \in]0,1/2[$. For any of these solutions to make sense we require that the probabilities of winning the election are between zero and one. This is the case if (v) $\frac{\alpha + 3c}{8c} \in]0,1[$ and (vi) $\frac{-\alpha + 5c}{8c} \in]0,1[$. The following examples of parameters show that our analysis is not vacuous. If $\alpha = 0$, $c = 1$, $t = 8$ and $\beta^{-1} = 1/4$ all of the above six conditions for interior solutions are satisfied and in this case both players prefer to be followers rather than leaders. If $\alpha = 2$, $c = 1$, $t = 10$ and $\beta^{-1} = .3$ the above six conditions are again satisfied and in this case player 1 prefers to be the leader and player 2 prefers to be the follower.

5. Conclusion

In this paper we have examined incumbency effects in a simple spatial model of candidate competition where candidate behavior is governed by mixed motives. If the candidates have the same expected charisma, or one has a sufficiently low charisma advantage, then a leader has a lower probability of getting elected than a follower. The leader's utility is also lower. This result is consistent with the observation that in some elections candidates seem to avoid taking positions on certain issues – each prefers to be the second mover. This suggests that a more explicit inquiry into the timing of the adoption of positions is a fruitful undertaking. Such an inquiry would provide a model in which candidates choose not only positions but also the time when such positions are announced. The results of this paper suggest that delaying the announcements of positions is beneficial when charisma differences are relatively small. A richer model would incorporate costs of such delays.[9]

Our introductory remarks suggest we do observe that incumbents often have a higher probability of getting elected than challengers. In the framework of our model this suggests that incumbents' advantage in creating a favorable image in the eyes of the voters (α) is large enough to offset the disadvantage of being a leader. Moreover, we also found in the model that if the incumbent's charismatic advantage is large enough, not only is the incumbent more likely to win the election, but he/she also *prefers* to be the first mover (leader). Under these circumstances we have a natural leadership regime – it is no longer the case that each candidate has the incentive to outwait the other in the choice of platform. Instead, the incumbent chooses his/her position first and the challenger chooses second.

Notes

1. For historical documentation, see for example Born (1979), Collie (1981), Fiorina (1977) and Garand and Gross (1984).
2. Note that, in Palfrey's model but with only two parties, the Stackelberg and simultaneous (Nash) equilibria are equivalent – the median voter outcome.
3. An alternative assumption, used for example by Cox (1984), Hansson and Stuart (1984) and in much of Wittman's work (see his 1990 survey and the references therein) is to model candidate utility as directly dependent also upon the opponent's position.
4. A sufficient condition for there to be no cross-overs arises if all voters have the same charisma evaluations of candidates but differ by their evaluations over ideological positions. The utility of a voter at x if the candidate at x_i is elected is then $u(x,x_i) = \alpha_i + \epsilon_i - \tilde{t}(|x - x_i|)$ (cf. 1). More generally (allowing for different charisma evaluations by different voters) there is no cross-over if $\alpha_1(x) + \epsilon_1(x) \geq \alpha_1(x_m) + \epsilon_1(x_m)$ and $\alpha_2(x) + \epsilon_2(x) \leq \alpha_2(x_m) + \epsilon_2(x_m)$ for all $x \leq x_m$ and an analogous condition holds for $x \geq x_m$. That is, left leaning voters do not impart a higher charisma to the right candidate than does the median voter. Note that even this last condition is more restrictive than is necessary for no cross-overs to occur.
5. For $x_1 < 0$, $P_1(x_1,x_2) = F(\alpha + \tilde{t}(|x_2|) - \tilde{t}(|x_1|))$ which is increasing in x_1 since both $\tilde{t}$ and F are increasing functions. For $x_1 > 0$, $P_1(x_1,x_2) = F(\alpha + \tilde{t}(|x_2|) - \tilde{t}(|x_1|))$ is decreasing in x_1. Note that this property holds for general increasing distance functions $\tilde{t}(\cdot)$ and general cumulative distribution functions $F(\cdot)$.
6. As shown in the Discussion Paper version, a set of necessary and sufficient conditions for existence of an interior equilibrium is $t(\bar{x}_2 - 2\bar{x}_1) > 3t\beta^{-1} - \alpha - 3c > t(\bar{x}_1 + \bar{x}_2)$; $t(2\bar{x}_2 - \bar{x}_1) > 3t\beta^{-1} + \alpha - 3c > -t(\bar{x}_1 + \bar{x}_2)$; and $3c > t(\bar{x}_1 + \bar{x}_2) + a > -3c$.
7. For candidate 2 to prefer followership (under the assumption that $\alpha \geq 0$) it is readily shown that α must be less than $[1 + 2\sqrt{2}]c$. However, α must be strictly less than this value for all solutions to be interior. That is, we do not have a case where leadership is preferred by both candidates: candidate 2 always prefers followership for feasible values of $\alpha \geq 0$.
8. When the preference spectrum is one-dimensional, both candidates adopt the position of the median voter and each is equally likely to win. For higher dimensional issue spaces – except under very special circumstances – the follower will always win the election (see Caplin and Nalebuff, 1988).
9. For example, risk averse voters may vote for a candidate who announces positions early because they prefer that certainty over the uncertainty of a candidate whose position has not been fully elucidated. Alternatively, announcing a position early may serve as a signal that the candidate has a well thought out program and announcing a position late or not at all may signal that the candidate has not sufficiently thought about the issues and is ill prepared for office.

References

Austen-Smith, D. (1987). Interest groups, campaign contributions, and pluralistic voting. *Public Choice* 54: 123–137.

Bernhardt, M.D. and Ingberman, D.E. (1985). Candidate reputations and the 'incumbency effect'. *Journal of Public Economics* 27: 47–67.

Born, R. (1979). Generational replacement and the growth of incumbent safety margins in the U.S. House. *American Political Science Review* 73: 811–817.

Caplin, A. and Nalebuff, B. (1988). On 64% majority rule. *Econometrica* 56: 787–814.

Collie, M.P. (1981). Incumbency, electoral safety, and turnover in the House of Representatives. *American Political Science Review* 75: 119–131.

Coughlin, P.J. (1990). Candidate uncertainty and electoral equilibria. In J.M. Enelow and M.J. Hinich (Eds.), *Advances in the spatial theory of voting*. Cambridge: Cambridge University Press.

Cox, G.W. (1984). An expected-utility model of electoral competition. *Quality and Quantity* 18: 337–349.

Edelman, S.A. (1990). *Two politicians, a PAC, and how they interact: Two sequential models*. Mimeo. Columbia University, New York.

Enelow, J.M. (1990). *An expanded approach to analyzing policy-minded candidates*. Mimeo. University of Texas at Austin.

Enelow, J.M. and Hinich, M.J. (1984). *The spatial theory of voting*. Cambridge: Cambridge University Press.

Fiorina, M.P. (1977). *Congress – Keystone of the Washington establishment*. New Haven: Yale University Press.

Garand, J.C. and Gross, D.A. (1984). Changes in the vote margins for congressional candidates: A specification of historical trends. *American Political Science Review* 78: 17–30.

Hansson, I. and Stuart, Ch. (1984). Voting competitions with interested politicians: Platforms do not converge to the preferences of the median voter. *Public Choice* 44: 431–441.

Mitchell, D.W. (1987). Candidate behavior under mixed motives. *Social Choice and Welfare* 4: 153–160.

Palfrey, T.R. (1984). Spatial equilibrium with entry. *Review of Economic Studies* 51: 139–156.

Samuelson, L. (1984). Electoral equilibria with restricted strategies. *Public Choice* 43: 307–327.

Samuelson, L. (1987). A test of the revealed-preference phenomenon in congressional elections. *Public Choice* 54: 141–169.

Wittman, D. (1990). Spatial strategies when candidates have policy preferences. In J.M. Enelow and M.J. Hinich (Eds.), *Advances in the spatial theory of voting*. Cambridge: Cambridge University Press.