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ELECTORAL COMPETITION WHEN SOME CANDIDATES LIE AND OTHERS PANDER

Haifeng Huang

ABSTRACT
In this paper we analyze a two-candidate electoral competition in which a candidate can either lie about his private policy preference in order to get elected, or pander to post-election external influences in choosing a policy to implement. Both the pre-election announcement and post-election implementation are a candidate’s strategic choices. We show that, in equilibrium, different types of candidates can cluster at different points around the median voter position, as long as the pandering type and the lying type coexist in the candidate pool. The pooling of all types of candidates at the median voter position is also an equilibrium. Thus, despite pressure towards the median (as all candidates want to win the election), both convergence and divergence in candidate announcements are normal outcomes of electoral competition.

KEY WORDS • Electoral competition • lying • pandering • divergence • signaling

1. Introduction
In every election, voters face the problem of inferring from candidates’ campaign announcements what they will really do if elected. Just because a candidate states that they would adopt a particular policy does not necessarily mean they will indeed choose that policy once they are put into the office. History is full of examples of discrepancies between what politicians say in campaigns and what they do in office.

Such discrepancies can occur for one of two reasons. Some politicians may lie about their private policy preferences in campaigns in order to win votes, and then implement policies close to their true positions once elected. Other politicians may pander to external influences such as interest groups or lobbyists after

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being elected and choose policies that deviate from their campaign announcements.

There have been formal analyses of the effects of lying on electoral competition (Banks, 1990; Callander and Wilkie, 2007), but no analyses of post-election pandering. Extant formal models of pandering focus on political incumbents’ catering to popular opinion prior to re-elections (Canes-Wrone et al., 2001; Maskin and Tirole, 2004). Moreover, there is a lack of models of electoral competition that consider lying and pandering together, even though voters’ concerns about both can be prevalent in elections. We build a model of two-candidate competitions in which each candidate can either have a personal policy position but be willing to lie, or have no strong personal preference to satisfy and therefore be easily susceptible to post-election external influences in choosing a policy.\(^1\)

The uncertainty that voters face about a candidate’s likely action once in office is thus multidimensional. First, is the candidate a lying type, or a pandering type? Second, if he is a lying type, what is his true policy preference? If he is a pandering type, what post-election influence will emerge and affect his policy choice? An analysis of such multidimensional uncertainty and candidates’ strategies in such an environment draws a more complete picture of electoral competition than that which one usually finds in the existing literature; and it yields interesting results.

We build upon a model of electoral competition with incomplete information by Banks (1990), who considers a game in which a candidate’s campaign announcement is a costly signal of his intended post-election policy, with the cost increasing in the distance between the two positions. Among other things, he shows that, if the exogenous cost parameter is small enough that even a candidate who has planned to implement an extreme position prefers winning the election by announcing the median voter position to losing the election, then the only symmetric sequential equilibrium that meets the universal divinity condition is that all types of candidates pool and announce the median voter position.\(^2\)

We make the following changes to Banks’ model. First and foremost, we allow some candidates to pander to post-election external influences, while in his model candidates can only lie about their intended policies. Importantly, post-election influences that the pandering type will respond to may arise from either side of the policy center. As a result, the pandering type of candidate has a stronger incentive to announce the median voter position than other

\(^1\)Some discrepancies between campaign announcements and post-election policy choices may reflect a mixture of the two motives. But conceptually it is useful to separate the two, especially as a first step in modeling elections with both lying and pandering incentives.

\(^2\)Banks (1990) also considers the case in which the cost parameter is large enough that an extreme candidate would be unwilling to win the election by announcing the median voter position. He shows then that candidates with moderate policy intentions will pool at the median voter position, and more extreme candidates will separate and announce their true intentions. In one instance he also discusses asymmetric strategies.
candidates, but may change position in either direction after the election. Second, Banks (1990) makes a reduced form assumption that, prior to the election, a candidate has already solved for his optimal policy choice once elected, and he will implement this policy regardless of his campaign announcement; how this optimal policy is related to his personal preference is not explicitly spelled out. We let a politician’s private policy preference explicitly enter his utility function, and impose a cost if his post-election policy choice differs from his true preference. If we, like Banks (1990), assume there is a ‘reputation’ cost if what a candidate does in office is not what he says in campaigns, it is only natural to assume that, for a candidate with a policy concern, there is also a utility loss if what he does is not what he really wants.

Our main result is that, in a symmetric equilibrium, different categories of candidates can pool at different points within a certain interval around the median voter position, although it is also an equilibrium that all types of candidates pool at the median voter position. In particular, left-leaning candidates can pool at a non-median voter position exactly opposite to the position at which right-leaning candidates pool with each other, while pandering candidates randomize between the two. Thus, both convergence and divergence of candidate announcements are normal outcomes of electoral competition, even when the costs for lying and pandering are small. This result is mainly driven by our addition of the pandering type of candidate, but our second modification of Banks’s model makes a methodological contribution to the literature on electoral competition, as will be discussed in the following.

In the following section we discuss related literature. Section 3 sets up the model. Section 4 presents the results and comparative statics. The final section concludes.

2. Related Literature

Many scholars have tried to explain the seeming empirical failure of the median-voter result of Hotelling (1929) and Downs (1957): candidate positions in real elections are often divergent rather than convergent. Extant explanations include the arguments that candidates are policy-rather than office-motivated (Wittman 1977, 1983), that candidates differ in certain non-policy ‘valence’ attributes that voters care about (Groseclose, 2001), and that voters believe the competing candidates have different degrees of riskiness (Bernhardt and Ingerman, 1985; Berger et al., 2000). There are also many explanations that go beyond the basic two-candidate, single-election framework of Downsian competition (see Grofman, 2004 for a review). Our paper is closer to the original Hotelling–Downsian framework than many existing models in that our candidates are fundamentally office-oriented since they are all willing to win with a less preferred policy, that voters only care about the final policy outcome and
have no direct taste for exogenous valence factors, and that candidates are symmetric *ex ante*.

As mentioned earlier, our paper is based on the work of Banks (1990), a pioneering two-candidate election model that treats campaign announcements as signals about candidates’ policy intentions that need to be interpreted. As such, our paper is close in spirit to the model of Callander and Wilkie (2007), which is also an extension of Banks (1990). While Banks (1990) assumes all types of candidates face the same cost parameter for implementing policies different from their campaign announcements, Callander and Wilkie (2007) allow candidates’ lying costs to differ, with some paying a positive cost and others being zero-cost cheap talkers, but all candidates will still implement their policy intentions if elected. Both Banks (1990) and Callander and Wilkie (2007) show that, when the cost (for the positive-cost types) of announcing a position different from what one intends to implement is small enough that all types of candidates are willing to lie in order to win an election, the equilibrium with symmetric strategies and the universal divinity refinement is that all candidates pool (and converge) on the median voter position. Only when the lying cost (for the positive-cost types) is large do some candidates use separating strategies and their announcements diverge.\(^3\) In a related paper, Kartik and McAfee (2007) assume that one type of candidate is non-strategic and must announce his true position, while the other type can freely choose any position in order to win the election. What compensates the strategic disadvantage of the former type is that voters have an intrinsic distaste for the strategic type. With such assumptions they show there is a unique equilibrium in which the strategic-type candidates use a mixed strategy over a range of policy announcements.

Our model differs from the above works in that it predicts an interval of pooling equilibria around the median voter position, and hence often candidate divergence, even though all candidates are fully strategic and the lying cost is always small relative to the benefit of winning office. The likely presence of the pandering type, even if the likelihood is arbitrarily small, allows a range of equilibria to be possible. Moreover, candidate announcements can diverge not because they use separating strategies, but because different categories of candidates pool at different positions. Thus the prevalence of divergence in candidate positions does not really point to the failure of the Downsian framework, but rather indicates that we should incorporate into it some important voter uncertainty about candidate types.

Our model also tries to go some way in addressing two outstanding methodological issues in the formal literature on electoral competition, which

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\(^3\)When the lying cost is high, Callander and Wilkie (2007) show that the positive-cost types will use an interesting cut-point strategy based on their policy intentions – starting from the policy center they will first separate, then pool, and then separate again, while zero-cost types will adopt a mixed strategy over a certain policy space around the policy center.
Callander’s work (2008) on the coexistence of policy and office motivations in electoral competitions also deals with. Persson and Tabellini (2002: ch. 9) note two problems in their survey of the literature: (1) past models have either assumed that all candidates make whatever campaign announcements necessary to win office, or that all candidates try to win office in order to implement their preferred policies;4 (2) past models ignore either the pre-election stage or the post-election stage,5 when clearly both stages are important in determining final policy outcomes. With regard to the first issue, Persson and Tabellini point out that, methodologically speaking, the office motivation assumption is more satisfactory, but policy considerations are also relevant in real elections. With regard to the exclusion of the pre- or post-election stage, they note it is ‘something schizophrenic’ to study either extreme: the case where campaign promises have no meaning or the case in which they are all that matter.

In an innovative paper, Callander (2008) approaches the two issues in the following way. First, all candidates derive utility from holding office and from the policy outcome of the election winner, but some candidates are more policy-motivated than others in that their utility function places a relatively higher weight on the utility from the policy outcome. Second, policy outcomes are composed of both the enacted policy, which a candidate announces prior to the election and must commit to, and the effort the elected politician spends in implementing the policy, which is chosen after the election. The effort is valued by all voters. He shows then that, depending on how far away the candidates’ policy positions are from the median voter position, policy-motivated and office-motivated candidates will either pool, separate, or semi-separate their strategies.6

We approach the issues of incorporating policy considerations into office motivation and integrating pre- and post-electoral politics in a somewhat different manner. First, in our model no candidates are policy-oriented per se – all candidates are ultimately office seeking in that their utility is zero if they lose the election and they are willing to announce anything in order to get elected.7 But their campaign announcements and post-election policy choices will still be

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4Models in the tradition of Downs (1957) take the former approach while those following Wittman (1977, 1983) and Calvert (1985) adopt the latter approach. In the citizen-candidate models of Osborne and Sivinski (1996) and Besley and Coate (1997), candidates derive utility from policy as well as office, but they cannot announce or commit to any policy other than their own ideal preferences. Thus, the utility from office is related to their decisions to run for office or not, but not to decisions about what positions to announce.

5See Barro (1973) and Ferejohn (1986) for the former and Downs (1957) for the latter.

6Because in the model the policy positions of the two candidates are symmetric around the median voter position and/or known to voters, in equilibrium their campaign positions often diverge.

7This is not to deny the existence of some policy-motivated candidates in reality. It is worthwhile to note, however, that the empirical presence of some politicians who behave like ideologues with consistent policy positions across time may well reflect the strategic choice of myopic office-seekers in their efforts to appeal to voters who care about consistency in positions (see Harrington, 2000).
affected by certain policy considerations. For a lying-type candidate, there will be a cost if his eventual policy choice differs from his personal policy preference or his announcement. For a pandering-type candidate, who has a quasi policy preference induced by post-election external influences, there will be a cost if his policy choice differs from either this post-election preference or his campaign announcement.

Second, in our model the policy outcome consists solely of the policy that the winner chooses to implement after the election, but we allow both the pre-election policy announcement and the post-election policy implementation to be strategic choices available to a candidate. The winner’s policy choice after the election is not exogenously fixed, but endogenously determined in the electoral game according to his private policy position (or the external influence in the case of a pandering type) and his strategic campaign announcement. This approach provides a very simple and yet conceptually more reasonable representation of a candidate’s decision-making process and unifies pre- and post-election politics in one model.

### 3. The Model

There are two candidates in the election; the type of each is the candidate’s private information and therefore unknown to voters and the other candidate. Candidate type has two levels. At the first level, with ex ante probability $1 - \pi$ a candidate has a personal policy preference, but he is willing to announce a position different from his true preference in order to get elected. With ex ante probability $\pi$, a candidate has no (strong) personal preference, and if he is elected, he will respond to post-election external influences such as interest group lobbying in choosing a policy to implement.\footnote{We do not consider campaign contributions of interest groups, which according to some estimates constitute far less expenditures than interest group lobbying, (Wright, 1990). Moreover, since the two candidates are ex ante symmetric, interest groups presumably cannot favor one candidate over the other.}\footnote{For an example of models in which candidates differ in their willingness to accept bribes or other benefits, see Coate and Morris (1995).} A candidate with a personal policy preference may also come across interest group lobbying. But since he has a stronger and firmer innate policy interest, he is more immune to such external influences.\footnote{When a pandering candidate announces one policy position and implements another, he is also lying. But to distinguish the two kinds of candidates, we will maintain the difference in terminology.} For ease of exposition, we will call a candidate of the first kind a lying-type candidate (even though he may or may not lie in equilibrium) and that of the second kind a pandering-type candidate.\footnote{We do not consider campaign contributions of interest groups, which according to some estimates constitute far less expenditures than interest group lobbying, (Wright, 1990). Moreover, since the two candidates are ex ante symmetric, interest groups presumably cannot favor one candidate over the other.}
At the second level, a lying-type candidate’s personal policy preference is also his private information and may be located at any point in the policy space. In this sense a lying candidate may be of various types, and so we will use the plural form ‘lying types’ rather than ‘a lying type’ when addressing them as a group. Similarly, players in this game do not know exactly what post-election external influence will arise and affect a pandering-type politician’s policy choice. Since the external influence is only revealed after the election, at the time of the election a pandering candidate can only be of one type.

The policy space in the model is the interval \( \left[ -\frac{1}{C_0}, \frac{1}{C_0} \right] \) on the real line. We use \( t \in \left[ -\frac{1}{C_0}, \frac{1}{C_0} \right] \) to denote the true policy preference of a lying candidate, and \( t \) is distributed as a continuous random variable with cumulative distribution \( F(\cdot) \) and density \( f(\cdot) \), where \( f(\cdot) \) is symmetric around zero, has a variance of \( \sigma_f^2 \), and \( f(t) > 0 \) for all \( t \in [-1, 1] \). Further, we assume that the mean of the right half of \( f \), i.e. \( f(t|t > 0) \), is \( \mu_{f,r} \), and the variance of the right half is \( \sigma_{f,r}^2 \). Similarly, we have \( \mu_{f,l} \) and \( \sigma_{f,l}^2 \); by symmetry, \( \mu_{f,r} = -\mu_{f,l} \) and \( \sigma_{f,r}^2 = \sigma_{f,l}^2 \). The external influence that a pandering candidate will respond to, denoted as \( x \), is another continuous random variable on \([-1, 1]\) with cumulative distribution \( G(\cdot) \) and density \( g(\cdot) \), where \( g(\cdot) \) is symmetric around zero, has a variance of \( \sigma_g^2 \), and \( g(x) > 0 \) for all \( x \in [-1, 1] \). A candidate’s type is private information, but the distributions of \( f \) and \( g \) are common knowledge.

Candidates’ policy announcements are not binding, but the elected candidate pays a voter-imposed, quadratic ‘reputation’ cost if the post-election policy he implements differs from his announcement, and a quadratic ‘internal’ cost if his implemented policy differs from his own true policy position (in the case of the pandering type, if it differs from the call of the post-election external influence). Let \( s \) denote a candidate’s announced policy position, and \( s' \) the implemented policy of the election winner. The utility from winning the office for a lying-type candidate with true policy preference \( t \), \( U(t|\text{win}) \), is then represented as the following

\[
U(t|\text{win}) = w - \lambda (s - s')^2 - (t - s')^2, \tag{1}
\]

where \( w \) is the positive, policy-independent benefit of holding office, and \( \lambda \) is the relative weight assigned on reputation cost as opposed to the internal cost, with \( \lambda > 0 \). Analogously, the utility from winning the office for a pandering-type candidate encountering a post-election influence \( x \), \( U(p|\text{win}) \), is then

\[
U(p|\text{win}) = w - \lambda (s - s')^2 - (x - s')^2, \tag{2}
\]

where \( (x - s')^2 \) is the (opportunity) cost of a pandering-type politician from losing the benefit that he can otherwise obtain by implementing a policy.

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close to that of the external influence. The losing candidate’s utility is zero.

In principle, the weights on the reputation cost and the internal cost can vary from one type of candidate to another. But in order to isolate the effect of adding the pandering type to the pool of potential candidates, we will make different types identical to each other in all respects but one – their policy preferences. Therefore we will let the weights be the same for different types of candidates in the model.

We assume that \( w \) is sufficiently large so that all candidates are ultimately willing to announce anything in order to get elected, even though they also have policy concerns. This is essentially the same assumption as in Banks (1990) for the case of a small announcement cost. More specifically, we can impose the condition \( w > \frac{4\lambda}{\lambda + 1} \), which is sufficient but not necessary for the results to follow.\(^{12}\)

There are \( n < \infty \) voters, \( n \) odd, with each voter \( i \) having a utility function defined over the policy space \([-1, 1]\):

\[
U_i(s^0) = -(s^0 - v_i)^2
\]

where \( v_i \) is voter \( i \)’s ideal policy position. Let \( h(s^0) \) denote voters’ posterior belief, upon observing the candidates’ announcements, about the distribution of the policy that a sender of a given announcement will likely implement if elected, where \( h(s^0) \) has mean \( \overline{h} \) and variance \( \sigma^2_h \). Then voter \( i \)’s expected utility from this candidate being elected is

\[
E_h(U_i) = E[-(s^0 - v_i)^2] = -(\overline{h} - v_i)^2 - \sigma^2_h.
\]  

We assume that voters’ preferences are symmetrically distributed around the center of the policy space, i.e. zero. So the median voter’s expected utility from the above candidate being elected is

\[
E_h(U_m) = -(\overline{h})^2 - \sigma^2_h.
\]  

This is a signaling game, in which voters try to infer, from a candidate’s announced position, his type and the policy he will implement if elected. The sequence of the game is as follows:

1. two candidates are selected by nature, and each learns of his own type;

2. candidates make policy announcements simultaneously;

\(^{12}\)The condition ensures that the benefit of winning office exceeds the reputation and internal costs for all types of candidates and all policies (announced and implemented).
3. an election is held, and each voter votes for the candidate with a higher expected utility for her\(^{13}\) (we assume no abstention; an indifferent voter tosses a fair coin to decide whom to vote for);

4. the winner implements a policy that maximizes his utility (if the winner is of the pandering type, he also learns of the external influence at this stage prior to implementing a policy).

The equilibrium solution concept we use is sequential equilibrium (Kreps and Wilson, 1982). Simply put, a sequential equilibrium in our model consists of the two candidates’ announcement strategies, \(s_j(\cdot), j = 1, 2\), and their post-election policy choices if elected. The announcement strategies must be optimal with respect to each other and to voters’ voting strategies; the winning candidate’s post-election policy choice maximizes his overall utility. Voters’ strategies must be optimal given their posterior beliefs about the would-be implemented policies of the candidates. These posteriors are defined over the entire policy space as voters are required to form beliefs for any possible announcement, and the updating from the common knowledge priors \(f(\cdot)\) and \(g(\cdot)\) and candidates’ strategies follow Bayes’ Rule. Following Banks (1990), we restrict our attention to pure strategy equilibria that are symmetric with respect to candidates and to the center of the policy space. So if two candidates are of the same type, they announce the same position, e.g. \(t = t' \Rightarrow s(t) = s(t')\); and if the true policy preferences of two candidates are on opposite sides of the policy center but of equal distance to the center, their announcements will be exactly opposite each other too, i.e. \(s(t) = -s(-t)\). This means that a candidate’s strategy (and probability of winning) is a function of his type only, and we can drop the candidates’ subscripts.

There is one small adaption we need to make to Banks’s (1990) setup. If we strictly insist on a pure strategy symmetric equilibrium, then trivially a lying-type candidate with true policy preference at the center (zero) will have to announce policy zero. To avoid this triviality we allow a lying-type candidate with true policy preference zero, as well as a pandering-type candidate (who in a sense can be regarded as having a quasi policy preference at zero since the mean of the post-election influence is zero), to randomize with equal probability between two positions with equal distance to, but on opposite sides of, zero.\(^{14}\)

The set of sequential equilibria that meet these conditions is large, and so

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\(^{13}\)To keep pronouns from causing confusion, we use the female pronoun to refer to voters and the male pronoun to refer to politicians.

\(^{14}\)Substantively speaking, this assumption means that the pandering type and the lying type with true policy preference zero will sometimes prefer a policy slightly to the left of zero, and sometimes prefer a policy slightly to the right of zero. Note that Banks’s (1990) result will not be affected if we use this specification in his model.
following Banks (1990), we impose the universal divinity refinement of Banks and Sobel (1987) to narrow down the set of possible equilibria.

Our model setup defines a voting game over lotteries in a one-dimensional policy space. With quadratic utility functions, Banks and Duggan (2006) have shown that, for lotteries in an arbitrary dimensional space, if there is a median in all directions then the majority preference relation over lotteries is identical to the preference relation of the voter whose ideal point is at that median. This means that in our model the median voter will be decisive and we can focus our attention on her voting choice. If she prefers one candidate over the other, then the majority of voters prefer that candidate too, and he wins. If she is indifferent, then the number of voters who strictly prefer one candidate will equal the number of voters who strictly prefer the other. Since indifferent voters toss fair coins, each candidate will win with probability one-half. This significantly simplifies our analysis and in the rest of the paper we will only consider the median voter’s decision and the two candidates’ strategies.

Some explanations of terminology are in order before we proceed with the equilibrium analysis. Even though we have only two candidates in the model, the possible types of candidates are infinite (considering the true policy preferences of the lying types). If some types of candidates’ equilibrium strategies are the same, we say they ‘pool’. If the strategy of a certain type of candidate is different from all other types of candidates, we say he ‘separates’. But since some types of candidates may pool at one point, and some other types pool at another point, in an election the two candidates (both of whom use pooling strategies) may announce different positions. When that happens, we say these two candidates’ positions are ‘divergent’. If the two candidates happen to announce the same position, then they ‘converge’.

4. Equilibrium Analysis

4.1 Sequential Equilibria

We begin by deriving what policy a candidate will implement after he has made a certain announcement and happens to be elected. Differentiating (1) and (2) and setting the first order derivatives to zero, we have

\[ s'(t) = \frac{\lambda s(t) + t}{\lambda + 1} \]  

and

\[ s'(p) = \frac{\lambda s(p) + x}{\lambda + 1} , \]  

where \( s'(t) \) is the implemented policy of a lying-type candidate with true policy position \( t \), and \( s'(p) \) is that of a pandering-type candidate. What we get is that
the implemented policy will be a weighted average of the winning candidate’s announcement and his true policy position (or the post-election influence in the case of a pandering-type candidate). It is also immediately clear that

$$E(s'(p)) = \frac{\lambda}{\lambda + 1} s(p) \quad \text{and} \quad \text{Var}(s'(p)) = \left( \frac{1}{\lambda + 1} \sigma_g \right)^2.$$  

Plugging (5) and (6) respectively into (1) and (2), we have

$$U(t|\text{win}) = w - 2 \frac{\lambda}{\lambda + 1} (s(t) - t)^2 \quad (7)$$

and

$$U(p|\text{win}) = w - 2 \frac{\lambda}{\lambda + 1} (s(p) - x)^2. \quad (8)$$

Note that when a pandering-type candidate announces his position, he does not know the value of $x$ yet, so what matters for strategy selection is

$$E(U(p|\text{win})) = w - 2 \frac{\lambda}{\lambda + 1} (s^2(p) + \sigma_g^2). \quad (9)$$

In equilibrium, each candidate’s *ex ante* probability of winning the election is a function of his type alone since we only consider symmetric strategies, and each candidate’s expected utility of following the equilibrium strategy is the (expected) utility if he is elected times the probability of winning the election. Therefore, we have

$$U^*(t) = (w - 2c(s^*(t) - t)^2) \cdot p^*(t) \quad (10)$$

and

$$U^*(p) = (w - 2c(s^2(p) + \sigma_g^2) \cdot p^*(p), \quad (11)$$

where $U^*(t)$ and $U^*(p)$ are, respectively, the equilibrium expected utility of a lying-type candidate with true policy preference $t$ and that of a pandering-type candidate, and $p^*(t)$ and $p^*(p)$ are, respectively, the equilibrium winning probability of a lying candidate with true policy preference $t$ and that of a pandering candidate. We have substituted a constant $c$, $0 < c < 1$, for $\lambda/(\lambda + 1)$.

Now we can specify the usual ‘incentive compatibility’ constraints in games with incomplete information for our model:15

$$\left( w - 2c(s^*(t) - t)^2 \right) \cdot p^*(t) \geq \left( w - 2c(s^*(t') - t)^2 \right) \cdot p^*(t'), \quad \forall t, t' \in [-1, 1]; \quad (12)$$

15Note that these conditions are not the full set of incentive compatibility constraints, because they do not cover candidates’ deviations to positions that no type uses in equilibrium. We consider the off-equilibrium announcements in the next subsection.
\begin{align*}
(w - 2c(s^2(p) + \sigma^2_\theta)) \cdot p^*(p) &\geq (w - 2c(s^2(t) + \sigma^2_\theta)) \cdot p^*(t), \quad \forall t \in [-1, 1]; \\
(w - 2c(s^*(t) - t)^2) \cdot p^*(t) &\geq (w - 2c(s^*(p) - t)^2) \cdot p^*(p), \quad \forall t \in [-1, 1].
\end{align*}

What these conditions state is that, in equilibrium, a candidate’s expected utility from following his own equilibrium strategy should be at least as great as that from emulating another type’s strategy. For example, inequality (12) says that a lying-type candidate with true position \( t \) should follow his equilibrium strategy \( s^*(t) \) (associated with a winning probability \( p^*(t) \)), rather than pretending to be a lying-type candidate with true preference \( t_0 \) by following strategy \( s^*(t_0) \) (with its associated winning probability \( p^*(t_0) \)). Banks (1990) has condition (12), but not (13) or (14), since there are no pandering-type candidates in his model. The usual ‘participation constraint’ is automatically satisfied in our model as \( w \) is sufficiently large.

From condition (12), Banks (1990) has proven the following two results. Although we have added a cost for implementing a policy that differs from one’s true policy preference, a candidate’s utility from winning office is still a function of his type and announcement, and so Banks’s following results can be directly applied in our analysis.

Banks I (1990; Prop. 1): \( s^*(t) \) is weakly monotone increasing in \( t \); i.e. \( \forall t, t' \in [-1, 1], t < t' \) implies \( s^*(t) \leq s^*(t') \).

Banks II (1990; Prop. 2): \( p^*(t) \) is weakly monotone increasing on \([-1,0]\) and weakly monotone decreasing on \([0,1]\).

From these two results and incentive compatibility constraint (13), we can derive the following lemma.

**Lemma 1.** A pandering-type candidate’s announcement will be weakly closer to the origin of the policy space than any lying-type candidate; i.e. \( |s^*(p)| \leq |s(t)| \), \( \forall t \in [-1, 1] \).

**Proof.** See the appendix for proofs.

This critical lemma is not only useful in itself but it also frees us, when we consider the strategies of the lying types, from worrying about the possibility that the pandering type might spatially locate his strategy ‘within’ the strategies of lying types with policy preferences on any side of the center. With the aid of this result, we can now establish the following lemma.

**Lemma 2.** In equilibrium, a lying-type candidate with true policy preference zero will pool with other lying-type candidates whose true policy preferences are contained in a certain neighborhood around zero; i.e. \( s^*(t = 0) = s^*(t') \), \( \forall t' \in [-\phi, \phi] \), for some \( \phi \in (0, 1] \).
Having looked at lying-type candidates around zero, we can also examine lying-type candidates with \( t = \pm 1 \). First we note that in equilibrium every candidate’s winning probability is strictly greater than zero. If not, a candidate with zero winning probability can simply mimic the strategy of a type of candidate with positive winning probability and strictly increase his expected utility. This means that candidates with an extreme policy preference will have to pool with some other types, as the following lemma indicates.

**Lemma 3.** Lying-type candidates with true policy preferences at \( \pm 1 \) will pool with some nearby lying types; i.e. \( s^*(t = 1) = s^*(t') \), \( \forall t' \in [\theta, 1] \), for some \( \theta \in [0, 1) \); \( s^*(t = -1) \) is analogous.

With the above analysis, we know that, locally around 0 and \( \pm 1 \), lying types will behave either as in Figure 1(a) or as in Figure 1(b), with \( \beta \) possibly equal to \( \alpha \) in (a) and 0 in (b). If they are not equal, then the proof of the next lemma shows there must be jumping discontinuities for \( s^*(t) \).

**Lemma 4.** If \( s^*(t = 0) \neq s^*(t = \pm 1) \), then there must be jumping discontinuities for \( s^*(t) \), i.e. there cannot be a separating segment that directly connects the end points of two pooling segments.

### 4.2 Equilibrium Refinement

The set of equilibria that satisfy the analysis in the above subsection is large. In this subsection, we will use the universal divinity refinement to narrow down

![Figure 1](https://example.com/figure1.png)

**Figure 1.** Potential equilibria for lying-type candidates with true positions around 0 and \( \pm 1 \).
the set of equilibria. What universal divinity means in our model is that, for every off-equilibrium policy announcement, henceforth denoted as $\eta$, the median voter decides which type of candidate is most likely to defect to that announcement from his equilibrium strategy, and then places probability one on that type of candidate making that off-equilibrium announcement. Specifically, let $U^*/C3(t)$ and $U^*/C3(p)$, respectively, denote the expected utility of a lying type and the pandering type when they follow their respective equilibrium strategy (i.e. the winning probability times the utility from holding office), and let $V(t, \eta)$ and $V(p, \eta)$ respectively denote their utilities if they deviate from their equilibrium strategies, announce an off-equilibrium policy $\eta$, and end up getting elected.

Then we can define $q(\cdot, \eta)$, the probability of winning with an off-equilibrium announcement that makes a candidate indifferent between sticking to his equilibrium strategy and deviating to $\eta$, as follows:

$$q(\cdot, \eta) = \frac{U^*(\cdot)}{V(\cdot, \eta|\text{win})}.$$

The universal divinity refinement states that a type that has the lowest $q(\cdot, \eta)$ among all possible types is the most likely type to deviate to $\eta$, and that voters place probability one to this type of candidate making announcement $\eta$.

And if this type of candidate indeed wants to deviate, given this posterior voter belief, the original equilibrium collapses.

Off-equilibrium announcements can occur either between the jumps in equilibrium strategy $s^*(\cdot)$, or at the end of the policy space. With the universal divinity refinement, Banks (1990) shows that, starting from the origin of the policy space, if a jump occurs after a segment of pooling equilibrium, then what follows must be a separating equilibrium, and this separating equilibrium must continue all the way to the end of the policy space. Adding the pandering type does not change this result, as we have shown that a pandering-type candidate would locate his strategy weakly closer to zero than any lying-type candidate.

By Lemmas 2 and 3, there must be pooling equilibria at the center and the end of the policy space; by Lemma 4, there will be jumping discontinuities in lying types’ strategies if those lying types around zero and those around $\pm 1$ do not share the same strategy. Therefore we can be assured that in our model there will be no jumps when the lying types move away from the center; i.e. a pooling equilibrium for lying types must continue from the origin all the way to $t = \pm 1$, as in Figure 2(a), where all types announce policy zero, or in Figure 2(b), where all right-leaning lying types announce policy $\alpha$, all left-leaning lying types announce $-\alpha$, for some $\alpha$ between zero and one, and the lying type with $t = 0$ randomizes between the two announcements.

We now discuss whether, or under what conditions, Figures 2(a) and 2(b) can constitute universally divine sequential equilibria. We first consider Figure 2(a). Note that, if all lying types pool at zero, then by Lemma 1 the pandering type
PROPOSITION 1. It is a universally divine sequential equilibrium that all types of candidates pool at zero, i.e.
\[
\frac{s}{C_3}(p) = \frac{s}{C_3}(t) = 0, \quad \forall t \in [-1, 1].
\]

Next we consider Figure 2(b). Note that for off-equilibrium announcements > \(\alpha\) or < \(-\alpha\), the same argument as in the proof of Proposition 1 holds, and no candidate will deviate from the equilibrium. So here we will only consider off-equilibrium announcements within \((-\alpha, \alpha)\).

A pandering-type candidate can either pool with some lying types at \(\alpha\) and \(-\alpha\), or separate from all lying types. Suppose he separates and chooses \(s(p) = 0\). Does any lying type have incentive to deviate to an off-equilibrium announcement \(\eta \in (-\alpha, 0) \cup (0, \alpha)\)? Note that all lying types have the same winning probability if they follow the equilibrium strategy, regardless of their true policy preferences. Call this probability \(\tilde{p}\), \(\tilde{p} > 0\). Then for the pooling equilibrium at \(\alpha\) (\(-\alpha\) is analogous) we have

\[
q(t) = \frac{(w - 2c(s^*(t) - t)^2) \cdot \tilde{p}}{w - 2c(\eta - t)^2},
\]

and so:

\[
\frac{\partial q(t)}{\partial t} = \frac{4c\tilde{p}(\alpha - \eta)(w + 2c(\alpha - t)(\eta - t))}{(w - 2c(\eta - t)^2)^2} > 0.
\]

Figure 2. Potential behaviors of lying types in universally divine sequential equilibria (a pooling equilibrium must continue from the origin all the way to the end of the policy space).
The last inequality holds given our assumption about $w$ and that $\alpha > \eta$. This means that type $t = 0$ has the lowest $q(\cdot)$ and hence is the most likely type to deviate to $\eta$ among all lying types. Moreover, for the pandering type $q(p)$ is greater than 1, because by deviating to an $\eta \in (0, \alpha)$, his utility from holding office strictly decreases. Therefore the pandering type can never be the most likely type to deviate in this situation. For $\eta$ sufficiently close to zero, type $t = 0$ indeed has the incentive to deviate now that his type can be recognized for sure with a deviation, because both the winning probability and the utility from holding office increase. Therefore it cannot occur in equilibrium that all lying types pool at $\alpha$ and $-\alpha$, while the pandering type separates at zero. Similarly, it can be easily shown that the pandering type will not locate at any other point within $(-\alpha, \alpha)$ either.

Now we consider the case in which the pandering type pools with the lying type $t = 0$ and randomize his announcements between $\alpha$ and $-\alpha$, as in Figure 3. If all types of candidates pool at $\alpha$ or $-\alpha$, each candidate’s winning probability is $\frac{1}{2}$. Therefore

$$q(p) = \frac{(w - 2c(s^2(p) + \sigma^2_g)) \cdot p^*(p)}{w - 2c(\eta^2 + \sigma^2_g)} = \frac{(w - 2c(\alpha^2 + \sigma^2_g)) \cdot \frac{1}{2}}{w - 2c(\eta^2 + \sigma^2_g)}$$

(17)

Figure 3. A universally divine sequential equilibrium for the electoral game.
and

\[ \mathcal{q}(t = 0) = \frac{(w - 2c\alpha^2) \cdot \frac{1}{2}}{w - 2c\eta^2}. \] (18)

It is immediately clear that \( q(p) < q(t = 0) \), i.e. the pandering type will be more likely to deviate to an \( \eta \in (-\alpha, \alpha) \) than the lying type with true policy preference zero, and hence will be the most likely type to deviate among all types. Intuitively, this is because the post-election influence the pandering type will respond to may turn out to be on either side of the center of the policy space, while other types have fixed personal preferences on the same side as their announcements; this uncertainty makes the pandering type more willing to choose a position closer to the center of the policy space, which is the expected location of the post-election influence. Therefore, when the median voter observes an announcement \( \eta \in (-\alpha, \alpha) \), she thinks that the announcement must be from a pandering-type candidate. And if a pandering-type candidate deviates, it is obvious that the best \( \eta \in (-\alpha, \alpha) \) to deviate to is zero. But will a pandering-type candidate want to deviate to zero?

It turns out that the pandering type will not deviate from \( \alpha \) or \(-\alpha\), as long as \( \alpha \) is relatively small. To see this, note that a pandering-type candidate’s winning probability when pooling at \( \alpha \) is \( \frac{1}{2} (\frac{w}{C_0} \cdot \frac{1}{2}) \), since all types pool, and his expected utility is

\[ U^*(p) = \frac{1}{2} (w - 2c(\alpha^2 + \sigma_\eta^2)). \] (19)

If he deviates and announces \( \eta = 0 \), his expected utility from holding office, given he wins the election, is \( w - 2c \cdot \sigma_\eta^2 \). His winning probability becomes either 1 (when the median voter prefers a pandering-type candidate with announcement zero to a lying-type candidate who announces \( \alpha \)), \( \frac{1}{2} \) (when the median voter is indifferent), or 0 (when the median voters prefers a candidate who announces \( \alpha \)).

The median voter’s expected utility from electing the pandering-type candidate that announces zero is \(-\sigma_\eta^2\) by equation (4). If she elects a candidate that announces \( \alpha \), then with probability \( \pi \) she puts a pandering-type politician in office and with probability \( 1 - \pi \) she puts a lying-type politician in office, since a candidate that sticks to the equilibrium path is a random draw from the prior distribution of candidate types. In the former case her expected utility is

\[ -\frac{\lambda \sigma^2 + \sigma_\eta^2}{(\lambda + 1)^2} \] by equations (4) and (6), and in the latter case her expected utility is

\[ -\frac{\lambda \sigma^2 + 2\lambda \mu_{f,r} \sigma + \sigma_\eta^2 + \mu_{f,r}^2}{(\lambda + 1)^2} \] by equations (4) and (5), as well as \( \mu_{f,r} \) and \( \sigma_{f,r}^2 \) (introduced in section two). So the median voter’s overall expected utility from electing a candidate announcing \( \alpha \) is

\[ -\frac{\lambda \sigma^2 + 2(1-\pi)\lambda \mu_{f,r} \sigma + (1-\pi)\sigma_\eta^2 + (1-\pi)\mu_{f,r}^2 + \pi \sigma_{f,r}^2}{(\lambda + 1)^2}. \]
this term \( U_m(\alpha) \). Therefore a pandering-type candidate’s expected utility from deviating to zero is

\[
U_{\eta=0}(p) = \begin{cases} 
  w - 2c \cdot \sigma_g^2, & \text{if } -\sigma_g^2 > U_m(\alpha); \\
  \frac{1}{2} (w - 2c \cdot \sigma_g^2), & \text{if } -\sigma_g^2 = U_m(\alpha); \\
  0, & \text{if } -\sigma_g^2 < U_m(\alpha). 
\end{cases}
\tag{20}
\]

By comparing equations (19) and (20), we know that a pandering-type candidate will lack incentive to deviate from \( \alpha \) or \( -\alpha \) if \( -\sigma_g^2 < U_m(\alpha) \), since \( \frac{1}{2} (w - 2c(\alpha^2 + \sigma_g^2)) > 0 \) given our assumption about \( w \). That is, the pandering type really wants to announce the median voter position, but if the value of \( \alpha \) is such that the median voter would rather elect a candidate pooling at \( \alpha \) than a pandering candidate who announces position zero but may change policy in either direction after the election, the pandering type would not want to deviate to zero. With some simple algebra (and substituting \( c \) with \( \lambda \frac{1}{1+\lambda} \)), this leads to the following proposition.

**Proposition 2.** It is a universally divine sequential equilibrium that all lying types with true policy preferences to the right of zero pool at \( \alpha \), all lying types with true policy preferences to the left of zero pool at \( -\alpha \), and the pandering type as well as the lying type with true policy preference zero randomize between \( \alpha \) and \( -\alpha \), when

\[
\alpha < \sqrt{\frac{(1+\lambda)^2 - \pi \sigma_g^2 - (\pi - \pi^2)\mu_f \sigma_f - (1-\pi)\sigma_g^2 - (1-\pi)\mu_f \sigma_f}{\lambda}}
\]

(provided that the square root operation is legitimate and that the right-hand side of the inequality is positive).

If pooling at \( \alpha \) and \( -\alpha \) is an equilibrium, pooling at any point within the interval \( (-\alpha, \alpha) \) is also an equilibrium. So Proposition 2 implies Proposition 1. What Proposition 2 adds to Proposition 1 is that lying-type candidates with true policy positions to the left of the origin and those with true policy positions to the right of the origin can locate at opposite positions in equilibrium. Further, in the case that the two candidates turn out to be both of the pandering type or both of the lying type with true policy position zero, there is still a considerable chance that the two candidates will randomize at positions that are opposite to each other. The exact pooling locations in real elections may well depend on focal point considerations in those elections, but both convergence and divergence in candidate announcements are normal outcomes in electoral competitions.

Proposition 2 also indicates that the existence of such non-centric announcements presupposes that the private policy preferences of both left-leaning and right-leaning lying types are expected to be not too extreme or dispersed.
(otherwise \(\mu_{fr}\) and/or \(\sigma^2_{fr}\) will be large and then all types may have to pool at zero). This provision is not too stringent; it just requires that the distribution of the lying types be relatively dense near the center rather than being, for example, a very flat distribution or a bimodal distribution with the modes far away from the center. The dispersion of the distribution will not be a concern if the variance of the post-election influence or the weight on the reputation cost is relatively large.

### 4.3 Comparative Statics

Here we derive from Proposition 2 the effects of our model parameters on the size of the interval of the pooling equilibria. The size of the pooling interval matters because the implemented policy of an elected candidate will be a weighted average of his announcement and his true position (or the external influence). Since the only equilibria in the electoral game are pooling equilibria, candidates’ announcements will be equally distant from the median voter’s bliss point. Therefore, regardless of the types of the two candidates in a given election, the median voter will prefer candidates to pool at points closer to the policy center; in other words, a narrower interval of the pooling equilibrium can potentially increase her welfare from the electoral game.

This differs from Banks’ (1990) approach to analyzing voter welfare in that he recommends imposing large exogenous costs for lying about one’s policy intention. That way the game in his model will have a semi-separating equilibrium in which at least some candidates will be truthful in reporting their intentions, and so voters may be able to make the ‘correct’ choice. Our question is that, given that the costs for lying and pandering are small relative to the benefits of holding office, with the result that any candidate is willing to announce a position different from his policy preference and implement yet another policy, when will he nevertheless announce a moderate position, and then implement a somewhat moderate policy?

The first comparative static is about the variance of the post-election influence. From Proposition 2 we can see that the larger \(\sigma^2_g\) is, the larger the maximum value of \(\alpha\) will be. In fact, for the pooling interval to be greater than zero, \(\sigma^2_g\) has to be greater than \(\frac{(1-\pi)(\mu^2_{fr}+\sigma^2_{fr})}{(1+\lambda)^2-\pi}\), a decreasing function of \(\pi\) (which means that a higher \(\pi\) will make it more likely that there will be a non-zero pooling interval). On the other hand, a small enough \(\sigma^2_g\) will mean that all types of candidates have to pool at zero. This is because a smaller variance of the post-election external influence would make a pandering-type candidate more attractive to the median voter, and since the pandering type prefers a campaign announcement close to zero, the interval of pooling equilibrium will shrink if \(\sigma^2_g\) decreases.

On the other hand, the effect of \(\pi\), the prior probability of a candidate being of the pandering type, on the size of the pooling interval is more complicated.
– whether an increase of $\pi$ leads the pooling interval to expand or shrink depends on the values of the other parameters, including $\lambda$, $\sigma_g$, $\sigma_{f,r}$, and $\mu_{f,r}$.

But it is clear that the effect of $\pi$ in this game is not a convex combination of the effects when $\pi = 0$ and when $\pi = 1$. When $\pi = 0$, we essentially have the game of Banks (1990), and the interval of the pooling equilibrium will be just one point – the median voter position. If $\pi$ is 1, it is obvious all candidates will announce the median voter position too, since that is the expected position of the post-election influence. Owing to the continuity of

$$\sqrt{\frac{(1+\lambda)^2 - \pi \sigma^2_g - \pi^2 \mu^2_{f,r} - (1-\pi)\sigma^2_{f,r} - (1-\pi)\mu_{f,r}}{\lambda}},$$

when $\pi$ approaches 0, the size of the pooling interval approaches

$$\sqrt{\frac{(1+\lambda)^2 \sigma^2_g - \sigma^2_{f,r} - \mu_{f,r}}{\lambda}},$$

and when $\pi$ approaches 1, the size approaches

$$\sqrt{\frac{(2\lambda+\lambda^2)\sigma^2_g}{\lambda}}.$$ 

Our result shows that as long as the pandering type and the lying types coexist in the candidate pool (the prior probability of a candidate being of the pandering type can be arbitrarily close to 0 or 1), left-leaning candidates will cluster with themselves at one point and right-leaning candidates will cluster at another point, while all other candidates randomize between the two. And there are a whole range of positions around the median voter position in which the clustering can occur.

The effect of $\lambda$, the relative cost of carrying out a policy different from one’s announcement (the reputation cost) as opposed to the cost of choosing a policy different from one’s true preference or the post-election influence (the internal cost), is similarly complicated and contingent on the values of $\sigma_g$, $\sigma_{f,r}$, $\mu_{f,r}$, and $\pi$. It is interesting to note from equations (1) and (2) that when the reputation cost is zero ($\lambda = 0$), then the campaign announcement does not enter into a candidate’s utility function (it is purely cheap talk), and so candidates can announce any position in the policy space and voters will just randomly choose a candidate. If candidates do not pay any internal cost, on the other hand, all candidates will be of the same type and they will simply implement whatever policies they have announced. As a result, all candidates will announce the median voter position as in the standard Downsian model.

5. Conclusion

This paper has analyzed strategic behaviors in a two-candidate electoral competition when voter uncertainty is such that each candidate can either have a private policy position but be willing to lie about it in order to get elected, or does not have a private policy preference to satisfy and therefore is ready to pander to post-election external influences. We have also proposed a single framework
to supplement candidates’ primary office motivation with policy considerations, and to integrate pre- and post-election politics, two outstanding challenges in models of electoral competition.

The election we model in this paper is a one-period game. Although a candidate seeking office for multiple terms may have a different incentive structure so that they may be truthful about their private preferences or enact policies and efforts to satisfy voter demands while in office (Harrington, 1993; Austen-Smith and Banks, 1989), we restrict our attention to a one-shot election setting in this paper, as this serves as a basis for analyzing multiple elections. Moreover, the voter-imposed ‘reputation cost’ can, in a reduced-form way, represent the cost to an office holder’s re-election prospects in a multiple election setting if he implements a policy different from his pre-election announcement (see also Banks, 1990).

We show that it is always an equilibrium that all types of candidates pool at zero. But candidates can also pool at non-zero points, given appropriate parameter values. In particular, left-leaning lying types can cluster with each other at a point that is exactly opposite to the point at which right-leaning lying types cluster with each other, while the pandering type and the lying type with a true centric policy preference randomize between these two opposite positions. Thus candidate divergence of campaign positions should be a normal outcome of electoral competitions. This is somewhat surprising, given that we have assumed that all types of candidates have a strict preference for winning office, and so there is a pressure toward announcing the most popular position. It turns out that, even with just a modicum of voter uncertainty about the sincerity of candidate announcements and their willingness to pander, non-median positions are equilibrium points too. Thus the prevalence of divergence in candidate positions does not really point to the failure of the Downsian framework, but rather indicates that we should incorporate into it some important voter uncertainty about candidate types.

Appendix

Proof of Lemma 1. By Banks I and the symmetric requirement we know that the announcement of a lying-type candidate with true policy position zero is weakly closer to zero than the announcement of any other lying-type candidate. It therefore suffices to show that $|s^*(p)| \leq |s^*(t = 0)|$, where $s^*(t = 0)$ is the strategy of a lying-type candidate with true policy preference zero. From inequality (13), if $p^*(p) \leq p^*(t = 0)$, where $p^*(t = 0)$ is the equilibrium probability that a candidate with true policy preference zero will win the election, then it must be $(w - 2c(s^2(p) + \sigma^2_g)) \geq (w - 2c(s^2(t = o) + \sigma^2_g)$, which means $|s^*(p)| \leq |s^*(t = 0)|$. 


Now suppose that in equilibrium \( p^*(p) > p^*(t = 0) \), then by Banks II we know \( p^*(p) > p^*(t), \forall t \in [-1, 1] \). What this means is that the pandering type will be separating his strategy from all lying-type types, otherwise the pandering type’s probability of winning will be equal to at least one of the lying types. In other words, \( s^*(t) \neq s^*(p), \forall t \in [-1, 1] \). But then a lying-type candidate with true policy preference \( t = s^*(p) \) would rather pool with the pandering type and announce \( s(t) = t = s^*(p) \), since this gives him a higher probability of winning and a higher utility from winning office, thereby contradicting the assumption that \( p^*(p) > p^*(t = 0) \) can hold in equilibrium. Therefore in equilibrium it must be \( p^*(p) \leq p^*(t = 0) \) and we are done.

**Proof of Lemma 2.** Suppose the lying type with true preference zero separates its strategy from all other lying types. As Banks (1990) has shown, within a separating segment, we must have \( |s^*(t)| \leq |t| \), for any \( t \) in this segment.\(^{16}\) Therefore we have \( s^*(t = 0) = 0 \), as shown in Figure 4(a), where there is a jump between the strategy of type \( t = 0 \) and those of other policy types, or like Figure 4(b), where the strategies are continuous locally around zero. But \( |s^*(t)| \leq |t| \) means that Figure 4(a) is impossible to hold, and so we only need consider Figure 4(b).

By Lemma 1, \( s^*(t = 0) = 0 \) means that we must have \( s(p) = 0 \), which further means by Banks II that \( p^*(p) = p^*(t = 0) \geq p^*(t'), \forall t' \in [-1, 1] \). This involves a contradiction. If both \( s^*(p) \) and \( s^*(t = 0) \) equal zero, then seeing an announcement zero, the median voter would believe the signal sender is the pandering type with probability one according to Bayes’ rule (as \( \text{prob} (t = 0) = 0 \)). Because the likely post-election policy of the pandering type has variance \( \sigma^2 \), there exist in this continuous separating equilibrium segment lying types whose true preferences and policy announcements are sufficiently close to zero that the median voter must strictly prefer them to a candidate that sends \( s^*(t') = 0 \), whom the median voter will take to be the pandering type (as the implemented policy of a lying-type candidate will be a weighted average of his announcement and his preference). Therefore in this separating segment the winning probabilities of lying types whose preferences are sufficiently close to zero must be greater than that of the pandering type. Therefore, Figure 4(b) cannot be an equilibrium either. Locally around zero, lying types must pool.

**Proof of Lemma 3.** Suppose a candidate with \( t = 1 \) or \(-1\) does not pool, but separates from all other lying types. Then the median voter can precisely

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\(^{16}\)The proof is straightforward. Suppose \( t' = s^*(t) > t \) for some \( t \) in this separating segment, then the type \( t' \) would rather announce \( s^*(t) \) than \( s^*(t') \), as this gives him a higher utility from winning office and a higher probability of winning. Therefore \( t' = s^*(t) > t \) cannot occur in equilibrium for a separating segment.
identify his type. Further, by Banks I and Lemma 1 it must be that all other types of candidates (lying or pandering) will make announcements strictly closer to zero than $t = \pm 1$. Suppose the pandering type does not pool with any lying type, then since a candidate’s implemented policy is a weighted average of his true policy preference and his announcement, the median voter would prefer signals sent by other lying types (whether they separate or pool among themselves) than that sent by $t = \pm 1$. Also, by equation (6), the median voter’s expected utility from electing a separating pandering-type candidate is

$$E[-(s'(p))^2] = E[-\left(\frac{\lambda s(p) + x}{1 + \lambda}\right)^2] = -\frac{\lambda^2 \cdot s^2(p) + \sigma^2}{(\lambda + 1)^2}.$$ 

Since in this model all variances are $\leq 1$, this expected utility will be strictly greater than her expected utility from electing $t = \pm 1$, which is $-\frac{(\lambda \cdot s'(t=1)+1)^2}{(\lambda+1)^2}$.

Because both a separating pandering candidate and all other lying-type candidates will offer greater expected utility to the median voter than $t = \pm 1$, she will not vote for $t = \pm 1$ even if the pandering type pools with some or all other lying types at some announcement. Therefore in equilibrium $t = \pm 1$ must pool with some other lying types.

**Proof of Lemma 4.** Suppose in equilibrium there is a separating segment that connects two pooling segments, as in Figure 5, then if type $\theta$ would deviate slightly to a point in the separating segment, he will no longer be confused by the median voter as a type to the right of $\theta$, and can thus increase his winning probability by at least a fixed size (the specific size of increase depends on the
value of $2 - F(1 - \theta)$, and the decrease of utility from holding office can be made arbitrarily small as the deviation approaches zero. Therefore $\theta$ will have an incentive to deviate, contradicting the assumption that Figure 5 can be an equilibrium. In other words in equilibrium there cannot be a separating segment that directly connects the end points of two pooling segments.

**Proof of Proposition 1.** First note that adding the pandering type to the pool of pandering types does not change the relative relationship among the latter types, because their winning probabilities are still equal, and the utility from holding office is unchanged with the addition of the pandering type. Banks (1990) shows that, among all the lying types, $t = \pm 1$ is the most likely to deviate, and this result directly applies here; i.e. $q(t = \pm 1) < q(t'), \forall t' \in (-1, 1)$. In particular, $q(t = \pm 1) < q(t = 0)$. It is obvious that $t = \pm 1$, the types most likely to deviate, do not want to deviate in this case as that would reduce their winning probability to zero. If we can show that $q(p) > q(t = 0) > q(t = \pm 1)$, then a pandering-type candidate will be less likely to deviate than $q = \pm 1$, and hence will not deviate either. To show $q(p) > q(t = 0)$, note that in this equilibrium every candidate’s winning probability is $\frac{1}{2}$. So,
\[ q(p) = \frac{(w - 2c(s^2(p) + \sigma^2_g)) \cdot p^*(p)}{w - 2c(\eta^2 + \sigma^2_g)} = \frac{w - 2c \cdot \sigma^2_g}{2(w - 2c(\eta^2 + \sigma^2_g))}, \]  
(21)

and:

\[ q(t = 0) = \frac{(w - 2c(s^2(t = 0) - 0)^2) \cdot p^*(t = 0)}{w - 2c(\eta - 0)^2} = \frac{w}{2(w - 2c \cdot \eta^2)}. \]  
(22)

Simple algebra shows that \((21) - (22) = \frac{2c^2 \sigma^2_g \eta^2}{(w - 2c(\eta^2 + \sigma^2_g)) \cdot (w - 2c \eta^2)} > 0\). Therefore a pandering-type candidate will not deviate from this equilibrium, and no other candidate will deviate either. This proves the proposition.

References


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