The Citizen-Candidate Model with Imperfect Policy Control

R. Emre Aytimur[*],
Aristotelis Boukouras[†],
Robert Schwager[‡]

March 25, 2014

Abstract

We examine the two-candidate equilibria of the citizen-candidate model when the implemented policy arises from a compromise between the government and an unelected external power. We show that the equilibria of this model differ significantly from the original: the distance between the candidates' policies, both ideal and implemented, remains strictly above a threshold. Thus, the median voters' ideal policy may not obtain in contested elections if policy control is imperfect, even when the cost of running as a candidate is arbitrarily small. We study as well the one-candidate equilibria and find that there may be equilibria in which the only candidate is not the most preferred candidate of the median voter, even when the cost of running as a candidate is arbitrarily small.

Keywords: elections, polarization, strategic delegation, bureaucracy, foreign influence

JEL classification: D72, D78, H11

[*]Chair of Public Economics, Georg-August University Göttingen, email: raytimu@gwdg.de

[†]University of Edinburgh Business School, email: aris.boukouras@ed.ac.uk

[‡]Corresponding author. Chair of Public Economics, Georg-August University Göttingen, Platz der Göttinger Sieben 3, D-37073 Göttingen, Germany; phone: +49 551 39-7293, fax: +49 551 39-7417, email: rschwag@uni-goettingen.de

1 Introduction

The recent economic crisis within the Eurozone has revealed an interesting aspect of political economics. Many Southern European governments need to implement policies which are opposed by a large proportion of voters, and voters seem to be driven to the extremes as a result. Indeed, in the case of Greece, the recent political turmoil lead to a dispersion of voters among multiple parties in two successive elections (May and June 2012). Specifically, after the center-right Nea Demokratia and the center-left Pasok had been the dominating forces of Greek politics for decades, now Syriza, a party located much farther to the left, has ousted Pasok from second place. Thus, as a result of the crisis, the ideological distance between the two major parties has increased substantially. Moreover, it appears clear that the majority of Greek population would prefer much less austere policy measures, or, put differently, the implemented policies differ substantially from the ideal policy of the median voter. How can this increased distance between the political positions of the major contenders, and the divergence between the preferred policy of the median voter and the implemented policy be reconciled by the traditional public choice framework?

We answer this question by using the celebrated citizen-candidate model, which was pioneered by Osborne and Slivinsky (1996) and Besley and Coate (1997). In two-candidate equilibria of this model, a substantial cost of running for office prevents a convergence of policy platforms. Conversely, if the cost of candidacy is small the model allows for equilibria with two candidates proposing policies which are arbitrarily close to each other and to the median's preferred policy (see Persson and Tabellini (2002), p. 101-104). In the present note, we show that this latter conclusion is no longer true if the elected government cannot fully control the policy to be implemented but has to compromise with an external power. If the final policy is in between the ideal policies of the elected citizen and the external power, then in any two-candidate equilibrium the distances between the ideal policies and between the policies finally implemented by the two candidates remain strictly above a positive threshold, *even when the cost of running for office becomes arbitrarily small.*

As our earlier example indicates, the political importance of this result stems from the observation that quite often, elected governments have to share power with an un-elected entity. For example, a self-interested bureaucracy in the spirit of Niskanen (1971) may, by its expertise or its control on executive functions, 'water down' implemented policies. Similarly, an interest group[1] which has the means to disrupt public life, such as a union or an industry association, can influence the policies effectively enacted by the government. As a third example, in developing countries even elected governments often feel compelled to take the views of donor countries into account when formulating domestic policies. Finally, as we have already pointed out, when the International Monetary Fund or, recently, the European Union negotiate economic programs with countries receiving debt relief, the resulting policies clearly arise as a compromise between the preferences of the elected government and those of the international institution. For these and similar situations, our result implies that a polarization of candidates and policies is inevitable.

To arrive at this conclusion, we present a simple model where citizens have single-peaked preferences over an unbounded one-dimensional policy space, decide non-cooperatively whether to stand in an election, and vote strategically for one of the candidates. To formalize the influence of the external power, we assume that the final policy is a weighted average of the winner's ideal policy and the external power's preferred choice. We show that the ideal policies of two candidates running in an equilibrium, and also the policies finally implemented in case of victory, must differ by a minimum amount. This minimal distance increases in the strength of the external power and in the difference between the median voter's and its preferred policies, but is independent of the cost of candidacy. This result obtains since otherwise, if two candidates with similar preferences were to run, one of them would prefer the compromise between the other candidate and the external power to the compromise she can obtain herself.

Our analysis is in line with several other contributions which show that adding institutional features to the standard citizen-candidate model can cause the candidates' policies to diverge. Thus, Chambers (2007) provides a model where lobbies pay campaign contributions to potential candidates so as to convince them to run. He shows that this induces a minimum distance between the policies chosen in two candidate equilibria. Our approach differs from this result in that we consider an external power which influences the policy after the election, rather than manipulating the election itself. It has also been shown that ideal policies in a two-candidate equilibrium must be sufficiently far apart if the final policy is a weighted average of the ideal policies of all candidates (Hamlin and Hjortlund (2000)), or if the decision to stand in the election must be taken before the distribution of voter preferences is known (Brusco and Roy

[1]Besley and Coate (2001) study the influence of lobbying in a citizen-candidate model. However, since the government has full control over the policy in their model, they do not obtain our result.

(2011)). Both Hamlin and Hjortlund (2000) and Brusco and Roy (2011) assume sincere voting, and the driving force behind the divergence results is the threat of a third candidate entering on the fringe of the political spectrum. Contrary to that, in our model, which is based on strategic voting, it does not pay off for the second candidate to enter if policies are too close to each other. Thus, while these contributions arrive at similar conclusions, our result is based on a fundamentally different effect.

Our result also contributes to the theory of strategic delegation in a political context. This strand of literature emphasizes that the median voter, by electing someone with preferences different from herself, can compensate for unwelcome influences in the post-election decision making, and thereby implement her preferred policy. For example, Persson and Tabellini (1992) show that electing a citizen who likes higher taxes than the median is a way to counteract the race to the bottom endemic in tax competition. Similarly, Roelfsema (2007) shows that strategic delegation can overcome the free-riding incentives present when countries set environmental standards in an uncoordinated way. In an inter-temporal set-up, electing a citizen with a high endowment of capital is a way to commit to a low tax rate on capital, thereby preserving incentives to invest (Persson and Tabellini (1994)). Other applications of strategic delegation refer, for example, to joint production of a public good (Harstad (2010)), to monetary policy in the European Central Bank (Fatum (2006)), or even to civil conflicts (Jennings and Roelfsema (2008)). One-candidate equilibria of our model are in line with these results (subject to a qualification we explain below): Provided the cost of candidacy is not too high, there is always an equilibrium where the final policy coincides with the median's preferred choice. Contrary to that, in any two-candidate equilibrium, the final policies remain bounded away from the median's ideal policy, even for arbitrarily small cost of running for office. Thus, our result shows that the power of strategic delegation is limited as long as one considers equilibria where elections are indeed contested.

We study as well one-candidate equilibria of our model and find an interesting difference from those of the standard model. In the standard model, the median voter being the candidate is the only one-candidate equilibrium for a sufficiently small cost of entry. In our model, as stated above, there exists a one-candidate equilibrium in which the candidate is the most favored candidate by the median voter, whose policy compromise with the external power is as close as possible to the median voter's ideal position. However, *even when the cost of running for office is arbitrarily small*, there remains other one-candidate equilibria in which the outcome is substantially different from the median voter's preferred outcome. This implies that strategic delegation may not work even for one-candidate equilibria and even for an arbitrarily small cost of entry.

The rest of the paper is organized as follows: Section 2 presents the model. Section 3 and 4 are devoted respectively to two- and one-candidate equilibria. Whereas subsections 3.1 and 4.1 presents the general cases, subsections 3.2 and 4.2 illustrate the results further through a more specific case with linear symmetric utility. Section 5 shortly discusses the results and concludes.

2 The Model

There are n citizens with n odd. Each citizen has preferences over a unidimensional policy $p \in \mathbb{R}$ represented by the utility function $u_i(p)$. The ideal policy point of a citizen i is denoted by p_i. The median voter's ideal policy is denoted by p_m. In general, we only assume that preferences are single-peaked. For purposes of illustration, however, in Subsections 3.2 and 4.2 we also consider the special case where utility functions are linear and symmetric, i.e., $u_i(p) = -|p - p_i|$ for all i.

There are three stages. In the first stage, each citizen decides whether to stand for election or not. Being a candidate costs $c > 0$. In the second stage, voting takes place according to the plurality rule. In case of a tie, every candidate which ties for the first place is selected as the winner with equal probability. In the third stage, if citizen i is the winner of the election, then the final policy p_{ix} is a weighted average of her ideal policy (p_i) and the ideal policy of an external power (p_x):

$$p_{ix} = \gamma p_i + (1 - \gamma) p_x \tag{1}$$

with $0 \leq \gamma \leq 1$. If no one runs for the election, then the final policy becomes p_x.

The formula of the final policy captures the idea that, ideally, the election's winner would like to implement her most preferred policy, but has to compromise with the external power. $1 - \gamma$ measures the power of this un-elected entity.[2]

The equilibrium concept is subgame perfect equilibrium together with the elimination of weakly dominated voting strategies. Our focus is on equilibria with one or two

[2]In (1), p_i should not be misunderstood as a policy which the elected government could choose freely, since then the outside influence could simply be undone by a choice which implements p_i. Rather, p_i represents the preferences of the government, and (1) describes the outcome of some form of bargaining between the government and the external power. Clearly, for the idea of imperfect policy control to make sense, this must in general diverge from the government's ideal policy.

candidates standing in the election. In Section 3 we start by analyzing the latter kind of equilibria, which are arguably more realistic than equilibria with an uncontested candidate. We then turn to one-candidate-equilibria in Section 4 so as to highlight how the impact of incomplete policy control differs across these two types of equilibria.

3 Two-Candidate Equilibria

The analysis of equilibria with two candidates starts in Subsection 3.1 with the general model, where we assume only single-peakedness. In Subsection 3.2 we illustrate the main findings in the special model with linear utility functions.

3.1 Single-peaked Preferences

By adapting Proposition 3 of Besley and Coate (1997) to our setup, we have the following characterization of two-candidate equilibria:

Proposition 1 *If there exists a two-candidate equilibrium in which citizens i and j run against each other, then*

(a) the number of citizens who strictly prefer p_{ix} over p_{jx} is equal to the number of citizens who strictly prefer p_{jx} over p_{ix}, and

(b) $\frac{1}{2}\big[u_i(p_{ix}) - u_i(p_{jx})\big] \geq c$ and $\frac{1}{2}\big[u_j(p_{jx}) - u_j(p_{ix})\big] \geq c$.

Furthermore, if the number of citizens indifferent between p_{ix} and p_{jx} is less than one-third of the electorate, then conditions (a) and (b) are sufficient for a two-candidate equilibrium to exist in which i and j run against each other.

In this proposition, condition (a) requires that the two candidates tie in an election since otherwise, the candidate who is bound to lose would pay the cost $c > 0$ without changing the outcome. Condition (b) implies that each candidate values her impact on the expected outcome more than the cost of running.

In order to make these necessary conditions sufficient for existence of an equilibrium with i and j as the only candidates, it must in addition be ensured that no third candidate can successfully enter the race. With strategic voting, this is guaranteed if the share of voters indifferent between p_{ix} and p_{jx} is less than a third. To see why, consider first those voters who strictly prefer p_{ix} to p_{jx} or vice versa. If such a voter unilaterally defects to the third candidate, she will only make her least preferred candidate win, so that the third candidate cannot attract her vote. This argument, however, does not go through for voters who are indifferent between p_{ix} to p_{jx}, since these will not lose by changing the ranking among candidates i and j. To rule out that these voters might allow a third candidate to win, the final sufficient condition requires that their number is less than a third of the electorate.

Compared to the original result from Besley and Coate (1997), Proposition 1 states that in our model voters and candidates evaluate final policies p_{ix} and p_{jx} rather than candidates' ideal policies p_i and p_j when deciding for whom to vote and whether to run. It does not show, however, why and in what sense equilibrium outcomes of our model differ in substance from the standard citizen-candidate model without an outside policy influence. This is the purpose of the following Proposition 2. There, we make use of necessary conditions (a) and (b) from Proposition 1 in order to provide a more specific characterization of what kinds of candidate pairs can be observed in a two-candidate equilibrium.

Proposition 2 *In any equilibrium with two candidates i and j, $|p_i - p_j| > \frac{1-\gamma}{\gamma}|p_x - p_m|$.*

Proof: Note that $p_i \neq p_j$, since otherwise one of the candidates would be better off not running for the election and saving the cost c, violating condition (b) of Proposition 1. Assume without loss of generality that $p_j = p_i + d$ with $d > 0$. With (1), this implies $p_{jx} > p_{ix}$. The key observation is that $p_j > p_{ix}$, since otherwise j would prefer p_{ix} to p_{jx} (due to single-peaked preferences) and would be certainly better off not running for the election (even with $c = 0$), again contradicting condition (b) of Proposition 1. This can be equivalently written as

$$p_i + d > \gamma p_i + (1-\gamma)p_x$$

which gives

$$d > (1-\gamma)(p_x - p_i) \tag{2}$$

From condition (a) in Proposition 1, in a two-candidate equilibrium, two candidates should tie. Due to single-peaked preferences this is possible only if $p_{jx} > p_m > p_{ix}$. By substituting equation (1) for p_{ix} into $p_m > p_{ix}$ and rearranging, we get:

$$p_x - p_i > \frac{p_x - p_m}{\gamma}$$

Combining this with inequality (2) gives

$$d > \frac{1-\gamma}{\gamma}(p_x - p_m) \tag{3}$$

In the same way, using the inequalities $p_i < p_{jx}$ (since otherwise i would be better off not being a candidate) and $p_{jx} > p_m$, it can be also shown that

$$d > \frac{1-\gamma}{\gamma}(p_m - p_x) \tag{4}$$

Inequalities (3) and (4) together complete the proof. *Q.E.D.*

Proposition 2 says that it is not possible to have two candidates whose ideal policies are at a distance lower than $\frac{1-\gamma}{\gamma}|p_x - p_m|$ from each other, even if the cost of running as a candidate is arbitrarily small. While this result relates only to the ideal points of the candidates, the next corollary, which follows directly from Proposition 2 and equation (1), shows that also the two potential final policies are distant from each other by at least $(1-\gamma)|p_x - p_m|$.

Corollary 1 *In any equilibrium with two candidates i and j, $|p_{ix} - p_{jx}| > (1-\gamma)|p_x - p_m|$.*

To understand the effect driving these results, consider, without loss of generality, the case where the median's preferred policy is located to the left of the policy preferred by the outside force, so that $p_m < p_x$. One possible equilibrium constellation consists in having two candidates i and j whose ideal policies are positioned on different sides of p_x, say $p_i < p_x < p_j$. In such a situation, the final policy p_{jx} implemented by candidate j is to the right of p_x. Since the median must be indifferent between both candidates, the final policy p_{ix} achieved by i must then be to the left of p_m. Therefore, the length of the interval (p_m, p_x) provides a lower bound for the distance between final policies in such an equilibrium, which translates into an even larger distance between ideal points of candidates.

There may be a second type of equilibrium, however, where the ideal points of candidates, just like the median's, are also both located to the left of p_x. Note that this is the most interesting case where imperfect policy control is felt very strongly, since the majority of the population and the political contenders all agree that the outside force's policy prescription should be shifted in a particular direction. With negligible cost of running for office, one might now expect that an equilibrium with any such pair of candidates is possible, provided they implement final policies which are equally good from the median's point of view. However, if the candidates' ideal points are similar, the candidate whose ideal policy is closer to p_x, say j, would like to lose an election against her opponent, say i, since i pulls the final policy more strongly away from p_x in the direction desired by both of them. Only when i becomes so extreme that she pulls the final policy beyond the ideal policy of j does it become worthwhile for j to run against i.

Proposition 2 and Corollary 1 show that the present model is structurally different from the standard citizen-candidate model with perfect policy control. This is apparent when we set $\gamma = 1$ in (1), so that the model reduces to the standard case where the politician implements her ideal policy. Clearly, with $\gamma = 1$, the inequalities in the proposition and the corollary become trivial. Therefore, the sufficient conditions for existence of a two-candidate-equilibrium stated in Proposition 1 may well be satisfied by two candidates whose ideal points are arbitrarily close to each other, provided the cost of running is sufficiently small.[3] However, if $\gamma < 1$, Proposition 2 tells us that any two candidates running must have substantially different ideal points, and that also the two potential final policies diverge from each other by a non-negligible amount. Put differently, our result shows that the presence of the external power precludes convergence of platforms and final policies in two-candidate equilibria of the citizen-candidate model. Naturally, as the external power's bargaining power (i.e. $1 - \gamma$) increases, or as the ideological distance between the median voter and the external power (i.e. $|p_x - p_m|$) increases, our model diverges more from the standard model, and results in a higher minimum distance between candidates' platforms and final policies.

Moreover, since the median's preferred policy must be located between the policies implemented by the two potential winners, in the standard model the two-candidate equilibrium provides an institutional framework for (almost) implementing the median's preferences. Contrary to that, when an external power influences the policy outcome, at least one of the final policies necessarily stays bounded away from the median preferred policy, no matter how small the cost of running is.

We now turn to illustrating the general result from Proposition 2 by means of the special model with linear utility functions. Moreover, for this specification we can completely characterize the set of two-candidate-equilibria for any cost of running

[3]For instance, if voter m is indifferent between p_i and p_j and half of the remaining $n - 3$ voters respectively have ideal policies smaller than p_i and larger than p_j, then a two-candidate equilibrium with i and j running exists whenever the cost of running is small enough.

$c > 0$, and compare these with equilibria obtained in the standard citizen-candidate model with perfect policy control.

3.2 Linear Symmetric Utility

In this subsection, preferences of all agents i are described by the utility function $u_i(p) = -|p - p_i|$. Let's call the two candidates i and j, and assume without loss of generality that $p_i < p_j$.

According to Proposition 1, the necessary conditions for a two-candidate equilibrium are the following: (a) the median voter is indifferent between the two candidates i and j, (b) both candidates' gain from running is higher than the cost of entry. We assume throughout this section that there is only one voter with ideal policy p_m, which implies that all voters strictly prefer the candidate they vote for to the other candidate and the set of indifferent voters is smaller than one third of the electorate. With this assumption, conditions (a) and (b) are also sufficient for a two-candidate equilibrium. Moreover, for the sake of brevity, we restrict attention to the case $p_m < p_x$.[4]

Condition (b) requires

$$\frac{1}{2}(u_i(p_{ix}) - u_i(p_{jx})) \geq c \tag{5}$$

and

$$\frac{1}{2}(u_j(p_{jx}) - u_j(p_{ix})) \geq c \tag{6}$$

Condition (a) leads to $-|p_{ix} - p_m| = -|p_{jx} - p_m|$. In equilibrium, $p_{ix} \neq p_{jx}$, since otherwise condition (b) cannot hold. Hence, condition (a) becomes $p_m - p_{ix} = p_{jx} - p_m$, or equivalently,

$$\frac{p_{ix} + p_{jx}}{2} = p_m \tag{7}$$

We first analyze the case in which $p_j < p_x$. We know already from the general case (see the proof of Proposition 2) that we must have $p_j > p_{ix}$, since otherwise j would have no interest in running. Then, conditions (5) and (6) translate to

$$-(p_{ix} - p_i) + (p_{jx} - p_i) \geq 2c$$

and

$$-(p_{jx} - p_j) + (p_j - p_{ix}) \geq 2c$$

[4]The analysis for the case $p_x < p_m$ is symmetric.

or equivalently to

$$p_{jx} - p_{ix} \geq 2c \tag{8}$$

and

$$2p_j - p_{jx} - p_{ix} \geq 2c \tag{9}$$

Since $p_{jx} > p_j$, we can see that if condition (9) is satisfied, then condition (8) is also satisfied. Using equation (7), we can write condition (9) as

$$p_j \geq p_m + c$$

Notice that since we assumed $p_j < p_x$, this is consistent with the above condition only if $c < p_x - p_m$. In other words, if $c \geq p_x - p_m$, there cannot be a two-candidate equilibrium with $p_j < p_x$. We also have

$$p_{jx} = \gamma p_j + (1-\gamma)p_x \geq \gamma(p_m + c) + (1-\gamma)p_x$$

which leads to

$$p_{jx} - p_m \geq (1-\gamma)(p_x - p_m) + \gamma c\,.$$

Since $p_m - p_{ix} = p_{jx} - p_m$, we conclude that

$$p_{jx} - p_{ix} \geq 2(1-\gamma)(p_x - p_m) + 2\gamma c$$

and consequently

$$p_j - p_i \geq 2\frac{(1-\gamma)}{\gamma}(p_x - p_m) + 2c$$

As c goes to 0, the minimum distance between final policies p_{ix} and p_{jx} goes to $2(1-\gamma)(p_x - p_m)$. Notice that this is the double of the minimum distance in the general case. This is also true about the minimum distance between the two candidates' ideal policies p_i and p_j. The reason is that we assume the symmetry of the utility function around the ideal policy point for this example. In the general case, we only assumed single-peakedness.

We now analyze the case in which $p_j \geq p_x$. In this case, conditions (5) and (6) translate to

$$-(p_{ix} - p_i) + (p_{jx} - p_i) \geq 2c$$

and

$$-(p_j - p_{jx}) + (p_j - p_{ix}) \geq 2c$$

which both lead to $p_{jx} - p_{ix} \geq 2c$. Since we assumed $p_j \geq p_x$, we also have $p_{jx} - p_{ix} = 2(p_{jx} - p_m) \geq 2(p_x - p_m)$. Hence,

$$p_{jx} - p_{ix} \geq \max\{2c, 2(p_x - p_m)\}$$

and consequently

$$p_j - p_i \geq \max\{\frac{2c}{\gamma}, \frac{2(p_x - p_m)}{\gamma}\}$$

Integrating the analysis of the two cases, we see that, if $c \geq (p_x - p_m)$, any two-candidate equilibrium is such that $p_j \geq p_x$, and the necessary condition for the minimum distance between final policies is given by $p_{jx} - p_{ix} \geq 2c$. If $c < (p_x - p_m)$, the necessary condition for the minimum distance is given by $p_{jx} - p_{ix} \geq 2(1-\gamma)(p_x - p_m) + 2\gamma c$ for equilibria with $p_j < p_x$, and by $p_{jx} - p_{ix} \geq 2(p_x - p_m)$ for equilibria with $p_j \geq p_x$. The necessary condition for equilibria with $p_j < p_x$ is more restrictive. Hence, we conclude that if $c < (p_x - p_m)$, the necessary condition for the minimum distance is given by $p_{jx} - p_{ix} \geq 2(1-\gamma)(p_x - p_m) + 2\gamma c$.

We summarize the above analysis and characterize the set of two-candidate equilibria by the following proposition:

Proposition 3 *Assume that utility functions are given by $u_i(p) = -|p - p_i|$ for all i and that there is only one voter with the median ideal policy p_m. Then, there exists a two-candidate equilibrium in which citizens i and j run against each other if and only if*

(a) $\frac{p_{ix}+p_{jx}}{2} = p_m$, *and*

(b) $p_{jx} - p_{ix} \geq 2(1-\gamma)(p_x - p_m) + 2\gamma c$ *for* $c < p_x - p_m$*; and* $p_{jx} - p_{ix} \geq 2c$ *for* $c \geq (p_x - p_m)$.

To be able to compare our results with those of the standard model, we reproduce Proposition 7 by Besley and Coate (1997) which characterizes two-candidate equilibria of the standard model with the additional assumption that each citizen i has the utility function $u_i(p) = -|p - p_i|$:

Proposition 4 *Assume that utility functions are given by $u_i(p) = -|p - p_i|$ for all i, that there is only one voter with the median ideal policy p_m, and that the final policy* *is p_i when citizen i wins the election. Then there exists a two-candidate equilibrium in which citizens i and j runs against each other if and only if*

(a) $\frac{p_i+p_j}{2} = p_m$, *and*

(b) $|p_j - p_i| \geq 2c$.

The results from Propositions 3 and 4 are illustrated in Figures 1 and 2. The first figure depicts the minimum distance between final policies as a function of c both for our model and for the standard model. The minimum distance is higher in our model for $c < p_x - p_m$, and is the same otherwise. Intuitionally, there are two effects which drive platforms of candidates apart. The first such effect, which is present both in our model and in the standard version, results from candidates trading off the cost of entry c against the benefit from changing the outcome. Clearly, because of this effect, minimum distance must rise with increasing c. The second effect is the strategic consideration arising from incomplete policy control: A candidate might want to lose against a candidate with a similar ideal point but who will achieve a better compromise with the outside power.[5]

Now when the entry cost is low compared to the ideological difference between the external power and the median voter ($c < p_x - p_m$), both effects together determine the minimum distance of ideal points. However, as the above argument shows, when the entry cost is high ($c \geq p_x - p_m$), an equilibrium where both candidates and the median prefer policies on the same side of p_x is ruled out. That is, entry cost considerations alone drive possible ideal points so far away from each other that the strategic effect cannot operate any longer. In that sense, in terms of final policies, the model with imperfect policy control behaves like the standard model once the cost of entry exceeds the threshold $p_x - p_m$.

The graph in Figure 2 depicts the minimum distance between candidates' ideal policies as a function of c both for our model and for the standard model. At $c = 0$, the distance between ideal policies exceeds the distance between final policies by the factor $1/\gamma$, which reflects the fact that the impact of candidates on final policies is mitigated by imperfect policy control. Furthermore, we see that the minimum distance is always higher in our model compared to the standard model. Even for entry cost beyond $p_x - p_m$, where the minimum distances between final policies in both models

[5] See the discussion after Corollary 1.

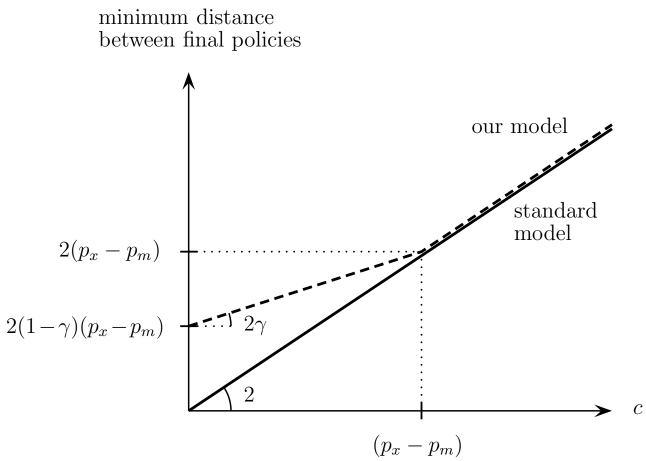

Figure 1: The minimum distance between final policies.

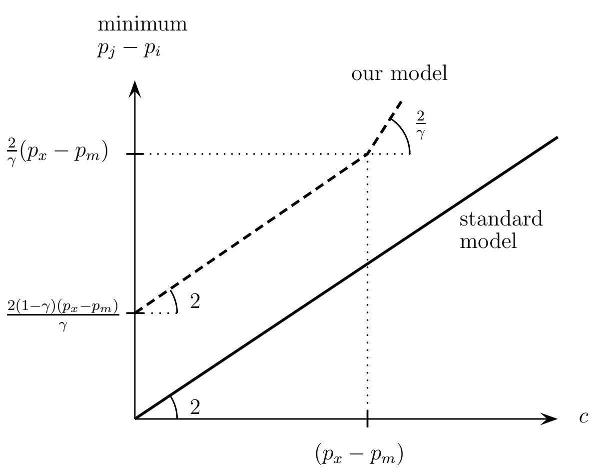

Figure 2: The minimum distance between ideal policies.

coincide, ideal policies still must be farther apart in our model than in the standard model because of the mitigated impact of candidates on final policies.

As emphasized by the preceding discussion, the main impact of an outside power arises via the strategic effect, which makes a second candidate reluctant to run. In the following section, we investigate to what extent this effect is present when we consider equilibria with only one candidate, and in what sense in such an equilibrium an outside power has less impact on policy than in an equilibrium with two candidates.

4 One-candidate Equilibria

As in the previous section, in Subsection 4.1 we first provide general results which make use only of single-peakedness of preferences, and then exemplify the set of one-candidate equilibria in Subsection 4.2 using the special case of linear symmetric utility functions.

4.1 Single-peaked Preferences

We start by adapting Proposition 2 of Besley and Coate (1997) to our setup, which provides the following characterization of one-candidate equilibria:

Proposition 5 *There exists a one-candidate equilibrium in which citizen i runs unopposed if and only if*

(a) $u_i(p_{ix}) - u_i(p_x) \geq c$, *and*

(b) for all $k \neq i$ such that k would win against i in a two-candidate race, $u_k(p_{kx}) - u_k(p_{ix}) \leq c$*; and for all $k \neq i$ such that k would tie with i in a two-candidate race,* $\frac{1}{2}\left[u_k(p_{kx}) - u_k(p_{ix})\right] \leq c$.

This proposition gives us the necessary and sufficient conditions for the existence of one-candidate equilibria, which essentially state (a) that the candidate should prefer to run for the election rather than not run and (b) that any opponent who might tie or win over the candidate must not find it profitable to run for the election.

While Proposition 5 gives a general description of the kinds of candidates one may expect in a one-candidate equilibrium, in the following Proposition 6 we specifically focus on the person who is most preferred by the median. Formally, we assume that there exists a unique citizen of optimal type of policy-maker $i^*(m)$ for the median voter, i.e., $u_m(p_{i^*(m)x}) > u_m(p_{jx})$ for any $j \neq i^*(m)$. We have the following proposition:

Proposition 6 *If $u_{i^*(m)}(p_{i^*(m)x}) - u_{i^*(m)}(p_x) \geq c$, then there exists a one-candidate equilibrium in which $i^*(m)$ runs unopposed.*

Proof: Since $u_{i^*(m)}(p_{i^*(m)x}) - u_{i^*(m)}(p_x) \geq c$, $i^*(m)$ has an incentive to run. Any other candidate $j \neq i^*(m)$ cannot win against $i^*(m)$, and therefore has no incentive to run. *Q.E.D.*

Proposition 6 shows that there is always an equilibrium where the median preferred candidate runs unopposed, provided that the cost of entry is appropriately small. Even though citizen $i^*(m)$ is not the median voter, the final policy is therefore as close as possible to the median-voter's ideal. Thus, in this one-candidate equilibrium strategic delegation works: The median elects someone who undoes the impact of the outside power. In this sense, our model produces similar results to the "standard" model if we restrict attention to one-candidate equilibria. This contrasts with the results on two-candidate equilibria, where, as Corollary 1 shows, it is not possible for the median voter to fully neutralize the influence of the external power by strategic delegation.

However, this contrast between equilibria with one and two candidates must be qualified somewhat. As the following discussion of the special model with linear utilities will show, in addition to the equilibrium where strategic delegation works, there are many other equilibria where the outcome is substantially different from the median's preference, *even when the cost of running for office is arbitrarily small.*

4.2 Linear Symmetric Utility

For this subsection we assume that each citizen's payoff is given by $u_i(p) = -|p - p_i|$, as in subsection 3.2. For the sake of illustration, we further assume that $\gamma = 0.8$, $p_m = 0$, $p_x = 1$, and $c < 2/3$.

By lengthy but straightforward computations, we obtain that there exists a one-candidate equilibrium in which i runs unopposed if $-0.5 - \frac{c}{2} \leq p_i \leq \frac{c}{1.6} - 0.25$. Hence, there exists a one-candidate equilibrium in which the ideal candidate for the median voter, the citizen i with $p_i = -0.25$, runs unopposed and the final policy is the median voter's ideal policy, i.e. $p_{ix} = p_m = 0$. In other words, it is possible to have a one-candidate equilibrium in which strategic delegation works perfectly, and the influence of the external power is neutralized. As c goes to 0, the equilibrium condition becomes $-0.5 \leq p_i \leq -0.25$. Hence, even when c is arbitrarily small, there may be a one-candidate equilibrium in which citizen i with, say, $p_i = -0.4$ runs unopposed. This is because even if there exists a citizen j with $p_j = -0.25$ who would win against i, citizen j does not want to run because she prefers the final policy obtained by i, i.e. p_{ix}, to her own final policy p_{jx}.

To summarize, we see on the one hand that the median preferred outcome is an equilibrium, so that strategic delegation may work. On the other hand, however, there is a whole interval where ideal points of candidates in one-candidate equilibria may be located, some of which yield final policies which are quite far away from the ideal point of the median voter, even for an arbitrarily small cost of entry. Moreover, for a small enough cost of entry, there is no one-candidate equilibrium of the standard model in which the candidate is not the median voter, because the median voter would successfully enter the race against any candidate implementing another policy.

These additional equilibrium outcomes are supported by the same strategic consideration, discussed in section 3, which rules out two-candidate equilibria where both contenders have similar ideal points. A possible second candidate may actually prefer the compromise which the citizen already standing for election will reach with the outside power to what she can achieve herself. Therefore, even with low cost of running for office, a candidate who will implement a policy at some distance from the median preferred policy will be protected from entry by a competitor. Altogether, this implies that in a one-candidate equilibrium, the outside power induces the same strategic considerations as in a two-candidate equilibrium, but this has less severe consequences: In the one-candidate case, an equilibrium where the median preferred outcome occurs is still possible, whereas with two candidates, no such equilibrium exists, and at least one of the candidates must be rather extreme.

5 Comments and Conclusion

To summarize, this note shows that the citizen candidate model implies a divergence of ideal policies between candidates, and of final policies implemented from the preferences of the median, if one considers equilibria with two candidates running for office and if the final policy arises from a compromise between the elected government and some un-elected entity such as a bureaucracy or foreign influences. Thus, while the median voter result provides a useful benchmark in many political economic analyses, it may be misleading if such an outside influence is relevant and elections are contested. Politically, this means that international institutions such as the European Union or the IMF should be aware that the influence they exert is likely to create policy divergence in the countries concerned, and to drive major political positions away from the center.

References

Besley, T. and S. Coate (1997). An economic model of representative democracy. *The Quarterly Journal of Economics 112*(1), 85–114.

Besley, T. and S. Coate (2001). Lobbying and welfare in a representative democracy. *Review of Economic Studies 68*(234), 67–82.

Brusco, S. and J. Roy (2011). Aggregate uncertainty in the citizen candidate model yields extremist parties. *Social Choice and Welfare 36*(1), 83–104.

Chambers, C. (2007). Citizen-candidates, lobbies, and strategic campaigning. *Economic Theory 33*(2), 285–309.

Fatum, R. (2006). One monetary policy and 18 central bankers: The european monetary policy as a game of strategic delegation. *Journal of Monetary Economics 53*(4), 659–669.

Hamlin, A. and M. Hjortlund (2000). Proportional representation with citizen candidates. *Public Choice 103*(3/4), 205–230.

Harstad, B. (2010). Strategic delegation and voting rules. *Journal of Public Economics 94*(1/2), 102–113.

Jennings, C. and H. Roelfsema (2008). Civil conflict, federalism and strategic delegation of leadership. *Journal of Peace Research 45*(4), 557–573.

Niskanen, W. A. (1971). *Bureaucracy and Representative Government*. Chicago: Aldine-Atherton.

Osborne, M. and A. Slivinsky (1996). A model of political competition with citizen-candidates. *The Quarterly Journal of Economics 111*(1), 65–96.

Persson, T. and G. Tabellini (1992). The politics of 1992: Fiscal policy and european integration. *The Review of Economic Studies 59*(4), 689–701.

Persson, T. and G. Tabellini (1994). Representative democracy and capital taxation. *Journal of Public Economics 55*(1), 53–70.

Persson, T. and G. Tabellini (2002). *Political Economics: Explaining Economic Policy*. Cambridge, Mass.: The MIT Press.

Roelfsema, H. (2007). Strategic delegation of environmental policy making. *Journal of Environmental Economics and Management 53*(2), 270–275.