Incumbency Advantage and Campaign Finance Regulation

Matt Cole  Ivan Pastine
Florida International University  University College Dublin

Tuvana Pastine
National University of Ireland Maynooth

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Abstract
If the officeholder enjoys an electoral advantage due to his incumbency status, the challenger may have a smaller probability of victory even if she is of higher quality than the incumbent. Furthermore incumbency advantage may deter challengers from running for office in the first place. This paper analyses the potency of campaign finance legislation in mitigating these negative repercussions of incumbency advantage that may arise due to officeholder’s superior fundraising efficiency and name recognition. We extend the existing literature by modelling a campaign spending contest where the success of the candidate is stochastic rather than deterministic given candidates’ effort levels. While our predictions are consistent with the existing literature in many aspects, the stochastic-success model is more attractive at an intuitive level and is able to capture the contentious nature of campaign finance regulation. Furthermore in contrast to previous literature, the model predicts that campaign finance legislation can help reduce challenger scare-off effect.

1 Introduction

Incumbency advantage is widely studied in US elections research. There is consensus in the empirical literature that incumbents tend to have a sizable vote share advantage over challengers even if they are comparable except for their incumbency status. Depending on the methodology used, since 1980’s incumbency advantage is estimated to be around four percent for low level state offices to around eight percent for high level federal and statewide offices (see Hirano and Snyder, 2009). The source of the advantage is often attributed to incumbents’ superior name recognition and fundraising efficiency. Incumbency advantage is of concern because it may lead to lower probability of victory for the challenger
even if the challenger is of higher quality than the incumbent. Furthermore incumbency advantage may scare off high quality challengers from entering the electoral contest in the first place. This paper analyses the potency of campaign finance legislation in mitigating these negative repercussions of incumbency advantage in a first-past-the-post campaign spending contest framework.

In the US congress, on average, the incumbent’s political campaign spending is about two and a half times as high as the challenger’s. Since the incumbent is the policymaker, an interest group that wishes to gain access to the office to present its cases would be motivated to donate to the politician. Referring to the superior fundraising efficiency of incumbents, the Canadian Supreme Court, in Harper v. Canada (2004) argues that campaign finance legislation is intended "... to favour equality, by preventing those with greater means from dominating electoral debate." Most democracies have campaign finance legislation such as rules on tax deductibility of contributions, matching funds, contribution limits, timing of electioneering communications, reporting requirements, spending limits, or a combination there off.

To analyze the impact of campaign finance regulation in the presence of incumbency advantage, we adopt the campaign spending contest of Meirowitz (2008) where voters are "impressionable" in the terminology of Grossman and Helpman (1996). Campaign spending enhances candidates’ familiarity and hence likability. Initial name recognition and campaign spending levels determine the scores of the candidates in the all-pay contest. In Meirowitz (2008) the candidate with the larger score wins the election. One of the main findings of Meirowitz (2008) is that campaign finance reforms that increase cost of fundraising or decrease effectiveness of spending is always neutral on the payoff of the challenger, irrespective of whether the effect of the reforms are symmetric or asymmetric on candidates campaigning technology. Hence legislation cannot alleviate the entry deference effect of incumbency advantage.

In Meirowitz (2008), the outcome is deterministic given candidates’ effort levels. Our paper reformulates Meirowitz (2008) with an alternative micro-

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1 See Maisel (1990) and Abramowitz (1991). In 2008, the average cost of winning a seat in the House of Representatives was $1.3 million and the figure was $6.5 million for the Senate. In the 2012 elections, total campaign spending is estimated to be around $6 billion. Only about ninety-nine percent of total expenditure is financed through fundraising, see Herrnson (2000).

2 A second rationale for campaign finance legislation such as imposing contribution limits may be to reduce the risk or the appearance of corruption. In this paper, we have a different focus. We analyse the effects of campaign finance legislation on the repercussion of incumbency advantage.

4 Abrajano and Morton (2004), Kahn and Kenney (1999) and Mueller and Stratmann (1994) show that majority of political advertising has little direct informational content.

5 As in Meirowitz (2008), we abstract from competition in the spatial/ideological space and focus on competition in campaign spending. One might expect that incumbents may also have an advantage due to being a natural first-mover in committing to a policy position in the ideological space. However, Anderson and Glomm (1992) show that being the first-mover is not necessarily an advantage for the incumbent. Hence we focus on incumbency advantage that arises due to superior fundraising efficiency and initial name recognition which directly relate to campaign spending contests.
structure which yields a stochastic outcome given candidate choices. Candidates exert effort to increase their probability of winning. The stochastic-success model is intuitively more appealing since one dollar of extra spending should not take a candidate from the certain loser to the certain winner. We examine the degree to which Meirowitz’s results dependent on the specification of deterministic success.

Our qualitative predictions about the effect of campaign finance legislation on equilibrium probabilities of victory and on expected spending are consistent with the existing literature. However, there is a stark difference between the policy implications of the two modelling choices; with stochastic success and deterministic success. The stochastic success model is able to capture the contentious nature of campaign finance regulation. Reforms benefit one side or the other. Our model predicts that campaign finance legislation can help reduce the challenger scare-off effect. Hence there is room for campaign finance regulation in mitigating the scare off effect of incumbency advantage, which can possibly yield higher quality officeholders.

Section II presents the framework and the equilibrium. Section III compares the implications of the model to Meirowitz(2008) and gives the main policy implications. Section IV concludes.

2 Framework

Two risk neutral candidates indexed by \( i \in \{1, 2\} \) run for office. Candidates simultaneously choose their levels of campaign spending \( a_i \in [0, \infty) \) which creates visibility for the candidate. Then after observing the visibility of both candidates voters simultaneously cast their ballots and the winner is chosen by simple majority. The value of winning the office is the same for each candidate and is normalized to one. In order to engage in campaign spending a candidate must raise the funds to do so which entails a utility cost of \( \beta_i > 0 \) for each dollar raised. Candidates may differ in their efficiency of raising funds; the lower \( \beta_i \) the greater is candidate \( i \)'s efficiency of fundraising. The effort expended to raise funds is sunk whether the candidate wins or loses, hence a candidate’s utility is given by:

\[
u_i = \begin{cases} 
1 - \beta_i a_i & \text{if } i \text{ wins} \\
-\beta_i a_i & \text{if } i \text{ loses}
\end{cases}
\]

A candidate’s visibility to the electorate is given by

\[
v_i = \begin{cases} 
\gamma + \eta_i a_i & \text{if } i \text{ is the incumbent} \\
\eta_i a_i & \text{if } i \text{ is not an incumbent}
\end{cases}
\]

An incumbent politician starts with some visibility due to name recognition \( \gamma \geq 0 \) created in his previous campaigns. However candidates can increase their visibility through campaign spending. A candidate’s campaign spending effectiveness, \( \eta_i > 0 \), represents his skill or opportunity to convert campaign spending into visibility.
Each member of a continuum of voters casts his vote based on his initial disposition toward the two candidates and his disposition towards the candidates which is induced by the visibility the two candidates. Each voter, \( z \), has an initial disposition for Candidate 1 over Candidate 2 \( \alpha_z \in \mathbb{R} \) which is drawn iid from a pdf \( g(\alpha_z) \). If \( \alpha_z > 0 \) voter \( z \) has an initial preference in favor of Candidate 1, and if \( \alpha_z < 0 \) he has an initial preference in favor of Candidate 2. The distribution \( g(\alpha_z) \) will depend quality of the two candidates, their parties as well as their policy positions and ideologies and the distribution of voters’ ideologies. In general it may favor either candidate. The level of \( \alpha_z \) of the median voter (that is the level of \( \alpha_z \) where the cdf \( G(\alpha_z) = \frac{1}{2} \) ) plays the same role here as the parameter \( \alpha \) in Meirowitz (2008) or Pastine and Pastine (2012). It represents a fixed head start for one candidate that his rival must overcome. Here we are particularly interested in the effect of incumbency advantage in the absence of any differences in candidate quality, ideology or demographic imbalances. Hence we assume that the median voter is not initially predisposed toward either candidate, \( G(0) = \frac{1}{2} \), and that such a median voter exists, \( g(0) > 0. \)

While candidates are able to choose their visibility through their choice of campaign spending, the effect of this effort on voter perceptions is uncertain at the time the effort is made. For example, a candidate may widely publicize his past accomplishments as a prosecuting attorney. This will be more beneficial to him if, during the course of the campaign, there are a series of high-profile crimes. Likewise, a candidate touting his foreign policy experience will benefit from international instability. The marginal benefit to visibility for each candidate is denoted \( \phi_i \) and is drawn after the candidates choose their spending levels but before the constituents vote. Both candidates’ \( \phi_i \)s are drawn iid from an inverse exponential distribution with pdf \( (\lambda e^{-\lambda/\phi_i})/\phi_i^2 \). This yields \( \phi_i > 0 \) with probability one, so visibility is always beneficial to a candidate, but at the time he is making his spending choices he does not yet know how beneficial.

After observing the spending of both candidates, voter \( z \)'s utility is:

\[
U_z = \begin{cases} 
\alpha_z + \phi_1 v_1 & \text{if candidate 1 wins} \\
\alpha_z + \phi_2 v_2 & \text{if candidate 2 wins}
\end{cases}
\]

Voting for the candidate that will yield the higher utility is a weakly dominant strategy for each voter, and we assume that voters choose this strategy.

### 3 Equilibrium

Jia (2008) shows that a with multiplicative shock to effort that has an inverse exponential distribution, prior to the realization of the shock the agents will be faced with a Tullock-style contest success function. That is, at the at the time
the candidates are making their spending decisions their probability of winning is proportional to their relative levels of visibility, so candidate 1’s probability of victory \( \theta_1 = \frac{v_1}{v_1 + v_2} \) and candidate 2’s is \( \theta_2 = \frac{v_2}{v_1 + v_2} \).

Candidate 1 and Candidate 2 maximize their expected payoffs with respect to their spending levels, \( \alpha_1 \) and \( \alpha_2 \) respectively. Since the value of winning is normalized to one, candidate \( i \)'s expected payoff, denoted by \( E(\pi_i) \), is his probability of victory minus his cost of spending which is sunk irrespective of the outcome of the contest. Hence the optimization problems for Candidate 1 and 2 are:

\[
\begin{align*}
\max_{\text{w.r.t. } \alpha_1} E(\pi_1) &= \max_{\text{w.r.t. } \alpha_1} \left( \frac{v_1}{v_1 + v_2} - \beta_1 \alpha_1 \right) \\
\max_{\text{w.r.t. } \alpha_2} E(\pi_2) &= \max_{\text{w.r.t. } \alpha_2} \left( \frac{v_2}{v_1 + v_2} - \beta_2 \alpha_2 \right)
\end{align*}
\]

where \( v_1 = \gamma + \eta_1 a_1 \) and \( v_2 = \eta_2 a_2 \). These yield the following reaction functions given that \( \alpha_i \geq 0 \) \( \forall i \in \{1, 2\} \):

\[
\begin{align*}
R_1(a_2) &= \max \left\{ 0, \left( \frac{\eta_2 a_2}{\eta_1 \beta_1} \right)^{1/2} - \frac{\gamma + \eta_2 a_2}{\eta_1} \right\} \\
R_2(a_1) &= \left( \frac{\gamma + \eta_1 a_1}{\eta_2 \beta_2} \right)^{1/2} - \frac{\gamma + \eta_1 a_1}{\eta_2}
\end{align*}
\]

Empirical evidence suggests that incumbents tend to spend significantly higher than the challengers. Hence the pair of reaction functions below are drawn for realistic cases where \( a_1^* > a_2^* \), i.e. \( \gamma \in \left[ 0, \frac{\eta_1^2 \eta_2 (\beta_2 - \beta_1)}{(\eta_1 \beta_2 + \eta_2 \beta_1)^2} \right] \).
The simultaneous move Nash Equilibrium is in pure strategies and it is unique and given by the following pair of spending levels.

\[ a_1^* = \max \left\{ 0, \left( \frac{\eta_2}{\eta_1 \beta_2} \left( \frac{\eta_1 \beta_2}{\eta_1 \beta_2 + \eta_2 \beta_1} \right)^2 - \frac{\gamma}{\eta_1} \right) \right\} \tag{4} \]

\[ a_2^* = \frac{\eta_1}{\eta_2 \beta_1} \left( \frac{\eta_2 \beta_1}{\eta_1 \beta_2 + \eta_2 \beta_1} \right)^2 \]

In order to save on space below we discuss only the empirically relevant cases where the incumbent has a non-zero spending \( a_1^* > 0 \), i.e. \( \frac{\eta_2}{\beta_2} \left( \frac{\eta_1 \beta_2}{\eta_1 \beta_2 + \eta_2 \beta_1} \right)^2 > \gamma \). From the equilibrium levels of spending it is straightforward to calculate equilibrium probabilities of victory \( \theta_1 \):

\[ \theta_1 = \frac{\eta_1 \beta_2}{\eta_1 \beta_2 + \eta_2 \beta_1} \quad \text{and} \quad \theta_2 = \frac{\eta_2 \beta_1}{\eta_1 \beta_2 + \eta_2 \beta_1} \tag{5} \]

and expected payoffs:

\[ E(\pi_1) = \left( \frac{\eta_1 \beta_2}{\eta_1 \beta_2 + \eta_2 \beta_1} \right)^2 + \frac{\gamma \beta_1}{\eta_1} \quad \text{and} \quad E(\pi_2) = \left( \frac{\eta_2 \beta_1}{\eta_1 \beta_2 + \eta_2 \beta_1} \right)^2 \]

Note that the equilibrium spending level of the challenger is independent of the degree of initial name recognition of the incumbent. Higher initial name recognition induces the incumbent to spend less in equilibrium. The effect of an increase in initial name recognition on challenger spending and on the probability of victory is fully absorbed by lower incumbent spending. While initial name recognition increases expected payoff to the incumbent due to reduced equilibrium spending, the expected payoff of the challenger is independent of the degree of initial name recognition.

**Proposition 1** High incumbent initial visibility alone is insufficient to match stylized facts: If \( \beta_1 = \beta_2 \) and \( \eta_1 = \eta_2 \) then (i) the incumbent does not have a higher probability of being elected then the challenger, (ii) incumbent spending is not higher then challenger spending and (iii) open seats do not have lower total spending then when an incumbent is running.

**Proof.** (i) From (5) \( \theta_1 = \theta_2 = \frac{1}{2} \). (ii) From (4) \( a_2^* > 0 \) and \( a_1^* = \max \{ 0, a_2^* - \gamma/\eta_1 \} < a_2^* \). (iii) in an open seat neither candidate has the incumbent’s high initial visibility so \( \gamma = 0 \). Hence (4) yields \( a_1^* + a_2^* \) without an incumbent is \( \gamma/\eta_1 \) higher then it is with an incumbent. \( \blacksquare \)
3.1 Initial name recognition advantage

If the only advantage the incumbent enjoys is superior initial name recognition $\gamma > 0$ while $\beta_1 = \beta_2 = \beta$ and $\eta_1 = \eta_2 = \eta$, then equilibrium spending levels are given by $a_1 = \frac{1}{\eta^2} - \frac{2}{\eta}$ and $a_2 = \frac{1}{\eta^2}$, and probabilities of victory are $\theta_1 = \theta_2 = 1/2$. The challenger exerts more effort than the incumbent and the candidates have equal chance of victory. Both these predictions are inconsistent with stylized facts of electoral contests;\(^\dagger\) Incumbents tend to spend more (footnote: in 2006 an average incumbent Senator spent $10,643,000 and an average challenger spent $1,615,000) ii) Incumbents win with higher frequency.\(^7\) Therefore a model of campaign spending contest has to involve asymmetry between the incumbent and the challenger in the technology of fundraising and campaign spending rather than just in the dimension of initial name recognition.

3.2 Campaign Finance Regulations

First let us examine reforms that symmetrically affect candidates’ cost of fundraising and/or campaign spending effectiveness by scaling $\beta_1$ and $\beta_2$ by a common factor, and/or scaling $\eta_1$ and $\eta_2$ by a common factor greater than zero. Such reforms are favored by the incumbent. Any regulation that increases the cost of fundraising (such as imposing costly campaign donation accounting standards) or that reduces the effectiveness of campaign spending (such as stricter restrictions on the time table of electioneering communications) in a symmetric manner for the incumbent and the challenger, improves the expected payoff to the incumbent. The initial name recognition of the incumbent is a head-start advantage. The challenger can overcome this head start by campaigning harder than the incumbent. Hence increase in cost of fundraising and/or decrease in spending efficiency underlines the officeholder’s advantage due to initial name recognition. However reforms that symmetrically affect candidates’ $\beta$’s and $\eta$’s are neutral on the probability of victory and on the challenger’s expected payoff. Since such reforms do not influence the expected payoff of the challenger, such policies cannot be employed to help decrease the entry deterrence of incumbency advantage.

\(^7\)In the period from 1946 to 2010 the reelection rate of an incumbent Senator who re-ran for office was 82 percent.