Incumbency Advantage in Irish Elections: A Regression Discontinuity Analysis

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Abstract:

Ireland provides an interesting setting for the study of incumbency advantage. Its electoral system creates incentives for political candidates to cultivate a loyal, personal following and the rate of incumbent re-election is one of the highest in the world. This paper exploits the quasi-experimental features of the system of proportional representation with a single transferable vote (PR-STV) to estimate incumbency advantage in Ireland's lower house of parliament. In very close elections, where there is a narrow margin of victory, it is likely that bare winners are comparable in their unobservable characteristics to bare losers. Regression discontinuity design (RDD) identifies the causal effect of incumbency by comparing the subsequent electoral outcomes of bare winners and losers. The analysis indicates that incumbency causes an eighteen percentage point increase in the probability that a candidate is successful in a subsequent election. We show that Ireland's multi-party, multi-candidate system is particularly suited to the application of the RDD methodology.

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Keywords: incumbency advantage, regression discontinuity, non-parametric, Irish elections, proportional representation

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1. Introduction

During the period 1927-2011 incumbent members of Ireland's Lower House (Dáil Éireann) were re-elected, on average, 81.7 percent of the time. This rate of incumbent re-election is amongst the highest in the world. Matland and Studlar (2004) compare re-election rates across twenty five countries and find that Ireland has the fourth highest rate of incumbent re-election[1]. Inordinately high re-election rates may give rise to concerns that incumbency conveys an unfair advantage on incumbents versus challengers (Lee, 2008). This may enable low quality incumbents to retain their seats by defeating challengers of higher quality or deterring challengers from running in the first place. Using election data from 1937-2011, this paper estimates the incumbency advantage in Ireland's proportional electoral system using a regression discontinuity design (RDD). This is the first paper to apply RDD to the system of proportional representation with a single transferable vote (PR-STV).

Incumbency advantage can be thought of as having a direct and an indirect effect (Cox and Katz, 1996; Levitt and Wolfram, 1997). The direct effect comes from the extra resources and perquisites of office which an incumbent has at her disposal. These resources can be used by an incumbent to improve her future electoral prospects. Such resources can include access to a staffed office, telephones and photocopying, but can also include local decision making powers granted to incumbents by government decentralisation (de Janvry et al., 2012). The indirect effect refers to the ability of an incumbent to deter or "scare off" high quality challengers. If a potential challenger knows the incumbent can take advantage of direct officeholder benefits she may decide not to contest the election. This is of particular relevance for high quality challengers with a high opportunity cost of their time.

The PR-STV electoral system provides an interesting setting for the study of incumbency advantage as it creates an incentive for incumbents to cultivate a personal

[1] The three countries which ranked higher than Ireland in terms of incumbent re-election rates were the United States (1st), Australia (2nd) and West Germany (3rd).

following in their local constituency (Marsh et al, 2008). This is due to the fact that multiple candidates from the same party are often in open competition with one another and as such need to identify themselves as separate from their parties. The preoccupation with cultivating a loyal following among the local electorate is illustrated by Wood and Young (1997) who find that Irish incumbents spend sixty percent of their time on local constituency matters. One way in which an incumbent may boost her personal profile among local constituents is through pork barrel spending and the utilization of office perks such as free postage, telephone and printing.[2]

The main difficulty in empirically estimating incumbency advantage is omitted variable bias. The multidimensional aspects of a candidate's quality such as charisma, charm and intelligence are typically unobservable and unquantifiable (Levitt, 1994). If higher quality candidates attract more votes, electoral selection will lead to incumbents and challengers possessing different characteristics. Failure to control for these differences may lead to biased estimates of incumbency advantage (Gelman and King, 1990).

In order to overcome the problem of selection bias and omitted variable bias, this paper adopts a regression discontinuity design (RDD). We focus on very close elections which are decided by a narrow margin of victory. The bare winners and bare losers of these elections are assumed to be comparable in their unobservable characteristics. This implies that bare losers provide a valid counterfactual for bare winners with regard to subsequent electoral outcomes. By comparing these outcomes we identify the causal effect of incumbency

The empirical literature on incumbency advantage has traditionally relied on two strategies; the sophomore surge and retirement slump (Erikson, 1971; Alford and Brady, 1988; Gelman and King, 1990; Cox and Katz, 1996; Levitt and Wolfram, 1997; Jacobson,

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[2] In recent years there have been several high profile scandals involving the excessive use of office perks by Irish TD's. One such case involved an incumbent who used 488 print cartridges worth over €50,000 between 2007 and 2008. This led to restrictions being imposed on the use of cartridges the following year.

1997, Ansolabehere and Snyder, 2002). The sophomore surge method looks at the difference in vote shares between the first and second terms for winning challengers and the retirement slump uses the difference between vote shares of retiring incumbents and their freshmen successors. However the popularity of these techniques has declined in light of work by Gelman and King (1990) and Levitt and Wolfram (1997) which show that both methodologies are prone to sample selection bias.

Lee (2008) addresses the problem of bias by using a regression discontinuity design (RDD) to estimate the causal effect of incumbency in U.S. House elections. The results suggest that incumbency causes a 45 percentage point increase in the probability that a candidate contests and wins the subsequent election. Lee's pioneering work in applying RDD to estimate incumbency advantage has since been emulated by Hainmueller and Kern (2008), Eggers and Hainmueller (2009), Uppal (2009 & 2010), Trounstine (2011) and Liang (2013).

Caughey and Sekhon (2011) express concerns regarding the application of RDD to US House elections. We address the methodological concerns expressed by the authors and show that Ireland's PR-STV system provides a suitable setting for the application of RDD. Caughey and Sekhon (2011) caution against over-reliance on parametric techniques. The causal effect of incumbency is identified using outcomes of bare winners and bare losers whose vote share falls within a small bin width on either side of the fifty percent vote threshold. As such, extrapolation using data far from the threshold may not be sufficient in itself. In this paper we use both parametric and non-parametric methods. The parametric estimation procedure is based on polynomials of various orders, while the non-parametric method uses local linear regressions with various bandwidths and kernels.

Caughey and Sekhon (2011) also suggest that applying RDD to the plurality system of the US House of Representatives may not be ideal as the bare winners and bare losers from close elections may not be comparable. House elections which are decided by the slimmest of margins tend to be won by the existing incumbent and these outcomes are typically predicted correctly by *Congressional Quarterly*'s pre-election ratings. A House incumbent may have very precise information about the number of votes needed to secure victory in a close election and can make maximal use of her resources to capture these votes. In light of this Caughey and Sekhon (2011) question the assumption of quasi-random assignment of incumbency status among bare winners and bare losers. They acknowledge that RDD may perform better in a multi-party electoral system where the threshold for victory is more difficult to predict. The PR-STV system in Ireland provides such a setting. We verify the suitability of RDD to Ireland's multi-party, multi-candidate system by applying extensive testing to show that bare winners and bare losers are comparable in pre-treatment characteristics.

This paper proceeds as follows. Section 2 describes the Irish electoral setting and the data. The RDD methodology is discussed in Section 3. Section 4 presents the results and validity tests and Section 5 concludes.

2. The Irish Electoral Setting and Data

Ireland is a representative, parliamentary democracy with two Houses of Parliament. The Upper House is known as Seanad Éireann and the Lower House as Dáil Éireann. Members of Dáil Éireann (referred to as Teachta Dála or TDs) are directly elected by the people at least once every five years. Between 1937 and 2011 the average length of time between general elections was 3.3 years. Dáil elections are carried out in multi-seat districts which are comprised of between 3 to 5 TDs. There are currently 43 districts which elect 165 TDs at each general election.

Elections are conducted using the system of proportional representation with a single transferable vote (PR-STV). This system allows voters to rank candidates in order of preferences on a ballot paper. For example the voter places a 1 beside his highest preference, a 2 beside his second highest preference and so on. A candidate is elected once she gets enough votes to meet a predetermined quota.[3] Only one of the voter's preferences is active at any one time (i.e. for any one vote count). For example a vote stays with the highest preference candidate until that candidate gets elected or eliminated, at which point it transfers to the next highest preference candidate that is still in the running. Following a count, if no candidate has enough votes to secure election, the least voted candidate is eliminated and his votes are transferred. A subsequent count then takes place. The process continues until all seats have been filled. It is extremely rare for all seats to be filled based on first preference votes meaning that virtually all elections involve multiple counts.

The two dominant political parties in Irish politics are Fianna Fáil and Fine Gael. Each of the ruling governments from 1937-2011 consists of one of these two parties. The Labour party and the Progressive Democrats party have also enjoyed electoral success, albeit to a lesser extent. Table 1 summarizes every election from 1937-2011. A notable feature of Irish politics is the consistently high re-election rates with only seven of the twenty-three elections dipping below eighty percent. The election of 2011 is notable in that its re-election rate of 64 percent is the lowest in the sample. This was largely attributable to a collapse in the governing Fianna Fáil coalition government in the wake of the November 2010 bailout by the EU and IMF.

The dataset consists of bare winners and bare losers from 882 constituency elections over the period 1937-2011. There are 1,764 observations; a bare winner and loser from each election. The two main parties, Fianna Fáil and Fine Gael, account for 42 percent (n=743) and 27 percent (n=485) of the sample respectively. In the PR-STV system, the bare winner is the winner of the last available seat and the bare loser is the candidate that receives the

[3] The quota is calculated by dividing the total number of valid votes by the number of available seats. One is then added to this number. So if there are 10,000 votes and 5 seats to be filled, the quota equals 2,001.

highest number of votes among all defeated candidates. The RDD analysis compares bare winners and bare losers from election *t* on their subsequent electoral performance at time *t+1*. As such we use pairs of consecutive elections. The dependent variable uses data from 1938-2011 and the independent (forcing) variable uses data from 1937-2007.

Table 1: ***Summary of Irish Elections and Ruling Governments (1937-2011)***

Date of Election	**Successful Party/Coalition**	**Number of Constituencies**	**Duration of Government in Days**	**Re-election Rate (%)**
July 1937	FF	34	351	75.4
June 1938	FF	34	1,832	85.3
June 1943	FF	34	342	79.2
May 1944	FF	34	1,345	86.6
February 1948	FG / L / CP / CT	40	1,211	84.1
May 1951	FF	40	1,084	82.3
May 1954	FG / L / CT	40	1,022	84.9
March 1957	FF	40	1,674	82.0
October 1961	FF	38	1,281	82.3
April 1965	FF	38	1,533	82.8
June 1969	FF	42	1,351	87.8
February 1973	FG / L	42	1,569	86.6
June 1977	FF	42	1,456	75.9
June 1981	FG / L	41	252	85.8
February 1982	FF	41	279	86.6
November 1982	FG / L	41	1,546	86.8
February 1987	FF	41	849	86.4
June 1989	FF / PD	41	1,259	82.7
November 1992	FF / L	41	1,654	81.3
June 1997	FF / PD	41	1,806	72.9
May 2002	FF / PD	41	1,788	77.3
May 2007	FF / G / PD	43	1,373	79.5
February 2011	FG / L	43	n/a	64.0

Abbreviations: Fianna Fáil (FF), Fine Gael (FG), Labour (L), Progressive Democrat (PD) Green Party (G), Clann na Poblachta (CP), Clann na Talmhan (CT)

3. Methodology

Regression discontinuity design (RDD) is a quasi-experimental design that allows for identification of treatment effects when assignment to the treatment changes discontinuously. This occurs when an underlying (forcing) variable passes a defined threshold. In the case of elections, treatment is the assignment of incumbency status and the threshold at which this occurs is a specified vote share. For example if two candidates compete for one seat, the candidate who exceeds the fifty percent vote threshold becomes the incumbent (i.e. receives the treatment). RDD is based on the idea that individuals just below the threshold (bare losers) possess comparable traits and characteristics as those just above the threshold (bare winners). By comparing the subsequent electoral outcomes of bare winners and bare losers, we identify the causal effect of incumbency.

The fifty percent vote threshold is directly applicable to plurality systems such as the United States as in Lee (2008) and Uppal (2010). In the case of Ireland's PR-STV system we generate a threshold which is analogous to the plurality fifty percent vote share. As we are interested in examining closely fought contests, we look at candidates who contest the last available seat in a constituency (after all vote transfers have been made). One candidate will be successful and there will be one runner-up candidate who came closest to winning without actually doing so. The winner of the last seat is the "least voted winner" among the newly elected incumbents and the runner-up is the "most voted loser" among all losing candidates. If candidate j and k contest the final seat, incumbency status is assigned to the candidate who achieves a greater than fifty percent share of the two candidate vote. The vote share for candidate j is calculated as follows,

$$\frac{Votes_j^{FinalCount}}{Votes_j^{FinalCount} + Votes_k^{FinalCount}} = Share_j$$

We define $I_{i,t+1}$ as an indicator of incumbency status at the next election such that,

$$I_{i,t+1} = \begin{cases} 1 & \text{if } Share_{i,t} > 0.5 \\ 0 & \text{if } Share_{i,t} < 0.5 \end{cases}$$

We now turn to a formal motivation for using the RD methodology to estimate incumbency advantage. Consider the following regression,

$$Victory_{i,t+1} = \alpha + \beta . I_{i,t+1} + \varepsilon_{i,t+1}$$

Where $Victory_{i,t+1}$ equals one if candidate i is elected at time $t+1$ and zero otherwise. $I_{i,t+1}$ is a dummy variable for incumbency which is defined above. Unobservable quality is likely to be correlated with incumbency status which means that $E[\varepsilon_{i,t+1} \mid I_{i,t+1}] \neq 0$. This leads to a biased estimate of the incumbency effect in which,

$$E[Victory_{i,t+1} \mid I_{i,t+1} = 1] - E[Victory_{i,t+1} \mid I_{i,t+1} = 0] = \beta + BIAS_{i,t+1}$$

Where $BIAS_{i,t+1}=E[\varepsilon_{i,t+1} \mid I_{i,t+1} = 1]-E[\varepsilon_{i,t+1} \mid I_{i,t+1} = 0]$. By examining very close elections, RD can virtually eliminate the bias. Close elections are ones in which the $Share_{i,t}$*'s* achieved by competing candidates occur in a very close neighbourhood around the incumbency threshold (of $Share_{i,t}=0.5$). By looking at data in an interval which is close to the threshold we get,

$$E[Victory_{i,t+1} \mid 0.5<Share_{i,t}\leq \eta] - E[Victory_{i,t+1} \mid \eta <Share_{i,t}<0.5] = \beta + BIAS^*_{i,t+1}$$

where η is some arbitrarily small number, and $BIAS^*_{i,t+1}=E[\varepsilon_{i,t+1} \mid 0.5<Share_{i,t}\leq \eta]-E[\varepsilon_{i,t+1} \mid \eta <Share_{i,t}<0.5]$. In the limit as $\eta \rightarrow 0$, the margin of votes separating the bare winner and bare loser becomes negligible. The assumption underpinning the RD methodology is that in these very close elections, the predetermined characteristics of the bare winners and bare losers are comparable. Therefore as $\eta \rightarrow 0$ the bias disappears and we are left with the true estimate of the incumbency effect,

$$\lim_{\eta \to 0} E[Victory_{i,t+1} \mid 0.5<Share_{i,t}\leq \eta] - \lim_{\eta \to 0} E[Victory_{i,t+1} \mid \eta <Share_{i,t}<0.5] = \beta$$

The electoral outcomes at time $t+1$ are estimated separately for those to the right of the threshold (bare winners) and those to the left of the threshold (bare losers),

$$VictoryL_{i,t+1} = \alpha_L + \beta . f_L(Share_{i,t} - 0.5) + \varepsilon_{i,t+1} \quad (1)$$

$$VictoryR_{i,t+1} = \alpha_R + \beta . f_R(Share_{i,t} - 0.5) + \varepsilon_{i,t+1} \quad (2)$$

Where $f_R(\cdot)$ and $f_L(\cdot)$ are polynomials in the forcing variable. It is necessary to model the forcing variable in this way as the conditional expectation function E[$Victory_{i,t+1}$ | $Share_{i,t}$] may be non-linear. Failure to do so could result in a non-linearity in the CEF being mistakenly identified as a discontinuity. For convenience, we subtract the threshold value (of 0.5) from the forcing variable in equations (1) and (2). This ensures that the incumbency effect at the threshold is equal to the intercept terms yielding an estimate of incumbency advantage equal to $\hat{\alpha}_R - \hat{\alpha}_L$.

An alternative to estimating two separate regressions for the winners and losers is to estimate one single "pooled" regression (Lee and Lemieux, 2010). The advantage of this is that it yields direct estimates and standard errors. The pooled regression is the following,

$$Victory_{i,t+1} = \alpha + \beta . I_{i,t+1} + \rho . f(Share_{i,t} - 0.5) + \lambda . I_{i,t+1} . f(Share_{i,t} - 0.5) + \varepsilon_{i,t+1} \quad (3)$$

This specification includes interactions between the polynomial terms and the incumbency dummies. This is to capture any non-linearity which may arise from the interaction of the incumbency dummy with $Share_{i,t.}$

We verify the robustness of the parametric estimates using a non-parametric technique which does not impose a functional form on the CEF. We employ the method of local linear regression. For each data point we run a linear regression of the dependent variable on the forcing variable using data within an optimal bandwidth h. In general, for a data point $Share_{i,t}=x_0$, we estimate the following linear regression,

$$Victory_{i,t+1} = \alpha + \beta .(Share_{i,t} - 0.5) + \varepsilon_{i,t+1} \quad \text{for } Share_{i,t} \in \left[x_0 - \frac{h}{2}, \ \ x_0 + \frac{h}{2} \right] \quad (4)$$

The predicted value of equation (4) evaluated at x_0 yields the non-parametric estimate. To estimate the causal effect of incumbency, we compare the outcomes of bare winners and bare losers by estimating linear regressions within an optimal bandwidth *h* to the left and right of the threshold. When estimating boundary points we cannot mix treated and untreated data as this would invalidate the RD methodology. To the left of the threshold we run the following regression,

$$Victory_{L\,i,t+1} = \alpha_L + \beta.(Share_{i,t} - 0.5) + \varepsilon_{i,t+1} \qquad \text{for Share}_{i,t} \in [(0.5-h), 0.5) \qquad (5)$$

and to the right,

$$Victory_{R\,i,t+1} = \alpha_R + \beta.(Share_{i,t} - 0.5) + \varepsilon_{i,t+1} \qquad \text{for Share}_{i,t} \in [0.5, (0.5+h)] \qquad (6)$$

The intercepts give the predicted values at the threshold so that the causal effect of incumbency is given by $\hat{\alpha}_R - \hat{\alpha}_L$. For convenience we combine equations (5) and (6) and estimate one single pooled equation. Using the bandwidth $\text{Share}_{i,t} \in [(0.5-h), (0.5+h)]$ we estimate the following regression,

$$Victory_{i,t+1} = \alpha + \beta.I_{i,t_{+1}} + \rho.(Share_{i,t} - 0.5) + \lambda.I_{i,t+1}.(Share_{i,t} - 0.5) + \varepsilon_{i,t} \qquad (7)$$

In this regression, β is the estimate of incumbency advantage. Both approaches yield the same estimate such that $\beta = \hat{\alpha}_R - \hat{\alpha}_L$.

4. Results

Candidates with a positive (negative) margin of victory in election *t* may become the incumbent (challenger) candidate in election *t+1*. However not all candidates from election *t* decide to contest election *t+1*. It may be the case that some candidates choose not to run in election *t+1* if they believe their probability of winning is small, e.g. incumbents who believe they are likely to lose their seats may strategically retire before election the election.

Therefore, estimating the effect of incumbency on the probability of winning election *t+1*, conditional on running in *t+1* may produce estimates which are biased upwards.[4] Instead of using the probability of winning conditional on running, we use the probability of running *and* winning in election *t+1* as the outcome variable. In addition, we use three other outcome variables in this paper, all of which are unconditional with regard to the decision to rerun in the next election; the number of votes received, the percentage of the quota received and the probability of running in *t+1*. The number of votes and percentage of the quota received provide an extra layer of information on top of the probability of running and winning which is a binary variable. The probability of running in *t+1* allows us to gauge the size of the indirect (deterrence) effect of incumbency.

Figure 1 plots the outcome variables at time *t+1* against the forcing variable at time *t* ($Share_{i,t}$). Equation (3) is estimated using a fourth order polynomial in $Share_{i,t}$ and the predicted probabilities are shown by the dashed line. We also plot local averages of the outcome variable taken at 0.01 intervals of $Share_{i,t}$. The vertical line at the fifty percent vote share shows the threshold at which incumbency status is assigned.

In each of the four outcome variables we observe a sharp discontinuity at the threshold. Incumbency causes an eighteen percentage point increase in a candidate's probability of running and winning in election *t+1*. Incumbents also receive approximately 1,200 more first preference votes and an extra sixteen percentage point share of the quota compared to non-incumbent counterparts with comparable characteristics. The results also point to a substantial deterrence effect of incumbency. The difference in the probability of rerunning at time *t+1* between bare winners and bare losers is about twenty percentage points. This suggests that incumbency acts as a barrier against re-entry of high quality challengers.

[4] For example, consider an incumbent who wins by a razor thin margin at *t* but does not feel confident of victory at *t+1*. He may decide to strategically retire before the election. If we only consider the probability of winning conditional on running at *t+1*, we are ignoring the fact that this bare winner at *t* would likely have lost at *t+1* had he decided to run. This would bias the estimate of incumbency advantage upwards and this is why we use the probability of running *and* winning as the outcome variable.

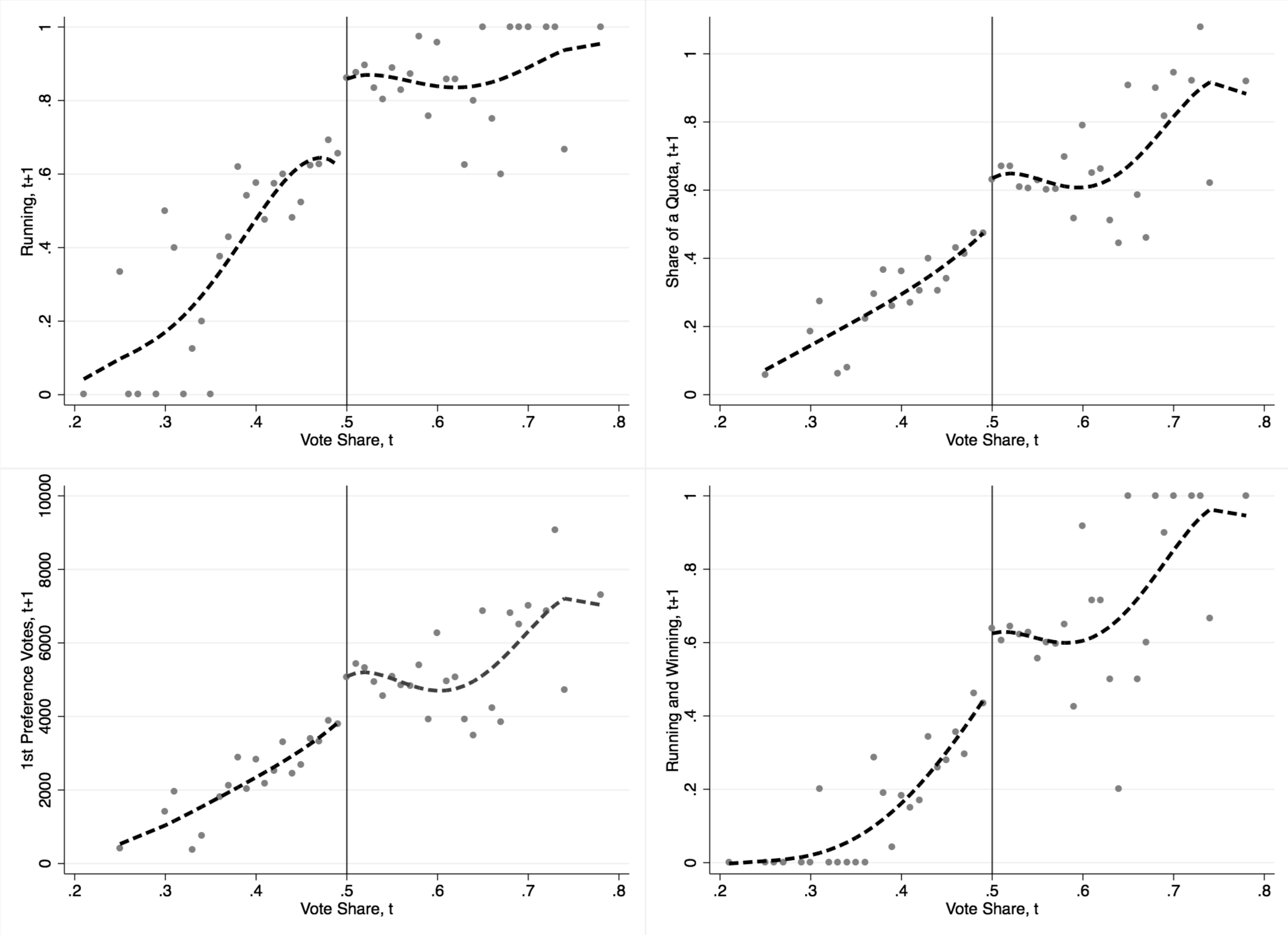


FIGURE 1: The outcome variable at time *t+1* is regressed on an incumbency indicator, a fourth order polynomial in $Share_{i,t}$ and interactions between the incumbency indicator and polynomial terms. The dashed line plots the predicted values of the outcome variable at *t+1*. The dots are local averages of the outcome variable taken over 0.01 intervals of $Share_{i,t}$.

Table 2 shows estimates of the incumbency effects from the parametric and non-parametric estimation procedures. The optimal bandwidth used in the non-parametric specification minimises the mean squared error in the regression discontinuity design as in Imbens and Kalyanaraman (2012). Both methods yield comparable estimates of the incumbency advantage.

Table 2: ***Estimates of Incumbency Effects***

Difference in Outcome Between Bare Winners and Bare Losers	Parametric Specification	Non-Parametric Specification
Pr(Running & Winning at t+1)	0.172**	0.178***
	(0.071)	(0.037)
Quota Share at t+1	0.154***	0.171***
	(0.051)	(0.035)
First Preference Votes at t+1	1,230***	1,244***
	(429)	(280)
Pr(Rerunning at t+1)	0.212***	0.171***
	(0.065)	(0.039)
Observations	1,678	1,678

Notes: The parametric specification estimates equation (3) using a fourth order polynomial in the forcing variable ($Share_{i,t}$). The non-parametric specification estimates equation (7) using optimal bandwidths which minimise the mean squared error in the RD design (as in Imbens and Kalyanaraman, 2012). Non-parametric estimate use a rectangular kernel. *** significant at 1%. ** significant at 5%. * significant at 10%

The estimates are also robust to numerous specifications. Table A1 of the appendix presents parametric estimates using third, fourth and fifth order polynomials as well as non-parametric estimates which vary the size and shape of the kernel. In all specifications the incumbency effects are significant and of a similar order of magnitude.

Our estimates of incumbency advantage are of a smaller magnitude than those reported in RDD studies of the United States Congress. Uppal (2010) and Lee (2008) find that incumbency increases the probability of electoral success in the U.S. by approximately thirty and forty percentage points respectively. Our results are more in line with German and UK elections where Hainmueller and Kern (2008) estimate the effect at twenty percentage points.

Political Party Variation

Each of the 23 elected governments from 1937-2011 involved either Fianna Fáil or Fine Gael as the main party. Fianna Fáil has the most electoral success forming 17 of the 23 Irish governments and electing the largest number of deputies. We examine whether the incumbency advantage differs across parties by estimating its effect separately for Fianna Fáil and Fine Gael as well as "other" candidates (non FF and FG). The estimates are shown in Table 3.

The results indicate that Fine Gael candidates enjoy the largest incumbency advantage of the three groups. The probability that a bare winner from Fine Gael reruns and wins at time *t+1* is 24 percentage points higher than that of a bare loser from the same party. Fine Gael incumbents also enjoy a larger incumbency advantage over their non-incumbent party counterparts when measured by the vote share at *t+1*, first preference votes at *t+1* and probability of rerunning at *t+1*. The effect for Fianna Fáil and others is not statistically significant.

Government and Opposition Variation

We categorise candidates into two groups; those who are part of the ruling government and those in opposition. The estimates of incumbency advantage for both groups of candidates (government and opposition) are shown in Table 4 for each of the four outcome variables[5].

[5] The coefficients for government incumbents and opposition incumbents are in relation to their respective non-incumbent challengers.

Table 3: ***Political Party Incumbency Effects***

Difference in Outcome Between Bare Winners and Bare Losers		
Pr(Running & Winning at t+1)	Fianna Fáil	0.0690 (0.0976)
	Fine Gael	0.235** (0.118)
	Others	0.150 (0.128)
Quota Share at t+1	Fianna Fáil	0.161** (0.0658)
	Fine Gael	0.145* (0.0816)
	Others	0.113 (0.0876)
First Preference Votes at t+1	Fianna Fáil	1,250** (541.8)
	Fine Gael	1,323* (694.1)
	Others	1,019 (718.0)
Pr(Rerunning at t+1)	Fianna Fáil	0.140** (0.0715)
	Fine Gael	0.180** (0.0704)
	Others	0.0976 (0.0966)
Observations		1,678

Equation (3) is estimated for each party using a third order polynomial in the forcing variable ($Share_{i,t}$). Robust standard errors are in parentheses. *** significant at 1%. ** significant at 5%. * significant at 10%

The results indicate that government incumbents enjoy a larger advantage over government challengers compared to opposition incumbents over opposition challengers. This result is statistically significant for first preference votes and quota share as indicated by the p-values. Figure 2 illustrate the results graphically by plotting the outcome variables at time $t+1$ against the forcing variable at time t ($Share_{i,t}$) for government and opposition candidates. The discontinuity is greater for government candidates illustrating the greater magnitude of their incumbency advantage.

Table 4: ***Government and Opposition Incumbency Effects***

Difference in Outcome Between Bare Winners and Bare Losers		
Pr(Running & Winning at t+1)	Government	0.264**
		(0.105)
p=0.344	Opposition	0.130
		(0.079)
Quota Share at t+1	Government	0.274***
		(0.068)
*p=0.068**	Opposition	0.116**
		(0.055)
First Preference Votes at t+1	Government	2,290***
		(543)
*p=0.064**	Opposition	973**
		(462)
Pr(Rerunning at t+1)	Government	0.232***
		(0.064)
p=0.258	Opposition	0.131**
		(0.064)
Observations		1,678

Equation (3) is estimated for government and opposition candidates using a third order polynomial in the forcing variable ($Share_{i,t}$). The p-values indicate whether the difference between the estimates for government and opposition is statistically significant. Robust standard errors are in parentheses. *** significant at 1%. ** significant at 5%. * significant at 10%

One potential explanation for this result may be that government incumbents are protected against government challengers in election *t+1*. To illustrate this consider the case where the Fianna Fáil party form the ruling government. At time *t* two Fianna Fáil candidates are involved in a fiercely competitive battle resulting in one of the candidates being barely elected and the other barely losing out. At time *t+1* the Fianna Fáil party may not want to see a repeat of this bare winner scenario; they would rather see their existing incumbent securing comfortable re-election as opposed to fighting another fiercely competitive battle with a challenger from the same party, thereby running the risk that both candidates split the votes and neither gets elected. As such the party may act strategically to prevent this situation

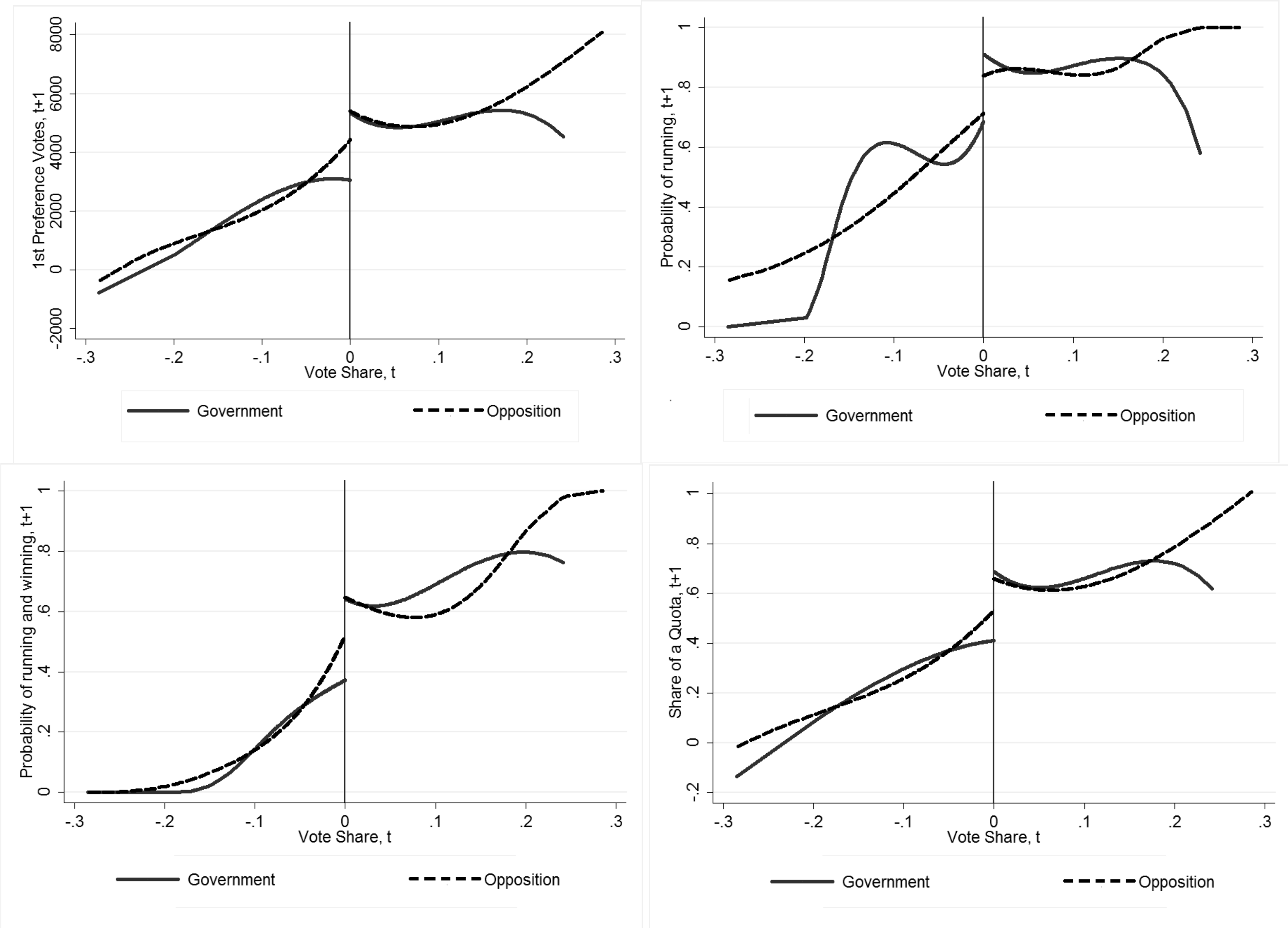


FIGURE 2: This figure plots the outcome from election t+1 against the vote share obtained in election t (the forcing variable). Solid lines are fitted values from third order polynomial regressions on either side of the discontinuity.

from occurring by campaigning in a way that ensures the existing incumbent is safe. This strategic behaviour is not possible for opposition candidates. Unlike the government candidates who are all part of the same unified party or coalition, the opposition candidates are drawn from several different parties. For example, the opposition candidates may be drawn from Fine Gael, Labour and the Progressive Democrats. Therefore Fine Gael cannot ask the Labour party to protect its incumbent from an overly competitive challenger.

This explanation appears to be supported by the data. In Figure 2, if we focus on incumbents (those to the right of the threshold) we see that government and opposition incumbents appear to be comparable at the discontinuity indicating a similar level of electoral success in all four outcome variables. However, with regard to challengers (to the left of the threshold) we see that challengers from opposition parties have a higher probability of winning and receive more votes than government party challengers.

Validity, Balance and Robustness

The RD design is based on the assumption that bare losers provide a valid counterfactual for bare winners. We can test the validity of this assumption by examining whether pre-treatment characteristics are the same for these two groups[6]. Any significant differences in these characteristics may invalidate the causal inference relating to the incumbency effect.

Following Caughey and Sekhon (2011), we carry out a rigorous examination of covariate balance by examining a number of pre-treatment covariates in a two percentage point window on either side of the threshold. The results are shown in Table 5. Using *P* values from Fisher's exact test and Wilcoxon rank sum tests, we find no statistically

[6] Pre-treatment characteristics that are the same for bare winners and bare losers are described as being balanced around the threshold.

significant differences between the treated (bare winners) and control (bare losers) groups for each of the covariates. This provides strong evidence of balance around the discontinuity[7].

In Table 6 we include the pre-treatment covariates in our baseline regression to test for incumbency advantage and find that their inclusion does not significantly alter the estimates. This provides further evidence that bare winners and bare losers are comparable and that regression discontinuity design is a valid methodology in evaluating the causal effect of incumbency advantage in Irish elections.

Table 5*: Tests for Covariate Balance*

Variable Name	**Treated Mean**	**Control Mean**	***p* value from Tests**	***p* value from RDD**
1st Preference Votes, *t-1*	5853.29	5882.38	0.834	0.528
Share of a Quota, *t-1*	0.60	0.48	0.151	0.543
Running & Winning, *t-1*	0.61	0.51	0.359	0.675
Running, *t-1*	0.77	0.80	0.825	0.626
1st Preference Votes, *t*	5164.60	5038.48	0.465	0.806
Being a Fianna Fáil Candidate, *t*	0.47	0.41	0.372	0.809
Being a Fine Gael Candidate, *t*	0.25	0.34	0.127	0.905
Being an Independent Candidate, *t*	0.06	0.04	0.571	0.316
Being a Labour Party Candidate, *t*	0.14	0.12	0.709	0.449
Government supporter, *t*	0.38	0.31	0.351	0.386
Being an Incumbent, *t*	0.52	0.57	0.526	0.567

Covariate balance between treated (n=125) and control (n=125) in a 2% window around the discontinuity. The *p* values for dichotomous variables are from Fisher's exact test. Wilcoxon rank sum tests are used for continuous variables. Two-sided *p* values are reported. Calculations are based on non-missing values. Fourth order polynomial functions are used for the RDD

We examine the density of the assignment variable as in Lee and Lemieux (2010). If an imbalance is observed in the density on either side of the threshold this may call the validity of the design into question. It is clear from the histogram in Figure 3 that the density is balanced on either side of the threshold and no discontinuous bin-to-bin jumps exist, further supporting the validity of the design.

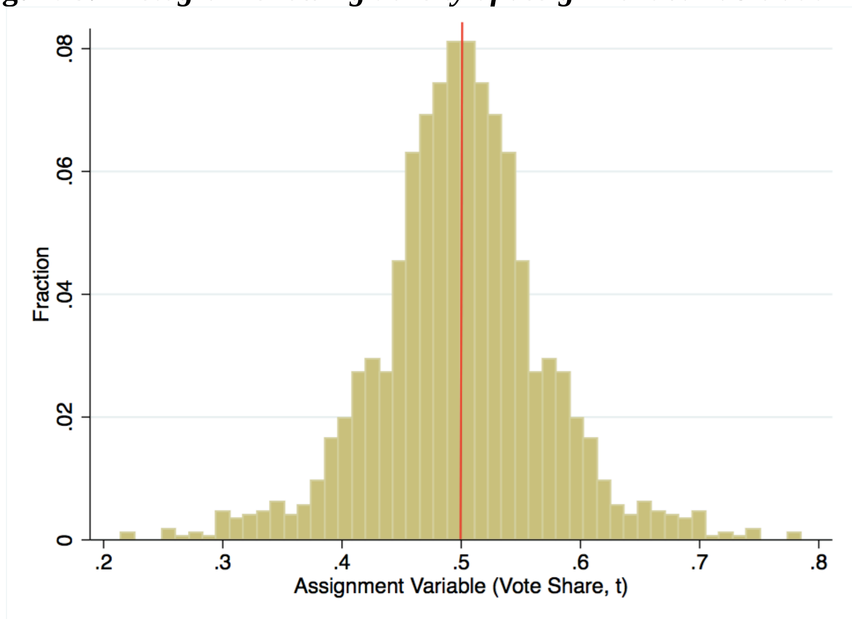
[7] Other covariates, such as campaign spending and political donations, are not available for the vast majority of the sample under discussion here. Such information only exists for the elections since 1999.

Table 6: ***Sensitivity of Estimates to Inclusion of Pre-Treatment Covariates***

		4th Order Polynomial
Share of a Quota, t+1	No Covariates	0.147***
		(0.0514)
	Covariates	0.149***
		(0.0508)
1st Preference Votes, t+1	No Covariates	1,230***
		(429.0)
	Covariates	1,255***
		(409.9)
Running & Winning, t+1	No Covariates	0.172**
		(0.0709)
	Covariates	0.176**
		(0.0710)
Running, t+1	No Covariates	0.212***
		(0.0646)
	Covariates	0.214***
		(0.0651)

The following covariates were added: 1st preference votes at time *t*, political party affiliation, member of the governing party at time *t* and incumbency status at time *t*.

Figure 3*: Histogram showing density of assignment variable at time t*



Note: Bin Width set at 1%

5. Conclusion

Incumbent politicians may enjoy an incumbency advantage due to direct and indirect officeholder benefits. Direct benefits include free postage, free telephone, free printing and greater media exposure. Indirect benefits involve the incumbent's ability to deter high quality challengers. The study of incumbency advantage in the Irish political system is of particular interest given the incentives facing incumbent politicians in the PR-STV electoral setting. Candidates from the same party must compete against one another and as such need to identify themselves as separate from their parties. An incumbent may achieve this by taking full advantage of perks of office such as free postage and printing in order to boost her personal profile among constituents.

It is true that incumbent politicians in Ireland enjoy one of the highest rates of re-election in the world. However this on its own does not provide evidence of an incumbency advantage. High re-election rates may be driven in part by a selection effect; incumbents must be of high enough quality to win an election in the first place in order to become an incumbent. Separating officeholder benefits from selection effects poses a challenge due to unobservable candidate quality which may lead to omitted variable bias.

This paper overcomes this bias by using regression discontinuity design to exploit the near-random assignment of incumbency generated by close elections in Ireland's lower house of parliament. In doing so, we find officeholder benefits have a significant causal effect on an incumbent's chances of re-election. Bare winners of an election at time t are 18 percentage points more likely to enjoy electoral success at time $t+1$ compared to bare losers. There is also a strong deterrence effect of incumbency as it poses a barrier to the re-entry of challengers. Bare winners of an election at time t are twenty percentage points more likely to rerun at time $t+1$. We also find heterogeneity in the incumbency advantage at the party level with the magnitude of the effect being largest for the Fine Gael party. The estimates reported are robust to various parametric and non-parametric specifications.

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Appendix

Table A1: Estimates of Incumbency Advantage for Various Parametric and Non-Parametric Specifications

N=1678	Non-Parametric						Parametric (Polynomials)		
Bandwidth	**½ x**	**Optimal**	**2 x**	**½ x**	**Optimal**	**2 x**	**3rd**	**4th**	**5th**
Kernel	**Rectangle**	**Rectangle**	**Rectangle**	**Triangle**	**Triangle**	**Triangle**	**Order**	**Order**	**Order**
Share of Quota, t+1	0.137**	0.171***	0.171***	0.134**	0.158***	0.164***	0.173***	0.154***	0.141**
	(0.0647)	(0.0350)	(0.0350)	(0.0632)	(0.0466)	(0.0351)	(0.0418)	(0.0513)	(0.0591)
1st Preference Votes, t+1	1,104**	1,244***	1,244***	1,106**	1,265***	1,312***	1,386***	1,230***	1,138**
	(520.4)	(280.2)	(280.2)	(513.4)	(379.1)	(285.3)	(349.6)	(429.0)	(494.5)
Running & Winning, t+1	0.169***	0.178***	0.178***	0.163***	0.181***	0.176***	0.180***	0.172**	0.145*
	(0.0605)	(0.0371)	(0.0371)	(0.0600)	(0.0459)	(0.0381)	(0.0615)	(0.0709)	(0.0855)
Running, t+1	0.199***	0.171***	0.171***	0.193***	0.188***	0.184***	0.211***	0.212***	0.199***
	(0.0677)	(0.0385)	(0.0385)	(0.0662)	(0.0501)	(0.0384)	0.173***	0.154***	0.141**

Note: Non-parametric RDD uses local linear regressions to estimate the discontinuity. Parametric RDD uses polynomials fitted to either side of the discontinuity (Lee, 2008). For non-parametric estimates, the optimal bandwidth is found using the method outlined by Imbens and Kalyanaraman (2012). For robustness, we include bandwidths of half the optimal and twice the optimal. We also show results for bandwidths of different shapes; rectangular and triangular. For the parametric estimates we present results for third, fourth and fifth order polynomials. Robust standard errors in parentheses. *** Significant at 1%. ** Significant at 5%. * Significant at 10%.