Campaign Spending and Electoral Integrity:

Assessing the Plausibility of the Challenger Spending Efficacy Advantage in Irish and British Elections

A Thesis Submitted to the Degree of

Doctor of Philosophy (Ph.D.)

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April 2020

Declaration

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Summary

Many models of democratic representation are underpinned by conceptions of how representatives are authorised to hold their office and how they are held to account (Pitkin 1967). The appropriate functioning of such models assumes the electoral mechanisms underpinning them are designed in an equitable manner. However, electoral contests are often not equitable either due to design or inherent error of large systems. This thesis assesses campaign spending regulation – a central aspect of how the design of systems may inhibit appropriate functioning of formalistic models of representation. Specifically, this research estimates the efficacy with which candidates can turn financial resources into votes. A large body of research has concluded that challenger spending is more effective than that of the incumbent. I argue findings of a challenger spending efficacy advantage are not robust across all contexts and I do not expect such findings to hold in Irish and British elections. In these cases, incorporating findings of a challenger spending advantage into design of campaign spending regulation may distort the mechanisms of authorisation and accountability, tilting the system in the favour of certain candidates. This thesis contains five substantive chapters that deal with various facets of spending efficacy. A unifying thread of the first four substantive chapters is the argument that previous findings of a challenger spending advantage may be due to bias in estimation of incumbent spending efficacy (arising from endogenous spending). As such, a novel matching methodology is employed to manage issues of estimation error. This matching methodology provides greater control over issues such as high leverage observations and reduces estimation bias. Additionally, the chapters offer case specific theoretical discussion on the (im)plausibility of the challenger spending advantage. The fifth substantive chapter deviates from the others by assessing whether differential campaign spending efficacy impedes female descriptive representation (Mansbridge 1999). The descriptive model of representation is far removed from the formalistic model motivating earlier chapters. However, any erosion of the accountability mechanism of formalistic representation through inequitable spending regulations will likely affect levels of female representation due to the prevalence of male incumbency. The findings of Burrell (1985) and Green (1998) support the suspicion there is a consequential link between incumbency and gender (and accordingly, a link between formalistic and descriptive representation).

Chapter two assesses the drivers of spending in Irish general elections 2002–2016 and finds that candidate quality is significant in this regard. The role of candidate quality in spending decisions gives rise to the first type of endogenous spending addressed in this thesis ('attractive spending'). Such spending refers to high quality candidates (predominantly incumbents) that spend money because they can raise it and not because they believe it is necessary to win a seat. This chapter hypothesises the nature of intraparty competition and district magnitude of Irish constituencies create inhospitable conditions for a challenger spending advantage. The analysis robustly supports this hypothesis.

Chapter three investigates candidate spending decisions in UK general elections 2005–2017 and finds constituency marginality is an important factor in these decisions. The influence of seat marginality in spending decisions offers evidence of the second type of endogenous spending addressed in this thesis ('reactive spending'). This type of spending refers to candidates (particularly threatened incumbents) that spend more in close electoral races. This chapter hypothesises that multiparty competition in the UK limits space for a challenger spending advantage and regression results support this hypothesis.

Chapter four takes advantage of a novel candidate dynamic in elections to the Scottish Parliament and Welsh Assembly 2007–2016. The dynamic relates to three distinct types of candidates in electoral contests, namely constituency incumbents, regional list incumbents, and non-incumbents. This chapter argues that list incumbents have unique advantages over both other candidate types. It is hypothesised that list incumbents will reap a spending efficacy advantage over other candidates and that their presence stymies a challenger advantage. The results are robust in support of the latter but not the former.

Chapter five revisits all contexts discussed in earlier chapters. Disaggregated data allow for the direct testing of plausible causal mechanisms for a challenger spending advantage (in contrast to aggregated spending analyses in previous chapters). Following the theoretical arguments of earlier chapters, the analysis shows that the studied mechanisms do not provide evidence of a challenger spending advantage in Irish and British elections.

Chapter six also revisits all previous contexts and investigates the impact of differential spending efficacy on female underrepresentation in politics. It is hypothesised that male candidates will attract more funding and glean greater spending efficacy than female candidates. Analysis does not support the hypotheses and concludes spending effects are not consequential in explaining female underrepresentation in Irish and British elections.

Acknowledgements

There are many people to thank for their support and patience during the writing of this thesis. First, all the love and thanks to my girlfriend Steph for the unwavering support you have given me. I'm sure I can't ever repay you, but I look forward to trying!

Second, to my parents Matt and Marie, my sister Suzanne, and my brother Colin. Thank you for putting up with me for near thirty years now. You have the patience of saints and have supported me unconditionally. For that, I'm forever grateful.

Third, to my supervisor Ken. Thank you for all your help and supervision over the past four years. I would not be here without your guidance, wisdom, and encouragement. I owe you a massive debt and am sincerely grateful for all you've done.

Fourth, to all my colleagues and friends in Trinity College. Thank you for your support, feedback, and camaraderie over these last four years. I wouldn't have made it without you and I'll always remember the Friday Seminar fondly! A special thanks to Liam and Stefan for their invaluable feedback and advice on drafts of this thesis. Good on ye lads, it's much appreciated!

Fifth, to all my friends (in Mayo, Dublin, or elsewhere). Thanks for your unwavering encouragement and friendship over the years. The parties and frivolity were always welcome distractions from this PhD!

Finally, to the 2017 footballer of the year Andy Moran. Thank you for being a source of constant inspiration. #Mayo4Sam

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Chapter 1

Introduction

This thesis explores the impact of campaign spending on electoral outcomes and the differential effects of such spending conditioned on incumbency and gender[1]. Campaign spending is an indispensable aspect of modern electoral campaigns and plays a significant role in determining the occupants of high political office. Whether certain types of candidates glean more efficacy from spending than others (e.g. challengers vs incumbents) is consequential for the adequacy of campaign spending regulation and the effective functioning of democratic representation. Most modern models of representation are linked to the functioning of electoral mechanisms. In the formalistic model, authorisation and accountability of elected representatives is dependent on the equitable functioning of electoral contests (Pitkin 1967). Similarly, in the descriptive model of representation (Pitkin 1967; Mansbridge 1999), the success of candidates who are traditionally underrepresented in politics (e.g. women or ethnic minorities) depends on the nature of the system in which they compete. However, electoral systems and the regulation around political campaigns are often not equitable and may skew electoral fortunes towards certain types of candidates. Spending regulation is a key aspect of campaigns that has the potential to create such an impact. The authorisation and accountability of elected representatives can be skewed by spending regulation that fails

[1] For clarity, the differential spending effects explored in chapter six are related more to sex than gender. Use of the term gender in this thesis is a regretful acknowledgment of the difficulty of incorporating the appropriate nuance associated with these terms into large N analyses of this type.

to assess the realities of campaign dynamics and creates the conditions for certain candidates to exploit in-built advantages. More often than not, those with such advantages are incumbents or party heirs to a particular seat. Additionally, campaign spending regulation may affect the ability of underrepresented groups to win seats should it fail to account for bias against that group within the electorate. Any failure to account for bias against certain candidates may also be compounded by the fact that many of the candidates that can exploit in-built advantage (as discussed in relation to formalistic representation) are likely to come from overrepresented groups. This thesis is underpinned by the empirical literature that has demonstrated a significant incumbency advantage in diverse electoral settings and is primarily interested in the compounding effect of possibly differential spending efficacy on such incumbency advantage. Accordingly, Table 1.1 provides a brief overview of the incumbency advantage literature that is intended to be illustrative rather than exhaustive. The findings of Ariga (2015) are most notable in their disagreement with other literature and their possible implications

Table 1.1 - Previous literature on incumbency advantage

	Context	Main Results
Ariga (2015)	Japanese Legislative Elections 1958–1993 (SNTV)	No finding of incumbency advantage in multimember districts. Results suggest incumbency non-advantage or disadvantage.
Fiva and Smith (2015)	Norwegian Legislative Elections 1945–2013 (CLPR)	Statistically significant incumbency advantage.
Hirano and Snyder (2009)	US Elections 1972–2000 (FPTP)	Statistically significant incumbency advantage in both single member and multimember districts.
Lee (2008)	US Congressional Elections 1946–1998 (FPTP)	Statistically significant incumbency advantage in single member districts.
Redmond and Regan (2015)	Irish General Elections 1937–2011 (STV)	Statistically significant incumbency advantage in multimember districts. Advantage is greatest in case of intra-party incumbency.
Smith (2013)	UK General Elections 1983–2010 (FPTP)	Statistically significant incumbency advantage in single member districts.

for analysis of Irish multimember districts in chapter two of this thesis (an issue addressed in the chapter itself).

The equity of campaign spending regulation should be measured by the level of specific intervention intended to balance the playing field of electoral competition rather than contentment with the idea that any imbalance is at least non-deliberate. The importance attached to effective regulation of campaign spending is evident in the widespread and complex regimes of such regulation found around the world. Considerable resources and political capital are expended in designing regulations on campaigning, spending, and political advertising to ensure the effective functioning of representation and democracy. The prominence of such regulation can also be seen in the significant backlash when it is considered too laissez-faire (e.g. the long running debate in response to the landmark 'Citizens United v. FEC' case in the USA). To pursue effective regulation of campaign spending, policymakers would require the closest possible approximation of real-world campaign dynamics and in this regard, the spending literature has a problematic past. Previous research is split on whether differential spending efficacy exists for different types of candidates (i.e. incumbents vs challengers or men vs women). In terms of incumbents vs challengers, there are previous studies that find a challenger spending efficacy advantage, some that find an incumbent advantage, and some that find no significant difference. The implications of a spending efficacy advantage for any type of candidate should be apparent. The ability of challengers to reel in incumbents or for incumbents to propel themselves clear of challengers are contrasted. Similar disagreement exists in the literature investigating differential efficacy based on sex. Brief and non-exhaustive overviews of the findings across both literatures can be seen in Tables 1.1 and 1.2. Despite mixed results, the literature tends to regard a challenger spending efficacy advantage as the status quo finding. Policy advice based on this finding recommends the loosening of campaign spending and funding regulations (Benoit and Marsh, 2010; Jacobson, 1978; Palda, 1994). For example, Jacobson (1978) argues that

"any reform measure which decreases spending by the candidates will favor incumbents. This includes limits on campaign contributions from individuals and groups as well as ceilings on total spending by the candidates … Ceilings on permissible spending, if they have any effect on it all, can only lessen competition."

However, such policy advice may produce the opposite of its intended effects if the challenger spending advantage is a statistical artefact or has been too readily generalised. The prominence of the challenger advantage is largely due to the compelling theoretical explanation outlined by Jacobson (1978, 1985, 1990). Jacobson contends that incumbents hit diminishing returns much more quickly than challengers given their in-built profile. Jacobson's (1978, 1985, 1990) argument suggests that incumbents have little space to grow in comparison to challengers on metrics such as name recognition. The diminishing returns of incumbents is convincing and seems eminently feasible in the case of the US elections that Jacobson studies (1978, 1985, 1990). However, this thesis contends the conditions that create the space for such a challenger advantage do not exist in the political systems of Ireland and the UK. The nature of multiparty competition (for UK elections), multiparty competition and candidate dynamics (for Scottish and Welsh elections), and intraparty competition and district magnitude (for Irish elections) conditions the space in which such a challenger advantage might exist. As such, this thesis contends there is no strong theoretical basis to expect such an advantage in these cases.

An alternative explanation for findings of a challenger advantage concerns data issues and methodology. The decision to spend money in electoral contests could be endogenous to electoral outcomes (this is referred to as endogenous spending). In other words, there is a confounding variable that is strongly predictive of both a candidate's level of spending and their electoral fortune. The presence of such a confounder is likely to bias regression estimates related to spending (and particularly incumbent spending). There are two types of endogenous spending relevant to this research (brief definitions of the two types can be found in Table 1.3). The first type of endogenous spending that is of concern is *'reactive' spending*. Reactive spending refers to the proclivity for candidates to spend more in competitive constituencies and is particularly applicable to threatened incumbents in marginal districts that are likely to ramp up spending to defend their seat. In other words, the marginality of the seat is strongly related to both the electoral outcome and the amount of money candidates choose to spend. Concerns of endogeneity and reverse causality arise from data influenced by reactive spending because the perceived outcome (i.e. seat marginality) affects spending levels. Simultaneity bias also emerges as

a problem because incumbents and challengers choose to spend (or not) based on seat marginality (meaning both spending variables move in tandem).

The second type of endogenous spending of interest is *'attractive' spending*. Attractive spending refers to the propensity for high quality candidates to spend money because they are capable of raising it and not because they believe it is required to win a seat. Again, issues of endogeneity could emerge because candidate quality relates strongly to both spending and the electoral outcome. Both of these types of spending undermine confidence in statistical analysis using observational spending data. Beyond concerns of how the data were generated, typical spending data contain other issues that may bias attempts to use standard statistical methods to analyse the relationship between spending and electoral outcomes. These additional issues relate to the skewed and imbalanced nature of several key variables such as spending, seat marginality, candidate quality, and votes won. These variables typically contain a large amount of extreme values that may skew regression results (in terms of either high leverage observations or outliers).

This thesis juxtaposes theoretical expectations of a challenger spending advantage in US elections against Irish and British elections. However, it is apparent from the preceding methodological discussion that the data generation process for US elections is as prone to bias as any other context. This thesis does not seek to rule out the possibility that results from US elections are statistical artefacts. Rather, I argue that Irish and British elections are a theoretical 'hard case' for a challenger spending advantage once appropriate methodological controls are used. A separate analysis (outside the scope of this research) is necessary to test the robustness of the challenger spending advantage in the 'easy case' of the USA and I return to this point in chapter seven.

Table 1.2 – Summary of spending efficacy advantage (incumbent vs challenger)

Challenger Advantage	No Advantage	Incumbent Advantage
Abramowitz (1988) *(US Senate Elections 1974–86)*	**Benoit and Marsh (2008)** *(Irish General Election 2002)*	**Erikson and Palfrey (1998)** *(US House Elections 1972–90)*
Benoit and Marsh (2003, 2010) *(Irish Local Election 1999 and Irish General Election 2002)*	**Erikson and Palfrey (2000)** *(US House Elections 1974–80 and 1984–90)*	
Jacobson (1978, 1985, 1990) *(US House and Senate Elections 1972–82. US House 1982–86)*	**Gerber (1998)** *(US Senate Elections 1974–92)*	
Johnston and Pattie (2006) *(UK General Elections 1997–2005)*	**Green and Krasno (1988, 1990)** *(US House Elections 1976–80 and 1984–86)*	
Johnston, Pattie and Hartman (2019) **(***UK General Election 2017)*	**Johnson (2013)** *(Brazilian Legislative Elections 2002–06, Finnish General Elections 2003–07 and Irish General Elections 2002–07)*	
Pattie, Hartman and Johnston (2017) **(***UK General Election 2015)*	**Maddens et al. (2006)** *(Flanders/Belgium Legislative Elections 2003)*	
Pattie, Johnston and Fieldhouse (1995) *(UK General Elections 1983–92)*	**Levitt (1994)** *(US House Elections 1972–90)*	
Palda and Palda (1998) *(French General Election 1993)*	**Samuels (2001a)** *(Brazilian Legislative Election 1994)*	
Shin et al. (2005) *(South Korean National Assembly Election 2000)*		

Table 1.3 – Summary of spending efficacy advantage (male vs female)

Female Advantage	No Advantage	Male Advantage
Burrell (1985) *(US House Elections 1972–82)*	**Green (1998)** *(US House Elections 1990–94)* **McElroy and Marsh (2010, 2011)** *(Irish General Elections 2002–07)*	**Green (1998)** *(US House Elections 1982–88)* **Herrick (1996)** *(US House Elections 1988–92)*

Table 1.4 – Summary of two key types of endogenous spending (author's definitions)

Reactive Spending	Attractive Spending
This type of spending occurs when candidates choose to spend more in marginal constituencies. This raises concerns because the outcome of interest (votes won/seat marginality) is predictive of spending level rather than the other way around.	This type of spending occurs when high quality candidates choose to spend more simply because they are capable of raising it. This raises concerns because the quality of the candidate is predictive of both spending and votes won.

The split nature of the spending literature, encapsulated in rival methodological and theoretical explanations for contrary results, provides the puzzle of this thesis. The key motivation is to disentangle this puzzle by addressing issues in the data, increasing confidence in results, and testing whether the finding of a challenger spending advantage is robustly generalisable to Ireland and the UK. Additionally, this thesis will apply the same process to increase confidence in analysis on differential spending effects based on gender. The mixed findings from previous research indicate that similar issues related to raw spending data may affect the literature on male vs female spending efficacy. In an overarching sense, this thesis explores the differential spending effects of various types of candidates in Irish and British elections. This research seeks to offer a novel methodological way forward for the spending efficacy literature and to help break the existing deadlock in findings. In so doing, the analysis will test the plausibility that certain types of candidates glean a spending efficacy advantage and offer reliable results that may prove useful in ensuring the role of money in electoral competitiveness is not being

misidentified. Accordingly, the thesis has one foundational research question – do candidates glean electoral benefits from campaign spending (i.e. can candidates turn money spent into votes won)? To assess differential spending effects and explicate spending decisions, five key research questions follow – first, does incumbency status condition the efficacy of spending (i.e. do challengers glean greater efficacy from spending than incumbents)? Second, what drives candidates to spend money in the first instance? Third, can the finding of a challenger spending advantage be generalised to electoral contests in Ireland and the UK? Fourth, do female candidates attract similar levels of funding to male candidates. Fifth, do female candidates attain similar electoral returns on campaign spending as male candidates?

1.1 Contributions and Novelty

This thesis offers three novel contributions to the spending literature. First, an innovative methodology is applied to the study of spending efficacy for the first time. Second, investigation is provided on data and contexts that have not been addressed previously in the spending literature. Third, the analysis produces results that challenge much of the previous research on spending efficacy. I will discuss each of these in turn.

(1) Methodology: The underlying methodological approach for this thesis is common to all chapters and as such, the methodology will be discussed in detail here while context specific aspects will be dealt with in each chapter. The earlier discussion on endogenous spending and data imbalance motivates the application of a new methodology to the study of spending efficacy: coarsened exact matching. The inadequacies of standard statistical analysis to deal with observational spending data has long been acknowledged in the literature (e.g. Ansolabehere and Gerber 1994). Bias is the single biggest issue in using observational rather than experimental data in the study of social science and this is particularly evident in raw spending data (given the impact of endogenous spending and imbalance in key variables). Given the infeasibility of experimental and unproblematic spending data, matching provides an improved way to manage data issues and increase

confidence in results in comparison to previous studies[2]. The primary issue within this field of research is that decisions to spend may be driven by seat marginality or candidate quality. If candidates engage in reactive or attractive spending, it means spending decisions are endogenous to the relationship under investigation and far from being the equivalent of randomly assigned. To address issues arising from endogenous spending, candidates are divided into treatment levels (based on level of spending) and the matching technique matches candidate observations to each other on the basis of their similarity on covariates that approximate either seat marginality or candidate quality. The matching process creates strata of data that are matched on covariates and have all treatment levels observed. Spending efficacy is estimated within these strata but not between them. The analysis does not compare the spending effects of candidates who differ significantly with regards to relevant covariates (because they do not exist in the same strata of data). Instead, the analysis will allow for the comparison of candidates who are similar on these contextual variables but have divergent levels of spending. The matching strategy manages the impact of typically unbalanced explanatory variables (i.e. spending) and covariates that function as good predictors of outcomes (such as candidate quality and seat marginality). Such imbalance has the potential to skew regression results due to the influence of high leverage observations. High leverage observations are points on an independent variable with values far from the mean of that variable. Such observations have the potential to drag the regression line when using standard statistical methods on an aggregate dataset. In other words, the results of standard statistical analysis can be skewed because the fitted regression model will change to account for extreme values in key independent variables. These extreme values are of the least substantive interest in spending efficacy analyses and skew the interpretability of spending coefficients for the substantively important subsets of the data. Through the matching process, we limit statistical inference to smaller windows of the data (the strata) and reduce the risks associated with an aggregate analysis (i.e. the influence of extreme values in candidate quality, seat marginality, or spending)[3]. In this sense, matching works like a weighting

[2] See Iacus, King and Porro (2018), King and Nielsen (2019), and Sekhon (2009) for a detailed understanding of the underlying theoretical assumptions and strategies of the methodology used in this thesis. See also Johnson (2013), Imbens (2015), Imbens and Wooldridge (2009), King, Lucas and Nielsen (2017), and Morgan and Winship (2014).

[3] It is possible to argue that CEM may be pre-disposed to statistically non-significant results on key parameters due to the process of limiting data and inference. CEM has been used to study diverse topics

procedure and manages the statistical influence of observations which are not reasonably comparable. The procedure will also drop those observations that lie outside of common support and cannot be matched. Sekhon (2009, pp. 496) acknowledges that

"It is often jarring for people to hear that observations are being dropped because of a lack of covariate overlap. Our intuition against dropping observations comes from what happens with experimental data, where homogeneity between treatment and control is guaranteed by randomization so a larger sample is obviously better than a smaller one. But with observational data, dropping observations that are outside of common support not only reduces bias but can also reduce the variance of our estimates."

Additionally, substantial variation in the spending variable in the unmatched data is reduced by the matching procedure. Reduction in spending variation is of significant benefit because as Johnson (2013) has argued; sizable variations in spending are almost certainly correlated with unobserved and omitted variables. Therefore, matching has the potential to reduce bias and improve estimates by analysing only matched observations that remain after observations with high leverage have been excluded. Analysis carried out on matched datasets functions differently to standard control variables because standard variables struggle to manage the influence of high leverage observations (which are dropped using matching) and the variation in the explanatory variable (which is reduced using matching).

The methodology of this thesis is underpinned by the theory of statistical inference advanced by Iacus, King and Porro (2018, pp. 2) and its main advantages over alternative approaches can be summarised as follows:

"The basic idea is that certain serious statistical problems in a data set can be sidestepped by limiting inferences to a carefully selected subset. In particular, by reducing the strength of the relationship between pre-treatment covariates and the treatment assignment variable, statistical methods applied to the matched subset have reduced model dependence, estimation error, and bias."

such as experimental criminology (Gaes, Bales and Scaggs 2016), public health (Khosravi et al. 2016), epidemiology (Stevens, King and Shibuya 2010), addictive behaviours (Allem at al. 2016), clinical neuroscience (Bekelis et al. 2018), and the role of oral antibiotics before colorectal surgery (Garfinkle at al. 2017). Exploration of results from the above-mentioned studies suggest there is no predisposition for null findings when using CEM.

Iacus, King and Porro (2018) argue that we cannot use the same assumption of data generation for matching as in other contexts (i.e. random sampling). The alternative to the random sampling assumption is "stratified" random sampling. Using the assumption of stratified random sampling, we are drawing data from defined strata of observations that are matched on a vector of relevant covariates. Increased clarity and transparency in what inferences we can draw from stratified data are the major strengths of assuming stratified random sampling. Analyses that use data drawn from fixed strata should only make inferences and estimate uncertainty within those parameters rather than making a larger claim about the data, i.e. we sidestep problems in the data by limiting inferences only to the carefully selected windows of data which we believe to be theoretically important. Iacus, King and Porro (2018) also highlight that it is necessary to use exact matching techniques when assuming non-stratified random sampling. Exact matching is a taxing and rigid methodology when applied to small datasets or datasets with a rich set of covariates. As a result, exact matching procedures are likely to return datasets with too few matches to be useful. Iacus, King and Porro (2018) point out that using propensity score matching is also problematic (due to the requirement to use exact matching on the propensity score)[4]. This thesis employs coarsened exact matching (CEM) and assumes stratified random sampling[5]. This matching approach provides the best opportunity to reduce data imbalance while also retaining a significantly sized and interpretable dataset. CEM facilitates the separation of unbalanced variables into coarsened bins for the matching procedure. This process allows for the reduction of data imbalance by creating strata of comparable observations while also avoiding the disposal of useful data by not overfitting the matching procedure (i.e. by accepting similar but non-exact matches). In this way, CEM sidesteps the problematic and inflexible nature of exact matching techniques. Use of coarsened exact matching is, of course, not equivalent to the generation of genuine experimental data with randomisation of treatment assignment. However, given the impossibility of running an externally valid election in experimental settings, the matching strategy functions as an ex-post substitute for never being able to

[4] For full discussion of assumptions and axiomatic proofs, see Iacus, King and Porro (2018). King and Nielsen (2019) have also shown that propensity score matching has often increased rather than decreased model dependence.

[5] Matching of this type is carried out using the CEM package in R.
Iacus, Stefano M., King, Gary, Porro and Giuseppe (2015). cem: coarsened exact matching. R package version 1.1.17. https://CRAN.R-project.org/package=cem

assign spending randomly. As such, the strategy should improve the ability to manage issues of bias in comparison to previous analyses and increase confidence in the results produced.

Additionally, the analysis uses the CEM package to create different coarsened versions of key variables (such as spending, candidate quality, and constituency competitiveness). This thesis presents analysis that incorporates extensive robustness testing of results based on these coarsened key variables and as such, offers the opportunity to interpret results in an epistemologically coherentist manner[6]. This thesis presents 559 statistical models with each hypothesis tested using numerous coarsened variable specifications. Accordingly, the range and consistency of results for each hypothesis acts as a measure of (un)certainty and guides how much confidence can be placed in the findings. Given the disputable nature of past results and methodologies, I argue that the approach of this thesis, informed by coherentism, is more transparent and nuanced in its findings.

(2) Data, contexts and case selection: Irish and British elections are the chosen focus of this research project. This case selection allows for reasonable cross-context analysis without conceptually stretching the comparability of political culture or campaign spending. Specifically, these cases are all Westminster style democracies with comparable campaign spending levels, and comparable regulation of both political advertising and campaign spending. However, these cases also offer key variation in electoral and party system which allows for the generalisability of findings to be tested. All of the raw data used in this research (comprising approximately 18,500 candidate observations) are provided by the UK Electoral Commission and the Irish Standard in Public Office Commission. These datasets were significantly expanded and customised with the information necessary to specifically manage the methodological issues common to spending analyses.

There are novel contexts and frames of analysis to explore within the datasets. Chapter four offers the first investigation of differential spending efficacy in elections to the

[6] See Moser (2002) for discussion on coherentism and rival epistemological models which underpin social scientific research.

devolved legislatures in Scotland and Wales. This chapter also provides the first analysis on spending effects in newly established legislatures (focusing on the third, fourth, and fifth electoral cycles for each institution). Additionally, chapter four utilises an interesting dynamic within these elections related to the presence of two distinct types of incumbents in many of the constituency contests. The analysis focuses on the differential spending efficacy of constituency incumbents, list incumbents, and non-incumbents. The results add novel insights into the role of list incumbents in electoral dynamics. As such, chapter four offers illumination of a new spending dynamic in a previously unstudied context and illustrates the need for case specific analysis to guide spending regulation. Chapter five also offers novel analysis in utilising campaign spending disaggregated by category and is the first to use such categorical data explicitly in terms of differential spending analysis. Exploration of how certain categories of spending (particularly those linked to name recognition) interact with incumbency allow for this differential spending analysis. The chapter is the first to directly test plausible mechanisms for a challenger spending advantage (such as name recognition) in Ireland and the UK. Chapter five is also the first to use disaggregated data and investigate spending diversification in UK elections. Additionally, chapter six is the first work to investigate differential spending effects based on gender in UK elections. Extension of this research to a context such as the UK is a valuable contribution in terms of the (non)generalisability of results.

(3) Findings: Results show that a challenger spending efficacy advantage in Irish and British elections is not statistically and substantively significant, challenging much of the previous work on Irish elections and all previous work on UK elections. Notably, findings are similar across the three electoral systems under investigation in this thesis. This consistency across electoral system offers significant confidence in the robustness of analysis. These findings offer fresh impetus to reconsider the generalisability of a challenger advantage outside the US case, employ methodologies appropriate to the management of issues specific to spending data, test plausible causal mechanisms for a challenger advantage rather than focusing solely on aggregate analysis, and to prioritise case specific regulation of campaign spending. Based on these findings, this thesis disputes policy advice advanced by Benoit and Marsh (2010), Jacobson (1978), and Palda (1994).

1.2 Relevance of Spending Efficacy

The stated aim of this research is to reassess the theoretical and methodological robustness of differential campaign spending effects in Irish and British elections. Campaign spending plays a significant role in determining electoral outcomes and is essential to the vast majority of successful electoral campaigns. While the literature is divided on the differential effects of spending conditioned on incumbency or gender, it is almost unanimous in demonstrating the value of campaign spending in general (e.g. Abramowitz 1988; Benoit and Marsh 2003, 2008, 2010; Cox and Thies 2000; Erikson and Palfrey 2000; Fink 2012; Fisher et al. 2014; Forrest, Johnston and Pattie 1999; Green and Krasno 1988, 1990; Jacobson 1978, 1985, 1990; Johnson 2013; Johnston and Pattie 2006, 2008; Maddens et al. 2006; Palda and Palda 1998; Samuels 2001a; Pattie, Johnston and Fieldhouse 1995; Shin et al. 2005; Sudulich, Wall and Farrell 2013). As such, campaign spending is an important determinant of which candidates succeed in their electoral bids and are authorised to represent the electorate in parliament. In this vein, campaign spending has links to policy formation, the nature of governance, the quality of representation, and the integrity and accountability of democratic systems. This thesis analyses spending efficacy to test theoretical and methodological assumptions that could influence the effectiveness of campaign spending regulation and the overall equity of democratic contests.

Previous literature has been dominated by an existential quandary over the nature of observational spending data and a propensity to generalise results based on methodologies that scholars themselves admit are problematic. There is a need to identify, target, and explicitly manage the problematic aspects of spending data to increase confidence in results produced, at least until such time as it is possible to generate experimental spending data. Confidence in results from this thesis is achieved by investigating the presence of endogenous spending decisions, identifying the driver of such spending, and explicitly focusing the methodology on reducing the impact of that variable. The analysis also identifies imbalanced variables and transparently manages the impact of high leverage points on these variables. This thesis also engages in extensive robustness testing of results to provide measures of (un)certainty and confidence in

results. Given the uncertain nature of past findings, these measures are useful in offering a realistic assessment of results produced.

Additionally, this thesis openly acknowledges the limitations on inferences that can be drawn while using a methodology that explicitly limits the full range of observations on certain variables. This thesis (through use of CEM underpinned by stratified random sampling) argues that explicit management of data issues and transparent acknowledgement of how this limits our inferences offers an easily reproducible path to help break the existing deadlock in the literature. This thesis also contends the type of inferences drawn from its analysis are more useful in highlighting the campaign dynamics that are most important, in comparison to aggregate analyses common in previous research. Inferences drawn from datasets that focus on candidate quality and seat marginality not only improve methodological confidence in results but also allow for the creation of specific campaign spending regulation based on targeted analysis (e.g. a finding that suggests threatened incumbents spend most effectively in a matched dataset juxtaposed to a finding showing no difference across an aggregate dataset).

This thesis also argues that there is a problematic propensity to accept and generalise certain findings in the literature. This research offers case specific theoretical arguments on why the electoral conditions of Ireland and the UK are unlikely to produce results from previous literature such as the challenger spending advantage and findings support these arguments. The results suggest a greater need to focus in on specific contexts in order to disentangle any differential spending effects that may be present. To sum up, this thesis offers six key suggestions for the study of differential spending efficacy. First, there is a need to explicitly identify the specific issues that exist in any given spending dataset. Second, researchers should adopt methodologies that are appropriate for the transparent management of specific identifiable issues in their data. Third, statistical inference from spending analyses should be limited to feasible windows of the data. Fourth, tailored findings should be offered by focusing on the bounded nature of feasible data windows. Such tailored findings may prove significantly more useful than findings derived from aggregate analysis that miss the nuance of campaign dynamics. Fifth, researchers should engage in extensive robustness testing of spending efficacy to provide a measure of confidence in their findings. Finally, case specific results should be pursued

to guide spending regulation in a variety of contexts. Such case specific guidance is preferable to the generalisation of findings given the diversity of political systems (even those that appear similar on the surface).

This research is imperative in increasing the confidence with which policymakers might view results from the spending efficacy literature. Without consistent case specific results using reliable methods, it is virtually impossible for the spending literature to guide spending regulation. Thus far, spending regulation in the UK and Ireland has tended to come about in an ad-hoc manner. UK regulations date back to the 1880s and, among other things, were intended to prevent an unfair advantage for wealthy candidates and to keep the cost of politics down (Johnston et al. 2011; Ewing, Rowbottom and Tham 2011). In Ireland, current regulations originate in the 1992 Labour Party election manifesto and the post-election programme for government negotiated between Fianna Fáil and Labour (Labour Manifesto, Trust into Politics, 1992; Fianna Fáil and Labour Programme for a Partnership Government, 1993). There is little evidence that regulation in either country was influenced by the campaign spending literature. However, guidance of spending regulation should be the key aim of such research as it is crucial in ensuring that electoral contests do not favour any type of candidate. Any tilt in the electoral process caused by inappropriate spending regulation may serve to entrench incumbents or other types of candidates. This research seeks to illuminate the above issues and in so doing, assess whether spending regulation may be distorting normative conceptions of representation discussed earlier. This thesis disputes earlier policy advice that recommends relaxing spending limits based on a challenger spending advantage (Benoit and Marsh 2010; Jacobson 1978; Palda 1994) and instead encourages interested policymakers to consider the plausibility of such an advantage. This thesis offers a small stepping stone to resolving some of the issues in previous research and offering appropriate guidance on spending regulation.

Chapter 2

Equivalent Spending Efficacy in Multimember Districts: Irish General Elections 2002–2016

Abstract

Do incumbents lose ground to challengers even when their spending is evenly matched? Much of the literature on spending effects point to this conclusion by suggesting the greater efficacy of challenger spending, throwing the value of incumbent spending into doubt. This chapter re-evaluates such findings using a novel matching methodology and a bespoke dataset consisting of four Irish general elections between 2002 and 2016. Possible bias in the relationship between spending and votes won is a recurring issue that undercuts confidence in causal inferences drawn from observational spending data. In Irish multimember districts, such bias may occur when high quality candidates spend more simply because they can raise it (attractive spending). This chapter finds the marginal efficacy of incumbent and challenger spending are equivalent when the impact of bias is appropriately managed. Findings of equivalent efficacy are concordant with expectations in the Irish case given the influence of multimember districts and intra-party rivalry on spending patterns and electoral competition. This chapter constitutes an intriguing contribution to the literature and raises doubts over the plausibility of the challenger spending advantage in Irish elections.

2.1 Introduction

Do challengers get more out of their spending than incumbents? This chapter offers fresh investigation into this well-researched question and focuses on general elections to the lower and dominant house of the Irish Parliament (Dáil Éireann) in 2002, 2007, 2011, and 2016. This chapter provides theoretical and empirical arguments contesting the expectation of previous research that differential spending effects found in the US context should be applicable in Irish elections (such as Benoit and Marsh 2010). In re-assessing the efficacy of campaign spending, this chapter contributes to a discussion on whether current regulation of campaign finance is well-calibrated. Reliable results on the effects of campaign spending could prove useful to the creation of effective campaign finance regulation and in turn, foster healthy electoral competition. As such, this chapter looks at three main questions to disentangle these effects in the Irish case. First, the chapter investigates the possible explanations for what drives candidates to spend money in the first instance. The second question addresses the efficacy with which candidates turn money spent into votes won. The final question looks at whether spending efficacy differs systematically between incumbents and challengers. This chapter provides an improved methodological approach to these questions by using matching techniques to manage issues common to this field of research. Results based on this matching procedure challenge findings from many previous analyses. These results invite re-consideration of conventional wisdom on how best to ensure electoral competitiveness for challengers and avoid reinforcement of incumbency advantage in multimember districts (Benoit and Marsh 2010). Redmond and Regan (2015) have previously demonstrated the existence of such an incumbency advantage in Irish general elections (using the STV electoral system in multimember districts). However, Ariga (2015) has shown no such advantage in multimember districts in Japanese elections that use SNTV, a related but distinct electoral system[7].

[7] This chapter is underpinned by the empirical evidence of an incumbency advantage in Redmond and Regan (2015). It is possible that differences between STV and SNTV produce divergent results related to incumbency advantage (Ariga 2015). Most notably, the absence of vote transfers between intra-party candidates under SNTV creates more intense intra-party competition and Ariga (2015) notes this may lead to differing results for incumbency advantage under the two systems. For discussion on the differing impacts of allocation error on incumbency advantage under STV and SNTV, see Johnson and Hoyo (2012).

The need for a fresh approach to campaign spending efficacy can be traced back to the work of Gary Jacobson (1978, 1985, 1990) and the phenomenon named after him, the 'Jacobson Effect'. The 'Jacobson Effect' refers to findings that challengers have a spending efficacy advantage over incumbents and lies at the core of much disagreement in the spending literature. Many previous analyses suggest incumbent spending may be significantly less effective than spending by challengers. It has been argued that endogenous spending introduces bias into the analysis and may explain the challenger spending advantage. Many cases, such as the USA (Jacobson 1978, 1985, 1990), suggest that vulnerability of the incumbent or seat marginality may be the major predictor of endogenous spending. However, in the case of Ireland, the most consequential source of such bias may be that strong candidates spend significant amounts of money, not because they are vulnerable, but because they can raise it. Attractive spending produces the concern that veteran incumbents might spend large amounts of money because they attract donations and not because they believe substantial spending is necessary to defend their seat. To clarify what is meant by endogenous spending in this sense, candidate spending may be endogenous (distortive) to investigation of candidate spending efficacy because candidate quality may be predictive of both spending and electoral outcome. Such recursive relationships are likely to influence results from statistical analysis and may produce the unusual observation that incumbent spending is less effective. The novel matching analysis in this chapter seeks to manage various issues common to spending data. Accordingly, the analysis allows the re-assessment of the challenger spending advantage in the Irish case and could prove useful in ensuring the role of money in the competitiveness of Irish elections is not being misunderstood.

This chapter focuses on four parliamentary elections in the Republic of Ireland between 2002 and 2016. Elections in Ireland operate under the Single Transferable Vote electoral system which falls broadly into the category of proportional representation. STV in Ireland produces more proportional results than majoritarian alternatives while it produces more or less proportional outcomes depending on the alternate form of PR to which you compare it (Coakley and Gallagher 2018). The system uses multimember districts which elect three, four, or five TDs (Members of Parliament) depending on

population size[8]. Additionally, no Irish constituency has had more than five members since the introduction of the Electoral (Amendment) Act 1947. As such, district magnitude in the data used in this chapter is bounded between three and five TDs per constituency.

The ballot structure of STV allows the voter to cast preference votes from one to the number of candidates contesting the constituency, though they may opt to give a number of preferences less than the maximum. Voters may also vote across party lines with their preferences in contrast to list PR systems used elsewhere. This ballot structure means the voter can choose a party and candidate for each of their preferences and allows for simultaneous inter and intra-party competition. The candidates themselves are placed at the heart of the process because the voter is not restricted to a single party list. The threshold for election (quota) is defined as the valid votes divided by district magnitude plus one, ignoring any fraction, and adding one. Accordingly, the quota decreases as district magnitude increases. Candidates who exceed the quota on the first count have their surplus votes (the number by which they exceeded the quota) redistributed to the remaining candidates on the basis of the lower preferences indicated to see if those surplus votes may be sufficient to elect other candidates. In a situation where no candidate exceeds the quota on the first count or the surplus of an elected candidate is insufficient to elect another, the lowest placed candidate is eliminated to redistribute their votes in accordance with the lower preferences indicated. This distribution process continues in an iterated fashion until a sufficient number of candidates have exceeded the quota or there are no more votes to redistribute in which case the candidate with the highest number of votes is deemed elected without reaching the quota. In general, few candidates exceed the quota on the first count (e.g. only 13.3% of elected candidates in 2016). Accordingly, lower order preferences are vital in determining the eventual destination of most parliamentary seats[9].

Spending in Ireland is tightly regulated and quite small by comparative European standards (e.g. Finland, Johnson 2013), or miniscule by comparative international

[8] District magnitude is defined by article 16.2.2 of the Irish constitution (requiring the number of electors served by each TD to be between twenty and thirty thousand) and article 16.2.6 of the Irish constitution (mandating that no constituency may have less than three members).
[9] For more detailed information on PR-STV see Gallagher and Mitchell (2005) and Farrell (2011).

standards (e.g. USA, Jacobson 2006). For the 2002 election, candidate spending limits were set at €25,394.76 for three seat constituencies, €31,743.45 for four seat constituencies, and €38,092.14 for five seat constituencies. From the 2007 election onwards, spending limits have been set at €30,150 for three seat constituencies, €37,650 for four seat constituencies, and €45,200 for five seat constituencies. These spending limits and the requirement for the disclosure of spending by candidates apply only to the election period. Spending that takes place before the election is called is not included and as such, the data are far from ideal. Spending before the official campaign period begins is of particular concern in Ireland as the government of the day has complete control of the electoral cycle (provided they are not a minority administration). As such, the government could attempt to manipulate the election by engaging in significant spending in the immediate period before they call the election. However, it is a reasonable assumption that all political parties and independent parliamentarians make use of the unregulated inter-election period to boost their chances of re-election and as such it is unlikely that a brief surge of government spending just before the election is called would make a huge difference to the outcome. In any case, the levels of spending in the regulated period is likely a good proxy for what has been spent in the inter-election period and this limitation of the data (shared by almost all analyses on spending effects) should not present a serious issue.

2.2 Theory and Hypotheses

Several features of the Irish system are of interest for this investigation into campaign spending efficacy. As was briefly discussed earlier, Ireland provides appropriate conditions for attractive spending (i.e. high-quality candidates spending money because they can raise it). Multimember districts and intra-party competition are at the core of attractive spending in the Irish case. In comparison to single member districts limited to inter-party competition (such as cases in chapters three and four), multimember districts with intra-party competition impair the ability of candidates to cleanly assess their chances of election or the competitiveness of a constituency. Uncertainty and complexity in electoral contests rise as district magnitude increases, and as a result, constituencies

become more uniformly competitive (Cox and Thies 2000). The role of intra-party competition further complicates this story with many incumbent TDs having more to fear from co-partisan challengers than inter-party challengers (Coakley and Gallagher 2018). District magnitude and the nature of party competition create an uncertainty that incentivises high quality candidates to raise and spend money against both inter and intraparty rivals in Irish elections. Adequate fundraising for such high-profile candidates is not a difficult task given the strict spending limits in Irish elections and that they have little incentive not to spend this money during campaigns. More generally, fundraising ability has often been linked to candidate quality (e.g. Alexander 2005; Green and Krasno 1988) and this analysis expects this feature to extend to Irish elections. Accordingly, this chapter expects that candidate quality will be a significant predictor of spending.

H1 Candidate quality will be a significant predictor of candidate spending.

In contrast to Benoit and Marsh (2010), this thesis expects the role of multimember districts and intra-party competition to limit the feasibility of a challenger spending advantage in the Irish case. Multimember districts and intra-party competition muddy the waters somewhat when conceptualising incumbents and challengers. In comparison to US elections (Jacobson 1978, 1985, 1990) where there is a clear and almost perfect duopoly (an incumbent faced by a challenger from the other major party) in each single member constituency, the Irish case provides us with multimember districts in which the number of candidates ranges from six to twenty-four, and in which simultaneous inter and intra-party competition takes place. Irish multimember districts also allow for the entry of many challengers that are already well-known and as such, are more limited in terms of the space available to increase name recognition (Johnson 2013). The Irish system may ultimately create too much uncertainty for a clear challenger spending advantage to exist. Again, if we consider the US case, there is a clear conceptualisation of how a challenger advantage might emerge. Challengers in the US campaign against a clear incumbent and have more space to improve name recognition in contrast to the Irish case where each challenger's voice is one among many. As such, this chapter expects that incumbent and challenger spending efficacy will be equivalent in the Irish case when appropriate methods are employed to manage issues in the data.

H2 Incumbent spending efficacy does not differ from challenger spending efficacy.

2.3 Previous Literature on Campaign Spending in Multimember Districts

This area of research has produced an abundance of competing results on campaign spending efficacy. The primary disagreement relates to whether challengers enjoy a spending advantage over incumbents. Addressing the plausibility of the challenger spending advantage is important in ensuring campaign finance regulation does not, by design, offer an advantage to incumbent candidates. The results from previous work are usually provided alongside policy advice on how to regulate spending. However, the diversity of these results throws up serious concern over the reliability of policy advice. A brief overview of results from the literature can be found in Table 2.1. Reliable regulatory advice can only be provided by garnering robust results from the available data and this has been problematic thus far. Benoit and Marsh (2010) have argued that mechanisms used to explain a challenger advantage in the US case (i.e. greater space for challengers to grow name recognition) should apply to Irish elections. In contrast, this chapter offers theoretical arguments against generalisation of expectations and findings from the US case. Single member district elections with particular focus on the USA are the predominant context of the literature on campaign spending effects. This chapter follows the lead of papers in Table 2.1 in trying to extend such analysis outside the USA and outside single member district elections. Additional studies of interest include analyses on Mixed Member Proportional Representation systems such as Germany (Fink 2012), two round First Past The Post systems such as France (Palda and Palda 1998) and mixed parallel systems such as South Korea (Shin et al. 2005). In general, results showing the equal efficacy of incumbent and challenger spending are more prevalent when studying multimember districts in contrast to the larger literature on single member district systems. The propensity to find equivalent spending effects in electoral systems with very high district magnitude such as Brazil (Samuels 2001a) but not in systems with lower district magnitude like Ireland (with the exception of Johnson 2013) is the most notable feature of the literature on multimember districts. As such, the analysis of this chapter adds further evidence to suggest equivalent spending effects are not limited to multimember systems with high district magnitude systems but also apply to those with lower district magnitude. The literature on single member districts is dominated by

Table 2.1 - Previous literature on multimember district elections

Author	Methodology	Context	Main Results
Benoit and Marsh (2003, 2010)	OLS and 2SLS	Irish Local Elections 1999 and Irish General Election 2002 (STV)	Challenger spending is more effective than incumbent spending.
Benoit and Marsh (2008)	OLS and 2SLS	Irish General Election 2002 (STV)	Challenger spending is more effective than incumbent spending, but analysis of incumbent perquisite spending brings the two into line with one another[10].
Maddens et al. (2006)	Six OLS models with varying specifications and stepwise variable introduction	Flanders/Belgium Legislative Elections 2003 (OLPR)	Incumbent and challenger spending are equally effective.
Samuels (2001a)	OLS corrected for heteroscedasticity	Brazilian Legislative Election 1994 (OLPR)	Incumbent and challenger spending are equally effective.
Johnson (2013)	Case matching	Brazilian Legislative Elections 2002 and 2006, Finnish General Elections 2003 and 2007, Irish General Elections 2002 and 2007 (OLPR and STV)	Incumbent and challenger spending are equally effective.

seminal papers on the USA, for example Abramowitz (1988) and Jacobson (1978, 1985, 1990) that find a challenger spending advantage. These papers are challenged by results from Erikson and Palfrey (2000), Gerber (1998), and Green and Krasno (1988) which show roughly equivalent spending efficacy between incumbents and challengers. Erikson and Palfrey (1998) also provide results suggesting the inverse of the 'Jacobson Effect' in

[10] Perquisites typically relate to the use of public resources to create and/or distribute materials that can be used for campaign purposes (similar to the franking privilege in the US case). Incumbents may also benefit from perquisites through use of staff and office resources paid for by public funds.

showing a significant incumbent spending efficacy advantage. The literature in both single and multimember districts shows the variety of competing results offered by previous work. This chapter will use the previously untested methodology of matching candidate spending observations on a covariate that approximates candidate quality to manage the impact of attractive spending. This chapter constitutes a significant addition to the literature by using an innovative methodology to increase confidence in results.

2.4 Data and Variables

This chapter uses data published by the Standards in Public Office commission on candidate spending in four Irish general elections between 2002 and 2016, providing 2,050 candidate observations across all elections. The number of candidate observations is reduced by 45 to 2,005 after removing candidates who fail to declare spending. Additionally, and following the convention in the US literature (e.g. Green and Krasno 1988), candidates that declare spending of zero are assigned an arbitrary baseline figure. This arbitrary figure is the lowest declared spending figure in the same election as they contested. Full descriptive statistics are provided in Table 2.2. For H1, percentage of spending limit is used as the dependent variable and candidate quality is the primary independent variable. Distributions for both of these variables can be found in appendix A.7. For H2, percentage of constituency quota won by a candidate is the dependent variable. Percentage of the constituency quota is preferable to percentage of vote total in the constituency because of the variation in district magnitude. Since the district magnitude in Irish elections ranges from three to five, winning 10% of the vote in a five-seat constituency is not comparable to 10% in a three-seat constituency. Thus, percentage of the quota, which is linked to district magnitude, standardises the dependent variable and provides comparability across constituencies. This operationalisation of the dependent variable has been used by Sudulich and Wall (2011) for similar reasons.

Regular candidate spending as a percentage of the total constituency spend is the main independent variable used for H2 (the distribution of spending is provided in appendix A.7). Percentage of constituency spend measures relative spending of candidates

Table 2.2 – Descriptive statistics (Irish elections)

	2002	2007	2011	2016	Pooled
Total Candidates	463	470	566	551	2005
Incumbents	143	146	126	145	560
Challengers	320	324	440	406	1490
Mean Quota Won	44.70%	44.25%	36.74%	35.74%	40%
Mean Quota Won by Incumbents	78.31%	78.88%	70.59%	66.94%	73.78%
Mean Quota Won by Challengers	29.68%	28.64%	27.05%	24.60%	27.30%
Mean Spend as % of Constituency	9.07%	9.19%	7.86%	7.57%	8.20%
Mean Spend as % of Constituency (Incs)	14.16%	12.60%	12.60%	11.10%	12.63%
Mean Spend as % of Constituency (Challs)	6.79%	7.60%	6.10%	5.90%	6.53%
Mean Spend	€14,244	€16,719	€11,517	€11,255	€13,255
Mean Spend by Incumbents	€21,784	€22,388	€18,682	€17,019	€20,010
Mean Spend by Challengers	€10,875	€14,164	€9,465	€9,196	€10,717
Candidates Declaring Spend of Nil	22	15	28	19	84

competing against each other and as such, is able to measure the value of additional marginal spending on the percentage of votes garnered. Casting the spending variable in terms of constituency percentage also works to reduce variation in the variable, and in tandem with the matching procedure should mitigate the effect of large variations in spending in the raw data. Incumbency, an open seat dummy, gender, political party, district magnitude, constituency and the number of candidates contesting the constituency are included in the regressions as control variables. An interaction effect between the spending and incumbency variables is used to capture the effect of incumbent spending for H2. The public (i.e. non-regular) spending variable measures how much of incumbent spending is met from public funds (i.e. office perquisites). After the 2002 High Court ruling in Kelly Vs The Minister for the Environment and the Attorney General, all candidates are required to declare how much of their campaign spending was paid for by public funds and this counts towards their spending limit (Benoit and Marsh 2008). This High Court ruling allows us to measure and control for incumbency advantage as variable. Additionally, data for Irish elections allow for the inclusion of party spending

at the constituency level. This measures the percentage of constituency spending covered by a given candidate's political party. In the elections under investigation, constituency spending by candidates and parties combined accounts for between 70.27% and 73.73% of overall spending. The remaining 26.27% to 29.73% comprises party spending on the national campaign. As such, the large majority of overall campaign spending is utilised in this analysis. More detail on campaign spending at the constituency and national level can be found in appendix A.8.

The matching procedure requires the construction of a multichotomous treatment variable. Candidate observations are divided into three, four, and five equal treatment tiers based on their spending as a percentage of the constituency total. The use of a multi-levelled treatment means that the data must be pooled for the matching procedure. The individual datasets with 463, 470, 566, and 551 candidate observations cannot provide CEM with enough data to provide a useful matched dataset. In other words, the greater the number of treatment levels and the lower the number of observations, the more unlikely it becomes the matching procedure will produce strata that have all the treatment levels observed. Pooling the data supplies a partial solution to this problem but also creates an unobserved year effect. However, this effect can be controlled by including year in regressions. The last key variable for the matching analysis is a custom candidate quality covariate applied to all 2,050 candidates that contested elections from 2002 to 2016. The variable is a composite score which weights the political experience, electoral experience, and name recognition of candidates. This variable has a range from 0 to 51 and is based on similar work by Gerber (1998), Green and Krasno (1988), and Moon (2006). The variable's range is bounded by little known candidates with no political experience or fame at the low end of the scale, and the incumbent Taoiseach (Prime Minister) for the 2016 election with high political office and 41 years as a TD producing a score of 51. A full explanation of the candidate quality variable is detailed below.

(1) The first category of the covariate is based on whether a given candidate has previously held political office and is weighted by the level of the office. The base category assumes the candidate held office in a town/borough council and the score increases if the candidate held office at higher levels from county/city council to Dáil Éireann. There is a different starting point for candidates who have been co-opted onto

town/borough or county/city councils and have never been elected. When a candidate has previously held office at more than one level, they receive only the score for the highest level and not a cumulative score for combined levels. The scale works as follows:

Table 2.3 – Candidate quality score for challengers that have previously held office

Candidate Characteristic	Score
Held office before (Base assumption)	+ 3
Co-opted into office (Base assumption)	+ 1
Currently in office	+ 1
Office held in county/city council	+ 2
Office held in Seanad Éireann	+ 3
Office held in European Parliament	+ 4
Office held in Dáil Éireann	+ 5
Held a ministerial role or the candidate is currently the leader or deputy leader of their party, but only if this party has representation at the national level at time of election	+ 3

(2) The second category of the covariate deals with candidates that have not held previous political office. This score is weighted based on a candidate's prominence and previous electoral experience. The candidates receive different scores based on the level of office for which they have run. Candidates receive only the score for their highest level of electoral run, not a cumulative score if they have run at more than one level. Seanad Éireann is excluded from this scale as it is elected using a very narrow suffrage. Candidates that possess a celebrity status outside of politics are assigned a score of six[11]. This gives such candidates the same base score as a local councillor. This approach assumes that someone with such fame would have name recognition to (at least) match a local councillor. Additionally, candidates must have demonstrated some level of quality in previous elections, i.e. garnering at least 2% of the vote in a national election or 3.5% in a local election. This is not a high bar and protects against perennial candidates receiving relatively high scores. The scale works as follows:

[11] This score is assigned to candidates that benefit from higher name recognition than the average challenger. Candidates with a past or current career in high profile sports such as Gaelic football and rugby are the most numerous (e.g. Mayo candidate John O'Mahony). Well-known journalists, TV personalities, businesspeople, and heads of national organisations are also included (e.g. IFA President John Dillon, Dublin South candidate Peter Mathews, and Sligo-North Leitrim candidate Susan O'Keefe). Given the unavoidably subjective nature of candidate quality measures, the analysis in this chapter offers extensive robustness testing on the candidate quality variable to ensure it is not driving results.

Table 2.4 – Candidate quality score for challengers that have not previously held office

Candidate Characteristic	Score
Ran at local level	+ 1
Ran at European/National level	+ 2
Member of political dynasty	+ 1
Celebrity status	+ 6
Professional status	+ 1
Record of political/community activism or previous role as political aide	+ 2

(3) The following scale applies to incumbents and is broadly similar to the scale applied to challengers that have previously held political office. The key difference is the addition of a measure of cumulative years in office allowing for a continuous measure of incumbent quality.

Table 2.5 – Candidate quality score for incumbents

Candidate Characteristic	Score
Holds office in Dáil Éireann	+ 5
Years in office	+ Cumulative years in office
Held/holds a ministerial role or the candidate is currently the leader or deputy leader of their party	+ 3

2.5 Results

Table 2.6 presents results of the analysis to investigate H1 – the expectation that candidate quality is a significant predictor of spending – and shows that candidate quality has a moderate but significant effect on the percentage of the limit spent. The coefficient for candidate quality suggests candidates increase spending by 0.622% of the limit as they move up one point in the quality scale. Coefficients in Table 2.6 may seem insignificant but would mean an increase in spending of 6% of the limit if we move from a candidate quality score of six (a typical local councillor) to a score of sixteen (an incumbent TD with eleven years in office or roughly two electoral cycles). Increasing spending by 6% of the limit would see a significant increase of approximately €1,580 to €2,811 depending on the election year and district magnitude. Figure 2.1 also clearly shows the significant effect on spending across the full scale of the candidate quality variable. Descriptive data

Table 2.6 – Spending decisions OLS (Irish elections)

	Pooled Data (All Elections)
	Spend as % of the limit (DV)
Candidate Quality	0.622***
	(0.108)
Incumbency	3.167
	(1.728)
District Magnitude	-2.911***
	(0.977)
Open Seat	1.653
	(1.054)
Constant	21.563***
	(2.916)
R^2	0.514
N	2005

Robust standard errors are clustered by constituency and provided in parentheses. Year, Party, Number of Candidates, and Gender are included but omitted from table. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

and discussion related to attractive spending to supplement these results can be found in appendix A.6. Overall, these results offer strong support for H1 and suggest that candidate quality is a significant driver of candidate spending. There is also a strong significant effect of district magnitude on spending. This effect seems reasonable as the district magnitude defines the limit of a given constituency and so the two variables are intertwined.

To investigate H2 – the expectation that incumbent spending efficacy does not differ from challenger spending efficacy – and following results for H1, the CEM analysis will match observations on candidate quality. The matching formula will also match candidates on political party. Matching on party and candidate quality controls for many of the key

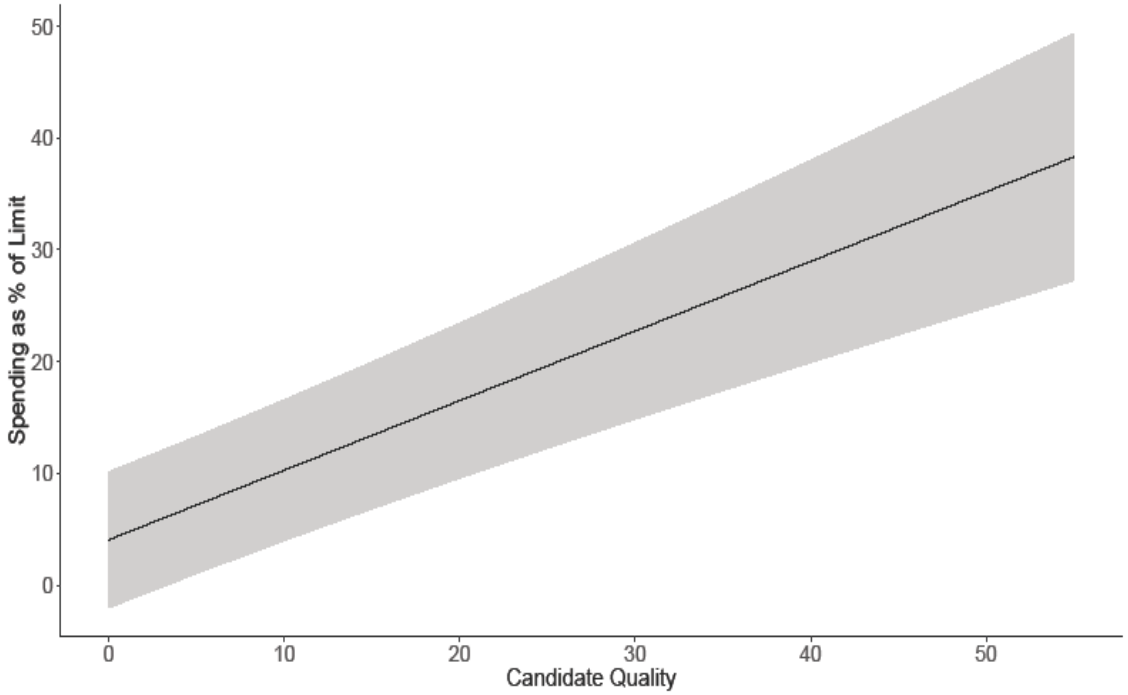

Figure 2.1 – Marginal effect of candidate quality on spending (Irish elections)

predictors of electoral performance such as spatial positioning on key issues, partisanship, and ability to attract money. As such, the matching procedure allows for more reliable results and a cleaner inference. The limited number of variables used in the matching formulas is due to using multichotomous treatments with only 2,005 observations. Matching on too many variables can leave a matched dataset with too few matches to be useful. In this sense, matching is a balancing act between including variables that are theoretically appropriate and leaving enough matched data for interpretation. The strategy of this chapter follows King, Lucas and Nielsen (2017) in that it is most prudent to manage the imbalance amongst covariates known or theoretically expected to be important. The matching analysis involves twelve matched datasets and regression estimates. To test robustness, three different treatment levels (split into three, four, or five levels), four different candidate quality variables (the original variable and three coarsened versions using different cutpoints in the CEM package) and two different party variables (the original variable and one coarsened version) are used. Appendices A.1–A.2 provide a detailed explanation of the coarsened versions of the candidate quality and party variables. Four distinct matching formulas (using different combinations of the

variables listed above) multiplied by three for each of the treatment levels make up the twelve different matched datasets and regression estimates. Table 2.7 shows regression coefficients from four different models using a treatment divided into three tiers. Treatment level one, in this case, are the 669 candidates whose spending falls into the bottom third of the constituency percentage spending variable, level two are the 668 candidates whose spending falls into the middle third of the spending variable, and level three are the 668 candidates whose spending is in the upper third of the spending variable. Table 2.7 shows results from four different models which differ only in the version of the candidate quality variable used. The first three models use different coarsenings of the quality variable whereas the fourth model uses an uncoarsened specification of quality and political party. The first three models have between 172 and 300 more matched observations than the fourth model. This difference in matched observations is because the strata produced by CEM require all treatment levels observed within them and this is more difficult when using less coarsened versions of covariates. Table 2.7 shows only a subset of the results from the twelve models, but they are adequate to illustrate the findings here. Coefficients on spending effects are significant and positive across all models and show the percentage of the quota won increases by between 2.16% and 2.55% for each additional percentage of the constituency total a candidate spends. Further, all models show that incumbent and challenger spending are of equivalent efficacy and this can be seen in the statistically insignificant coefficients on the interaction terms. In stark contrast, OLS regression results show a significant challenger spending advantage (see appendix A.3) and illustrates the impact of data imbalance on OLS results. The significant difference between OLS and CEM results offers support for the need to use weighting strategies to manage the data appropriately. Figure 2.2 clearly shows the contrast in coefficients between OLS (model 1) and matched regressions (models 2–5). Additionally, CEM results show challenger spending is not more effective than incumbent spending despite the dampening effect which vote management techniques (splitting of constituencies into bailiwicks) should have on incumbent spending in Irish elections (Johnson 2013). Such vote management should bias against incumbent spending efficacy. The results in Table 2.7 are robust across all CEM models and a graphical representation of regression results across all twelve models can be found in appendix A.4 along with a brief discussion. Finally, the twelve CEM models were also

Table 2.7 – CEM spending efficacy regression results (Irish elections)

All models use spending divided into 3 levels as treatment	CQS Model A	CQS Model B	CQS Model C	Uncoarsened Model
	(1)	(2)	(3)	(4)
Regular Spend	2.553***	2.390***	2.175***	2.163***
	(0.086)	(0.082)	(0.083)	(0.080)
Spend from Public Funds	1.095	0.579	0.491	1.121
	(0.975)	(1.109)	(1.112)	(1.753)
Party Spend on Candidate	2.258***	2.959***	2.269***	1.368*
	(0.671)	(0.490)	(0.502)	(0.638)
Incumbency	13.758**	14.704**	13.878**	12.936*
	(5.032)	(4.923)	(4.957)	(5.254)
Regular Spend X Incumbency	0.062	0.038	0.197	0.489
	(0.387)	(0.374)	(0.377)	(0.419)
Constant	-10.187*	-9.018*	-4.024	1.039
	(4.439)	(4.286)	(4.302)	(4.359)
N	1697	1814	1835	1525

The dependent variable is percentage of quota won. Standard errors in parentheses. Party, District Magnitude, Gender, Open Seat, Candidate Quality, Year, Constituency and Number of Candidates are included as controls but omitted from table. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

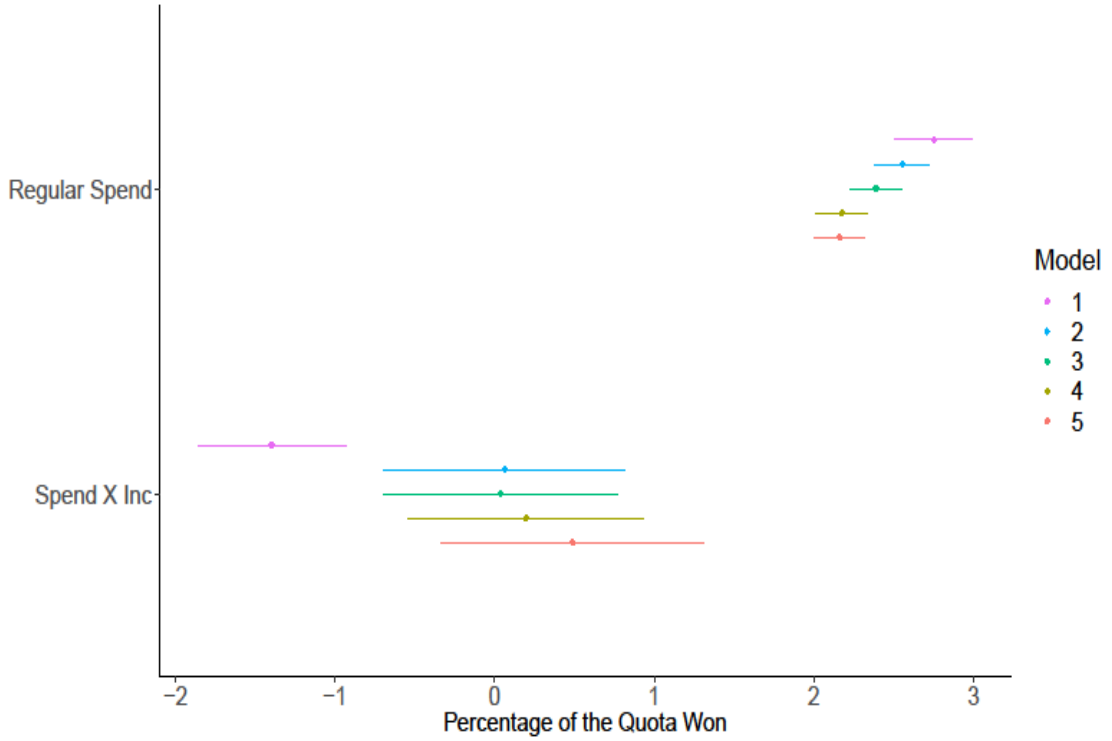

Figure 2.2 – Irish spending efficacy coefficients from OLS (model 1) and CEM (models 2-5)

run including district magnitude in the matching procedure. District magnitude may be important as it seems to be related to spending levels (as can be seen in Table 2.6). These twelve models also support the results in Table 2.7 (see appendix A.5).

2.6 Discussion

The analysis in this chapter finds that incumbent spending matters more than much previous research would suggest. The findings broadly correspond with some studies on multimember district systems such as Johnson (2013), Maddens et al. (2006), and Samuels (2001a) while also challenging the findings of other research related to low magnitude multimember districts such as Benoit and Marsh (2003, 2008, 2010) as well as much of the literature on single member districts. The analysis also offers strong evidence that candidate quality is a significant driver of spending decisions in Ireland and that attractive spending bias is a significant issue to be addressed in Irish spending

analyses. It seems reasonable to argue the impact of attractive spending bias may not matter once a certain district magnitude is reached. This chapter suggests that it exists in a significant but moderate form in the Irish case. Once district magnitude exceeds Irish levels, attractive spending may become less likely due to an increased number of candidates that are viable beneficiaries of donations. An increase in viable donation recipients would arise due to a greater number of incumbents as well as a greater number of challengers who can realistically win a seat because the election threshold is low. As a result, challengers who would have little or no chance of election in other systems become legitimate options for significant political donations and fundraising. As such, money raising efforts in large districts should be much more balanced across candidates than in single member districts or in districts with magnitudes in the low to middle single figures. Following this logic, the results of Samuels (2001a) and Maddens et al. (2006) in their analyses on Brazil and Flanders may be explicable through the role of the very large district magnitudes in these systems working to equalise spending patterns between incumbents and challengers. Samuels (2001b) makes a similar point in his paper when arguing that as district magnitude increases, the incentive to spend declines. The findings of this chapter suggest any moderate attractive spending bias related to the lower district magnitudes in the Irish case has been mitigated by weighting the data, bringing results largely into line with those from other multimember systems. Results affirming the importance of incumbent spending are intuitively credible. This chapter illustrates that incumbent spending does matter and matters more when incumbents are attempting to outperform a candidate of similar profile or quality. Incumbents gain more votes regardless of spending, but their deployment of spending is also most effective in defeating other high-profile candidates. This is also a reasonable conclusion as the aim of an electoral run in the STV system is not to acquire more votes than the clutch of no hope candidates that inevitably run in each constituency but instead to defeat other high-quality candidate on the way to winning and defending a seat.

Incumbency advantage and how spending interacts with that advantage are important to our understanding of electoral competitiveness. Shedding as much light on this interaction as possible is imperative to ensure our electoral contests and spending regulations do not assist incumbents by design. Previous findings showing a challenger spending advantage may be obscuring our understanding both of why incumbents are so

difficult to unseat and of how we should regulate spending. This analysis encourages policymakers to consider not only what benefit incumbents and challengers derive from campaign spending but also to what degree and in what situations they derive these benefits. The appropriate regulation of campaign spending based on past literature recommends the loosening or removal of spending limits to allow challengers to utilise their "spending advantage" (Benoit and Marsh 2010; Jacobson 1978; Palda 1994). This chapter along with other research such as Benoit and Marsh (2008) and Johnson (2013) suggests that such regulations could have the opposite of their intended effect. The lack of a challenger spending advantage may mean incumbents can spend money to defeat other high-quality candidates when they so choose or need. The results of this chapter support policy advice affirming that removing or loosening spending regulations may not defend but undermine the competitiveness of electoral races in the Irish case. What is apparent is that the actual spending limits may not be the only important aspect of regulation. Specific recommendations related to the policing of incumbency perquisites and the expansion of public funding to assist challengers may also be useful in the Irish case. The value of perquisites as a variable incumbency advantage in the Irish case has been noted as significant since the pioneering findings of Benoit and Marsh (2008).

Overall, it can be argued that the findings of this chapter are context specific given the huge differences between Ireland and the USA in terms of electoral system, spending levels, and campaign regulation. The next chapter will extend the analysis to the UK House of Commons to further test the plausibility of the challenger spending advantage. These elections are, prima facie, more comparable to the US case given their shared electoral system. As such, the following analysis will provide greater insight into the generalisability of the challenger advantage.

Chapter 3

Threatened Incumbents Spend Most Effectively: UK General Elections 2005–2017

Abstract

Consistent findings in the literature on UK campaign spending effects show a challenger spending efficacy advantage, raising questions over the marginal value of incumbent spending. However, incumbent re-election rates in the UK stand at 87.3% over the last four electoral cycles suggesting incumbents are capable of effectively deploying campaign resources in defence of their seats. This chapter re-assesses the plausibility of the challenger spending advantage using an innovative matching strategy and novel dataset comprising four UK General Elections between 2005 and 2017. The main limitation of the spending literature to date concerns a distortion in the observed relationship between spending and electoral outcomes. In UK single member districts, a tendency for higher levels of spending to occur in marginal electoral contests (reactive spending) may cause distortions in the relationship between spending and votes won. Accordingly, our ability to causally interpret results from observational data is undermined. The methodology employed in this analysis seeks to manage possible bias and produces results suggesting challengers do not benefit from a spending advantage. Such findings are congruent with theoretical expectations given the nature of multiparty competition in UK single member districts. This chapter is the first in the literature to challenge the credibility of the challenger spending advantage in UK elections.

3.1 Introduction

This chapter provides an innovative investigation into the effects of campaign spending in the UK using a bespoke dataset comprising House of Commons elections in 2005, 2010, 2015, and 2017. More specifically, it seeks to re-assess the plausibility of the challenger spending advantage that is ubiquitous in previous research on UK elections. There are two key motivations for this re-appraisal. The first motivation is the recurrent problem of bias in the literature that arises out of well-known issues with raw spending data. The second is the apparent disconnect between consistent findings of a challenger spending advantage in the UK but high incumbent re-election rates (averaging 87.3% over the full dataset and ranging from 83.6% to 91.3% across the elections[12]). This research investigates whether findings of a challenger spending advantage may be distorting our understanding of how incumbents defend their seats. In turn, this chapter asks whether this distortion feeds into the larger issue of ensuring campaign spending is appropriately regulated to promote competitiveness in democratic contests. The chapter tackles three open questions: first, the chapter discerns the major factors that drive spending in the UK case. Second, the chapter asks how effectively candidates turn spending into votes. The final question investigates whether the marginal efficacy of spending is differentiated based on incumbency status. This chapter utilises a coarsened exact matching strategy to address these questions, manage issues in the data, and shed more light on how effectively incumbents spend in UK campaigns. Findings from this analysis indicate that challengers do not hold a spending efficacy advantage. As such, this chapter offers impetus to question past results and their relevance in assessing the effectiveness of campaign spending regulation in the UK.

The need for a fresh approach to research in campaign spending efficacy in the UK arises from the same issue discussed in chapter two, i.e. the 'Jacobson Effect', (Jacobson 1978, 1985, 1990). However, in contrast to the Irish case, these unusual findings in the UK may be explained by the tendency for incumbents to spend reactively, i.e. only when they feel

[12] Notably, incumbent re-election averaged 85.9% during the 2010–2017 electoral cycles despite the significant upheaval brought about by the financial crash and Brexit. Additionally, these re-election rates are not inflated by strategic retirement as the average re-election rate of party incumbents during the same period (i.e. candidates standing for the party that won the seat at the last election) stands at 84.6%.

their seat is at significant risk. Reactive spending could give rise to the distorted observation that incumbent spending does not matter or is less effective. To clarify further, the problems of endogeneity and reverse causality are raised because the perceived outcome of the election (i.e. its marginality) can be seen to affect the amount of money candidates spend. Concerns related to endogeneity may also be compounded by a tendency for high quality challengers to oppose only vulnerable incumbents. Elections to the UK House of Commons are likely susceptible to reactive spending due to the use of single member districts and may create a significant number of high leverage cases in which the incumbents spend little and win by large margins or conversely, spend large amounts only to narrowly win or lose. Reactive spending also raises the problem of simultaneity as observed by the movement of our two primary independent variables (incumbent and challenger spending) in tandem. All of the above threatens to skew results from statistical analysis and greatly undermines our ability to causally interpret results from observational data. Accordingly, this chapter will use coarsened exact matching focused on reducing the impact of reactive spending. As such, this analysis helps in ensuring that the role of campaign spending in the incumbency advantage and electoral competition in the UK is not being misidentified.

3.2 Context, Theory and Hypotheses

This chapter focuses on four elections to the UK House of Commons between 2005 and 2017. UK elections operate using a First Past The Post electoral system in single member districts with the number of constituencies varying between 646 and 650. The electoral system of the House of Commons is majoritarian in nature and typically produces disproportional results in comparison to alternatives which fall into the proportional or mixed categories (Gallagher and Mitchell 2005). The ballot structure allows a single vote with no possibility of the vote being transferred. These features of the electoral system provide suitable conditions for the emergence of reactive spending as was outlined earlier. The single MP elected per constituency creates a set of constituencies which are, by design, either competitive or safe. With no possibility of parties with sizeable but minority support within uncompetitive constituencies being rewarded with a seat as

would happen with multimember districts, parties and candidates invariably choose to either attack or defend marginal seats (depending on whether they perceive themselves as capable of making gains or simply limiting losses). The logic to focus on competitive districts applies strongly for local major party candidates in marginal constituencies who are unlikely to leave money unspent if they feel they are in a tight race. Cutts and Johnston (2015), Johnston et al. (2013), Pattie, Hartman and Johnston (2017), and Pattie, Johnston and Fieldhouse (1995) have previously demonstrated a link between seat marginality and concentration of campaign resources. Candidates can assess marginality by using results from the previous election (either real or notional), through monitoring public or private polling, and through feedback they receive while campaigning. Marginal races for the House of Commons are particularly important because the victorious party is often decided by the outcome in marginal seats. These features of the UK political system provide the basis for the first hypothesis of this chapter:

H1 Candidates will spend more in marginal seats

Elections to the House of Commons also provide compelling data with which to conduct spending analyses given it functions as a single member district system with multiple multi or two-party systems siloed within the nations/regions constituting the United Kingdom. Several major parties contest and win seats in specific regions in which their support is concentrated. The siloed nature of UK politics has prevented the predicted merging of parties, and/or voter desertion of smaller parties which should lead to a two-party system under majoritarian electoral systems (Duverger's law). Notable parties capable of resisting this pull within UK politics are the Liberal Democrats, the Scottish National Party, and Plaid Cymru, all of whom compete with and have defeated the dominant Labour and Conservative Parties in small but significant sections of the UK. The UK system stands in contrast to the archetypal US system that features single member districts in which there are two major party candidates who compete in a virtually zero-sum game. Theoretical expectations on the existence of a challenger spending advantage in the UK case are informed by multiparty competition in single member districts. The presence of multiple major parties in UK single member districts obfuscates the conceptual division between incumbent and challenger. Challengers in the UK do not participate in the zero-sum shoot out prevalent in the US case wherein your opponent's

loss is your gain. Rather, the nature of multiparty competition in the UK makes every challenger's voice one among a chorus and any loss by the incumbent may be the gain of one challenger or may be dispersed between them. This dilution of the incumbent versus challenger duopoly limits the plausibility of a challenger spending advantage (e.g. arising from the ability to increase name recognition while the incumbent hits diminishing returns). The preceding discussion builds on similar arguments advanced by Pattie, Hartman and Johnston (2017) and provides the basis for the second hypothesis:

H2 The efficacy of challenger and incumbent spending will be equivalent.

3.3 Previous Literature on Campaign Spending in Single Member Districts

It is necessary to pursue reliable results from spending analyses in order to understand the impact of spending and differential spending advantages on electoral competitiveness. However, this research area has produced a multiplicity of inconsistent results on whether campaign spending is effective and whether challenger spending is more effective than incumbent spending. Appropriate regulatory advice is difficult to discern given the mix of findings in the literature. Table 3.1 offers a snapshot of spending analyses which have been carried out on systems using single member districts and the prevalence of studies on the US context is notable. Much of the literature on the UK focuses on spending in the effort to disentangle other aspects of campaign efficacy such as the level of contact between parties and voters, whether contact increases likelihood to vote, and whether party spending affects turnout (e.g. Cutts and Johnston 2015; Johnston and Pattie 2012; Johnston, Pattie, Cutts and Fisher 2012). There are few papers (relative to the US context) which directly tackle the issue of differential spending efficacy in the UK case with Johnston and Pattie (2006), Johnston, Pattie and Hartman (2019), Pattie, Hartman and Johnston (2017), and Pattie, Johnston and Fieldhouse (1995) being notable exceptions. These direct spending analyses on the UK find challengers have a spending advantage over their incumbent rivals which lines up with much of the US literature. However, the reliability of these results can be questioned due to likelihood of reactive spending in the UK case.

Table 3.1 – Previous attempts to estimate spending effects in single member districts

Author	Methodology	Context	Main Results
Jacobson (1978, 1985, 1990)	OLS and 2SLS	US House and Senate 1972 -1982. US House 1982-1986.	Challenger spending has significant effect while incumbent effect is negligible.
Green and Krasno (1988, 1990)	OLS and 2SLS	US House 1976 -80 and 1984-86.	Incumbent spending efficacy is significant and close in magnitude to challengers.
Erikson and Palfrey (2000)	OLS	Close races for US House 1974-80 and 1984-90	Spending efficacy of incumbents and challengers is roughly equivalent.
Johnston and Pattie (2006)	Time series analysis	UK General Elections 1997-2005 in England and Wales. Replication of Levitt (1994).	Challenger spending has significant impact while incumbent spending does not.
Johnston, Pattie and Hartman (2019)	OLS	Marginal races in England and Scotland. UK General Election 2017	Spending efficacy is greatest in marginal races. Challenger efficacy is greater than incumbents.
Levitt (1994)	Time series analysis	US House 1972-90	Neither incumbent nor challenger spending has significant impact.
Pattie, Hartman and Johnston (2017)	OLS	UK General Election 2015	Challenger spending is significant. Incumbent spending has no effect or negative effect.
Pattie, Johnston and Fieldhouse (1995)	OLS and 2SLS	UK General Elections 1983-1992 in England, Scotland, and Wales.	Challenger spending efficacy is greater than incumbents.

Johnston et al. (2013), Pattie, Hartman and Johnston (2017), and Pattie, Johnston and Fieldhouse (1995) reveal findings which show that parties and candidates heavily target marginal constituencies in UK elections (and as such, encourage reactive spending). Different results on spending efficacy in the UK are possible if reactive spending bias is managed appropriately, much like the findings of Erikson and Palfrey (2000) in the US context when they focus only on close races. Notably, Johnston, Pattie and Hartman (2019) analyse only close races for the UK general election in 2017 and find a challenger spending advantage in such contests. However, this analysis uses standard statistical methods rather than employing a strategy focused on managing the problematic nature of spending data. Much of the remaining literature focuses on multimember districts and

also returns mixed results although less skewed towards the finding of a challenger advantage (as has been discussed in chapter two). This review of the literature on single member districts shows the diversity of methodological techniques and variety of findings reported in relation to campaign spending efficacy. This chapter marks the first attempt to use matching to analyse spending in single member districts and will do this by matching candidate spending observations on covariates that can approximate seat marginality to manage issues related to reactive spending.

3.4 Data and Variables

Spending in the UK is subject to reasonably tight regulation, and candidate spending is moderate in comparison to countries such as Ireland (Benoit and Marsh 2010) or small in comparison to countries such as the USA (Jacobson 2006). Spending limits were applied to each of the four elections under investigation and differed depending on whether the constituency was designated as county or borough/burgh. Regulations for the 2005 election required only the disclosure of spending by candidates during the election period so spending which takes place before the election is called is not included in the data. As such, the 2005 spending data are limited in terms of temporal coverage of the inter-election period. As was discussed in chapter two, this limitation raises the concern that government parties may use their knowledge of an impending election to spend significant amounts of money just prior to the dissolution of parliament. Fortunately, data for the 2010, 2015, and 2017 elections are not temporally limited in the same way. Data for the 2010 and 2015 elections also includes a spending limit on the so-called long campaign period amounting to approximately 100 days before the beginning of the short campaign/dissolution of parliament. The importance of spending in this pre-campaign period has already been noted in the literature (e.g. Johnston et al. 2013). This additional 100 days provide more comprehensive data than was previously available and will allow the leveraging of short and long campaign spending in the analysis. Long campaign data for the 2010 and 2015 elections will be used to test robustness of results and lend confidence to findings. Additionally, the 2017 election was called suddenly and as such, no long spending period was deemed necessary by the Electoral Commission. The sudden

nature of the 2017 election limits the ability of candidates to spend money and lay groundwork just before the regulated period. Additionally, the levels of spending in the regulated short period is likely a good proxy for what has been spent in the inter-election period and any such limitation of the data (shared by most analyses on spending effects) should not present a serious issue[13]. Previous analyses have also highlighted the inexact nature of spending data in measuring overall campaign effort (Fisher, Fieldhouse and Cutts 2014; Fisher et al. 2014). However, Denver and Hands (1997), Johnston and Pattie (2006), and Pattie, Hartman and Johnston (2017) have argued that spending correlates well with other variables capturing campaign intensity and should provide an adequate measure for analysis of this type. Table 3.2 details the spending limits and the spending range of candidates who declared spending for the 2005–2017 elections. The relatively small variation in spending in the UK case, particularly in comparison to the USA, also makes for a compelling reason to study UK elections. The huge spending variations observed between safe and marginal constituencies in the frequently studied US case serves to undermine results a great deal more than in the UK case where the high leverage values on the spending variables are not so severe. The variation of spending in the UK case suggests the use of matching techniques in managing the bias caused by such leverage points will prove fruitful.

The data for this chapter are compiled from raw spending data published by the UK Electoral Commission and focuses on four UK General Elections between 2005 and 2017. The analyses are carried out using a dataset which pools all 14,864 observations and removes the 619 candidates who failed to declare spending as well as candidates running in the Speaker's constituency. Candidate observations from Northern Ireland are also dropped given the very different party system in that region, reducing the dataset by a further 459 observations. As a result, the total number of observations amounts to 13,786. The number of cases dropped due to missing data in the 2015 election is significantly higher than the other elections accounting for approximately 80% of the 619

[13] The correlation between candidate spending in the short campaign and long campaign is 0.72 for the 2010 and 2015 elections. This provides fairly strong evidence that most candidates have similar spending patterns before and after the beginning of the short campaign.

Table 3.2 – Spending limits and spending ranges for UK elections 2005 – 2017

	2005	2010	2015	2017
Short Campaign Spend Limit	£7,150 plus 7p per elector (County) £7,150 plus 5p per elector (Borough)	£7,150 plus 7p per elector (County) £7,150 plus 5p per elector (Borough)	£8,700 plus 9p per elector (County) £8,700 plus 6p per elector (Borough)	£8,700 plus 9p per elector (County) £8,700 plus 6p per elector (Borough)
Long Campaign Spend Limit	NA	£25,000 plus 7p per elector (County) £25,000 plus 5p per elector (Borough)	£30,700 plus 9p per elector (County) £30,700 plus 6p per elector (Borough)	NA
Candidate Spend Range	£1.20 - £23,831.62	£3 - £41,700	£0.01 - £53,018.10	£3 – £16,228.48

observations[14]. The return rate of spending reports for 2015 was only 86.5% in comparison to 99% in 2005 and 97% in 2010. The 2015 missing data seem anomalous, especially as it seems return rates have returned to normal for the 2017 election. The missing data should not present a serious impediment to the analysis as there is ample data available regardless and a year control variable should address any inter-year variation in spending effects. Additionally, those candidates that declare spending of nil are assigned an arbitrary baseline spending figure which is the lowest declared spending figure in the same election as they contested. Full descriptive statistics are provided in Table 3.3.

For H1, the dependent variable is candidate spending as a percentage of the limit and the primary independent variable is seat marginality (the size of the majority at the last election as a percentage of valid votes). Graphs displaying the distribution of these variables can be found in appendix B.9. The analysis for H1 will also incorporate an interaction term between seat marginality and incumbency. A significant negative effect on the interaction term would suggest that incumbents are most susceptible to having

[14] Correspondence with the Senior Financial Reporting Advisor of the UK Electoral Commission has explained the missing data as a failure of a significant number of Returning Officers to provide the commission with spending reports despite repeated reminders.

Table 3.3 – Descriptive statistics (UK elections)

	2005	2010	2015	2017	Pooled
Total Candidates	3,393	3,912	3,339	3,142	13,786
Incumbents	557	478	524	598	2,157
Challengers	2,836	3,434	2,815	2,544	11,629
Mean Vote Won	18.46%	16.08%	18.01%	20.05%	18.04%
Mean Vote Won (Incumbents)	47.87%	46.18%	47.67%	55.26%	49.49%
Mean Vote Won (Challengers)	12.68%	11.89%	12.49%	11.77%	12.20%
Mean Short Spend	18.48%	16.13%	18.36%	20.08%	18.15%
Mean Short Spend (Incumbents)	42.86%	43.45%	46.12%	49.98%	45.76%
Mean Short Spend (Challengers)	13.69%	12.33%	13.19%	13.06%	13.03%
Mean Short Spend	£4,019.44	£3,446.51	£4,163.40	£4,376.58	£3,973.13
Mean Short Spend (Incumbents)	£8,755.55	£8,616.36	£9,825.41	£10,159.99	£9,373.97
Mean Short Spend (Challengers)	£3,089.25	£2,726.89	£3,109.44	£3,017.11	£2,971.35
Mean Total Spend	-	16.13%	18.36%	-	17.16%
Mean Total Spend (Incumbents)	-	44.70%	47.48%	-	46.15%
Mean Total Spend (Challengers)	-	12.15%	12.94%	-	12.51%
Mean Total Spend	-	£6,293.62	£8,073.59	-	£7,113.28
Mean Total Spend (Incumbents)	-	£15,738.91	£19,545.37	-	£17,729.52
Mean Total Spend (Challengers)	-	£4,978.87	£5,938.17	-	£5,411.01
Candidates Declaring Spend of Nil (Short Campaign)	158	505	633	289	1,585
Candidates Declaring Spend of Nil (Long Campaign)	-	1,791	1,694	-	3,485

Note: Figures for short spend relate only to short campaign. Figures for total spend relate to both the short and long campaign. Percentage figures for spend relate to spending as a percentage of constituency total.

their spending decisions influenced by seat marginality (something we would expect theoretically) and would be evidence that such spending may disproportionally affect estimates for incumbent spending efficacy. The dependent variable for H2 is percentage of constituency vote won by a candidate. Percentage of the constituency vote is preferable to raw number of votes due to large variation within the electorate size of UK

constituencies[15]. The main independent variable is candidate spending as a percentage of the total constituency spend (graphs of the distribution of spending are provided in appendix B.9). Percentage of constituency spend is used because of its ability to capture the relative spending of candidates contesting the same district. Percentage of constituency spend captures the effect of additional marginal spending on the vote percentage totals of candidates competing in constituencies with similar marginality. The chosen specification of the spending variable also lessens its variation which should help to dull the impact of high leverage data points on the explanatory variable. Incumbent spending efficacy is captured by an interaction effect between spending and incumbency variables. Constituency incumbency, party incumbency, a boundary change dummy, an open seat dummy, gender, party, region, year, and number of candidates contesting the constituency are also included. The other key variable for the analysis is the covariate on which candidates are matched. The covariate is a measure of constituency competitiveness and is the percentage marginality of the seat at the last election. The value of the marginality variable ranges from 0.03% (Gillingham and Rainham 2010) to 72.3% (Liverpool Walton 2017) with a mean value of 21.09%. The treatment used in the matching analysis is based on candidate spending as a percentage of the constituency total. The treatment variable is divided into equal tiers of spending to create a multichotomous treatment variable (the same procedure as chapter two).

The data for the 2005 and 2010 elections are affected by boundary changes which require the use of notional variables in some cases. Notional versions of seat marginality, an open seat dummy, and a party incumbency dummy (i.e. the party who won the seat at the last election in cases of open seats or where boundary changes have made this different from the incumbent MP) are used where real versions are unavailable. These notional variables were constructed using the The Almanac of British Politics 7th and 8th ed. (Waller and Criddle 2002, 2007) as well as the comprehensive data provided by the BBC website. Additionally, the analysis uses categorical party and region variables in an effort to control for party spending funnelled into specific constituencies or regions. Unfortunately, party spending at the constituency level is not published by the UK

[15] The analysis does not use percentage of the electorate as the dependent variable due to significant boundary changes that occur between the elections under investigation. Use of percentage of the electorate would make it impossible to include a lagged version of the dependent variable in the analysis.

Electoral Commission and chasing the parties themselves is an inevitably fruitless endeavour. The importance of party spending should not be understated and recent spending scandals surrounding the 2015 election illustrate this. However, the use of party and region to control for interparty and interregional variation is as fine grained as possible until constituency level party spending data are available. More detail on campaign spending at the constituency and national level can be found in appendix B.10. The 2010 and 2015 House of Commons elections also provide data on so called long campaign spending. Data are available on candidate spending for 127 days prior to the 2010 election and 138 days prior to the 2015 election. This chapter makes use of the more comprehensive data for the 2010 and 2015 elections by creating a variable that combines both short and long spend to offer robustness tests on findings using only short campaign spending. The combined short and long campaign data increase confidence in results and, at least partially, address issues of validity of results derived from short campaign data as in previous studies.

3.5 Results

Previous work has already linked the marginality of seats in UK General Elections with an increase of money spent in those seats (Johnston et al. 2013; Pattie, Hartman and Johnston 2017; Pattie, Johnston and Fieldhouse 1995). We see a notable increase in the amount of money spent in a constituency as the size of the seat majority decreases (i.e. as the percentage by which the seat was won at the last election decreases). Table 3.4 offers regression analysis to test H1 – the expectation that spending will increase as competitiveness increases. The outcome variable is the percentage of spending limit for each candidate and the primary independent variable is the marginality of the constituency. The regression also includes several control variables that may affect spending levels and are listed below the table. Results from Table 3.4 show a fairly strong relationship between seat marginality and spending as can be seen in the significant negative coefficient on the marginality variable. Additionally, this coefficient remains significant whether we are looking at spending in just the short campaign (left column) or in the short and long campaigns combined (right column). Regression coefficients

suggest that for each additional percentage increase in the size of the majority in a given constituency, there is a decrease in spending of between 0.35% and 0.41% in House of Commons elections. These figures may seem negligible on first look but are substantively significant. On the basis of coefficients, spending per candidate may increase by between 7% and 8% when moving from a constituency with a majority of 25% to one with a majority of 5%. This effect is also amplified for incumbents as can be seen by the negative and significant coefficient on interaction terms between incumbency and marginality. The coefficients on the interaction terms suggest that incumbent spending may increase by an additional 4.8% to 10.2% of spending. Based on results from linear regression models, incumbents are more prone to have their spending decisions influenced by seat marginality than challengers. This differential effect illustrates concerns over the impact of reactive spending on estimates of incumbent spending efficacy. The interpretation of the regression results is also supported through graphical exploration of the marginal effect of seat marginality on spending in Figures 3.1 and 3.2.

Overall, this analysis offers strong support for H1 and illuminates the role of constituency competitiveness in reactive spending decisions. The following section of the chapter will explore H2 – the expectation that incumbent and challenger spending efficacy will be equivalent – in light of these results. The analysis investigates H2 using 30 matched datasets and regression estimates. To test robustness, the matching procedures use three different treatment levels (spending divided into three, four, or five levels), five different marginality variables (the original variable and four coarsened versions using the CEM package) and a coarsened party variable. A full explanation of the coarsened marginality and party variables can be found in appendices B.1 and B.2. The 30 different matched datasets and regression estimates are made of up of five distinct matching formulas (using different combinations of the variables listed above) multiplied by three for each of the treatment levels and multiplied by two (one for short campaign data only and one for short and long campaign data combined). As pointed out by King, Lucas and Nielsen (2017), we should seek to manage imbalance in covariates known or theoretically expected to be important and as such this analysis focuses on party and marginality in the matching procedures. Matching on marginality will help to manage biases in the data while matching on party will offer additional controls over other key predictors of vote

Table 3.4 – Spending decisions OLS (UK elections)

	Short Campaign (2005–2017)	Short + Long Campaign (2010–2015)
	Short spend as % of limit (DV)	Short + long spend as % of limit (DV)
Seat Marginality	-0.405***	-0.346***
	(0.015)	(0.017)
MP Incumbency	7.131***	8.434***
	(1.453)	(1.883)
Party Incumbency	31.350***	18.416***
	(1.263)	(1.368)
Marginality X MP Incumbency	-0.237***	-0.514***
	(0.037)	(0.055)
Constant	41.938***	18.836***
	(1.276)	(1.662)
R^2	0.575	0.441
N	13,786	7,251

The dependent variable for each model is denoted by the symbol (DV). Robust standard errors are clustered by constituency and provided in parentheses. Year, Boundary Changes, Party, Region, Number of Candidates and Gender are included but omitted from table. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

share such as partisanship and policy positions. Table 3.5 shows regression results from five models using short campaign data and a treatment divided into four tiers[16]. The first four models in Table 3.5 differ only in the specification of the marginality variable used in the matching procedure while the fifth model uses an uncoarsened version of marginality. The data used in each of these models are also matched on a coarsened party variable. The number of matched observations for each of these models is quite high

[16] Standard OLS results are presented in appendix B.4 for comparison.

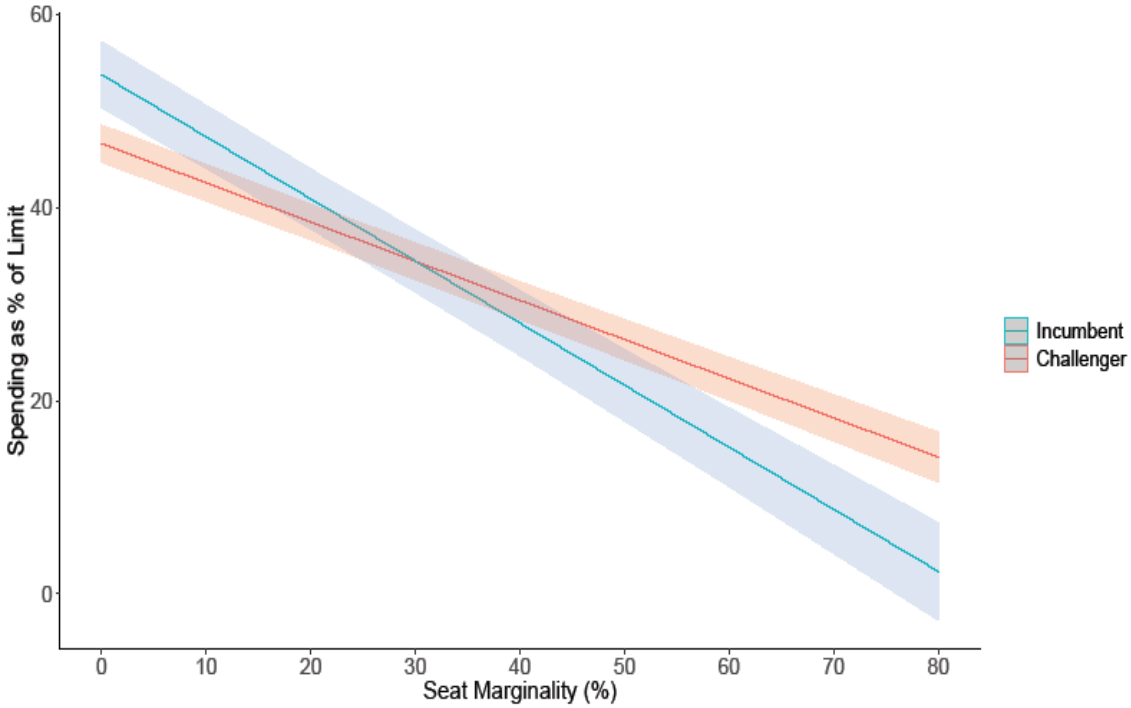

Figure 3.1 – Marginal effect of seat marginality on spending (UK short campaign only)

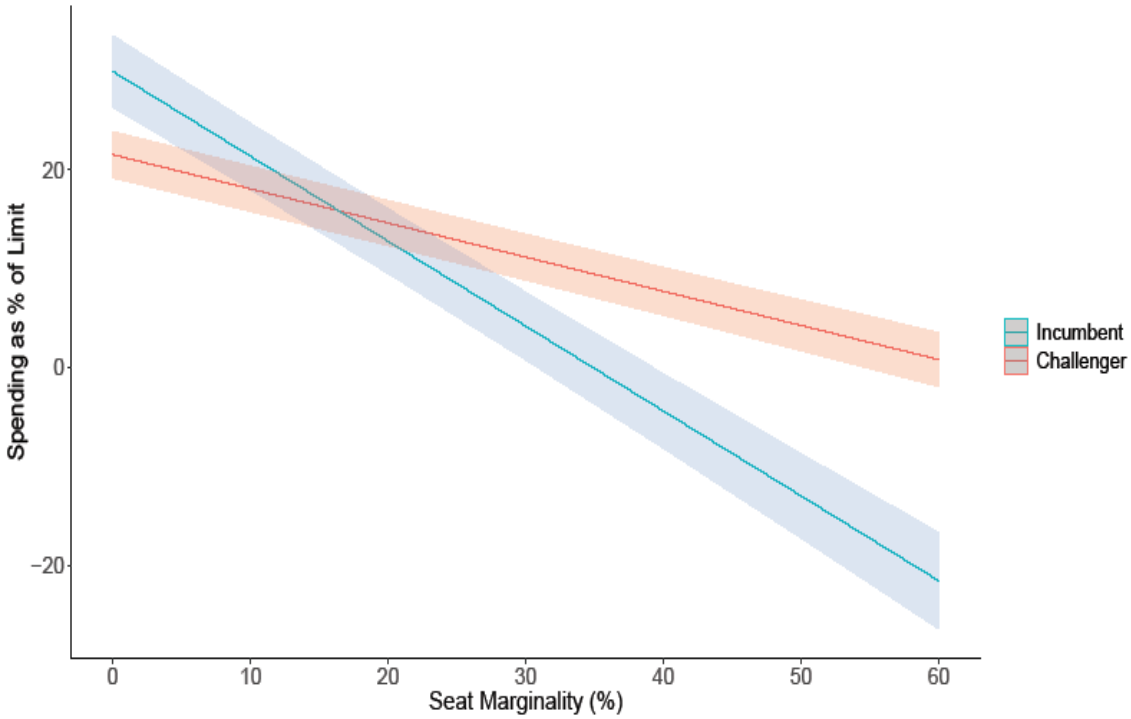

Figure 3.2 – Marginal effect of seat marginality on spending (UK short and long campaign)

given the limited number of variables used in the match and the high level of common support between the party and marginality variables. However, these models still see between 8.3% and 20.6% observations dropped from the dataset. Levels of common support decline the more treatment levels that are introduced so models using three treatment levels return slightly more matches and five treatment levels return slightly fewer matches. These results are only a snapshot of the regression results produced from the 30 models, but they are sufficient to make the point here. The results show significant spending effects across all models as expected and suggest that candidates glean an additional 0.23% to 0.25% of the vote for every additional percentage of spending in the short campaign. However, the incumbency interaction variable offers a completely different set of results from previous research on UK elections. The matched results show that incumbent spending is more effective than challenger spending with the spending interaction showing between a 0.14% to 0.29% incumbent spending advantage. These results remain the same across all 15 models that use only short campaign data. When running the same 15 models using short and long campaign data combined, the analysis shows a significant incumbent spending advantage in three models while the other twelve models show no differential spending effects based on incumbency status. These results do not fully support H2 as many of the results suggest an incumbency spending efficacy advantage. However, the most interesting finding is that none of these models show a challenger spending advantage. This finding suggests the efforts to manage the effects of reactive spending (demonstrated in analysis for H1) have reduced estimation bias. The coefficients on spending and interaction terms for all 30 models can be seen in Figures 3.3 and 3.4 (including coefficients from standard OLS analysis for comparison). The coefficients on spending in Table 3.5 may seem small but it is important to point out that these coefficients relate specifically to a dataset which has been matched on seat marginality. As such, we can interpret the coefficients as being how much a candidate can gain over their rivals through spending in marginal constituencies in which the smallest of vote totals may be the difference between winning and losing the seat. These results suggest that threatened incumbents in marginal seats can glean significant advantage from spending when they most need it.

Table 3.5 – CEM spending efficacy regression results (UK short campaign only)

All models use spending divided into 4 levels as treatment	Marginality Model A	Marginality Model B	Marginality Model C	Marginality Model D	Uncoarsened Model
	(1)	(2)	(3)	(4)	(5)
% Constituency Spend	0.250***	0.235***	0.246***	0.251***	0.254***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
MP Incumbency	-3.329**	1.969	-2.355*	1.563	-4.017***
	(1.096)	(1.041)	(1.097)	(1.068)	(1.070)
Party Incumbency	16.565***	17.192***	18.229***	18.054***	17.554***
	(0.741)	(0.703)	(0.717)	(0.708)	(0.727)
Const Spend X MP Incumbency	0.290***	0.138***	0.228***	0.153***	0.287***
	(0.020)	(0.020)	(0.021)	(0.021)	(0.020)
Constant	15.010***	15.284***	15.175***	14.494***	14.664***
	(0.511)	(0.480)	(0.484)	(0.479)	(0.513)
N	10,941	11,805	12,638	12,573	10,972

The dependent variable is percentage of vote won. Standard errors in parentheses. Party, Marginality, Boundary Changes, Region, Gender, Open Seat, Year and No of Candidates are included but omitted from table. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

To test robustness of these results, the 30 models above are re-run using a dataset which includes only major party candidates[17], to ensure the results are not being driven by large amounts of minor party challengers. Additionally, prior popularity is included in the analysis (this is excluded from the larger dataset because of the inconsistency with which smaller parties run in constituencies). The inclusion of prior popularity of parties in a given constituency is particularly relevant to the study of campaign spending efficacy. In UK elections, Fieldhouse, Fisher and Cutts (2019) have shown that campaign effort is greatest where prior support is neither very high nor very low, a notable and intuitive

[17] Conservative Party, Labour Party, Liberal Democrats, Scottish National Party and Plaid Cymru.

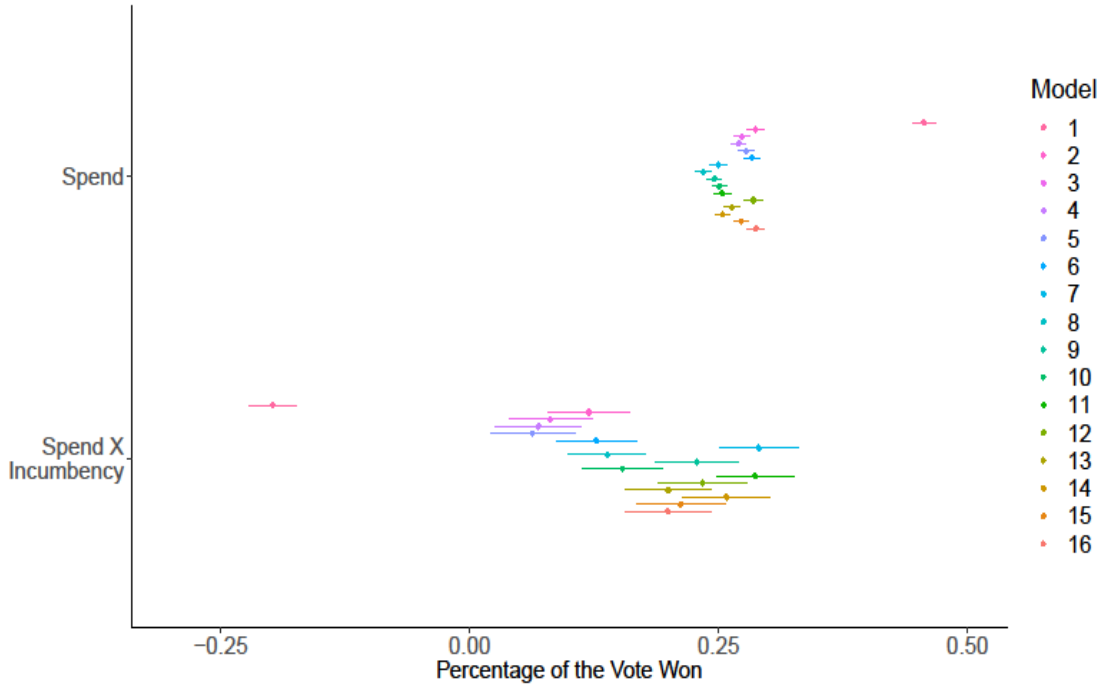

Figure 3.3 – UK short spending coefficient OLS (model 1) and CEM (models 2-16)

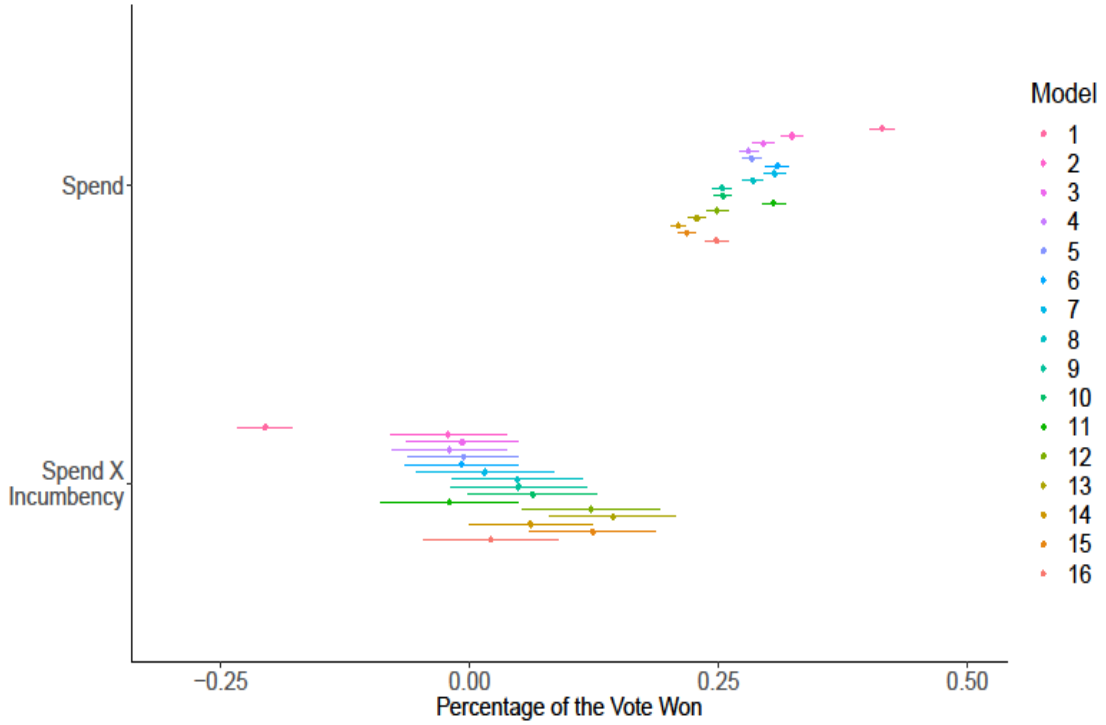

Figure 3.4 – UK short and long spending coefficient OLS (model 1) and CEM (models 2-16)

finding. Accordingly, these 30 models will ensure the results are not being driven by large amounts of minor party challengers or influenced by omitted variable bias related to prior party vote share. These CEM procedures match on a coarsened version of prior vote as well as marginality and party (full details of the prior vote variable used can be found in appendix B.3). Prior vote is a strong predictor of electoral outcome and has the same issues with imbalance as the other two covariates (the bimodal distribution of prior vote can be seen in appendix B.9). Overall, these analyses offer fairly strong support for H2 with 27 of the 30 models showing no significant difference in spending efficacy. However, three of the models do show significant negative effects on incumbent spending efficacy (a graphical representation of regression results across these 30 models can be found in appendices B.5–B.6). The 30 models including prior vote are also re-run using only the candidates who finished in the first and second position in the constituency. These 30 models test robustness based on the idea that the analysis may be inflating the number of feasible challengers even when we limit it to just major party candidates (for example, there are many constituencies where the Liberal Democrats are not competitive despite being a major party). Results from this analysis are fully robust in showing no challenger spending advantage and show a mix in results between no significant difference and an incumbent efficacy advantage (a graphical representation of regression results across these 30 models can be found in appendix B.7–B.8).

Overall, this part of the analysis produces 87 models out of 90 that find no significant challenger spending advantage. Finally, these 90 models are also run using the party incumbent as the main type of incumbency for the spending interaction. The party incumbent means the candidate of the party that won the constituency at the last election regardless of whether they are the actual incumbent MP. Using the party incumbent may change results given the strongly party centric nature of UK politics and the role of strategic retirement of MPs. All 90 of these models are robust to the finding of no challenger spending advantage and are similarly split in terms of findings (with 36 models showing an incumbent spending advantage and 54 showing no significant difference, this contrasts with 26 models showing an incumbent advantage, 61 showing no difference and three showing a challenger advantage in the models using MP incumbency). Overall, 177 out of 180 models in this analysis fails to find a challenger spending efficacy

advantage. These results run contrary to all previous spending analyses on UK elections and much of the research on the USA.

3.6 Discussion

Overall, these results support the conclusion that incumbent spending matters a great deal in electoral contests. These findings run contrary to much of the literature concerned with elections in single member districts with the notable exceptions of Erikson and Palfrey (2000), Gerber (1998), and Green and Krasno (1988) and represent the first instance where the value of incumbent spending has been illustrated using UK data. The analysis of this chapter contests the findings of Johnston, Pattie and Hartman (2019) in showing that challengers do not hold a spending efficacy advantage in marginal constituencies. This chapter strongly supports the findings of Pattie, Hartman and Fieldhouse (2017) and Pattie, Johnston and Fieldhouse (1995) in their assertions that seat marginality matters in decisions to spend money in UK elections. This chapter also firmly concurs with the strategy of Erikson and Palfrey (2000) in focusing on marginal constituencies in order to provide robust results. What is clear from these findings is that reactive spending bias is an important consideration in analysis of UK elections. The finding that incumbent spending matters is reasonable. The analysis here shows that incumbent spending matters when incumbents are attempting to win a close race. UK elections are invariably decided by which candidates win in these marginal constituencies and it is in these constituencies where incumbents may glean the greatest marginal value for money. The importance of these marginal seats cannot be overstated, and this is abundantly clear from recent election results with 2010 and 2017 producing a hung Parliament and 2015 producing a narrow Conservative victory.

Campaign spending and its regulation are essential aspects of ensuring our electoral contests do not favour the incumbent by design or that incumbents have only to spend when faced with a strong challenger to virtually guarantee their seat. These issues feed into the concern that inappropriate campaign finance regulation re-enforces incumbency advantage. Results suggesting that incumbents gain less from spending may be distorting

our understanding both of how incumbents stay in office and in terms of how we should regulate campaign spending. The associated policy advice arising from past findings would recommend the removal of spending limits to give non-incumbents the best possible chance to raise and spend money to challenge incumbents (Abramowitz 1988; Bonneau and Cann 2011; Jacobson 1978). The findings of this chapter along with a handful of others such as Erikson and Palfrey (2000), Gerber (1998), and Green and Krasno (1988) means that such regulations could be unwise and may allow incumbents to spend money to win marginal contests. This chapter aligns with the findings of Erikson and Palfrey (2000) and Moon (2006) who demonstrate that incumbent spending is effective in close races for the US Congress despite most of the literature finding that incumbent spending is less effective in general. These findings also neatly compliment the results of Fouirnaies (2018) which studied the effect of increasing spending limits in UK general elections between 1885 and 2010. Fouirnaies (2018) uses policy decisions that created a change of spending limits in some constituencies but not others to investigate these effects. The analysis carried out by Fouirnaies (2018) finds that campaigns become more expensive, fewer candidates run, and the electoral and financial advantage of incumbents increases when spending limits are raised.

These results demonstrate challengers do not have an advantage in marginal spending over incumbents and incumbents do not need to spend as much as previous literature suggests to defend their seats. The problem which arises from these results is that challengers will find it more difficult to overhaul the in-built lead the incumbent enjoys if they do not have a spending advantage to assist them. As such, it may be beneficial to establish public funding aimed at assisting challengers and encouraging democratic competitiveness. Additionally, focusing on the specific aspects and circumstances of effective incumbent spending to assess how best to guarantee a fair fight may be more productive. It is necessary to review the regulation of certain aspects of incumbent spending, such as the funnelling of significant amounts of party spending towards certain constituencies, to level the playing field. Campaign spending scandals related to the 2015 UK General Election make concerns on party money all the more pertinent. One such alleged scandal was the use of party money to help specific vulnerable Conservative Party candidates. Vital expenses were not declared or were declared under the party spend limit rather than the appropriate personal spend limit (Howker and Basnett 2017, The

Guardian). These financial irregularities resulted in the UK Electoral Commission applying a £70,000 fine to the Conservative Party, the largest in its history. It is evident that many of these candidates would have significantly breached spending limits had spending been correctly declared which undoubtedly afforded these candidates an unfair advantage. Such scandals make it clear that campaign spending and the regulation thereof can have a significant impact on the quality and competitiveness of the democratic process.

This chapter tested the plausibility of the challenger spending advantage in a context that ostensibly shares some important characteristics with the US, most notably the electoral system. However, this chapter has argued that other significant differences between the two cases impact on the theoretical expectation of a challenger spending advantage. The findings support this approach in showing no robust challenger spending efficacy advantage in UK elections. I return to discuss possible implications of these findings for the US in chapter seven. The next chapter will extend analysis to sub-national elections in the UK that take place under a different electoral system and will further test the robustness of a challenger spending advantage in UK elections.

Chapter 4

Would the Real Incumbent Please Stand Up? Spending Efficacy in Scottish and Welsh Elections 2007–2016

Abstract

Most analyses of campaign spending study the existence of differential spending efficacy based on incumbency status. The literature returns mixed results with many finding a challenger spending efficacy advantage and some finding no significant difference. However, the literature does not address the question of differential spending efficacy when challengers face two distinct types of incumbent in single member districts. This unusual scenario arises in the cases of the devolved parliaments in Scotland and Wales. A significant number of incumbents elected from regional lists in these cases decide to run in constituency level contests. This uncommon dynamic creates electoral contests where a constituency incumbent, a list incumbent, and other major party challengers compete for the same seat. This chapter is the first to explore the differential spending efficacy of these three types of candidates and does so while employing a matching methodology to manage issues common to spending data. The analysis challenges much of the literature in showing no challenger spending advantage and adds novel findings on the role of list incumbents in the dynamics of constituency contests. The results of this analysis provide useful insight for the regulation of campaign spending in Scottish and Welsh elections.

4.1 Introduction

This chapter offers analysis of campaign spending effects in elections to the Scottish Parliament and Welsh Assembly in 2007, 2011, and 2016. The analysis is carried out using a custom dataset comprising six elections (three for each legislature) and utilises an interesting dynamic of candidate competition in these elections to produce a novel investigation into campaign spending. The unusual dynamic of interest relates to the presence of two distinct types of incumbents in many of the single member contests in these elections. The electoral system used in both Scotland and Wales is Additional Member Proportional Representation. This electoral system elects parliamentarians from single member constituencies and then uses regional lists to 'top up' the proportionality of the legislature. Both constituency incumbents and list incumbents serve in any given legislative session with many list incumbents contesting constituency races.

The aims of this chapter are twofold. Firstly, it will offer the first analysis focused on candidate spending in the Scottish and Welsh legislatures. The electoral and political systems of these countries are quite different to other contexts that have been studied in the spending literature so far. As such, attempts to generalise findings from other contexts should be considered cautiously. In contrast, this chapter will look at these parliaments in detail and disentangle differential spending effects for the various types of candidates. Secondly, the chapter will assess the plausibility of key findings from the literature in the cases of Scotland and Wales. The most divisive finding in the literature is the challenger spending efficacy advantage (i.e. that challengers gain more from their spending than incumbents). This finding is particularly prevalent in studies on single member districts. This chapter will investigate whether such an advantage exists in single member district elections in Scotland and Wales (while also acknowledging the significant differences related to the PR aspect of the electoral system and the presence of list incumbents). The primary motivation for this study is to extend the literature on candidate campaign spending efficacy to Scotland and Wales and in so doing, to offer case specific analysis that could be used to inform discussion on the regulation of campaign spending.

This chapter addresses two key questions to investigate spending efficacy in Scotland and Wales. First, what influences candidates to spend money and second, how effectively do different types of candidates turn spending into votes. To answer these questions, this chapter uses a coarsened exact matching strategy similar to one used in chapter three and produces two notable findings. First, the analysis finds that challengers in Scottish and Welsh elections do not glean a spending efficacy advantage, running counter to previous works on the UK[18]. Second, the analysis suggests that list incumbents play an important role in the overall dynamics and spending efficacy of constituency level contests in Scotland and Wales. Interestingly, a large number of list incumbents are selected by major parties to contest single member districts. 118 list incumbents compete in 104 out of the 339 constituencies in the dataset so their presence is significant and almost certainly has an impact on the dynamics of campaign spending efficacy. In data used in this chapter, approximately 19% of candidates are constituency incumbents, 8% are list incumbents, and the remainder are non-incumbents. A significant number of list incumbents are successful in unseating the constituency incumbent. Approximately 19.5% of list incumbents in the dataset are elected by unseating the constituency incumbent with another 11% winning in open seats. In total, around 30.5% of all list incumbents running in constituencies contests are successful, a figure that dwarfs the success rate of challengers. The presence of list incumbents in constituency contests creates an intriguing opportunity to study differential spending effects between three distinct candidate types. Overall, the findings of this analysis warn against generalising results from previous spending analyses that seem, prima facie, similar to Scotland and Wales (e.g. analyses on UK general elections or other single member district elections). Instead, this chapter offers specific analysis that may help illuminate appropriate regulation of campaign spending and in turn, help to protect the integrity of electoral competitiveness.

[18] These analyses focused on spending in UK general elections rather than elections to the devolved legislatures.

4.2 Context, Theory and Hypotheses

The Scottish Parliament and Welsh Assembly are young institutions and were established under a policy of devolution pursued in 1997/1998. From the outset, the power of the two devolved legislatures has been somewhat unbalanced. The Scottish Parliament began with a much greater degree of power and was backed by a large majority of Scottish voters. The Welsh Assembly began with very little power and was only narrowly backed by Welsh voters. However, the two legislatures have grown significantly and roughly equally in power since their foundation, though starting from very different base levels (Deacon, Denton and Southall 2018; Cairney annd McGarvey 2013). The elections that this study focuses on are those which take place after the process of devolving more powers to the legislatures had begun. As such, while the elections in this chapter may not be viewed as first order in the sense of UK General Elections, they have certainly grown in importance since the first two elections in 1999 and 2003. The Scottish Parliament and Welsh Assembly share a common electoral system known as the Additional Member System. This electoral system falls into the broad category of mixed electoral systems in utilising both First Past The Post contests in single member districts and using a regional list to adjust the overall proportionality of the legislature. Voters cast two votes, one for a candidate in their local constituency race and a second for a party on the regional list. Voters have the choice to vote across party lines or may vote for the same party on both ballots. The candidate order on the regional list is determined by the parties themselves meaning voters do not have a direct say over candidates elected from the lists, only the party from which the representative will come. 73 Members of the Scottish Parliament (MSPs) are elected in First Past The Post constituency contests with the remaining 56 MSPs elected from eight geographic regional lists. 40 Welsh Assembly Members (AMs) are elected in First Past The Post constituency races with the remaining 20 elected from five geographic regional lists.

Like many mixed electoral systems, additional member systems provide a more proportional outcome than majoritarian alternatives but often a less proportional outcome than pure proportional representation systems (Gallagher and Mitchell 2005). This disproportionality arises because the number of representatives elected from regional lists

is fixed and as such, these lists are not able to fully compensate for imbalances in the constituency results. The imbalance created by fixed regional lists was most notable when the Scottish National Party gained an overall majority in the 2011 Scottish election despite attaining only 45.4% of the constituency vote and 44.05% of the list vote. The systems used in Scotland and Wales differ to similar arrangements for the German Parliament which has no fixed size. In Germany, regional list seats will be added until any disproportionality in the constituency results has been balanced out. Constituency contests within the Scottish and Welsh systems carry a greater weight (in comparison to Germany for example) as there is the potential to attain bonus seats by overperforming in the majoritarian constituency contests.

This chapter focuses only on constituency contests because the closed nature of the lists in these elections means there is little benefit to be gained from list candidates spending money on personalised campaigns. Accordingly, the UK electoral commission does not gather or publish spending data from list candidates. The primacy of the constituency contest within these electoral systems provides suitable conditions for reactive spending similar to the UK general elections studied in chapter three. In other words, parties and candidates choose to focus resources and money on competitive constituencies rather than districts where a party or candidate has a large majority (Cutts and Johnston 2015). Additionally, parties who find themselves to be uncompetitive in all constituencies in a certain region may instead choose to funnel money towards campaigning for regional list votes in this region while encouraging spending in constituencies in other regions where they are competitive. As such, the regional list component may serve to exacerbate the proclivity towards reactive spending in single member districts. Reactive spending means that safe incumbents may spend little and win by a large margin while threatened incumbents may spend a lot only to win or lose by a slim margin. This provides the basis for the first hypothesis:

H1 Candidates will spend more in marginal seats.

The nature of the electoral system allows the analysis to explore spending effects for two distinct types of incumbent, i.e. constituency incumbents looking to defend their seats and regional list incumbents looking to unseat a constituency incumbent from a rival party. The presence of list incumbents gives rise to a couple of empirical implications

related to differential spending efficacy. Firstly, it is possible that major parties nominate sitting list incumbents in constituencies that they consider to be reasonably marginal and where they won a significant percentage of the vote share at the previous election. As such, list incumbents in these contests take on the role of being a challenger that also has an in-built reputation and a presumed political savviness. As such, it is possible that list incumbents glean greater marginal efficacy from their spending than constituency incumbents that hit diminishing returns faster (Jacobson 1978, 1985, 1990) or challengers that will find it difficult to gain prominence in a contest featuring two already familiar incumbents. This provides the basis for the following two hypotheses:

H2a Lists incumbents will glean greater marginal efficacy from their spending than other candidates.

H2b Non-incumbent challengers and constituency incumbents will have equivalent spending efficacy.

Additionally, there are other compelling reasons to expect that the typical challenger spending advantage found in other cases may not hold in Scotland and Wales. First, the nature of multiparty competition in these elections makes it quite difficult to clearly conceptualise an incumbent and challenger compared to the case of the US (a conceptual issue made worse by the presence of list incumbents). As such, it is more difficult to conceive of how a challenger spending advantage might come about in Scotland and Wales where each challenger's campaign is one among many. Plausible mechanisms for a challenger advantage such as space to grow name recognition is not clear cut. In the same way, it is possible that list incumbents take on the role of 'main' challenger in the constituencies they contest because they begin the race with a good deal of renown but presumably still less than the constituency incumbent. In these situations, it may be easier for list incumbents to take advantage of growing name recognition and making gains at the direct expense of the constituency incumbent than it is for non-incumbent challengers.

4.3 Literature Review

This chapter is the first in the literature to look specifically at differential candidate campaign spending efficacy in Scotland and Wales, and the first to leverage the existence of two distinct types of incumbents into analysis of spending efficacy. This research marks the first attempt to use matching to analyse spending in Additional Member electoral systems and will do this by matching candidate spending observations on covariates that can approximate seat marginality. This analysis also offers novel consideration of spending effects in young parliamentary institutions where there is little evidence from iterative election campaigns as to how spending impacts votes. As such, there is a limited amount of the spending literature that relates directly to this chapter. However, a significant amount of research has studied campaign spending in UK general elections (discussed in more detail in chapter three) such as Johnston and Pattie (2006), Johnston, Pattie and Hartman (2019), Pattie, Johnston and Fieldhouse (1995), and Pattie, Hartman and Johnston (2017). These analyses find that challenger spending in UK elections is significantly more effective than spending by incumbents. Johnston et al. (2013), Pattie, Hartman and Johnston (2017) and Pattie, Johnston and Fieldhouse (1995) also find that candidates and parties heavily target marginal constituencies. This finding is corroborated by Cutts and Johnston (2015) in their analysis of the 2011 Welsh Assembly election and the 2010 UK general election in Wales. Much of the literature on spending in the UK also approaches the topic of spending efficacy by fusing it with other questions of interest such as whether party spending affects turnout, the level of contact between parties and voters, and whether such contact increases intention to vote (e.g. Cutts and Johnston 2015; Johnston and Pattie 2012; Johnston, Pattie, Cutts and Fisher 2012).

In terms of studies on second order elections, research on spending in elections to the European Parliament in 2009 found significant effects on electoral outcomes and was presented by the authors as supporting what they called the “Sinatra Inference” (Sudulich, Wall and Farrell 2013). Basically, if spending matters in low visibility and low stakes elections such as those to the EU Parliament, then this is strong support it is a more general feature of modern democratic politics, i.e. if it can make it there, it can make it

anywhere. Benoit and Marsh (2003) also find that spending matters when focusing on the 1999 Irish local elections where median spending was just €1,500. This analysis finds that spending matters even at miniscule levels of expenditure and that challengers benefit from a spending efficacy advantage. Fink (2012) investigates the effects of party spending in German elections using a mixed electoral system similar to Scotland and Wales. The primary difference between the systems is that Germany's proportional lists are expanded until any disproportionality in constituency results is balanced out whereas the list size is fixed in Scotland and Wales leading to more disproportional results. The analysis of this chapter differs to Fink (2012) in terms of both the unit and frame of analysis. Fink (2012) focuses on party spending at the regional level and does not investigate differential efficacy whereas this chapter uses candidate level data at the constituency level and is explicitly interested in differential spending effects. More generally, the literature review covering multimember districts (chapter two) and single member districts (chapter three) have already indicated the scope of study and disagreement within this research area.

4.4 Data and Variables

This study focuses on three elections to each of the Scottish Parliament and Welsh Assembly in 2007, 2011, and 2016 using data published by the UK Electoral Commission. The total number of candidate observations is 1,584 across six elections. Unfortunately, it was not possible to separate candidates that failed to declare spending and those that declared no spending as in earlier chapters[19]. As such, the data used for the regression and matching analyses remove the candidates that failed to declare their spending and candidates that spent nil. This reduces the total number of observations by 122 to 1,462. Spending in Scotland and Wales is quite tightly regulated and fairly small. Exact spending limits for these elections was dependent on whether the constituency was designated as a county or a borough (full details can be found in Table 4.2). These spending limits and the requirement for the disclosure of spending by candidates apply

[19] The data provided by the UK Electoral Commission for Scottish and Welsh elections were not sufficiently detailed to make this distinction.

only to the election period so spending which takes place before the election is called is not included in the data. This limitation to the data should not present a serious issue as spending in the election period is probably a good proxy for what was spent in the period immediately prior to it. This issue is also common to all previous analyses on such spending effects and at the very least, results produced here will still be directly comparable to past research. Full descriptive statistics are provided in Tables 4.1 and 4.2.

The dependent variable used to test H1 is the percentage of the spending limit that a given candidate spends. The primary explanatory variable is seat marginality which is measured as the percentage size of the majority in the constituency at the last election. Seat marginality will also be interacted with both constituency and list incumbency. A negative interaction term on either incumbency variable would suggest that some types of candidates are more susceptible to reactive spending than others. H2a and H2b will be tested using percentage of constituency vote won by a candidate as the dependent variable[20]. The independent variable for H2a and H2b is candidate spending as a percentage of the total constituency spend. Constituency incumbency, list incumbency, party incumbency, a constituency boundary change dummy, an open seat dummy, gender, political party, region, parliament, year and the number of candidates contesting the constituency are also included in the regressions. The effect of constituency and list incumbent spending is captured through the use of an interaction term between the spending and incumbency variables.

The main covariate on which candidates are matched is seat marginality (the same specification as the independent variable used in H1). Seat marginality measures constituency competitiveness and is the percentage marginality of the seat at the last election. The value of the marginality variable ranges from 0.01% (Almond Valley, Scotland 2011) to 59.3% (Blaenau Gwent, Wales 2007) with a mean of 15.9% across the pooled dataset. Additionally, prior popularity (i.e. the percentage of the vote a party wins at the previous election in a given constituency) is also incorporated into regression models and matching procedures to offer robustness tests of results. The matching

[20] The analysis does not use percentage of the electorate as the dependent variable due to significant boundary changes that occur between the elections under investigation. Use of percentage of the electorate would make it impossible to include a lagged version of the dependent variable in the analysis.

Table 4.1 – Descriptive statistics (Scotland and Wales)

	Scotland	Wales	Pooled
Total Candidates	886	576	1,462
Constituency Incumbents	183	94	277
List Incumbents	105	13[21]	118
Challengers	598	469	1,067
Mean Vote Won	24.10%	20.49%	22.68%
Mean Vote Won by Constituency Incumbents	44.19%	43.45%	43.94%
Mean Vote Won by List Incumbents	31.37%	32.11%	31.45%
Mean Vote Won by Challengers	16.68%	15.57%	16.19%
Mean Spend as % of Constituency	24.72%	20.83%	23.19%
Mean Spend as % of Constituency (Constituency Incumbents)	42.49%	39.42%	41.45%
Mean Spend as % of Constituency (List Incumbents)	33.28%	31.99%	33.14%
Spend as % of Constituency (Challengers)	17.78%	16.80%	17.35%
Mean Spend	£4,561.97	£4,306.78	£4,461.44
Mean Spend by Constituency Incumbents	£7,459.20	£7,940.50	£7,622.53
Mean Spend by List Incumbents	£6,569.96	£8,232.97	£6,753.18
Mean Spend by Challengers	£3,322.82	£3,469.65	£3,387.36

analysis also utilises a multichotomous treatment variable, constructed in the same manner as in chapters two and three. The use of this multi-levelled treatment means that the data must be pooled for the matching procedure. The individual datasets or a pooled Scottish or Welsh dataset cannot provide CEM with enough data to provide a useful number of matches. As has been discussed in earlier chapters, pooling data is beneficial because the strata produced by CEM require all treatment levels observed within them and this becomes more difficult as the number of treatment levels increases. Pooling the data provides the matching procedure with 1,462 observations and supplies a partial solution to this problem. The data for the 2011 Scottish election and the 2007 Welsh

[21] The distribution of list incumbents is skewed towards Scotland. This is because candidates were not permitted to run in both constituency and list contests in the Welsh elections of 2007 and 2011. As such, only two list incumbents ran in each of these elections. When this regulation was loosened, nine list incumbents ran in the 2016 election (or in 22.5% of constituencies), a rate comparable to Scotland. This restriction was exogenous to candidate decisions and should not affect the analysis. Additionally, it is notable that the descriptive statistics are very similar between the two countries regardless of the skewed distribution. Finally and despite concerns about limiting N, analysis results for list incumbent spending are not significantly different if run using separate Scottish and Welsh data.

Table 4.2 – Spending limits and range for devolved parliament elections 2007 – 2016

Spend Limit	2007	2011	2016
	£7,150 plus 7p per elector (County) £7,150 plus 5p per elector (Borough)	£7,150 plus 7p per elector (County) £7,150 plus 5p per elector (Borough)	£8,700 plus 9p per elector (County) £8,700 plus 6p per elector (Borough)
Spending Range	Scotland (Pooled)		Wales (Pooled)
Constituency Incumbent	£676.37 – £12,680.83		£2,715.79 - £13,405.81
List Incumbent	£461.23 – £13,139.25		£2,355.38 - £12,244.70
Challenger	£17 - £13,062.22		£15.50 - £14,472.34

election are affected by boundary changes which requires the use of notional variables in some cases. Constituencies in Wales underwent major changes between the 2003 and 2007 elections while constituencies in Scotland underwent major changes between the 2007 and 2011 elections. Notional versions of seat marginality, the open seat dummy, and a dummy capturing party incumbency (i.e. the party who won the seat at the last election in cases of open seats or where boundary changes have made this different from the incumbent MP) are used where real versions are unavailable. These notional variables were constructed using resources from the websites of the parliaments as well as the comprehensive data provided by the BBC website. The role of party spending is a final key aspect of UK elections but as was discussed in chapter three, such data are not available at constituency or regional level. As such, this analysis uses party and region to control for interparty and interregional effects. More detail on campaign spending at the constituency and national level can be found in appendix C.7.

4.5 Results

The suspicion that seat marginality may drive candidate spending (H1) has already been the subject of investigation in Welsh Assembly elections with Cutts and Johnston (2015) finding evidence in support of this dynamic. The OLS analysis in Table 4.3 uses candidate spending as a percentage of the limit as the dependent variable and seat

marginality as the main explanatory variable (as well as a host of controls related to spending levels). This analysis supports the findings of earlier research in suggesting that seat marginality plays a significant role in spending decisions. Coefficients on the seat marginality variable suggest that spending declines by 0.28% of the limit for each percentage point increase in a seat's marginality. This coefficient would mean that a candidate running in a seat where the majority is 5% would spend 5.6% more of the limit than a candidate running in a constituency with a majority of 25%. More interestingly, the analysis suggests that spending decisions of list incumbents are influenced much more than either of the other types of candidate. This differential effect can be seen with the significant negative coefficient on the interaction term between spending and list incumbency. This coefficient suggests that list incumbents may spend up to 10.6% more of the spending limit in the hypothetical scenario described above. These findings are interesting for two reasons. First, they offer strong support for H1 and suggest that reactive spending does occur in Scottish and Welsh elections. Second, the results suggest that list incumbents spend more than other types of candidates as constituencies becomes more competitive. This finding illuminates previous discussion on the possibility that major parties may select list incumbents in constituencies they are targeting to win and where they have a significant prior share of the vote. As was discussed earlier, the head start in reputation and political savviness enjoyed by list incumbents over non-incumbents may leave them well placed to unseat constituency incumbents. To add to this, Table 4.3 indicates that these campaigns are better financed in marginal constituencies. These ideas will be further explored in the investigation of H2a – the expectation that lists incumbents will glean greater marginal efficacy from their spending than other candidates – and H2b – the expectation that non-incumbent challengers and constituency incumbents will have equivalent spending efficacy. The findings from Table 4.3 are also supported by graphs showing the marginal effect of seat marginality on spending in Figures 4.1 and 4.2.

To test H2a and H2b, this chapter offers 25 models generated using CEM. To test robustness of results, the basic model (i.e. the effect of spending on electoral outcomes using matched datasets) is run using five coarsened versions of seat marginality and three coarsened versions of the treatment variable (a total of 15 model specifications). These 15 models are then run using two different datasets and matching candidates on two

Table 4.3 – Spending decisions OLS (Scottish and Welsh elections)

	Pooled Data (All Elections)
	Spend as % of the limit (DV)
Seat Marginality	-0.283***
	(0.065)
Constituency Incumbency	12.400***
	(3.646)
List Incumbency	31.901***
	(4.429)
Party Incumbency	26.828***
	(2.864)
Constituency Incumbency X Seat Marginality	-0.211
	(0.117)
List Incumbency X Seat Marginality	-0.532*
	(0.255)
Constant	29.001***
	(4.658)
R^2	0.442
N	1,462

The dependent variable is denoted by the symbol (DV). Robust standard errors with clustering in constituencies provided in parentheses. Year, Boundary Changes, Party, Region, Parliament, Number of Candidates, Open Seats and Gender are included but omitted from table. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

different sets of covariates. Unfortunately, the models run using the second and smaller dataset cannot produce results when using a five-tier treatment due to small N. As such, the final five models for the second dataset are excluded leaving 25 models in total.

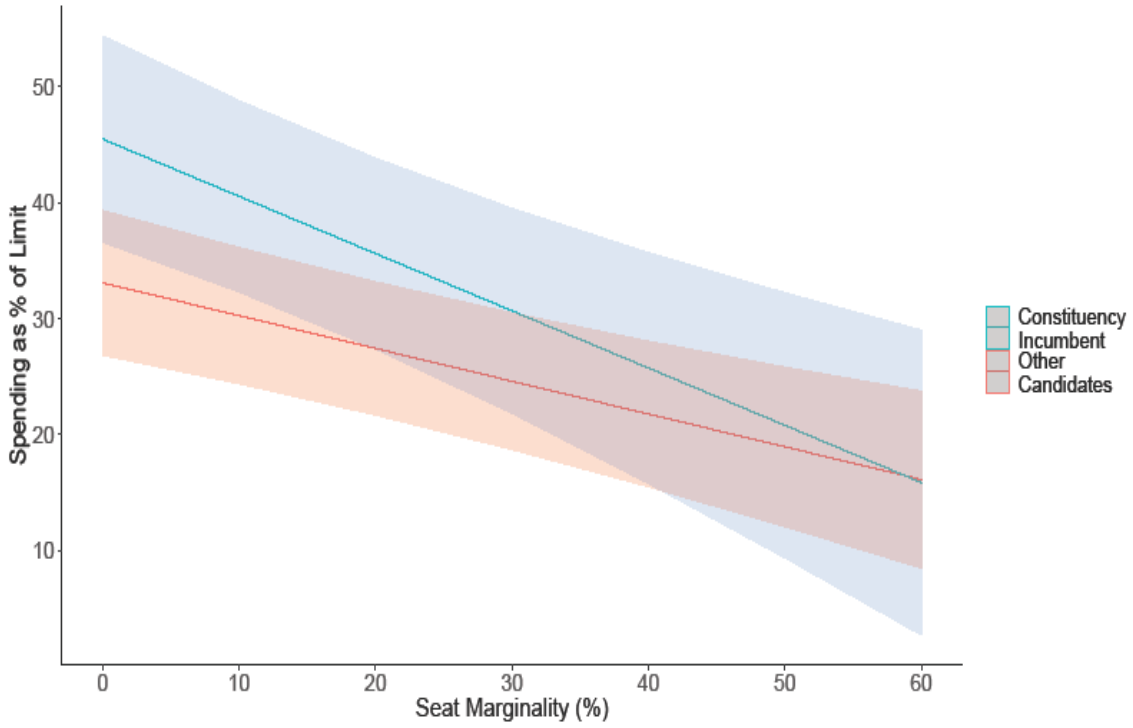

Figure 4.1 – Marginal effect of seat marginality on constituency incumbent vs other spending

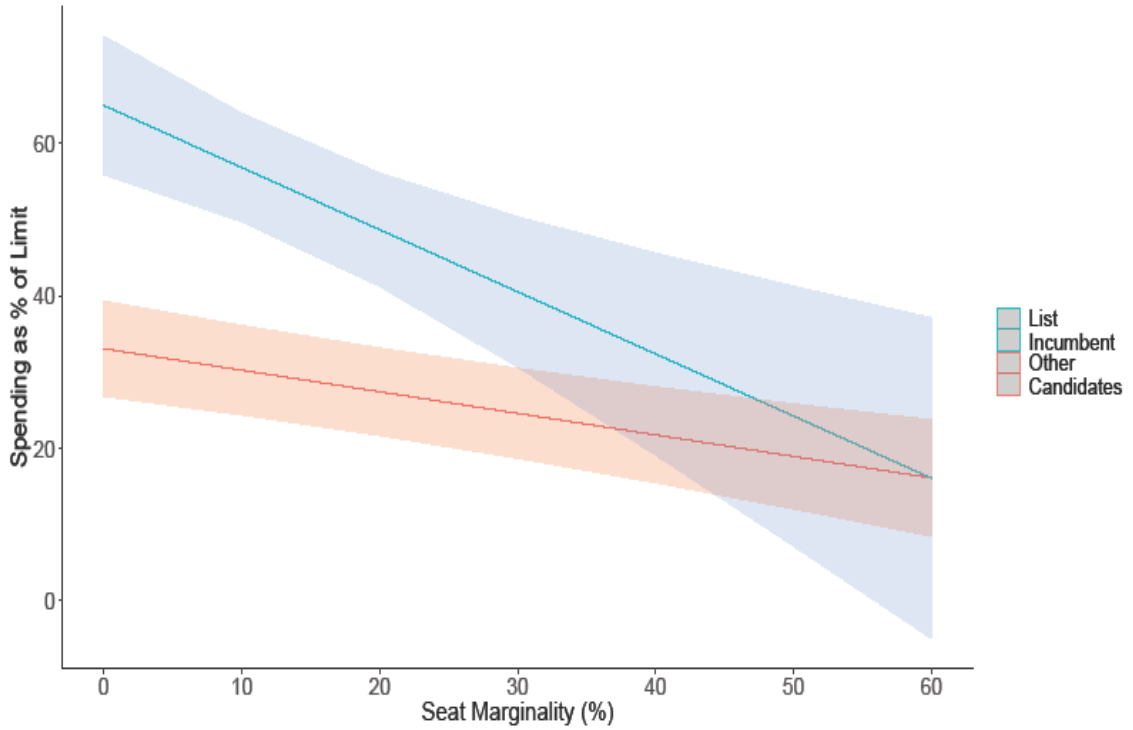

Figure 4.2 – Marginal effect of seat marginality on list incumbent vs other spending

The first 15 models use the full dataset matched on seat marginality and party. The other 10 models match candidates on seat marginality, party, and prior popularity using a reduced dataset of only major party candidates[22]. Prior popularity cannot be included in analysis of the full dataset due to the inconsistency with which minor parties run in constituency contests. All 25 models match candidates on party to control for other significant predictors of electoral performance such as partisanship and policy positions. A full explanation of the coarsened versions of the marginality, party, and prior popularity variables can be found in appendices C.1 – C.3. The matching process serves to dampen the impact of imbalance in the spending, marginality, and prior popularity variables (skewed distributions can be seen in appendix C.5). Table 4.4 shows regression results from five different models using three treatment levels and matched on seat marginality and party. Table 4.5 shows results from the same five models but using seat marginality, party, and prior popularity in the matching procedure. In terms of H2b, results from Tables 4.4 and 4.5 provide fully robust findings in showing no challenger spending advantage in any of the models. This finding is also fully robust across all 25 models that were specified at the beginning of this section.

Additionally, these 25 models were also re-run with constituency incumbent replaced by party incumbent. The party incumbent is the candidate of the party that won the constituency at the previous election. Party incumbency may differ to the constituency incumbency because of retirement or as a result of boundary change (i.e. a different party would have notionally won the seat at the last election had it been fought with current boundaries). Using the party incumbent may materially affect the analysis either through strategic retirement of incumbents or the strongly party centric nature of UK politics (i.e. the party label matters more than the individual incumbents). The 25 models using party incumbent are almost fully robust (with the exception of a single model) in showing that non-incumbent candidates do not glean a spending efficacy advantage where they face two distinct types of incumbent.

Disentangling the results for H2a is a much less straightforward task. Results from the five models in Table 4.4 show a consistent list incumbent spending advantage offering support for H2a. However, the five models in Table 4.5 that are matched on prior

[22] Conservative Party, Labour Party, Liberal Democrats, Scottish National Party, and Plaid Cymru.

popularity suggest that list incumbents do not hold a spending advantage with one model indicating a constituency incumbent advantage. Eight of the other ten models using the specification from Table 4.4 also show a list incumbent advantage (one model shows no significant interaction and one model indicates both interactions are significant). Four of the other five models using the specification from Table 4.5 show no significant effects for either type of incumbent (one model shows a constituency incumbent advantage). These results remain the same when constituency incumbent is replaced with party incumbent. Graphs showing the spending and interaction coefficients for all 25 models can be found in appendices C.3 – C.4.

It is likely the results from Table 4.4 are driven by omitted variable bias given the important nature of prior popularity in electoral outcomes. Prior popularity has been shown to have a significant impact on the efficacy of campaigns in the UK by Fieldhouse, Fisher and Cutts (2019). As such, models from Table 4.5 that take prior popularity into account are the more reliable results. These results are reasonably robust with eight of the ten models showing that neither type of incumbent (nor challengers for that matter) glean a spending efficacy advantage at the margin. Accordingly, there is little evidence to support H2a and list incumbents do not seem to enjoy a spending advantage as a result of their happy medium position between incumbents (that have exhausted their capacity to grow their profile) and challengers (that have little profile). However, list incumbents do seem to occupy an interesting space in these electoral contests and their presence almost certainly affects the spending efficacy of the other types of candidates. Most interestingly, list incumbents seem to be selected by major parties in constituencies that are fairly marginal and where their party has a significant prior vote. These trends can be seen in Figures 4.3 and 4.4 showing the distribution of list incumbents on these two measures. This suggests that list incumbents may be strategically placed into certain constituencies.

Table 4.4 – CEM spending efficacy: marginality and party (Scotland and Wales)

All models use spending divided into 3 levels as treatment	Marginality Specification A	Marginality Specification B	Marginality Specification C	Marginality Specification D	Uncoarsened Model
	(1)	(2)	(3)	(4)	(5)
% Constituency Spend	0.452***	0.419***	0.368***	0.383***	0.412***
	(0.016)	(0.015)	(0.014)	(0.014)	(0.015)
Constituency Incumbency	8.586***	7.772***	6.284**	8.390***	7.510**
	(2.245)	(2.284)	(2.193)	(2.258)	(2.286)
List Incumbency	-1.546	-1.570	-1.990	-1.963	-2.216
	(1.950)	(1.939)	(1.984)	(1.864)	(2.064)
Party Incumbency	11.469***	11.774***	12.294***	11.953***	11.672***
	(0.984)	(1.024)	(1.034)	(1.039)	(1.040)
Spend X Constituency Incumbency	-0.064	-0.029	0.028	-0.018	-0.004
	(0.051)	(0.051)	(0.049)	(0.050)	(0.051)
Spend X List Incumbency	0.141**	0.154**	0.200***	0.184***	0.179**
	(0.054)	(0.053)	(0.056)	(0.052)	(0.056)
Constant	17.542***	18.464***	18.940***	17.933***	19.235***
	(1.565)	(1.062)	(1.536)	(1.552)	(1.615)
N	1,217	1,239	1,391	1,369	1,210

The dependent variable is percentage of vote won. Standard errors in parentheses. Party, Marginality, Boundary Changes, Region, Gender, Open Seat, Year, Parliament and Number of Candidates are included but omitted from table. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Table 4.5 – CEM spending efficacy: marginality, party and prior vote (Scotland and Wales)

All models use spending divided into 3 levels as treatment	Marginality Specification A	Marginality Specification B	Marginality Specification C	Marginality Specification D	Uncoarsened Model
	(1)	(2)	(3)	(4)	(5)
% Constituency Spend	0.206***	0.223***	0.286***	0.286***	0.345***
	(0.020)	(0.015)	(0.015)	(0.015)	(0.053)
Constituency Incumbency	-5.339	-4.607	-3.755	-2.741	-0.218
	(6.207)	(6.059)	(5.871)	(5.960)	(7.383)
List Incumbency	-6.263	-0.958	-1.750	-0.658	3.390
	(3.369)	(2.281)	(2.196)	(2.121)	(4.337)
Party Incumbency	0.674	1.062	1.934	2.050	-0.172
	(3.447)	(3.315)	(2.992)	(3.159)	(4.177)
Prior Popularity	0.593***	0.677***	0.575***	0.588***	0.099
	(0.052)	(0.043)	(0.039)	(0.041)	(0.133)
Spend X Constituency Incumbency	0.335*	0.226	0.191	0.166	0.202
	(0.165)	(0.160)	(0.160)	(0.159)	(0.212)
Spend X List Incumbency	0.213	0.035	0.037	0.010	-0.191
	(0.140)	(0.091)	(0.092)	(0.088)	(0.153)
Constant	11.370***	10.733***	11.106***	11.698***	18.320**
	(2.250)	(1.778)	(1.570)	(1.584)	(5.898)
N	476	733	838	828	148

The dependent variable is percentage of vote won. Standard errors in parentheses. Party, Marginality, Boundary Changes, Region, Gender, Open Seat, Year, Parliament and Number of Candidates are included but omitted from table. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

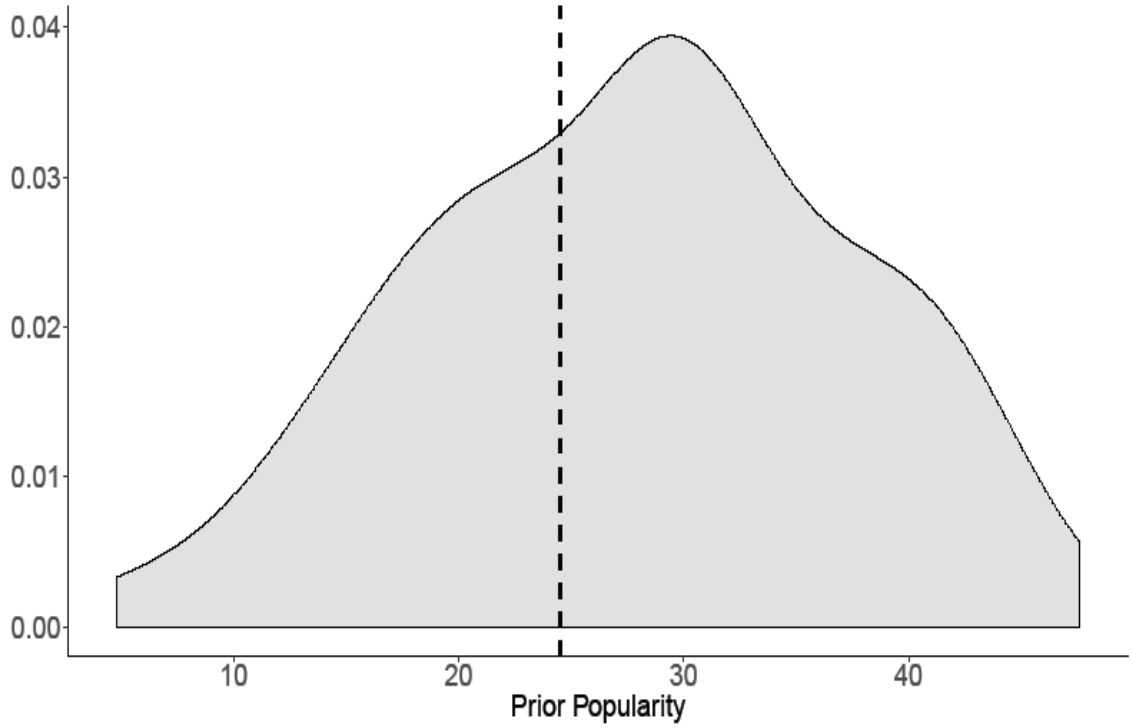

Figure 4.3 – Distribution of prior popularity for list incumbents (line = full dataset mean)

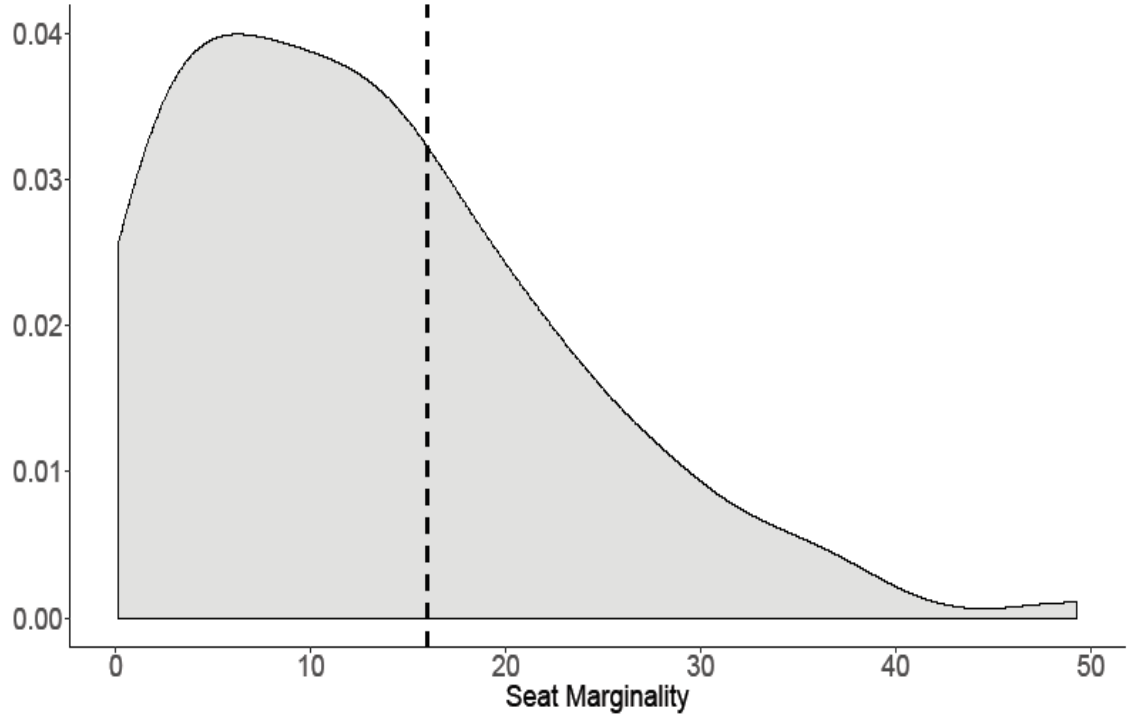

Figure 4.4 – Distribution of seat marginality for list incumbents (line = full dataset mean)

4.6 Discussion

The analysis of this chapter suggests the spending decisions of candidates in Scottish and Welsh elections are influenced by the marginality of the seat they are contesting. This finding concurs with previous work on Welsh Assembly elections by Cutts and Johnston (2015). These results highlight the need to consider the role of reactive spending in biasing regression estimates and to use methodologies capable of appropriately weighting problematic data. Additionally, this finding is novel is suggesting that list incumbents are more susceptible to ramp up spending in marginal seats than other types of candidates. List incumbents not only enjoy a prominence advantage over the typical challenger but are also capable of attracting significant resources to threaten constituency incumbents in marginal seats. However, the analysis finds little evidence to suggest list incumbents turn their hybrid incumbent/challenger position into a spending efficacy advantage. It is possible that list incumbents have a level of name recognition more comparable to constituency incumbents than originally theorised in this chapter. As such, list incumbents may hit diminishing returns on spending at roughly the same rate as constituency incumbents (or at least not a significantly different rate to make a material difference). It is also possible that the nature of the matching procedure and the way in which it controls for seat marginality and prior popularity explains these results. Inferences drawn from the matched analysis in Table 4.5 are best understood in terms of estimating differential spending effects for candidates in constituencies with similar seat marginality and similar prior popularity. As such, the results suggest that constituency incumbents glean a similar return on spending to list incumbents in marginal constituencies (the contests that matter most). Constituency incumbents may be able to utilise resources most effectively when they are in a tight race and focus their resources to mobilise supporters. In this sense, the matching process is ensuring that the estimates for constituency incumbents in marginal seats are not skewed by the lopsided return on spending for safe constituency incumbents.

This chapter also finds that nonincumbents do not glean a spending efficacy advantage in Scottish and Welsh elections. This finding is robust and runs contrary to previous spending analyses on the UK. There are many possible reasons why a challenger

spending advantage may not exist in the contexts studied. First, the impact of list incumbents may dampen the effect of non-incumbent spending. Second, multiparty competition in single member districts may not create the appropriate conditions for such an advantage to emerge. Third, it is possible that previous findings of a challenger spending advantage in UK elections was the product of biased estimates caused by reactive spending (an issue managed through use of matching in this chapter). These findings make sense given the nature of the political systems under investigation. The role of multiparty competition and the presence of list incumbents create an inhospitable environment for the average challenger to increase their profile and make gains at the direct expense of the constituency incumbent. The role of list incumbents is the most interesting dynamic revealed in this analysis. This hybrid incumbent/challenger tends to spend more in marginal contests than other candidates, tends to be selected to contest more marginal seats, and has an election rate that dwarfs that of the average challenger.

All of these factors suggest that list incumbents occupy a position of being an extremely dangerous opponent for constituency incumbents. The presence of list incumbents also most likely limits the ability of non-incumbents to compete in the constituencies in which they run. Accordingly, it is possible that list incumbents can muscle out the conventional challenger discussed in this literature, making it much more difficult for them to succeed. While the success rate of list incumbents does mean that constituency incumbents find themselves meaningfully challenged, the replacement of an incumbent with another type of incumbent is not how we traditionally understand this mechanism of incumbent accountability.

The findings of this chapter clearly show that it would be unwise to import spending efficacy results from previous literature into Scotland and Wales. The dynamics brought about by the electoral system and the significant presence of list incumbents means that even results from UK general elections (such as Johnston and Pattie 2006) are not generalisable. The policy advice arising from previous research suggests relaxing spending regulation to allow challengers to utilise their spending efficacy advantage (Abramowitz 1988; Bonneau and Cann 2011; Jacobson 1978). However, this chapter argues this would not assist challengers in elections to the devolved legislatures (because they do not glean such an advantage). In fact, such regulation may allow constituency

and list incumbents to take advantage of their in-built prominence to an even greater extent (not least because of a likely advantage in fund raising ability). As such, the competitiveness and integrity of electoral contests to the devolved legislatures is dependent on acknowledgement of the fairly weak position occupied by challengers in terms of spending efficacy and the strong position occupied by list incumbents in terms of strategic placement, fundraising, and their uniquely hybrid nature. The major problem for challengers in this case is not only the difficulty they face in overhauling the in-built lead of the constituency incumbent but also competing with list incumbents in many cases. Without the spending efficacy advantage found in previous work, this task becomes all the more difficult. Given the particularly precarious position of challengers in Scottish and Welsh elections, it may be useful to establish public funding for challengers to assist them in financially competing with both constituency and list incumbents.

Aggregate level analyses in the preceding chapters have shown equivalent spending efficacy for incumbents and challengers in Irish and British elections (a finding contrary to much of the established literature). In order to lend confidence to these dissenting results, the next chapter will use disaggregated spending data to test causal mechanisms related to the challenger spending efficacy advantage found in previous research (e.g. Benoit and Marsh 2010; Jacobson 1978, 1985, 1990; Pattie and Johnston 2006). The combined aggregate and disaggregate analyses across contexts will provide a comprehensive oversight of spending effects and provide good robustness tests for findings.

Chapter 5

Not Just How Much, But Also How: Challenger and Incumbent Campaign Spending Re-examined

Abstract

Previous literature has shown challenger spending has a greater marginal efficacy in winning votes. Yet, these studies do not investigate *how* candidates spend money but instead focus on aggregate spending levels. This chapter re-examines the existence and source of differential spending effects between challengers and incumbents by investigating disaggregated categories of spending. The analysis investigates whether challengers and incumbents glean differential efficacy in terms of how and not just how much they spend. This chapter discerns whether differences in spending efficacy are found at the disaggregated level and whether they support results from previous aggregate analyses. A novel dataset of approximately 14,500 observations from parliaments in the UK and Ireland is brought to bear on the analysis and explores whether certain types of spending are more effective for challengers than for incumbents and whether efficacy of spending diversification differs based on incumbency status. The chapter examines effects for consistency across context and tests their empirical robustness by using matching to manage concerns related to spending data. The results do not offer support for a significant difference between incumbents and challengers in spending or diversification efficacy.

5.1 Introduction

This chapter builds upon the aggregate analyses in preceding chapters and discusses a gap in the spending literature – the use of disaggregated data. Previous analyses have used only aggregate data to investigate differential spending efficacy between incumbents and challengers. Results from much of this literature point to a challenger spending advantage over their incumbent rivals, though there is a number of dissenting studies (e.g. Benoit and Marsh 2008; Erikson and Palfrey 2000; Gerber 1998; Green and Krasno 1988, 1990; Johnson 2013). These dissenting studies are united by approaches that take a sideways look at spending efficacy and accordingly, offer nuanced conclusions that challenge previous results. This chapter follows the lead of these studies in analysing differential incumbent and challenger spending effects using a novel dataset of fine-grained disaggregated data. Raw datasets were significantly expanded and tailored for this research project while Irish categorical spending data were manually compiled using election expenses statements. Fine-grained data allow analysis of what candidates spend their money on rather than just how much they spend. By delving down a level from the aggregate, this study offers the unique opportunity to separate out differential spending effects for incumbents and challengers across categories of spending. Exploring categories of spending allows assessment of whether aggregate analyses over-estimate the efficacy of certain types of spending. This fine-grained data will be used to investigate the plausibility of a challenger spending advantage in each context from chapters two, three, and four.

The analysis will test two plausible causal mechanisms for differential spending effects in each of the contexts discussed in this thesis. First, do challengers glean more efficacy out of certain types of spending than incumbents (e.g. by focusing on categories that boost name recognition such as posters or election materials)? Second, does diversification of expenditure across spending categories benefit challengers more than incumbents (e.g. by distributing spending across many categories)? The first question is motivated by discussion of name recognition (Jacobson 1978, 1985, 1990) and the second question is motivated by the pioneering work of Sudulich and Wall (2011). Additionally, the methods used in this analysis take the same novel approach as previous chapters and all

results are subject to robustness tests using a coarsened exact matching process. Conceptualisation of spending as a disaggregated process and use of improved statistical methods offers an innovative way to assess the differential effects of spending as well as testing the plausibility of mechanisms. The analysis does not find significant evidence that either of the mechanisms give rise to a challenger spending advantage.

Data for this chapter are disaggregated based on the reporting requirements of the Standards in Public Office Commission and the UK Electoral Commission. Data are disaggregated into eight categories for Irish elections and six categories for UK elections (full details can be found in appendix D.1). As such, it is possible to argue the data are not detailed enough to reveal significant differential effects in terms of categorical spending linked to name recognition. This concern is particularly relevant for UK elections given there are only six spending categories (of which only two are related to name recognition). However, the eight categories available for Irish elections (of which three are linked to name recognition) allow for more confident testing of the mechanism. Additionally, analysis focusing on diversification efficacy is not affected because it is not reliant on leveraging specific types of spending (such as expenditure linked to name recognition). Accordingly, this chapter uses the available data to test the plausibility of differential spending efficacy through consideration of results in a coherentist manner. This approach will assess this chapter's results in relation to one another as well as in conjunction with aggregate analyses from earlier chapters. The findings within this chapter and results across chapters are sufficiently similar (despite the varying level of detail in data) to draw conclusions related to the plausibility of differential spending efficacy. Overall, the findings offer support for the conclusions drawn from aggregate analyses in chapters two, three, and four.

5.2 Theory, Hypotheses and Context

This chapter offers two sets of hypotheses that will apply to all contexts analysed in chapters two, three, and four. Discussion in this chapter will be limited to new contributions related to the use of disaggregated spending data and the testing of causal

mechanisms given the extensive contextualisation of the cases in previous chapters. This approach intends to minimise repetition. The first hypothesis relates to whether incumbents and challengers glean differential efficacy from certain types of spending. Jacobson (1978, 1985 and 1990) studies US congressional elections and argues that a challenger spending advantage may arise because they begin the campaign in relative obscurity and their spending is effective in increasing their name recognition. In contrast, incumbents are already well-known (Eggers et al. 2015; Smith 2013) and as such, they quickly reach diminishing spending returns on increases in name recognition. Challenger spending on categories linked to name recognition like posters, unsolicited materials, and election materials should be more effective if name recognition explains a challenger advantage (Jacobson 1978, 1985, 1990). These categories are particularly important as the cases under investigation greatly restrict political advertising on TV and radio. These regulations mean posters and leaflets are the main method of increasing candidate name recognition. The analysis will leverage categories linked to name recognition by interacting them with incumbency. Results should show a spending efficacy advantage in such categories conditioned by the amount of room a candidate has to grow name recognition. Room to grow reputation should be greatest for challengers (across all cases), moderate for list incumbents (in Scotland and Wales), and smallest for constituency incumbents (across all cases). This discussion gives rise to the following hypotheses:

H1a Challenger spending efficacy in categories directly linked to a boost in name recognition should be greater than for incumbents in Irish and UK elections.

H1b Challenger spending efficacy in categories directly linked to a boost in name recognition should be greater than for both constituency and list incumbents in Scottish and Welsh elections.

The second hypothesis expands on the work of Sudulich and Wall (2011) by measuring diversification of spending across categories. This hypothesis will investigate whether challengers hold a spending advantage in terms of diversification. The findings of Sudulich and Wall (2011) on the 2007 Irish General Election suggest that diversification has a positive effect on electoral outcomes. Diversification across categories should help candidates reach a larger share of the electorate while over-investment in a single

category may be subject to diminishing returns (Sudulich and Wall 2011). However, the positive electoral impact of diversification is conditioned on overall spending, i.e. well financed campaigns benefit from spreading resources across categories whereas poorly funded campaigns fare better when focusing on few categories (Sudulich and Wall 2011). It makes sense intuitively that a well-financed campaign benefits from diversification of spending whereas a poorly funded campaign may get more out of focusing spending in a small number of categories. Spreading few resources too thinly may mean none of the spending is enough to have an impact. The purposes of the diversification analysis in this chapter are two-fold. First, it is a useful alternative measure of campaign spending efficacy to test the challenger spending advantage. Second, it extends the analysis of Sudulich and Wall (2011) to new contexts in the UK. Based on arguments advanced by Sudulich and Wall (2011), we can draw the following hypothesis and test it using UK data for the first time.

H2a Diversification will have a positive impact on electoral outcome, once we account for overall spending level.

Additionally, there is no strong theoretical expectation that diversification efficacy should differ between incumbents and challengers once we account for overall spending.

H2b Efficacy of spending diversification will be equivalent between all incumbent types and challengers, once we account for overall spending level.

5.3 Previous Innovative Spending Analyses

Much of the literature on spending effects focuses on aggregate spending efficacy using standard OLS and two-stage least squares (2SLS) models. As discussed in earlier chapters, results on differential spending effects in the literature are mixed with many showing a challenger spending advantage. However, other studies (typically employing a non-standard approach) offer nuanced results that show a roughly equivalent return on spending for both challengers and incumbents (see Table 5.1 for examples). The need for a more nuanced non-standard approach to the question of spending efficacy primarily

Table 5.1 – Previous innovative studies of spending effects

Author	Innovation	Context	Main Results
Johnson (2013)	Case matching to manage covariate imbalance and high leverage observations	Brazilian, Irish and Finnish general elections 2002-07	Challenger and incumbent spending are equivalent.
Green and Krasno (1988, 1990)	OLS and 2SLS using an 8-point scale to control for challenger quality	US House 1976-80 and 1984-86	Incumbent spending efficacy is significant and close in magnitude to challengers.
Erikson and Palfrey (2000)	OLS estimating spending effects in only close races	US House 1974-80 and 1984-90	Spending efficacy of incumbents and challengers is roughly equivalent.
Benoit and Marsh (2008)	OLS and 2SLS using incumbent perquisite spending as a separate variable	Irish general election 2002	Spending efficacy of incumbents and challengers are broadly equivalent once we account for variable perquisite spend of incumbents.
Sudulich and Wall (2011)	Analysis of spending effects disaggregated by category	Irish general election 2007	Certain types of spending are more effective than others. Diversification of spending has positive impact on vote but only at higher levels of spending.

originates from problems with spending data. These issues (discussed at length in earlier chapters) have caused significant levels of doubt over the reliability of findings that show a challenger spending advantage. There have been many efforts to use instrumental variable analysis (2SLS) to get around these data issues. However, there are concerns over the under-identification of such instruments given the difficulty of finding an instrument for spending that is unrelated to electoral outcomes. A more fruitful avenue has been to employ innovative approaches such as case matching (Johnson 2013),

focusing only on close races (Erikson and Palfrey 2000) or taking advantage of specific regulations around perquisite disclosure (Benoit and Marsh 2008). These studies make more reliable claims by directly tackling issues in the data while also narrowing the inferences made. These studies improve upon previous efforts to understand differential spending effects between incumbents and challengers by shifting the focus away from broad aggregate claims about spending effects and towards more specific claims about close races (Erikson and Palfrey 2000), use of perquisites (Benoit and Marsh 2008) or relative spending differences between matched candidate dyads (Johnson 2013). This study will offer a significant contribution to this nuanced literature in three ways. First, this chapter will assess the credibility of results from the aggregate level by boring down into disaggregated figures. Second, the analysis will manage issues of data imbalance and model dependence by using coarsened exact matching (CEM). The use of CEM also allows for the drawing of more focused inferences about subsets of the data (something not possible using the case matching approach of Johnson 2013). These focused inferences lend credibility to results because matched subsets are less affected by data issues than the full dataset. Third, this analysis extends the research of Sudulich and Wall (2011) to the UK House of Commons, Scottish Parliament, and Welsh Assembly. This chapter also expands on the framework of Sudulich and Wall (2011) by using categorical spending data to directly investigate differential incumbent and challenger spending effects for the first time in the literature. Additionally, using novel data available for the 2010 and 2015 House of Commons elections, this chapter extends the diversification measure used by Sudulich and Wall (2011) to spending in two separate campaign periods (the short and long campaigns as discussed in chapter three), adding an extra layer to the analysis.

5.4 Data and Variables

Disaggregated data for this chapter are drawn from twelve elections – three to the UK House of Commons (2010, 2015, and 2017), three to the Irish Dáil (2007, 2011, and 2016), and three each to the Scottish Parliament and Welsh Assembly (2007, 2011, and 2016). The data are published by the UK Electoral Commission and the Standards in

Public Office Commission (SIPO). The 2005 UK general election and the 2002 Irish general election are dropped from analysis in comparison to earlier chapters because disaggregated data for these elections are not available. There are three distinct pooled datasets used for the analysis. The first pools three House of Commons elections into a dataset comprising 11,306 observations, the second pools three Irish elections to create a dataset of 1,587 observations, and the third pools six elections to the Scottish Parliament and Welsh Assembly into a dataset containing 1,584 observations. The analysis is dependent on disaggregated spending figures as published by the UK Electoral Commission and SIPO[23].

Unfortunately, there is a discrepancy between the aggregate and disaggregate figures for a significant amount of the data. I suspect these inconsistencies are a combination of candidate errors in filing returns, errors by staff in transferring the data into spreadsheets, and confusion over when the official campaign period began (as I suspect is the case for the 2016 Irish election[24]). In order to compensate for the possible inaccuracy of some of the data, I drop observations where the difference between the aggregate and disaggregate figures is greater than €/£ 20 (a very conservative benchmark). This benchmark removes 324 observations from the Irish dataset, 595 from the UK dataset, and 63 from the devolved legislatures dataset. As in earlier chapters, the analysis drops candidates who fail to declare their spending as well as candidates in Northern Ireland and the Speaker's constituency for the House of Commons. Additionally, candidates that spend nothing are excluded because the analysis focuses on spending decisions and diversification. The datasets left for analysis comprise 9,278 observations for the House of Commons, 1,255 for Dáil Éireann, and 1,399 for the Scottish and Welsh legislatures. A year variable is included to control for inter-election effects arising from pooling of data and a parliament variable is included to control for inter-parliamentary effects between the Scottish

[23] I am also very grateful to Maria Laura Sudulich and Matthew Wall for sharing their disaggregated data from the 2007 Irish election after SIPO informed me the original copies no longer existed.

[24] The election expenses statements for the 2016 Irish election suggest that a significant number of candidates initially included spending that took place just before the beginning of the official campaign. The aggregate figures provided by SIPO do not include this spending as it is outside the regulated campaign period. Unfortunately, SIPO did not provide information alongside the expenses statements to allow me to separate out spending included in the aggregate figures from spending not included. As such, I was unable to confidently align the aggregate and disaggregate spending figures for many candidates in 2016.

Parliament and Welsh Assembly (such measures to control for side effects of pooling spending data has precedent in the literature, e.g. Johnson 2013).

For H1, the main dependent variable is percentage of the constituency vote won (UK elections)[25] or percentage of the constituency quota won (Irish elections). The spending variable for H1 is measured as the percentage of the total constituency spend that a given candidate spends on a given category. This measure of spending is then interacted with incumbency to discern differential effects. For a full breakdown of spending categories used in this chapter, please see Tables 5.3–5.6. For H2, the dependent variables are the same as is used for H1. The main independent variable for H2 is diversification of candidate expenditure across categories of spending (i.e. did a given candidate spend significantly across several categories or focus spending on one or two categories). This measure of diversification is a Herfindahl-Hirschman index of spending decisions and was pioneered by Sudulich and Wall (2011). The index is similar to other measures of fragmentation used in political science such as the effective number of political parties (Laakso and Taagepera 1979). For full details please see appendix D.1. Analysis for H1 and H2 are carried out using CEM regression models that are matched on the same covariates as in previous chapters. The controls included in these regressions are also similar to analyses in previous chapters and a full overview can be found in Table 5.2. Additionally, extensive descriptive statistics are presented in Tables 5.3–5.7.

Table 5.2 – Control variables included in disaggregated spending regressions

All Contexts	Scottish and Welsh Elections	UK Elections	Irish Elections
Overall Spending Level	Seat Marginality	Seat Marginality	Candidate Quality
Year	Party Incumbency	Party Incumbency	District Magnitude
Party	Boundary Changes	Boundary Changes	Party Spend
Open Seats	Region	Region	
Gender	List Incumbency		
Number of Candidates	Parliament		

[25] The analysis does not use percentage of the electorate as the dependent variable due to significant boundary changes that occur between the elections under investigation. Use of percentage of the electorate would make it impossible to include a lagged version of the dependent variable in the analysis.

Table 5.3 – House of Commons descriptive statistics (short campaign)

Category	Average Spend	Incumbents	Challengers
Advertising	£598.03	£1,196.74	£480.82
Unsolicited Materials	£2,898.74	£6,412.55	£2,210.83
Transport	£39.75	£104.43	£27.09
Public Meetings	£19.44	£30.15	£17.34
Staff	£272.33	£826.13	£163.91
Accommodation	£342.50	£1,019.02	£210.06

Table 5.4 – House of Commons descriptive statistics (short and long campaign)

Category	Average Spend	Incumbents	Challengers
Advertising	£861.73	£1,647.15	£728.93
Unsolicited Materials	£4,960.54	£11,948.16	£3,779.04
Transport	£51.37	£114.60	£40.68
Public Meetings	£50.59	£77.37	£46.07
Staff	£702.64	£1,854.59	£507.86
Accommodation	£697.59	£1,956.44	£484.73

Table 5.5 – Scottish Parliament and Welsh Assembly descriptive statistics

Category	Average Spend	Constituency Incumbents	List Incumbents	Challengers
Advertising	£670.87	£1,093.77	£1,112.06	£512.26
Unsolicited Materials	£3,142.06	£5,260.21	£4,572.16	£2,434.69
Transport	£61.42	£127.98	£64.38	£43.88
Public Meetings	£12.49	£14.32	£27.07	£10.38
Staff	£114.14	£166.49	£186.91	£92.48
Accommodation	£438.82	£975.76	£764.74	£263.60

Table 5.6 – Dáil Éireann descriptive statistics

Category	Average Spend	Incumbents	Challengers
Advertising	€2,587.11	€3,455.86	€2,293.51
Publicity	€233.06	€283.46	€216.03
Posters	€4,712.77	€7,039.76	€3,926.36
Other Election Materials	€3,309.48	€4,632.45	€2,862.38
Office	€897.38	€1,715.51	€620.89
Transport	€285.60	€343.57	€266
Research	€33.88	€96.27	€12.80
Campaign Workers	€228.01	€563.06	€114.78

Table 5.7 – Descriptive statistics (percentages)	House of Commons	Dáil Éireann	Scottish and Welsh Legislatures
Total Candidates	9,278	1,255	1,399
Mean Quota/Percentage of Vote Won	18.84%	39.62%	22.68%
Mean Spend	19.05%	8.32%	23.15%
Mean Advertising Spend	2.68%	-	3.44%
Mean Unsolicited Materials Spend	13.36%	-	16.48%
Mean Transport Spend	0.19%	-	0.33%
Mean Public Meetings Spend	0.09%	-	0.06%
Mean Staff Spend	1.18%	-	0.52%
Mean Accommodation Spend	1.57%	-	2.31%
Mean Advertising Spend	-	1.54%	-
Mean Publicity Spend	-	0.14%	-
Mean Poster Spend	-	2.82%	-
Mean Other Election Material Spend	-	2.01%	-
Mean Office Spend	-	0.54%	-
Mean Transport Spend	-	0.18%	-
Mean Research Spend	-	0.02%	-
Mean Campaign Workers Spend	-	0.13%	-
Mean Categorical Diversification	26.32	56.28	30.13

For Irish elections, the dependent variable is percentage of the quota based on district magnitude and voter turnout. For elections in the UK, Scotland, and Wales, the dependent variable is percentage of the vote won in single seat districts. All spending variables are operationalised as percentage of the constituency total.

5.5 Results

To test hypotheses H1a[26] and H1b[27], this chapter will investigate whether challengers glean greater efficacy out of categories linked to name recognition. The regression analyses presented below are carried out using CEM and are matched on the same variables as in previous chapters (refer back to appendices A.1–A.2, B.1–B.3, and C.1–C.3 for full details of variables used). As in previous chapters, coarsened versions of variables and treatment levels are used to robustness test results. The presented analyses differ from each other depending on the context. For clarity, I will detail the differences here. For Irish elections, the regression analysis is carried out using two distinct datasets – one containing all data and one in which 2016 data are dropped. Dropping the 2016 data is related to candidate confusion over when the official campaign period began for this election (as was mentioned in section 5.4) and acts as a robustness test of results. For House of Commons elections, analyses are carried out using data from only the short campaign (2005–2017) and also using data from the short and long campaign combined (2010–2015). These analyses are carried out with two CEM formulas – one matched on party and seat marginality, and the other matched on party, seat marginality, and prior popularity. For elections to Scottish and Welsh legislatures, analyses are carried out to estimate the differential effects for constituency incumbents, list incumbents, and challengers. These analyses also use the two CEM formulas specified for the House of Commons. Analyses incorporating prior popularity are carried out using only major party candidates. Tables 5.8–5.10 show results with spending categories linked to name recognition in bold. These tables show a sample of all models run, and the total number of models varies by context. This variation is due to size of datasets, number of variables used in matching, and number of coarsenings used. Tables 5.8–5.10 offer coefficients on interaction effects between categories of spending and incumbency (full graphical illustrations of coefficients can be found in appendices D.2–D.8).

[26] The expectation that challenger spending efficacy in categories directly linked to name recognition should be greater than for incumbents in Irish and UK elections.
[27] The expectation that challenger spending efficacy in categories directly linked to name recognition should be greater than for both constituency and list incumbents in Scottish and Welsh elections.

For House of Commons elections in Table 5.8, coefficients on the incumbent interaction term are non-significant bar one positive interaction effect on advertising (though this is not robust across models). 54 out of all 60 models run using House of Commons data show no evidence of a challenger spending advantage in categories linked to name recognition. Six models run using only short campaign data and controlling for prior popularity indicate a negative significant effect for incumbent spending on advertising. However, these effects disappear in the same models using short and long campaign data. Additionally, nine other models using the same data find no such effects. As such, these findings of an incumbent disadvantage on advertising are not robust. For Scottish and Welsh elections in Table 5.9, the interaction between constituency incumbents and advertising is negative and significant. However, this effect is not present in four of the 15 models and disappears in all five models controlling for prior popularity (models using more than three treatment levels and prior popularity are not run here due to issues with size of dataset). Interaction effects for list incumbents are positive and significant in the first 15 models run for Scottish and Welsh elections. However, four of the five models controlling for prior popularity show no significant effect for list incumbents. As such, there does not seem to be robust effects for either constituency or list incumbents in Scottish and Welsh elections. For Irish elections in Table 5.10, the incumbent interactions are non-significant indicating no evidence of a challenger advantage. Effects for Irish elections hold across all eight models using three treatment levels. Irish models using more than three treatment levels are not run here due to constraints related to size of the dataset. These analyses suggest little evidence to support either H1a or H1b.

Table 5.8 – CEM categorical spending efficacy: UK elections

	UK (Short Campaign)		UK (Short and Long Campaign)	
3 Treatment Levels	CEM	CEM Prior Popularity	CEM	CEM Prior Popularity
Advertising	**0.23*** (0.01)**	**0.09*** (0.02)**	**0.12*** (0.02)**	**-0.04 (0.04)**
Advertising X Incumbency	**0.06 (0.06)**	**-0.11 (0.14)**	**0.30*** (0.07)**	**0.10 (0.18)**
Unsolicited Materials	**0.30*** (0.01)**	**0.15*** (0.01)**	**0.26*** (0.01)**	**0.18*** (0.02)**
Unsolicited Materials X Incumbency	**-0.04 (0.04)**	**0.06 (0.08)**	**0.02 (0.04)**	**0.03 (0.08)**
Transport	-0.08 (0.10)	-0.05 (0.19)	-0.33* (0.14)	-0.69* (0.34)
Transport X Incumbency	0.47 (0.32)	-1.41 (0.98)	1.43* (0.57)	-0.20 (1.17)
Public Meetings	1.46*** (0.15)	0.85*** (0.25)	0.67*** (0.11)	0.13 (0.20)
Public Meetings X Incumbency	-1.94* (0.88)	8.36** (2.69)	-0.09 (0.56)	0.28 (1.45)
Staff	0.58*** (0.03)	0.21*** (0.06)	0.29*** (0.02)	-0.11 (0.06)
Staff X Incumbency	0.30*** (0.05)	-0.05 (0.23)	0.41*** (0.06)	0.54 (0.30)
Accommodation	0.55*** (0.04)	0.17*** (0.04)	0.37*** (0.04)	0.33*** (0.06)
Accommodation X Incumbency	-0.15 (0.11)	-0.08 (0.23)	0.16 (0.12)	0.10 (0.24)
N	8,122	3,472	5,408	1,708

Standard errors provided in parentheses. Dependent variable is % of constituency vote won. All independent variables are operationalised as % of constituency spend. Controls for Level of Spending, Seat Marginality, List Incumbency, Party Incumbency, Year, Parliament, Boundary Changes, Party, Region, Number of Candidates, Open Seats, Gender and Overall Spending X Incumbency are included but omitted from table. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Table 5.9 – CEM categorical spending efficacy: Scottish and Welsh elections

	Constituency Incumbency		List Incumbency	
3 Treatment Levels	CEM	CEM Prior Popularity	CEM	CEM Prior Popularity
Advertising	**0.61*** (0.07)**	**0.20*** (0.03)**	**0.61*** (0.07)**	**0.20*** (0.03)**
Advertising X Incumbency	**-0.33* (0.13)**	**0.51 (0.62)**	**0.10 (0.19)**	**0.29 (0.17)**
Unsolicited Materials	**0.37*** (0.03)**	**0.18*** (0.02)**	**0.37*** (0.03)**	**0.18*** (0.02)**
Unsolicited Materials X Incumbency	**0.02 (0.07)**	**0.41 (0.31)**	**0.47*** (0.12)**	**0.33 (0.18)**
Transport	-0.28 (0.33)	-0.43 (0.27)	-0.28 (0.33)	-0.43 (0.27)
Transport X Incumbency	0.23 (0.52)	0.60 (1.08)	1.20 (1.53)	0.57 (1.85)
Public Meetings	-1.08 (0.77)	-0.13 (1.31)	-1.08 (0.77)	-0.13 (1.31)
Public Meetings X Incumbency	1.12 (1.34)	4.24 (12.66)	-2.12 (1.76)	-0.12 (2.65)
Staff	0.86*** (0.15)	1.07*** (0.13)	0.86*** (0.15)	1.07*** (0.13)
Staff X Incumbency	-0.83* (0.33)	-1.74 (1.51)	-0.63 (0.42)	0.17 (0.69)
Accommodation	0.87*** (0.11)	-0.05 (0.09)	0.87*** (0.11)	-0.05 (0.09)
Accommodation X Incumbency	-0.52*** (0.15)	0.57 (0.69)	-0.37 (0.34)	0.37 (0.38)
N	1,146	805	1,146	805

Standard errors provided in parentheses. Dependent variable is % of constituency vote won. All independent variables are operationalised as % of constituency spend. Controls for Level of Spending, Seat Marginality, List Incumbency, Party Incumbency, Year, Parliament, Boundary Changes, Party, Region, Number of Candidates, Open Seats and Gender and Overall Spending X Incumbency are included but omitted from table. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Table 5.10 – CEM categorical spending efficacy: Irish elections

3 Treatment Levels	2007–2016	2007–2011
Advertising	**1.30*** (0.26)**	**1.12*** (0.31)**
Advertising X Incumbency	**-1.17 (1.56)**	**-0.05 (1.37)**
Publicity	-6.15*** (0.85)	1.76 (1.62)
Publicity X Incumbency	8.88 (6.86)	-0.18 (6.07)
Posters	**2.06*** (0.27)**	**1.88*** (0.31)**
Posters X Incumbency	**-2.53 (1.58)**	**1.02 (1.30)**
Other Election Material	**1.94*** (0.26)**	**3.42*** (0.35)**
Other Election Material X Incumbency	**0.30 (1.13)**	**-0.71 (0.97)**
Office	3.66*** (0.78)	1.25 (0.85)
Office X Incumbency	-0.50 (3.51)	3.18 (2.78)
Transport	-5.46*** (1.35)	-8.97*** (1.54)
Transport X Incumbency	4.40 (5.23)	8.12 (4.44)
Research	-5.24 (8.50)	-10.81 (8.80)
Research X Incumbency	3.03 (13.74)	8.36 (10.00)
Campaign Workers	15.47*** (1.38)	16.29*** (1.41)
Campaign Workers X Incumbency	-10.25 (5.79)	-12.12** (4.25)
N	857	760

Standard errors provided in parentheses. Dependent variable is % of constituency quota won. All independent variables are operationalised as % of constituency spend. Controls for Level of Spending, Party Spend, Year, Party, District Magnitude, Candidate Quality, Open Seats, Number of Candidates and Gender and Overall Spending X Incumbency are included but omitted from table. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

The second part of this section investigates results for H2a[28] and H2b[29]. Figure 5.7 shows t-tests discerning whether there is a significant difference between degrees of diversification for different types of candidates. Diversification of spending measures whether candidates spend money across many categories or focus expenditure on one or two categories (using a Herfindahl-Hirschman index). The findings indicate that incumbents diversify their spending more than challengers across all contexts (t-tests for major parties only can be found in appendix D.9). Tables 5.11–5.13 show regression results for H2a and H2b (full graphical illustrations of coefficients can be found in appendices D.10–D.16). Interaction effects for incumbents in these tables are in bold. For H2a, results are quite consistent across models in suggesting that diversification has a positive impact on electoral outcomes in all contexts studied. Additionally, results concur with Sudulich and Wall (2011) in finding that overall spending level conditions diversification efficacy (i.e. diversification is a greater benefit to well-financed campaigns). Notably, results related to the short and long campaign combined suggest a negative diversification effect. However, this effect is not robust across models, only applies to challengers, and is also conditioned by spending levels. For H2b in Irish elections, Table 5.11 shows that all interaction effects between incumbency and diversification are non-significant indicating no challenger advantage in diversification efficacy. These findings are robust across all eight models run for Irish elections. For Scottish and Welsh elections in Table 5.12, interactions between list incumbency and diversification are non-significant and this finding is consistent across all 20 models. Interactions between constituency incumbency and diversification are negative and significant while the three-way interaction between incumbency, spending, and diversification are positive and significant. It would seem that there is a challenger spending advantage on diversification in these elections. However, this advantage is essentially neutralised when we account for the overall level of spending in the three-way interaction term. Additionally, the five models that control for prior popularity show no significant effect on either incumbency interaction term.

[28] The expectation that diversification will have a positive impact on electoral outcome, once we account for overall spending level.

[29] The expectation that efficacy of spending diversification will be equivalent between all incumbent types and challengers, once we account for overall spending level.

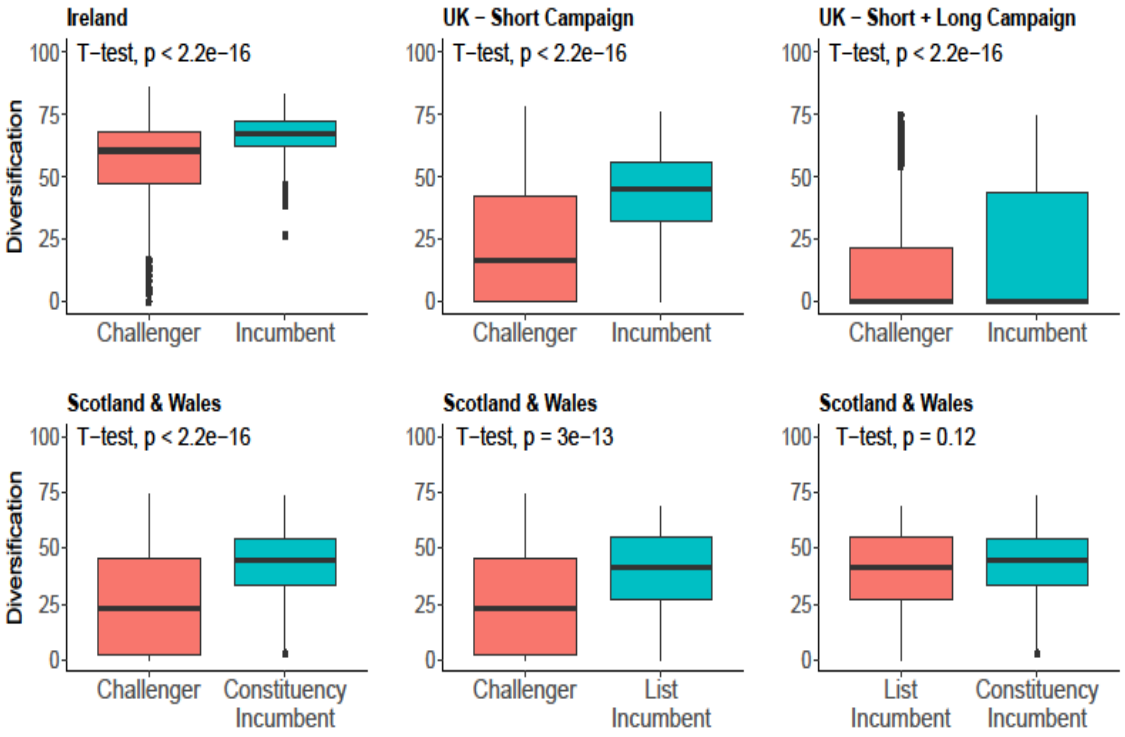

Figure 5.1 – T-tests on diversification of spending (all elections)

For House of Commons elections in Table 5.13, both interaction effects show that incumbents may actually glean a small diversification efficacy advantage. Once again, these effects are not very robust across models. There are also seven models out of 60 that show a significant negative interaction effect between incumbency and diversification. None of the three-way interaction terms between diversification, incumbency, and spending suggest a challenger advantage. Overall, 53 out of the 60 models show no evidence of a challenger advantage with many of these showing an incumbent advantage. Similar to previous results and given the inconsistency of findings across models, there seems to be very little evidence to show a robust challenger spending advantage in any of the contexts studied.

Table 5.11 – CEM diversification efficacy: Irish elections

3 Treatment Levels	2007–2016	2007–2011
Spending Diversification	0.13*** (0.03)	0.19*** (0.03)
X Incumbency	**0.29 (0.26)**	**-0.03 (0.24)**
X Spending	0.15*** (0.01)	0.21*** (0.02)
X Incumbency X Spending	**-0.40 (0.47)**	**-0.16 (0.62)**
N	877	795

Standard errors provided in parentheses. Dependent variable is % of constituency. Spending variable is operationalised as the natural log of total spend in Euro. Controls for Level of Spending, Party Spend, Year, Party, District Magnitude, Candidate Quality, Open Seats, Number of Candidates and Gender are included but omitted from table. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Table 5.12 – CEM diversification efficacy: Scottish and Welsh elections

3 Treatment Levels	CEM	CEM Prior Popularity
Diversification	0.06*** (0.01)	0.04** (0.01)
X Constituency Incumbency	**-0.14*** (0.04)**	**-0.08 (0.15)**
X Spending	0.09*** (0.01)	0.05*** (0.01)
X Constituency Incumbency X Spending	**0.31*** (0.09)**	**-0.53 (0.59)**
X List Incumbency	**-0.06 (0.06)**	**0.06 (0.05)**
X List Incumbency X Spending	**0.01 (0.06)**	**0.004 (0.06)**
N	1,173	653

Standard errors provided in parentheses. Dependent variable is % of constituency vote. Spending variable is the natural log of total spend in pound sterling. Controls for Level of Spending, Seat Marginality, List Incumbency, Party Incumbency, Year, Parliament, Boundary Changes, Party, Region, Number of Candidates, Open Seats and Gender are included but omitted from table. Model in right hand column also controls for prior popularity. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Table 5.13 – CEM diversification efficacy: UK elections

3 Treatment Levels	Short Campaign Only		Short + Long Campaign	
	CEM	CEM Prior Popularity	CEM	CEM Prior Popularity
Spending Diversification	0.07*** (0.004)	0.01* (0.006)	-0.02** (0.006)	-0.07*** (0.01)
X Incumbency	**0.10*** (0.02)**	**-0.05 (0.04)**	**0.10*** (0.02)**	**-0.03 (0.04)**
X Spending	0.06*** (0.002)	0.05*** (0.003)	0.02*** (0.003)	0.05*** (0.008)
X Incumbency X Spending	**0.03 (0.02)**	**0.14*** (0.04)**	**0.09** (0.03)**	**0.16** (0.06)**
N	8,449	4,322	5,616	2,090

Standard errors provided in parentheses. Dependent variable is % of constituency vote. Spending variable is operationalised as the natural log of total spend in pound sterling. Controls for Level of Spending, Seat Marginality, Party Incumbency, Year, Boundary Changes, Party, Region, Number of Candidates, Open Seats and Gender are included but omitted from table. Models in second and fourth columns also control for prior popularity. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

5.6 Discussion

Overall, the results of this chapter cast doubt on the mechanism of name recognition to explain a challenger spending advantage in the cases studied. We should expect to find consistent results on interaction terms between incumbency and categories linked to name recognition *if* this was the mechanism by which a challenger spending advantage occurs. By stripping away the noise of the aggregate data and focusing on each category separately, we should be able to isolate significant effects if they exist. This chapter also finds no evidence that differential diversification efficacy explains a challenger spending advantage. Taken together with the aggregate analyses in previous chapters, the results of this chapter offer fairly strong evidence against the existence of a differential spending efficacy advantage for challengers. Additionally, this chapter has demonstrated that diversification of campaign spending has a positive impact on electoral outcomes in both Ireland and the UK. This finding extends the analysis of Sudulich and Wall (2011) and suggests the positive electoral impact of spending diversification may be a more general feature of democratic campaigns. As mentioned in the introduction, the approach

undertaken in this chapter may suffer from some notable limitations. It must be said that the categories used in the analysis (particularly those provided by the UK Electoral Commission) are quite broad and it is conceivable that further disaggregation of these categories could reveal differences. Additionally, it may be just as likely we would find differences between incumbent and challenger spending efficacy when analysing the content of advertising, posters, election materials etc. (rather than simply how much they spend on each category). It may be aspects such as tone and messaging where the previous electoral experience of incumbents is most evident. Such an analysis (likely requiring a large-scale content analysis and experimental design to gauge individual voter reactions to content) is outside the scope of this thesis but should be pursued in future research. Despite data limitations, this thesis contends that consistency of results within this chapter and their agreement with findings from earlier chapters offers reasonable confidence in the analysis.

In using disaggregated data and advanced matching techniques, the findings of this chapter concur strongly with the handful of other analyses in the literature that have taken a sideways look at the plausibility of the challenger spending advantage. The implications of this chapter's findings are three-fold. First, there is a need to offer more targeted analyses of spending effects rather than focusing on aggregate effects using naïve estimators. Such approaches are almost certainly subject to bias introduced by imbalanced data and high leverage observations and accordingly, are probably over-estimating certain types of spending effects. This chapter, in using disaggregated spending and limiting statistical inferences to the strata creating by the CEM procedure (which control away the leverage of covariates such as party label, candidate quality, seat marginality, and prior popularity), offers more reliable and targeted analysis of spending efficacy in the contexts studied. As such, the findings of this chapter can be best interpreted as showing that challengers do not seem to hold a spending advantage over their incumbent rivals when we appropriately control for other significant predictors of both spending and electoral outcomes. Instead, these results seem to be a statistical artefact caused by the inclination to treat all spending data as equal.

Second, there is a need to more rigorously investigate the plausibility of the mechanisms put forward to explain the challenger spending advantage, most notably the theory

surrounding name recognition. The intuitive nature of this mechanism is undoubtedly its greatest strength and offers a compelling theoretical explanation for empirical results. However, the literature is becoming more attuned to dealing with issues inherent in spending data and is finding more nuanced results that challenge earlier empirical findings (e.g. Benoit and Marsh 2008; Johnson 2013). As such, it is important to find ways to directly test this mechanism for the challenger spending advantage (something rarely done in the literature since Jacobson 1978, 1985 and 1990). Third, future research should aim to expand analysis on spending diversification to contexts outside the UK and Ireland. Expansion of such analysis to the USA and to untested electoral systems (e.g. open list proportional representation) will provide useful insight into the generalisability of findings. The Herfindahl-Hirschman measure of spending diversification advanced by Sudulich and Wall (2011) has the potential to reveal dynamics of campaign spending efficacy that remain obscured even in the well-studied case of the USA.

Chapter 6

Male and Female Candidates Enjoy Equivalent Spending Efficacy

Abstract

Do male candidates enjoy a spending advantage over their female counterparts? Most literature on spending effects show that female candidates are not disadvantaged in terms of spending efficacy. This chapter systematically tests this conclusion across countries, over time, and using more data than previous work. Data are drawn from four parliaments using three electoral systems across fourteen elections bringing approximately 18,500 observations to bear on the analysis. Results show that female candidates in elections to the UK House of Commons enjoy a slight spending advantage over male candidates while results for the Irish, Scottish, and Welsh parliaments show no significant difference. However, results do not reveal any significant difference between male and female candidates in any context studied once appropriate measures are taken to control issues in the data. This chapter uses matching methods to test robustness of findings from the primary analysis. The results of this chapter offer systematic support for the conclusion that female candidates are not disadvantaged in terms of spending efficacy in contemporary electoral conditions. As such, this chapter lends support to the literature identifying other structural impediments as the likely causes of female under-representation in politics.

6.1 Introduction

Does a systematic spending efficacy disadvantage for female candidates contribute to the underrepresentation of women in politics? This chapter deviates from the rest of the thesis in investigating spending effects differentiated on gender rather than incumbency[30]. This analysis systematically evaluates whether differential spending efficacy between male and female candidates may be a contributing factor in female underrepresentation in elections to the Irish Dáil (lower house of parliament), UK House of Commons, Scottish Parliament, and Welsh Assembly. The parliamentary underrepresentation of women in virtually all contexts is well-known and simple to demonstrate empirically (see Table 6.1). There is a myriad of possible explanations for the gender imbalances observed in parliamentary representation in 'Western' democracies as well as acknowledgement that the dynamics of the relationship between gender and electoral success is subject to change over time (Green 1998; Hayes and Lawless 2015; Lawless 2004; Sabonmatsu 2002). Systematic differences in spending efficacy is one possible explanation of female underrepresentation in politics and may arise from prejudiced attitudes within the electorate (Aalberg and Jenssen 2007; Fox and Smith 1998; Huddy and Terkildsen 1993; King and Matland 2003; Krupnikov, Piston and Bauer 2016). This chapter will address two distinct questions to investigate differential spending efficacy. First, do female candidates spend at similar levels to their male counterparts (i.e. can they attract as much funding)? Second, does spending efficacy (i.e. return on financial resources) differ between male and female candidates? Both questions will also involve conditioning results on incumbency to determine whether male incumbents or challengers have a spending efficacy advantage over their female counterparts. The presumed causal mechanism focuses on the existence and activation of differential gender attitudes to candidates within the electorate. Female candidates may need to spend more than their male counterparts to break down such attitudes and this may limit the efficacy of their spending overall. Isolating such effects may be important in terms of ensuring that

[30] For clarity, the differential spending effects explored in this chapter are related more to sex than gender. Use of the term gender is a regretful acknowledgment of the difficulty of incorporating the appropriate nuance associated with these terms into large N analyses of this type.

Table 6.1 – Rates of female representation in parliament (EU)

Country	Percentage	Country	Percentage
Wales	**46.6**	Estonia	26.7
Sweden	46.1	Slovenia	24.4
Finland	42.0	Bulgaria	23.8
France	39.6	**Ireland**	**22.2**
Spain	39.1	Czech Republic	22.0
Belgium	38.0	Lithuania	21.3
Denmark	37.4	Romania	20.7
Netherlands	36.0	Slovak Republic	20.0
Italy	35.7	Greece	18.7
Scotland	**35.6**	Croatia	18.5
Portugal	34.8	Cyprus	17.9
Austria	34.4	Latvia	16.0
United Kingdom	**32.2**	Hungary	12.6
Germany	30.7	Malta	11.9
Luxembourg	28.3	Euro Area Average	31.7
Poland	28.0	EU Average	30.5

Parliaments marked in bold are parliament under investigation in this chapter. Data are taken from the World Bank database – Last updated on 30/01/2019

electoral environments are not systematically disadvantaging certain groups such as women or compounding the incumbency advantage of male candidates, many of whom may escape normal processes of accountability (as understood through a formalistic model of representation). Such systematic (dis)advantage may impede the emergence of descriptive representation of women. Female representatives can influence policy with women's interests in mind via shared characteristics and experiences with female constituents (Mansbridge 1999; Wängnerud 2009). Such representation of women's interests is (perhaps) unlikely in a male dominated parliament. Additionally, the already entrenched incumbency advantage of sitting male representatives may be further strengthened by any systemic disadvantaging of such a large pool of potential future candidates. An in-built advantage of this type would undermine the ability of the electorate to properly hold such representatives to account. In either case, biased spending effects push us further away from an adequate manifestation of the otherwise laudable goals of these types of normative representation (Mansbridge 1999; Pitkin 1967).

6.2 Theory and Hypotheses

The theory and hypotheses of this analysis will apply to all contexts from earlier chapters. There is significant scope to delve into spending efficacy differentiated by gender in the specific contexts (as was done for incumbency in chapters two, three, four, and five) but that level of analysis is outside the scope of this thesis. Instead, this chapter is intended as a general analysis of these contexts to investigate whether effects are consistent and add to the very limited literature on gender spending effects outside the USA. As such, this chapter provides a possible springboard to carry out more in-depth research on this topic. The first hypothesis engages with the possibility that female candidates may be disadvantaged in terms of money raising ability in comparison to their male rivals. Female candidates may raise less money due to uneven division of paid and unpaid work, and expectations around child rearing (Phillips 1995). Inequities such as division of labour may impact heavily on the distribution of resources that can be vital to electoral success such as time, income, and social networks (Norris and Lovenduski 1993). A lack of time to fundraise and/or network with political contacts could clearly disadvantage female candidates in comparison with their male counterparts. It is also quite clear that income is an important aspect of getting a political campaign off the ground and the ability to partly fund an electoral run is a significant benefit. As such, income disparities between male and female candidates may feed into a larger spending disadvantage. This discussion gives rise to the first hypothesis of this chapter:

H1 Male candidates will outspend their female counterparts across all contexts studied.

The efficacy of campaign spending may also differ between male and female candidates for a variety of reasons. First, some experimental studies have found that the electorate hold differential attitudes towards men and women that can undermine the chances of women running for political office (Fox and Smith 1998; King and Matland 2003; Krupnikov, Piston and Bauer 2016). It is possible that such preconceived attitudes of the electorate, entrenched or activated through negative media framing, may erode the efficacy of female candidate spending in comparison with their male counterparts (Conroy et al. 2015; Escobar-Lemmon et al. 2016). Overall, there are mixed results on whether these attitudes exist in the experimental literature. If such differential attitudes

exist amongst voters, this would mean female candidates require more campaign and financial resources to erode the electorate's pre-conceived notions. As such, the necessity to wear down these attitudes would lower the spending efficacy of female candidates in comparison to their male counterparts. Additionally, it has been suggested that female candidates may enjoy a greater spending efficacy than male candidates (Green 1998). A female advantage may arise because women have an easier time attracting publicity and are easier to remember, presumably because they are novel candidates (Stokes and Miller 1962; Tolchin and Tolchin 1974). A female advantage may also feed into the larger literature around the positive relationship between name recognition and electoral outcomes for underdog candidates (discussed at length in previous chapters, e.g. Jacobson 1978). In any case, the idea that female candidates attract attention more easily is most likely a product of a previous era if this idea arises out of novelty (Hayes and Lawless 2015) and does not address the issue that the attention drawn to them may be negative (Conroy et al. 2015; Escobar-Lemmon et al. 2016). The preceding discussion gives rise to the second hypothesis of this chapter:

H2 Male candidates will glean greater efficacy from their spending than female candidates across the contexts studied.

6.3 Previous Literature on Female Spending Efficacy

This literature is a subset of a larger research area that deals with spending efficacy more generally – a great deal of which focuses on differential spending effects between incumbents and challengers. Much like the larger literature, the work on spending effects differentiated by gender focuses heavily on the US case (Adams and Schreiber 2011; Burrell 1985; Green 1998, 2003; Herrick 1996; Hogan 2007; Uhlaner and Schlozman 1986) with only a limited number of notable exceptions on the Irish system (McElroy and Marsh 2010, 2011). The US-centred nature of the literature leaves a fairly open field to allow for the systematic testing of spending efficacy differentiated by gender outside the US. To expand the literature, this chapter uses new cases such as the UK House of Commons and elections to second order devolved legislatures such as the Scottish

Parliament and Welsh Assembly. Additionally, most of the work that directly addresses questions of spending efficacy differentiated by gender dates back to the 1980s and 1990s with more recent analyses such as McElroy and Marsh (2010, 2011) now almost a decade old. Given that gender spending effects may change significantly over time (possibly due to shifting gender norms or the changing capacity of female candidates to use gender norms to their advantage), it is important to revisit this question using new data. Indeed, Green (1998) finds that female candidates were disadvantaged in US House elections in the 1980s but that this effect had dissipated by the 1990s. Green (1998) argues these results are due to changing electoral conditions for female candidates. As such, this chapter seeks to fill gaps in the previous literature by extending analysis outside of the dominant US context and by offering a contemporary analysis of such effects. Additionally, some of the previous literature on gender effects has shied away from exploring how incumbency interacts with gender in terms of spending efficacy. For example, Green (1998, p.36) analyses only open seat districts to avoid the "statistically cumbersome" aspects of incorporating incumbency into the analysis. While this approach certainly allows for a clean interpretation of results, the current chapter will disentangle the effects of both incumbency and gender in analysis carried out on the full datasets. This analysis will allow for a comprehensive overview of spending effects in the contexts studied as it is possible that male challengers have a spending efficacy advantage over female challengers, but that this may not be the case for incumbents (Herrick 1996 finds evidence of this in the US case with Burrell 1985 finding the opposite effect). Additionally, this chapter is the first analysis to use matching as a robustness test for spending efficacy differentiated on gender and does so to control for the problematic nature of spending data (more detail on how and when this process is used can be found in the analysis section). Table 6.2 offers a brief overview of existing literature on spending effects.

This chapter also speaks to a larger literature researching the role of women in politics and the barriers to female success in electoral contests, beyond the literature concerned specifically with spending efficacy. The political structures and institutions under which candidates must compete for votes are among the most compelling explanations for underrepresentation of women in politics. Increased district magnitude of proportional electoral systems may increase the number of female candidates selected to contest

Table 6.2 – Brief overview of literature on spending effects differentiated by gender

Author	Context	Main Results
Burrell, B.C. (1985)	U.S House Elections 1980-82	Female challenger spending is more effective than male challenger spending.
Green, J.C. (1998)	U.S House Elections 1982-1994	Female candidates suffered from a spending efficacy disadvantage in the 1980s, but this had diminished by the 1990s.
Green, J.C. (2003)	U.S House Elections 1986-2000	Given favourable district characteristics- which are more than often out of their control- women candidates in the 1992-2000 period may be more competitive than women candidates in the 1980s. However, we must not assume parity of spending efficacy considering district, partisan and candidate status.
Herrick, R (1996)	U.S House Elections 1988-1992	Male challenger spending is more effective than female challenger spending
McElroy and Marsh (2010, 2011)	Irish General Elections 2002 and 2007	No significant difference in spending efficacy for male and female candidates.

elections as well as the number of female candidates elected (Kittilson and Schwindt-Bayer 2010). Additionally, proportional electoral systems may undermine the attitude that parties shouldn't tamper with past successful strategies. This hesitancy to change past strategies may be most clear in terms of major party candidate selection ("if it ain't broke, don't fix it") as well as the incumbency advantage enjoyed by male parliamentarians. In this sense, majoritarian systems are more likely to maintain the status quo in terms of major party candidate selection (which are, of course, the parties most likely to win seats) and comparably low turnover rate of incumbents (who are, of course, largely male). Additionally, smaller parties have been shown to be more hospitable environments for women and as Duverger's Law suggests, such parties are more likely to exist under proportional systems (Salmond 2006; Schwindt-Bayer 2005).

Exploration of attitudes of voters and/or how media frames candidates of different genders is a second type of structural explanation for female underrepresentation. Electorate attitudes to female candidates may be influenced by gender stereotypes or a propensity to assume women are underqualified for high political office. As mentioned previously, this strand of possible theoretical explanations for female underrepresentation is of particular interest for this chapter. Some experimental evidence indicates that voters may be susceptible to prejudice against female candidates (e.g. Fox and Smith 1998; King

and Matland 2003; Krupnikov, Piston and Bauer 2016). However, results from the experimental literature are mixed and literature focusing on aggregate analysis finds no electorate bias against female candidates (e.g. McElroy and Marsh 2010, 2011). There is significant evidence that differential gender framing in the media is commonplace, though there is less evidence to connect this directly with differential voter attitudes. Previous studies have suggested male candidates receive more media attention than their female counterparts (Ross et al. 2013; Lühiste and Banducci 2016), that media serves to reinforce existing gender stereotypes (Greene and Lühiste 2018; Kittilson and Fridkin 2008), and that coverage of female candidates is framed negatively (Conroy et al. 2015; Escobar-Lemmon et al. 2016). However, some recent analyses have found no significant difference between male and female candidates in terms of quantity or content of media coverage (Hayes and Lawless 2015; Hayes and Lawless 2016). Overall, this chapter is situated between the literature on differential campaign spending efficacy and literature concerned with voter bias as an explanation for female underrepresentation in politics. This analysis bridges the gap between these two literatures by investigating campaign spending efficacy conditioned on gender.

6.4 Data, Variables and Case Selection

This analysis utilises data published by the UK Electoral Commission and the Standards in Public Office Commission. The datasets are comprised of four elections for each of the UK House of Commons and the Irish Dáil, with three elections for each of the Scottish Parliament and the Welsh Assembly. The four elections for each of the House of Commons and the Dáil are pooled as well as pooling the six elections to the Scottish Parliament and Welsh Assembly (given their comparatively small size). The total number of observations is 14,860, 2,050, and 1,584 for the House of Commons, the Dáil, and the Scottish and Welsh legislatures respectively. As in earlier chapters, candidates that failed to declare spending as well as House of Commons candidates in the Speaker's constituency and Northern Ireland are removed. For analysis, this yields 13,786 observations for the House of Commons, 2,004 observations for the Dáil, and 1,462 observations for the Scottish and Welsh legislatures. This chapter focuses on the cases of

the UK, Irish, Scottish, and Welsh parliaments for a couple of important reasons. First, the parliaments offer good institutional variation in terms of electoral and party system. Elections to the UK parliament take place under a majoritarian system in single member districts, the Irish parliament is elected from multimember districts with magnitudes ranging from three to five under a proportional STV system, and the Scottish and Welsh parliaments are elected under a mixed system. Between 56% (Scotland) and 66% (Wales) of members are elected from majoritarian single member districts with the overall proportionality of the legislature topped up by closed regional lists. Variation in party system also extends from this variation in electoral system. The Irish case operates with a multiparty system while the UK, Scottish, and Welsh cases offer something between a multiparty and two-party system. This variation will be relevant for the study of gender spending effect as both proportional electoral systems and smaller political parties (unlikely to exist under majoritarian systems) are more hospitable environments for female candidates. Secondly, the different cases produce differing levels of female candidate selection and election as can be seen in Table 6.3. As such, these cases offer important variation in certain key variables such as electoral and party system which should be important for any investigation of differential gender spending effects. Accordingly, if the analysis finds broadly similar spending effects across these contexts, this would offer fairly strong evidence that results are robust (at least within the time period of the data).

For H1, t-tests and OLS regressions will be carried out using the percentage of the spending limit spent by a given candidate. These analyses will be used to determine whether there is a statistically significant difference in the amount of money that male and female candidates can raise for their campaigns. For H2, the dependent variable will be percentage of the constituency quota or vote total that a given candidate wins[31]. The main independent variable will be the percentage of constituency spend by a given candidate. The main effects of interest for H2 will be estimated by a two-way interaction term between gender and spending, and a three-way interaction term between gender, spending, and incumbency. Control variables used in analysis for each context are

[31] The analysis does not use percentage of the electorate as the dependent variable due to significant boundary changes that occur between the elections under investigation. Use of percentage of the electorate would make it impossible to include a lagged version of the dependent variable in the analysis.

Table 6.3 – Number of female candidates selected for and elected in constituency races

Parliament	Candidates Selected	Candidates Elected
House of Commons (2005)	20.26%	19.81%
House of Commons (2010)	20.75%	22%
House of Commons (2015)	26.01%	29.38%
House of Commons (2017)	29.45%	32%
Dáil Éireann (2002)	18.36%	13.25%
Dáil Éireann (2007)	17.45%	13.25%
Dáil Éireann (2011)	15.19%	15.06%
Dáil Éireann (2016)	29.4%	22.15%
Scottish Parliament (2007)	30.75%	35.62%
Scottish Parliament (2011)	24.76%	27.4%
Scottish Parliament (2016)	36.1%	35.62%
Welsh Assembly (2007)	28.43%	50%
Welsh Assembly (2011)	25.99%	42.5%
Welsh Assembly (2016)	31.73%	47.5%

Table 6.4 – Control variables included in spending regressions

All Contexts	Scottish and Welsh Elections	UK Elections	Irish Elections
Year	Seat Marginality	Seat Marginality	Candidate Quality
Party	Party Incumbency	Party Incumbency	District Magnitude
Open Seats	Boundary Changes	Boundary Changes	Party Spend
Gender	Region	Region	
Number of Candidates	List Incumbency		
	Parliament		

provided in Table 6.4. Following the same procedure as earlier chapters, candidates who declare no spending are assigned an arbitrary baseline figure. This analysis comes with the same caveats on notional variables and controls for party spending used for UK, Scottish, and Welsh elections as in previous chapters. The discussion from earlier chapters on the benefits of short and long campaign spending data for House of Commons elections also applies to this analysis. Full descriptive statistics are outlined in Tables 6.5 and 6.6.

Table 6.5 – Descriptive statistics (spending)

	Male Avg Spend	Female Avg Spend
Dáil Éireann –		
Incumbents (All Candidates)	€20,000.96	€20,063.62
Challengers (All Candidates)	€10,876.07	€11,629.26
Incumbents (Major Party Candidates)	€19,615.73	€19,313.39
Challengers (Major Party Candidates)	€17,439.41	€16,260.17
House of Commons (Short Campaign) -		
Incumbents (All Candidates)	£9,313.92	£9,569.38
Challengers (All Candidates)	£2,803.49	£3,490.61
Incumbents (Major Party Candidates)	£9,315.52	£9,556.63
Challengers (Major Party Candidates)	£4,626.53	£5,237.45
House of Commons (Short and Long Campaign) -		
Incumbents (All Candidates)	£17,780.30	£17,551.07
Challengers (All Candidates)	£4,911.38	£6,986.13
Incumbents (Major Party Candidates)	£17,759.33	£17,477.62
Challengers (Major Party Candidates)	£8,871.89	£11,394.08
Scottish and Welsh Legislatures -		
Incumbents (All Candidates)	£7,609.56	£7,676.94
Challengers (All Candidates)	£3,600.64	£4,035.76
Incumbents (Major Party Candidates)	£7,631.02	£7,718.34
Challengers (Major Party Candidates)	£4,004.89	£4,361.05

Table 6.6 – Descriptive statistics	House of Commons	Dáil Éireann	Scottish and Welsh Legislatures
Total Candidates	14,860	2,050	1,584
Male Incumbents	1,725	478	168
Female Incumbents	521	82	112
Male Challengers	9,538	1156	941
Female Challengers	3,076	334	363
Mean Quota/Percentage of Vote Won	17.46%	40%	21.37%
Mean Quota/Percentage of Vote Won by Male Incumbents	49.29%	74.96%	44.84%
Mean Quota/Percentage of Vote Won by Female Incumbents	49.52%	66.93%	42.64%
Mean Quota/Percentage of Vote Won by Male Challengers	11.02%	26.9%	15.99%
Mean Quota/Percentage of Vote Won by Female Challengers	14.14%	28.66%	17.9%
Mean Spend as % of Constituency	17.36%	8.2%	21.42%
Mean Spend as % of Constituency (Male Incumbents)	45.22%	12.66%	41.36%
Mean Spend as % of Constituency (Female Incumbents)	44.39%	12.51%	40.48%
Mean Spend as % of Constituency (Male Challengers)	11.77%	6.42%	16.76%
Mean Spend as % of Constituency (Female Challengers)	14.48%	6.9%	18.37%

6.5 Results

Overall, the analysis offers little support for H1 – the expectation that male candidates will outspend their female counterparts. In the case of Ireland, t-tests in Figure 6.1 suggest there is no significant difference in overall levels of spending between male and female candidates even when incumbency status is considered. T-tests carried out on a dataset made up only of major party candidates show that male challengers, but not male incumbents, spend more than their female counterparts (appendix E.1). This major party dataset comprises candidates from the four largest parties in the Irish parliament[32]. However, this dataset does exclude a significant number of small party and independent candidates who perform well electorally, many of whom are female. For the House of Commons, t-tests in Figures 6.2 and 6.3 suggest female challengers outspend their male

[32] Fianna Fáil, Fine Gael, Sinn Féin, and Labour.

counterparts during both the short campaign period and the combined short and long campaign periods. Similar results are found when looking at just major party candidates[33] (appendix E.1). These results are almost certainly driven by a large glut of male challengers who spend virtually nothing (illustrated in appendix E.2). This pattern of low spending male challengers also extends to major parties (Figure E.5 in appendix E.2). This tendency is not surprising as there are many constituencies in which one of the major parties is not competitive. Accordingly, the uncompetitive party puts forward a no hope candidate with little ability to fundraise (the Liberal Democrats constitute a large proportion of such candidates). Table 6.5 demonstrates that 76% of candidates in UK elections are male and appendix E.2 indicates that a large number of these male candidates fall into the category of low spending token candidates (approximately 77% of candidates that spend less than 5% of the limit). Results from Scottish and Welsh elections in Figures 6.4–6.6 also suggest a female spending advantage though this is not discernible when candidates are divided into constituency incumbents, list incumbents, and non-incumbents. Figures E.6 and E.7 in appendix E.2 show a similar data imbalance for Scottish and Welsh elections in terms of low spending male challengers.

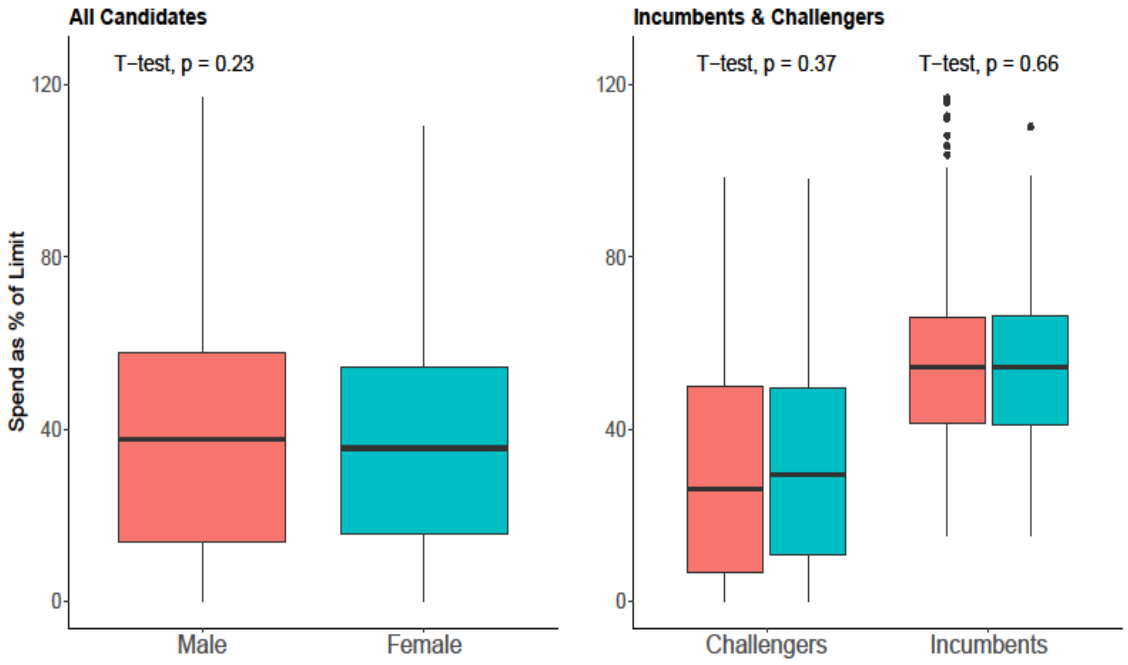

Figure 6.1 – T-tests on levels of spending (Irish elections)

[33] Conservatives, Labour, Liberal Democrats, SNP, and Plaid Cymru.

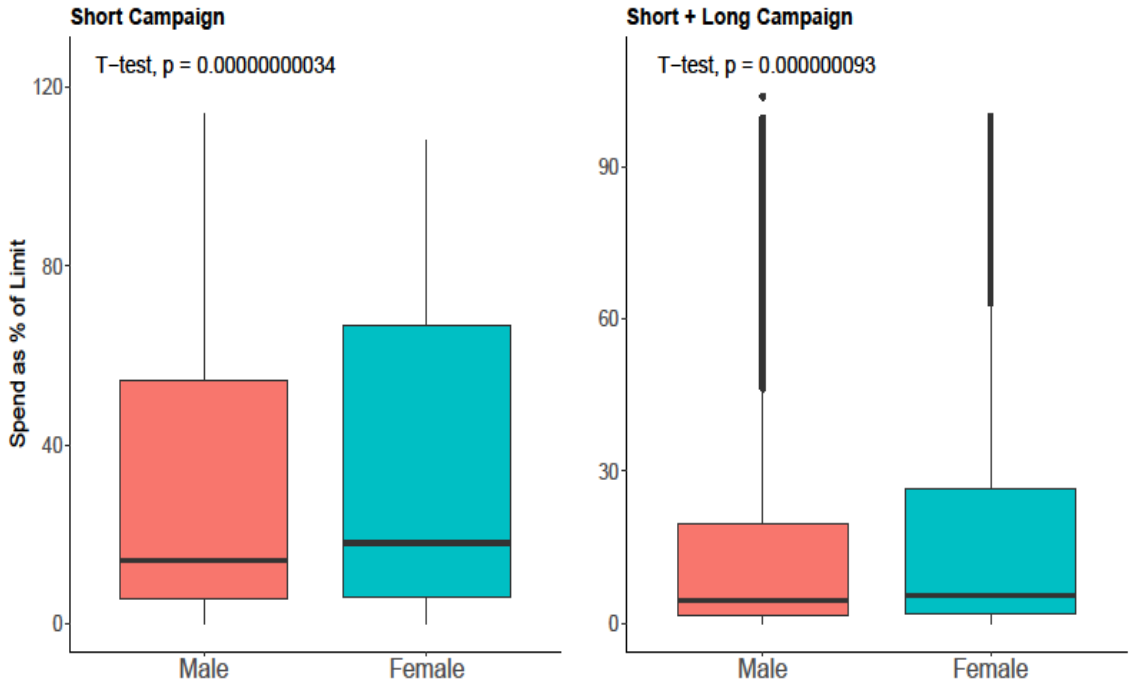

Figure 6.2 – T-tests on levels of spending (UK elections)

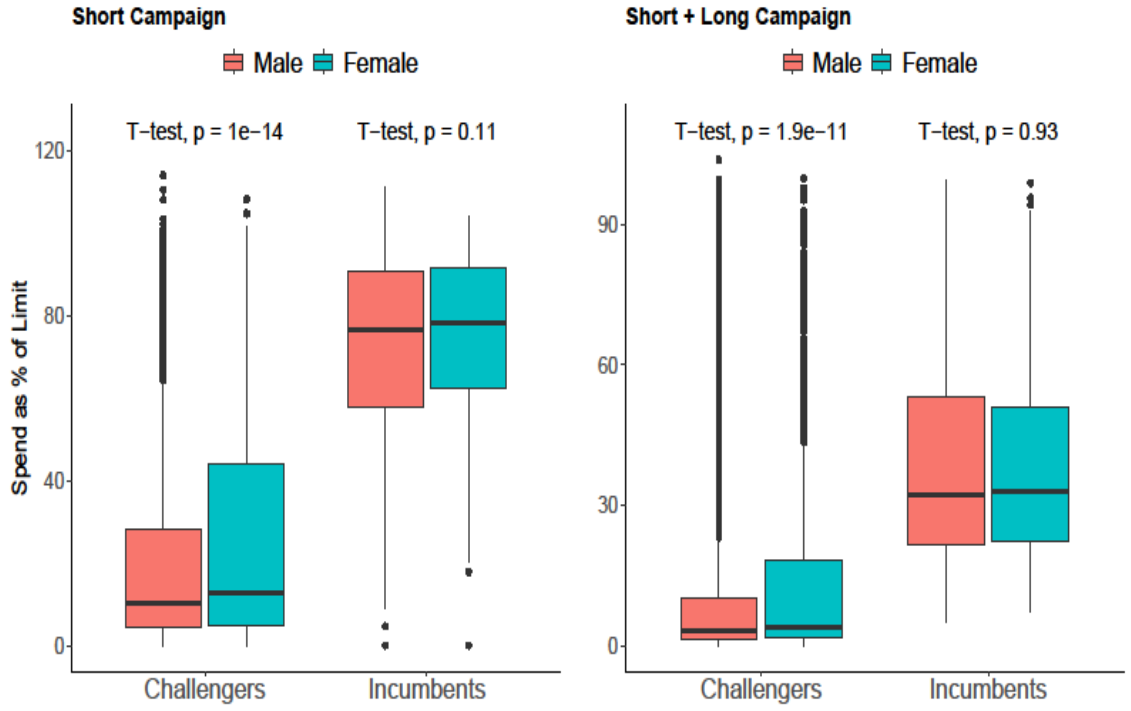

Figure 6.3 – T-tests on levels of spending (UK elections)

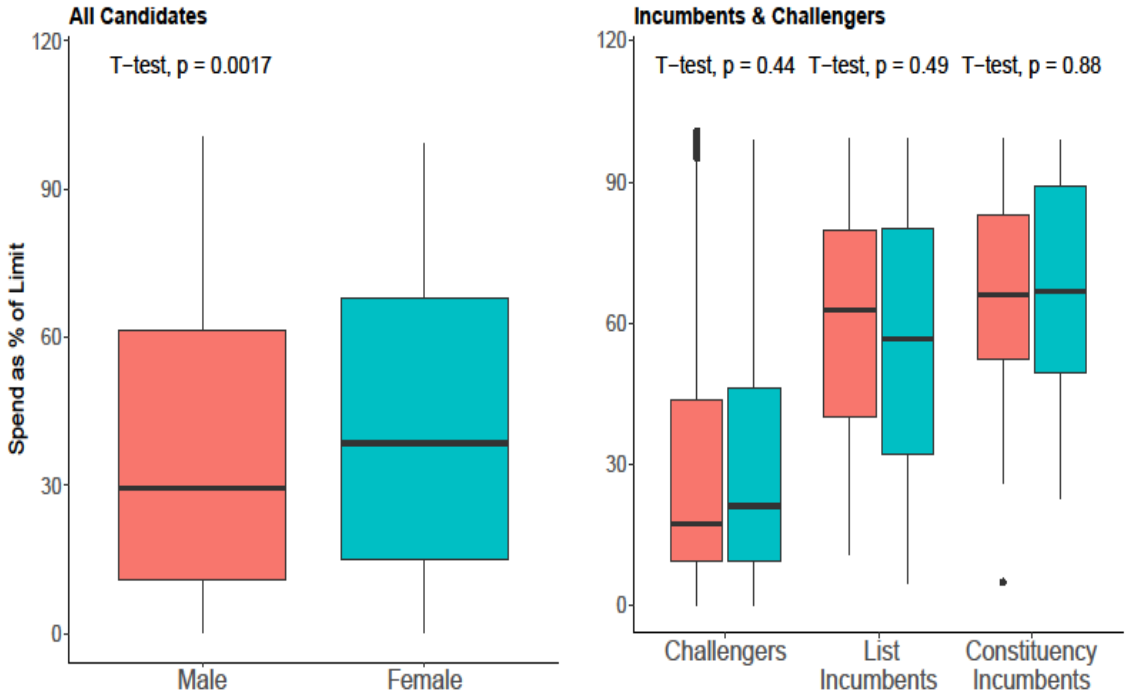

Figure 6.4 – T-tests on levels of spending (Scottish and Welsh elections)

These t-tests offer limited evidence that spending differences exist between male and female candidates and as such, OLS analyses are carried out to clarify results. The regression analyses will control for other possible predictors of spending and will use candidate spend as a percentage of the spending limit as the dependent variable, giving us better insight into the t-test results above. Table 6.7 offers results for Dáil Éireann which do not support H1. The effect of gender is not significant when analysing the full dataset and the result remains the same when we look only at major party candidates (appendix E.3). Coefficients on the interaction term between gender and incumbency are also not significant in any model. Contrary to descriptive findings, there does not seem to be a specific spending difference conditioned on both gender and incumbency status. Table 6.7 also shows results for the House of Commons, Scottish Parliament, and Welsh Assembly. Results for the House of Commons support the descriptive analysis in showing that female candidates spend more but also shows no difference conditioned on incumbency. The results look virtually identical if we use short and long campaign data combined. Finally, results for Scottish and Welsh data suggest no difference in spending between male and female candidates. This result runs counter to the descriptive finding

that female candidates spend more. It seems gender is not a significant factor in Scottish and Welsh elections once we control for other important predictors of spending. Results for House of Commons, Scottish, and Welsh elections do not differ significantly when only looking at major party candidates and controlling for prior popularity (appendix E.3). Overall, these findings do not offer any significant evidence in favour of H1. The more plausible inference to be drawn from some of these results (such as House of Commons results) is a female rather than male spending advantage. It is possible that the proportional element of the Irish, Scottish, and Welsh electoral systems (along with the connection between electoral systems and the emergence of smaller parties) plays a role in why female candidates under the UK majoritarian system spend more. We will return to this point in the discussion section.

The next part of the analysis is focused on whether male candidates glean greater spending efficacy than female candidates (H2). The underlying mechanism of differential spending efficacy (i.e. preconceived notions in the electorate) is about whether candidates turn spending into votes at different rates of efficacy rather than being directly concerned with actual spending levels. Results for these analyses are presented in Tables 6.8, 6.9, and 6.10. Tables 6.8 and 6.9 offer consistent evidence that spending efficacy does not differ between male and female candidates and does not differ when conditioned on incumbency. These findings can be seen in the strong and statistically significant results for spending and incumbency alongside the statistically insignificant effects for the spending and gender interaction term, and the 3-way interaction term between gender, spending, and incumbency. Additionally, these results are robust to using major party data only (as well as controlling for prior popularity in Scotland and Wales). The results are also robust to carrying out CEM regressions on datasets using gender as the treatment and matched on party, spending level, and candidate quality/seat marginality[34]. Once

[34] This analysis is carried out using the same R package (CEM) and the same procedures as previous chapters. The major difference in this analysis is the use of gender as the treatment instead of spending as in earlier chapters. Using gender as the treatment allows us to directly compare male and female candidates that are similar on covariates such as candidate quality, district marginality, spending level, and party label. This strategy is adopted to ensure the aggregate analysis does not overestimate spending efficacy of female candidates as argued by Green (1998). CEM analyses are not prioritised here as they are in previous chapters. This strategy is because the issues around incumbency related to endogeneity and data imbalance are much less applicable to gender.

Table 6.7 – H1 OLS regression results

	House of Commons (Short Campaign)	House of Commons (Short and Long Campaign)	Devolved Legislatures	Dáil Éireann
Gender	1.303*	1.707**	1.895	0.044
	(0.519)	(0.521)	(1.503)	(1.197)
Incumbency	1.660	-0.530	10.658**	2.468
	(1.296)	(1.556)	(3.287)	(1.721)
District Competitiveness	-0.442***	-0.416***	-0.357***	----
	(0.015)	(0.018)	(0.058)	----
Candidate Quality	----	----	----	0.629***
	----	----	----	(0.103)
Gender X Incumbency	2.183	-0.556	-3.651	3.414
	(1.317)	(1.756)	(3.250)	(2.892)
Gender X List Incumbency	----	----	-6.538	----
	----	----	(4.968)	----
Constant	42.482***	19.612***	29.669***	61.524***
	(1.274)	(1.663)	(4.614)	(3.394)
R^2	0.57	0.43	0.44	0.51
N	13,786	7,251	1,462	2,004

The dependent variable is candidate spend as percentage of the limit. Robust standard errors clustered by constituency provided in parentheses. Party, Open Seat, District Magnitude, Constituency, Year, Number of Candidates, Boundary Changes, Region, List Incumbency and Parliament are included as controls but omitted from table. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

again, results for the House of Commons in Table 6.10 differ significantly to results we see for the Irish, Scottish, and Welsh elections. The most important finding in Table 6.10 is that female candidates seem to glean a larger spending efficacy than their male counterparts. These findings are robust to analysing only major party candidates and controlling for prior popularity. This finding contradicts theoretical expectations and the results from other contexts in this study. However, there are a few reasons to treat these results with caution. First, these results may link back to the earlier concern over the large number of no hope and low spending male challengers in the dataset (appendix E.2). It is possible that this glut of data is shifting the regression line for the interaction effect between gender and spending efficacy. Second, the coefficients on the interaction effects are very small. The significant interaction coefficients in Table 6.10 range from 0.019 to 0.021. In real world terms, these coefficients mean that a female candidate would gain an additional 0.2% of the vote for every 10% increase in their share of the total constituency spend. This return is miniscule when we consider that the independent variable of interest is a relative rather than absolute measure. In this sense, a candidate cannot simply choose to spend 10% more of the total as this depends on what other candidates spend in response. The unconvincing and small nature of this female advantage can also be seen in Figure 6.5 showing the marginal effect of spending differentiated on gender. It is difficult to separate out the effects in Figure 6.5 and as such it is probably a stretch to consider this a real advantage. Third, the female spending advantage in Table 6.10 is also not robust in the model using the whole dataset and run with both short and long campaign spending combined. CEM analyses are carried out to further tests robustness of these unusual House of Commons results. Results from CEM models are inconsistent with most showing no effects and some showing a female advantage with very small coefficients. The inconsistency of CEM models and small coefficients on the interaction term raise the same concerns as outlined for OLS analysis above. Full results from the CEM robustness tests for all contexts can be found in appendices E.4 – E.10. Additionally, OLS models for H2 were rerun using a quadratic spending term to account for the possibility of non-linearity in the relationship between spending and votes won. Results for Ireland were unchanged while results for the House of Commons short campaign became insignificant. However, a negative three-way interaction for the combined House of Commons short and long campaign and a negative two-way

Table 6.8 – H2 OLS regression results (Dáil Éireann)

	All Candidates	Major Party Candidates
Regular Spend	2.408***	2.404***
	(0.121)	(0.198)
Public Spend	1.666***	2.039***
	(0.372)	(0.442)
Incumbency	10.718***	10.909***
	(1.979)	(2.207)
Gender	-1.569	-4.332**
	(1.034)	(1.508)
Reg Spend X Gender	-0.224	0.179
	(0.206)	(0.416)
Public Spend X Gender	-0.651	-0.657
	(0.633)	(0.714)
Reg Spend X Gender X Incumbency	-0.101	-0.328
	(0.728)	(0.819)
Constant	4.845	-1.476
	(2.496)	(4.408)
R^2	0.70	0.46
N	2,004	1,094

The dependent variable is percentage of the quota won by the candidate. Data for the Dáil allow us to break spending into regular spending and spending met from public funds (e.g. use of office resources). These spend variables are cast as % of constituency total. Robust standard errors clustered by constituency provided in parentheses. District magnitude, candidate quality, party spend, party, open seats, number of candidates, year are included as controls but not listed. Incumbency X Gender and Incumbency X Spend are included in models but omitted from table. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Table 6.9 – H2 OLS regression results (Scottish and Welsh parliaments)

	All Candidates	Major Party Candidates (Prior Popularity)
Spend (% of Constituency)	0.417***	0.239***
	(0.029)	(0.028)
Constituency Incumbency	4.348***	3.563**
	(1.241)	(1.141)
List Incumbency	4.268***	2.315**
	(0.870)	(0.711)
Gender	-0.560	-0.794*
	(0.381)	(0.351)
Spend X Gender	0.018	0.003
	(0.023)	(0.019)
Spend X Gender X Constituency Incumbency	0.062	0.085
	(0.077)	(0.069)
Spend X Gender X List Incumbency	-0.126	-0.129
	(0.089)	(0.088)
Constant	14.455***	8.156***
	(1.104)	(0.761)
R^2	0.85	0.88
N	1,462	1,278

The dependent variable is percentage of the vote won. Robust standard errors clustered by constituency in parentheses. District competitiveness, year, parliament, party incumbency, boundary changes, party, region, open seats, prior popularity and number of candidates are included but not listed. Incumbency X Gender and Incumbency X Spend are included in models but omitted from table. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Table 6.10 – H2 OLS regression results (House of Commons)

	Short Campaign – All Candidates	Short and Long Campaign – All Candidates	Short Campaign – Major Party Candidates (Prior Popularity)	Short and Long Campaign – Major Party Candidates (Prior Popularity)
Spend (% of Constituency)	0.407***	0.376***	0.224***	0.228***
	(0.010)	(0.010)	(0.010)	(0.012)
Incumbency	4.271***	3.963***	3.912***	4.923***
	(0.582)	(0.650)	(0.561)	(0.687)
Party Incumbency	12.000***	12.343***	-0.113	2.003**
	(0.649)	(0.721)	(0.597)	(0.735)
Gender	0.182	-0.001	0.099	-0.066
	(0.152)	(0.183)	(0.172)	(0.229)
Spend X Gender	0.019*	0.012	0.021*	0.021*
	(0.009)	(0.010)	(0.009)	(0.011)
Spend X Gender X Incumbency	0.050	-0.042	0.044	-0.002
	(0.042)	(0.048)	(0.031)	(0.039)
Constant	15.455***	13.094***	3.896***	3.854***
	(0.330)	(0.339)	(0.326)	(0.435)
R^2	0.87	0.88	0.86	0.85
N	13,786	7,251	7,790	3,832

The dependent variable is percentage of the vote won by the candidate. Robust standard errors clustered by constituency provided in parentheses. District competitiveness, year, boundary changes, party, region, open seats, prior popularity and number of candidates are included as controls but not listed. Incumbency X Gender and Incumbency X Spend are included in models but omitted from table. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

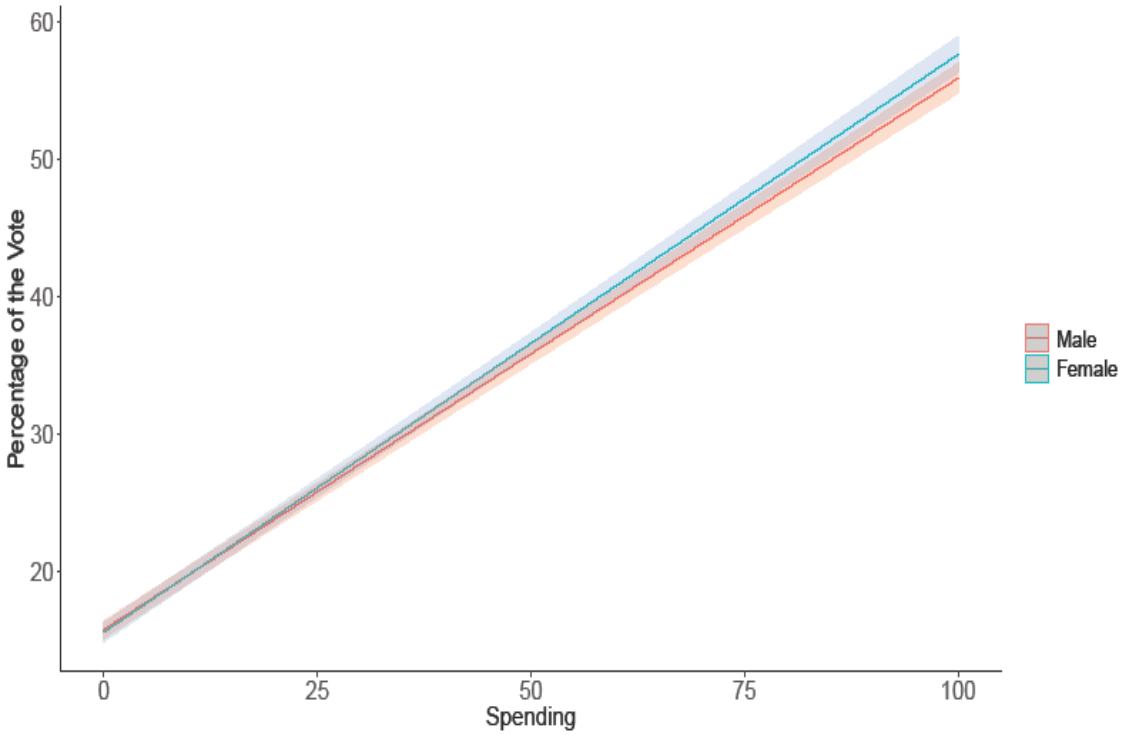

Figure 6.5 – OLS marginal effect of spending x gender (UK short campaign)

interaction for Scottish and Welsh elections became robustly significant in these models. Graphical representations of effects that are significant in quadratic models are provided in appendices E.11–E.14 along with brief discussion. Graphical inspection of the marginal effects of significant interactions in quadratic models do not offer strong support for substantively significant effects given the overlapping nature of confidence intervals and the concentration of larger effects in higher spending levels. Overall, these analyses offer no support for H2 in the Irish case. There is limited evidence to support a female efficacy advantage in House of Commons elections. There is also limited evidence for negative effects for female incumbents (House of Commons short and long campaign) and for female candidates (Scotland and Wales). However, these analyses lack robustness and substantive impact in real world terms.

6.6 Discussion

The results of the analysis offer no support for the hypotheses and suggest no advantage for male candidates in either fundraising or spending efficacy. However, some analyses offer limited (though unconvincing) support for a female advantage. It is possible that female candidates contesting elections to the House of Commons may spend more on average than their male counterparts. As has been discussed earlier in the chapter, this result may be an artefact of the data (owing to a large glut of no hope male candidates who spend very little) or it may be linked to the less hospitable electoral environment of First Past The Post contests in comparison to the electoral systems in use for Irish, Scottish, and Welsh elections (each of which has at least one proportional component). However, if majoritarian systems are less hospitable environments for female candidates, this also raises the question of how women manage to systematically spend and raise more money than their male counterparts. As such, the more convincing explanation may be that it is an artefact of the data (as is seen in appendix E.2). Analyses of Irish, Scottish, and Welsh data point us towards the conclusion that there is no statistically and substantively significant difference in terms of spending efficacy between male and female candidates. Results for the House of Commons data are much less consistent and offer some evidence of a female spending efficacy advantage.

However, there is a concerning list of reasons why these results may be slightly misleading. (1) There are issues with skewness of the data related to low spending male challengers. (2) Results from the short and long campaign combined concur with results of Irish, Scottish, and Welsh data and contradict results showing a female spending advantage in the short campaign. (3) The size of coefficients from analyses for H2 also call into doubt whether the substantive impact of the advantage is meaningful in real world terms. Regardless of these concerns over a female spending advantage, all regression results are consistent in finding no male advantage. As such, the analyses support the conclusion that female candidates are not disadvantaged in terms of spending efficacy and this may not be a significant contributing factor in female underrepresentation in politics (in agreement with McElroy and Marsh 2010, 2011).

This conclusion is not meant to suggest that female candidates have not suffered a disadvantage in terms of spending efficacy in the past, possibly arising out of preconceived attitudes in the electorate. Rather, the argument is that differential spending efficacy no longer seems to be a compelling explanation for female underrepresentation in the contemporary setting and as has been noted, attitudes towards female candidates and spending efficacy of female candidates can change over time (Green 1998). For example, the changing ability of female candidates to utilise gender stereotypes in their favour (Green 2003; Hayes and Lawless 2015). This conclusion is also not to say that movement of electorate attitudes on gender are monotonic. It is more than possible that future electoral conditions may present a disadvantageous environment for female candidates. In such an environment, female candidates may suffer from reduced spending efficacy as they need to spend more to break down negative preconceived attitudes. It also almost goes without saying that such environments and effects are not geographically universal. Effects may differ by context and indeed, each context studied in this chapter is worthy of an in-depth investigation on spending effects differentiated by gender (as has been done for incumbency in chapters two, three, four, and five). As such, this chapter may form the springboard from which to carry out more context-specific analyses. However, this chapter does find fairly consistent results across context despite the notable and interesting differences between the cases studied.

Overall, this chapter does not find evidence of systematic barriers related to spending efficacy differentiated by gender. This finding lends greater support to alternative explanations for female underrepresentation in politics. One possible and notable explanation is the role of parties as gatekeepers and their internal dynamics to either stymie or support the advancement of female members and candidates (Kittilson 2006; Lühiste 2015). This conclusion is also supported by recent analyses of Belgian elections in which Put, Smulders, and Maddens (2019) find that party elites are reluctant to select more female candidates for high list positions. This chapter concurs with the conclusion that impediments to female representation are likely to be of most concern at a pre-electoral stage (i.e. processes of candidate selection) rather than during elections themselves (i.e. differential fundraising or spending efficacy).

Chapter 7

Conclusion

A lack of consensus in past findings related to differential spending efficacy have made it difficult to appraise the suitability of campaign spending regulation or implications for the equity of democratic contests (e.g. Benoit and Marsh 2003, 2008, 2010; Erikson and Palfrey 2000; Green and Krasno 1988, 1990; Jacobson 1978, 1985, 1990; Johnston and Pattie 2006; Johnston, Pattie and Hartman 2019; Pattie, Hartman and Johnston 2017; Pattie, Johnston and Fieldhouse 1995). Apprehension over the contradictory nature of past results is driven by concerns over the suitability of methodologies used in past research and scepticism over the generalisability of a challenger spending advantage outside the US case. These concerns feed into larger issues over the robustness of findings in the literature and their suitability to offer advice on spending regulations. Yet, many past studies offer policy implications (e.g. Benoit and Marsh 2010; Jacobson 1978) with the effect of relaxing existing campaign spending limits. These issues provide the basis for the research carried out in this thesis. The analyses presented have offered new methodological and theoretical arguments to assess the plausibility of differential spending effects in the cases studied. The primary aim of this thesis has been to investigate the possibility of a challenger spending advantage in Irish and British elections while also contributing to the scant literature on differential spending effects conditioned on gender. The goal of this research is to safeguard the equity of democratic contests and investigate any possibly deleterious effects of money on electoral competitiveness. This investigation also contributes to discussion of the normative aims

of established models of representation. These models rely on equitable electoral conditions to function and the aforementioned concern over the suitability of policy advice may impede this aim. Amongst the theoretical and methodological noise of this literature, this thesis investigated the following key research questions:

(1) Do candidates glean electoral benefits from campaign spending (i.e. can candidates turn money spent into votes won)?
(2) What drives candidates to spend money in the first instance?
(3) Does incumbency status condition the efficacy of spending (i.e. do challengers glean greater efficacy from spending than incumbents)?
(4) Can the finding of a challenger spending efficacy advantage be generalised to electoral contests in Ireland and the UK?
(5) Do female candidates attract similar levels of funding to male candidates?
(6) Do female candidates attain similar electoral returns on campaign spending to male candidates?

7.1 Findings

This dissertation used matching methods (Iacus, King and Porro 2018; King and Nielsen 2019; Sekhon 2009) to address the problematic nature of spending data. This methodology was combined with new theoretical arguments and the leveraging of disaggregated spending data (Sudulich and Wall 2011) to offer a comprehensive assessment of the plausibility of differential spending effects. Each chapter in this thesis produced results indicating the efficacy of campaign spending in general. In other words, there is a robust and consistent finding that campaign spending provides electoral dividends for candidates. These results support virtually the entire literature on campaign spending. Such findings have been replicated even in electoral contests considered to be low stakes (e.g. Benoit and Marsh 2003; Sudulich and Wall 2013) and speak to the influence of campaigns more generally in determining electoral outcomes.

Chapter two uncovers a link between candidate quality and spending decisions in Irish elections. This finding is novel to the literature and empirically demonstrates the

prudence of concerns over the impact of attractive spending bias. Having controlled for the impact of attractive spending through use of coarsened exact matching, chapter two reveals that challengers in Irish elections do not glean a spending efficacy advantage over their incumbent rivals. This conclusion disputes previous findings from the literature on Irish elections such as Benoit and Marsh (2010). This result suggests that incumbents are able to glean significant spending efficacy when it matters most (i.e. when compared with other high-quality candidates rather than the clutch of no hope candidates contesting each multimember constituency).

Chapter three demonstrates the link between seat marginality and motivation for candidate spending in elections to the UK House of Commons. This chapter concurs with the small number of analyses that have investigated this connection in the past (Pattie, Hartman and Johnston 2017; Pattie, Johnston and Fieldhouse 1995) and highlights the need to account for reactive spending bias in studies of UK elections. Chapter three shows that challengers in UK elections do not have a spending efficacy advantage over incumbents after appropriate steps are taken to control for reactive spending. This marks the first finding in this research area to demonstrate there is not a challenger spending advantage in UK elections and disputes conclusions of seminal papers such as Johnston and Pattie (2006) and Pattie, Johnston and Fieldhouse (1995). Results suggest that incumbents glean the greatest marginal efficacy from their spending in marginal seats. This chapter offers a more nuanced account of incumbent spending efficacy in UK elections and shows such spending matters when it is most important.

Chapter four concurs with chapter three in establishing a link between seat marginality and candidate spending in elections to the Scottish Parliament and Welsh Assembly. This finding supports the single previous analysis investigating this link for Welsh elections (Cutts and Johnston 2015) and is the first in the literature to demonstrate this effect for Scottish elections. This chapter provides novel evidence of the need to appropriately control for the impact of reactive spending even in the type of mixed electoral systems used in Scotland and Wales. The analysis in this chapter uses matching to mediate the impact of such bias and returns results suggesting that challengers do not hold a spending advantage over incumbents. A new finding from this analysis suggests there is no differential spending effects when we investigate the role of two distinct types of

incumbents in electoral contests (namely constituency and list incumbents). These findings are novel with no extant research focusing on differential candidate level spending efficacy in Scottish and Welsh elections. Additionally, this analysis provides dissenting results and illumination of context specific electoral dynamics that dispute the generalisability of previous findings on UK wide elections (e.g. Johnston and Pattie 2006; Pattie, Hartman and Johnston 2017).

Chapter five uses disaggregated data to dig deeper into the aggregate findings of chapters two, three, and four. This chapter tests plausible mechanisms for a challenger spending efficacy advantage in the cases under investigation. These tests are carried out by focusing on categories of spending linked to name recognition and on diversification of spending, rather than aggregate levels of spending. This analysis is the first to demonstrate the efficacy of spending diversification in UK elections. Additionally, examination of spending diversification shows no significant differential effects in any context studied. The analysis also offers novel results showing no significant difference between challenger and incumbent spending efficacy in categories linked to name recognition. These results are new to the literature on spending effects and highlight the benefits of using disaggregated data to test spending effects in novel ways. Isolating spending efficacy differentiated by category and levels of diversification may reveal mechanisms of campaign spending efficacy that could prove useful for future research and policy advice.

Chapter six revisits all contexts discussed in previous chapters and shifts the focus of analysis to differential spending effects conditioned on gender. This chapter offers limited evidence that female candidates attract more funding than male candidates in elections to the UK House of Commons. There is a notable caveat to this result (related to issues with skewness of the data) and as such, this finding is questionable. Chapter six shows no significant difference in fundraising ability based on gender in Irish, Scottish, or Welsh elections. These results agree with many studies focused on the USA (Adams and Schreiber 2011; Burrell 1985; Hogan 2007) but are the first such results for Irish and British elections. Additionally, this chapter offers little evidence of a differential spending efficacy for male and female candidates. These results concur with McElroy and Marsh (2010, 2011) but dispute Burrell (1985) and Herrick (1996). Whether the results dispute

or agree with Green (1998) is dependent on the time period under investigation in that analysis. Results from UK, Scottish, and Welsh elections in chapter six are the first in the literature to focus on differential spending effects based on gender.

7.2 Contributions to the Literature

This section neatly summarises contributions to the literature based on the findings outlined in section 7.1. Table 7.1 details key contributions to the literature while Tables 7.2 and 7.3 reproduce literature summaries from Tables 1.1 and 1.2 with results from this thesis included.

Table 7.1 – Summary of key contributions to the literature

Chapter	Key Contributions
All Chapters	(1) Novel methodology to manage problematic spending data (2) New theoretical arguments against plausibility of challenger spending efficacy advantage in Irish and British elections
Chapter Two	(1) First empirical evidence of attractive spending bias in Irish elections (2) First finding on Irish elections to suggest no significant difference between challenger and incumbent spending efficacy once we control for candidate quality
Chapter Three	(1) First finding in the literature on UK elections to suggest no significant difference between challenger and incumbent spending efficacy (2) First finding in the literature on UK elections demonstrating the value of incumbent spending in marginal electoral contests
Chapter Four	(1) First empirical evidence of reactive spending bias in Scottish elections (2) First analysis in the literature on differential spending effects in Scottish and Welsh elections (3) First study in the literature to leverage two distinct types of incumbents into analysis of spending efficacy
Chapter Five	(1) First analyses in the literature to test plausible mechanisms for a challenger spending efficacy advantage using disaggregated data (2) First finding to demonstrate efficacy of spending diversification in UK elections.
Chapter Six	(1) First analysis in the literature to test differential fundraising ability of male and female candidates in Irish and British elections (2) First analysis in the literature to assess plausibility of differential spending efficacy conditioned on gender in UK, Scottish, and Welsh elections

Table 7.2 – Summary of spending efficacy advantage (incumbent vs challenger)

Challenger Advantage	No Advantage	Incumbent Advantage
Abramowitz (1988) *(US Senate Elections 1974–86)* **Benoit and Marsh (2003, 2010)** *(Irish Local Election 1999 and Irish General Election 2002)* **Jacobson (1978, 1985, 1990)** *(US House and Senate Elections 1972–82. US House 1982–86)* **Johnston and Pattie (2006)** *(UK General Elections 1997–2005)* **Johnston, Pattie and Hartman (2019)** *(UK General Elections 2017)* **Pattie, Hartman and Johnston (2017)** *(UK General Election 2015)* **Pattie, Johnston and Fieldhouse (1995)** *(UK General Elections 1983–92)* **Palda and Palda (1998)** *(French General Election 1993)* **Shin et al. (2005)** *(South Korean National Assembly Election 2000)*	**Chapter Two** *(Irish General Elections 2002–2016)* **Chapter Three** *(UK General Elections 2005–2017)* **Chapter Four** *(Scottish and Welsh Elections 2007–2016)* **Chapter Five** *(UK, Irish, Scottish, and Welsh Elections 2007–2017)* **Benoit and Marsh (2008)** *(Irish General Election 2002)* **Erikson and Palfrey (2000)** *(US House Elections 1974–80 and 1984–90)* **Gerber (1998)** *(US Senate Elections 1974–92)* **Green and Krasno (1988, 1990)** *(US House Elections 1976–80 and 1984–86)* **Johnson (2013)** *(Brazilian Legislative Elections 2002–06, Finnish General Elections 2003–07 and Irish General Elections 2002–07)* **Levitt (1994)** *(US House Elections 1972–90)* **Samuels (2001a)** *(Brazilian Legislative Election 1994)*	**Erikson and Palfrey (1998)** *(US House Elections 1972–90)*

Table 7.3 – Summary of spending efficacy advantage (male vs female)

Female Advantage	No Advantage	Male Advantage
Burrell (1985) *(US House Elections 1972–82)*	**Chapter Six** *(UK, Irish, Scottish and Welsh Elections 2007–2017)* **Green (1998)** *(US House Elections 1990–94)* **McElroy and Marsh (2010, 2011)** *(Irish General Elections 2002–07)*	**Green (1998)** *(US House Elections 1982–88)* **Herrick (1996)** *(US House Elections 1988–92)*

7.3 Implications

These findings and contributions have important implications that can be separated into three broad strands. The first strand relates to their theoretical and methodological impact on the literature, the second deals with the impact of these results on campaign spending policy advice, and the third considers overall implications for democracy. Each of these strands will be dealt with in turn.

(1) **Theoretical and methodological impact on incumbent vs challenger literature:** Results indicating equivalent spending efficacy for incumbents and challengers face a difficult task to demonstrate their validity. The analyses of this thesis are still prone to some degree of endogeneity bias as has been outlined in earlier chapters. Until such time as it is possible to generate experimental data on this topic, we are left only with the problematic observational data used in every paper in this literature. The problem then is why we should trust results showing no challenger spending advantage over others. This quandary is made more challenging due to the compelling theoretical explanation for a challenger spending advantage in US elections posited by Gary Jacobson. This theory suggests that challengers enjoy a spending efficacy advantage because they are less well-known at the outset of an electoral race in comparison to their incumbent rivals. As a result, challengers reap greater marginal benefits from their spending in terms of increasing name recognition. However, there are two important points to defend the results of this thesis. First, there is a theoretical issue in extending this explanation of the

challenger spending advantage in the USA to the context of multimember districts in Ireland, multiparty single member districts in the UK, or mixed electoral systems in Scotland and Wales. In the Irish case, the roles of incumbent and challenger are more blurred than in the two-party single member contests of US politics. The number of incumbents per constituency varies from three to five while the number of already well-known challengers varies to an even greater degree. This point ties in with and supports a similar argument made by Maddens et al. (2006) that incumbents in open list systems with large district magnitudes will enjoy a small or negligible advantage in voter visibility over their challenger rivals. Accordingly, there is no compelling reason to believe that challengers in such systems enjoy the challenger spending advantage originally conceived in relation to single member districts. In the case of Scotland and Wales, these theoretical issues arise due to the multiparty nature of electoral contests and the presence of two distinct types of incumbents in a mixed electoral system. These features of the Scottish and Welsh systems muddy the waters in terms of clear incumbents and challengers while also limiting the generalisability of theoretical expectations from single member districts with only two major parties such as the USA.

On the surface, the logic of Jacobson's (1978, 1985, 1990) argument applies more strongly to single member districts in the UK case than it does to Irish, Scottish, or Welsh elections. However, as was argued earlier in this thesis, the nature of multiparty competition in the UK's single member districts casts doubts on whether the theoretical story of the challenger advantage can be transplanted into the British political system. Additional differences between the US and UK may also serve to cultivate a challenger advantage in the former but not the latter. For example, vastly different regulation related to political advertising on TV and radio (Holtz-Bacha and Just 2017). Each of these theoretical discussions raises doubts over the propensity in past literature to generalise theoretical expectations from the USA to other contexts. This thesis argues that spending analyses should be cautious with such generalisations while considering the substantive differences between contexts under investigation and the USA (i.e. the source of the theoretical argument). Additionally, chapter five highlights the need to directly test the theoretical expectations linked to a challenger spending efficacy advantage. Direct tests of the mechanisms underlying the name recognition challenger advantage are not common (Jacobson 1978 and 1985 are notable exceptions) and the literature should move

towards explicit testing of such mechanisms to offer a deeper understanding of if and how differential spending effects exist.

Second, there is an undisputable issue with the reliability of spending data due to endogeneity, high leverage observations, and data imbalance. Research that tackles the manageable issues of high leverage points and data imbalance (setting aside the rather large issue of endogeneity) produce results counter to those showing a challenger spending advantage. Erikson and Palfrey (2000), Green and Krasno (1988), and Johnson (2013) are notable in this regard. What becomes clear is that every paper in the literature uses the same kind of problematic data but those which use novel techniques to address the *manageable* empirical issues produce contrary results to papers which do not. In this sense, the wider literature has an empirical question to answer in terms of why efforts to improve methodology and manage problematic data produce different results. Accordingly, scholars must also ask why such results should be considered less believable than the contrary. At the very least, the rather modest aspiration of this work is to prompt re-assessment of the plausibility of the challenger spending advantage in both theoretical and empirical terms. It is undoubtedly possible challengers hold a marginal spending advantage over their incumbent rivals under certain systems and conditions, but this thesis asserts it would be unwise to consider this a uniform effect.

(2) **Impact on campaign spending policy advice:** The results of chapters two, three, four, and five have clear implications for policy advice on campaign spending related to incumbency. The analyses find no challenger spending advantage in any context studied while also demonstrating the value of incumbent spending when it matters most (i.e. when facing other strong candidates or contesting marginal seats). Based on results in this thesis, policy based on the assumption of a challenger spending advantage and advice in previous literature may unintentionally create campaign spending regulations that give incumbents an entrenched advantage. Policy of this nature could impair electoral competitiveness and undermine democratic integrity. Methodological issues and/or the problematic generalisation of findings from other contexts may give rise to an assumption of a challenger spending advantage in Irish and British elections. Previous studies that find a challenger spending advantage have suggested that democratic competitiveness is nurtured by loosening or removing spending limits (e.g. Benoit and Marsh 2010;

Jacobson 1978). However, this thesis argues that such regulation may damage the chances of challengers (because they do not enjoy a marginal spending efficacy advantage) and allow incumbents to spend most effectively when the need is greatest. As has been discussed earlier, spending regulation should focus on context specific types of spending in order to promote democratic competitiveness. Such regulation should focus on incumbency perquisites in Irish elections, the role of list incumbents in Scottish and Welsh elections, and party spending in UK, Scottish, and Welsh elections. A common finding across all contexts is that challengers may be more electorally and financially disadvantaged than previously believed. Accordingly, it may prove fruitful to pursue expansion of public funding (Ireland) or establishment of public funding (UK) with a specific focus on assisting challengers. In sum, this thesis contends that spending limits are conducive to electoral competition (in agreement with a handful of empirical studies such as Krasno and Green 1993). This thesis also recommends that spending limits be applied alongside case specific regulation to assist challengers (as discussed above). Results from chapter six also provide important implications for spending regulation related to gender. The analysis shows little evidence that differential spending efficacy conditioned on gender is a significant contributor to the underrepresentation of women in politics. As such, regulation of campaign spending might not have a significant effect on the competitiveness of democratic contests related to gender. Rather, this analysis supports the conclusion that the adoption of institutional arrangements to increase the number of women running for office such as gender quotas are more appropriate to tackle this particular issue. However, this conclusion does not preclude differential spending efficacy conditioned on gender in the future or in other contexts.

(3) **Overall implications for democracy:** The quality of democracy and equity of democratic contests is a product of how well government regulates campaign spending (amongst other things). The capacity for campaign spending research to guide such regulation in the future is dependent on the reliability of results related to differential spending effects and in this regard, the literature has struggled. The quality and equity of democratic contests may suffer if a structural advantage for incumbents is created by the implementation of policy advice based on non-robust findings of a challenger advantage in Irish and British elections (e.g Benoit and Marsh 2010). Such structural advantages are almost certain to distort the normative outcomes associated with the formalistic model of

political representation by interfering with the effectiveness of the authorisation and accountability mechanisms afforded to voters (Pitkin 1967). In other words, both voters and challengers are denied engagement in an equitable democratic process if problematic spending regulation tilts electoral contests in the favour of incumbents. This thesis also provides some important implications for democracy in terms of the descriptive model of representation related to gender. Findings from chapter six suggest that female candidates can raise as much money and glean as much efficacy from spending as their male counterparts. As such, these results do not support the conclusion that spending regulation focused on gender can have a significant effect on the competitiveness of female candidates or the equity of the races they contest. However, results from earlier chapters suggest one barrier to female candidates and overall levels of female representation. This thesis has argued that challengers face a more difficult task to overhaul the in-built lead of incumbents than previously believed. Results demonstrating that incumbent spending is more valuable than suggested in previous research has knock-on effects for female candidates. Most clearly, the value of incumbent spending affects female candidates because incumbents are largely male (with men comprising up to 80% of incumbents after some elections in this dataset). In this sense, female representation may be impacted by incumbent spending that is more effective than previously believed rather than less effective spending for female candidates overall. Put simply, a barrier that *does* impede the spending efficacy of many female candidates may be created by the combined impact of the proportion of male incumbents and the underestimated efficacy of incumbent spending. Unsuitable spending regulation that tilts electoral contests in the favour of incumbents may distort not only the mechanisms underpinning the formalistic account of representation (Pitkin 1967) but may also stymie the aims of descriptive models of representation (Pitkin 1967; Mansbridge 1999) due to the path dependent nature of the incumbent pool.

7.4 Future Research

Based on the three broad strands of implications arising from this research, there are four notable areas on which future research should focus.

(1) **Methodology and Data:** For clarity and transparency of future research, it would be beneficial to explicitly seek out and identify the particular limitations of any given spending dataset. Such limitations may relate to attractive spending, reactive spending, severe imbalances in variables such as seat marginality, or high leverage observations on spending variables. This explicit approach provides the opportunity to tailor the methodology and analysis to deal specifically with the issues identified. Transparency of this type is beneficial not only to the overall reliability of the results but also to the confidence of anyone engaging with the research as the reality of the data is laid bare. There is also a need to look beyond the aggregate level in future research on spending efficacy. By using methodological approaches that limit inferences to feasible windows of the data, it is possible to produce more nuanced results as well as offering additional control over problematic data (in terms of imbalanced variables and high leverage observations). Tailored findings of this type may prove more useful for policy advice than those gleaned from aggregate level analysis.

(2) **Theory and causal mechanisms:** Future research should be cautious when generalising the theoretical explanations of the challenger spending advantage to contexts outside the US. This thesis has highlighted the propensity in the literature to import such theoretical arguments into diverse contexts. The findings have also demonstrated that this propensity may be problematic. Previous conclusions about a challenger spending advantage in cases like the UK and Ireland could be a statistical artefact related to methodological issues rather than an affirmation of the generalisability of the theory. In this vein, there is also a need to look beyond the aggregate in theoretical terms and seek out specific mechanisms that can test the plausibility of the theoretical challenger spending advantage (chapter five is a modest attempt at such an analysis).

(3) **Spending in the USA:** This thesis has discussed the theoretical and methodological legacy of the campaign spending literature in the USA (Jacobson 1978, 1985, 1990). As detailed in the two previous sections, future research outside the US should be cautious in how it approaches the methodological and theoretical concerns of this literature. Additionally, while the name recognition theory is most plausible in the US context, it seems prudent to suggest the reassessment of differential spending efficacy in US elections nonetheless. Data for US elections are prone to the same data generation process

as other contexts and are vulnerable to the same methodological concerns as a result. Future research should carry out fresh analysis using advanced methods and disaggregated analysis to test the robustness of the challenger advantage in the US. These analyses of US elections would serve as a kind of 'easy case', i.e. the mechanisms underlying the challenger spending advantage and the regression results should be robust to the type of methodology used in this thesis. If the results from US elections are not robust to such analysis, this would provide strong evidence that the literature needs to reassess the theoretical basis of past findings and re-address the long running issues over methodology.

(4) **Tone and content during campaigns:** Future research should seek to push beyond the aggregate spending literature by incorporating content analysis and experimental designs. It is possible that categorical data are not disaggregated enough to test the real mechanisms underlying the name recognition theory. The real driver of a challenger spending advantage may be the tone and content of political campaigns and advertising. For example, challengers may glean more from their spending because they are better able to utilise strategies of voter preference destabilisation through the messaging of their campaigns[35]. Combining election results with content analysis of political campaigns, future research should seek to bridge the gap between the campaign spending and political advertising literatures to drill further down into the differential campaign effects of challengers and incumbents. Supplemented with data on campaign messaging, the extensive electoral datasets I have assembled for Irish and British elections in this thesis could form the basis of such future research.

[35] See Brader (2006) for a full discussion of the experimental impact of differential political advertising.

Appendix A

Equivalent Spending Efficacy in Multimember Districts: Irish General Elections 2002–2016 (Additional Information)

A.1 Coarsened Versions of Candidate Quality Variable

Table A.1 – Specifications of CQS variable used in matching procedure

Configuration	Values at which the variable is cut
Candidate Quality Score Original	None (uncoarsened)
Candidate Quality Score A	0, 1.9, 5.9, 11.9, 52
Candidate Quality Score B	0, 1.9, 5.9, 11.9, 29.9, 52
Candidate Quality Score C	0, 5.9, 11.9, 29.9, 52

A.2 Coarsened Versions of Political Party Variable (Irish Elections)

Table A.2 – Party coarsening 1: Ireland (Parties remain ungrouped unless specified)

Grouping	Parties
Left Wing Group	Socialist Party, Socialist Workers Party, People Before Profit, Anti-Austerity Alliance / People Before Profit
Independents Group	Independents, South Kerry Independent Alliance, Independent Alliance, Independents 4 Change
Fringe Parties Group	Christian Solidarity Party, Fis Nua, Communist Party, Direct Democracy Ireland, Catholic Democrats, Irish Democratic Party

Table A.3 – Party coarsening 2: Ireland (Parties remain ungrouped unless specified)

Grouping	Parties
Minor Parties Group	Green Party, Progressive Democrats, Social Democrats, Renua
Left Wing Group	Socialist Party, Socialist Workers Party, People Before Profit, Anti-Austerity Alliance / People Before Profit, The Workers Party
Independents Group	Independents, South Kerry Independent Alliance, Independent Alliance, Independents 4 Change
Fringe Parties Group	Christian Solidarity Party, Fis Nua, Communist Party, Direct Democracy Ireland, Catholic Democrats, Irish Democratic Party

A.3 Spending Efficacy OLS Results (Irish Elections)

Table A.4 – Spending efficacy OLS results (Irish elections)

	Pooled Data
Reg Spend	2.751***
	(0.144)
% Spend from Public Funds	1.559***
	(0.392)
Party Spend	1.253***
	(0.300)
Incumbency	24.899***
	(3.186)
Const Spend X Incumbency	-1.396***
	(0.293)
Constant	-11.754***
	(1.608)
R2	0.71
N	2005

The dependent variable is percentage of quota won. Robust standard errors with clustering in constituencies provided in parentheses. Party, Gender, Open Seat, District Magnitude, Candidate Quality, Year and Number of Candidates are included but omitted from table.

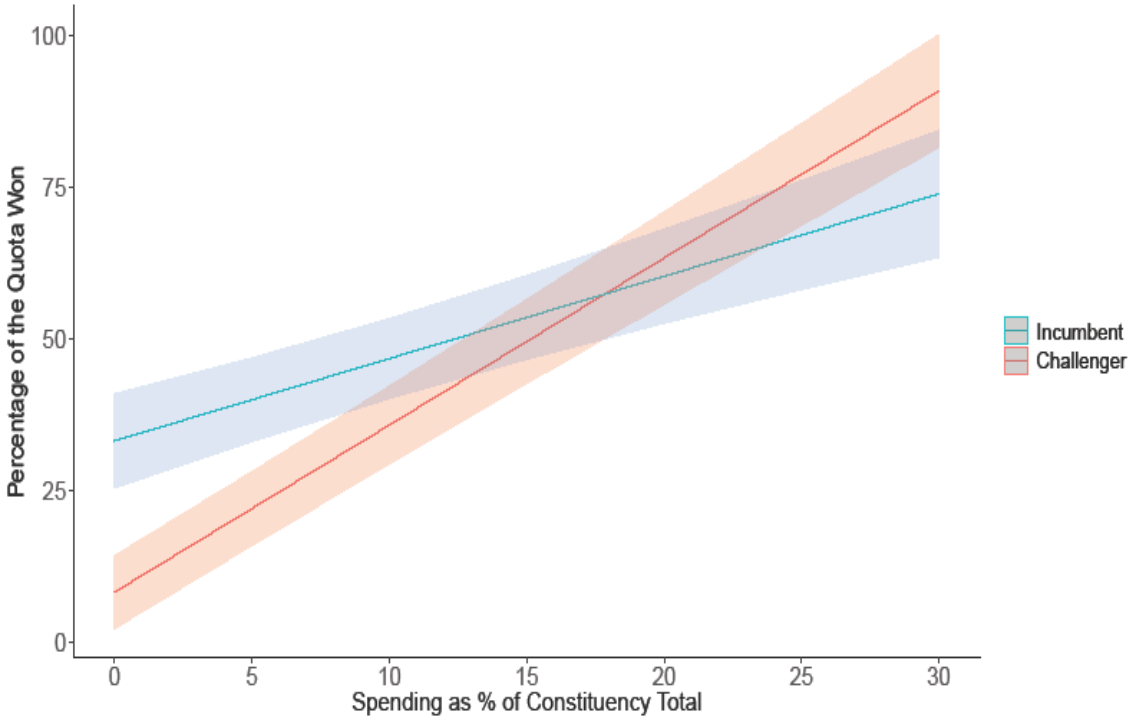

Figure A.1 – OLS marginal effect of spending on votes won (Irish elections)

Table A.4 presents naïve OLS results that differ significantly from CEM results presented in Table 2.7. These results show a negative and statistically significant interaction effect between spending and incumbency. Incumbents win 1.4% less for each additional percentage of constituency spending in comparison to challengers. Figure A.1 demonstrates these results further with the slope coefficient of challenger spending efficacy being steeper than the incumbent slope. Figure A.1 suggests that the vote return for challenger spending reaches parity with incumbents when they reach as little as 10% of constituency spending. This thesis argues that these results are likely the result of bias in estimates of incumbent spending that is related to candidate quality.

A.4 Full CEM Spending Efficacy Results (Irish Elections)

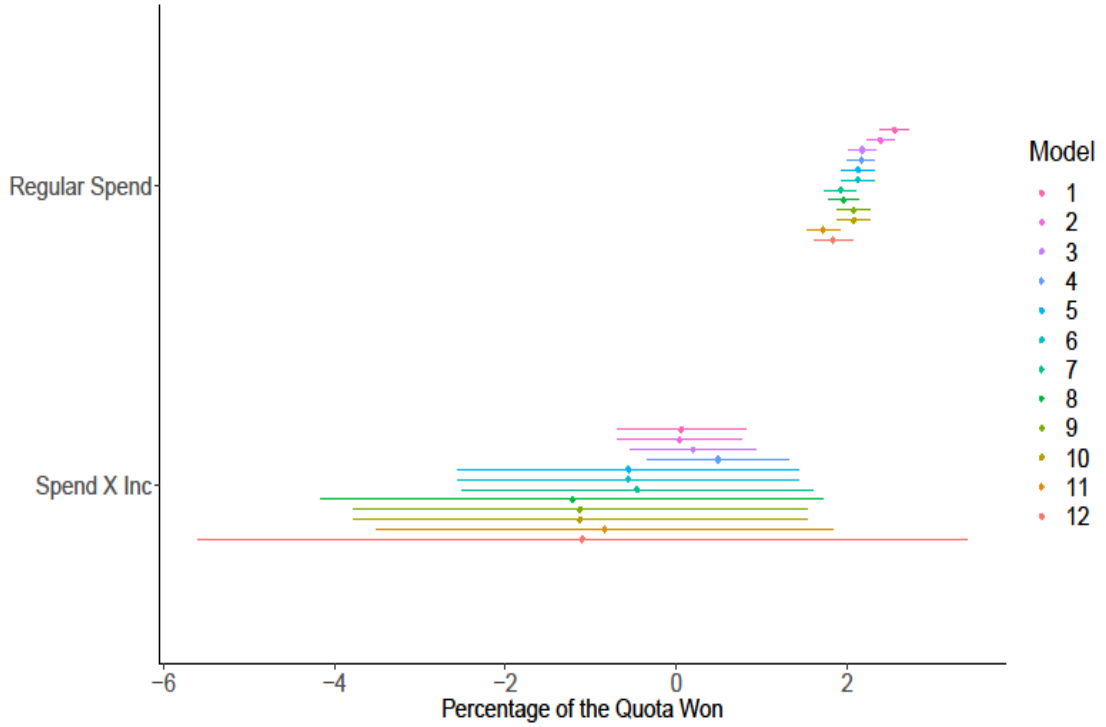

Figure A.2 – CEM spending efficacy coefficients (Irish elections)

This figure shows coefficients for spending and the incumbency interaction for the four models reported in Table 2.7 using three different treatments in the CEM package. Models 1- 4 use a spending treatment divided into three levels, models 5-8 use a treatment divided into four levels and models 9-12 use a treatment divided into five levels. As the plot shows, these regression results are consistent across models in returning coefficients on incumbent spending which are not significantly different to challenger spending.

A.5 CEM Spending Efficacy Results – District Magnitude Robustness Check (Irish Elections)

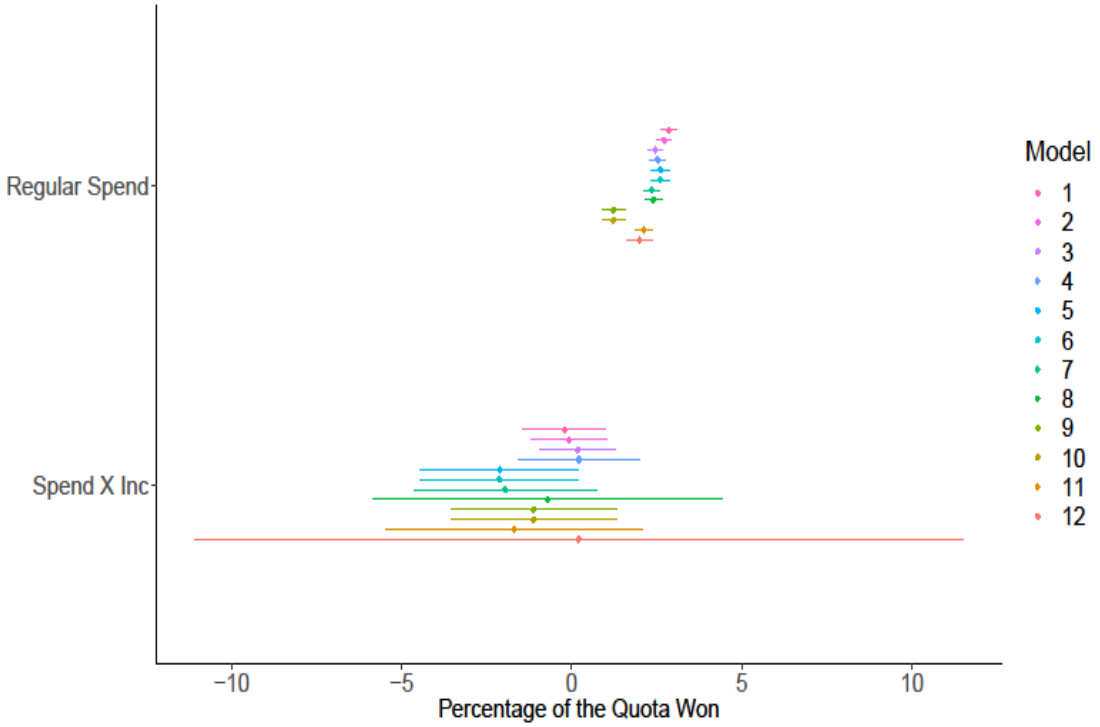

Figure A.3 – CEM spending efficacy coefficients: district magnitude robustness check (Irish elections)

This plot shows coefficients for spending and the incumbency interaction for all twelve CEM models with district magnitude included in the matching procedure. Models 1-4 use a spending treatment divided into three levels, models 5-8 use a treatment divided into four levels and models 9-12 use a treatment divided into five levels. These regression results return coefficients on incumbent spending which are not significantly different to challenger spending and as the plot shows, these effects are robust across model specification.

A.6 Descriptive Evidence – Candidate Quality and Spending (Irish Elections)

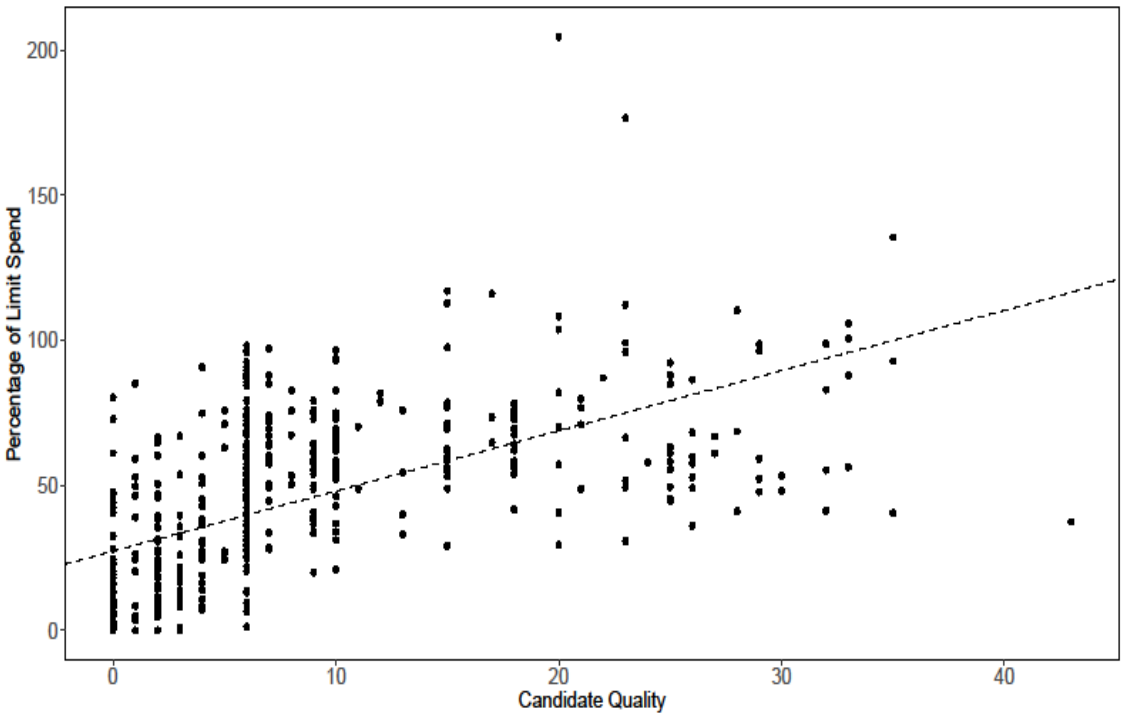

Figure A.4 – Candidate quality plotted against spending: Irish election 2002

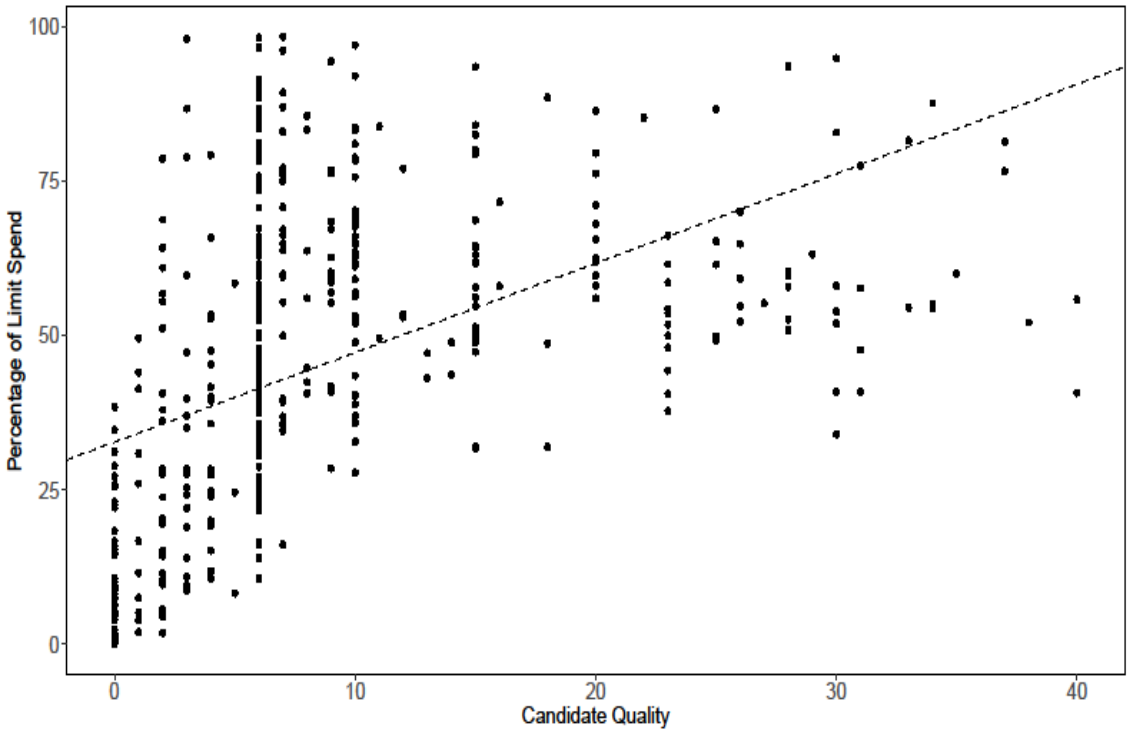

Figure A.5 – Candidate quality plotted against spending: Irish election 2007

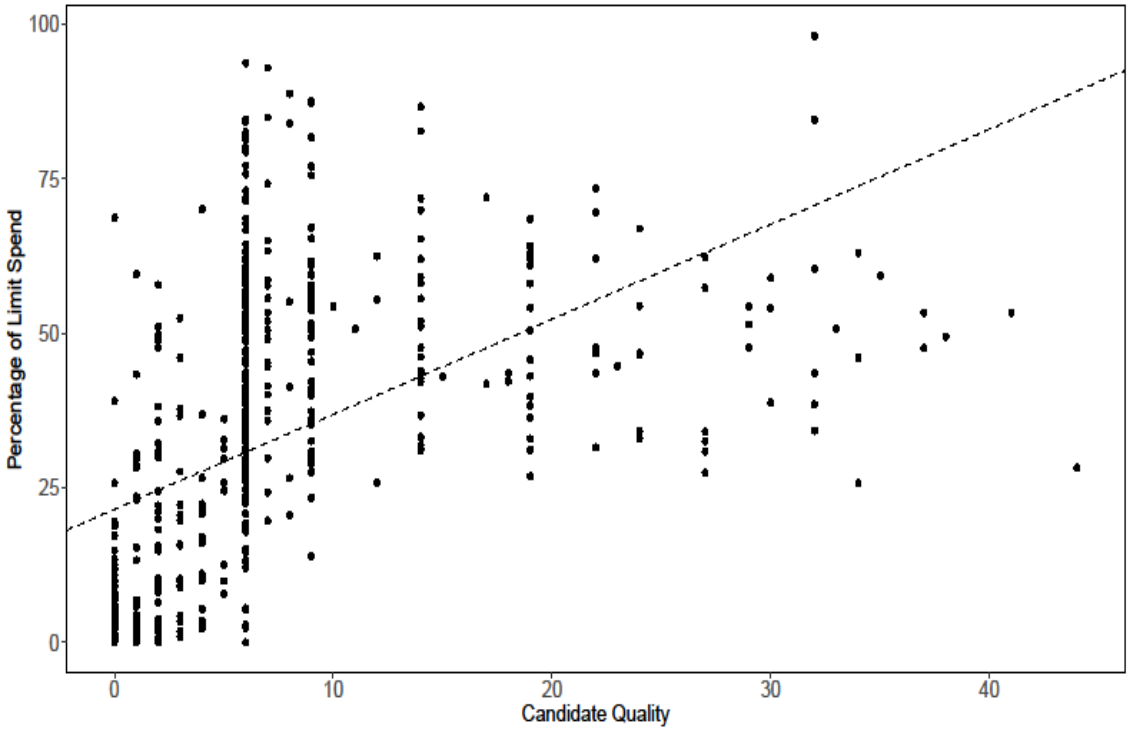

Figure A.6 – Candidate quality plotted against spending: Irish election 2011

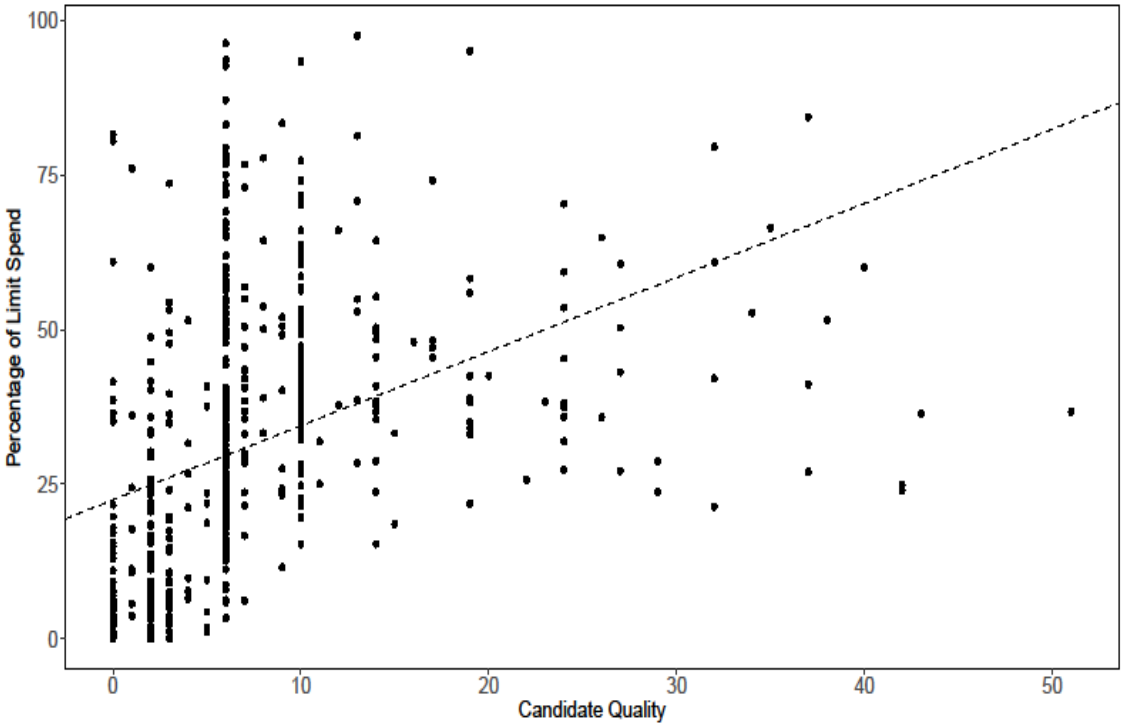

Figure A.7 – Candidate quality plotted against spending: Irish election 2016

The correlations between the candidate quality score (CQS) and spending as a percentage of the limit total are 0.58, 0.48, 0.51 and 0.41 for the 2002, 2007, 2011 and 2016 elections respectively. The correlation for the pooled dataset is 0.5. These correlations demonstrate a reasonably strong relationship between candidate quality and spending. Figures A.4 to A.7 show the relationship between quality and spending at each election. High quality candidates are predominately higher spenders and as such, this may introduce bias into the results.

A.7 Key Variable Distributions (Irish Elections)

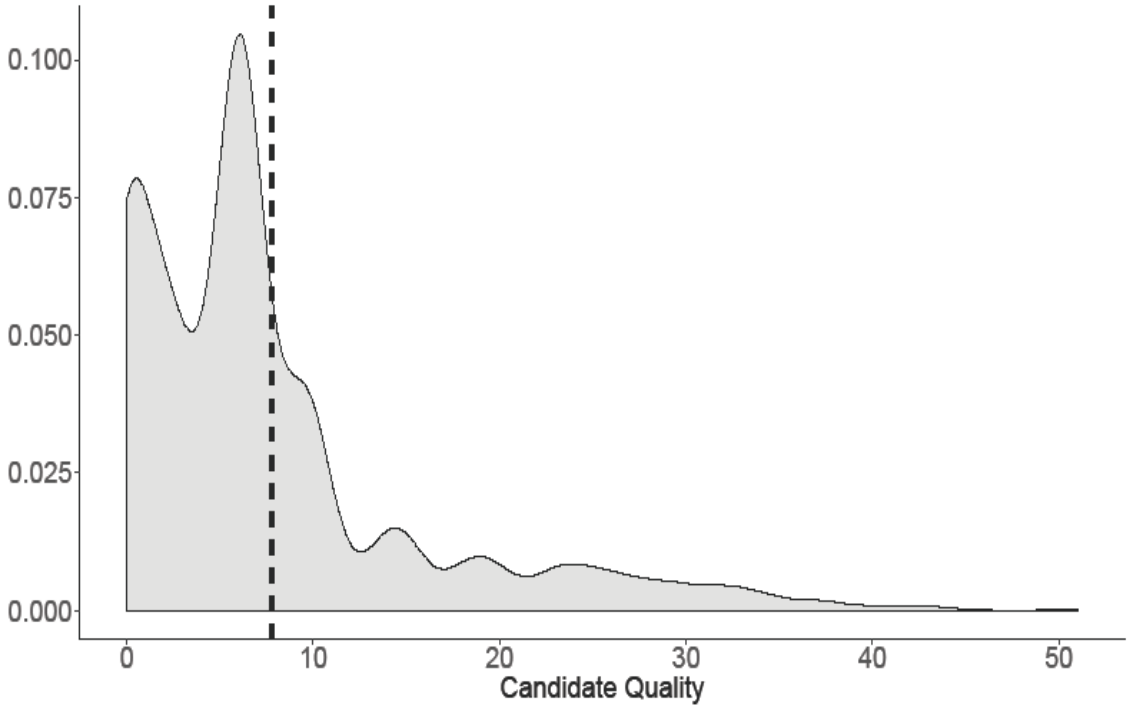

Figure A.8 – Candidate quality distribution of candidates: Irish elections (line = mean)

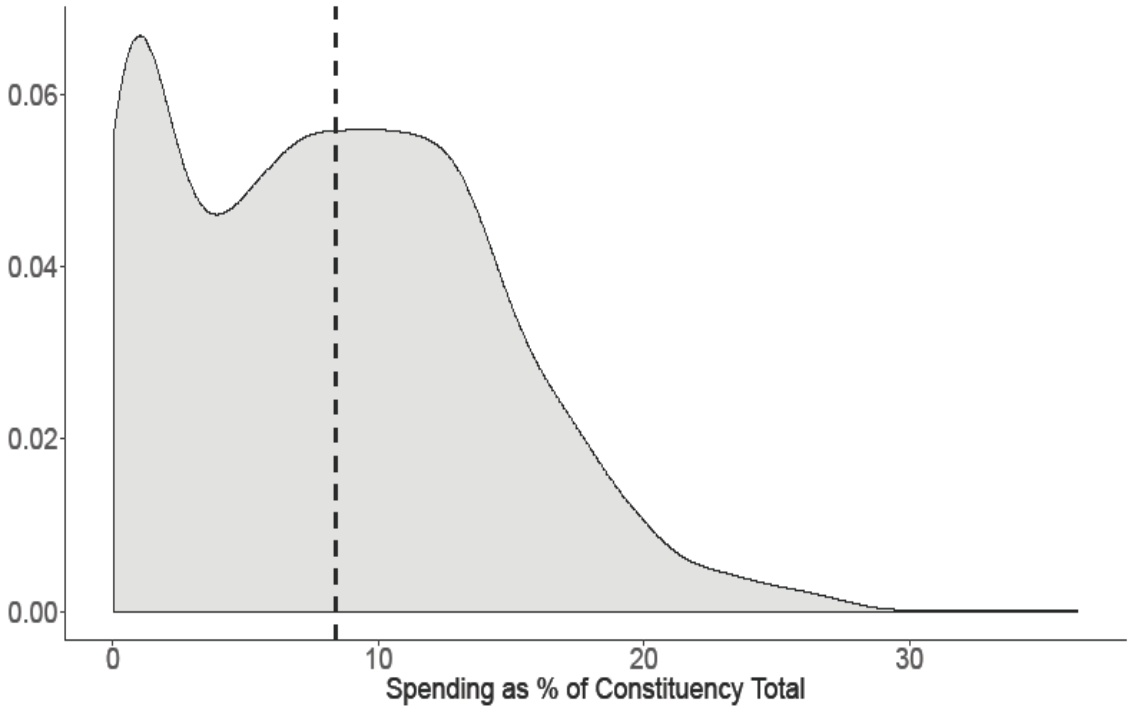

Figure A.9 – Spend as % of constituency distribution: Irish elections (line = mean)

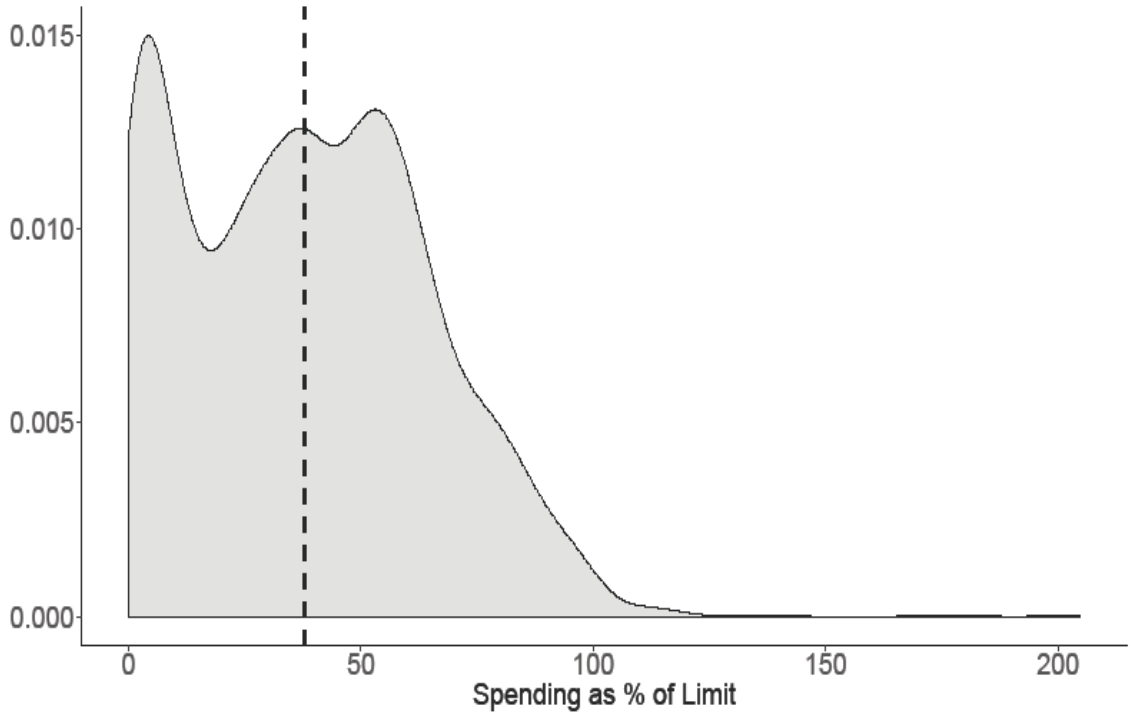

Figure A.10 – Spend as % of limit distribution: Irish elections (line = mean)

A.8 Descriptive Statistics – Constituency and National Spending (Irish Elections)

Table A.5 – Constituency and National Spending (Irish Elections)

Spending Type	2002	2007	2011	2016
Candidate Spend in Constituency	€5,720,392.20	€6,864,263.22	€5,844,163.44	€5,609,859.44
Party Spend in Constituency	€874,549.83	€993,826.72	€675,639.36	€579,096.83
Party Spend on National Campaign	€2,646,882.96	€3,224,223.16	€2,757,834.79	€2,205,379.62
Constituency Spend as % of Overall Spend	71.36%	70.91%	70.27%	73.73%

This thesis focuses on constituency spending and incorporates both candidate and party spending of this type. National spending by political parties is not incorporated as it cannot be disaggregated by constituency. This limitation in data is shared by all other analyses on Irish elections.

Appendix B

Threatened Incumbents Spend Most Effectively: UK General Elections 2005–2017 (Additional Information)

B.1 Coarsened Versions of Seat Marginality Variable (UK Elections)

Table B.1 – Specifications of marginality variable used in matching procedure: UK elections

Configuration	Values at which the variable is cut
Marginality % A	0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75
Marginality % B	0, 10, 20, 30, 40, 50, 60, 75
Marginality % C	0, 5, 75
Marginality % D	0, 10, 75
Marginality % Original	None (uncoarsened)

B.2 Coarsened Version of Political Party Variable (UK Elections)

Table B.2 - Party groupings used in matching procedure: UK elections

Grouping	Parties
Ungrouped Parties	Labour Party, Conservative Party, Liberal Democrats, United Kingdom Independence Party, Green Party, Independents, Respect, British National Party, Veritas
Major Regional Parties Group	Scottish National Party, Plaid Cymru
Minor Parties	Democratic Labour Party, Scottish Socialist Party, Liberal Party, Mebyon Kernow, Alliance for Green Socialism, Socialist Labour Party, Socialist Alternative, Community Action, Forward Wales, Trade Unionist and Socialist Coalition, Left Unity
Minor Nationalist Parties	English Democrats, National Front
Fringe Parties	All Remaining Parties

B.3 Coarsened Version of Prior Popularity Variable (UK Elections)

Table B.3 – Specification of prior vote popularity in matching procedure: UK elections

Configuration	Values at which the variable is cut
Prior Vote %	0, 20, 40, 60, 72

B.4 Spending Efficacy OLS Results (UK Elections)

Table B.4 – Spending efficacy OLS results (UK elections)

	Short Campaign (2005 – 2017)	Short + Long Campaign (2010 -2015)
% Constituency Spend	0.446***	0.414***
	(0.010)	(0.010)
MP Incumbency	12.041***	13.274***
	(0.949)	(1.106)
Party Incumbency	11.316***	11.551***
	(0.648)	(0.728)
Constituency Spend X MP Incumbency	-0.176***	-0.206***
	(0.161)	(0.018)
Constant	14.624***	12.359***
	(0.326)	(0.342)
R^2	0.873	0.882
N	13,786	7,251

The dependent variable is percentage of vote won. Standard errors provided in parentheses. Party, Marginality, Boundary Changes, Region, Gender, Open Seat, Year, Parliament and Number of Candidates are included but omitted from table.

Results from Table B.4 are accompanied by an exploration of marginal effects in Figures B.1 and B.2. Overall, the results show a spending efficacy advantage for challengers. This advantage can be seen in the steeper slope on challenger coefficients meaning that challengers gain ground on incumbents as spending increases. This thesis contends these results are likely the results of bias in estimates of incumbent spending due to the role of seat marginality.

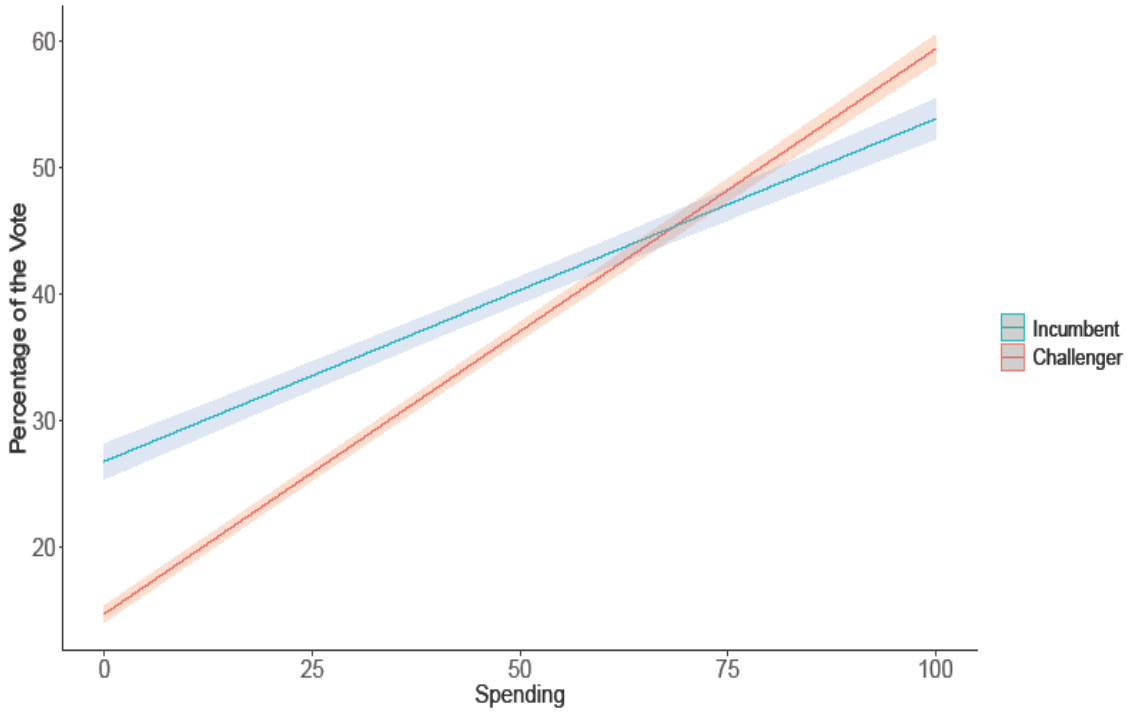

Figure B.1 – OLS marginal spending effects: UK short campaign 2005 – 2017

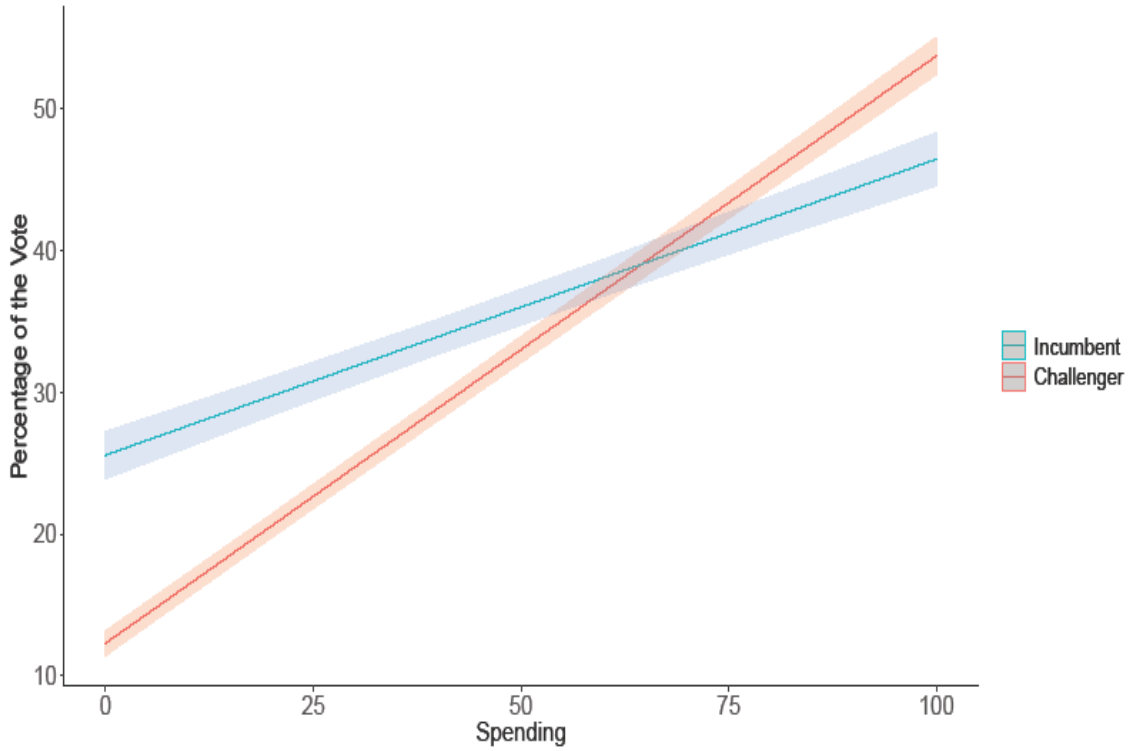

Figure B.2 – OLS marginal spending effects: UK short + long campaign 2010 – 2015

B.5 UK Short Campaign CEM Analysis: Major Party Candidates Only (Prior Popularity Robustness Test)

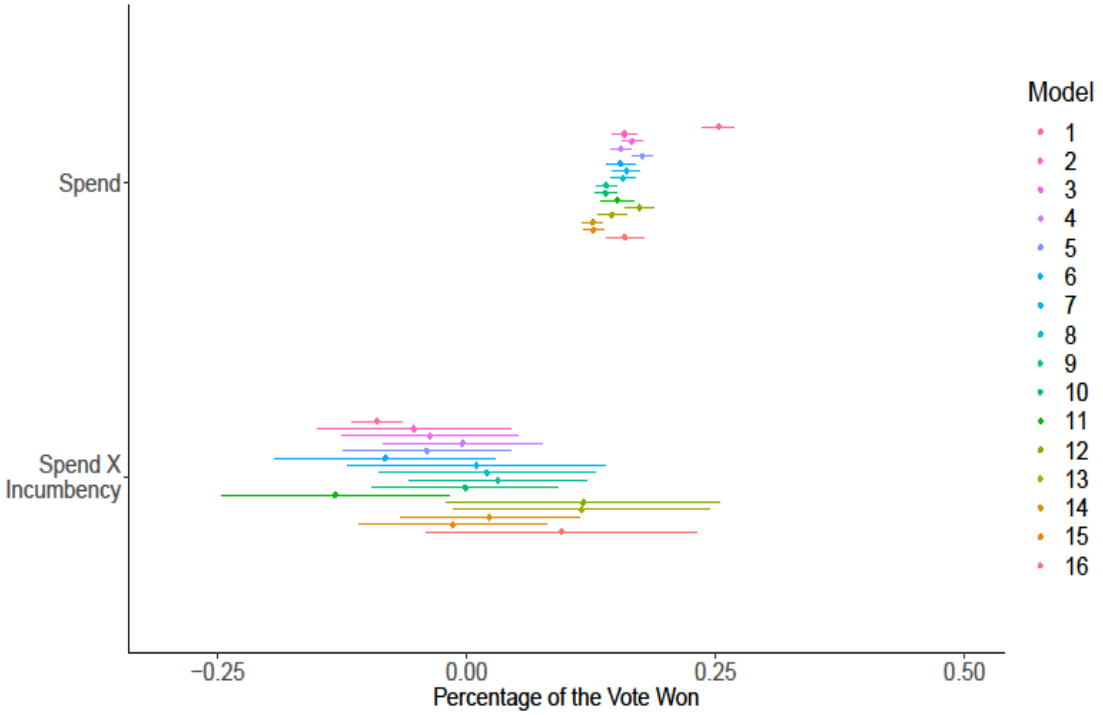

Figure B.3 – Analysis using short campaign data and only major party candidates

Model 1 = OLS. Models 2-16 = CEM regressions matched on marginality, party, and prior popularity.

B.6 UK Short and Long Campaign CEM Analysis: Major Party Candidates Only (Prior Popularity Robustness Test)

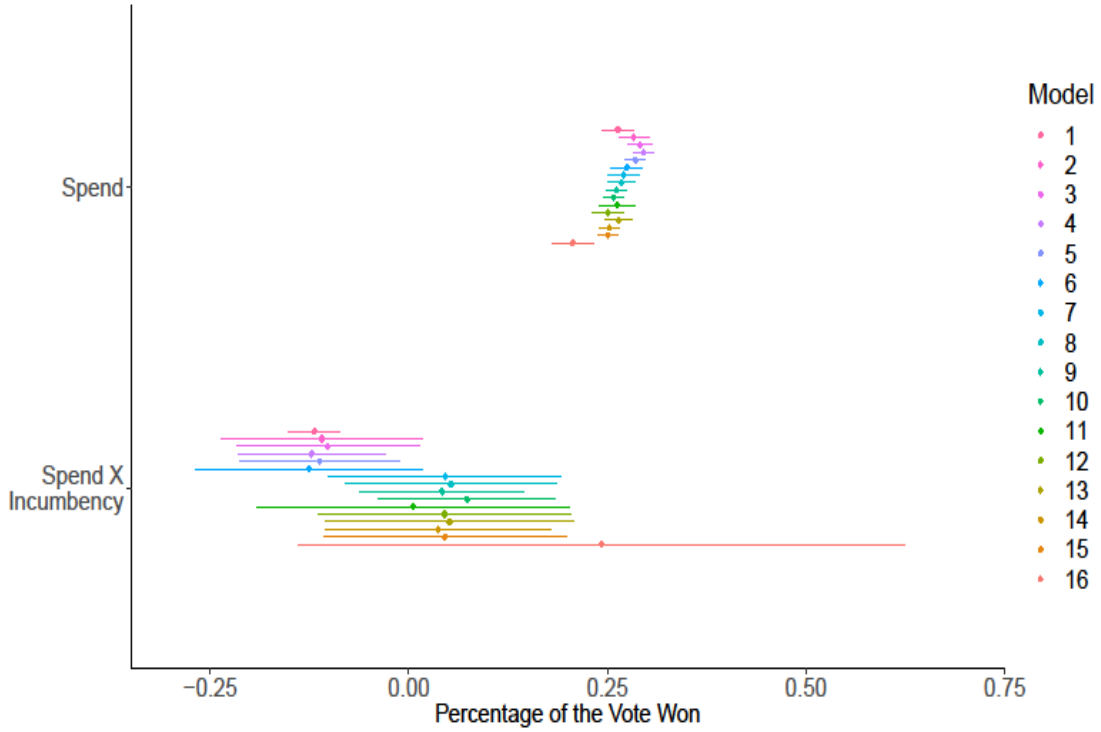

Figure B.4 – Analysis using short + long campaign data and only major party candidates

Model 1 = OLS. Models 2-16 = CEM regressions matched on marginality, party, and prior popularity.

B.7 UK Short Campaign CEM Analysis: Top Two Candidates Only (Prior Popularity Robustness Test)

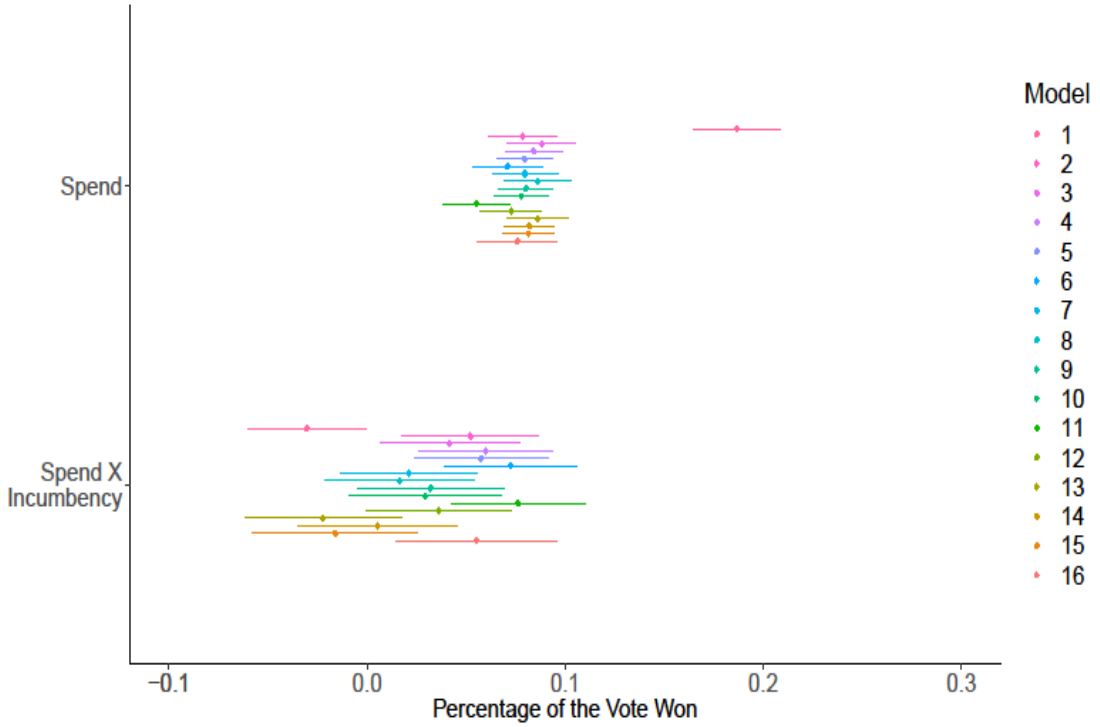

Figure B.5 – Analysis using short campaign data and only top two candidates

Model 1 = OLS. Models 2-16 = CEM regressions matched on marginality, party, and prior popularity.

B.8 UK Short and Long Campaign CEM Analysis: Top Two Candidates Only (Prior Popularity Robustness Test)

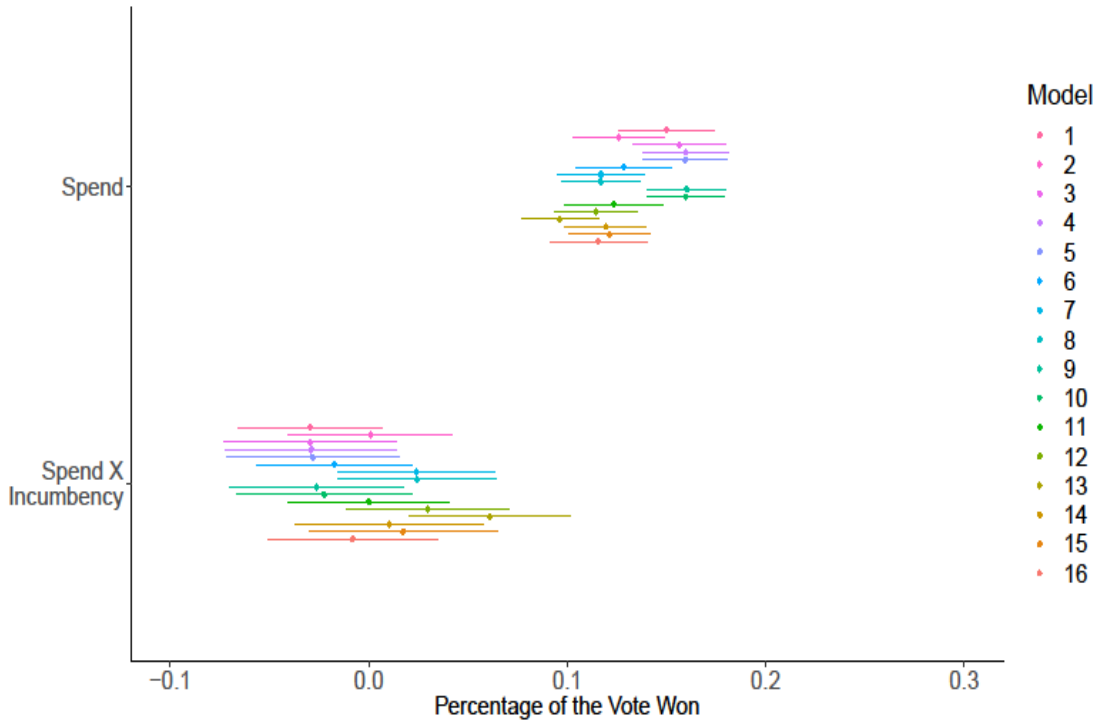

Figure B.6 – Analysis using short + long campaign data and only top two candidates

Model 1 = OLS. Models 2-16 = CEM regressions matched on marginality, party, and prior popularity.

B.9 Key Variable Distributions (UK Elections)

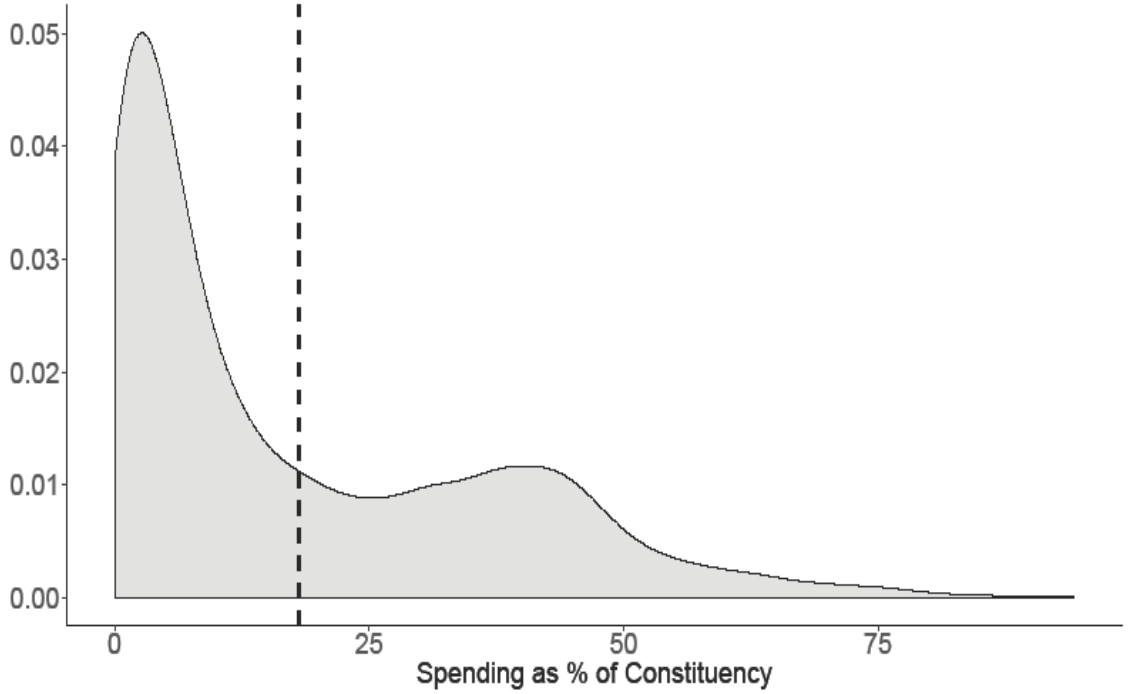

Figure B.7 – Spend as % of constituency distribution: UK short campaign (line = mean)

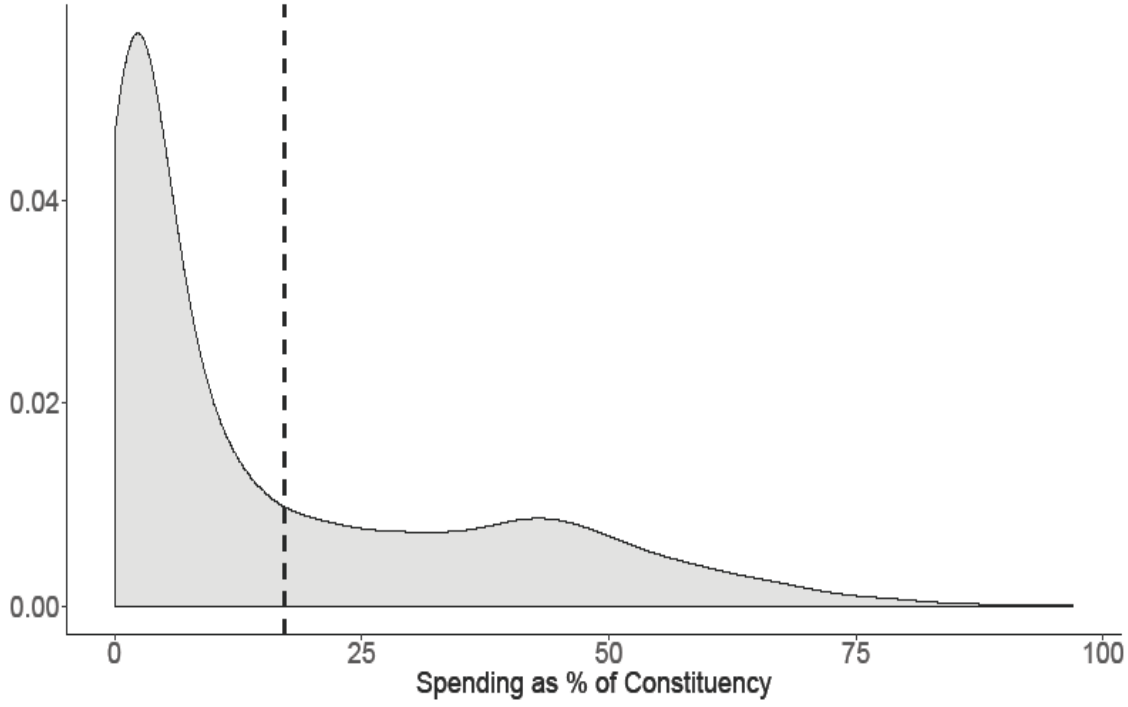

Figure B.8 – Spend as % of constituency distribution: short + long campaign (line = mean)

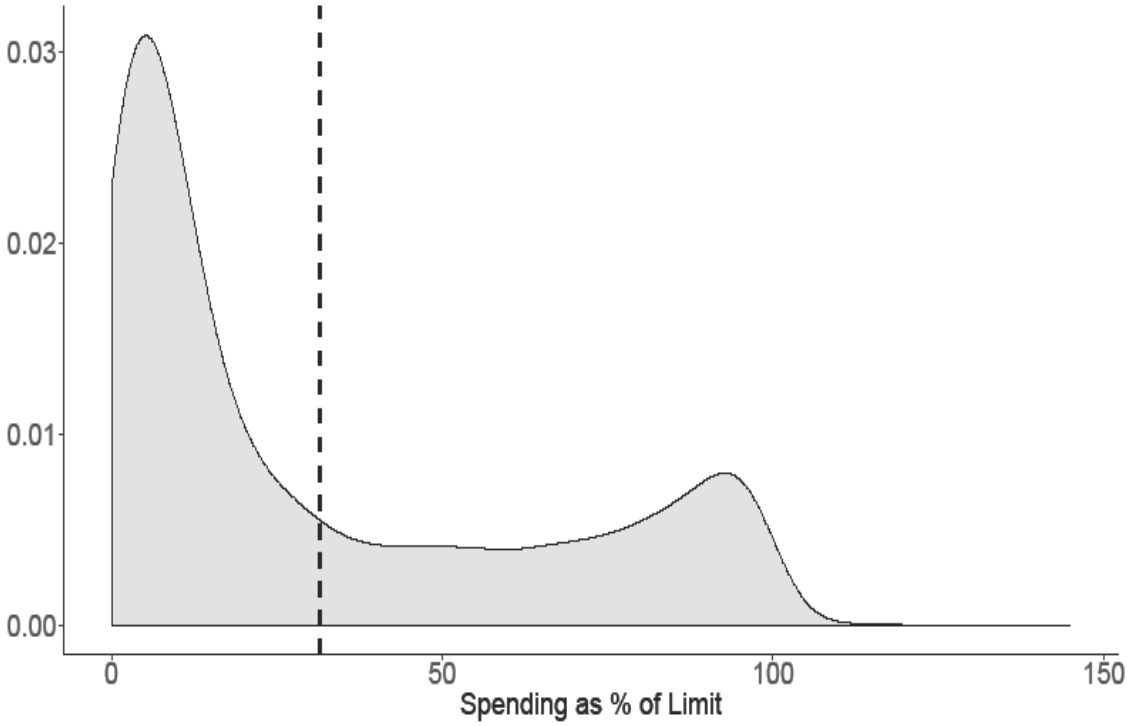

Figure B.9 – Spend as % of limit distribution: UK short campaign (line = mean)

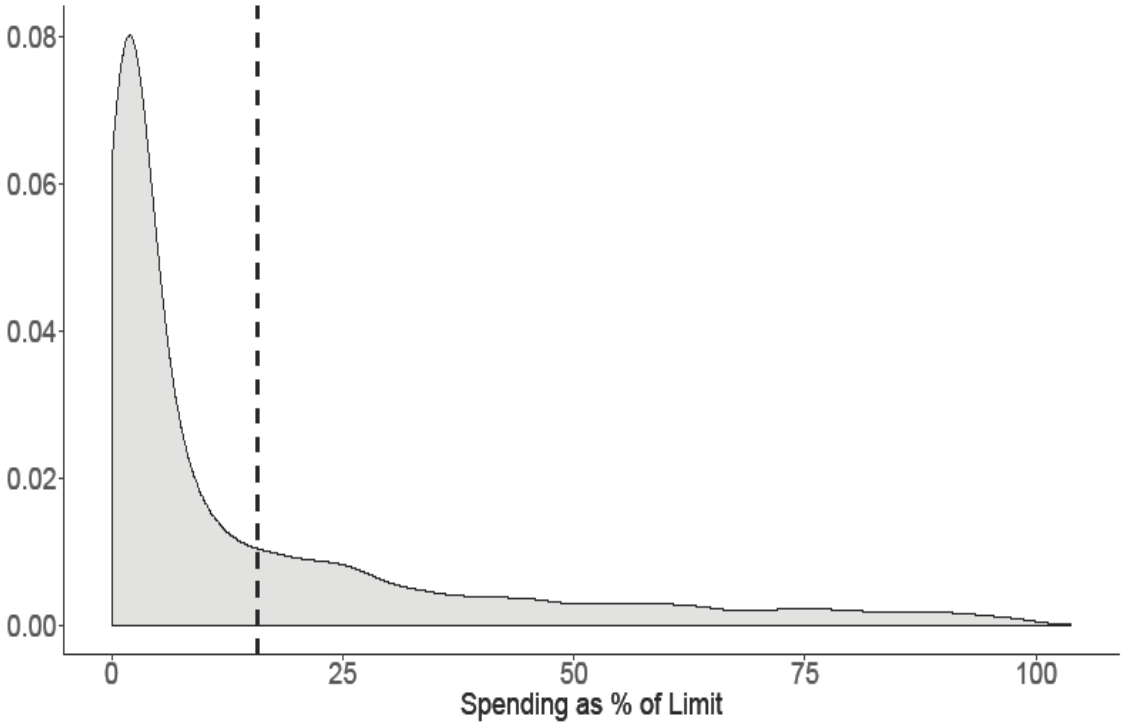

Figure B.10 – Spend as % of limit distribution: short + long campaign (line = mean)

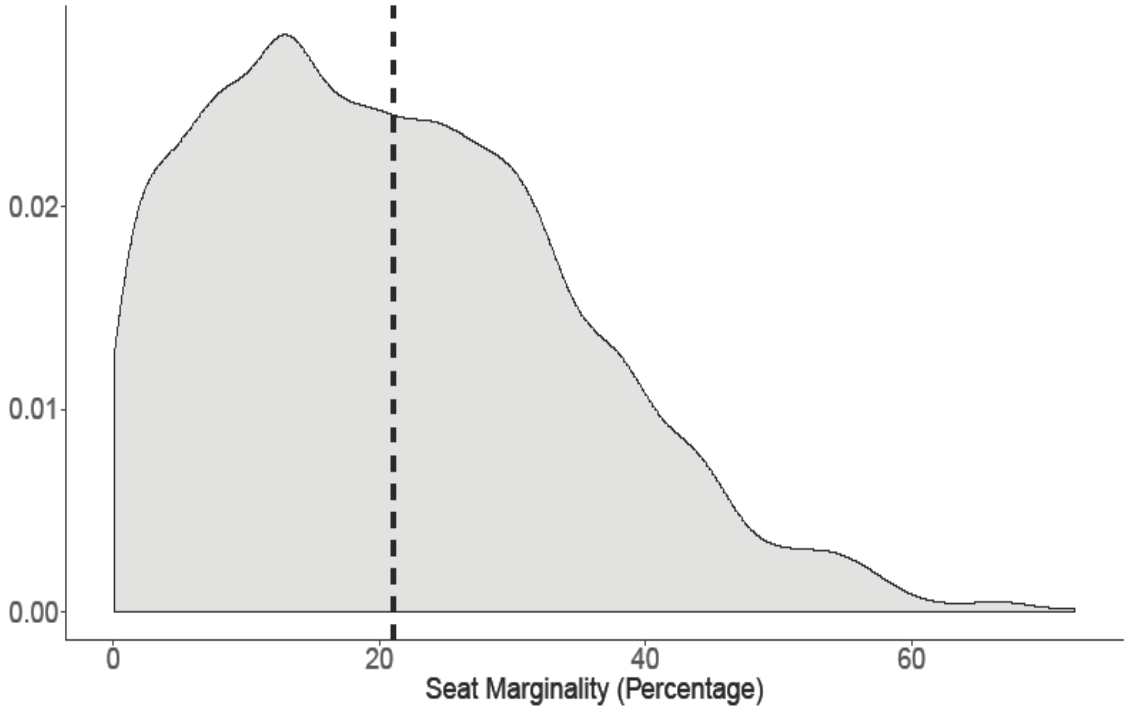

Figure B.11 – Distribution of seat marginality: UK elections (line = mean)

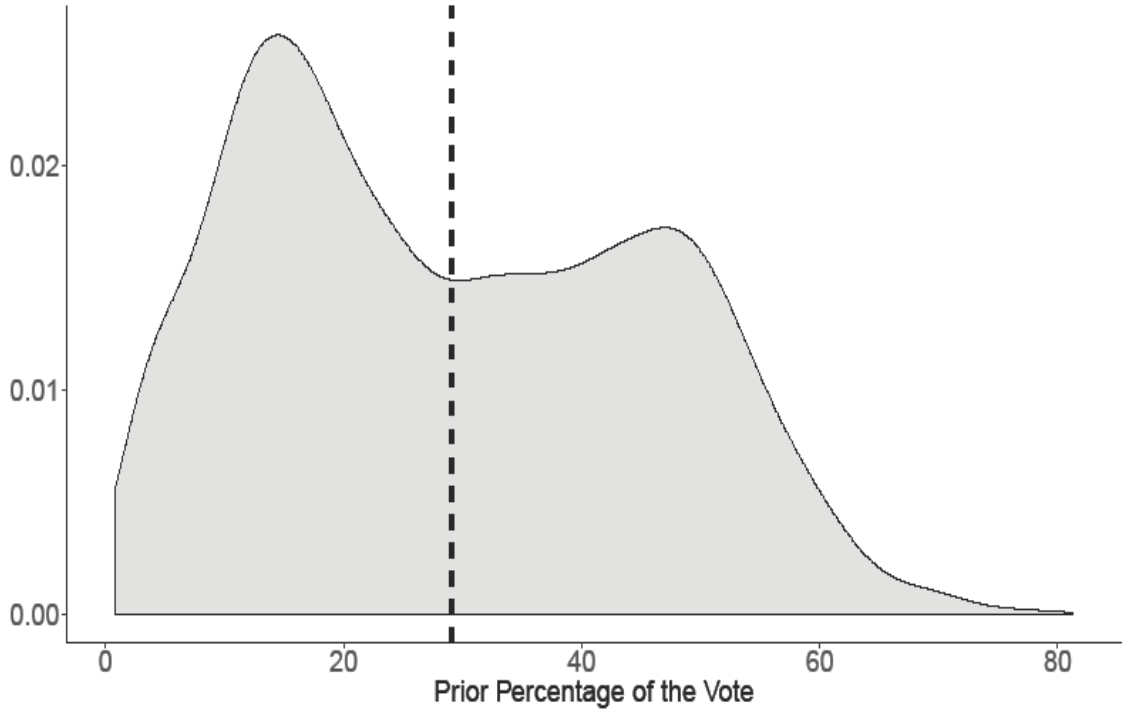

Figure B.12 – Distribution of prior popularity of major parties: UK elections (line = mean)

B.10 Descriptive Statistics – Constituency and National Spending (UK Elections)

Table B.5 – Constituency and National Spending (UK Elections)

Spending Type	2005	2010	2015	2017
Candidate Spend in Constituency	£14,171,960	£25,340,297	£22,554,552	£14,217,294
Party Spend on National Campaign	£41,228,321	£31,493,685	£37,250,219	£38,838,643
Constituency Spend as % of Overall Spend	25.58%	44.59%	37.71%	26.8%

Candidate spending in 2010 and 2015 includes spending returns for both the short and long campaign. Party spend in 2005 accounts for 97.4% of total and party spend in 2017 only includes parties that spent over £250,000 (the data are presented as in UK Electoral Commission spending reports).

This thesis focuses on constituency spending and incorporates both candidate and party spending of this type (party spending that focuses on a particular candidate is included in the candidate's spending returns). National spending by political parties is not incorporated as it cannot be disaggregated by constituency. This limitation in data is shared by all other analyses on UK elections.

Appendix C

Would the Real Incumbent Please Stand Up? Spending Efficacy in Scottish and Welsh Elections 2007–2016 (Additional Information)

C.1 Coarsened Version of Seat Marginality (Scottish and Welsh Elections)

Table C.1 – Specifications of marginality variable used in matching procedure: Scottish and Welsh elections

Configuration	Values at which the variable is cut
Marginality % A	0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75
Marginality % B	0, 10, 20, 30, 40, 50, 60, 75
Marginality % C	0, 5, 75
Marginality % D	0, 10, 75
Marginality % Original	None (uncoarsened)

C.2 Coarsened Version of Political Party (Scottish and Welsh Elections)

Table C.2 - Party groupings: Scottish and Welsh elections

Grouping	Parties
Ungrouped Parties	Labour Party, Conservative Party, Liberal Democrats, United Kingdom Independence Party, Green Party, Independents, Scottish National Party, Plaid Cymru
Fringe Parties	All Remaining Parties

C.3 Coarsened Version of Prior Popularity (Scottish and Welsh Elections)

Table C.3 – Specification of prior vote used in matching procedure: Scottish and Welsh elections

Configuration	Values at which the variable is cut
Prior Vote %	0, 20, 40, 60

C.4 Full CEM Spending Efficacy Results: Marginality and Party (Scottish and Welsh Elections)

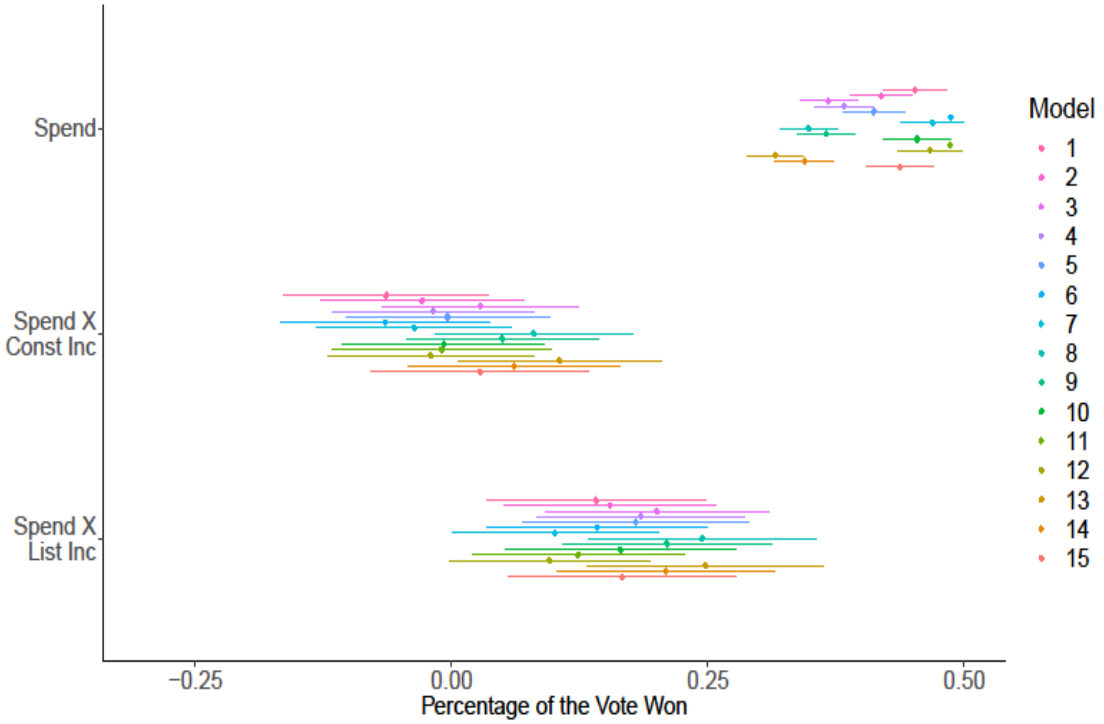

Figure C.1 – CEM spending efficacy coefficients (Scottish and Welsh elections)

This plot shows coefficients for spending and the incumbency interaction for the five models reported in Table 4.4 using three different treatments in the CEM package. Models 1-5 use a spending treatment divided into three levels, models 6-10 use a treatment divided into four levels and models 10-15 use a treatment divided into five levels. As indicated in earlier analysis, the coefficients suggest list incumbents have a spending efficacy advantage in 13 of the 15 models.

C.5 Full CEM Spending Efficacy Results: Marginality, Party and Prior Popularity (Scottish and Welsh Elections)

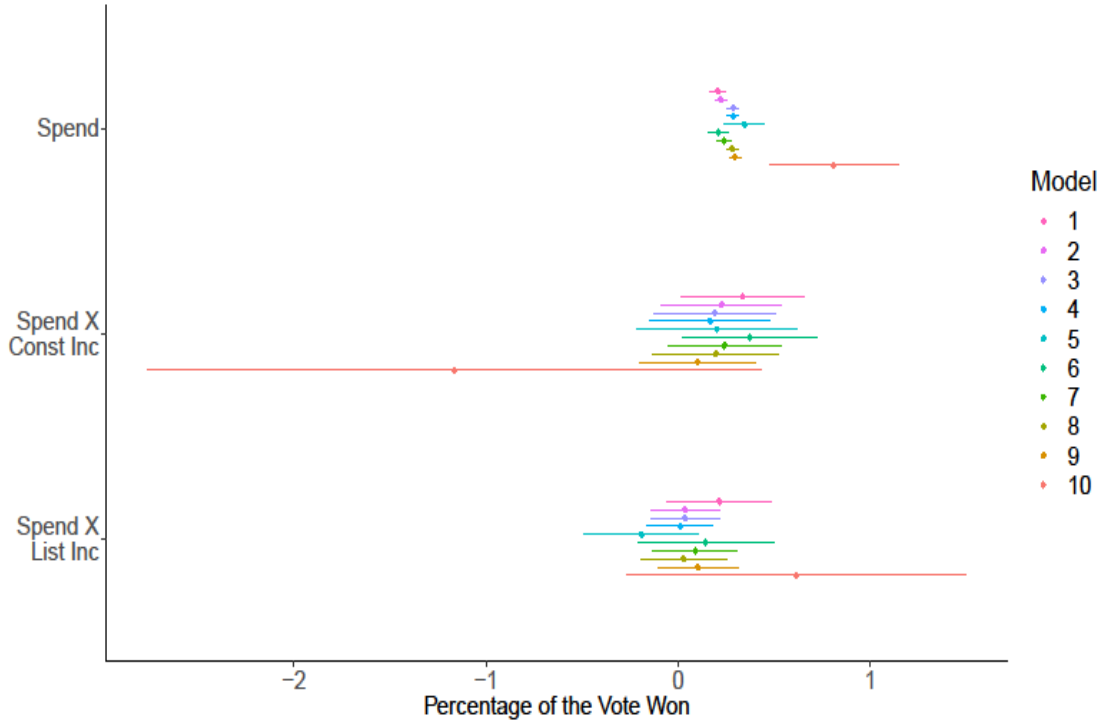

Figure C.2 – CEM spending efficacy coefficients (Scottish and Welsh elections)

This plot shows coefficients for spending and the incumbency interaction for the five models reported in Table 4.5 using two different treatments in the CEM package. Models 1-5 use a spending treatment divided into three levels and models 6-10 use a treatment divided into four levels. As indicated in earlier analysis, the coefficients suggest list incumbents do not glean a spending efficacy advantage in any model.

C.6 Key Variable Distributions (Scottish and Welsh Elections)

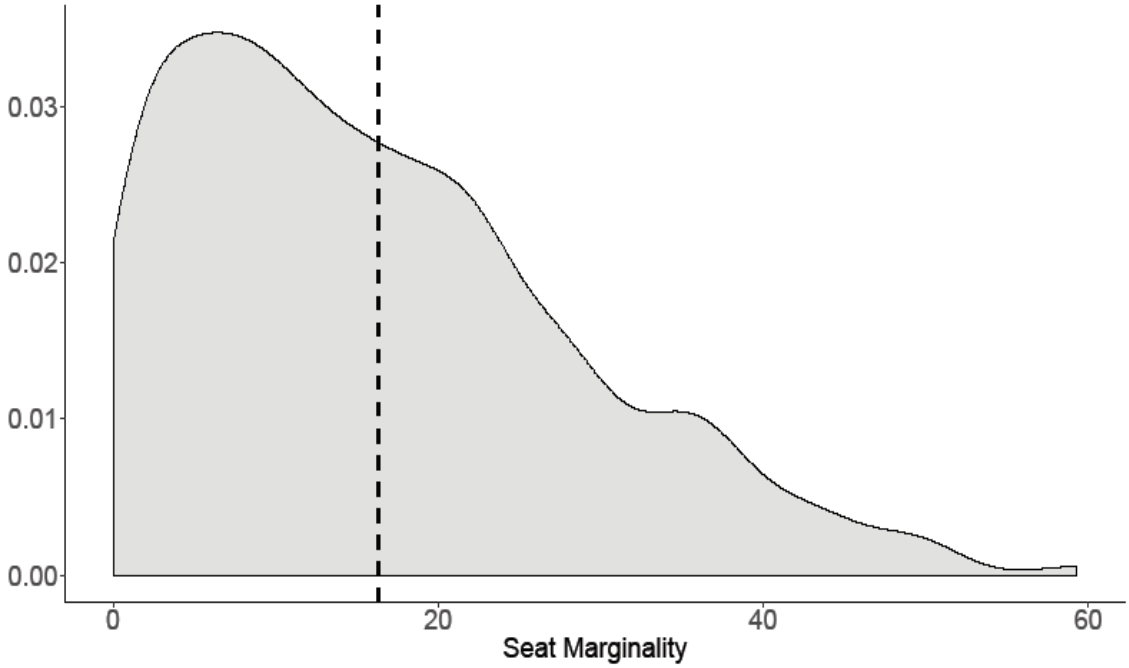

Figure C.3 – Distribution of seat marginality: Scottish and Welsh elections (line = mean)

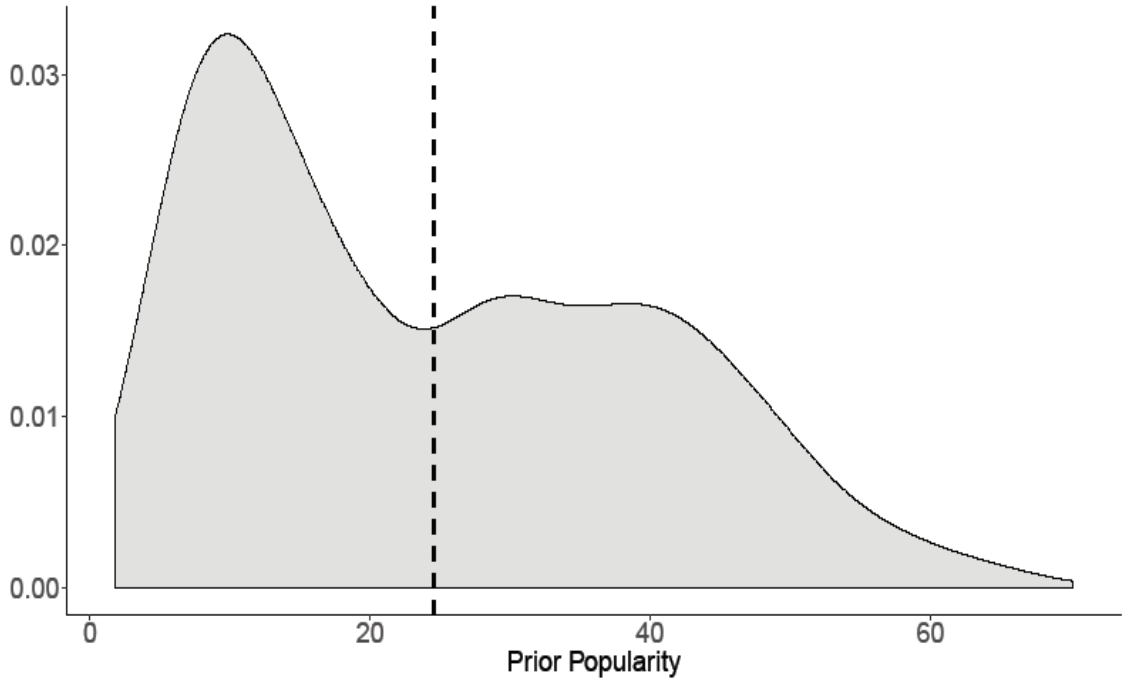

Figure C.4 – Distribution of prior popularity: Scottish and Welsh elections (line = mean)

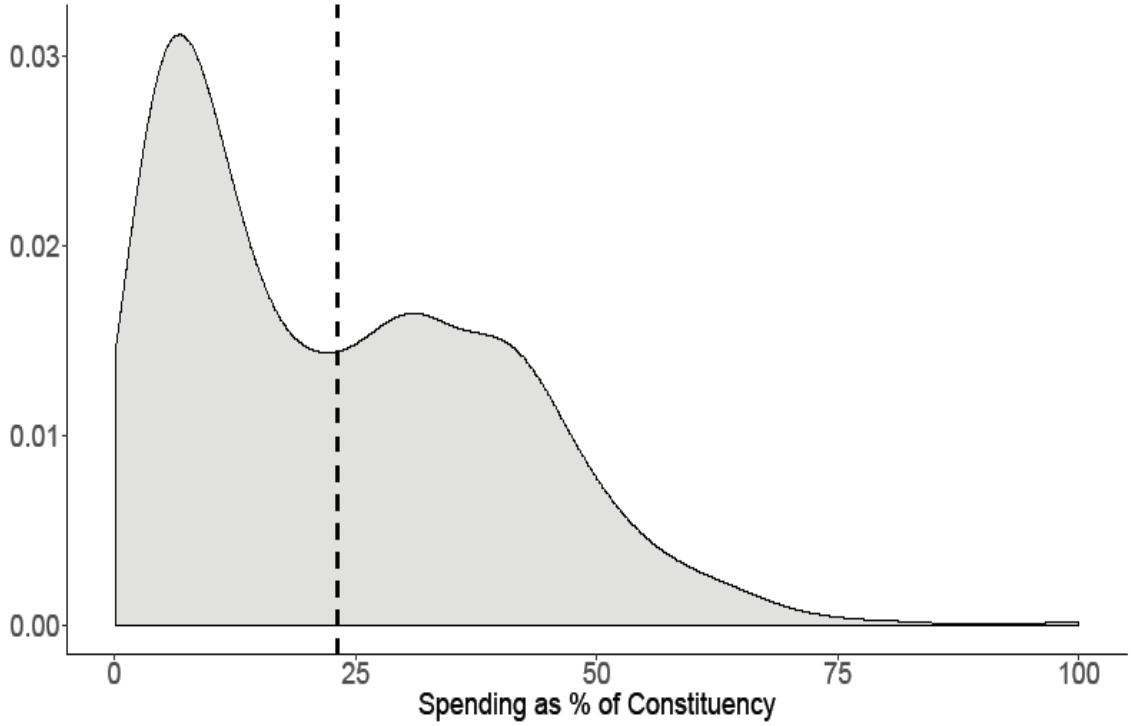

Figure C.5 – % of constituency spend distribution: Scottish and Welsh elections (line = mean)

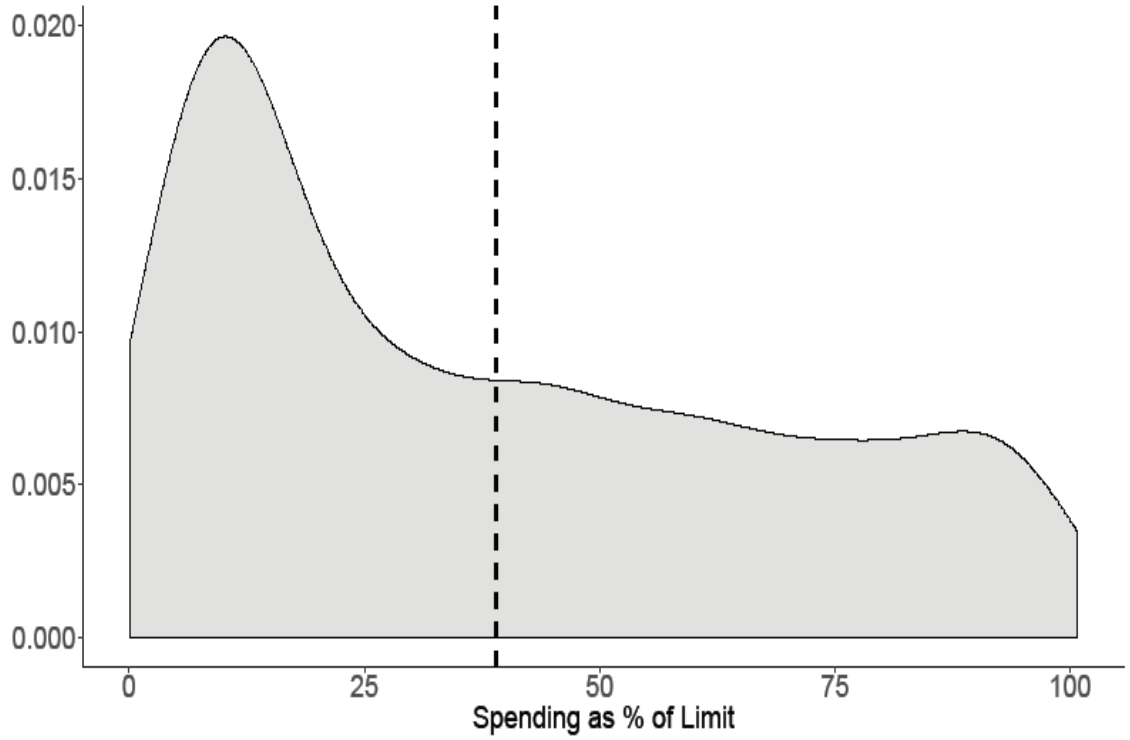

Figure C.6 – % of spend limit distribution: Scottish and Welsh elections (line = mean)

C.7 Descriptive Statistics – Constituency and National Spending (Scottish and Welsh Elections)

Table C.4 – Constituency and National Spending (Scottish Elections)

Spending Type	2007	2011	2016
Candidate Spend in Constituency	£1,377,323	£1,304,683	£1,361,657
Party Spend on National Campaign	£4,060,524	£2,631,246	£3,335,901
Constituency Spend as % of Overall Spend	25.33%	33.15%	28.99%

Table C.5 – Constituency and National Spending (Welsh Elections)

Spending Type	2007	2011	2016
Candidate Spend in Constituency	£842,545	£747,810	£891,221
Party Spend on National Campaign	£1,209,325	£869,546	£1,251,924
Constituency Spend as % of Overall Spend	41.06%	46.24%	41.58%

This thesis focuses on constituency spending and incorporates both candidate and party spending of this type (party spending that focuses on a particular candidate is included in the candidate's spending returns). National spending by political parties is not incorporated as it cannot be disaggregated by constituency. This limitation in data is shared by all other analyses on UK elections.

Appendix D

Not Just How Much, But Also How: Challenger and Incumbent Campaign Spending Re-examined (Additional Information)

D.1 Spending Categories and Measurement of Spending Decisions

Table D.1 – Spending categories (all elections)

Irish Elections	UK Elections	Scottish and Welsh Elections
Advertising, Publicity, Posters, Other Election Material, Office, Transport, Research, Campaign Workers	Advertising, Unsolicited Materials, Transport, Public Meetings, Staff, Accommodation	Advertising, Unsolicited Materials, Transport, Public Meetings, Staff, Accommodation

The Herfindahl-Hirschman index was originally designed as a measure of competition between businesses or market fragmentation. It has many applications in political science such as the effective number of political parties (Laakso and Taagepera 1979) and the diversification of campaign spending (Sudulich and Wall 2011). The measure in this chapter is applied as follows (using Irish data as an example) –

$$1 - \text{Sum}\,[X_1^2, X_2^2, X_3^2, X_4^2, X_5^2, X_6^2, X_7^2, X_8^2]$$

X_1 = Proportion of spending on advertising

X_2 = Proportion of spending on publicity

X_3 = Proportion of spending on posters

X_4 = Proportion of spending on other election materials

X_5 = Proportion of spending on office

X_6 = Proportion of spending on transport

X_7 = Proportion of spending on research

X_8 = Proportion of spending on campaign workers

D.2 Full CEM Spending Efficacy Results for H1a (Irish Elections)

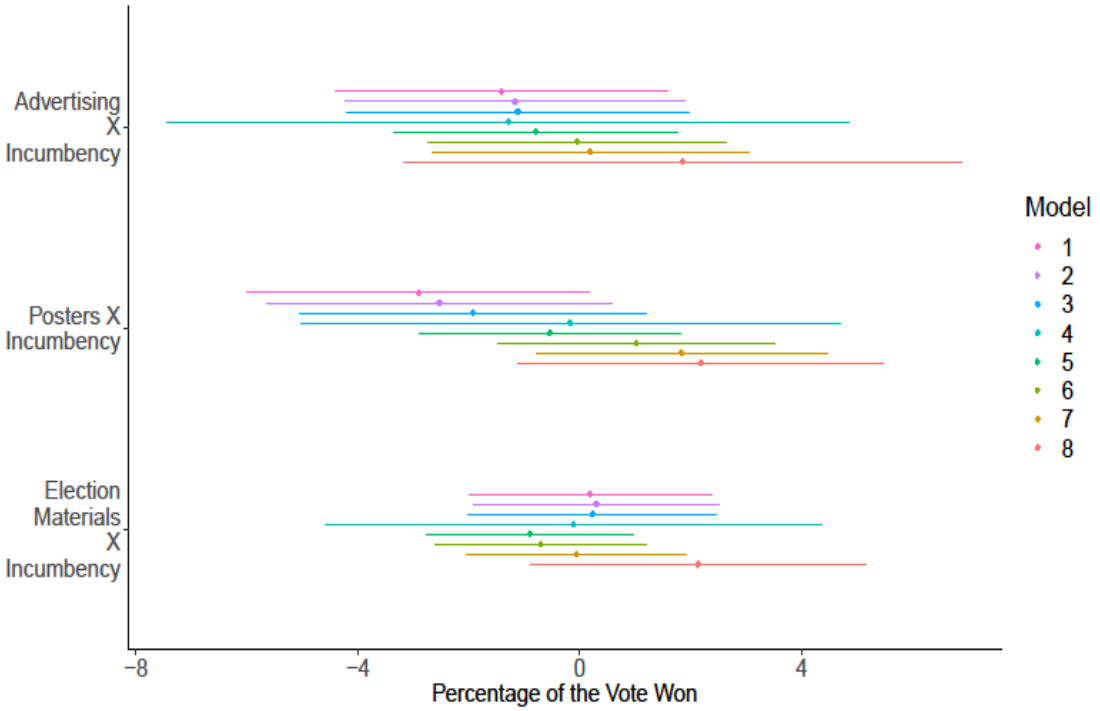

Figure D.1 – CEM spending efficacy coefficients (Irish elections)

This plot shows coefficients for the interaction between incumbency and categories of spending for the models reported in Table 5.10. Models 1-4 use all data and models 5-8 drop 2016 data. As indicated in earlier analysis, the coefficients suggest there is not a significant challenger advantage in these spending categories.

D.3 Full CEM Spending Efficacy Results for H1a (UK Short Campaign)

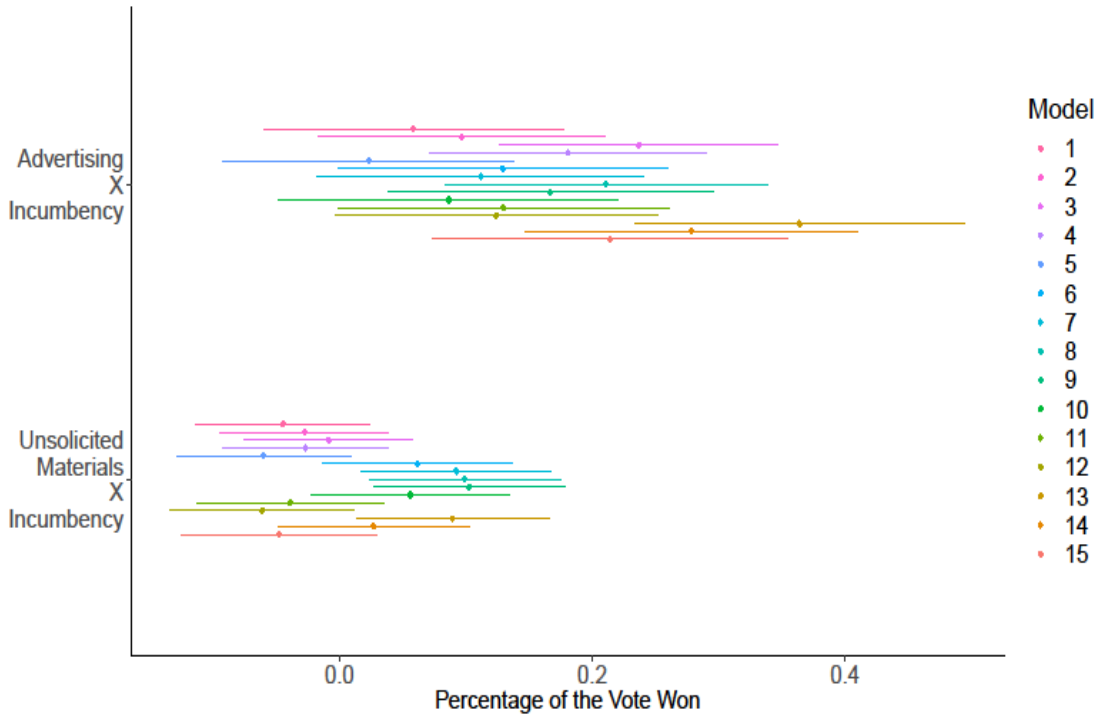

Figure D.2 – CEM spending efficacy coefficients (UK short campaign)

This plot shows coefficients for the interaction between incumbency and categories of spending for the models reported in Table 5.8. Models 1-5 use three treatment levels, models 6-10 use four treatment levels, and models 11-15 use five treatment levels. As indicated in earlier analysis, the coefficients suggest there is not a significant challenger advantage in these spending categories.

D.4 Full CEM Spending Efficacy Results for H1a (UK Short and Long Campaign)

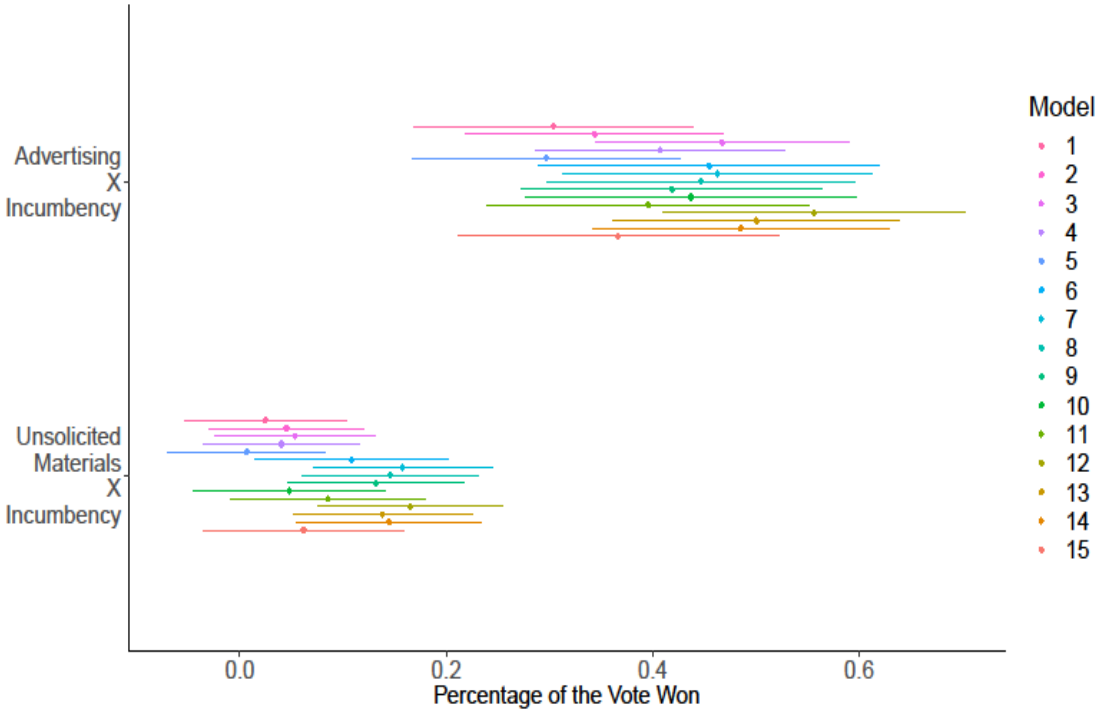

Figure D.3 – CEM spending efficacy coefficients (UK short and long campaign)

This plot shows coefficients for the interaction between incumbency and categories of spending for the models reported in Table 5.8. Models 1-5 use three treatment levels, models 6-10 use four treatment levels, and models 11-15 use five treatment levels. As indicated in earlier analysis, the coefficients suggest there is not a significant challenger advantage in these spending categories.

D.5 Full CEM Spending Efficacy Results for H1a (UK Short Campaign – Prior Popularity Robustness)

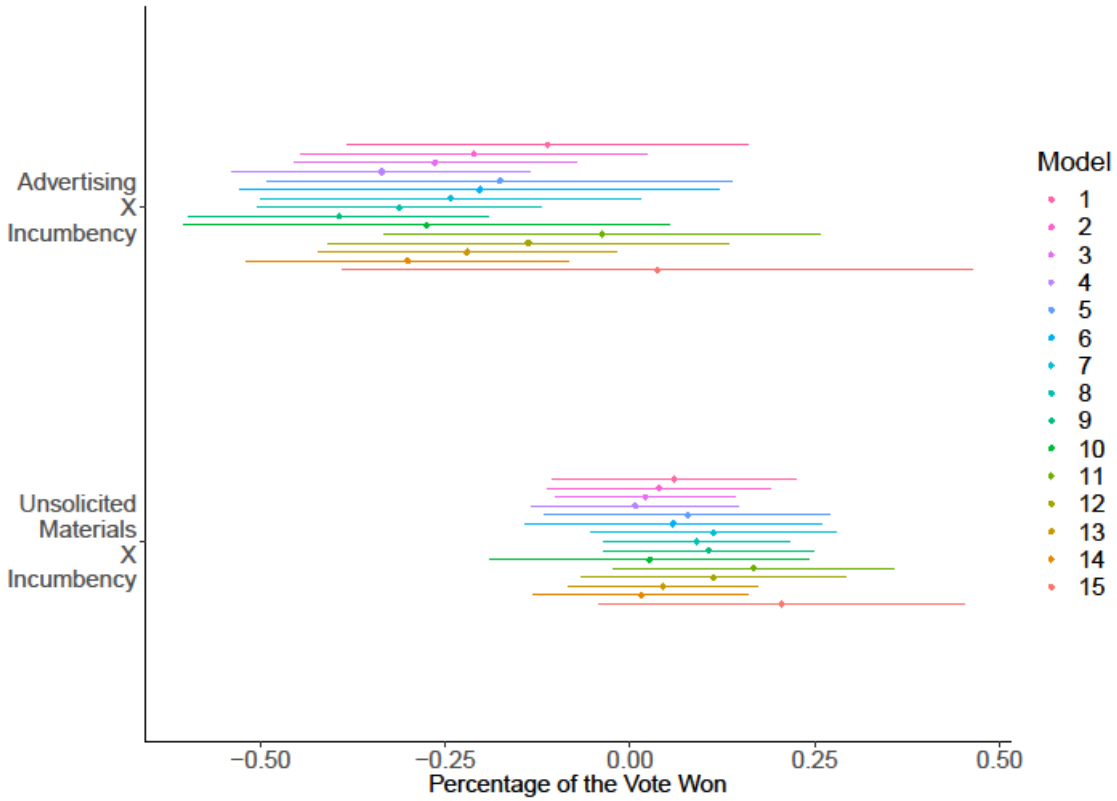

Figure D.4 – CEM spending efficacy coefficients (UK short campaign)

This plot shows coefficients for the interaction between incumbency and categories of spending for the models reported in Table 5.8. Models 1-5 use three treatment levels, models 6-10 use four treatment levels, and models 11-15 use five treatment levels. As indicated in earlier analysis, the coefficients suggest there is not a significant challenger advantage in these spending categories.

D.6 Full CEM Spending Efficacy Results for H1a (UK Short and Long Campaign – Prior Popularity Robustness)

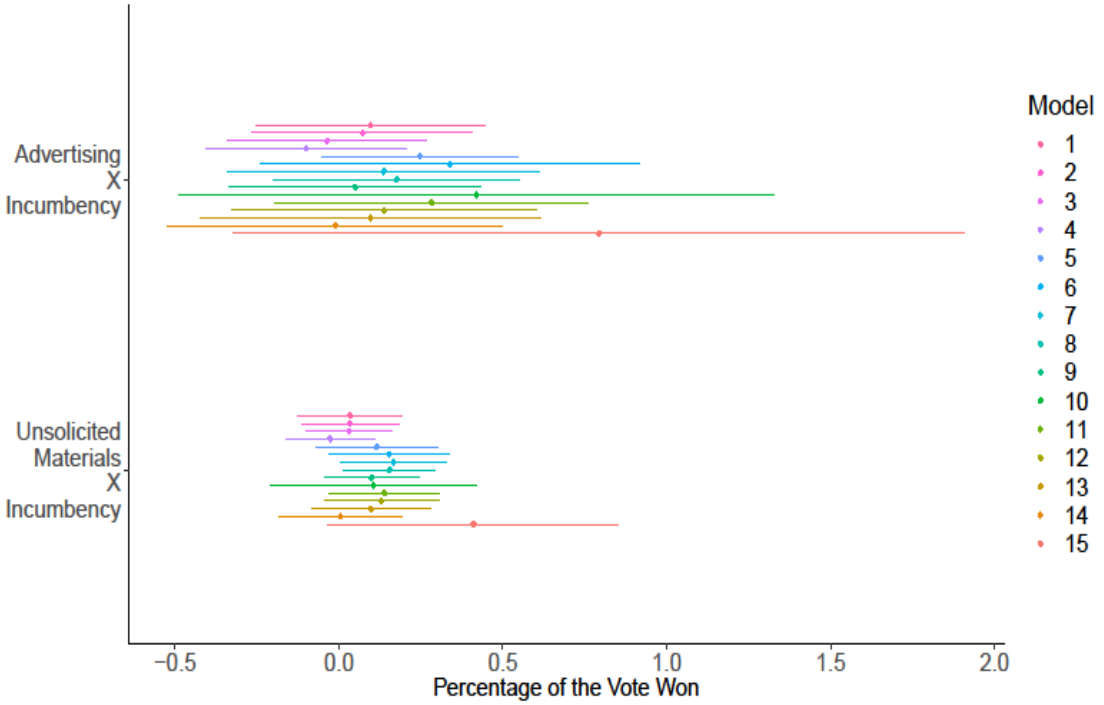

Figure D.5 – CEM spending efficacy coefficients (UK short and long campaign)

This plot shows coefficients for the interaction between incumbency and categories of spending for the models reported in Table 5.8. Models 1-5 use three treatment levels, models 6-10 use four treatment levels, and models 11-15 use five treatment levels. As indicated in earlier analysis, the coefficients suggest there is not a significant challenger advantage in these spending categories.

D.7 Full CEM Spending Efficacy Results for H1b (Scottish and Welsh Elections)

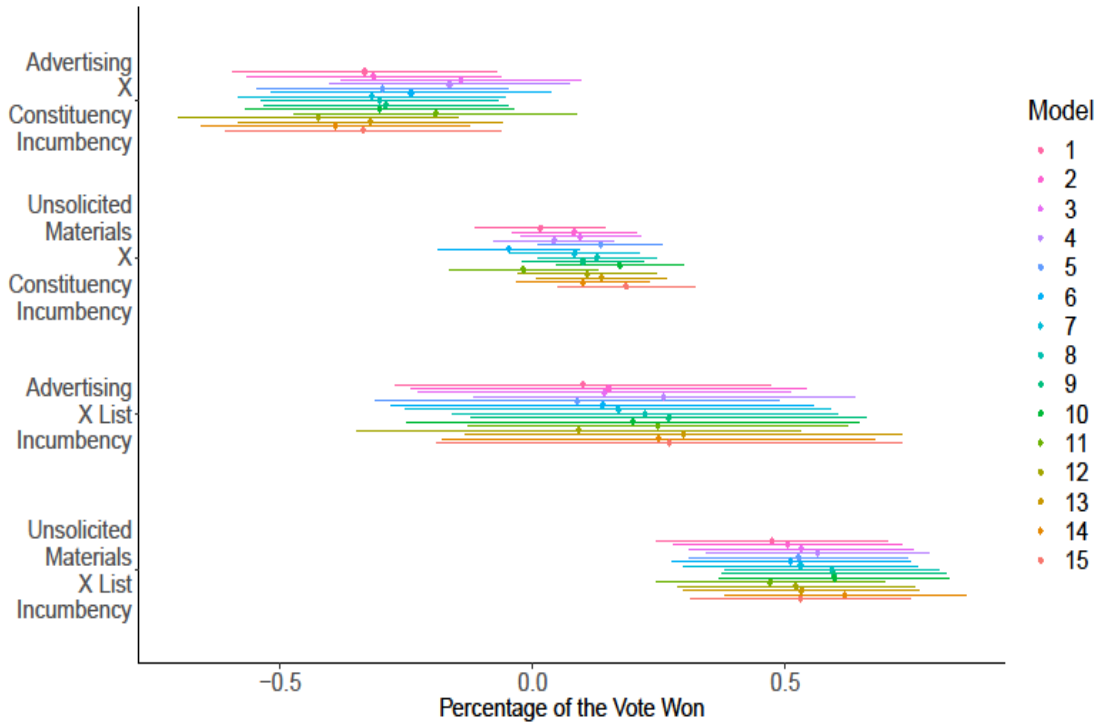

Figure D.6 – CEM spending efficacy coefficients (Scottish and Welsh elections)

This plot shows coefficients for the interaction between incumbency and categories of spending for the models reported in Table 5.9. Models 1-5 use three treatment levels, models 6-10 use four treatment levels, and models 11-15 use five treatment levels. As indicated in earlier analysis, the coefficients show there is not a robust challenger advantage in these spending categories but suggest a list incumbent spending efficacy advantage. However, this effect is not robust when controlling for prior popularity (see Figure D.7 on next page).

D.8 Full CEM Spending Efficacy Results for H1b (Scottish and Welsh Elections – Prior Popularity Robustness)

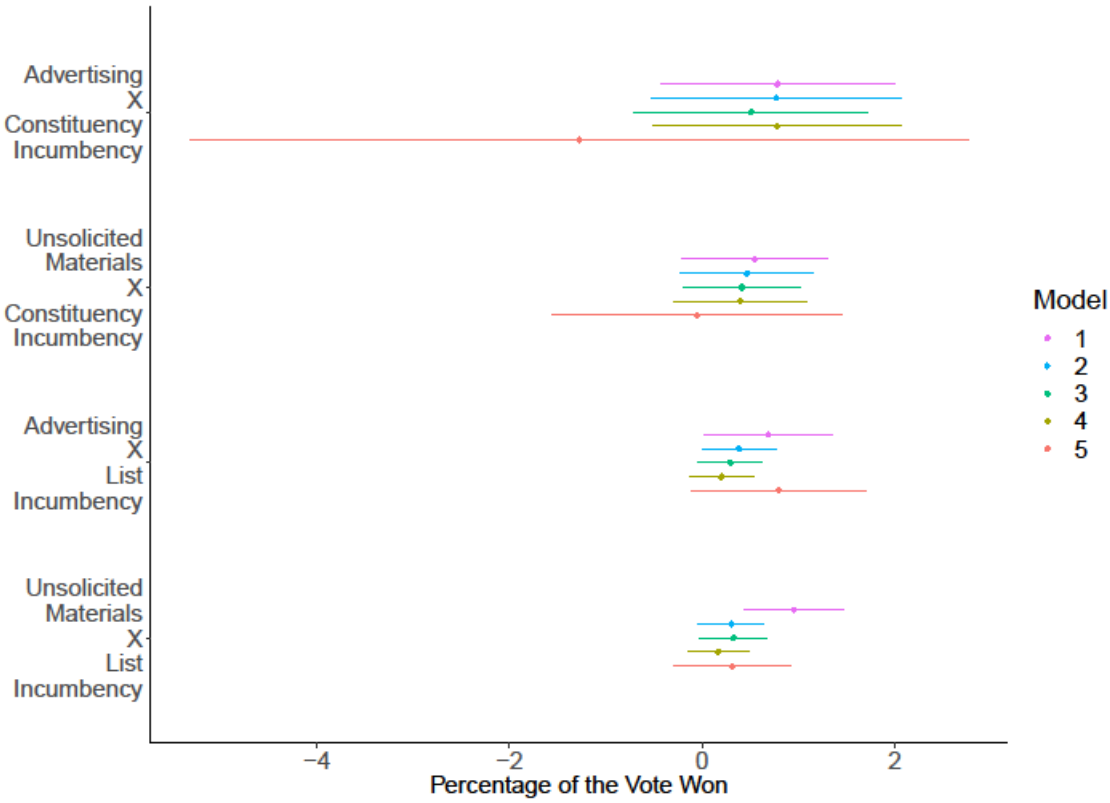

Figure D.7 – CEM spending efficacy coefficients (Scottish and Welsh elections)

This plot shows coefficients for the interaction between incumbency and categories of spending for the models reported in Table 5.9. Models 1-5 use three treatment levels. As indicated in earlier analysis, the coefficients suggest there is not a robust challenger or list incumbent advantage in these spending categories.

D.9 Major Party T-Tests on Spending Diversification

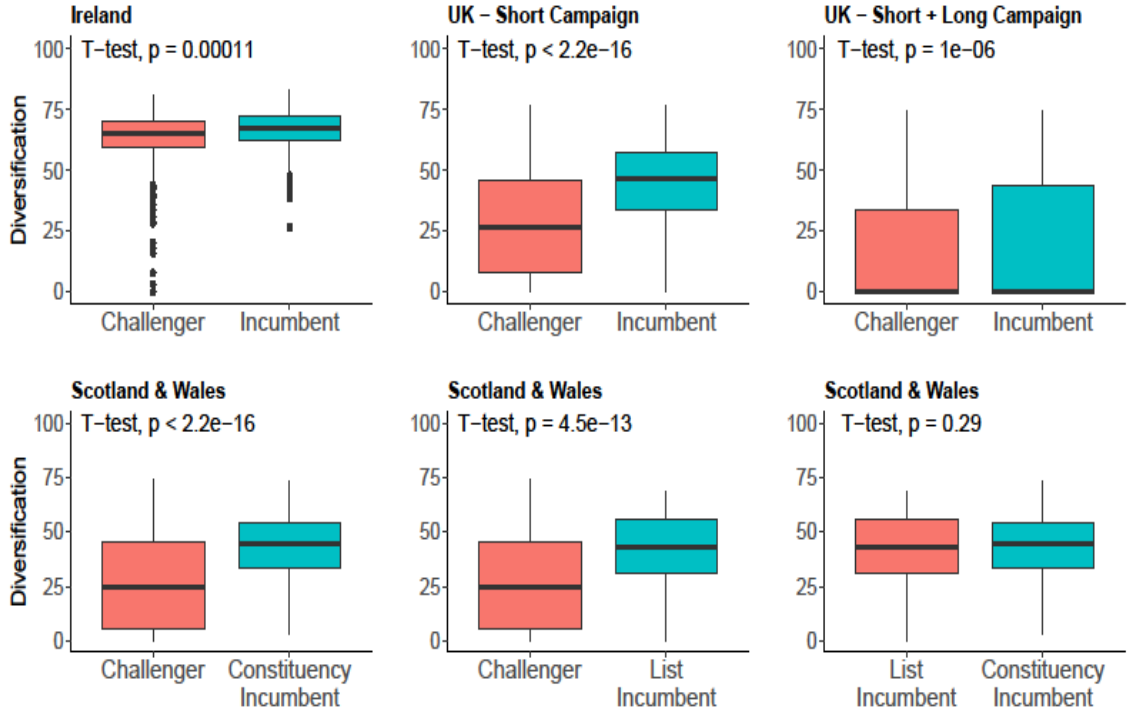

Figure D.8 – T-tests on spending diversification for major parties (all elections)

D.10 Full CEM Diversification Efficacy Results for H2b (Irish Elections)

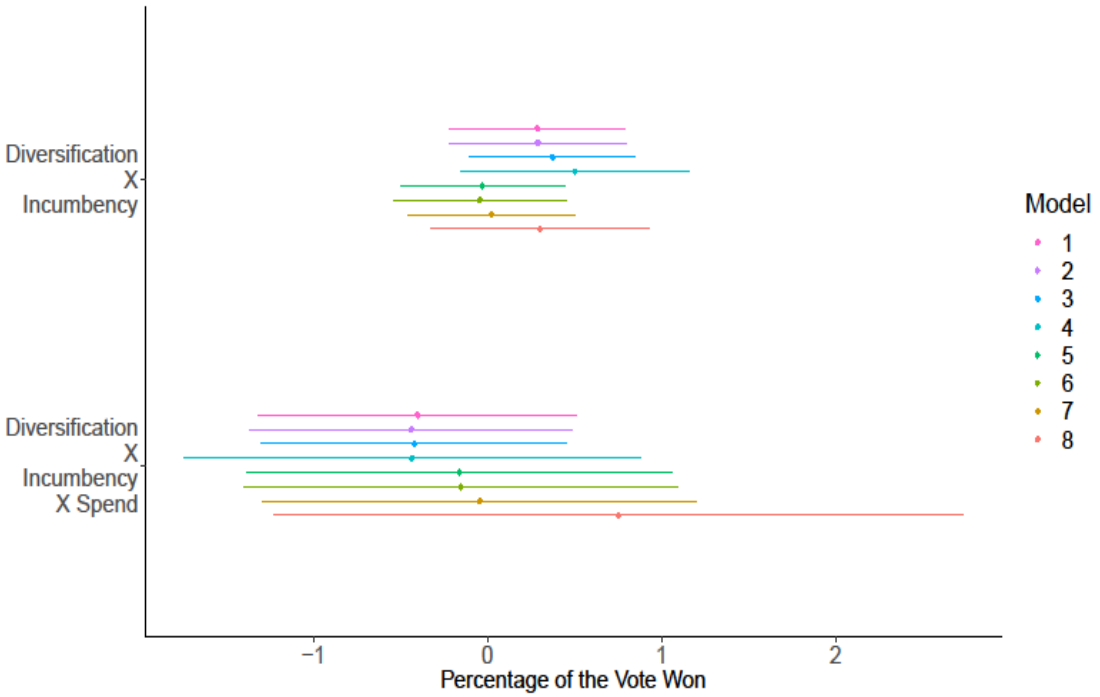

Figure D.9 – CEM diversification efficacy coefficients (Irish elections)

This plot shows coefficients for the interaction between incumbency and diversification for the models reported in Table 5.11. Models 1-4 use all data and models 5-8 drop 2016 data. As indicated in earlier analysis, the coefficients suggest there is not a significant challenger advantage in spending diversification.

D.11 Full CEM Diversification Efficacy Results for H2b (UK Short Campaign)

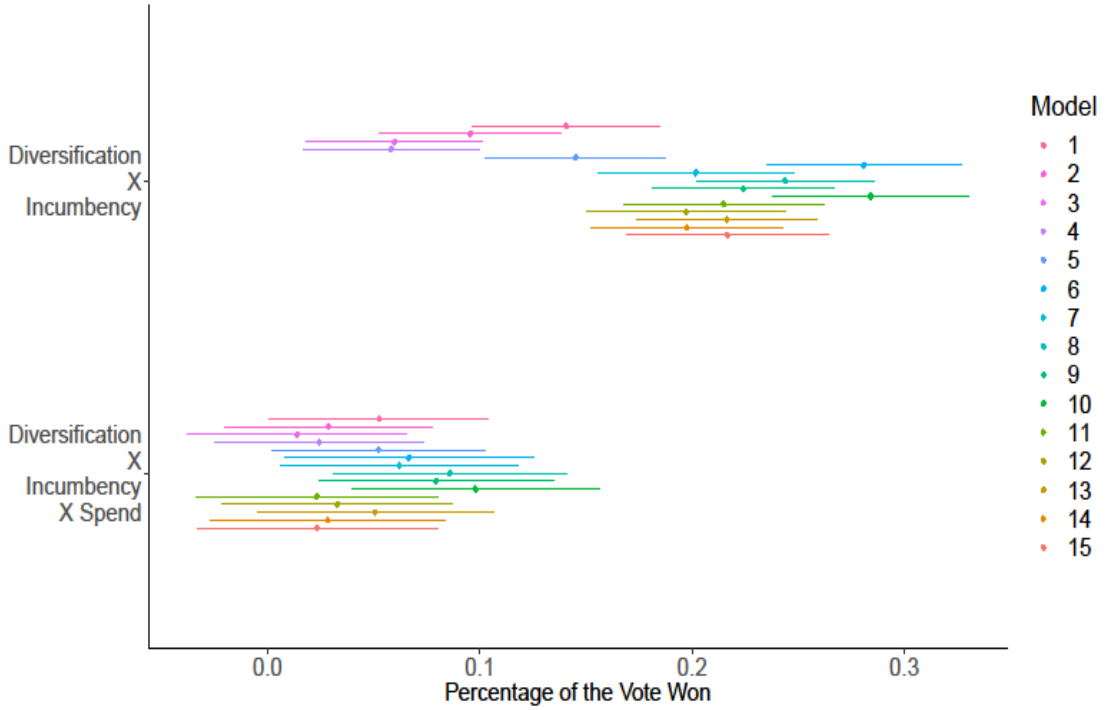

Figure D.10 – CEM diversification efficacy coefficients (UK short campaign)

This plot shows coefficients for the interaction between incumbency and diversification for the models reported in Table 5.13. Models 1-5 use three treatment levels, models 6-10 use four treatment levels, and models 11-15 use five treatment levels. As indicated in earlier analysis, the coefficients suggest there is not a significant challenger advantage in spending diversification.

D.12 Full CEM Diversification Efficacy Results for H2b (UK Short and Long Campaign)

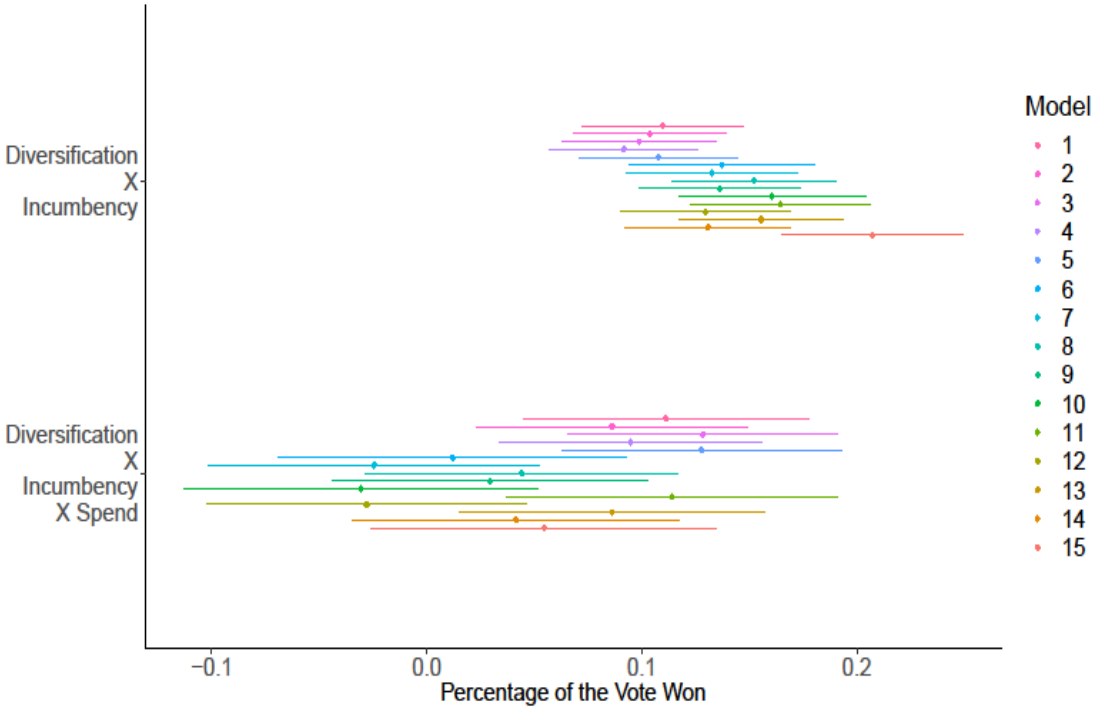

Figure D.11 – CEM diversification efficacy coefficients (UK short and long campaign)

This plot shows coefficients for the interaction between incumbency and diversification for the models reported in Table 5.13. Models 1-5 use three treatment levels, models 6-10 use four treatment levels, and models 11-15 use five treatment levels. As indicated in earlier analysis, the coefficients suggest there is not a significant challenger advantage in spending diversification.

D.13 Full CEM Diversification Efficacy Results for H2b (UK Short Campaign – Prior Popularity Robustness)

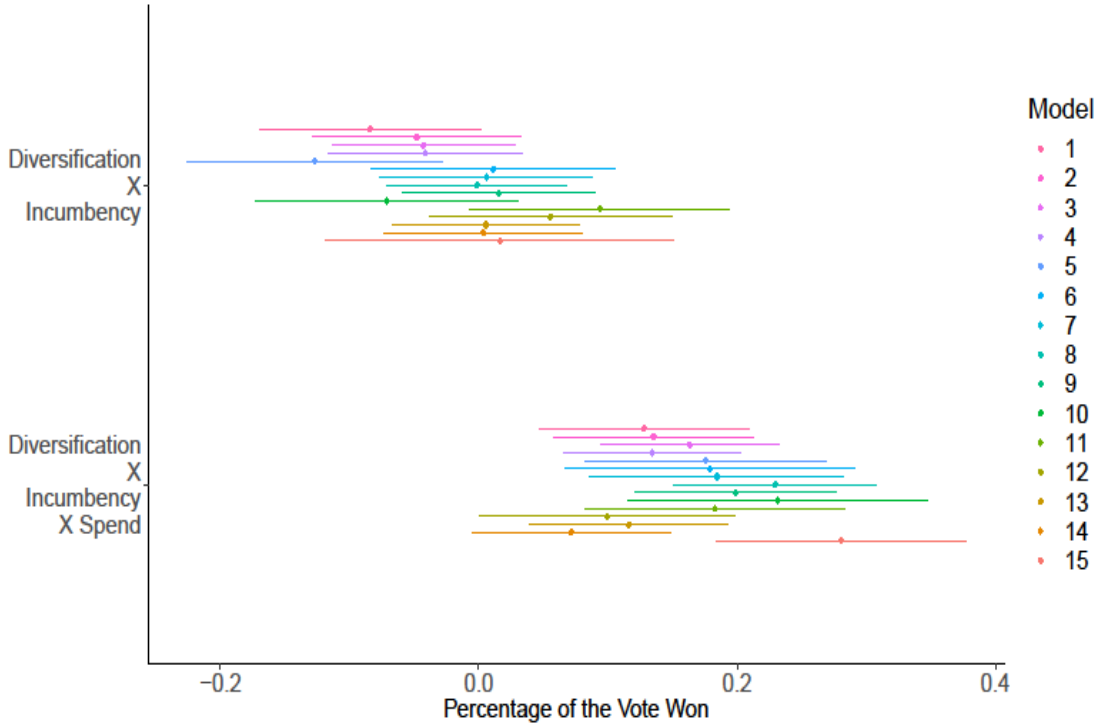

Figure D.12 – CEM diversification efficacy coefficients (UK short and long campaign)

This plot shows coefficients for the interaction between incumbency and diversification for the models reported in Table 5.13. Models 1-5 use three treatment levels, models 6-10 use four treatment levels, and models 11-15 use five treatment levels. As indicated in earlier analysis, the coefficients suggest there is not a significant challenger advantage in spending diversification.

D.14 Full CEM Diversification Efficacy Results for H2b (UK Short and Long Campaign – Prior Popularity Robustness)

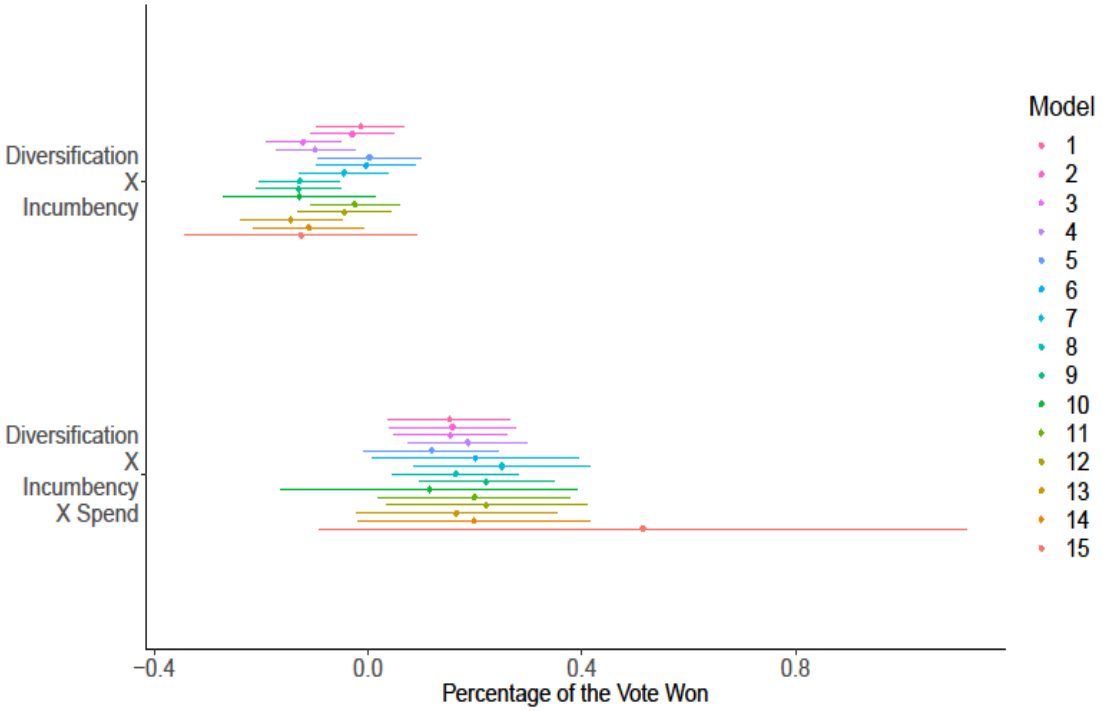

Figure D.13 – CEM diversification efficacy coefficients (UK short and long campaign)

This plot shows coefficients for the interaction between incumbency and diversification for the models reported in Table 5.13. Models 1-5 use three treatment levels, models 6-10 use four treatment levels, and models 11-15 use five treatment levels. As indicated in earlier analysis, the coefficients suggest there is not a significant challenger advantage in spending diversification.

D.15 Full CEM Diversification Efficacy Results for H2b (Scottish and Welsh Elections)

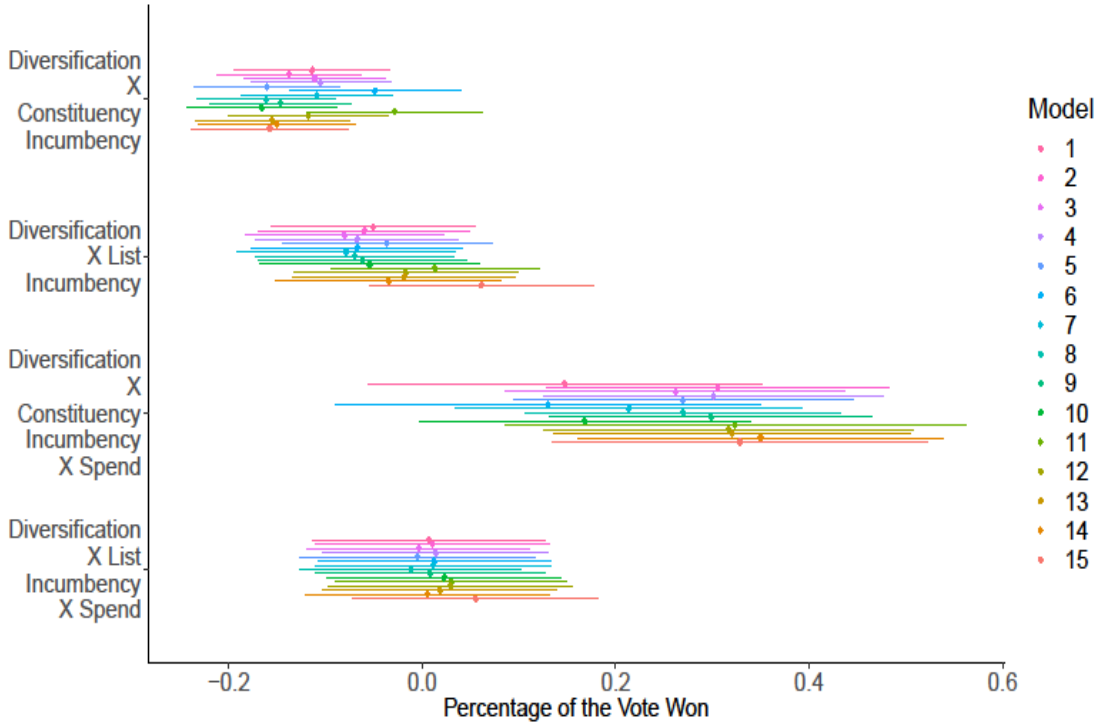

Figure D.14 – CEM diversification efficacy coefficients (Scottish and Welsh elections)

This plot shows coefficients for the interaction between incumbency and diversification for the models reported in Table 5.12. Models 1-5 use three treatment levels, models 6-10 use four treatment levels, and models 11-15 use five treatment levels. As indicated in earlier analysis, the coefficients suggest there is not a robust challenger advantage in terms of diversification.

D.16 Full CEM Diversification Efficacy Results for H2b (Scottish and Welsh Elections – Prior Popularity Robustness)

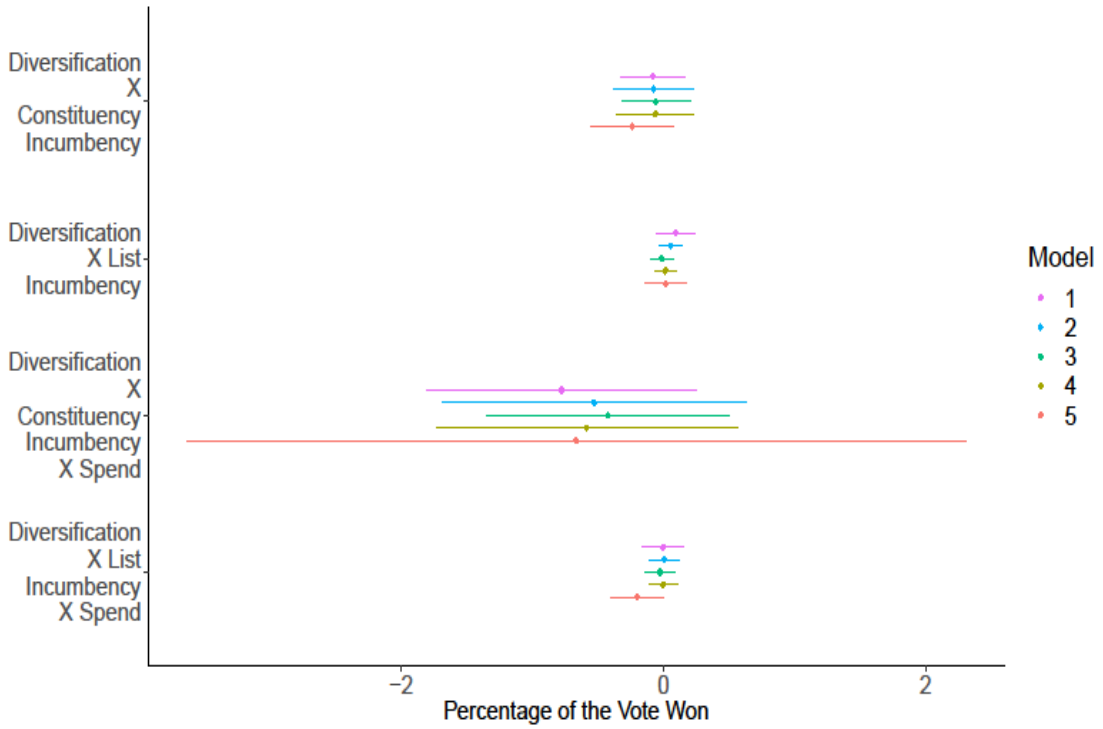

Figure D.15 – CEM diversification efficacy coefficients (Scottish and Welsh elections)

This plot shows coefficients for the interaction between incumbency and diversification for the models reported in Table 5.12. Models 1-5 use three treatment levels, models 6-10 use four treatment levels, and models 11-15 use five treatment levels. As indicated in earlier analysis, the coefficients suggest there is not a significant challenger advantage in terms of diversification.

Appendix E

Male and Female Candidates Enjoy Equivalent Spending Efficacy (Additional Information)

E.1 Major Party T-tests on Spending Levels

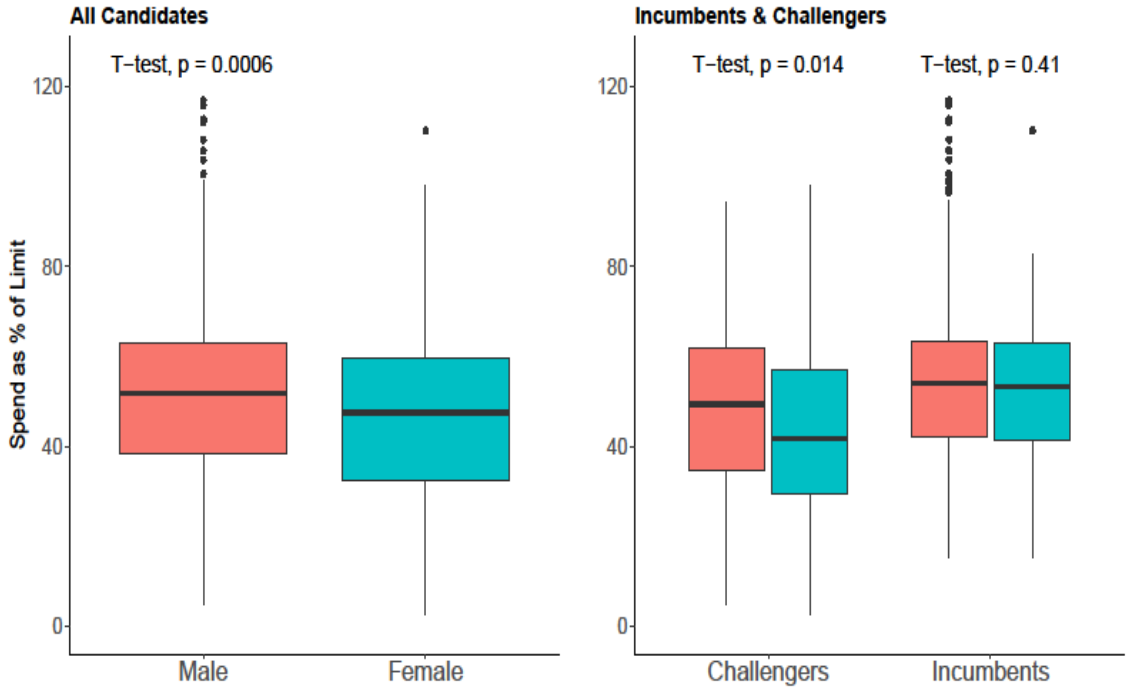

Figure E.1 – T-tests on levels of spending (Irish elections)

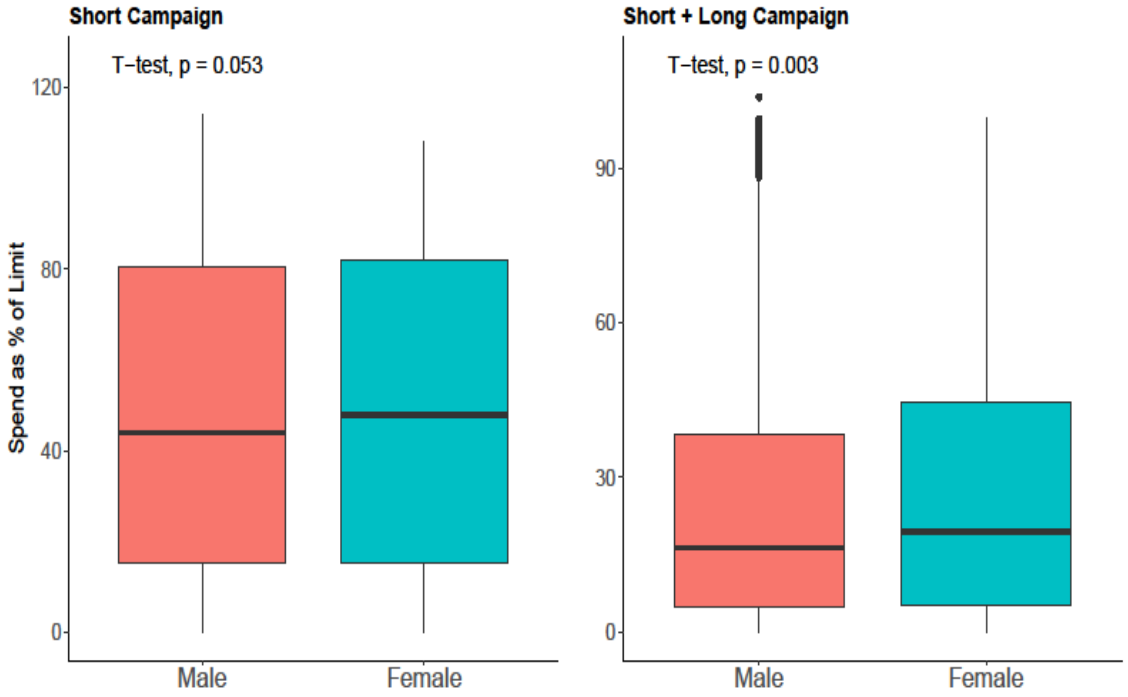

Figure E.2 – T-tests on levels of spending (UK elections)

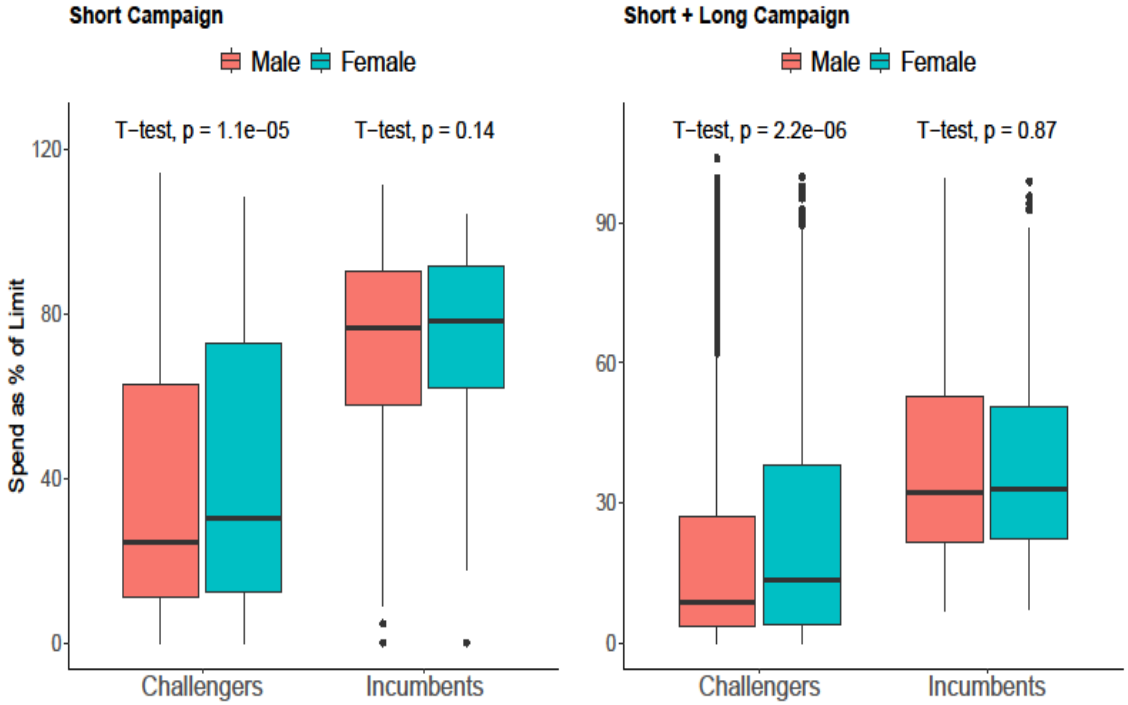

Figure E.3 – T-tests on levels of spending (UK elections)

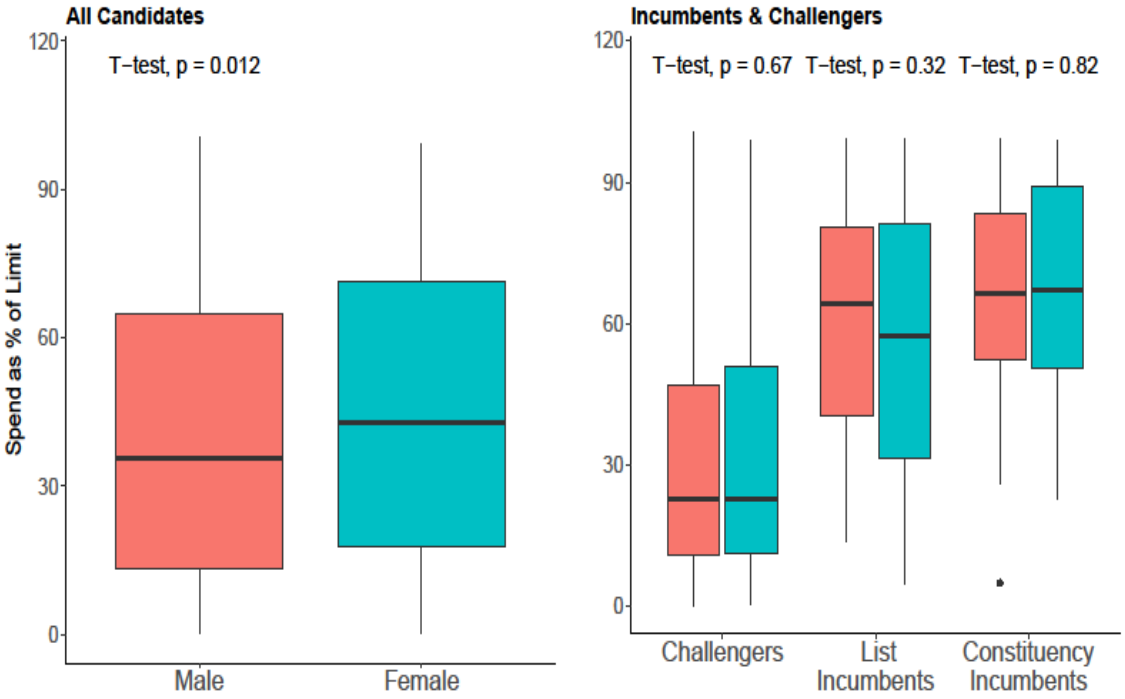

Figure E.4 – T-tests on levels of spending (Scottish and Welsh elections)

E.2 Spending Distribution Plots

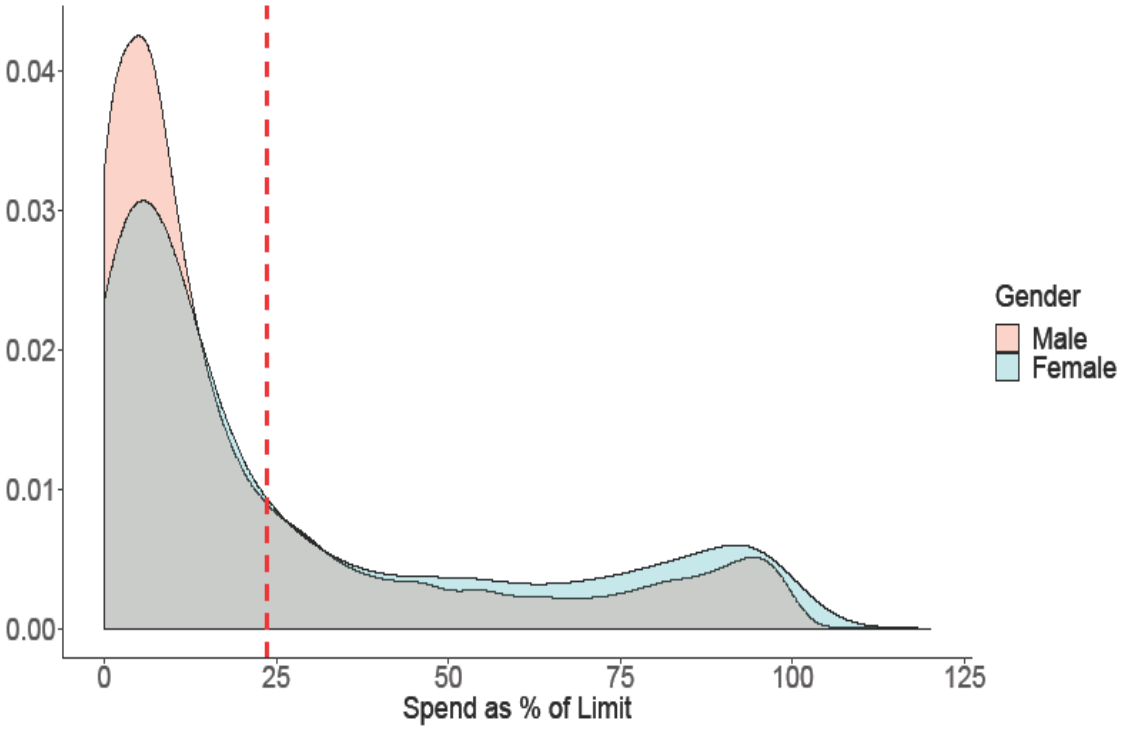

Figure E.5 – All challenger spend distribution in UK (line = mean)

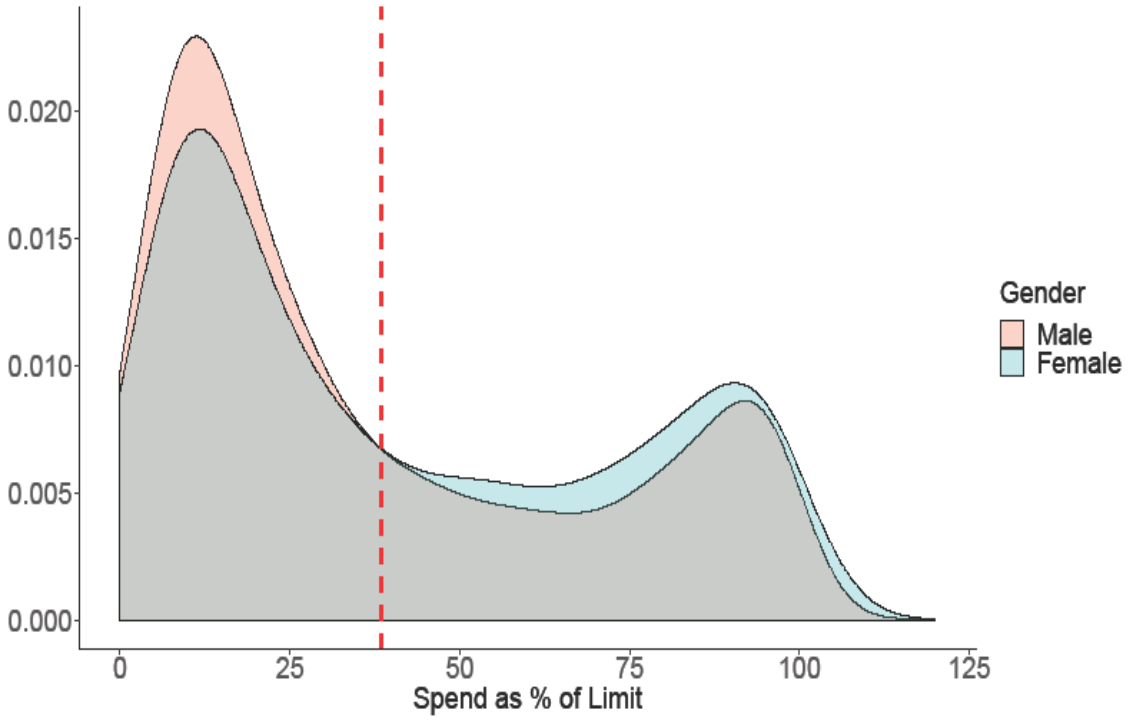

Figure E.6 – Major party challenger spend distribution in UK (line = mean)

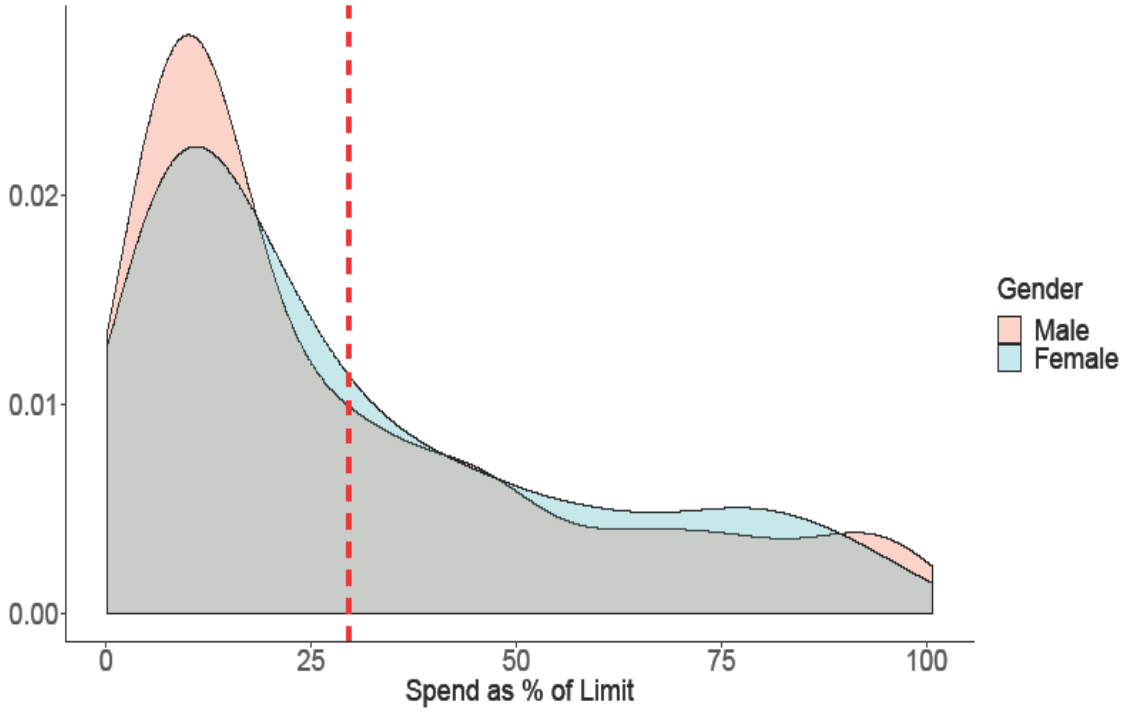

Figure E.7 – All challenger spend distribution in Scotland and Wales (line = mean)

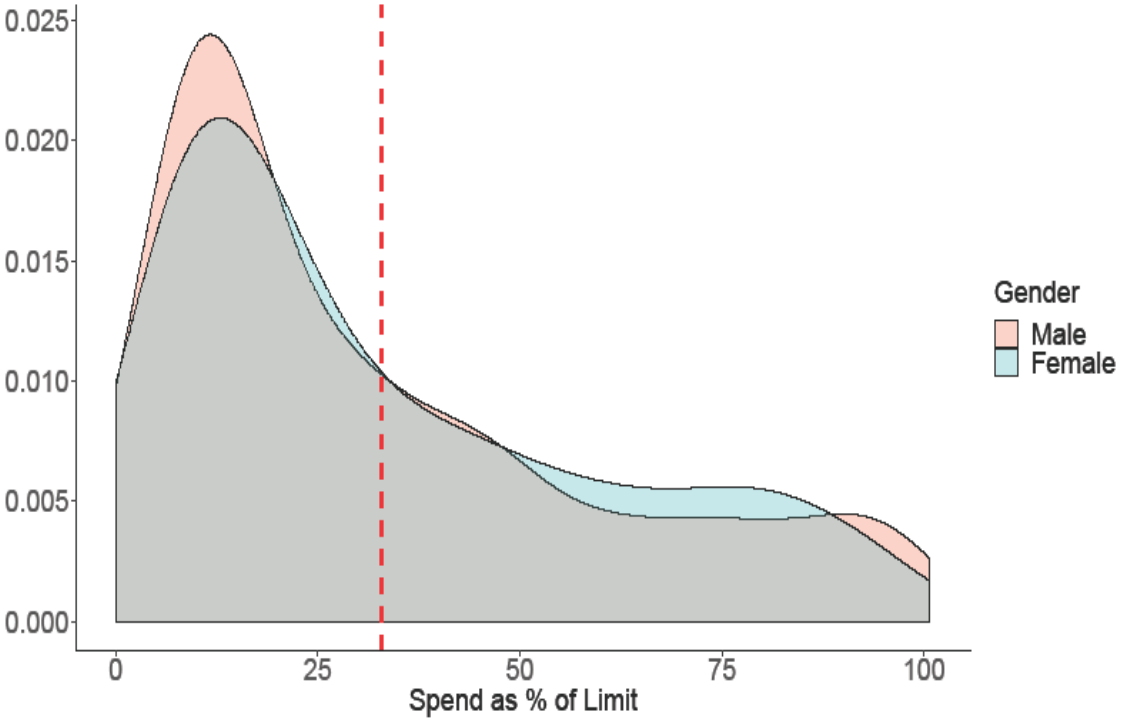

Figure E.8 – Major party challenger spend distribution in Scotland and Wales (line = mean)

E.3 Major Party and Prior Popularity Robustness Tests for H1

Table E.1 – H1 OLS regression results

	House of Commons (Short Campaign)	House of Commons (Short and Long Campaign)	Devolved Legislatures	Dáil Éireann
Gender	0.985	1.586*	0.626	-1.840
	(0.676)	(0.786)	(1.347)	(1.715)
Incumbency	-1.616	-1.083	3.303	0.993
	(1.295)	(1.622)	(3.281)	(1.486)
District Competitiveness	-0.740***	-0.754***	-0.462***	----
	(0.022)	(0.032)	(0.067)	----
Candidate Quality	----	----	----	0.153
	----	----	----	(0.093)
Gender X Incumbency	2.693*	-0.431	1.033	4.086
	(1.368)	(1.729)	(3.248)	(3.036)
Gender X List Incumbency	----	----	-6.930	----
	----	----	(4.507)	----
Constant	12.483***	0.035	-2.603	75.567***
	(1.956)	(2.494)	(5.224)	(3.698)
R^2	0.57	0.45	0.56	0.30
N	7,790	3,832	1,278	1,094

The dependent variable is candidate spend as percentage of the limit. Standard errors provided in parentheses. Party, Open Seat, District Magnitude, Constituency, Year, Number of Candidates, Boundary Changes, Region, List Incumbency, Parliament and Prior Popularity are included as controls but omitted from table.

E.4 CEM Gender X Spending Efficacy Robustness Results for H2 (Irish Elections)

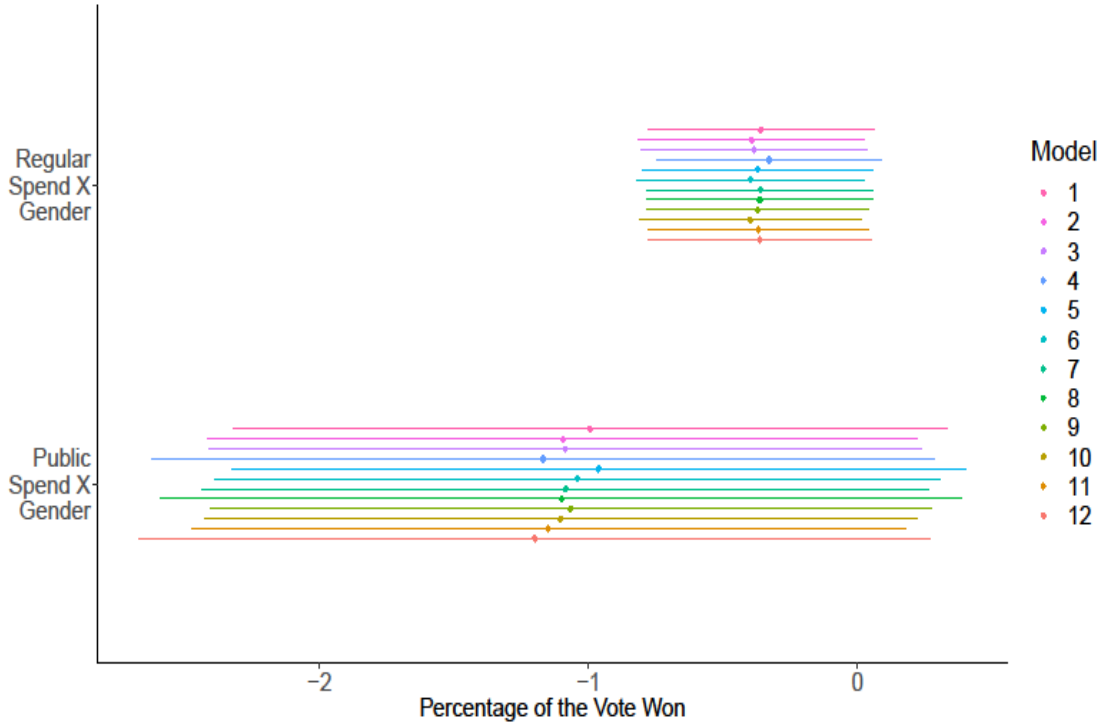

Figure E.9 – CEM gender x spending coefficients (Irish elections)

This plot shows coefficients for the interaction between spending and gender for 12 models using gender as the treatment. These models are matched on party, candidate quality, and a multichotomous spending variable. Models 1-4 use spending divided into three levels, models 5-8 use four levels, and models 9-12 use five levels. As indicated in earlier analysis, the coefficients suggest there is not a robust interaction effect between spending and gender.

E.5 CEM Gender X Spending Efficacy Robustness Results for H2 (UK Short Campaign)

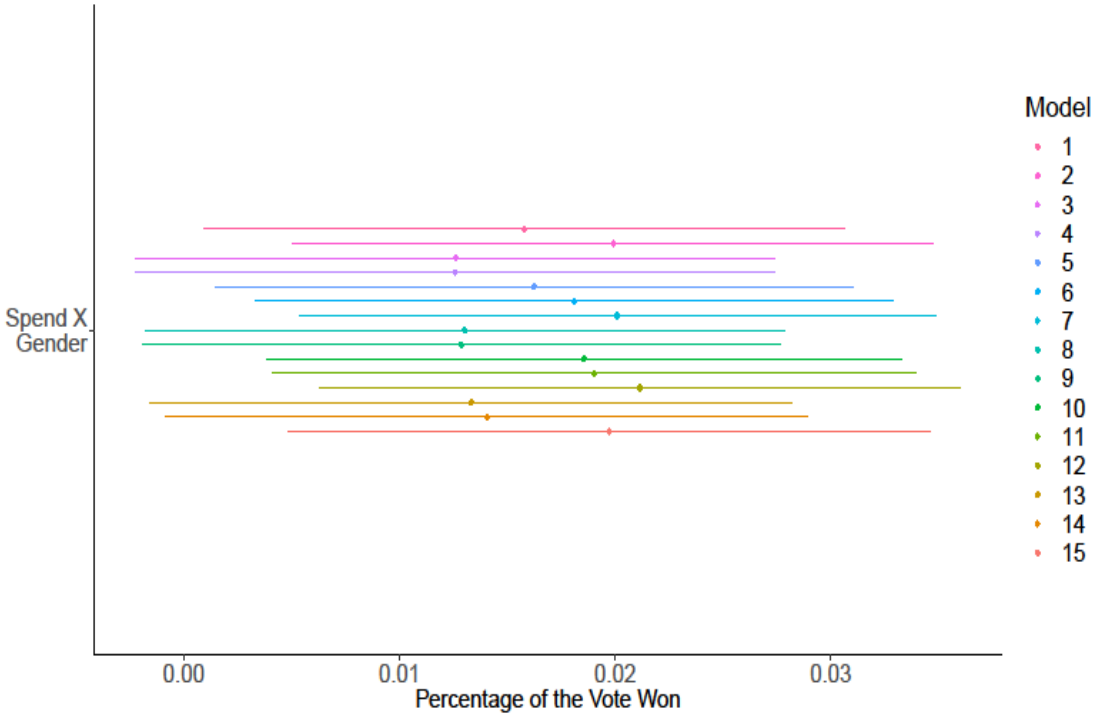

Figure E.10 – CEM gender x spending coefficients (UK short campaign)

This plot shows coefficients for the interaction between spending and gender for 15 models using gender as the treatment. These models are matched on party, seat marginality, and a multichotomous spending variable. Models 1-5 use spending divided into three levels, models 6-10 use four levels, and models 11-15 use five levels. As indicated in earlier analysis, the coefficients suggest there is not a robust interaction effect between spending and gender across models and the size of the coefficients are miniscule in real world terms.

E.6 CEM Gender X Spending Efficacy Robustness Results for H2 (UK Short and Long Campaign)

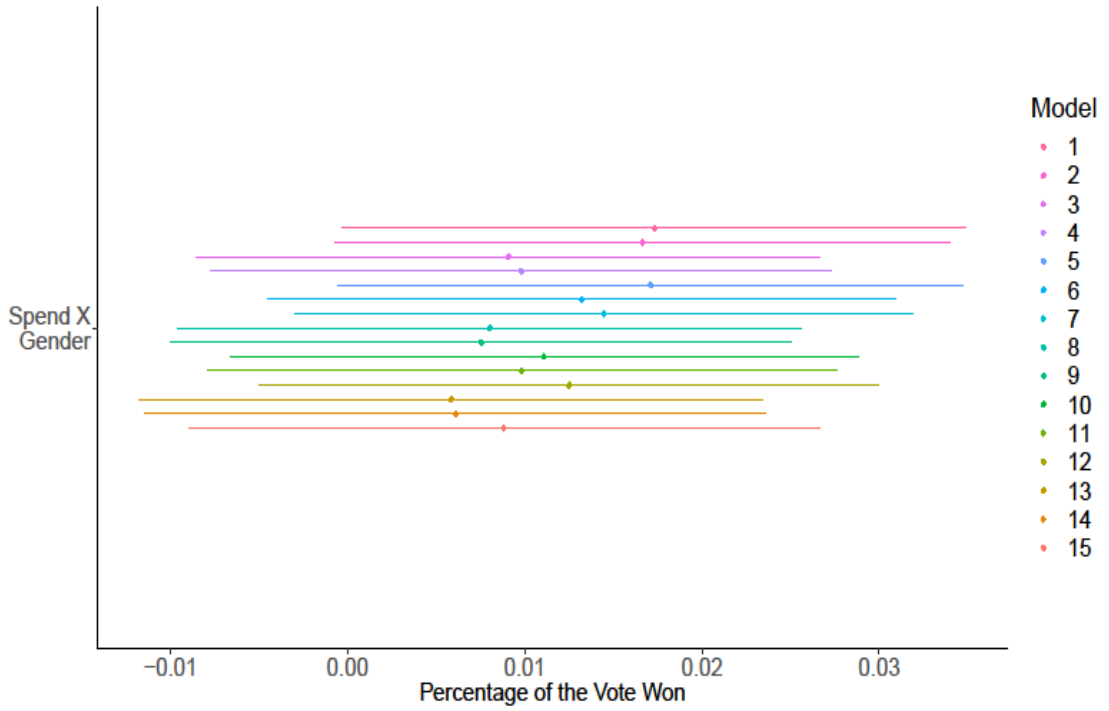

Figure E.11 – CEM gender x spending coefficients (UK short and long campaign)

This plot shows coefficients for the interaction between spending and gender for 15 models using gender as the treatment. These models are matched on party, seat marginality, and a multichotomous spending variable. Models 1-5 use spending divided into three levels, models 6-10 use four levels, and models 11-15 use five levels. As indicated in earlier analysis, the coefficients suggest there is not a significant interaction effect between spending and gender and the size of the coefficients are miniscule in real world terms.

E.7 CEM Gender X Spending Efficacy Robustness Results for H2 (UK Short Campaign – Prior Popularity)

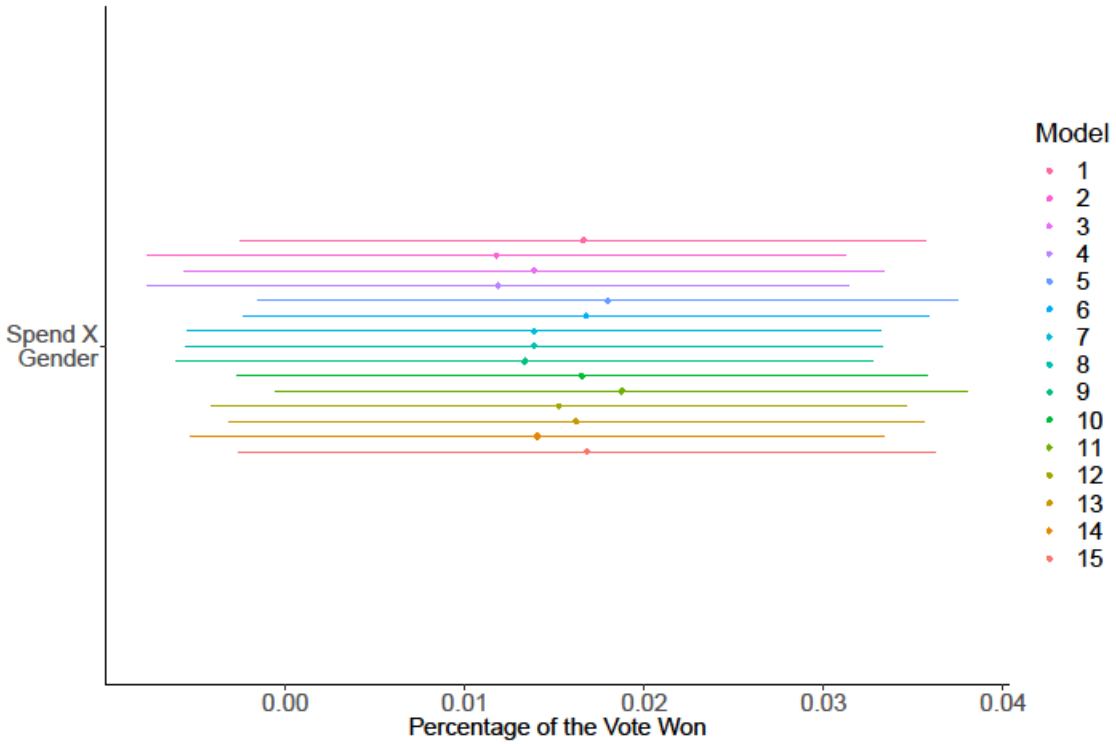

Figure E.12 – CEM gender x spending coefficients (UK short campaign)

This plot shows coefficients for the interaction between spending and gender for 15 models using gender as the treatment. These models are matched on party, seat marginality, and a multichotomous spending variable. Models 1-5 use spending divided into three levels, models 6-10 use four levels, and models 11-15 use five levels. As indicated in earlier analysis, the coefficients suggest there is not a significant interaction effect between spending and gender and the size of the coefficients are miniscule in real world terms.

E.8 CEM Gender X Spending Efficacy Robustness Results for H2 (UK Short and Long Campaign – Prior Popularity)

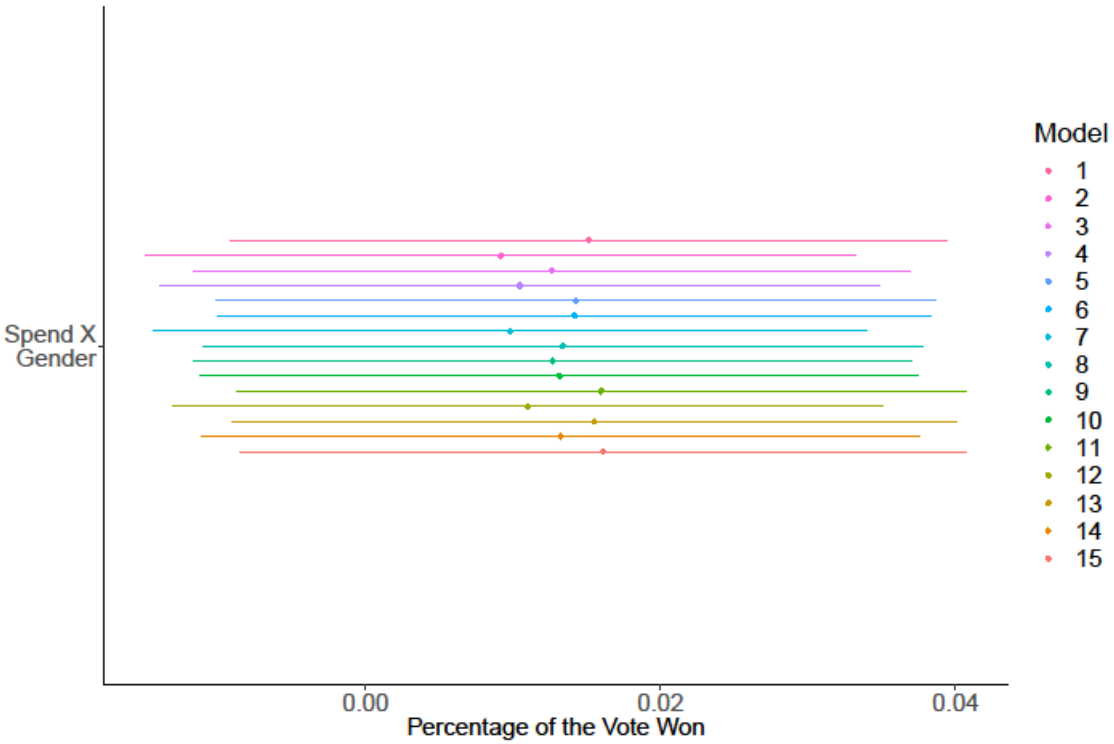

Figure E.13 – CEM gender x spending coefficients (UK short and long campaign)

This plot shows coefficients for the interaction between spending and gender for 15 models using gender as the treatment. These models are matched on party, seat marginality, and a multichotomous spending variable. Models 1-5 use spending divided into three levels, models 6-10 use four levels, and models 11-15 use five levels. As indicated in earlier analysis, the coefficients suggest there is not a significant interaction effect between spending and gender and the size of the coefficients are miniscule in real world terms.

E.9 CEM Gender X Spending Efficacy Robustness Results for H2 (Scottish and Welsh Elections)

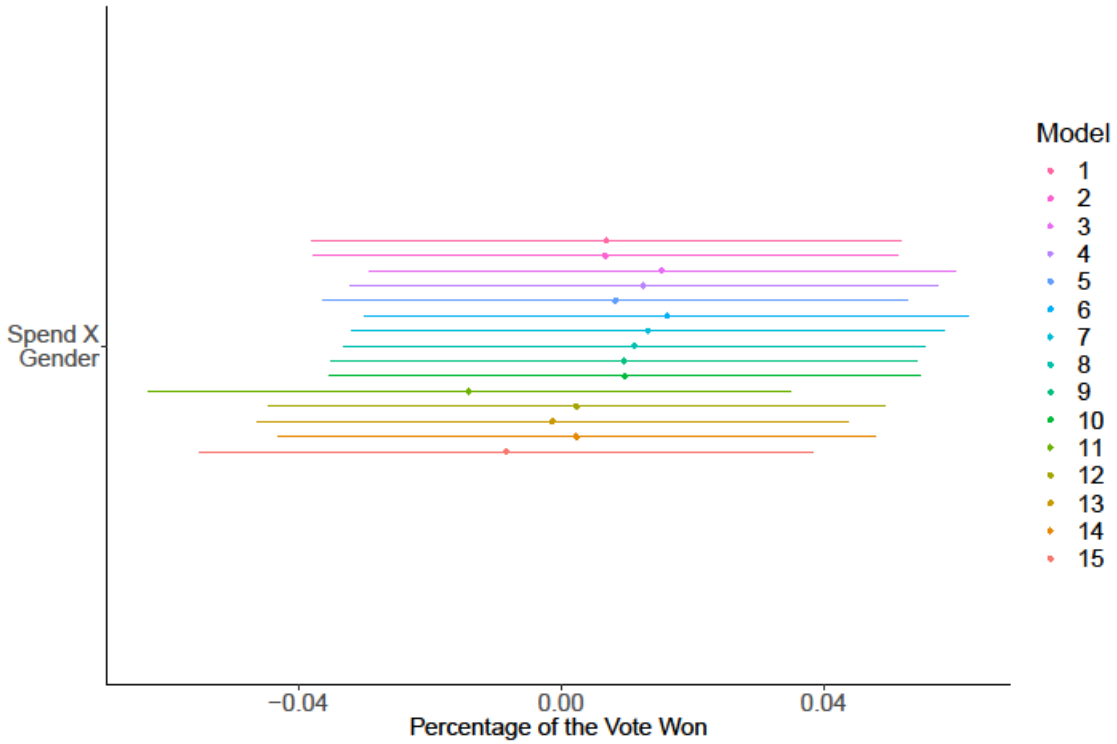

Figure E.14 – CEM gender x spending coefficients (Scottish and Welsh elections)

This plot shows coefficients for the interaction between spending and gender for 15 models using gender as the treatment. These models are matched on party, seat marginality, and a multichotomous spending variable. Models 1-5 use spending divided into three levels, models 6-10 use four levels, and models 11-15 use five levels. As indicated in earlier analysis, the coefficients suggest there is not a significant interaction effect between spending and gender.

E.10 CEM Gender X Spending Efficacy Robustness Results for H2 (Scottish and Welsh Elections – Prior Popularity)

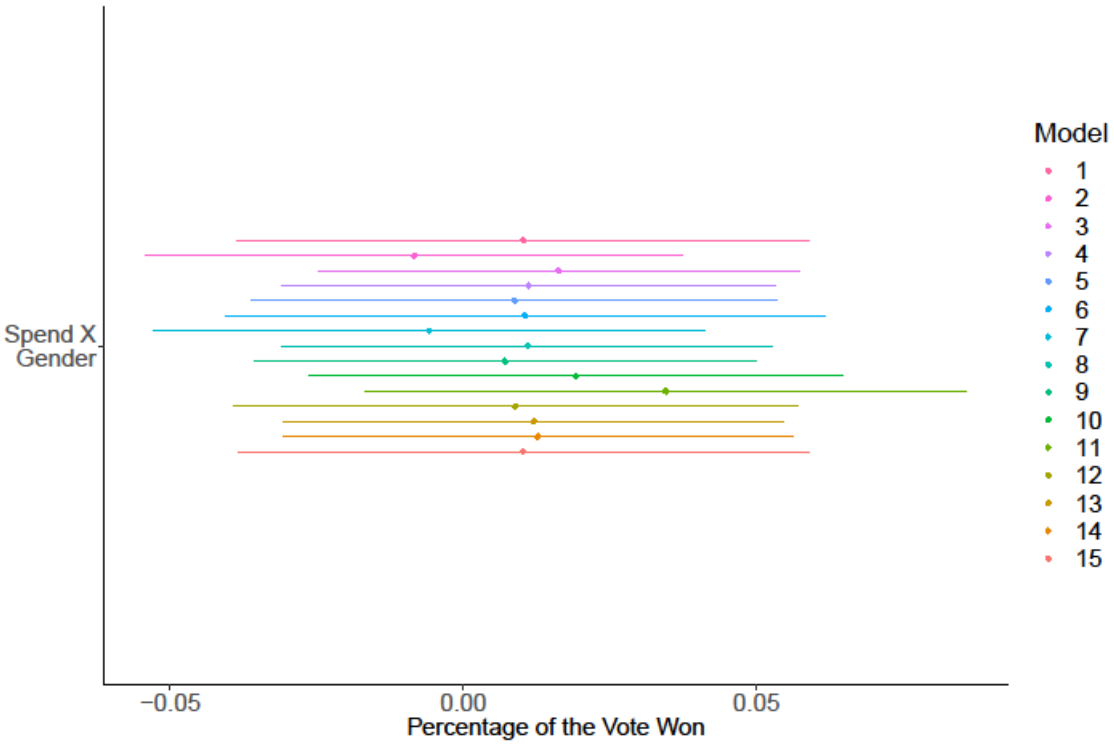

Figure E.15 – CEM gender x spending coefficients (Scottish and Welsh elections)

This plot shows coefficients for the interaction between spending and gender for 15 models using gender as the treatment. These models are matched on party, seat marginality, and a multichotomous spending variable. Models 1-5 use spending divided into three levels, models 6-10 use four levels, and models 11-15 use five levels. As indicated in earlier analysis, the coefficients suggest there is not a significant interaction effect between spending and gender.

E.11 Quadratic Gender X Incumbency X Spending Efficacy Robustness Results for H2 (UK Short and Long Campaign)

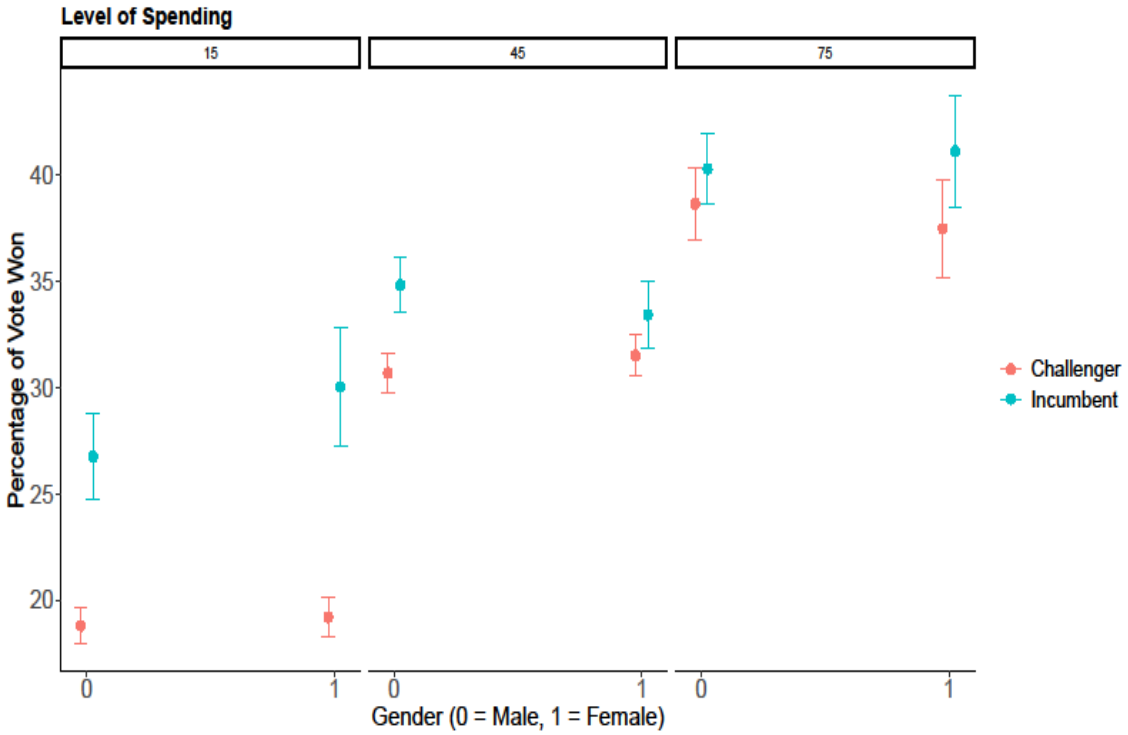

Figure E.16 – Quadratic gender x incumbency x spending coefficients (UK short and long campaign)

This plot shows coefficients for the interaction between spending, gender, and incumbency. The plot sets 15%, 45%, and 75% of constituency total as levels of spending to investigate marginal effects. As indicated in earlier analysis, it is difficult to separate out the effects of male and female candidates based on their incumbency status.

E.12 Quadratic Gender X Incumbency X Spending Efficacy Robustness Results for H2 (UK Short and Long Campaign – Prior Popularity)

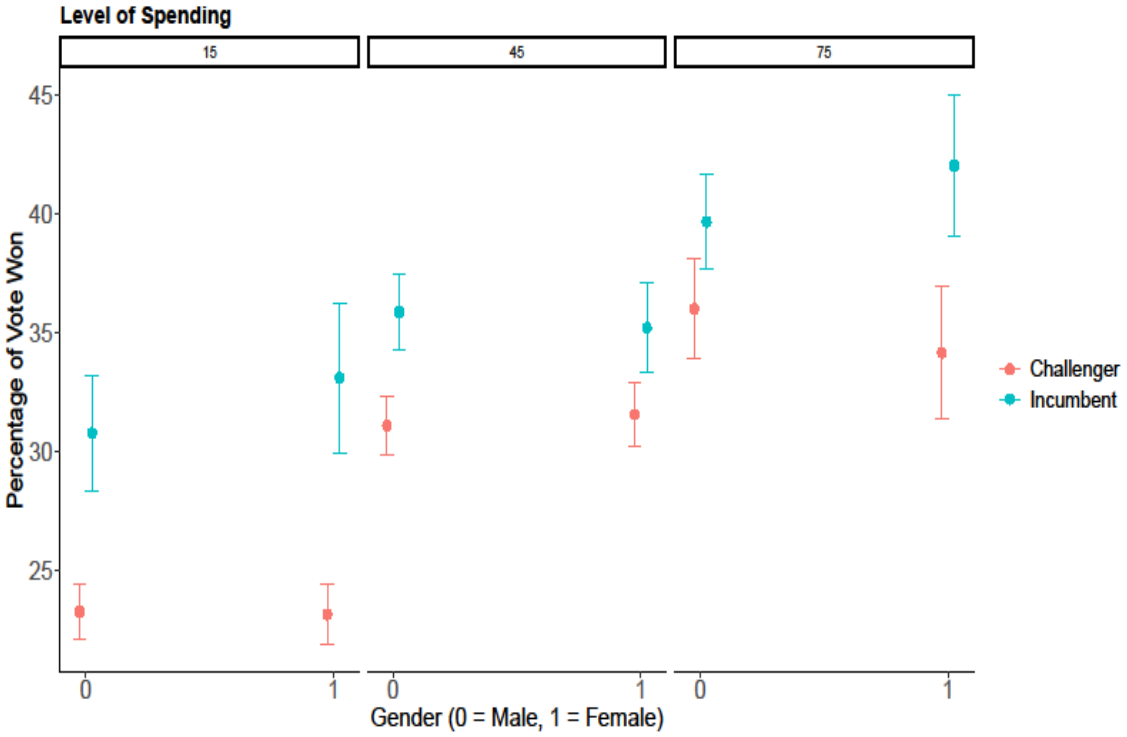

Figure E.17 – Quadratic gender x incumbency x spending coefficients (UK short and long campaign)

This plot shows coefficients for the interaction between spending, gender, and incumbency. The plot sets 15%, 45%, and 75% of constituency total as levels of spending to investigate marginal effects. As indicated in earlier analysis, it is difficult to separate out the effects of male and female candidates based on their incumbency status.

E.13 Quadratic Gender X Spending Efficacy Robustness Results for H2 (Scottish and Welsh Elections)

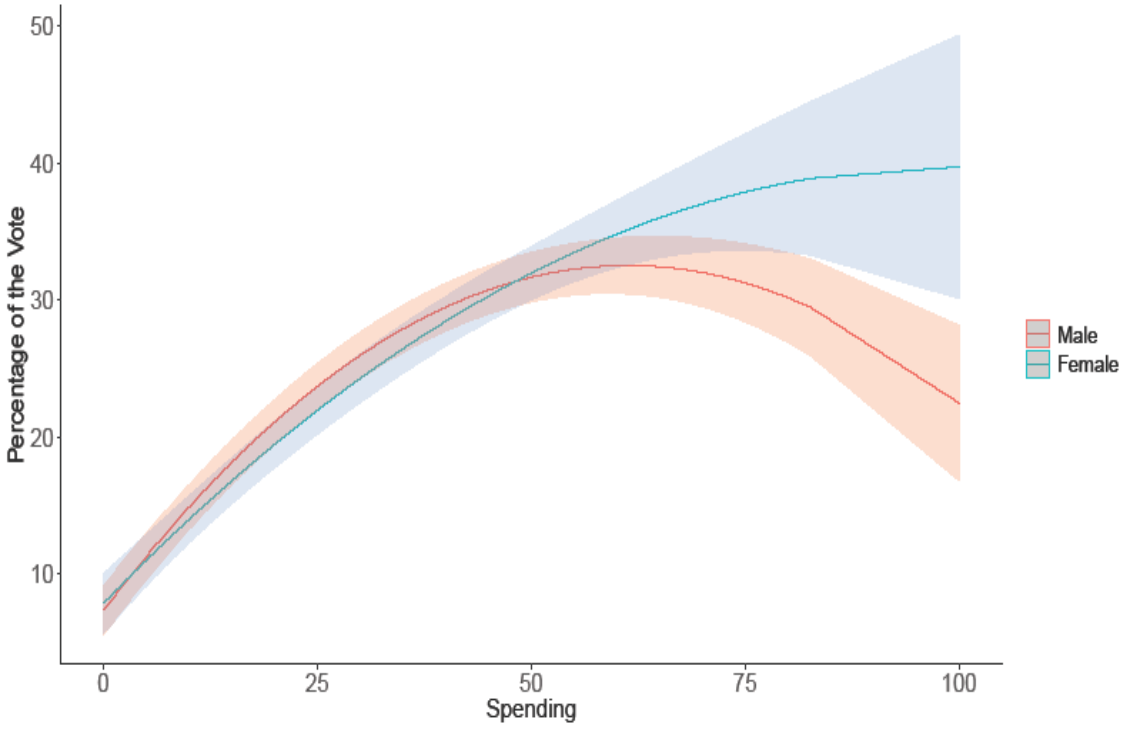

Figure E.18 – Quadratic gender x spending coefficients (Scottish and Welsh elections)

This plot shows coefficients for the interaction between spending and gender. As indicated in earlier analysis, the spending effects of male and female candidates do not diverge until very high levels of spending are reached. Additionally, this figure suggests that female candidates glean an advantage at high spending levels. This result is contrary to the negative effect found in the regression results for the aggregate dataset.

E.14 Quadratic Gender X Spending Efficacy Robustness Results for H2 (Scottish and Welsh Elections – Prior Popularity)

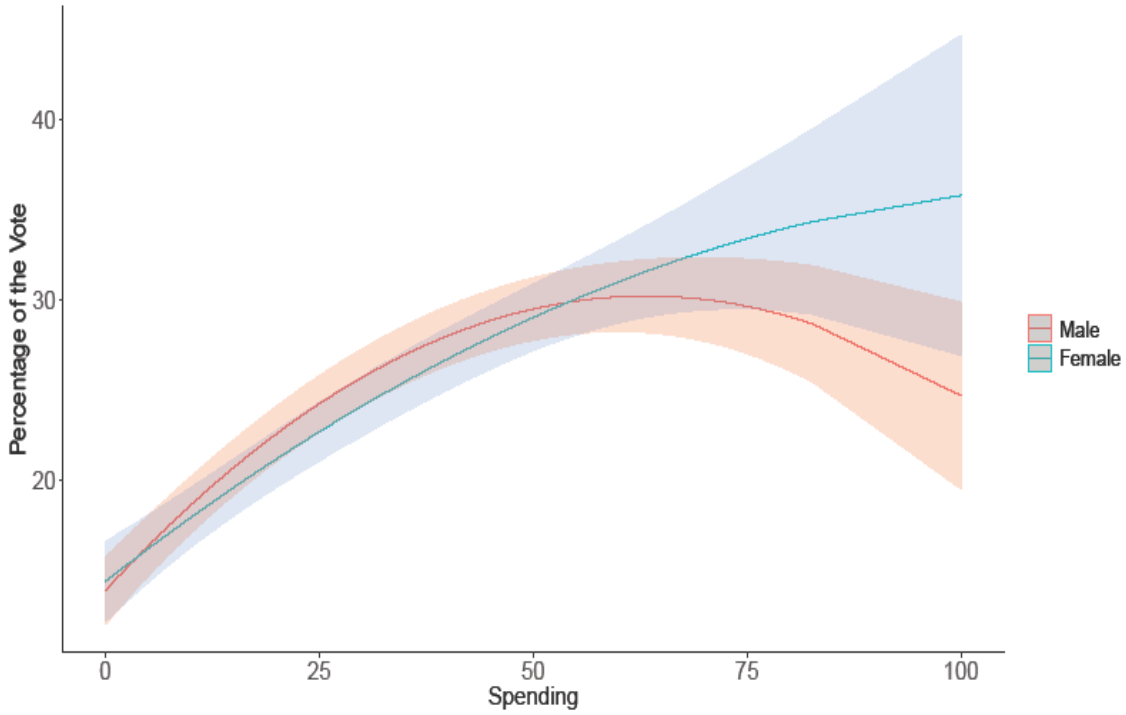

Figure E.19 – Quadratic gender x spending coefficients (Scottish and Welsh elections)

This plot shows coefficients for the interaction between spending and gender. As indicated in earlier analysis, the spending effects of male and female candidates do not diverge until very high levels of spending are reached. Additionally, this figure suggests that female candidates glean an advantage at high spending levels. This result is contrary to the negative effect found in the regression results for the aggregate dataset.

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