Encouraging Loyalty and Defection:
The Impact of Campaigns on Tactical Voting in Britain

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Abstract

In this article I study the impact of party campaigns on tactical voting, focusing exclusively on voters who face tactical incentives. Using data from three UK General Elections, I exploit panel data within each election to deal with strategic party outreach behavior, which would otherwise bias the estimates of campaign effects on tactical voting. My findings show that party campaigns can have a strong influence in encouraging loyalty to preferred non-viable parties as well as defection to alternative viable ones. These findings are important as little is known about what influences voters' decision to cast tactical votes, beyond their demographic characteristics and the electoral circumstances they may find themselves in.

Keywords: tactical voting; strategic voting; voting behavior; panel data

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1 Introduction

Electoral systems are susceptible to tactical behavior, broadly understood as a vote that does not reflect an individual's sincere preference ranking (Gibbard, 1978; Cox, 1997).[1] The incentive to cast a non-sincere vote is strongest in winner-take-all systems for voters whose most preferred candidate is unlikely to win. In a multicandidate election under a winner-take-all system, these voters can choose one of three alternative actions: (1) remain loyal to their most preferred candidate by voting sincerely, even though this candidate is unlikely to win; (2) defect to one of the parties that do have a chance of winning the seat, thus voting tactically, even if only to prevent a more disliked candidate from being elected (Duverger, 1954); or (3) abstain from voting altogether.[2]

The second option, casting a tactical vote, has received widespread attention in the voting behavior literature (often under the name strategic voting). This attention is certainly warranted. Tactical behavior (or lack thereof) plays a central role in understanding how voters respond to the incentives created by electoral systems and rules, which ultimately shape electoral outcomes (Cox, 1997). A substantial empirical literature has focused on measuring the extent to which tactical voting occurs. Evidence from a variety of countries and electoral systems shows that around 15 to 40 percent of voters who are in a position to cast a tactical vote, that is, voters whose most preferred party or candidate is considered to be non-viable in their district, actually decide to do so (see Alvarez, Kiewiet and Núñez, 2018, for a review). These levels of tactical voting can have important consequences for overall election outcomes. For example, Kiewiet (2013) finds that as many as one in five Labour seats in Westminster are won thanks to tactical votes by individuals who would otherwise prefer a Liberal Democrat to be elected.

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[1] The strength of incentives to cast a tactical vote vary widely, with proportional systems using low thresholds, for example, providing very weak tactical incentives.

[2] It is of course possible for a voter to cast a vote for a candidate that is not the most preferred and is also not likely to win. However, it is hard to imagine a voter doing this other than by mistake. Exceptions may exist in electoral systems that are more complex, like those with compensatory seats, which create different incentives. The results presented in this article are very similar if the first category includes not only sincere votes but also other voting behavior that is not standard tactical voting.

The literature has focused significantly less, however, on why some voters behave tactically while others do not, partly due to the challenges in measuring the extent of tactical voting. While many important correlates of tactical voting have been found (see Section 2), they typically relate to voters' demographic characteristics or to electoral circumstances. Importantly, these correlates are generally non-actionable. That is, they are not variables or factors over which electoral participants have any agency, so as to encourage voters to remain loyal to their most preferred party or to defect and vote tactically for another, at least during the time-frame of a campaign.[3] This means that our understanding of tactical voting remains limited by a mostly passive view of how parties and voters relate to tactical voting behavior.[4]

Contrary to previous literature, but complementary to it, this article focuses on the impact that being contacted by political parties during an election campaign has on voters' propensity to cast a tactical vote. Direct outreach to voters during a campaign, party contacts, is a clear actionable (potential) correlate of tactical voting, as parties have agency over their campaigning strategies and outreach decisions. In the UK context, there is evidence that parties include, in their outreach to voters, references to the tactical situation in their constituencies.[5] News reports also show that parties and candidates in other countries also refer to instrumental motivations as part of their campaign strategies.[6]

Estimating the effect of party contacts on voting behavior, however, is not straightforward. A central challenge is that parties strategically choose which voters to contact, preferring to contact voters they believe more likely to respond to their appeals. While this strategic targeting is often far from perfect, it introduces a confounding factor that is difficult to measure. Ideally, the effects of party contacts could be disentangled from parties' strategic targeting decisions by relying on field experiments, in the spirit of Gerber, Green and Larimer (2008). However,

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[3]Before a campaign, during the candidate selection period, parties can strategically decide where to compete. For instance, parties can coordinate to avoid fielding competing candidates, as the Unite To Remain pact during the 2019 UK General Election illustrates.

[4]There are some limited exceptions to this. See, for example, Fisher (2001); Fieldhouse et al. (2013).

[5]About 22% of leaflets collected by https://www.openelections.co.uk mention the tactical situation.

[6]For example, challengers during the 2015 Presidential Election in Argentina argue about 'useful' versus 'conviction' votes (AP, 2015). During the 2022 Brazilian Presidential Election, Lula encouraged 'useful votes' in his favor (Couto and Roxo, 2022), a move criticized by third party supporters (de Oliveira, 2022).

while an experimental intervention in a real election aimed at increasing voter turnout may be relatively uncontroversial, one aimed at altering voters' choices faces ethical dilemmas (see, for example, Beerbohm, Davis and Kern, 2020). Additionally, experimental interventions do not allow for the study of past elections.

Instead, I rely on observational data and address this estimation challenge by exploiting the panel structure of the British Election Study (BES) Online Panel (Fieldhouse et al., 2020), focusing on the data collected around the 2015, 2017, and 2019 United Kingdom General Elections. The focus on the United Kingdom is mainly due to the availability of high-quality survey data with a panel structure, which is key to my identification strategy.[7] I use data from three survey waves for each election. The analysis focuses exclusively on voters with an incentive (however small) to cast a tactical vote, for which I use the measure developed in Eggers and Vivyan (2020). With data from two pre-election survey waves, I estimate models in which the outcome is whether a voter is contacted by each party. From these models, I derive the predicted probability that a voter will be contacted by each party during the third survey wave. Finally, I estimate the effect of actual party contacts in the third wave on the probability of a tactical vote, controlling for these predicted probabilities of contact. The inclusion of the predicted probabilities of contact significantly reduce or eliminate the endogeneity concerns in party contacts, since they provide a measure of the intent of parties to contact certain voters (strategic targeting) that is separate from the actual contacts conducted in the estimation wave.[8]

Overall, around one third of voters in recent UK elections are in a position to vote tactically. My findings show that direct voter outreach has significant effects on the probability these voters cast a tactical vote, by either encouraging defection from a most preferred party or loyalty to it. Specifically, I find that the contact efforts by a voter's Most Preferred party lead to a reduction of 3.82 percentage points in tactical voting, whereas the campaign efforts by a voter's Best

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[7]Appendix E presents results using data for the 2019 Canadian General Election. However, the Canadian data is a cross-section, rather than a panel. For this reason, the results may be partly affected by the endogeneity created by parties' strategic targeting decisions.

[8]An important assumption here is that party contact behavior remains stable throughout each campaign. While parties certainly ramp up their campaign efforts towards the end of the campaign period, I provide evidence that shows that parties aim to contact the same types of voters, just more of them, more intensely.

Alternative party[9] increase tactical voting by 5.38 percentage points. Considering the impact of party contacts conducted by all parties simultaneously, I find that party contacts are responsible for a 2.75 percentage points increase in tactical voting. Some of this higher tactical voting is the result of a reduction in abstentions, but the dominant proportion comes from a switch of sincere votes to tactical ones. It is important to note that the findings in this paper are different, but complementary, to the broader campaigns literature findings on persuasion. While persuasion is understood as a change in voters' preferences which prompts a change in voting behavior, the effects described here measure a change in voting behavior that is separate from any change in preferences that may simultaneously occur.[10]

The rest of the article is organized as follows. In Section 2, I discuss the literature on tactical voting, the broader literature on campaign effects, with a focus on the United Kingdom, and derive a set of hypotheses; in Section 3, I describe the data and the methodology used to estimate the impact of party contacts on tactical voting; Section 4 presents the results together with partial counterfactual exercises, and briefly describes additional results and robustness checks presented in the appendix. Section 5 concludes.

2   Related Literature and Hypotheses

There is a relatively rich literature that measures tactical voting behavior in both winner-take-all and other types of electoral systems.[11] Despite the attention that the measurement of tactical voting has received by empirical researchers, there is less understanding on why some voters cast tactical votes while others, facing the same circumstances, do not. The variables that the literature has identified as associated with tactical voting can be broadly grouped in

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[9]The Best Alternative party is defined as the party, other than the Most Preferred one, that would give the vote the highest expected utility.

[10]Importantly, the estimates presented here control for voters' preferences, so that the change in voter behavior due to parties' outreach efforts is not confounded by any effect that outreach may simultaneously have on voter preferences.

[11]See, for example, Heath and Evans (1994); Fieldhouse, Pattie and Johnston (1996); Alvarez and Nagler (2000); Duch and Palmer (2002); Karp et al. (2002); Alvarez, Boehmke and Nagler (2006); Gschwend and van der Kolk (2006); Fieldhouse, Shryne and Pickles (2007); Kiewiet (2013); Kawai and Watanabe (2013); Elff (2014); Spenkuch (2018)

two categories: individual voter characteristics, and the electoral environment.

Among individual voter characteristics, the literature has found that voters with strong partisan or ideological attachments are significantly less likely to cast a tactical vote (see Lanoue and Bowler, 1992; Niemi, Whitten and Franklin, 1992; Fisher, 2001; Blais, 2002; Karp et al., 2002).[12] There is also evidence that voters' political sophistication and political knowledge (sometimes proxied by education levels) are positively associated with tactical voting (Niemi, Whitten and Franklin, 1992; Fisher, 2001; Karp et al., 2002; Alvarez, Boehmke and Nagler, 2006; Gschwend and van der Kolk, 2006; Merolla and Stephenson, 2007; Eggers, Rubenson and Loewen, 2022), as is political interest (Fisher, 2001).[13] Higher socio-economic status is also positively related to tactical voting (e.g., Eggers and Vivyan, 2020; Eggers, Rubenson and Loewen, 2022). There is also evidence that when voters are experienced with the electoral system they are more likely to vote tactically (Duch and Palmer, 2002; Spenkuch, 2018); and so are voters that believe the media influences the voting decisions of others (Cohen and Tsfati, 2009).

Among the electoral environment variables, theoretical models put particular emphasis on the closeness of the election (see, for example Cox, 1997). When the race between the top-two contenders is considered to be close, it is expected for third party supporters to be more likely to vote tactically, as a defection from their most preferred party is more likely to be pivotal. Empirical results tend to support this theoretical expectation, albeit weakly (Lanoue and Bowler, 1992; Fisher, 2000; Kiewiet, 2013; Elff, 2014; Núñez, 2016).[14] Related to this, the 'distance from contention' of the most preferred party, usually captured by the voteshare difference between second and third placed parties, has been shown to be positively associated with tactical behavior (e.g., Niemi, Whitten and Franklin, 1992). The empirical literature has also found that the presence of a viable close ideological substitute to a non-viable preferred party encourages tactical voting (e.g., Karp et al., 2002), and that the presence of an incumbent

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[12]Similar effects have been found in the study of split-ticket voting in the U.S. (Beck et al., 1992; Burden and Kimball, 1998)

[13]An exception here is Eggers and Vivyan (2020), who find no differences in tactical voting by education level.

[14]In fact, some authors find no impact of election closeness (see, e.g., Niemi, Whitten and Franklin, 1992).

politician interferes with the decision to cast a tactical vote (Moser and Scheiner, 2005).

The determinants or correlates identified in the literature, usually as a secondary concern to measurement, do not provide with actionable recommendations. That is, electoral participants, be it parties, campaign volunteers, or voters, have no agency over these variables during the time-frame of a campaign. But there are a variety of actions parties can take during a campaign: candidate speeches and events, TV adverts (and other coverage), as well as contacting voters directly. There are also decisions that parties can make *prior* to the campaign itself that can influence tactical behavior. An important one is elite coordination in the decision to field candidates. An good example of this type of elite coordination is the Unite to Remain pact between the Liberal Democrats, the Green Party, and Plaid Cymru in 2019, by which the parties agreed not to field competing candidates, with the goal of increasing the chances of electing MPs who would oppose Brexit.[15] While national level campaign behavior and pre-campaign elite coordination can both influence tactical behavior, this article focuses on direct outreach by parties, which is a simple but central factor over which parties have agency during the campaign period.

There is a rich literature that studies campaign effectiveness across the world. Experimental evidence from multiple countries has shown that citizens are responsive to get-out-the-vote (GOTV) efforts (see, for example, Gerber, Green and Larimer, 2008; John and Brannan, 2008; Arceneaux and Nickerson, 2009; Fieldhouse et al., 2013; Townsley, 2018). Other studies have instead focused on observational data and also found this positive impact of campaigns (see, for example Geys, 2006; Karp, Banducci and Bowler, 2008). Within the British context, there is a substantial literature that studies the effects of local campaigning. This literature generally finds that parties benefit electorally from more organized and intense local campaigns, both in terms of voters mobilization and persuasion (e.g., Whiteley and Seyd, 1994; Pattie and Johnston, 2003; Clarke et al., 2004, 2009; Fisher et al., 2016; Fisher, Cutts and Fieldhouse, 2011; Fisher et al., 2019; Johnston et al., 2013; Cutts, 2014; Fieldhouse, Fisher and Cutts, 2020; Núñez,

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[15]This pact is not unique. In 2017, for example, the Liberal Democrats agreed not to contest the Brighton Pavillion seat, which was (and still is) held by the only Green MP.

2021).

With very few exceptions, however, the literature has not focused on the impact of local campaigning on voters' decision to cast a tactical vote. Fisher (2001) notes that constituency campaigns are relevant factors to study in order the understand tactical voting. He finds some correlational evidence, aggregated at the constituency level, that constituency campaign spending by the favourite and second favorite parties influence tactical voting; however, when this analysis includes a measure of tactical incentives, these associations disappear. Fieldhouse et al. (2013) argue that not only voters behave tactically, but political parties may also act strategically by focusing their election campaigns on 'marginal seats.' They find some evidence that parties' strategic campaign spending is associated with more tactical voting behavior on the part of voters, inferred from flow-of-the-vote (aggregate) analyses.[16]

Notwithstanding these exceptions, our understanding of how campaigns affect tactical voting is very limited. Thus this article contributes to both these strands literature (tactical voting and campaign effects), by focusing on measuring the effect of direct outreach on the set of voters with an incentive to cast a tactical vote. Understanding the behavior of these voters is key to the understanding of incentives in electoral systems, all of which are, to some extent, susceptible to tactical behavior (see, Gibbard, 1978; Cox, 1997).

But studying voters with an incentive to behave tactically is also important because the motivations behind their behavior may be distinct. In particular, the understanding of persuasion in the broader campaigns literature is that party outreach influences voter preferences, which in turn affect voting behavior. Voters in a position to cast a tactical vote may be affected by persuasion (which can even alter which party they prefer the most) in the same way as other voters. But at the same time party outreach may also trigger tactical (or expressive) considerations in these voters; that is, a change in voter behavior that is not caused by a change in preferences (either in ranking or in strength). In fact, parties in the UK oftentimes highlight the strategic situation in a constituency with this in mind. For example, out of over 8,000 campaign leaflets

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[16]They also find some evidence consistent with party campaigns affecting tactical voting behavior at the individual level, by examining how constituency campaign spending influences desertion from a preferred party.

collected and classified by Open Elections as of December 2022, approximately 22% include a mention of the strategic situation in the constituency.[17] Thus, this paper focuses on estimating the effect of party contacts on the probability of casting a tactical vote, holding voters' preferences constant. As such, the findings in this paper are different, although complementary, to those on persuasion within the broader campaigns literature.

Before discussing the hypotheses, it is useful to provide a few definitions. First, a voter's Most Preferred Party is the party from which a voter would derive the highest utility if elected. Second, a voter has a tactical incentive to deviate from their Most Preferred party if a vote for some other party gives them a higher expected utility. Third, the party from which a voter derives the highest expected utility (other than their most preferred) is termed the Best Alternative Party; whereas the party from which they derive the lowest expected utility is termed the Worst Alternative Party. Among voters with an incentive to cast a tactical vote, the Most Preferred Party is typically non-viable (unlikely to win), whereas the Best Alternative and Worst Alternative parties are generally viable. All the hypotheses discussed here relate only to voters with an incentive to cast a tactical vote for their Best Alternative party.

Outreach by each party is expected to have a different impact on voter behavior. Contact by a voter's Most Preferred party is likely to increase the chances that the voter will cast a sincere vote for two reasons. First, the party may remind the voter of the reason why she preferred them, strengthening a desire to cast an expressive vote, to signal her preferences (see, e.g., Hamlin and Jennings, 2011). Second, the voter may (incorrectly) interpret being contact by their Most Preferred party as a signal that the party is in fact viable, thus becoming more likely to cast a sincere vote.[18]

H1. Contact by a voter's Most Preferred party increases the probability of a sincere

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[17]See, https://www.openelections.co.uk/ and Milazzo, Trumm and Townsley (2020).

[18]Notice that this does not require the party to indicate that it is viable in the contact message. The contact effort may be interpreted by the voter as a sign the party believes in its own viability in that constituency.

vote, and reduces the probability of a tactical one.

Contact by the Best Alternative party should have the opposite effect. That is, it should increase the chances that a voter will cast a tactical vote and reduce the chances of a sincere vote for two reasons. First, the Best Alternative party can rely on encouraging a voter to behave in an instrumental manner, to cast a 'useful' vote that influences the electoral outcome directly. There is anecdotal evidence that parties try to incite these instrumental motivations, oftentimes by portraying themselves as the only alternative that can defeat a disliked party. For example, a pamphlet by the Labour candidate for Epsom and Ewell in 2019 is entitled "It's a two horse race in Epsom and Ewell" with the backside highlighting that "Labour was second behind Chris Grayling with double the vote of the Lib Dems, confirming that Labour is the only party that can beat the Tories here. Your vote counts."[19] This ability of the Best Alternative party to incite instrumental motivations is typically not hampered by high expressive costs to the voter, as the Best Alternative party is somewhat well liked by the voter.[20]

H2. Contact by a voter's Best Alternative party reduces the probability of a sincere vote, and increases the probability of a tactical one.

Contact by the Worst Alternative party should encourage voters' tactical behavior. The expectation here, however, is of weaker effects. Contact by the Worst Alternative party may produce or increase the fear that a disliked party will succeed. Voters perceiving this should be more likely to cast a tactical vote in favor of their Best Alternative party.

H3. Contact by a voter's Worst Alternative party reduces the probability of a sincere vote, and increases the probability of a tactical one.

It is important to discuss the relative impact of contact by the different parties. Overall, the encouragement of a 'useful' vote should be easier than the encouragement of a so-called

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[19]See https://www.openelections.co.uk/leaflets/39007/. The reference to a two-horse race in also a wink to Epsom Downs Racecourse, located in the constituency.

[20]In fact, a for a voter to have a positive tactical voting incentive, the voter must like the Best Alternative party to some extent. Otherwise, the voter would not have a positive tactical voting incentive.

'wasted' one. Instrumental motivations thus favor the Best Alternative party, such that contact by a (viable) Best Alternative should have a stronger impact on voter behavior than contact by a (non-viable) Most Preferred party, both in terms of reducing abstentions and encouraging tactical rather than sincere voting behavior.[21]

> H4. Contact by a voter's Best Alternative party has a larger impact on voter behavior than contact by the Most Preferred party.

Finally, the value of casting a tactical vote should depend on the strength of the incentives to cast one.[22] Among voters with a positive incentive (who would benefit from casting a tactical vote), the stronger the incentives, the more muted the impact of party contacts. There are two reasons for this. First, voters with strong incentives to cast a tactical vote should be already more likely to do so, even without the parties' encouragement. Thus, the impact of contact by the Best Alternative party should be smaller, since voters are already likely to behave tactically. Second, the Most Preferred (non-viable) party should have a harder time convincing a voter with a strong tactical incentive to vote sincerely. This is because a sincere vote by voters with strong tactical incentives comes at a high cost (a large expected utility loss). Put together, this leads to the final hypothesis:

> H5. The effect of party contacts on tactical voting depends on the strength of (positive) tactical incentives. The stronger the tactical incentives, the smaller the impact of party campaigns.

3   Data & Methods

To study the effect of party contacts on the probability of casting a tactical vote, I use data from nine waves of the British Election Study (BES) Online Panel (Fieldhouse et al., 2020). The

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[21]Again, it should also be noted that the Best Alternative party is typically seen somewhat favorably by voters, such that there is not a large expressive dealignment that creates a high cost to tactical behavior.

[22]This article uses the definition of tactical incentive from Eggers and Vivyan (2020), which is discussed in the next section. However, the present discussion applies to any measure of tactical incentives.

first three waves cover the 2015 General Election; the following three cover the 2017 General Election; and the final three cover the 2019 General Election. The data includes respondents in English, Scottish, and Welsh Westminster Constituencies.[23] Appendix E includes an additional analysis using cross-sectional data from the 2019 Canadian General Election.[24]

3.1 Tactical Incentives Measure and Variable Definitions

3.1.1 Tactical Incentives

To capture tactical incentives, I follow the measure proposed by Eggers and Vivyan (2020), who define a voter's tactical incentive, τ, as:

$$\tau \equiv \max_{j>1} p(j) \cdot u - p(1) \cdot u \tag{1}$$

where $p(j)$ is a vector that contains the probability of winning for each party when the voter casts a vote for party j; u is a vector that contains the utility derived from each party being elected; and $p(1)$ measures the probability that each party will win if the voter casts a sincere vote, that is a vote for the party they prefer the most. Thus, $p(1) \cdot u$ measures the expected utility of casting a sincere vote, and the term $\max_{j>1} p(j) \cdot u$ measures the expected utility of casting a vote for the Best Alternative party, the party that gives the voter the highest expected utility (other than their Most Preferred one). From this framework, I also define a voter's Worst Alternative party as the party that gives the voter the lowest expected utility.

Voters with a negative tactical voting incentive do not benefit from casting tactical vote, as deviating from their Most Preferred party gives them a lower expected utility. Voters with a positive tactical voting incentive ($\tau > 0$), on the other hand, would benefit from casting a tactical vote for their Best Alternative party. The main analysis in this article focuses on these

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[23]The BES Online Panel does not include respondents from Northern Ireland. Therefore, this constituent country of the United Kingdom is not included in the analysis.

[24]The analysis of Canadian data should be interpreted caution. Because of the cross-sectional nature of this data, the results may be partly driven by endogeneity.

voters.[25]

This measure of tactical incentives summarizes in a single value a variety of proxies that the literature has used to approximate them. In terms of preferences, the smaller the utility gap between a Most Preferred party and a Best Alternative party, the higher the tactical incentives; and the larger the utility gap between the Best Alternative and the Worst Alternative parties, the higher the tactical incentives. In terms of chances of winning, the poorer the expected performance of the Most Preferred party, the higher the tactical incentives; and the closer the race between the Best Alternative and Worst Alternative parties, the higher the tactical incentives. As such, this theoretically-derived measure of tactical incentives appropriately captures the combination of proxies typically used in the tactical voting literature.

To measure the utilities derived from each party, u, I rely on feeling thermometers from the BES data. Any ties are first broken by the feeling thermometers for the party leaders (if available), and then by party identification. Pivotal probabilities, $p(j)$, are obtained following the procedure in Eggers and Vivyan (2020), who rely on the assumption that the voteshare for each party in a given constituency follows a Dirichlet distribution with parameter vector sv, where v is the vector of voteshares actually observed in the constituency, and s is a scalar measure of precision, which I set to 85.[26]

There are alternatives ways of implementing the inputs of the tactical incentives measure. Appendix D.1 shows results in which voter preferences are derived from the perceived ideological closeness to each party. In Appendix D.2, I show estimates based subjective probabilities, obtained from voters' assessment of the chances of winning for each party.

3.1.2 Outcome: Tactical Voting

I define the outcome of interest as a categorical variable with three possible values: (1) the voter chooses to abstain; (2) the voter casts a vote for their Most Preferred party (a sincere

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[25]Other parts of the analysis will, however, use all voters, regardless of their tactical incentive.

[26]Eggers and Vivyan (2020) choose the precision measure s that minimizes the "surprise" of election results compared to pre-election predictions. Their optimal s using data from the 2005, 2010, and 2015 elections is 85, which is why I use it here. Their analysis shows that results do not vary very noticeably with the choice of s (within a range).

vote); (3) the voter casts a vote for their Best Alternative party (the non-sincere vote that gives the voter the highest expected utility).[27] When focusing exclusively on voters with a positive incentive to vote tactically ($\tau > 0$), this outcome variable captures: (1) abstention, (2) sincere/expressive voting, and (3) tactical voting.

3.1.3 Main Independent Variables & Controls

The main independent variables of interest are three indices that measure contact by the Most Preferred, the Best Alternative, and the Worst Alternative parties. These indices are built by counting the number of modes in which a party contacted a voter in each wave. The modes of contact considered are: telephone, letter or leaflet through the mail, home canvassing visits, meeting in the street, email, SMS (text messaging), and social media. The use of contact indices as opposed to binary indicators is preferred for two interconnected reasons. First, indices provide a more nuanced measure that better approximates the intensity of contact. Second, a very large portion of voters receive (or at least are sent) the candidate address delivered free of charge by the Royal Mail, diminishing the variation in the binary measure.[28] Núñez (2021) shows that these contact indices correlate closely with campaign expenditures at the constituency level, providing some validity to the measure. Appendix B.4 provides alternative estimates using separate indicators for each mode of contact and discusses those results, which are largely consistent with those obtained using the indices.

As control variables, I include the feeling thermometer for the Most Preferred party, the difference in feeling thermometers between the Most Preferred and the Best Alternative parties, and that between the Best Alternative and the Worst Alternative parties.[29] Controlling for these is key to disentangle the impact that contacts may have on voting decisions from the impact they may have on preferences (which may then also influence voting decisions). That

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[27]There is a small percentage of voters who cast a vote for a party that is neither their Most Preferred nor their Best Alternative party. These voters are excluded from the analysis in this article. However, their inclusion in the second group (combining them with sincere voters) does not substantially alter the results.

[28]While delivery is free, candidates must still ford the cost of producing their address for delivery.

[29]Controlling for these three variables is equivalent to controlling for the feeling thermometers of these three parties.

is, they allow to capture the impact of party outreach on tactical voting that is separate from the traditional persuasion effects studied in the broader campaigns literature. I also include a number of demographic characteristics: respondents' age, gender, indicators for household income terciles, two indicators for education level (A levels or similar, and University degree or higher); two indicators for home ownership/renter status, as well as the number of children in the household. Finally, I control for a measure of political attention, constituency-level election results, and decile indicators for the tactical voting incentive, τ, that control for the strength of the tactical voting incentive in a non-linear way.

3.2   Estimating the Effect of Party Contacts

As mentioned in the introduction, an important empirical challenge in measuring the impact of direct party outreach on tactical voting is that parties' behavior is strategic. In fact, there is evidence that parties increasingly target specific voters or groups of voters (defined both sociodemographically and geographically) they deem likely to affect the electoral outcome (Hillygus and Shields, 2008; Hassell and Monson, 2014, 2015). Moreover, Townsley and Cutts (2022) provide evidence that suggests that parties may even attempt to contact some kinds of voters (undecided or weak partisans) using modes of contact that those voters tend to prefer. All this implies that parties will attempt to reach voters they deem more likely to be swayed their way. For example, viable parties in a constituency have a clear incentive to contact those voters who might defect a Most Preferred party that is not viable. Regardless of the specific motivation, insofar as parties are somewhat strategic in their outreach decisions, the impact of party contacts on tactical voting will be upwardly biased. It will appear that parties are more effective at changing voter behavior because estimates will partly reflect the fact that parties tend to contact voters who may already be likely to behave in the desired way. Notice that this bias does not rely on parties being very effective at targeting the 'right' voters; any tendency to target the more easily swayed voters will generate some amount of bias.

The BES data, however, has a significant advantage in its panel structure, containing infor-

mation for each voter multiple times during each election campaign. This structure allows me to control for parties' strategic targeting without being privy to their decision-making process. The key methodological insight is to use the earlier waves in an election to estimate parties' contact behavior and, from this, generate predicted contact probabilities for the final wave of the election. The impact of party contacts on tactical voting is then estimated using only the third wave, including these predicted probabilities as control variables. The predicted probabilities of contact do not use contact data from the final wave, thus providing a measure of parties' strategic targeting behavior that is separate from actual contacts conducted in the third (estimation) wave, which are the main independent variables.[30]

To implement this approach, I first estimate the probability that a voter is contacted by each party based on the individual- and constituency-level variables previously described.[31] This estimation only relies on the first two waves for each election (out of three) and focuses on all voters (regardless of whether their tactical voting incentive is positive or not). That is, I estimate:

$$P(Contact_{it}^p = 1) = \Lambda(\alpha^p + \beta^p x_{it}), \ t \in \{1, 2\}, \ p = \textit{Con, Lab, LD, SNP, PC, UKIP, Grn, Bxt} \quad (2)$$

where $Contact_{it}^p$ is an indicator that equals 1 if voter i reports being contacted by party p in the four weeks prior to wave t; x_{it} are the covariates described in the previous section; α^p and β^p are parameters for the equation for party p; and $\Lambda(\cdot)$ is a logistic link.

From the models in equation 2, I calculate predicted probabilities of contact for the third wave in each election. That is, I calculate:

$$PrContact_{i3}^p = \Lambda(\widehat{\alpha}^p + \widehat{\beta}^p x_{i3}), \ p = \textit{Con, Lab, LD, SNP, PC, UKIP, Grn, Bxt} \quad (3)$$

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[30]The predicted probabilities are of course correlated with actual contacts. In fact, this is how they can actually control for parties' strategic behavior.

[31]To avoid losing observations due to a voter not providing a feeling thermometer for a specific party, all missing values in the feeling thermometers are imputed with a zero. At the same time, I include a set of dummy variables indicating whether the feeling thermometer for each party is missing or not (so that the specific value of zero imputed does not influence the result itself). Please note that this imputation to zero is only used in the first stage estimation. It is not used to define the tactical voting incentives, nor in the main estimates obtained from the model in equation 4.

where $PrContact_{i3}^p$ is the predicted probability that individual i is contacted by party p in wave $t = 3$, based on the estimated parameters $\widehat{\alpha}^p$ and $\widehat{\beta}^p$ obtained using waves $t = 1$, 2 from equation 2.

For these predicted probabilities to be valid measures of the likelihood of contact for the third wave in each election, one must assume that parties' contact strategies remain constant throughout the campaign. That is, that the types of voters that parties contact do not differ systematically over time. In Appendix A, I show that this is likely to be the case. First, I show that the predicted probabilities estimated from the first two waves have a very high power to predict contact during the third wave. Additionally, I show that predicted probabilities estimated using data from the first two waves have a very high correlation with predicted probabilities estimated using data form the third wave. All of this strongly suggests that parties' contact strategies remain stable over time, at least with respect of observed characteristics.[32,33] Note that the stability of outreach strategies across waves does not mean that parties do not ramp up their campaign efforts closer to election day; in fact they do. The stability means that parties contact the same types of voters, just more of them more intensely.

Finally, to estimate the effect of party contacts on the probability of casting a tactical vote, I use a multinomial model that focuses exclusively on voters with a positive incentive to cast a tactical vote ($\tau_i > 0$). Specifically, I estimate:

$$P(y_{i3} = k) = \Lambda(\alpha_k + \beta_{k1}ContMP_{i3} + \beta_{k2}ContBA_{i3} + \beta_{k3}ContWA_{i3} + \gamma_k Controls_{i3}) \quad (4)$$

where y_{i3} is a categorical variable for individual i in wave $t = 3$ that indicates whether i abstained from voting ($k = 0$), voted sincerely ($k = 1$), voted tactically ($k = 2$); $contMP_{i3}$, $contBA_{i3}$, and $contWA_{i3}$ are the contact indices by i's Most Preferred, Best Alternative, and Worst Alternative

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[32]While in principle the could vary with respect to unobserved ones, this is unlikely: to the extent that unobserved characteristics are correlated in some way with the observed ones, these differences would manifest in some way.

[33]Núñez (2021) presents two other alternative ways to show that parties' contact strategies likely remain constant throughout each campaign, using the same data.

parties during the four weeks prior to wave $t = 3$. $Controls_{i3}$ are a set of control variables from wave $t = 3$ for each election. In addition to the variables described in the previous section, this model controls for the predicted probabilities of contact calculated in equation 3 (re-arranged into those for the Most Preferred, Best Alternative, and Worst Alternative parties). These predicted probabilities are the key control variables that account for parties' strategic outreach behavior. It should be highlighted that the model also controls for the feeling thermometers for the three parties during the third wave. This is key to disentangle the effect that contacts may have on tactical/expressive motivations, from the fact that contacts may also change voters' preferences; that is, to distinguish the encouragement of loyalty/defection from the traditional persuasion effect that operates through a change in preferences.

There two alternatives techniques that also exploit the panel structure of the data: fixed effects and lagged contact variables. The fixed effects approach faces two main challenges: the incidental parameters problem and a form of sample selection bias. Both of these have the potential to produce biased estimates.[34] The lagged contact approach is problematic because contacts in earlier waves are sparse, and thus cannot fully capture the endogeneity created by parties' strategic behavior. Appendix C presents estimates using these alternative approaches, discusses their pros and cons, and explains the preference for the predicted probabilities approach.

Additional results and robustness checks based on variation of the main model are described in Section 4.4 and presented in more detail in the Appendix.
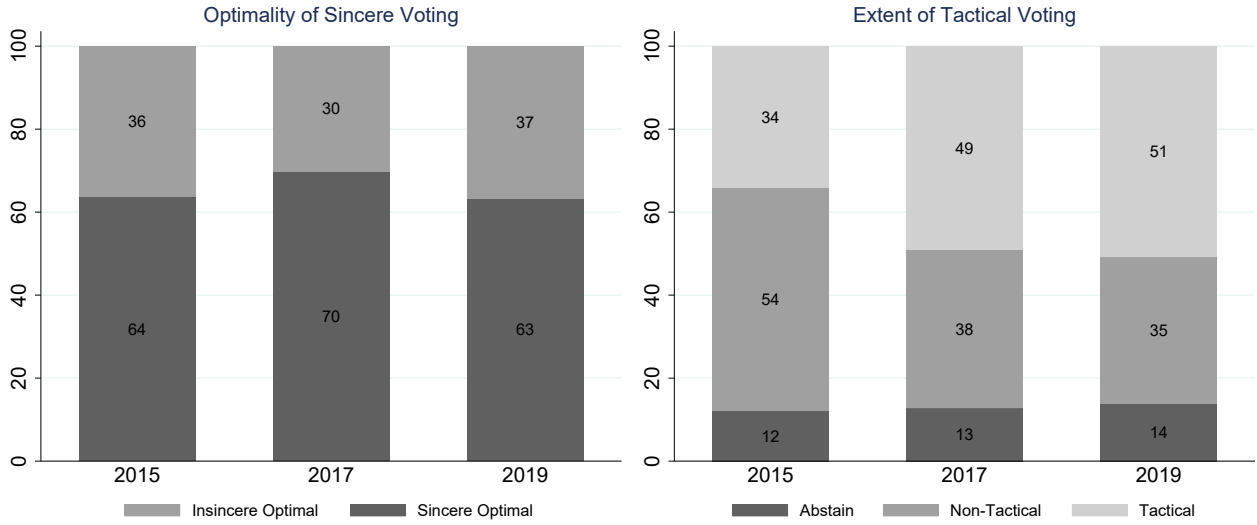
4   Results

4.1   Extent of Tactical Voting

Before analysing the effect of party contacts on tactical voting, it is useful to establish the potential for tactical voting, and its extent in the elections under study. The left panel of

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[34]However, these two problems can lead to bias in different directions, which may compensate each other.

Figure 1: Optimality and Extent of Tactical Voting

The left panel shows the proportion of the third wave sample for each election year that have a positive tactical voting incentive. The right panel shows the voting behavior of the subset of voters with a positive tactical voting incentive.

Figure 1 shows the percentage of voters in the sample for whom casting a tactical vote is the optimal decision, that is, voters for whom the tactical incentive is positive ($\tau > 0$). About a third or more of the electorate would benefit from casting a vote for a party other than their Most Preferred. This is a substantial proportion of the electorate. The right panel of Figure 1 shows the percentage of voters that voted tactically, non-tactically, or abstained, among voters for whom it is optimal to behave tactically. For 2015, about 34% of voters in a position to cast a tactical vote did so, a figure that is in-line with most previous research (see Alvarez, Kiewiet and Núñez, 2018). The percentage of voters casting a tactical vote, however, increases substantially for 2017 and 2019, to about 50% of voters in a position to cast a tactical vote.[35]
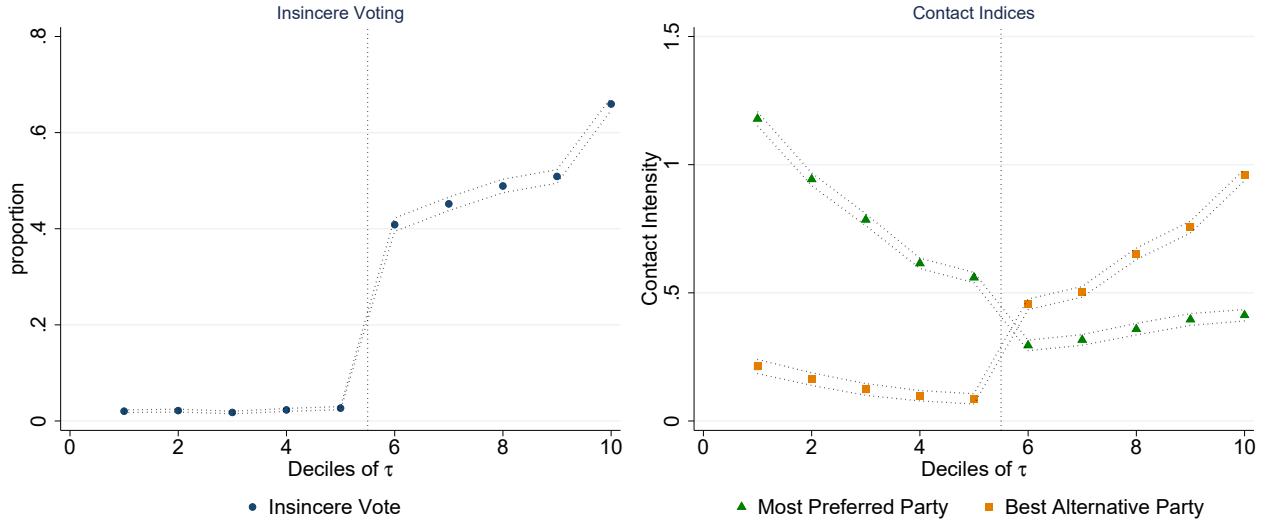
The left panel of Figure 2 shows how the proportion of voters casting a tactical vote for the Best Alternative party changes with the tactical incentive (τ).[36] This panel shows two things:

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[35]The reason for this is partly a change in voters' preferred parties. Whereas in 2015 a substantial proportion of voters with positive τ preferred the Liberal Democrats, for 2017 and 2019 the proportion of voters ranking the Greens, UKIP, or Brexit party as their top party increased.

[36]This figure uses proportions by deciles of τ for ease of exposition. Please note that these deciles are in reality constructed as the set of quintiles among positive values of τ, and the set the quintiles among the non-positive τs. This is to ensure that there is no decile containing both positive and negative values of τ.

first, an insincere vote for the Best Alternative party is extremely unlikely among voters with a negative τ; put another way, voters who would be hurt by voting insincerely, do not do so. Second, the proportion of voters who cast a tactical vote among those with an incentive to do so ($\tau > 0$), increases with the strength of that incentive.

Figure 2: Tactical Behavior & Incentive

The left panel shows the proportion of voters that cast their vote for their Best Alternative party. The right panel shows that average contact intensity for the Most Preferred and Best Alternative parties. The horizontal axis are the deciles of the tactical voting incentive. The dashed vertical line separates positive and negative values of the tactical incentive.

The right panel of Figure 2 shows the average contact index intensity by the Most Preferred and Best Alternative parties as a function of the tactical incentives. Two things are worth noting here, which highlight parties' strategic behavior. First, the intensity of contact by a voter's Most Preferred party is highest when the voter has no incentive vote tactically ($\tau < 0$), and drops noticeably when tactical voting is optimal ($\tau > 0$). Second, the intensity of contact by a voter's Best Alternative party follows a mirror pattern: it is lowest when the voter has no incentive behave tactically, and it increases noticeably when tactical voting is optimal.[37] This figure illustrates that parties' contact behavior is not immune to the tactical incentives faced by voters. While the patterns presented here could simply be a result of constituency
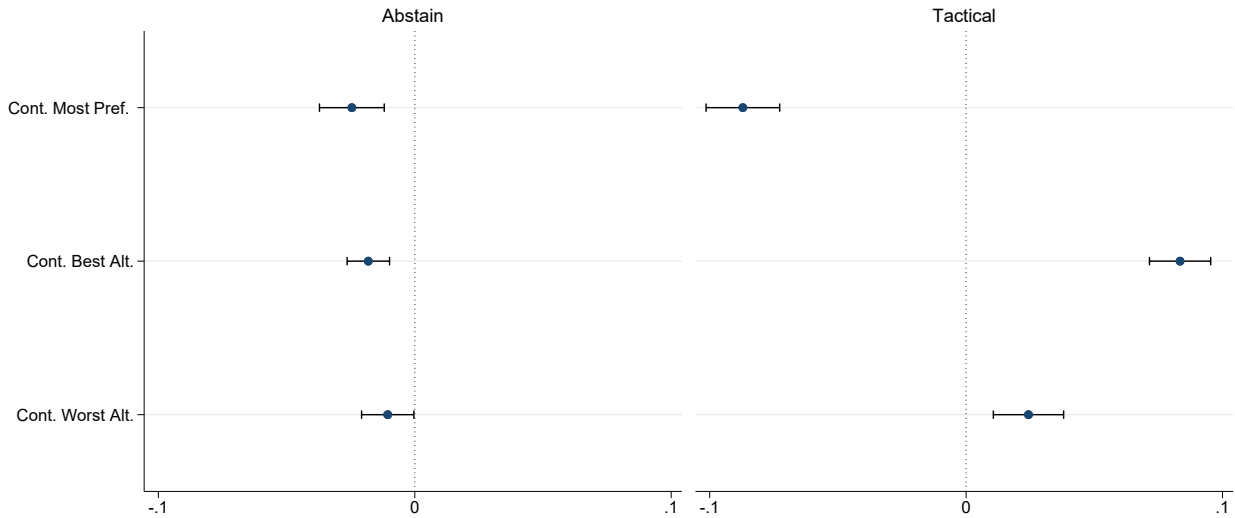
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[37]Contacts tend to be the least intense overall for voters with $\tau \approx 0$ (5th and 6th deciles). These tend to be voters in safe constituencies, where there is little to no incentives to vote one way or another.

level characteristics, I show in Appendix B.1 that this pattern holds even after accounting for constituency-level characteristics (although the pattern is less stark). This means that it is not sufficient to control constituency-level characteristics to account for the strategic behavior of parties (e.g., controlling for 'target seats'): contact intensity varies with tactical incentives within constituencies as well.

4.2 The Effect of Party Contacts on Tactical Voting

Figure 3 and Appendix Table F1 show the average partial effect of contact by the Most Preferred, Best Alternative, and Worst Alternative parties on the probability that a voter abstains or casts a tactical vote (the reminder is the probability that the voter cast a non-tactical vote) estimated using the model in equation 4.

Figure 3: Average Partial Effect of Party Contacts

Effects are average partial effects calculated from the model in equation 4. All confidence intervals are at the 95% level. Standard errors are clustered at the constituency level.

Contact by all three parties leads to a reduction in the probability of abstention. Contact by the Worst Alternative party reduces the probability of abstention by 1.1 percentage points, contact by the Best Alternative party reduces it by 1.8 percentage points, and contact by the Most Preferred party reduces it by 2.5 percentage points.

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In terms of the impact of party contacts on the probability of casting a tactical vote, contact by a voter's Most Preferred party leads to reduction of 8.7 percentage points in the probability of a tactical vote. Combined with the 2.5 percentage points reduction in the probability of abstention, this means that contact by the Most Preferred party increases the probability of a sincere vote by 11.2 percentage points. On the other hand, the impact of contact by the Best Alternative party leads to an increase of 8.3 percentage points in the probability of a tactical vote and a 6.5 percentage point reduction in the probability of a sincere vote. These results are thus consistent with hypotheses H1 and H2.
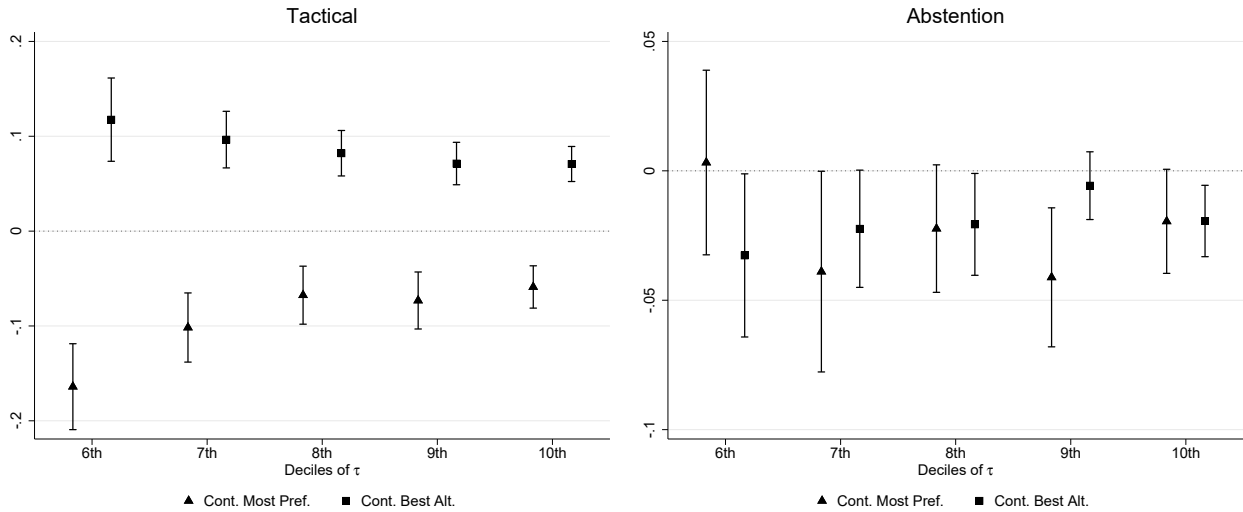
Contact by the Worst Alternative party leads to a small increase of 2.4 percentage points in the probability of casting a tactical vote, and a 1.4 percentage point reduction in the probability of a sincere vote. These effects are thus consistent with hypothesis H3. It is likely, then, that contact by the Worst Alternative party backfires, possibly by reminding the voter of the risks associated with casting a sincere vote.

Figure 3 also speaks to hypothesis H4, that the impact of the Best Alternative party on voter behavior should be larger than that of the Most Preferred party. The results presented here are not consistent with this hypothesis; contact by both parties has a similar impact (of opposite sign) on the probability of a tactical vote. Moreover, the effect of contact by the Most Preferred party is actually larger than that of the Best Alternative party (although the difference is not statistically significant), which is contrary to expectations. The effects on abstentions are also not consistent with H4, as the impact of contact by the Most Preferred party on abstentions is larger than that of the Best Alternative party.

As noted in Section 2, the impact of party contacts voter behavior should depend on the strength of the positive incentive to cast a tactical vote, which was summarized in hypothesis H5. Figure 4 shows the impact of contact by the Most Preferred and Best Alternative parties for voters in the different (positive) deciles of the tactical voting incentive. These estimates were obtained using a modified version of the model in equation 4 in which the contact variables are

interacted with dummy variables for the tactical voting incentive deciles.

Figure 4: Average Partial Effects by Strength of (Positive) Tactical Incentives

Estimates are based on a version of equation 4 that includes interaction terms between the contact indicators and dummy indicators for the deciles of the tactical incentives. All confidence intervals are at the 95% level. Standard errors are clustered at the constituency level. Only the 6th to 10th deciles are included since the other deciles have negative tactical voting incentives.

The results presented here are consistent with hypothesis H5. Among voters with a positive incentive to vote tactically (6th decile of τ and higher), the stronger the incentive, the more muted the effect of party contacts. This is true for both contact by the Most Preferred and by the Best Alternative parties (although weaker for the latter).[38] Appendix B.5 presents evidence that shows that this pattern also holds when interacting the contact indices with the closeness of the race between the viable parties and with the distance from contention of the Most Preferred party. There is no evidence, however, that the effectiveness of party contacts varies with the utility difference between the viable parties.

The right panel of Figure 4 shows how the impact of contact by the Most Preferred and Best Alternative parties on abstentions differ by the deciles of the tactical voting incentive. Contrary

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[38]These effects are also statistically significant. The difference between the 6th and the 7th deciles for contact by the most preferred party is statistically significant with a χ^2 test-statistic of 4.22 and a p-value of 0.0399. In the case of contact by the best insincere party the difference between the 6th and the 7th decile is not significant at the usual significance levels, but the difference between the 6th and the 8th is, with a χ^2 test-statistic of 3.40 and a p-value of 0.0653

to tactical voting, there is no clear pattern emerging here. This suggests that abstention does not respond to the strength of tactical incentives. Instead, the tactical voting increase is the result of a choice between casting a tactical and sincere vote.
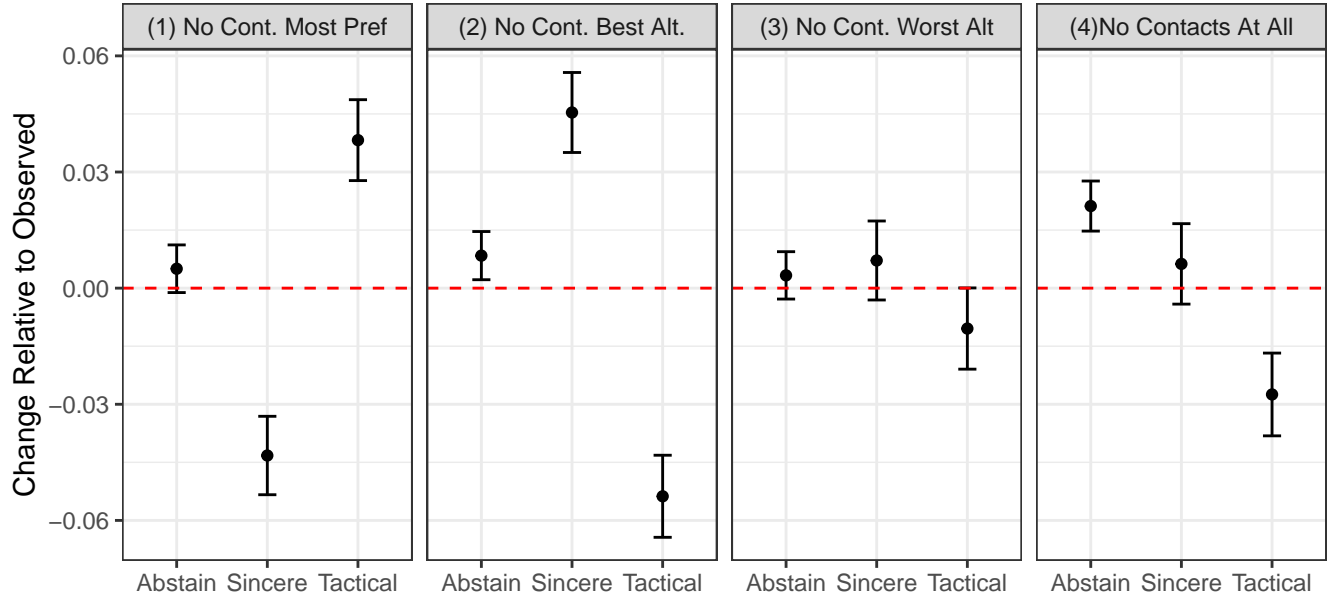
4.3 Partial Counterfactuals

The average partial effects in Figure 3 can only present an incomplete picture of the impact of party contacts on tactical voting, as they only measure the impact of contact at the individual-voter level. These effects, however, do not consider that parties contact vastly different number of voters, as Figure 2 shows. Among voters with a positive incentive to cast a tactical vote, the Most Preferred party is less intense in their contact efforts than the Best Alternative party.

To obtain a measure of the overall impact of party contacts among voters with a positive tactical incentive, I conduct a series of four partial counterfactual exercises. The first counterfactual assumes that every voter's Most Preferred party does not contact them at all. The second one assumes that every voter's Best Alternative party does not contact them. The third one assumes that every voter's Worst Alternative party does not contact them. The fourth partial counterfactual assumes that neither of these three parties contact any voters. All these counterfactuals are compared to the in-sample proportion of abstentions, tactical, and sincere votes among voters with a positive incentive to cast a tactical vote ($\tau > 0$).

It is important to note here that these counterfactuals are only *partial* counterfactuals, in the sense that the change in the behavior of a party is assumed not to generate any kind of strategic response by the other parties. This is of course unlikely to occur in reality, as parties are likely to respond to each other's actions and reach a new game-theoretical equilibrium. However, these partial counterfactuals allow for a better understanding of the magnitudes of the impact of party behavior on tactical voting, as well as glance into the forces involved in parties' strategic considerations out of the equilibrium path.

Figure 5 presents the four counterfactuals (see also Appendix Table F4). Each panel shows the the difference between the counterfactual proportion of abstentions, sincere, and tactical

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Figure 5: No Contact Partial Counterfactuals

The counterfactuals are calculated form the model estimated in equation 4, by obtaining the probability of each outcome assuming the specific party behavior of each counterfactual. All figures show the difference between the counterfactuals and the in-sample observed behavior. Confidence intervals at at the 95% level.

votes, relative to those observed in-sample. For the first counterfactual, where it is assumed that each voter's Most Preferred party conducts no direct voter outreach, we see that sincere voting would be 4.3 percentage points less likely, whereas tactical voting would be 3.8 percentage points higher (the impact on abstentions is positive but not distinguishable from zero). The second counterfactual, in which the Best Alternative party conducts no contacts shows that sincere voting would be 4.5 percentage points higher, while tactical voting would be 5.4 percentage points lower. Additionally, there would be slightly more abstentions (0.8 percentage points). The third counterfactual shows that contact by the Worst Alternative party would have little impact on voter behavior, except perhaps for a small increase in tactical voting.[39] Finally, the fourth counterfactual shows the combined impact of the previous three. Overall, had parties not contacted voters with an incentive to cast a tactical vote, there would have been higher levels of abstentions (2.1 percentage points) and tactical voting would have been 2.8 percentage

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[39]This is the result of relatively small average partial effects combined with relatively few contacts being conducted by each voter's Worst Alternative party.

points lower than observed in-sample. The impact on sincere voting is a small increase that is not statistically different from zero.

To summarize, these counterfactuals show that contact by the Most Preferred and Best Alternative parties have a significant impact on the levels of tactical voting. The impact of the Most Preferred party is somewhat weaker than that of the Best Alternative party. This may sound as as confirmation of hypothesis H4. However, H4 is about the impact of contact on individual voters, which is best tested using average partial effects as in Figure 3 (from which H4 was rejected). Instead, the weaker overall impact of the Most Preferred party comes from the behavior of the parties rather than the voters: the Most Preferred parties tend to conduct less voter outreach in less intense ways than the Best Alternative party among voters with positive tactical incentives. And this is perfectly rational on the part of the parties: the Most Preferred parties are unlikely to win the seat, which reduces the incentives to campaign in a particular constituency.[40]

4.4   Robustness Checks and Additional Results

A series of appendices show additional results as well as robustness checks. Appendices B.2 and B.3 show heterogeneous effects by Most Preferred party and by election year. The main results hold across Most Preferred parties and year, with some heterogeneity observed across Most Preferred parties. Appendix B.4 presents results that rely on contact indicators for each contact mode rather than the contact indices used in the main results. The main results hold for most of the different contact modes. Differences between contact modes cannot be statistically distinguished due to relatively large standard errors for most contact modes. Appendix B.5 shows how the main effects vary by the different inputs of the tactical incentives measure. Appendix B.6 shows that there is no impact of party contacts on tactical behavior among voters *without* and incentive to behave tactically, thus providing a placebo test for the

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[40]This does not mean that the Most Preferred parties (or volunteers on their behalf) will not conduct any campaigning at all. After all, winning a seat is not the only motivation that will drive party behavior, although arguably, it may be the strongest one.

main results. Appendix B.7 shows the degree of overestimation of the main effects when not controlling for parties' strategic targeting behavior.

Appendix C shows estimates using two alternative estimation methods: fixed effects and lagged contact variables. The fixed effects results are very similar to those presented in the main text. The lagged contact results show larger effects, which is consistent with lagged contacts failing to fully capture the strategic targeting behavior of parties.

Appendix D.1 reproduces the main analysis using ideological closeness between parties and voters as a measure of utility. The results are generally consistent with those presented here, with some differences: (1) a larger proportion of voters would benefit from tactical voting, (2) a larger proportion of those with positive tactical incentives behaves tactically, and (3) the effect of party contacts on tactical voting is somewhat smaller. Appendix D.2 utilizes 'subjective' pivotal probabilities of 'objective' ones to measure tactical incentives. These results also lead to similar conclusions, with a few differences: (1) there is a smaller proportion of voters who would benefit from tactical voting, and (2) the impact of party contacts on tactical voting is slightly smaller, except for contact by the Worst Alternative party, which is noticeably larger.

Finally, Appendix E estimates the impact of party contacts on tactical voting using data from the 2019 Canadian General Election. The results are largely consistent with those presented here for the UK. An important caveat of the analysis of Canadian data, however, is that it relies on cross-sectional data. As such, it is not possible to fully control for the endogeneity problem associated with parties' strategic outreach behavior. Therefore, these results should be interpreted with caution.

5   Conclusion

While there is a relatively rich literature on tactical voting, its focus is predominantly on measuring its extent. This is of course vital, as understanding the extent of tactical voting establishes its relevance as an observed political behavior rather than an interesting theoretical possibility. Less attention has been paid, however, to the factors that may drive voters to behave

tactically or not. Most known correlates of tactical voting behavior are limited to demographic characteristics and electoral circumstances; factors over which electoral participants do not have any agency during short-term course of a campaign.

This article fills a gap in the literature by studying the impact of direct voter outreach conducted by local party campaigns on the probability that voters remain loyal to their Most Preferred party (thus casting a sincere vote) or defect in favor of a viable one (thus casting a tactical vote). While campaign effects have been studied extensively in the United Kingdom, there is little focus tactical voting behavior explicitly.

I find that party contact efforts have an important impact on the electoral behavior of voters with a positive incentive to behave tactically. First, there is clear evidence that contact by the Most Preferred, Best Alternative and Worst Alternative parties encourages turnout among these voters. Second, and more important, contact by a voter's Most Preferred party encourages loyalty and consequently a sincere vote; whereas contact by a voter's Best Alternative party encourages defection in the form of a tactical vote. Interestingly, and contrary to expectations, the extent to which Most Preferred parties encourage loyalty is about the same as the extent to which Best Alternative parties encourage defection. Third, the impact of party contacts on tactical behavior is strongest among voters with the weakest (but positive) incentives to cast a tactical vote. The results are robust to alternative ways of implementing the tactical incentives measure used in the article, as well as alternative estimation methods. Additionally, estimates from the 2019 Canadian General Election show qualitatively similar results.

While the impact of contacts by the Most Preferred and Best Alternative parties are similar at the individual voter-level, these parties conduct campaigns of different intensities. A comparison of the observed in-sample voter behavior to a partial counterfactual in which parties do not conduct direct voter outreach, shows that the impact of the Best Alternative parties is larger than the Most Preferred ones: thus the defection effects of campaigns tend to outweigh the loyalty effects, leading to overall higher levels of tactical voting.

While results presented here come from the UK and, to some extent, Canada, they are likely

to apply to other established multiparty systems where electoral results provide voters with some incentives to behave tactically. And these results important normative implications. Tactical behavior is not an inherent characteristic that voters may or may not possess. Instead, it is the result of voters' beliefs, preferences, information, values, and as shown here, parties' campaigns. If one is purely motivated by the outcome of elections (and the governments formed thereafter), the results presented here suggest that contact by Best Alternative parties and the consequent increase in tactical voting can enhance voters' political efficacy: it helps voters elect, at the very least, a 'less bad' government. However, this view presumes that the information, signals, or cues revealed by party campaigns are accurate and truthful. It also presumes that parties are not misleading. This is not always the case,[41] although Gschwend and Meffert (2017) argue that voters, especially those with an incentive to behave tactically, 'are not fools' and often treat information with skepticism. However skeptical voters may be, this type of influence of campaigns on voting behavior also provides an additional avenue for a role of money in politics, potentially swaying outcomes in favor of those who control it.

In the longer term, the instrumental voter behavior encouraged by party campaigns can also lead to a consolidation of the party system into a smaller, but more viable set of parties (Downs, 1957), potentially improving representation in the long term if minority views can coalesce around a viable alternative. However, this type of representational improvement is far from guaranteed, as (1) minority views may fail to coordinate to create a viable alternative (or may have insufficient numbers to form one), and (2) newly emerging minority views (initially small in numbers) may completely fail to mature due to tactical defections.

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[41]For example, the Liberal Democrat candidate for the Epsom and Ewell Constituency in the 2019 UK General Election campaigned on leaflets depicting the party as the best alternative to defeat the Tories (misleadingly) using prior European Election results (where Liberal Democrats ranked second) instead of prior Westminster results (in which Labour was second).

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Appendix A   Validity of Contact Probabilities

The methodological insight used to control for parties' strategic contact behavior relies on the assumption that parties' strategies remain roughly the same throughout the each campaign. That is, it requires that the party contact strategies remain stable over time, within each election. Under this assumption, the predicted probabilities of contact estimated using data from the first two waves provide a reasonable approximation to parties' intention to contact specific types of voters during the final survey wave.

I provide two pieces of evidence suggesting that party contact strategies remain stable within each campaign. Table A1 shows the correlation between the predicted probabilities estimated from equation 2 by using data for the first two waves, and those obtained by using data from the third wave in each election. The very high correlation in the vast majority of cases indicates that parties are likely using the same contact strategies in the final wave, compared to the previous two.[1] There are some party-years for which the correlation is lower: UKIP in 2017, and Brexit for 2019. However, while lower, these correlations are still substantially high.

Table A1: Correlation of Predicted Probabilities: Pre & Post Election

	2015	2017	2019
Con	0.87	0.90	0.85
Lab	0.95	0.97	0.96
LD	0.95	0.97	0.94
SNP	0.95	0.97	0.96
PC	0.89	0.95	0.96
Grn	0.90	.	0.87
UKIP	0.77	0.67	.
Bxt	.	.	0.72

Table A2 shows the ratio between the R^2 of two regressions. The numerator comes from a model that regresses the contact index for a particular party during the third wave on the predicted probabilities of contact (from the first two waves) plus all control variables used in

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[1]Note that high correlations do not mean that the probabilities are at the same levels in the third wave relative to the others. In fact, contact probabilities are higher across the board for the third wave because campaigns efforts are more intense closer to election day. They do show, however, the the higher the contact probability in the first two waves, the higher the contact probability in the third wave.

equation 2. The denominator comes from a similar model that only includes only the predicted probabilities as independent variables (and no other variables). The ratios presented in Table A2 are all substantially high, which indicates that all the control variables included first model add relatively little predictive power to the contact probabilities. Put another way, the predicted probabilities estimated from the first two waves are, by far, the dominant factor in predicting the contact index during the third wave. If party contact strategies were not attempting to contact the same types of voters, then these ratios would be substantially smaller, as specific characteristics (captured by the control variables) would have more predictive power.

Table A2: Predicted Power of Predicted Probabilities

	2015	2017	2019
Con	84.93	79.16	84.37
Lab	91.52	94.03	91.46
LD	91.39	93.50	89.31
SNP	93.54	96.82	97.35
PC	96.31	96.23	95.31
Grn	86.59	.	65.77
UKIP	65.97	61.85	.
Bxt	.	.	70.88

Using the same data, but for a different purpose, Núñez (2021) shows that (1) the average characteristics of voters contacted by each party do not differ between survey waves in the same election; and (2) that random forests models trained on data for different survey waves result in predictions for the other waves that have high levels of agreement. This provides additional evidence that the contact strategies of parties' remain relatively stable throughout each election campaign.

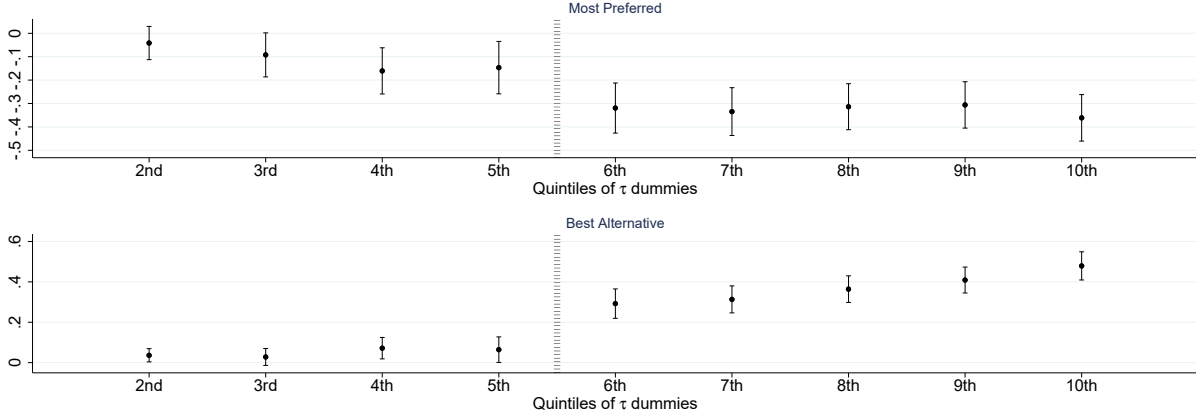# Appendix B   Additional Results

B.1   Contact Variation by Tactical Incentives

Here, I show that parties' contact strategies vary with individual tactical incentives, even when holding constituency-level incentives constant. To do so, I estimate a model in which the outcome variable is the contact index for a given party and the independent variables include deciles of the tactical voting incentives, and a variety of demographic characteristics described in the data section. Importantly, this model also includes fixed effects by Most Preferred party, fixed effects by constituency, and the average tactical incentive for individuals who prefer the same party in the same constituency.[2] The inclusion of these fixed effects together with the average tactical incentive mean that the estimates of the coefficients for the deciles of the tactical voting incentive are within most-preferred party, within constituency, and controlled for the average tactical incentive for voters in the same constituency and who prefer the same party. Should parties only vary their behavior at the constituency level without any individual-level component, the the coefficients for the deciles should be zero. However, Figure B1 shows this is not the case. The individual-level tactical incentives have some power in predicting party contacts. This is most evident when comparing the effects of the negative and positive deciles of the tactical incentives. This implies that, within Most Preferred party and constituency, individual tactical voting incentives are still predictive of party contacts.

Overall, the evidence presented here implies that controlling for constituency-level party behavior (like 'target seats') is not sufficient to account for the strategic behavior of parties. Even within constituencies, parties show a tendency to select specific types of voters for contact, including behavior that correlates with individuals' tactical voting incentives.

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[2]Ideally, one would include constituency-most-preferred-party fixed effects. However, this presents a severe estimation problem since the sample sizes are not sufficiently large to estimate such a model (it would require some 4,000 dummies). Therefore, the use of the average tactical incentive by constituency-most-preferred-party is intended to approach these.

Figure B1: Contact Indices by Tactical Incentives (after controls)
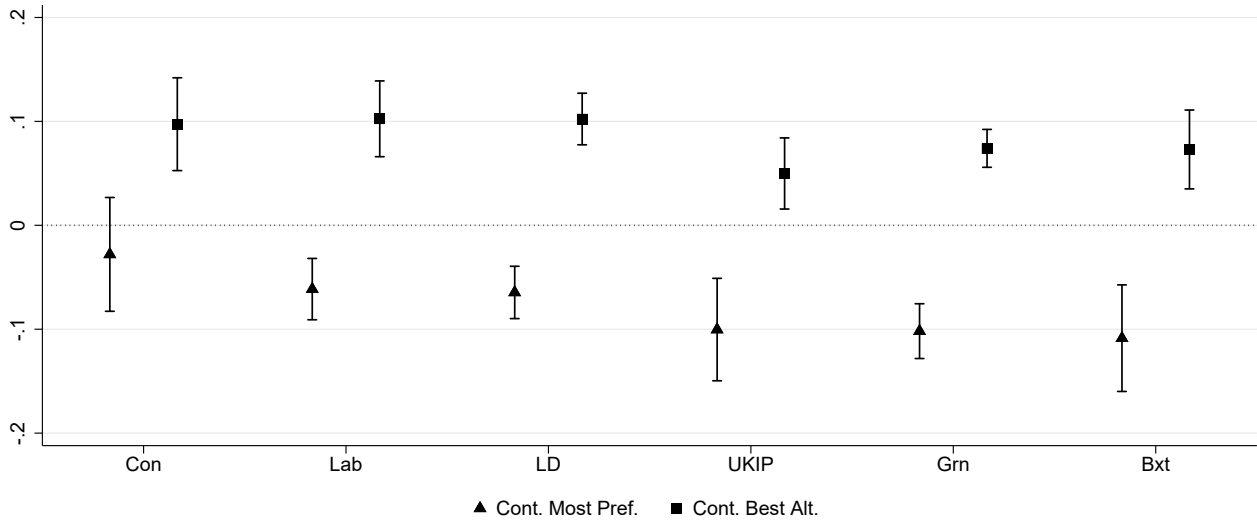

B.2 Heterogeneous Effects By Party

Figure B2 shows the impact of contact by the Most Preferred and Best Alternative parties on the probability of casting a tactical vote for voters with different Most Preferred parties. These estimates are obtained from a model like equation 4, but where the contact indices are interacted with dummy variables indicating each voter's Most Preferred party.[3] The results show that the impact of party contacts is not driven exclusively by supporters of any one party; instead, supporters of all parties respond to party contacts: they become less likely to cast a tactical vote when contacted by their Most Preferred party and more likely to cast a tactical vote when contacted by their Best Alternative party. There are some differences in the size of effects, however.

The impact of contact by the Most Preferred party on the probability of casting a tactical vote is typically smaller among supporters of the three long-established parties, Conservatives (2.8%, not significant), Labour (6.1%), and Liberal-Democrats (6.5%) than for the less-established parties, UKIP (10%), Greens (10.2%), and Brexit (10.9%). Simultaneously, the impact of contact by the Best Alternative party follows the opposite pattern, being stronger

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[3]Please note that the results do not include the Scottish National Party, as there are almost no voters who preferred this party and had a positive incentive to cast a tactical vote. Results for Plaid Cymru are not included here as the number of voters who preferred this party and have a positive incentive to cast a tactical vote is relatively small in the sample and the standard errors are thus very large. Results for PC are nonetheless included in Table F3 for reference.

among supporters of the more established parties (9.7% for Conservatives, 10.2% for Labour, and 10.2% for Liberal-Democrats) and weaker among supporters of the less-established parties (5.0% for UKIP, 7.4% for Greens, and 7.3% for Brexit).

Figure B2: Heterogeneous Effects by Most Preferred Party

Estimates were obtained from a model similar to equation 4 that includes interaction terms between the contact indicators and dummy variables for voters' Most Preferred parties. All confidence intervals are at the 95% level. Standard errors are clustered at the constituency level. Results for SNP and PC are not included due to limited data.
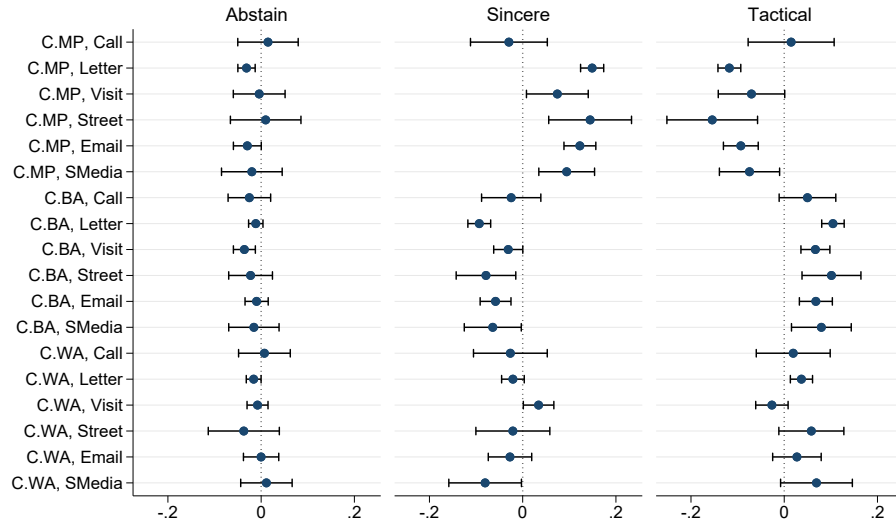
It is not clear why these differences between the more established and less established parties exist. One possibility is that voters who are supporters of the less established parties are less responsive to contact by their Best Alternative party simply because they are already more likely to cast a tactical vote. This may be due to the fact that these parties rarely, if ever, win seats in Parliament. However, it is not possible to test this with the currently available data (as it involves more long term trends and reasons behind belief formation that are outside of the scope of this article).

B.3   Heterogeneous Effects by Election Year

Figure B3 shows how the impact of party contact varies by election year. These results are obtained from a model similar to equation 4 that includes interactions between the contact

indices and the election year. Despite the electoral environment being quite different across the three General Elections considered here, the impact of party contact on voter behavior is fairly similar. None of the differences in effect sizes are statistically different by year.

Figure B3: Heterogeneous Effects by Year

Estimates were obtained from a model similar to equation 4 that includes interaction terms between the contact indicators and dummy variables for election years. All confidence intervals are at the 95% level. Standard errors are clustered at the constituency level.

B.4   Heterogeneous Effects by Contact Mode

The main independent variables used in the article are indices that count the number of modes in which a particular voter was contacted by a party. Figure B4 presents the average partial effects from a model that instead uses dummy indicator variables of of the Most Preferred, Best Alternative, and Worst Alternative parties for each of the 6 modes of contact considered in this article: phone call, letter, home visit, street canvassing, email, and social media.

Overall, the estimates presented in Figure B4 show a similar picture to the main results in Figure 3 (which used the contact indices). Contact by the Most Preferred party increases the probability of a sincere vote, which is consistent with H1. This effect is observed for all modes of contact except phone calls.[4]   In terms of the impact of contacts by the Best Alternative

[4]The non-significant result for phone calls is likely due to the relatively small number of voters in the sample

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Figure B4: Heterogeneous Effects by Contact Modes

Estimates were obtained from a model similar to equation 4 that uses contact mode indicators instead of contact indices. All confidence intervals are at the 95% level. Standard errors are clustered at the constituency level.

party, most modes of contact show results consistent with H2; that is, contacts lead to a higher probability of a tactical vote and a lower probability of a sincere vote. Similar to the Most Preferred party, contacts conducted by phone calls have no statistically significant effect. In terms of the impact of contacts by the Worst Alternative party, most modes of contact have no statistically significant effect on voter behavior. However, the signs of the effects are generally consistent with H3. The only almost exception is that of contacts occurring as a home visit, which show an effect contrary to H3 (not statistically significant, but close).

Overall, it is hard to discern specific patterns when comparing the different modes of contact, partly due to the fact that for many of them there is a high level of uncertainty. That said, there are a few observations worth making. First, phone calls do not seem to have any impact on voters' decisions. It is likely this null impact is the result of the relatively few phone contacts reported by respondents in the sample. Second, contacts by mail seem to be stronger than other modes (although tests comparing coefficients do not find statistically significant differences due to high uncertainty in most of them). Additionally, the effects of contact by mail as the ones

that report being contacted in this manner.

with the highest precision, likely a reflection of the large proportion of respondents reporting having been contacted in this way.

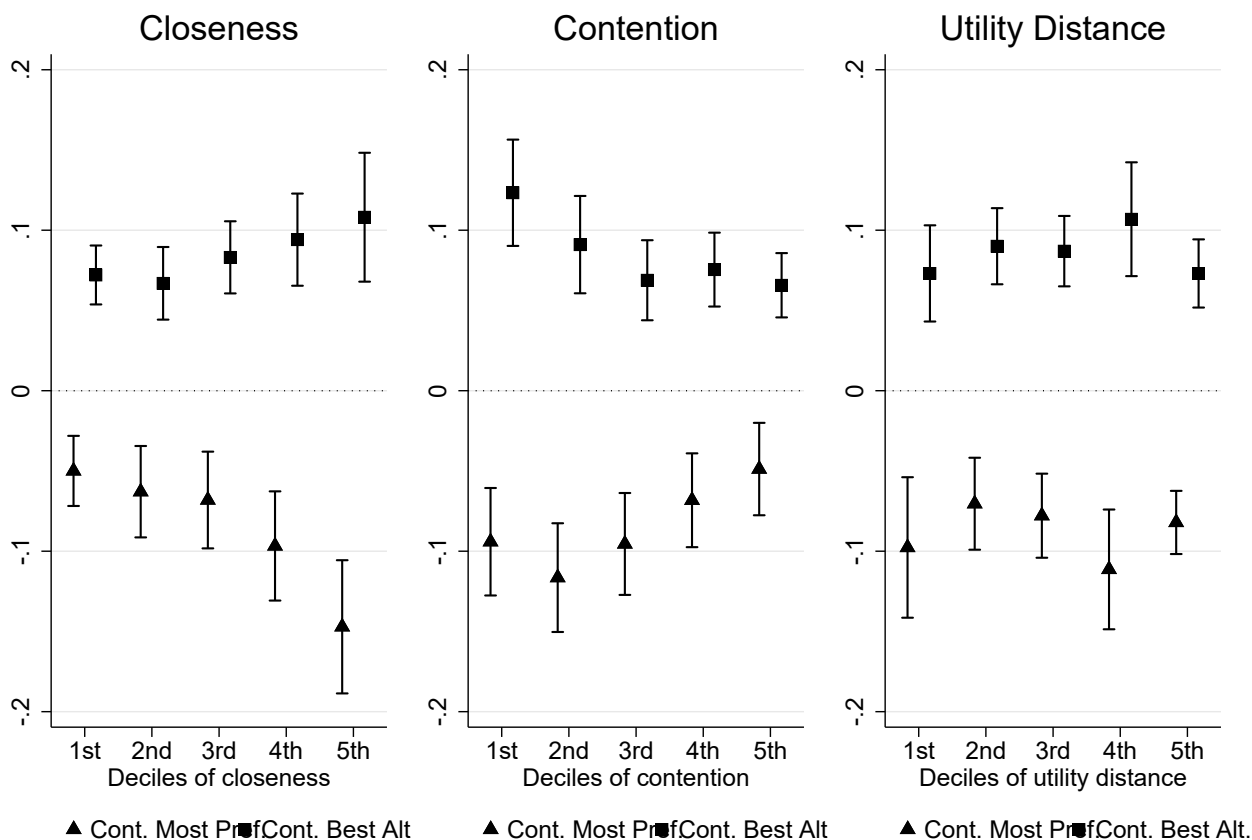## B.5 Disaggregation of the Tactical Incentives Measure

The results in this subsection consider how the impact of party contacts on tactical voting varies with the strength of tactical incentives, disaggregated for three factors that influence this measure: the closeness of the race between the viable parties, the distance from contention of the Most Preferred party, and the utility distance between the (viable) Best and Worst Alternative parties. Based on hypothesis H4, we should expect a closer race (higher tactical incentives) to be associated with smaller contact effects; a higher distance from contention (lower tactical incentives) to be associated with larger contact effects; and a greater utility distance between viable parties (higher tactical incentives) to be associated with smaller contact effects.

Figure B5 presents the average partial effects from a version of the main model in equation 4 that interacts the contact indices with quintile indicators of closeness, contention, and utility distance. The use of quintile indicators for these variables, rather than the variables themselves, is to avoid imposing linearity in the interaction effects. The results based on electoral closeness between the viable parties and distance from contention for the Most Preferred party confirm hypothesis H4: the stronger the tactical incentives, the weaker the effects of party contacts. However, there is no evidence that the impact of party contacts varies by the utility distance between the viable parties. As such, the variation of the effect of party contacts with tactical incentives is predominantly explained by the electoral circumstances in a constituency (voter pivotality) rather than by voter preferences.

B.6 Placebo: Effect on Voters without Tactical Incentive

The argument in this article is that party contacts alter the probability that a voter casts a tactical vote versus a sincere one. Naturally, it thus focuses on voters with a positive incentive to cast a tactical vote. Voters *without* an incentive to cast a tactical vote, then, should not

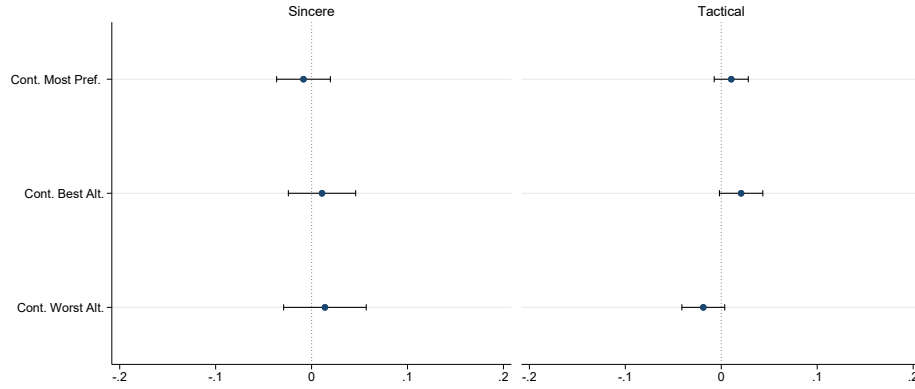## Figure B5: Contact Effects by Tactical Incentive Factors

Estimates were obtained from a model similar equation 4 that includes interaction terms between the contact variables and quantile indicators for closeness, distance from contention, and utility distance between viable parties. All confidence intervals are at the 95% level. Standard errors are clustered at the constituency level.

behave more nor less sincerely when contacted by their Most Preferred, Best Alternative, and Worst Alternative parties. This appendix tests this proposition and, as such, it serves as a placebo test on the main estimates presented in Figure 3.

Figure B6 shows that contact by the Most Preferred, Best Alternative, and Worst Alternative parties do not encourage nor discourage tactical voting behavior among voters *with no incentive* to cast a tactical vote. All point estimates are quite small (when compared to those in Figure 3) and they are not statistically significant (although some of the effects are close to statistical significant). While these results are not the perfect placebo test, they do provide a higher confidence that the results presented in the main text are indeed measuring how party contacts

induce tactical/sincere behavior in voters, rather than conflating them with other potential effects of party contacts (like changes in voter preferences).

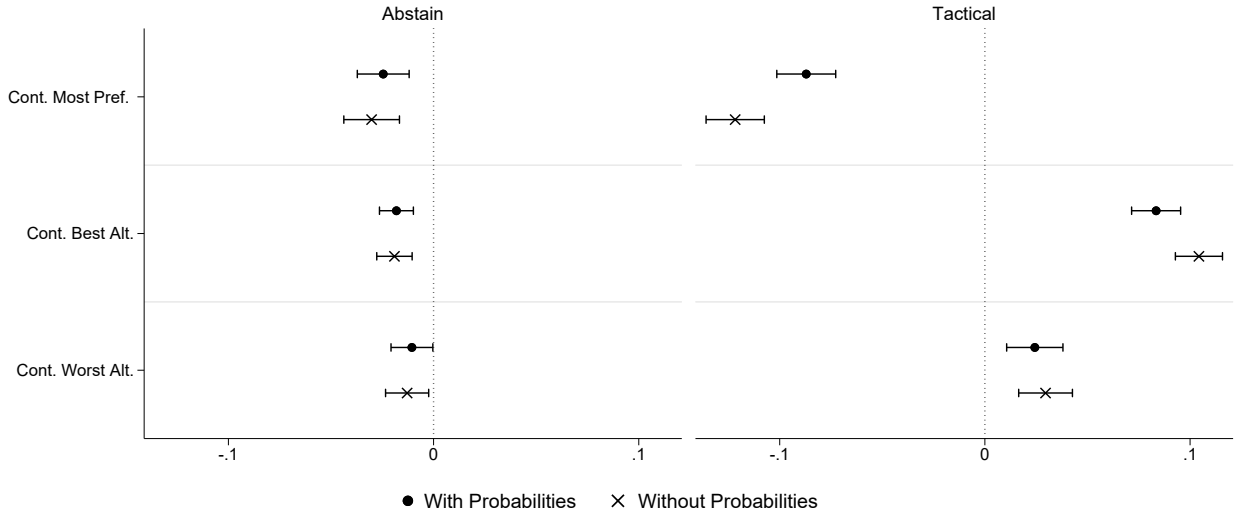Figure B6: Placebo: Average Partial Effect of Party Contacts

Effects were estimated from the model in 4, but with the sample of voters without incentives to cast a tactical vote. All confidence intervals are at the 95% level. Standard errors are clustered at the constituency level.

B.7 Overestimation

As argued in the introduction and the methods sections (and illustrated in Appendix B.1), parties do not contact voters at random. But, to what extent does ignoring this strategic behavior by parties lead to overestimation of the effect of party contacts?

Figure B7 shows estimates from two versions of the model in equation 4. The first is the main model that includes the predicted probabilities of contact and was already presented in Figure 3. The second uses the same model as in equation 4, but does not include the predicted probabilities of contact as control variables (all other control variables are the same). Comparison of the estimates of average partial effects from both models show that there is fairly little overestimation in terms the impact of party contacts on the probability of abstention. However, there is some substantial overestimation of the impact of contact by the Most Preferred and Best Alternative parties on the probability that voters cast tactical vote. For example, the impact of contact by the Most Preferred party on tactical voting is overestimated by 40% when contact probabilities are not controlled for; whereas the impact of contact by the Best

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Figure B7: Overestimation when not Controlling for Predicted Probabilities

Estimates come from two versions equation 4, which only differ by the inclusion of the predicted probabilities All confidence intervals are at the 95% level. Standard errors are clustered at the constituency level.

Alternative party is overestimated by about 25%.

Appendix C   Alternative Estimation Techniques

This appendix replicates the main results using two estimation techniques that also aim to control for parties' strategic outreach behavior.

The first alternative technique is to use all three waves for each election, and include fixed effects for each individual voter. This fixed effects model also focuses exclusively on voters with an incentive to cast a tactical vote ($\tau > 0$). Thus, the fixed effects model estimates the following equation:

$$P(y_{it} = k) = \Lambda(\alpha_{ik} + \alpha_k + \beta_{k1}ContMP_{it} + \beta_{k2}ContBA_{it} + \beta_{k3}ContWA_{it} + \gamma_k Controls_{it}) \quad (5)$$

where y_it is a categorical variable for individual i in wave t that indicates whether i intends to abstain ($k = 0$), cast a sincere vote ($k = 1$), or cast a tactical one ($k = 2$).[5] $ContMP_{it}$, $ContBA_{it}$,

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[5]For the final wave, y_{it} is reported behavior, rather than intended behavior, as wave $t = 3$, is a post-election

and $ContWA_{it}$ are contact indices by i's Most Preferred, Best Alternative, and Worst Alternative parties during the four weeks prior to wave t; α_k is a choice-specific intercept; and α_{ik} are choice-specific individual-level fixed effects. $Controls_{it}$ are a set of time-varying control variables, which include feeling thermometers for each of the parties, as well as a measure of political attention. This model does not include control variables for any demographic characteristics since these do not vary over time and are therefore captured by the fixed effects (α_{ik}). Finally, Λ is the logistic link function.

The second alternative technique is similar to the main model described in equation 4, but instead of controlling for the predicted probabilities derived from equation 2, it directly controls for contacts that occurred in the previous survey wave; that is, it uses the lagged contact variables.

Both of these alternative estimation techniques are feasible. Given that parties' contact behavior is stable over time (see Appendix A) and that it is unlikely that voters will have dramatic changes in their general views within an election campaign, thinking of the endogeneity problem as time-invariant unobserved heterogeneity is reasonable. As such, the fixed effects model can control for this endogeneity problem. There are, however, a few potential problems in using fixed effects. First, non-linear models with fixed effects, like the one used here, suffer from the incidental parameters problem due to the limited number of time periods for each election (see Neyman and Scott, 1948; Coupe, 2005). This introduces bias in parameter estimates. This bias is typically much less severe in estimates of average partial effects, the main quantity of interest in this article, so it may not be a severe bias. Second, fixed effects models only use units (voters) with variation in the outcome over time, with the rest discarded. This can introduce a form of sample selection bias: voters who change their decision from wave to wave are different than those that remain steadfast in their choices. This sample selection bias can translate into bias in the main estimates if the impact of party contacts differs substantially between the aforementioned two groups of voters (Beck, 2018, 2020). Third, and related to this, the fixed effects may absorb a very significant portion of cross-sectional variation leading
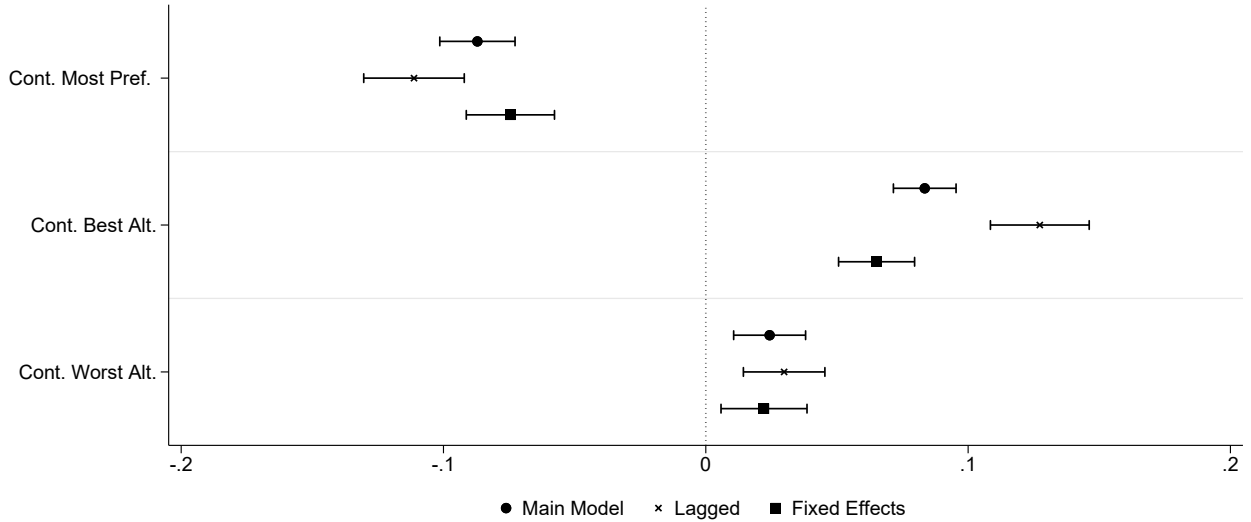
survey in each cycle.

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to high uncertainty in the estimates, beyond what is needed to control for heterogeneity (Beck and Katz, 2001). These three potential problems are the reason for preferring the predicted probabilities approach to the fixed effects approach.

Using the same argument as for fixed effects models, the lagged contact variables are also a reasonable way of controlling for the endogeneity problem: past contact should reflect that parties were intent in interacting with the voter. The challenge in this case is a practical rather than theoretical one. Contacts in the pre-election waves are much sparser than for the election wave in each cycle. As such, it is likely that parties may intend to contact a certain voter but haven't yet done so. Therefore, the lagged contact variable as a proxy for parties' intent to contact certain voters will have many "false negatives": voters the party wishes to contact (and may indeed contact in the final wave of the campaign), but has not yet done so. If this is the case, we should expect the lagged contact variables to not fully capture the endogeneity and produce upwardly biased estimates of the quantities of interest. The strategy I use in the main text, which relies on predicted probabilities of contact estimated from past party behavior has the advantage of avoiding the 'false negatives' problem. If a party contacted a voter that is similar to another voter in the same constituency in a prior wave, the predicted probabilities approach used in the main text will consider both of these voters to be potential targets of the party, which is likely to be the case.

Figure C1 presents estimates from the main model, the fixed effects approach, and the lagged contact approach. The fixed effects model produces results that are fairly similar to those of the main model. This suggests that either the different types of potential bias from the fixed effects model do not materialize strongly in this particular application, or that the different sources of bias operate in different directions and compensate each other. The lagged contact variable approach, on the other hand, produces estimates that are noticeably larger than the other two methods. This is very likely a consequence of the lagged contact approach 'false negatives': there are likely many voters the parties intend to contact in wave 3 that they have not yet contacted before. As such, the lagged contact variables do not fully capture the strategic

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contact behavior of parties, leading to inflated estimates of the effect of party contacts.

Figure C1: Alternative Estimators

Main Model refers to the model with predicted probabilities of contact; Fixed Effects to the model using individual-level fixed effects; and Lagged to the model using past contact by parties. All confidence intervals are at the 95% level. Standard errors are clustered at the constituency level.

Appendix D   Alternative Measures of Tactical Incentives

D.1   Ideological Closeness for Utilities

In this subsection, utilities are measured using the ideological closeness of respondents to the different parties, with ties broken by the feeling thermometers for each party, and by party identification if necessary.
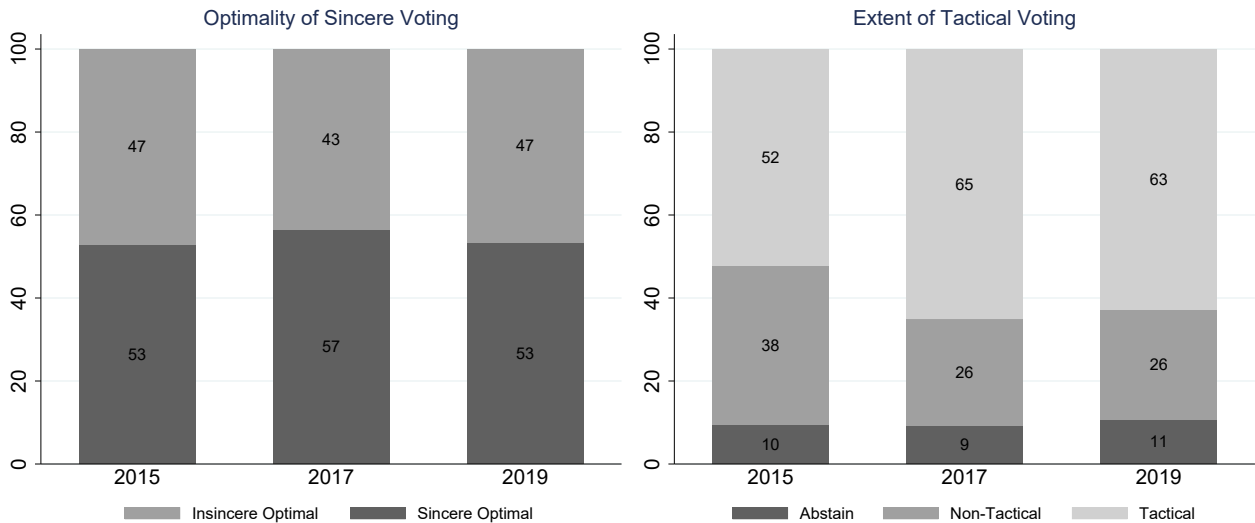
Ideological closeness to each party is calculated from voters' ideological self-placement and their perceptions of each of the parties' ideological placements. These variables are measured in a scale from 1 to 10 in the BES data, with 1 representing very left-wing and 10 representing very right-wing. From those variables, ideological closeness is define in the following way:

$$close_i^p = 10 - |self_i - ideo_i^p|$$

where $close_i^p$ is the ideological closeness of respondent i to party p, $self_i$ is the ideological self-placement of respondent i, and $ideo_i^p$ is the ideological placement that respondent i assigned to party p.
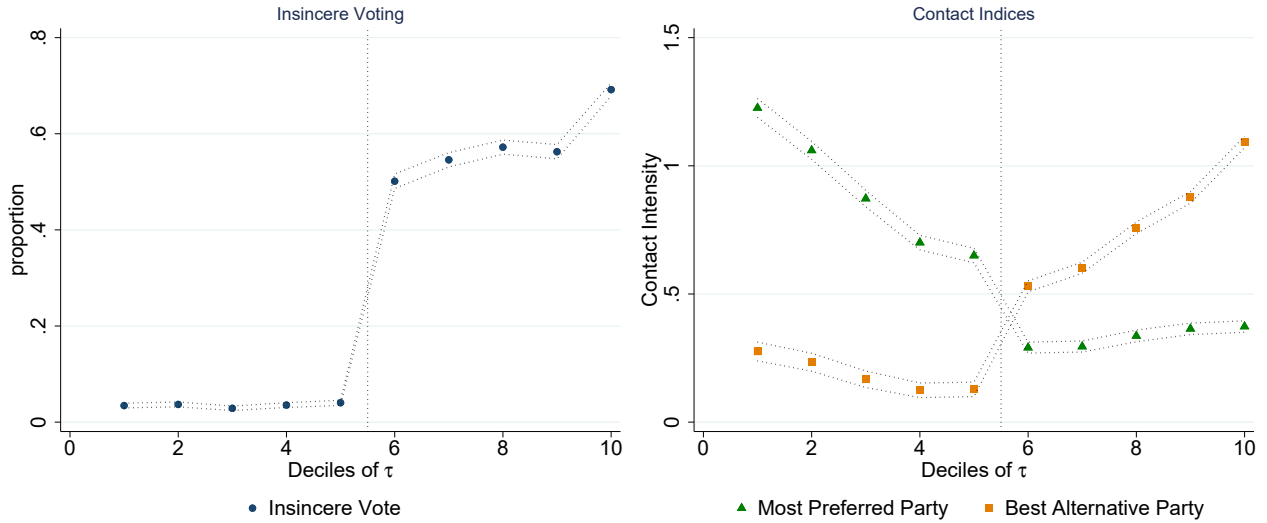
Figures D1, D2, and D3 replicate Figures 1, 2, and 3 using this alternative measure of voter preferences and thus obtain the tactical incentives measure. The results are broadly consistent with those presented in the main text, with some differences worth noting. First, based on this alternative measure of preferences, there is a substantially larger proportion of voters for whom casting a tactical vote is optimal. Using ideological closeness, about 43% to 47% of voters would benefit from casting a tactical vote, whereas using the feeling thermometers, only about 30% to 37% would, depending on the election. Second, based on the ideological closeness measure, a much larger proportion of voters behave tactically, reaching almost 65% of those in a position to cast a tactical vote in the 2017 General Election. Finally, the impact of party contacts on tactical voting are qualitatively the same as those presented in the main text, but the effects are somewhat smaller.

Figure D1: Optimality and Extent of Tactical Voting using Ideological Closeness

The left panel shows the proportion of the third wave sample for each election year that have a positive tactical voting incentive. The right panel shows the voting behavior of the subset of voters with a positive tactical voting incentive.

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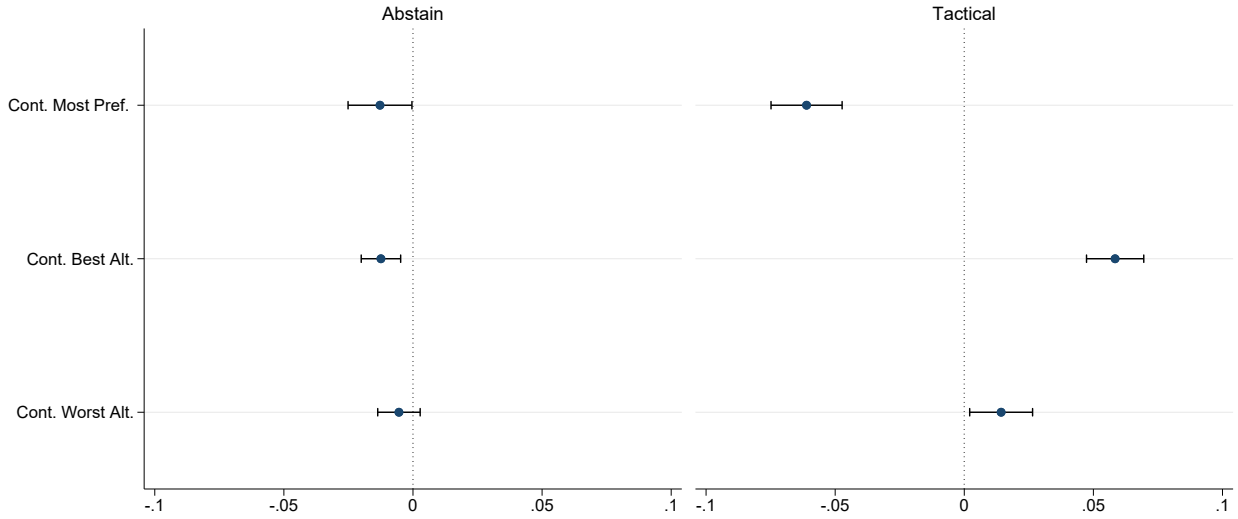Figure D2: Tactical Behavior & Incentives using Ideological Closeness

The left panel shows the proportion of voters that cast their vote for their Best Alternative party. The right panel shows the average contact intensity for the Most Preferred and Best Alternative parties. The horizontal axis are the deciles of the tactical voting incentive. The dashed vertical line separates positive and negative values of the tactical incentive.

D.2 Subjective Probabilities to Measure Pivotality

This section replicates the main analysis but relying on 'subjective' probabilities to measure the tactical incentives rather than 'objective' probabilities. These subjective probabilities are calculated on the basis of BES questions asking respondents to indicate the winning probability for each party in their constituency. From these probabilities I derive the pivotal probabilities needed for the measure of tactical incentives following a two step process: (1) I infer voteshares for each party consistent with the reported winning probabilities, and (2) I obtain pivotal probabilities from those inferred voteshares.

For the first step of the process, I assume that the winning probabilities reported by each voter come from a Dirichlet distribution with parameter vector sv_i, where v_i corresponds to a (inferred) vector of voteshares for each party from the perspective of voter i, and s is a measure of the precision of voters' perceptions. Since this calculation relies on the same distributional assumption as the 'objective' pivotal probabilities calculated in the main text, I use the same

Figure D3: Average Partial Effect of Party Contacts using Ideological Closeness

All effects are average partial effects calculated from the model in equation 4. The average partial effects on the probability of casting a sincere vote are excluded from this figure, since they can be inferred directly from the other two categories. All confidence intervals are at the 95% level. Standard errors are clustered at the constituency level.

precision value, $s = 85$. Thus:

$$p_i = dDir(sv_i) \qquad (6)$$

where $p_i(j)$, $j = 1, ..K$ is the probability that party j will win according to voter i.

Based on this probability function, I solve v_i numerically, which I called the 'inferred vector of voteshares' based on the winning probabilities reported each voter, i.

The second step of the process, obtaining the pivotal probabilities, is identical to that used in the main text (developed by Eggers and Vivyan (2020)). The only difference is that instead of using the actual voteshares observed in a given constituency, I use the inferred voteshares to calculate the 'subjective' pivotal probabilities. The remainder of the analysis is otherwise identical to that of the main text, also using feeling thermometers as a measure of voter utilities.

Figures D4, D5, and D6 replicate Figures 1, 2, and 3 relying on 'subjective' pivotal probabilities rather than 'objective' ones. The main results are largely consistent to those of the main text, but with several interesting differences.

Figure D4 that shows when using the measure of tactical incentives based on 'subjective'

probabilities, there is a smaller proportion of voters for whom a tactical vote is optimal. This proportion ranges from 24% to 33%, depending on the election, compared to between 30% and 37% observed when using 'objective' probabilities. The proportion of voters behaving tactically (among those who would benefit from such behavior) is not substantially different when using 'subjective' or 'objective' probabilities. As the right panel of Figure D4 shows, the proportion behaving tactically was 30% in 2015, 48% in 2017, and 55% in 2019, which is comparable to the 34%, 49%, and 51% obtained from 'objective' probabilities. It should be noted, however, that given that fewer voters would benefit from tactical voting when using 'subjective' probabilities, the overall number of voters behaving tactically is smaller.
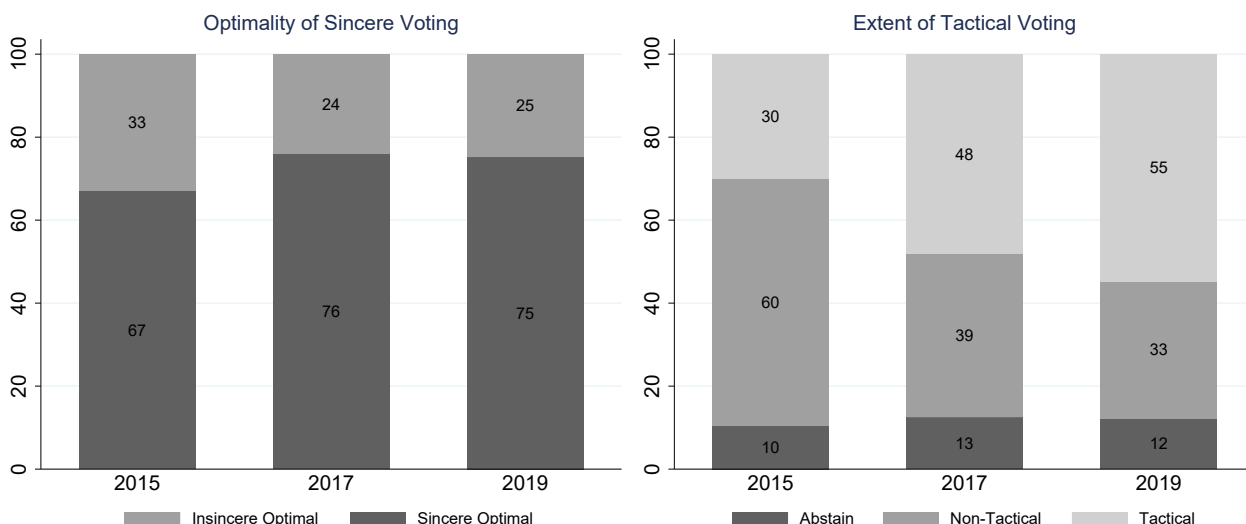
In terms of the impact of party contacts on tactical behavior, Figure D6 shows patterns very similar to those presented in Figure 3. These patterns also confirm the main hypotheses (H1, H2, and H3). There are two main differences worth noting, however: (1) the impact of contact by the Most Preferred party on the probability of a tactical vote is smaller than that obtained when using 'objective' pivotal probabilities, and (2) the impact of contact by the Worst Alternative party on the probability of a tactical vote is larger. There is no noticeable difference in the impact of contact by the Best Alternative party on the probability of a tactical vote.

D.3   Discussion of Alternative Tactical Incentives Implementations

Overall, using alternative measures of utilities and pivotal probabilities produces results that are qualitatively similar to those in the main text. The more noticeable differences are in the proportion of voters who would benefit from casting a tactical vote and, to a lesser extent, on the proportion of voters casting it. However, in terms of the effects of party contacts on the probability of casting a tactical vote, the three sets of results are strongly consistent with each other.

The preference for feeling thermometers as the main implementation of utilities is two-fold: first, they are more comprehensive since they can capture both ideological and valence

Figure D4: Optimality and Extent of Tactical Voting using Subjective Probabilities

The left panel shows the proportion of the third wave sample for each election year that have a positive tactical voting incentive. The right panel shows the voting behavior of the subset of voters with a positive tactical voting incentive.

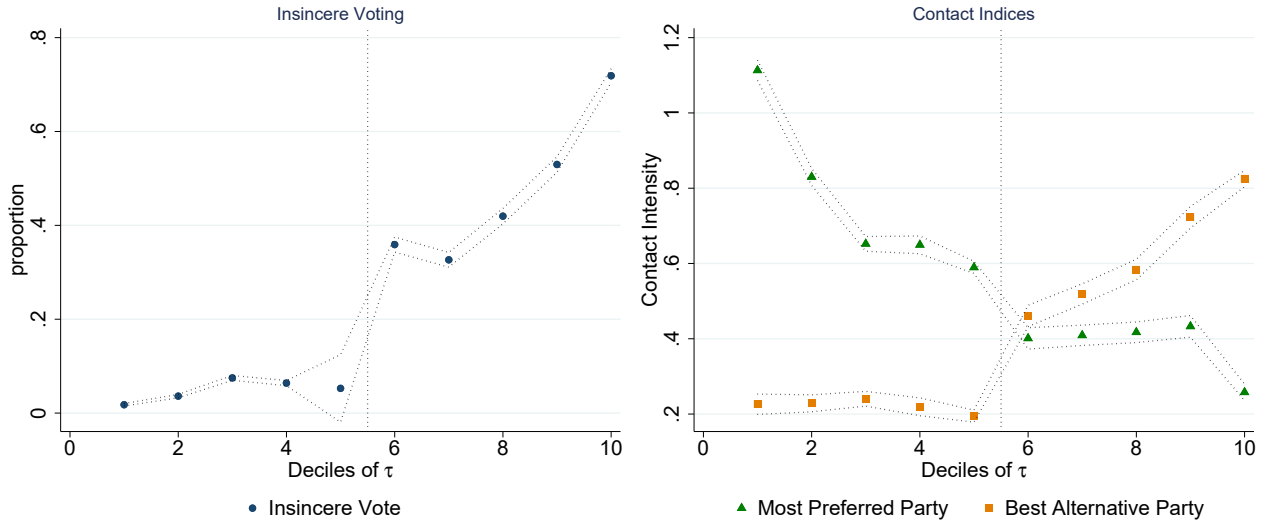considerations; second, ratings of different parties are directly comparable.[6]

The preference for using 'objective' probabilities stems from the interest in measuring actual tactical voting behavior, rather than what voters may interpret to be tactical. Additionally, relying on subjective probabilities presents several challenges. The most important one is that voters' probability assessments rarely follow the rules of probability, like adding up to 1.[7] Despite these challenges, 'subjective' probabilities, however flawed our measure of them, are interesting in their own right, especially since they do not always align with 'objective' measures of probability.[8]

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[6]Direct comparison of ideological closeness requires assuming that voters perceive distances equally in both directions. However, this may not be true for many voters. A slightly right-wing voter may be ideologically closer to a moderate left-wing party than to a solidly right-wing one. However, she might still prefer the solidly right-wing one because they are on the ''same side' or because it might move policy in her preferred direction or because the moderate left-wing one has low valence.

[7]In fact, more often than not, the sum of winning probabilities reported by each voter add to substantially more than one.

[8]In fact, Heath and Ziegfeld (2022) show that in the case of India, voters' very severely overestimate the viability of their most preferred party, to the point where a tactical vote almost never makes sense. However, voters' assessments in UK elections are likely substantially better, but of course not perfect. Raymond (2018) shows that in the case of Canada, voter assessments of the viability of third or lower ranked parties are in fact, to a large degree, reasonable.

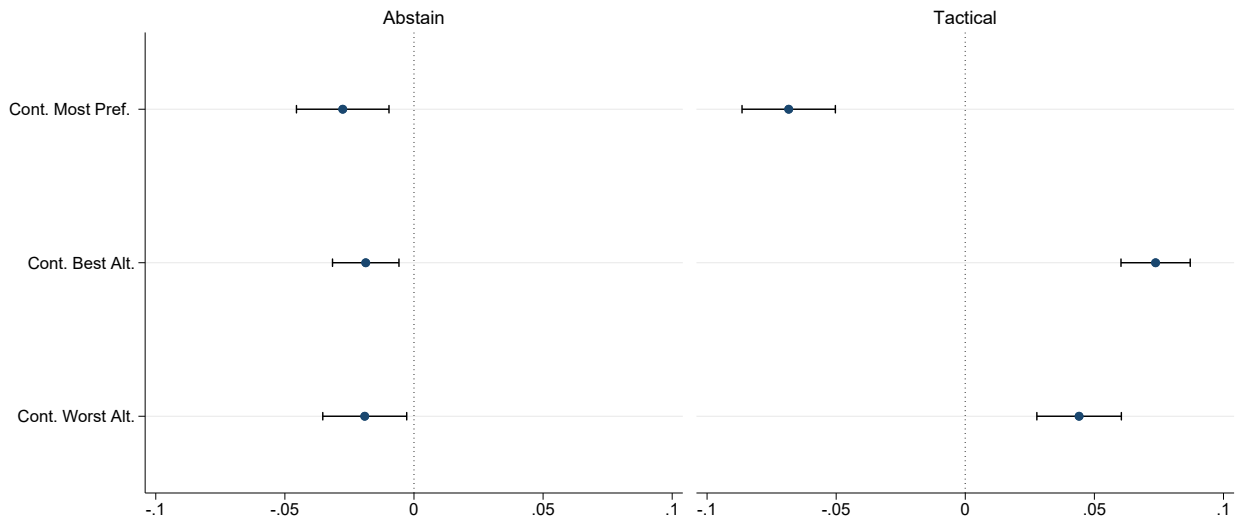Figure D5: Tactical Behavior & Incentives using Subjective Probabilities

The left panel shows the proportion of voters that cast their vote for their Best Alternative party. The right panel shows the average contact intensity for the Most Preferred and Best Alternative parties. The horizontal axis are the deciles of the tactical voting incentive. The dashed vertical line separates positive and negative values of the tactical incentive.

Appendix E   Canadian Data

This appendix replicates the analysis using data for the 2019 Canadian Federal Election. Individual voter survey data come from the Canadian Election Study (CES) 2019 Online Survey (Stephenson et al., 2020). Additional data containing election results come from official results published by the Office of the Chief Electoral Office (Elections Canada) and available at https://www.elections.ca/

All the analyses conducted using Canadian data follow the same structure as the analyses for the UK. There are, however, a few important differences due to data limitations. First, utilities to calculate the tactical incentives are obtained from feeling thermometers for individual candidates. If feeling thermometers for candidates as not available (missing data), they are replaced by feeling thermometers for the parties. Any ties are first broken by the feeling thermometers for the parties and then by party identification. Second, the main independent variables are dummy indicators of contact by the Most Preferred, Best Alternative, and Worst Alternative parties (defined in the same way as for UK data), rather than contact indices. The CES data

Figure D6: Average Partial Effect of Party Contacts using Subjective Probabilities

All effects are average partial effects calculated from the model in equation 4. The average partial effects on the probability of casting a sincere vote are excluded from this figure, since they can be inferred directly from the other two categories. All confidence intervals are at the 95% level. Standard errors are clustered at the constituency level.

for 2019 does not include more detailed information on party contacts (like different modes, or other proxies for intensity).
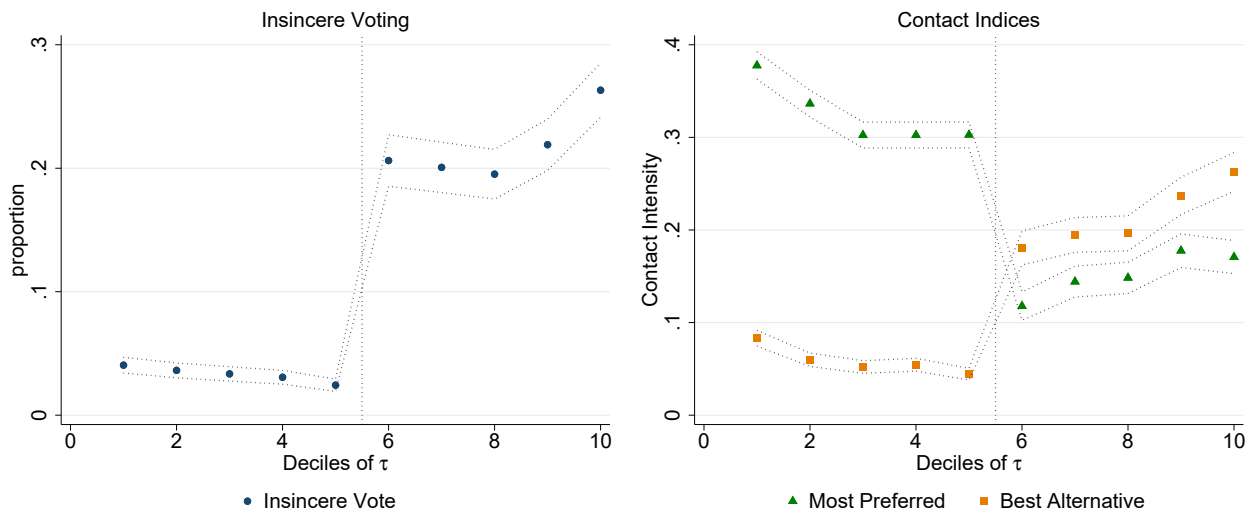
The third, and most important difference, is that the CES data is a cross-section. For this reason, it is not possible to directly control for the strategic outreach behavior of parties; a role fulfilled by the predicted probabilities of contact in the UK case. This means that the results from the Canadian data should be interpreted with caution, as it is possible that the estimates suffer from some upward bias (see Section B.7)

Despite these limitations, it is still useful to discuss the Canadian results. Based on the calculations of the tactical voting incentive from the Canadian data, 45% of voters in the sample have positive tactical voting incentives; that is, they would benefit in terms of expected utility by casting tactical vote. Of those voters with a positive tactical incentive, 25% actually cast a tactical vote for their Best Alternative party, 61% cast a non-tactical vote, and 14% reported abstaining.

Figure E1 replicates Figure 2 using the Canadian data. The left panel shows that voters

with a positive tactical incentive are much more likely to cast an insincere vote than those with a negative one (as expected).[9] The main difference with the UK is that in Canada, tactical voting increases more weakly with the strength of the tactical voting and does not reach the high levels observed in the UK, especially among those in the 10th decile of the tactical voting incentive. The right panel of Figure E1 shows that voters' Most Preferred and Best Alternative parties respond strategically to voters' tactical behavior, similarly to the UK case.

Figure E1: Tactical Behavior & Incentive

The left panel shows the proportion of voters that cast their vote for their Best Alternative party. The right panel shows the average contact intensity for the Most Preferred and Best Alternative parties. The horizontal axis are the deciles of the tactical voting incentive. The dashed vertical line separates positive and negative values of the tactical incentive.
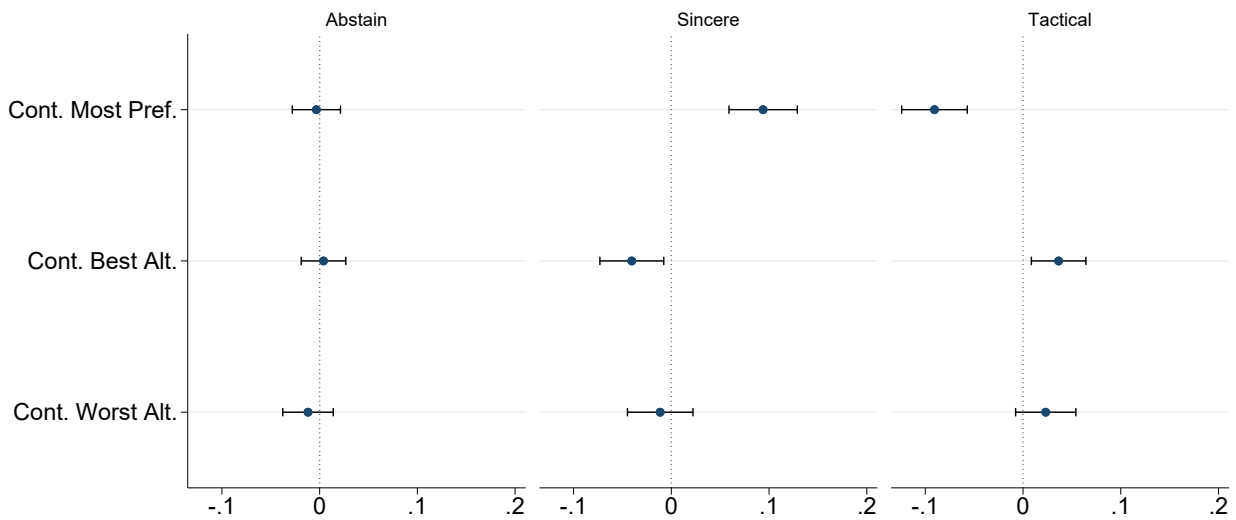
Figure E2 shows the impact of party contact indicators on the probability that voters abstain, cast a sincere vote for their Most Preferred party, or cast a tactical vote for the Best Alternative one. Contrary to the UK case, there is no evidence of a mobilization effect of party contacts, as the impact on abstentions is indistinguishable form zero in all cases. The results in terms of tactical and sincere voting, however, bear a good resemblance to those from the UK. Contact by a voter's Most Preferred party increases the probability of a sincere vote by 9.4%, while

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[9]Note that while the proportion casting an insincere vote among voters with a negative tactical incentive (deciles 5 and lower) seems higher than in the UK data, this is not the case. Rather, it is simply a matter of the scale in the y-axis. Overall, the proportion of voters casting an insincere vote among those with a negative tactical incentive is 3.65%, which is actually somewhat smaller to the one observed in the UK.

reducing the probability of a tactical vote by 9.05%, which is consistent with H1.

On the other hand, contact by a voter's Best Alternative party leads to a reduction of 4.04 percentage points in the probability of a sincere vote, and an increase of 3.64 percentage points in the probability of a tactical vote. Thus, these results are consistent with H2. In terms of contact by the Worst Alternative party, the direction of the effects are consistent with H3, but the effects are not statistically significant. Finally, given that the impact of contacts by the Most Preferred party are larger than those of the Best Alternative party, the Canadian results do not support hypothesis H4 either.

Figure E2: Average Partial Effect of Party Contacts, Canada

All effects are average partial effects calculated from the model in equation 4. This model, however, does not include predicted probabilities of contact. All confidence intervals are at the 95% level. Standard errors are clustered at the constituency level.

Appendix F   Additional Tables from the Main Text

This includes tables with the average marginal effects presented in the main text as well as the counterfactuals. Table F1 shows the main Average Partial Effects presented in Figure 3. Table F2 shows the main Average Partial Effects presented in Figure 4. Table F3 shows that Average Partial Effects presented in Figure B2. Finally, Table F4 shows the partial counterfactuals presented in Figure 5.

Table F1: APEs of Contact Indices

	(1) Abstain	(2) Sincere	(3) Tactical
Cont. Most Pref.	-0.025***	0.112***	-0.087***
	[-3.81]	[16.18]	[-11.89]
Cont. Best Alt.	-0.018***	-0.065***	0.083***
	[-4.29]	[-10.53]	[13.70]
Cont. Worst Alt.	-0.011*	-0.014*	0.024***
	[-2.03]	[-2.00]	[3.48]

t statistics in brackets

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table F2: Main Effects by Tactical Incentives

	(1) Cont. Most Pref.	(2) Cont. Best Alt.	(3) Cont. Most Pref.	(4) Cont. Best Alt.
	Abstain		Tactical	
main				
6th	0.003	-0.033*	-0.164***	0.118***
	[0.18]	[-2.03]	[-7.10]	[5.25]
7th	-0.039*	-0.022	-0.102***	0.096***
	[-1.97]	[-1.94]	[-5.46]	[6.34]
8th	-0.022	-0.021*	-0.068***	0.082***
	[-1.78]	[-2.06]	[-4.33]	[6.71]
9th	-0.041**	-0.006	-0.073***	0.071***
	[-3.00]	[-0.86]	[-4.77]	[6.25]
10th	-0.020	-0.019**	-0.059***	0.071***
	[-1.90]	[-2.76]	[-5.18]	[7.51]

t statistics in brackets

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table F3: APEs of Contact Indices by Most Preferred Party

	(1) Abstain	(2) Sincere	(3) Tactical	(4) Abstain	(5) Sincere	(6) Tactical
	Cont. Most Pref.			Cont. Best Alt.		
main						
Con	-0.012	0.040	-0.028	-0.018	-0.079**	0.097***
	[-0.67]	[1.34]	[-1.00]	[-0.94]	[-3.13]	[4.27]
Lab	-0.035*	0.096***	-0.061***	-0.003	-0.099***	0.102***
	[-2.52]	[6.10]	[-4.08]	[-0.38]	[-4.63]	[5.51]
LD	-0.004	0.069***	-0.065***	-0.024*	-0.079***	0.102***
	[-0.45]	[5.24]	[-5.03]	[-2.57]	[-5.54]	[8.08]
PC	-0.112*	0.123**	-0.011	0.006	-0.093	0.087
	[-2.02]	[2.71]	[-0.23]	[0.36]	[-1.80]	[1.92]
UKIP	-0.056*	0.156***	-0.100***	-0.006	-0.043*	0.050**
	[-2.10]	[6.39]	[-3.99]	[-0.51]	[-2.43]	[2.86]
Grn	-0.030*	0.131***	-0.102***	-0.021**	-0.053***	0.074***
	[-2.46]	[13.17]	[-7.57]	[-3.10]	[-5.73]	[7.96]
Bxt	-0.011	0.120***	-0.109***	-0.025	-0.048**	0.073***
	[-0.37]	[6.98]	[-4.15]	[-1.37]	[-3.17]	[3.77]

t statistics in brackets

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table F4: No Contact Partial Counterfactuals

	Difference	Std	Outcome	Counterfactual	95% CI (low)	95% CI (high)
1	0.50	0.31	Abstain	(1) No Cont. Most Pref	1.12	-0.11
2	-4.32	0.52	Sincere	(1) No Cont. Most Pref	-3.31	-5.34
3	3.82	0.53	Tactical	(1) No Cont. Most Pref	4.87	2.78
4	0.84	0.32	Abstain	(2) No Cont. Best Alt.	1.46	0.22
5	4.54	0.53	Sincere	(2) No Cont. Best Alt.	5.57	3.50
6	-5.38	0.54	Tactical	(2) No Cont. Best Alt.	-4.32	-6.44
7	0.33	0.31	Abstain	(3) No Cont. Worst Alt	0.94	-0.28
8	0.71	0.52	Sincere	(3) No Cont. Worst Alt	1.73	-0.31
9	-1.04	0.54	Tactical	(3) No Cont. Worst Alt	0.01	-2.09
10	2.12	0.33	Abstain	(4)No Contacts At All	2.77	1.47
11	0.63	0.53	Sincere	(4)No Contacts At All	1.67	-0.41
12	-2.75	0.55	Tactical	(4)No Contacts At All	-1.68	-3.82