LIFE OF THE PARTY OR JUST A THIRD WHEEL? EFFECTS OF THIRD PARTIES IN U.S. HOUSE ELECTIONS

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Dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy
in the Department of Political Science
in the Graduate School of
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ABSTRACT

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Abstract

How is two-party electoral competition influenced by third parties, even under normal political conditions? I argue that the mere threat of third party entry into the election induces anticipatory electoral strategies by the major parties. This effect, which is a normal aspect of the two-party system, is how third parties play a consistent role in U.S. elections.

The ability for third parties to influence the major parties is moderated by electoral institutions. The ballot access requirement, in the form of a signature requirement, varies widely across House elections and is a significant predictor of third party electoral success. Consistent with conventional wisdom, I find that it has a negative effect on the likelihood of entry. Notably, the requirement also has a positive effect on third party vote shares, conditional on successful petitioning, due to a screening and quality effect.

I explore the effects of third party threat in unidimensional and multidimensional settings. A formal model of elections predicts that the threat of entry induces major party divergence in a unidimensional ideological space. The major parties diverge in anticipation of potential third party entry. An empirical analysis of candidate positioning in the 1996 U.S. House elections finds support of this hypothesis.

Data on major party campaign advertising in the 2000 to 2004 U.S. House elections are used to assess third party effects in a multidimensional framework. I show that third party threat influences the scope and content of campaign advertising. Major party candidates, particularly incumbents, discuss a broader range of issues when third party threat is higher. I use the case of environmental issues and the Green party to assess the influence of third parties on issue-specific content. I find that Green party threat leads to predictable differences between Democratic and

Republican advertising on environmental issues.

In sum, third parties play a consistent role in U.S. House elections by inducing anticipatory strategies by the major parties. This strategic framework for understanding third parties stresses two things. First, one should focus on the major parties in order to gauge the influence of third parties. Second, one should not conclude that third parties are irrelevant because of their minimal electoral success. Third party effects are in fact present even in elections where a third party does not enter.

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Chapter 1

Introduction

Throughout history, the landscape of American politics has been dominated by two major parties. Debates of the political process rarely include any discussion of non-major party candidates.[1] Only in a handful of years have third parties appeared to have played an appreciable role in shaping political outcomes, and this is usually limited to discussions of presidential elections. In usual elections, the two major party candidates receive nearly the entire vote and electoral outcomes are not determined by the minor candidates' vote shares.

1.1 Just a Third Wheel?

A seemingly straightforward question to ask is, "Do third parties matter?" Exactly how one answers this question, however, depends upon what standard is used to gauge success. Although the precise answer will differ, the existing literature broadly states that third parties *can matter*, but we should expect third party effects *only periodically*.

The highest standard one could use is "winning elections." Not much research is needed to see that by this standard third parties essentially never matter. For instance, in every U.S. House election-year in the post-war era, either zero or one third party candidates won office, except in 2000 which had two successful candidates.

The next standard one could hold is "winning a significant share of the vote." By

[1] I use the terms non-major, independent (unaffiliated), third party, and minor party candidates interchangeably.

this standard, third parties can matter but not very often. Research by Rosenstone, Behr and Lazarus (1996) shows that third party candidates can be most successful only when there is "major party failure" – that is, when voters are disaffected with both of the major parties and see neither as an attractive option. Only under this situation will voters engage in the "extraordinary act" of breaking their loyalty to the two-party system by voting for a third party candidate. Unfortunately for third parties, major party failure is a condition that is only periodically met.

Rapoport and Stone (2001, 2005) illustrate how third parties can have a lasting influence beyond the initial election of major party failure. They argue that the success of Perot in 1992, which was made possible by major party failure during that period, led to changes in the Republican party. In their theory, the dynamic of third parties has three components:[2]

1. Third party candidate movement has a large, identifiable issue constituency.

2. Following the election where the third party candidate first appeared, one or both major parties bid for her constituency's support based on the those issues.

3. Third party candidate's supporters respond to a major-party bid by shifting support to the bidding party. This process alters the issue commitments of the major party.

Although third parties can have an influence that spans several elections in this dynamic, major party failure is still a necessary condition, which again is not regularly satisfied.

A last third party effect is what is popularly known as the "spoiler effect." In this scenario, a third party steals votes disproportionately from one of the major parties,

[2]Rapoport and Stone (2005), 11-12.

and consequently, changes which major party wins the election. Closer scrutiny of the recent past, however, questions the prevalence of this third party effect in reality. We can look at the two most recent examples of possible spoiler candidates. Some circles of conventional wisdom believe that Perot was a spoiler candidate in 1992, stealing votes away from Bush. However, Lacy and Burden (1999) shows that Perot's candidacy actually had the opposite effect by decreasing Clinton's margin of victory. More recently, Herron and Lewis (2007) consider Nader's role in the outcome of the 2000 presidential election. Analyzing ballot returns in Florida, they find that although Nader did steal votes from Gore, he also stole a significant share of votes from Bush. The net gain for Bush was therefore much smaller than one might expect. Consequently, although Nader did throw the election to Bush, that was largely due to the extreme closeness of the race in Florida, where a modest vote swing in Bush's favor could actually change the outcome of the election.

In sum, existing research argues that third parties can have an influence in U.S. elections. But episodes of influence will be under extraordinary circumstances: either under or following major party failure, or in an extremely close election as in the Nader case.

1.2 Or Life of the Party?

I argue in this dissertation that researchers must use dependent variables besides vote choice in searching for more regular and persistent effects of third parties. Thus in order to investigate third parties, I focus on the major parties. The basic hypothesis that carries throughout the dissertation is that the mere threat of potential third party candidates may be enough to influence the major party candidates' strategies and consequently electoral outcomes. Major party candidates choose electoral

strategies in anticipation of potential entrants.

Although most third parties research focuses on episodes of electoral success, some have acknowledged that the effects of third parties may reach further. Rosenstone, Behr and Lazarus (1996) allude to their broader impact, such as their ability to generate policy innovations and affect the content and range of political discourse. Lacy and Burden (1999) find that Perot's candidacy increased voter turnout in the 1992 U.S. presidential election. Meguid (2005) argues that the behavior of mainstream parties influences the electoral success of new, niche party candidates. Hug (2001) uses a game theoretic model to derive predictions of when a new party will form and enter the election. His model shows how the established party alters its policy stance on some issue(s) in the face of potential minor party entry. Palfrey (1984) extends the unidimensional spatial model to include a third party entrant and predicts policy divergence of the two established parties. Thus, the presence of a third party leads the two major parties to differentiate in the policy space in order to minimize electoral success of the third party.

I expect to find that the potential for third party candidates does in fact matter significantly and persistently. That is, the political landscape would look very different in the absence of the threat of entry by an outside candidate. However, the effect of potential third parties may be substantially diluted if the threat of entry is not credible. Excessive barriers to entry, such as high ballot access requirements, may preclude any third party effects and instead support the duopolistic outcome.

1.2.1 A Theory of Major Party Anticipation

The central premise of the dissertation is that third parties can influence politics in ways other than by winning elections. The two major party candidates, although

comfortably safe from losing an election to a third party candidate, find it in their self-interest to anticipate possible effects from a potential third party entrant: major parties behave differently than if there was no threat of another competitor. However, the intensity of the effect depends upon the credibility of the threat of the potential entrant, which may be a function of the level of the barriers to entry.

The economics literature has developed theoretical models that are instructive to understanding the the role of third party threat on political competition.[3] Bain (1956) defines barriers to entry as anything that allows incumbent firms to earn supranormal profits without threat of entry.[4] In this definition, large scale economies and capital requirements are barriers to entry. Stigler (1968) states that an entry barrier is present when the potential entrants face costs greater than those incurred by an incumbent firm in the industry, thus excluding scale economies and capital requirements.[5] Stigler's definition is most appropriate for my purposes.

Bain (1956) discusses three kinds of behavior by incumbents in the face of a threat of entry:

1. If such barriers to entry are prohibitively high, the incumbent firms (major party candidates) might act as if the third party will not enter. Entry, in this case, is *blockaded*.

2. Assuming costs to entry are not prohibitively high, in this second case, entry cannot be blockaded, but modified behavior by the incumbents might success-

[3]The following discussion borrows heavily from Tirole (2002), chapter 8.

[4]Stated in another way, "A barrier to entry is an advantage of established sellers in an industry over potential entrant sellers, which is reflected in the extent to which established sellers can persistently raise their prices above competitive levels without attracting new firms to enter the industry" (Bain, 1956, 3).

[5]A third definition, related to Stigler's, given by Von Weizaecker (1980) as "an impediment to the flow of resources into the industry, arising as a result of socially excessive protection of incumbent firms.

fully *deter entry*.

3. The last possibility is *accommodated entry*. In this case, the incumbents find it more profitable to allow entry rather than erect costly barriers to entry.

Case (1) is obviously the case of least competition. The incumbent firms can ignore any threat of entry, which gives the usual duopolitic outcome. Cases (2) and (3) are where entrants can exert an influence on economic outcomes.[6]

I take political competition to be analogous to the economic competition described above. The incumbent firms are the Democratic and Republican parties, and third parties are the potential entrants. There are several barriers to third party entry, such as electoral rules (first-past-the-post) and ballot access restrictions. The cost to entry that I give attention to in the dissertation is the ballot access signature requirement.[7] Although major parties have easy and often automatic ballot access, institutional barriers frustrate the ability of minor party candidates to gain ballot access. Minor party candidates must file a petition for ballot access, which is to be signed by some minimum number of eligible voters. That is, for minor parties, there is a cost to entry.

[6]The contestable markets literature argues that case (2) can go to an extreme, whereby an entrant has a significant influence on the incumbent firms *even if she does not actually enter the market*. Under certain conditions the mere threat of entry can lead the incumbent firms to produce outputs at prices such that incumbents get zero profit, rather than at the positive profit, oligopolistic level. That is, the mere threat of entry "forces socially optimal behavior upon the incumbent firms in an industry" (Baumol, Panzar and Willig, 1982, chapter 1).

[7]I focus on ballot restrictions because of its wide variation across elections, which gives leverage to study its effects. There are certainly other costs that are more closely analogous to the definition given in Bain (1956), but I take these to be constant across elections. One such example of incumbent advantage in "large scale economies and capital requirements" is brand name recognition. Cox and McCubbins (1993) Cox and McCubbins (1993) argue that ambitious politicians have an incentive to sustain legislative cartels in order to build a party "brand name", which members can then use as an asset in elections. Similarly, Downs (1957) and Popkin (1991) discuss the use of party identification as a heuristic, whereby voters, who "rationally" choose not to incur burdensome information costs, use information shortcuts in order to make decisions. Furthermore, parties also provide organizational structures that help members in their election campaigns, which also benefits from economies of scale.

In the absence of outside competition, a political duopoly is arguably more susceptible to major party deterioration. That is, without incentives to remain responsive to a broad constituency or respond to increasingly salient issues, the "quality" of major party representation may suffer. Consider the logic of third party voting, as outlined by Rosenstone, Behr and Lazarus (1996): Some voters will defect from the major parties when there is major party failure. But what option do voters have if there is no outlet to express dissatisfaction via a third party vote? If the only options are to defect to the other major party or to abstain altogether, then the major parties

Under third party threat, however, strategic major parties may find it in their own interest to take preemptive actions to deter third party entry or at least take actions that minimize third party success upon entry. This logic of anticipation illustrates how much of the existing literature on third party effects misses significant effects. Strategic anticipation by the major parties is one explanation for the usual absence of major party failure. That is, third parties have an influence *precisely when there is no major party failure.*

1.3 Strategic Voting and Credibility of Third Party Threat

Although ballot access restrictions hinder third party entry, another electoral institution plays the largest role in limiting third party success: the first-past-the-post (FPTP) rule. My dissertation focuses on ballot requirements because of the variation across districts, while FPTP is a common feature of U.S. elections. However, one may wonder whether the threat of third party entry can exert any influence on the major parties if they know that FPTP limits third party influence.

Under FPTP, instrumental voters who sincerely most favor a third party candidate have an incentive to cast a vote strategically for one of the two major party candidates

(Duverger, 1963; Palfrey, 1989; Abramson et al., 1992; Cox, 1994). Instrumental voters would rather cast their vote for a competitive candidate than waste their vote on a candidate that has no chance of winning. If third party candidates lose their electoral support in this Duvergerian dynamic, then should the major parties really be concerned with the threat of third party entry?

Although strategic voting significantly reduces the overall electoral support for third party candidates, empirically they still receive some votes in U.S. elections. There are several explanations for this apparent deviation from a strategic voting equilibrium. One is that third party supporters are indifferent between the two major party candidates (both are equally dissatisfactory), in which case sincere voting is consistent with expected utility maximization. Second, extreme voters may rationally support an extremist third party candidate if they believe that such a protest vote could bring future policy concessions from the closest major party. That is, third party voters are willing to lose in the short term – throw the election to their least preferred candidate – if such actions would lead to future policy gains.

Lastly, some question the applicability of the strategic (instrumental) voting to large electorates (Brennan and Lomasky, 1993; Brennan and Hamlin, 1998). In a large number setting, the probability that an individual's vote will influence the outcome is so small that their vote is essentially meaningless in an instrumental (outcome-oriented) sense. In this case, the link between the act of voting and policy outcomes is fractured. Consequently, voters should be thought of as expressive rather than instrumental.[8] For instance, although cheering for one's team does not sufficiently contribute to the probability of her team winning the game to outweigh the costs of

[8]Brennan and Lomasky stress that expressive voters are not irrational. Rather, this motivation for voting highlights how the circumstances surrounding the act of voting differs from private market decisions. Voters simply vote with some intention besides affecting the outcome.

cheering, the expressive benefit of supporting one's team motivates her action.[9]

Even if we assume that the third-place candidate receives zero votes in expectation, as predicted by Duvergerian equilibrium, the major party anticipatory dynamics I describe in my dissertation still hold. The major parties still have an incentive to account for third party entry because if they do not, then they risk coming in last place and winning zero votes. Suppose one of the major parties ignores potential third party entry. If the third party candidate enters, then she may cut so deep into that major party's support that the major party now is expected to come in last place. Applying Duvergerian equilibrium to this case, this major party is now expected to win zero votes.

Regardless of the exact argument made, there are reasons to believe that even in an electoral system with the FPTP rule, the two major parties will view the threat of third party entry as sufficiently credible. That is, although the total electoral support is small, there is some positive support. And major party candidates, who desire to retain or expand their support in order to keep pace or pass the opposing major party candidate, have an incentive to choose electoral strategies in anticipation of third party threat.

1.4 Outline of the Dissertation

Chapter 2 investigates the effects of ballot access restrictions on third party electoral success. Conventional wisdom claims that signature requirements hurt minor parties. I argue that conventional wisdom conflates two distinct dimensions of minor party success: (1) the ability to get on the ballot, and (2) the ability of actual minor party candidates to win votes. I hypothesize that a higher signature requirement

[9]Interestingly, there also might be instances where there is a mismatch between expressive benefit and self-interest (Brennan and Hamlin, 1998, 166)

has a negative effect on the first dimension but a positive effect on the second. I show model specification problems that might lead one to conclude that conventional wisdom is correct. However, correctly modeling the data by using a two-equations model gives evidence in support of my hypotheses.

The influence of third parties on major party platform positioning is explored in chapter 3. I analyze the unidimensional spatial model with two major party candidates that anticipate potential entry by a third candidate. The general prediction is that a higher likelihood of third party entry induces greater major party candidate divergence. An empirical test, which uses data on candidate positioning in the 1996 U.S. House elections, provides evidence of this third party effect.

Chapter 4 revisits the unidimensional spatial model introduced in chapter 3. I consider how competition between two Downsian candidates in the unidimensional model with the threat of a third candidate entrant varies under different assumptions of third candidate motivations. The third candidate has an ideal point to which she will enter; both Downsian candidates know this position with certainty. The two Downsian candidates play the location game, choosing platforms to maximize their rank-order (roughly probability of winning), given the location of the third candidate. I discuss three third candidate motivations: (1) vote-maximizing, (2) ideological, and (3) policy-motivated. Equilibrium platforms for D and R vary quite a bit, depending on third candidate motivations.

Chapters 5 and 6 move the analysis from a unidimensional to a multidimensional framework. I argue that major party candidates in U.S. House elections adopt a strategy of anticipatory cooptation. Chapter 5 uses the total number of distinct issues discussed in major party campaign advertisements as a measure of "campaign issue breadth." I show that the potential for third party entry increases breadth – major party candidates, particularly incumbents, mention a broader range of issues

in districts where the likelihood of third party entry is higher. Conversely, actual third party entry has no discernible effect on campaign breadth.

Chapter 6 investigates issue-specific third party effects by using environmental issues and the threat of Green party candidates as a test. I test whether the potential for Green party challengers has any effect on major party advertising on environmental issues. In particular, theory suggests that on this issue, any third party effect should be asymmetric between Democratic and Republican candidates. The empirical analysis finds this to be the case.

All of the empirical analyses in the dissertation focus on contemporary U.S. congressional elections. This choice is made for a few reasons. First, since I use large-N statistical analyses, I benefit from the larger number of observations. Secondly, aside from the major party failure and Perot's historical success in the early 1990s, recent congressional elections have for the most part been ordinary elections. Lastly, nearly all work on third parties focuses on presidential elections. Third party effects are consequently often tied to individual personalities or extraordinary national tides. This dissertation however attempts to show that the influence of third parties is a normal component of the American two-party system.

The last chapter reviews the substantive findings of the dissertation. I evaluate the overall role of third parties, summarizing how they are not just a third wheel in U.S. elections.

Chapter 2

The Effects of Ballot Access Requirements on Third Party Electoral Success

Before the adoption of the Australian ballot in the late 19^{th} century, voters were given party-prepared ballots and did not have the luxury of privacy when casting their ballots. Under the new ballot, voters could privately cast their ballot without direct intimidation and influence of party representatives. Adoption of the secret ballot was a positive step towards squashing one form of corruption. However, supporters of minor parties argue that this reduction in corruption from the new ballot came at the cost of electoral competition.

To curb intimidation at the polls through secret ballots, the state took on the responsibility of printing the official ballot. With this new responsibility, the state now determined how candidates can get their names printed on the ballot. Ballot access laws have changed from time to time and vary across states. One thing that has remained constant throughout time and across states is the fact that the two major parties hold an advantaged status over minor party candidates.[1]

The explicit purpose of signature requirements in ballot access laws is to create a cost to sift out "unworthy" candidates. Unworthy can be understood to mean "not having the support of a significant portion of the electorate" or "not having a chance of winning the election."[2] The purpose of these laws becomes clear from looking

[1]I use the terms minor, third, non-major, and independent party/candidate interchangeably. Future research should turn towards discriminating across different types of non-major party candidates.

[2]The second, and much stricter, view is seen in *Cavanaugh v. Schaeffer* (1982), where a Pennsylvania court upheld the geographical distribution signature requirement for candidates for state office in a primary election. The court wrote "any candidate who truly cannot muster 100 sig-

at court cases that question the validity of such election laws. The state interests usually appealed to in such cases are:[3]

1. Avoid voter confusion from crowding on the ballot with "frivolous" candidates.

2. Promotion of the two-party system, which will consequently encourage compromise and political stability.

3. Interest in seeing that the winner of an election be the choice of a majority of the voters.

Political scientists have also been comfortable in accepting the two-party system. In 1946, the APSA Committee on Political Parties met to discuss the condition of the American party system, publishing "Toward a More Responsible Two-Party System" (APSA, 1950). As Lowi (1983) points out in his essay "Toward a More Responsible Three-Party System," the committee never questioned the legitimacy of a two-party system. Furthermore, no thought was given to the possibility of an American multi-party system.

Those who support two-party dominance view such restrictions on ballot access as necessary. Furthermore, incumbents – essentially all of whom are members of the two major parties – have an interest in excluding competition from minor parties.[4] Those in office also hold the legislative power to set the bar for access. Thus, the major parties, as strategic actors, set ballot requirements to deter minor party challengers.

natures from one other county besides the four largest... obviously does not have the majority support necessary to win a general election." Both definitions obviously fail to entertain other possible positive effects of third parties other than winning elections.

[3]For instance, see *Williams v. Rhodes* (1968).

[4]There are examples of an asymmetry in the incentives to keep minor parties off the ballot. For instance, Republicans might want to help the Green Party to gain ballot access. Green supporters are more likely to come from the Democratic base; thus, including Greens may throw the election to the Republicans. A recent example is the 2006 Pennsylvania Senate election between Casey and Santorum. Staffers on Santorum's campaign collected signatures for the Green Party (Budoff and Cattabiani, 2006).

Those who favor a multi-party system argue that ballot access requirements are too high, which squashes political competition. Political competition is thought of as analogous to economic competition, where a greater number of competitors has a positive effect on outputs and consumer welfare. Thus, the argument goes, as voters are left with only two choices, and the quality of the available choices are tainted from the lack of competition. Essentially, voters must choose between two colluding duopolists who are unresponsive to the preferences of their constituency. The proposed solution to this problem is to lower the barrier onto the ballot.

Note that another electoral institution plays the largest role in limiting minor party electoral success: the first-past-the-post (FPTP) system. Duverger (1963) argues that the psychological effect leads voters, who might sincerely support a third party candidate, to defect from voting for their most preferred candidate. That is, voters want to avoid a "wasted vote." Although this electoral institution is very important, it is constant across U.S. elections. FPTP shifts the mean electoral support for third party candidates downward. I argue in this chapter that ballot access restrictions partially determine the variation of electoral support around that low mean. Lewis-Beck and Squire end their paper on ballot access restrictions for presidential candidates by writing:

> Duverger's Law, as powerful as it is, does not by itself totally determine a two-party system, and thus end major-party concerns over third-party encroachment. Partisan struggle over the election rules [such as ballot access restrictions], even in single-member plurality systems, continues. (1995, 426-427)

In this chapter, I analyze the effects of third party ballot access requirements. I argue that third party success should be judged on two separate dimensions: (1) ability to gain ballot access, and (2) ability to win votes, conditional on successful ballot petitioning. I hypothesize that the signature requirement has a negative effect

on the first dimension but a positive effect on the second. That is, the success of minor parties is not monotonically decreasing in the number of signatures required for ballot access, which conventional wisdom predicts. These hypotheses diverge from earlier accounts because previous treatments of this electoral institution have focused entirely on the costs, while ignoring potential benefits. An implication of my argument is that from the perspective of minor party supporters, there is some optimal level of barrier to ballot access, and the optimum is not zero.

The next section develops the theory that motivates my hypotheses. I then use data from 1996-2000 U.S. House elections to assess the effects of ballot access restrictions on third party success. A naive empirical analysis finds support of conventional wisdom. I show that this evidence is misleading and find support for my hypotheses using a two-equations model.

2.1 Basic Theory

I introduce a little notation that will help clarify the arguments in this section. Although not a complete game-theoretic model, the following at least outlines the intuition of the argument. Let f be a candidate emergence function, $f : X \times S \mapsto C \cup \varnothing$, where X is the set of all potential candidates, C is the set of all entered candidates, and $s \in S \subset \mathbb{N}$ is the signature requirement. If no candidate emerges from X, then we have the empty set $\varnothing$. Let v be a vote share function, $v : C \times S \mapsto [0, 100] \subset \Re$, which gives the vote share for candidate $c \in C$. As is common notation, let $|C|$ denote the number of elements in C.

2.1.1 Costs

There is no doubt that the ballot access requirement – assumed throughout the chapter to be in the form of a signature requirement – imposes a direct cost on candidates. Collecting signatures costs time and resources. The estimated cost of collecting one signature is roughly one to two dollars. The direct cost of the requirement is the amount of effort and resources (labor and monetary) expended on collecting signatures. Not all potential candidates will be able to bear this cost. All else equal, as s increases, $|C|$ decreases, perhaps to 0.

There is also the opportunity costs of the requirement. Time and money spent on collecting signatures is time and money taken away from more positive campaign activities. That is, even if a minor party candidate can collect the necessary signatures to get onto the ballot, she had to spend the majority of her funds, which are meager to begin with, on that task, which leaves little available money to mount a serious campaign. All else equal, as s increases, v decreases.

In sum, there are two negative effects of the ballot access requirement. The requirement can decrease the number of actual candidates and the vote shares of actual candidates.

2.1.2 Benefits

Most attention in the third parties literature has been paid to the costs of ballot access restrictions. If one only pays attention to the costs, then the easy conclusion to reach is that the best solution – if one values increased competition from multiple parties – is to have no ballot access requirements. A prospective candidate would simply need to announce their candidacy to gain automatic ballot access. However, if there are benefits from the perspective of potential minor party candidates and

their supporters, then we might expect that, all else equal, as s increases, v may also increase. That is, for an actual third party candidate, she would expect more votes if the signature requirement is higher. As a clarification, "benefit" is not necessarily synonymous with "good." By benefit, I simply mean that these requirements may have a positive effect on minor party candidates electoral outcomes (vote share).

Tallying Support

The first benefit is the most direct and obvious. Supposing the extreme case, where all voters who sign the petition also vote for that candidate, a higher signature requirement will lead to more expected votes on election day. Although the extreme is not met in reality, the number of collected signatures gives an approximate tally of likely electoral supporters.

Rallying Support (Developing an Organization)

High ballot access requirements force minor parties and candidates to organize. Mobilizing supporters and developing a formal campaign organization increases a candidate's ability to collect the requisite number of signatures. Professional organization at this stage of the campaign transfers well to running the actual campaign. Thus, higher requirements can lead to more well-organized third party candidate campaigns.

Screening Candidates on Quality

Another justification used by the courts to support onerous ballot access requirements is state's need to sift out "frivolous" candidates. These requirements, as a screening mechanism, may be beneficial for minor party candidates.

Additional notation will help clarify the logic of screening. Let there be two types of candidates, l (low) and h (high) quality. Let g be an amended candidate

emergence function, $g : X \times S \mapsto \{C \times \{l, h\}\} \cup \emptyset = C_l \cup C_h \cup \emptyset$, where C_i is the set of i-quality third party candidates. Note that this function differs from f by now incorporating candidate quality. The following depicts the screening effect. As argued in an earlier section, all else equal, as costs increase, then $|C_l|$ and $|C_h|$ both decrease. However, since high-quality candidates can more easily collect signatures, as the signature requirement increases the latter will decrease less quickly, such that $p_h = \frac{|C_h|}{|C_l|+|C_h|}$ (the proportion of high quality third party candidates) increases.

This logic then hypothesizes that conditional upon successful entry, we should expect higher quality candidates in districts with a higher signature requirement. That is, we should expect a positive relationship between the number of signatures and vote share.

All else equal, high-quality candidates have the ability to win more votes than low-quality candidates, as voters simply prefer high-quality candidates.[5] The ability to hurdle high barriers to entry also helps minor party candidates demonstrate legitimacy as a contender against the major party candidates. Republican and Democrats both have the advantage of established brandnames that convey useful information to "rationally ignorant" voters (Downs, 1957; Cox and McCubbins, 1993). Unaffiliated independent candidates lack such recognition. Minor party candidates hold party labels, but these labels convey somewhat less information, especially regarding quality, than for the major parties. Furthermore, given the privileged status of the major parties in the American two-party system, most voters hold as an initial opinion that third party candidates are illegitimate and not viable. Breaking this perception is crucial for the electoral success of third party candidates. Given this disadvantage

[5]The usual formulation of valence/quality effects in the formal theory literature is that voter i with ideal point x_i has utility for candidate k with platform p_k and valence v_k, $U_k^i = v_k - (x_i - p_k)^2$. Therefore, for two candidates with identical platforms, voters will prefer the candidate with the larger valence term.

and the general lack of recognition, non-major party candidates importantly need to signal some sense of quality to voters.

The signature requirement as a screening mechanism can help accomplish this task. Suppose that voters have uncertainty of the exact quality of each entered third party candidate, but voters know p_h – that is, voters know that low quality candidates are less likely to emerge in high barrier districts. Although voters do not know qualities with certainty, p_h conveys useful information. In a district where p_h is large, voters are more willing to vote for a third party candidate, since the likelihood of any third party candidate being of high quality is greater.

Displaying legitimacy can also help third party candidates by attracting media attention. Low-quality candidates can be dismissed as misfits and comfortably ignored by the media. However, the media is less likely to ignore a high quality candidate that has the support of a visible portion of the electorate. Extensive media coverage can reinforce the perception of viability, while also disseminating relevant information to voters with little cost to the candidate.

Crowded Ballots

Although reducing barriers to entry increases the likelihood of one or more third parties gaining ballot access, having too many successfully petition might hurt their electoral prospects. In order to maximize the effect of minor party candidates on electoral outcomes by winning votes, it may be better to limit the total number of third party candidates to some small number.

Limiting the total number of candidates directly decreases competition for votes and consequently increases a third party candidate's expected votes. Suppose there is some fixed portion of the electorate that is disaffected with the major parties and open to voting for a third party candidate (i.e. protest voters). Increasing the number

of third party candidates increases competition for this fixed set of voters.

Furthermore, limiting the number of third party candidates on the ballot can aid voters to better coordinate on a particular candidate. An explicit purpose of the ballot access restriction is to limit the number of candidates on the ballot in order to avoid voter confusion. Although this justification is used by the major parties to block third party candidates, third parties themselves have an incentive to also avoid voter confusion. Suppose an instrumental voter wants to cast a protest vote against the major parties by casting a ballot supporting a minor party candidate. Suppose further that the effectiveness of a protest vote depends upon the visible success of the minor party candidate – the major parties are more likely to "get the message" if voter discontent is more unified. If this is the case, then in order for a minor party candidate to have an influence, it may be best for voters to coordinate on one leading third party candidate. Coordination is increasingly difficult as the number of minor party candidates on the ballot increases.

Discussion of Benefits: Overall Quality Effect

Tallying and rallying are direct effects of the signature requirement on third party vote share, in the following sense. Even if candidates do not differ on quality, we should expect to see the posited relationships between signatures and vote share. They can also be considered (direct) quality effects. Although the tallying mechanism does not explicitly mention quality, candidates can only collect the necessary signatures if they have enough initial support. By virtue of their significant initial support, these candidates can be considered high-quality. Rallying is also a quality effect, since campaign organization contributes to the quality of the campaign (and consequently the candidate). Conversely, the sifting out of low-quality candidates from the screening mechanism is an indirect quality effect. This effect differs from

the direct effect in that it influences what types of candidates make it onto the ballot, which then has an influence on vote shares beyond what is predicted simply by the direct effects.

I also note that the crowded ballot effect can also lead to a quality effect. Because of strategic incentives introduced by a crowded ballot, strategic third parties might contribute even further to the decreased likelihood of seeing a high-quality third party candidate in a district with a low ballot access threshold. To see this, imagine a serious, national third party that has limited resources to allocate among different races. This party might be more willing to invest resources in races that they believe will not attract too many frivolous candidates. This strategic decision can exacerbate the likelihood of high-quality third party candidates running in districts with high ballot access thresholds.

2.2 Two Dimensions of Candidate Success

In light of the preceding arguments, I reevaluate the notion of "candidate success." If one only considers the costs of ballot access, there is a clear negative effect on success. However, once benefits are incorporated, things become less straightforward. To help distinguish the different effects, we should evaluate the success of minor party candidates on two distinct dimensions.

The first dimension is the outcome of petitioning. Was the potential candidate actually able to get onto the ballot? This requires that the candidate collects the necessary number of signatures, which varies across states and congressional districts. The second dimension is electoral success, which is evaluated *conditional* on successful ballot access petitioning. Using the notation from the previous section, we should consider the functions f and v separately.

To observe the distinction between the two dimensions of candidate success, we can compare two hypothetical situations. First suppose that the required number of signatures for ballot access is *low*. According to the preceding logic, we can expect a high rate of success on the first dimension, petition outcome; however, because the low signature requirement does not weed out low-quality candidates, we should not expect much success from these candidates on election day. In this situation, candidates are successful on the first dimension but not on the second.

Now suppose that the signature requirement is *high*. The barrier to entry is now insurmountable to a larger proportion of potential candidates; therefore, fewer minor party candidates will successfully petition. However, conditional on having gained access, one would predict that these candidates will be more successful than those in the first situation of low ballot access.

This reasoning suggests that we should observe the influence of ballot access requirements on two dependent variables separately: (1) whether any minor party candidate gets on the ballot, and (2) the success of minor party candidates who were able to secure ballot access.

2.2.1 An Additional Statistical Issue: Clustered Data

A secondary statistical issue touched on in this chapter is the potential problem raised by using clustered data. If clustering not accounted for, then the researcher might overstate the strength of the statistical evidence for the variable of interest.

The issue of clustering has been brought up very recently in political science by Primo, Jacobsmeier and Milyo (2008). Clustering occurs when observations are part of some group, with several groups observed in the data. Problems may occur when observations *within* a group share some attributes (homogeneity), while there is

greater heterogeneity *across* groups. That is, the model will violate the independence assumption. In the data at hand, the groups are states, and the observations are congressional districts. Specifically, the variable of interest, ballot access requirement, varies across states more so than within. Although the exact number of signatures does vary across districts within most states (laws are usually a percentage of some base, such as registered voters, which varies somewhat across districts), the bulk of the variation in the signature requirement is across states. One should then be particularly cautious when inferring the effect of state-level variables on district-level outcomes.

Since observations are not independent, one does not have "as much data" as one thinks, since the number of states, rather than districts, is the number of independent observations. In this chapter, I use cluster corrected standard errors, while also presenting the uncorrected standard errors to get a sense of the degree of the potential problem. Although using some other robust standard error estimator, such as the Huber/White/sandwich estimator, does deal with the lack of independence across observations, using the clustered standard error is preferable since it more specifically takes into account the structure of the data at hand. A second straightforward approach to deal with clustered data is to use group means as the unit of observation. This approach might be preferable, since the small number of clusters are somewhat problematic for cluster-corrected standard errors, which rely on asymptotic properties.

2.3 Evidence Supporting Conventional Wisdom

Conventional wisdom asserts that ballot access requirements have a negative effect on third party electoral success. The usual dependent variable used in such an analysis

is the third party vote share. Surprisingly, little empirical work has been done on this subject (Rosenstone, Behr and Lazarus, 1996), and the empirical work that has been carried out has not been able to substantiate this assertion (see Tamas, Hindman and Monroe, 2006; Burden, 2007; Hirano and Snyder, 2007). Following conventional wisdom in only considering the costs to ballot access, I run the following models on the entire sample, using as the dependent variable the *Logged Max. Third Vote* (vote share of the most successful minor party candidate in the district). Because of the distribution of the non-logged DV (not surprisingly, lots of smaller values), the log-transformation gives a more "normal distribution," which will become especially important in a later analysis.[6]

I use the maximum vote, rather than the total vote, of all third party candidates, which better captures actual performance by controlling for the number of candidates. That is, I use the three-way vote total (Dem + Rep + Max Minor) as the denominator to calculate the dependent variable, third party vote share. If several candidates are on the ballot and each win very few votes, then none of these candidates were very successful. However, if we use the sum of all their votes, then we might have a slightly skewed (over-estimated) measure of success. The preceding arguments for a beneficial quality effect makes more sense when thinking of an individual candidate.

The independent variable of interest is *Signatures*, which is the number (in thousands) of signatures required in the district for non-major party ballot access.[7] Depending on state, there may be different requirements for minor parties (to "form" and get ballot access) and for independent candidates. For some states, minor parties can only gain access through petitioning as an independent (so, some districts

[6]To have values of zero vote shares defined, I take the natural log of vote share plus one. Unfortunately, this transformation introduces some amount of bias, but there is no easy solution to this problem.

[7]I use the Federal Election Commission's *Ballot Access* publications to calculate the required number of signatures per district (Markin, 1995*a*,*b*).

have identical values for both requirements). In all of the analyses reported in this chapter, I use the minimum of the two possible requirements. Summary statistics for the signatures variable are: mean 3.9; standard deviation 4.06; min 0; max 19 (all in thousands).

I include a few other controls. *Ln(Prev. Third Vote)* is the logged vote share of the most successful minor party candidate in the district in the previous general election (coded on 0 to 100 scale).[8,9] District heterogeneity is controlled by the variable *Dist. Het.* (Sullivan index) I expect these two controls to have a positive effect on the probability of entry by a minor party candidate. We are more likely to see minor party candidates in districts where they did (relatively) well in the preceding election. Some districts in the previous election were unopposed – only one major party candidate ran for the office. Since minor party vote shares are inflated to some degree in such districts, I include a dummy, *Unopposed in Prev.*, to denote districts that were unopposed and an interaction term, *Unopposed X Prev. Third Vote*, between the unopposed dummy and the minor party vote share.[10] The variable *Major Vote Difference* is the difference in vote between the Democratic and Republican candidates (0 to 100 scale). Burden (2007) includes this variable in his study of ballot access laws (of presidential and Senate elections). The logic behind this variable is that Duvergerian incentives dominate one's decision of whether to support a minor party candidate, and minor party candidates are predicted to do less well (lose more potential supporters) in close elections. I also include a dummy, *Unopposed in Current*, to denote which districts where uncontested in the current election to try to

[8]This variable is logged to have it consistent with the dependent variable.

[9]Using the total vote share of *all* minor party candidates gives similar results.

[10]Alternative methods to deal with this problem give similar results. Some other methods include simply running the model without accounting for possible inflation and dropping from the analysis districts that were unopposed in the previous election.

control for inflated third party vote shares in these districts. Lastly, since I pool the data across years, I include year dummies, where 1996 is the omitted year.[11]

The ballot access coefficient is negative, as predicted by conventional wisdom. However, there are two reasons to be skeptical about these parameter estimates. First, because of the significant number of zero's for the dependent variable (all of those districts where no minor party candidates entered are coded with minor party vote share of zero), one could argue that a Tobit model should be used instead. 404 out of 1263 observations have the dependent variable at 0. The dependent variable we are interested in is essentially the latent variable of "candidate electoral success." The bottom end of success is censored at 0. The worst any candidate can do is receive no votes. One could argue that the independent variables would be able to distinguish among these observations. A well-known result is that using OLS on censored data lead to biased and inconsistent parameter estimates. Tobit is the solution. The importance of using the logged vote share as the DV is now apparent, since a normally distributed dependent variable is especially important for the Tobit model.

Not surprisingly, the Tobit model produces a larger coefficient for *Signatures*. Simply looking at OLS or Tobit estimation results could lead one to conclude that ballot access requirements do indeed have a negative influence on third party candidates; although, after controlling for clustering, this finding is less strong, since the signature requirement coefficient loses statistical significance in the OLS and Tobit models. The lack of a strong statistical relationship supports work by Burden (2007) and others. This example also illustrates the importance of correctly modeling dependence across observations; otherwise, one might draw incorrect (or at least premature) inferences.

[11] In this and all following analyses, I omit Vermont and Louisiana.

Table 2.1: (Log) Max Third Party Vote Share, OLS (all districts)

	Uncorrected Coef./Std. err.	Clustered Coef./Std. err.
Signatures	-0.022**	-0.022
	(0.01)	(0.02)
Dist. Het.	1.349*	1.349
	(0.53)	(0.89)
Incumbent	-0.118†	-0.118
	(0.07)	(0.08)
Major Vote Difference	0.001	0.001
	(0.00)	(0.00)
Ln(Prev. Third Vote)	0.331**	0.331**
	(0.03)	(0.07)
Unopposed in Prev.	-0.054	-0.054
	(0.09)	(0.13)
Unopposed X Vote	-0.162**	-0.162†
	(0.06)	(0.08)
Unopposed in Current	0.770**	0.770**
	(0.10)	(0.16)
1998	-0.192**	-0.192*
	(0.05)	(0.08)
2000	0.022	0.022
	(0.05)	(0.06)
Constant	-0.127	-0.127
	(0.35)	(0.64)
Adj. R^2	0.213	0.213
Obs.	1243	1243

Significance levels: $\dagger p < .1; *p < .05; ** p < .01$

Table 2.2: (Log) Max Third Party Vote Share, Tobit (all districts)

	Uncorrected Coef./Std. err.	Clustered Coef./Std. err.
main		
Signatures	-0.048**	-0.048
	(0.01)	(0.04)
Dist. Het.	2.596**	2.596*
	(0.75)	(1.27)
Incumbent	-0.163†	-0.163
	(0.09)	(0.10)
Major Vote Difference	0.001	0.001
	(0.00)	(0.00)
Ln(Prev. Third Vote)	0.482**	0.482**
	(0.05)	(0.10)
Unopposed in Prev.	-0.146	-0.146
	(0.14)	(0.21)
Unopposed X Vote	-0.216**	-0.216†
	(0.08)	(0.12)
Unopposed in Current	0.822**	0.822**
	(0.14)	(0.20)
1998	-0.293**	-0.293*
	(0.07)	(0.12)
2000	0.033	0.033
	(0.07)	(0.09)
Sigma	0.947**	0.947**
	(0.02)	(0.02)
Constant	-1.111*	-1.111
	(0.50)	(0.92)
Log likelihood	-1510.025	-1510.025
Obs.	1243	1243

Significance levels: $\dagger p < .1; *p < .05; ** p < .01$

Although using clustered standard errors is theoretically appealing, there are practical problems that arise, particularly given the structure of the data. Although a fair number of total observations (1243) are in the data, there are only 48 clusters. Unbiasedness of clustered standard errors depends on asymptotic properties (as the number of clusters $\rightarrow \infty$), and a few works have used Monte Carlo simulations to show how clustered standard errors (and other heteroskedastic-corrected standard errors, more generally) can give biased estimates of the true standard error if the number of clusters (total observations) is too small – usually an underestimate. There is no hard-and-fast rule on the number of clusters that are needed. However, suggestions range from 40 to 100 as a minimum (Petersen, N.d., 22-23).

Wooldridge discusses a simple alternative procedure to account for clustered data when the number of groups is "small" (2003, 135). Under a few assumptions, including independence across clusters, one can use OLS and get valid t-statistics by estimating a model of cluster averages as observations. That is, rather than use the congressional district as the unit of analysis, I can instead analyze the effect of signature requirements at the state-level, using state averages as data. This method is believed to be a conservative test, since additional observations within a cluster do not give any new information, beyond contributing to the cluster mean. The Table 2.3 presents results from OLS and Tobit regressions on state averages. I drop the year dummies in the reported results, as they have no discernable effect in this model. I also drop districts that had an uncontested election in the previous cycle before calculating state averages. Including any of these variables does not change the results.

In this model of group means, we find a statistically significant negative effect of signature requirements on third party success. Third party candidates win fewer votes in states with *higher* signature requirements, as conventional wisdom predicts.

Table 2.3: (Log) Max Third Vote, OLS and Tobit Using State Means (all districts)

	Group Means, OLS Coef./Std. err.	Group Means, Tobit Coef./Std. err.
(mean) Signatures	-0.031**	-0.039**
	(0.01)	(0.01)
(mean) Dist. Het.	1.883	1.806
	(1.45)	(1.51)
(mean) Major Vote Difference	0.003	0.003
	(0.00)	(0.00)
(mean) Incumbent	-0.528**	-0.556**
	(0.17)	(0.18)
(mean) Log(Prev. Third Vote)	0.337**	0.361**
	(0.07)	(0.07)
Sigma		0.449**
		(0.03)
Constant	-0.152	-0.088
	(0.94)	(0.98)
Adj. R^2	0.235	
χ^2		46.075
Obs.	144	144

Significance levels: $\dagger p < .1; *p < .05; ** p < .01$

We again see that the estimated effect is larger in the Tobit model, as expected.

Taken together, there is at least suggestive evidence in support of conventional wisdom. In all estimated models, the signatures coefficient is negative. However, because of the clustered structure of the data, t-statistics from uncorrected OLS and Tobit may not be valid; thus, whether the negative effect is statistically significant is not entirely clear. Using clustered standard errors, the signatures effect is not statistically significant. However, in a model of state means, which satisfies the classical linear-model assumptions, shows a statistically significant effect. I now turn to showing why this test for the influence of ballot access restrictions on third party candidate success is misspecified.

2.4 An Empirical Reevaluation

I argue that there are two dimensions of third party success: (1) ability to gain ballot access, and (2) ability to win votes, conditional on having gained ballot access. I hypothesize that increasing barriers to ballot access hinders success on the first dimension but can aid success on the second.

As an initial piece of evidence, I evaluate the Tobit model estimated in the previous section. This model assumes that the same determinants have the same effects on the limit (no minor party candidate) and nonlimit (positive vote shares of actual minor party candidates) observations. However, I argue that our situation violates this assumption and that using the Tobit model mispecifies Prob[y*<0]. Greene (2000, 770) refers the the example given by Lin and Schmidt (1984):

> They cite as an example loss due to fire in buildings. Older buildings might be more likely to have fires, so that $\partial \text{Prob}[y_i > 0]/\partial \text{age}_i > 0$ [where y is the value of loss], but, because of the greater value of newer buildings, older ones incur smaller losses when they do have fires, so that

$\partial E[y_i|y_i > 0]/\partial \text{age}_i < 0$. This fact would require the coefficient on age to have different signs in the two functions, which is impossible in the tobit model because they are the same coefficient.

The situation Lin and Schmidt describe is precisely what I argue is occurring here. We can first test for misspecification of the Tobit model. Greene suggests a likelihood ratio test statistic to assess the Tobit model.

$$LR = -2[lnL_T - (lnL_P + lnL_{TR})] \tag{2.1}$$

where

L_T = likelihood for the tobit model

L_P = likelihood for the probit model, fit separately

L_{TR} = likelihood for the truncated regression model, fit separately

This test compares the Tobit model to "a more general model in which the probability of a limit observation is independent of the regression model for the nonlimit data" Greene (2000, 770).

1. Decision equation:

   $\text{Prob}[y_i^* > 0] = \Phi(\mathbf{x_i'}\gamma)$, $z_i = 1$ if $y_i^* > 0$

   $\text{Prob}[y_i^* \leq 0] = 1 - \Phi(\mathbf{x_i'}\gamma)$, $z_i = 0$ if $y_i^* \leq 0$

2. (Truncated) Regression equation for nonlimit observations:

$$E[y_i|z_i = 1] = \mathbf{x_i'}\beta + \sigma\lambda_i$$

This is simply a two-equation model that independently estimates the two subsamples. The tobit model arises as a special case of the two-equation model if $\gamma = \beta/\sigma$. The likelihood ratio test suggested by Greene (also see Lin and Schmidt 1984) tests whether the unrestricted (two-equation) model improves model fit significantly over

the restricted (Tobit) model. We know that LR has a limited distribution $\chi^2[J]$, where J is the number of restrictions (degrees of freedom). Estimating these models to get the log likelihoods and using (1), we get $LR = 818.7116$.[12] The more general model is attributed to Cragg (1971), who derives a maximum-likelihood estimator for this situation. Estimating the two models separately gives the Cragg parameter estimates, although with less efficiency. We can strongly reject the null hypothesis that the more general two-equation model does not add to the model fit from the imposed constraint of the Tobit model. Separate estimation of the limit and non-limit observations vastly outperforms the Tobit model, suggesting that using a Tobit misspecifies the function determining the limit observations.

In this situation, Greene suggests using a two-equations model – also known as a hurdle model – that separately estimates the decision equation using probit and the nonlimit regression using a truncated regression model. The remainder of the chapter does just this.

2.4.1 Can non-major party candidates get on the ballot?

I hypothesize that increasing barriers to entry will decrease the probability of entry. The dependent variable is coded as 1 if a minor party candidate was on the ballot, and 0 otherwise. I use the same control variables as before. A specification test reveals possible heteroskedasticity, which introduces inconsistent parameter estimates. Heteroskedasticity could be from the clustered-nature of the data or from some other source. Table 2.5 shows the results from three probit models, which checks each possibility.

All probit models support the hypothesis that signature requirements have a negative effect on the probability of a third party candidate gaining access onto the

[12] $L_T = -1510.4369$; $L_P = -667.1171$; $L_{TR} = -433.9640$.

Table 2.4: Number of Non-Major Party Candidates in District

Year	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**9**	**total**
1996	132	142	97	42	10	1	1	1	426
1998	157	157	62	28	6	1	0	0	411
2000	112	154	101	46	9	4	0	0	426

Table 2.5: At Least One Non-Major Party Candidate on Ballot, Probit

	Uncorrected Coef./Std. err.	Clustered Coef./Std. err.	Clustered, Heterosk. Coef./Std. err.
main			
Signatures	-0.078**	-0.078†	-0.081**
	(0.01)	(0.04)	(0.03)
Dist. Het.	4.915**	4.915**	4.349**
	(1.03)	(1.46)	(1.50)
Ln(Prev. Third Vote)	0.594**	0.594**	1.180*
	(0.07)	(0.16)	(0.53)
Unopposed in Prev.	-0.287†	-0.287	-0.300†
	(0.17)	(0.20)	(0.16)
Unopposed X Vote	-0.203†	-0.203	0.287
	(0.12)	(0.18)	(0.52)
1998	-0.431**	-0.431**	-0.437**
	(0.10)	(0.16)	(0.12)
2000	0.062	0.062	0.016
	(0.10)	(0.15)	(0.16)
Constant	-2.763**	-2.763**	-2.362*
	(0.68)	(1.03)	(1.00)
lnsigma2			
Signatures			-0.076†
			(0.04)
Ln(Prev. Third Vote)			0.612**
			(0.21)
Log likelihood	-667.857	-667.857	-637.682
Obs.	1243	1243	1243

Significance levels: $\dagger p < .1; *p < .05; **p < .01$

ballot.[13] The second column corrects for clustering and just misses statistical significance at the 5% level ($p > 0.059$). The third column presents results from a heteroskedastic probit model that also clusters on state. Although regressor parameter estimates are consistent in OLS even with heteroskedasticity, parameter estimates from MLE (probit) can be inconsistent in this situation.

Another estimation utilizes more detailed data. Rather than simply use a dichotomous dependent variable, I estimate the previous models using the total number of non-major party candidates as the dependent variable using Poisson regression.[14]

These results support the claim that ballot access requirements are a burdensome hurdle for minor party candidates: the probability any minor party candidate enters is decreasing in the number petition signatures required. There is suggestive evidence that higher petition requirements negatively influences the number of minor party candidates that make it onto the ballot.[15] An additional finding, although only speculative because of the limited number of elections under study, is that minor party candidates are less likely (and fewer) to enter during midterm elections. Notice that the 1998 year dummy is negative and significant, while the 2000 dummy is not.

[13] I also tried including other control variables, such as a dummy denoting whether the district is marginal (last winner received fewer than 60% of the votes) and a measure of partisan competitiveness/district ideological extremity (absolute value of the most recent Democratic presidential vote share in the district minus 50%). Neither variable is statistically significant and contributes to model fit.

[14] A negative binomial regression gives similar results, since the dependent variable is not overly-dispersed (mean 1.16; std. dev. 1.09).

[15] An omitted analysis uses state means as in the previous section as an alternative method to control for clustering. The dependent variable is the average number of non-major party candidates in a district. Since the average is no longer necessarily a non-negative integer, I use an OLS regression of group means and find a statistically significant effect ($p < .01$).

Table 2.6: Number of Non-Major Party Candidates on Ballot, Poisson

	Uncorrected Coef./Std. err.	Clustered Coef./Std. err.
Number of Minors		
Signatures	-0.043**	-0.043
	(0.01)	(0.04)
Dist. Het.	2.774**	2.774*
	(0.65)	(1.10)
Ln(Prev. Third Vote)	0.400**	0.400**
	(0.04)	(0.07)
Unopposed in Prev.	-0.409*	-0.409*
	(0.16)	(0.17)
Unopposed X Vote	-0.148†	-0.148†
	(0.08)	(0.09)
1998	-0.361**	-0.361**
	(0.07)	(0.08)
2000	0.024	0.024
	(0.06)	(0.09)
Constant	-1.763**	-1.763*
	(0.44)	(0.78)
Log likelihood	-1638.237	-1638.237
Obs.	1243	1243

Significance levels: $\dagger p < .1; *p < .05; **p < .01$

2.4.2 Electoral Success of Actual Candidates

Conventional wisdom claims that ballot access requirements will have a negative effect on electoral success of minor party candidates. In this subsection, the dependent variable is the vote share of the most successful third party candidate. An earlier section utilized a Tobit model, which found a negative effect of the signature requirement on third party vote shares.

However, the logic discussed in the theory section suggests that such a conjecture might be misguided. I hypothesize, conditional upon successful petitioning, a positive coefficient for the signature requirement and a negative coefficient for the *Squared Signature* requirement. Success will increase with signature requirements up to a point, after which success is negatively affected by a higher requirement. I include two additional variables: *Incumbent*, a dummy coded 1 if incumbent in election); and *Unopposed in Current*, a dummy coded 1 if only one of the two major parties is represented on the ballot.

In this situation, one might favor the truncated regression model. Instead, the following analysis uses ordinary least squares (OLS) on the nonlimit observations. First, theory suggests that the limit and nonlimit observations are not from the same population (i.e., same data-generating process). In the theory described earlier, the potential benefits for ballot access are only benefits in that they can have a positive influence on vote shares. Thus, benefits are only possible for actual candidates, and the reasoning does not extend to potential candidates and their potential vote shares.

A second justification is that the relationship between the independent variables and a potential negative vote share is not clear. A truncated regression model assumes that the non-observed observations are, in this case, negative vote shares, since the truncation point in the data is zero. However, given the presented theory, it is

not clear that the posited relationships between third party vote share and the independent variables hold for the non-observed observations. Many of the districts that did not have a third party candidate could have had an electorally successful candidate if they were able to gain ballot access. That is, for some districts, if a candidate was able to successfully petition for ballot access, then they would have received some vote share above the truncation point. In fact this scenario is likely, since the districts that did not have a third party candidate tended to have high signature requirements (as shown in the probit estimations). These high barrier districts are precisely the districts we expect electorally successful candidates with positive, rather than negative, vote shares.

Lastly, even if one contends that potential (negative) votes for such candidates does make sense, I am more interested in the influence of ballot access requirements on actual minor party candidates. Assume for a moment that the true relationship is

$$y_i = \mathbf{x_i}'\beta + \varepsilon_i$$

It is straightforward to show, using a theorem on moments of the truncated normal distribution, that

$$E[y_i|y_i > a] = \mathbf{x_i}'\beta + \sigma\lambda(\alpha_i), \tag{2.2}$$

where σ^2 is the variance of error distribution, $\lambda(\alpha) = \varnothing(\alpha)/[1 - \Phi(\alpha)]$, and $\alpha_i = (a - \mathbf{x_i}\beta)/\sigma$.

Choosing which model to estimate depends upon the specific interest of the researcher. If one is interested in estimating β, then the truncated regression model should be used to get an unbiased estimate of β. However, if one is interested in estimating the marginal effect in (2.2), then OLS on the nonlimit observations should be used. For my purposes, the latter is more fitting. My hypothesis of positive effects of

ballot access is is conditional upon successful petitioning (i.e., only applies to actual candidates). Therefore, *the following regressions only include districts where at least one non-major party successfully petitioned for ballot access.*

Looking at the outputs reported in the second and third columns of Table 2.7, I find strong evidence of a positive effect of signature requirements on third party candidate electoral success, which runs contrary to conventional wisdom.[16] The first two columns of Table 2.7 are identical except for the variable *Squared Signatures* is omitted in the second. I hypothesized that the positive effect of the signature requirement works "up to a point," after which the cost of the requirement outweighs any benefits. Or in the very least, there are diminishing marginal returns to the signature requirement. This logic predicts a positive coefficient for *Signatures* and a negative coefficient for *Squared Signatures*. Looking at the first column, I do not find evidence for this nonlinearity. In fact neither term is statistically significant, which is not surprising given the high correlation between the constituent and squared terms (correlation around 0.95). Similar to the earlier analysis, I also estimate a model on state means and find the same result.

Contrary to conventional wisdom, districts with *higher* signature requirements have *more successful* non-major party candidates.[17] In order to better gauge its influence, increasing the ballot access requirement from the 25^{th} to the 75^{th} percentile (roughly 5000 signatures) increases vote share by 1.2 percentage points, which is around one-half of one standard deviation of vote share (not logged).[18] As one point of comparison, increasing *Major Vote Difference* from the 25^{th} to the 75^{th} percentile

[16]Results also hold if I drop all districts (and drop the controlling dummy variable *Unopposed in Current*)that had an election with only one of the two major parties represented.

[17]In the reported analysis, I exclude Vermont and Louisiana. The results also still hold if the two most obvious outliers of minor party vote shares are dropped: MO-8 in 1996 and VA-5 in 2000.

[18]As the point of comparison, I use the standard deviation of the DV in districts where both major party candidates ran a candidate.

Table 2.7: Only Districts With At Least One Non-Major Party Candidate on Ballot

	Uncorrected (1) Coef./Std. err.	Uncorrected (2) Coef./Std. err.	Clustered Coef./Std. err.
Signatures	0.018	0.034**	0.034**
	(0.02)	(0.01)	(0.01)
Squared Signatures	0.002		
	(0.00)		
Dist. Het.	-1.656**	-1.645**	-1.645
	(0.51)	(0.51)	(1.08)
Incumbent	-0.173**	-0.173**	-0.173*
	(0.06)	(0.06)	(0.08)
Major Vote Difference	0.003**	0.003**	0.003
	(0.00)	(0.00)	(0.00)
Ln(Prev. Third Vote)	0.176**	0.178**	0.178**
	(0.03)	(0.03)	(0.05)
Unopposed in Prev.	0.069	0.069	0.069
	(0.11)	(0.11)	(0.10)
Unopposed X Vote	-0.170**	-0.171**	-0.171*
	(0.06)	(0.06)	(0.07)
Unopposed in Current	1.574**	1.580**	1.580**
	(0.10)	(0.10)	(0.15)
1998	-0.132**	-0.131**	-0.131*
	(0.05)	(0.05)	(0.06)
2000	-0.032	-0.031	-0.031
	(0.05)	(0.05)	(0.05)
Constant	1.715**	1.692**	1.692*
	(0.34)	(0.34)	(0.72)
Adj. R^2	0.496	0.497	0.497
Obs.	854	854	854

Significance levels: $\dagger p < .1; *p < .05; **p < .01$

Table 2.8: (Log) Max Vote Using State Means, OLS (At Least One Third Party)

	Group Means
	Coef./Std. err.
(mean) Signatures	0.025*
	(0.01)
(mean) Dist. Het.	-1.807
	(1.19)
(mean) Major Vote Difference	0.016**
	(0.00)
(mean) Incumbent	-0.416**
	(0.13)
(mean) Log(Prev. Third Vote)	0.149**
	(0.06)
Constant	2.196**
	(0.78)
Adj. R^2	0.434
Obs.	134

Significance levels: $\dagger p < .1; *p < .05; **p < .01$

(26%) similarly increases minor party vote share (not logged) by just over 1 percentage point. Lastly, comparing third party candidate votes in elections with and without an incumbent, those with an incumbent do worse by just over 1 percentage point.

Although the contribution of the signature requirement to electoral success seems modest, it compares quite favorably to other variables in the model. Furthermore, one could argue that the null hypothesis is actually a negative effect (Section 2.3). Thus, simply finding a statistically significant positive effect is in itself substantively significant.

A couple other findings are worth pointing out. An interesting result is that third party vote share is decreasing in district heterogeneity, although this result does not reach a conventional level of statistical significance. That is, district heterogeneity contributes to minor party candidate entry but detracts from electoral success.

Although puzzling at first glance, this result mirrors the effect of the signature requirement and is consistent with my general theory of screening on candidate quality. District contextual factors that make it easier for third party candidates to gain ballot access, such as low signature requirements and high district diversity, allow low quality candidates to more easily gain ballot access. Consequently, these factors have a negative effect on vote share. A second finding, although tentative because of the limited elections in the data, is that the success of minor party candidates who gain ballot access is higher during presidential election years. In combination with the findings in the last section, non-major party candidates appear to perform better on both dimensions of success during presidential election years.

Additional regressions find some support for the hypothesis that a crowded ballot hinders the success of the best minor party candidate (see Tables 2.9 and 2.10). I include as an independent variable *Number of Minors* (number of non-major party candidates on the ballot). From my earlier discussion on crowded ballots, I hypothesize that as the number of candidates increases, the vote share of the most popular minor party candidate will decrease. Although the coefficient takes the correct sign in all regressions, it reaches statistical significance for the uncorrected standard errors and state mean models, but not for the model correcting for clustered standard errors. Since the signatures variable predicts the number of minor party candidates that gain ballot access, it is not too surprising that the signatures coefficient loses statistical significance in the state means model.

2.5 Selection Bias?

One might argue that a Heckman (1979) selection model is most appropriate for the theory and data presented. The discussion of indirect quality (screening) effects

Table 2.9: Only Districts With At Least One Non-Major Party Candidate on Ballot

	Uncorrected Coef./Std. err.	Clustered Coef./Std. err.
Number of Minors	-0.050*	-0.050
	(0.02)	(0.03)
Signatures	0.033**	0.033**
	(0.01)	(0.01)
Dist. Het.	-1.596**	-1.596
	(0.51)	(1.10)
Incumbent	-0.185**	-0.185*
	(0.06)	(0.08)
Major Vote Difference	0.003**	0.003†
	(0.00)	(0.00)
Ln(Prev. Third Vote)	0.191**	0.191**
	(0.03)	(0.05)
Unopposed in Prev.	0.059	0.059
	(0.11)	(0.10)
Unopposed X Vote	-0.182**	-0.182**
	(0.06)	(0.07)
Unopposed in Current	1.563**	1.563**
	(0.10)	(0.14)
1998	-0.144**	-0.144*
	(0.05)	(0.06)
2000	-0.030	-0.030
	(0.05)	(0.05)
Constant	1.747**	1.747*
	(0.34)	(0.70)
Adj. R^2	0.499	0.499
Obs.	854	854

Significance levels: $\dagger p < .1; *p < .05; **p < .01$

Table 2.10: Crowded Ballot: (Log) Max Vote Using State Means, OLS (At Least One Third Party)

	Group Means
	Coef./Std. err.
(mean) Number of Minors	-0.164**
	(0.05)
(mean) Signatures	0.017
	(0.01)
(mean) Dist. Het.	-1.199
	(1.16)
(mean) Major Vote Difference	0.016**
	(0.00)
(mean) Incumbent	-0.430**
	(0.12)
(mean) Log(Prev. Third Vote)	0.179**
	(0.06)
Constant	2.057**
	(0.76)
Adj. R^2	0.473
Obs.	134

Significance levels: $\dagger p < .1; *p < .05; **p < .01$

appears to match the set-up for a selection model. Whether a district has a minor party candidate on the ballot is the selection equation. The outcome equation then models the vote share won by the minor party candidate.

Following the logic of the signature requirement as a screening mechanism, the unobserved variable could be "candidate quality" in the district. We should expect that the sample selects candidates from low signature districts. However, some candidates from high signature requirement districts will gain ballot access, and the reason they are successful is that they have a high value of some unmeasured variable (quality). Those from high signatures districts will therefore be especially successful compared to those with lower requirements. This would overestimate the positive effect of the signatures requirement in the outcome equation, since some of that positive effect is due to the unobserved quality of the candidate.

For a few reasons, I do not apply the Heckman model here. Melenberg and Van Soest write in their study on vacation expenditures:

> Note the difference in interpretation between the common selectivity model (Tobit II [Heckman selection] in Amemiya, 1984) and the model here. The standard example of the latter is a wage equation combined with a binary choice employment equation. In this model, the wage rate for someone who does not work has a clear interpretation: potential earnings if he or she would find a job. In our case, however, vacation expenditures of non-participants are zero by definition. The problem is not modelling selectivity but zero expenditures. Whereas a continuous distribution of (positive) potential wage rates in the population of workers and non-workers makes sense, the concept of positive potential vacation expenditures of people who do not spend anything does not seem very useful (1996, 67).

Similar to Melenberg and Van Soest, my hypothesis does not extend to explaining potential votes for candidates who do not successfully get onto the ballot. The vote shares for non-candidates are zero by definition. The theory I presented only posits a positive effect on vote shares of actual candidates. Notice that in the theory section,

the vote function, $v(c, s)$, has actual candidates in the domain. The framework for the selection model is:

$$\text{Selection equation:} \qquad z_i^* = \mathbf{w'}_i\boldsymbol{\gamma} + u_i \tag{2.3}$$

$$\text{Outcome equation:} \qquad y_i = \mathbf{x'}_i\boldsymbol{\beta} + \varepsilon_i \tag{2.4}$$

The sample rule is that y_i is selected (observed) only when $z_i^* > 0$, and ε_i and u_i have a bivariate normal distribution with zero mean and correlation ρ. The Heckman selection model would estimate the effect of the signature requirement on all potential candidates' potential vote shares (i.e., $\boldsymbol{\beta}$ in (2.4)). I am not interested in the counterfactual of how successful candidates would be *if they were able* to successfully petition for ballot access, as discussed in the previous section. I am simply interested in estimating $E[y_i|z_i^* > 0]$, which is not given by (2.4).[19] The OLS results in the previous section show the effect of signatures on actual candidates and does not extend to the larger population of actual and potential candidates.[20] The main point is that

[19] A Heckman selection model is not even feasible in this case, since I do not have any decent exclusion restrictions – a variable that influences selection but not the outcome. Without an instrument, the Heckman estimator identifies only from distributional assumptions about the residuals (Sartori, 2003).

[20] Even if one is interested in broadening inferences to districts without a third party candidate, the Heckman selection model is also unnecessary for the following reasons. Incidental truncation is problematic if some unobserved variable influences both equations, in which case u_i and ε_i are correlated. Suppose that quality is an unobserved variable that influences both sample selection and the outcome equation. From the argument in Section 2.1.2, quality is conjectured to be positively correlated with the signature requirement. To the extent that the signature requirement is correlated with quality and is therefore a good proxy for quality, the correlation between u_i and ε_i, and consequently selection bias, should be minimal.

Furthermore, let us focus on the selection equation. It is not clear how one would interpret what the unobservable quality is in specific reference to. Does quality refer to a potential candidate (candidate-specific) or the third party conditions of the congressional district (district-specific)? Taking a particular potential candidate as an observation seems to be a stretch, since not all districts actually had a potential candidate(s) interested in running for office. That is, we do not know whether unobserved quality was an relevant issue, since we do not even know if anyone was attempting to gain ballot access. They may have been deterred from even attempting to run for office due to the observable district conditions (e.g., signature requirement and district

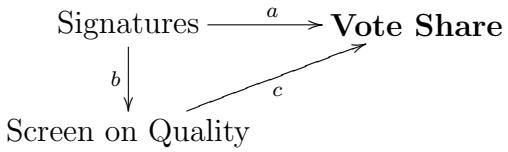

Figure 2.1: Effects of Signature Requirement

the theory in Section 2.1.2 motivates the hypothesis of a positive correlation between ballot access and vote shares among actual candidates, rather than selection into the sample.

Although using OLS on the subsample of districts with a minor party candidate is "correct," it gives a rather blunt estimate of the influence of the signature requirement. The diagram in Figure 2.1 helps clarify what the OLS estimation produces. The direct quality effect of signatures, a, comes from the two direct mechanisms, tallying and rallying. The additional quality effect from screening is given by bc. The OLS estimate for the signature requirement is $a + bc$. That is, I find the *total* positive effect of the signature requirements but am unable to discern which specific mechanism leads to the relationship. The OLS estimate lumps together the direct effect and indirect effect (via screening) of the signature requirement. Unfortunately, the direct influence cannot be parsed out, beyond directly including a control variable measuring candidate quality.

A final question regarding the quality effect is whether I could simply find a proxy for quality to include in the model to directly test this hypothesis. While

composition).

The most intuitive interpretation of the unit of observation in the selection equation is the congressional district, since the probit model assesses the emergence of a third party candidate in a given district. By this interpretation, quality then refers to the "congressional district's general predisposition towards third parties." We might then expect that this quality is positively correlated with both selection and outcome. First notice that this quality effect is different from the one posited in Section 2.1.2, which is a candidate-specific effect. But if this is the case, then I argue that the observable district variables are good proxies for the district's predisposition for third parties. In this case, selection bias is also less worrisome.

indeed a possibility worth future efforts, what proxy would best capture the relevant dimension(s) of quality is not clear. Using the usual measure of candidate quality – held previous elective office – would not make sense in the present context (Jacobson, 1989). Most relevantly, nearly all experienced candidates will choose to run as a major party candidate. Other dimensions of quality, not captured in such a measure, are likely relevant to influencing differences in the potential for electoral success across third party candidates. Aside from elective office, one occupation might make one third party candidate more viable than another. Unfortunately, the choice of which occupations might be more or less beneficial will be somewhat arbitrary – assuming one is able to find the occupation of third party candidates in the first place. Since they never win, such data are difficult to collect. Future work will consider the operationalization of quality, finding a proxy similar to the one used in the candidate quality literature.

2.6 Endogeneity

One might dismiss the results due to concerns of endogeneity. Strategic politicians might set up high signature requirements as a response to third party electoral success, which would explain the positive relationship between the signature requirement and third party vote share. In fact, the study by Lewis-Beck and Squire (1995) on presidential candidate ballot access show suggestive evidence of this strategic behavior. However, in this cross-sectional analysis that pools over few elections, I have treated this electoral institution as an exogenous factor. Since changing these laws necessitates passage of new legislation by the state legislature, the signature requirement is "sticky enough" such that treating it as exogenous is plausible.

Further, my results do not seem fully consistent with the claim of endogeneity.

If the positive effect is simply due to strategic politicians erecting higher barriers to entry in states where minor party candidates have had prior success, then one should expect a positive effect on both dimensions of minor party electoral success. I instead find opposite effects on the two dimensions of success.

2.6.1 Another Strategic Consideration: Major Party Anticipation

In the chapter 3, I hypothesize that major party candidates diverge to minimize the electoral success of a third party entrant, and the degree of divergence depends upon the likelihood of entry. One possible explanation for the patterns uncovered from the data is this strategic positioning: Lower ballot access requirements increase the probability of entry. This induces increasing divergence, which decreases third party success. That is, lower ballot access restrictions should be correlated with poorer electoral performance. This pattern is precisely what is found in this chapter's analysis.

Contrary to this reasoning – although I do believe that anticipatory divergence does play a role, as I argue in chapter 3 – here, I have posited some sort of "quality effect" of ballot restrictions. First, chapter 3 does find a pattern of divergence consistent with a quality/valence effect. Second, a quick statistical test can provide some suggestive evidence that the correlation between ballot access and non-major party votes is at least partially due to something beyond major party candidate positioning.

Ansolabehere, Snyder and Stewart (2001) construct data on candidate positioning in the 1996 U.S. House elections. From this data, I create the independent variable, *Divergence*, which is the absolute value difference between the Democratic and Republican candidates' ideological positions in a district. I simply add this variable to

Table 2.11: Anticipation: (Log) Max Third Party Vote Share, OLS (Only Districts With At Least One Third Party Candidate on Ballot)

	Clustered Coef./Std. err.
Divergence	-0.298
	(0.29)
Signatures	0.051**
	(0.01)
Dist. Het.	-1.290
	(1.52)
Incumbent	-0.064
	(0.15)
Major Vote Difference	0.005†
	(0.00)
Ln(Prev. Third Vote)	0.183**
	(0.06)
Unopposed in Prev.	0.218
	(0.26)
Unopposed X Vote	-0.212
	(0.13)
Unopposed in Current	1.798**
	(0.16)
Constant	1.397
	(1.04)
Adj. R^2	0.332
Obs.	199

Significance levels: $\dagger p < .1; *p < .05; **p < .01$

the model estimated in Table 2.7. The strategic positioning hypothesis predicts a negative coefficient for this variable – greater divergence should be correlated with poorer electoral success.

In Table 2.11, the divergence coefficient takes the correct sign but is not statistically significant at conventional levels. Regardless, the sign of the coefficient does suggest that a strategy of divergence does indeed hurt minor party electoral success – a result that also buttresses the argument in chapter 3. For my purposes here,

importantly, the signature requirement coefficient is still positive and statistically significant. The level of the signature requirement influences non-major party candidate success beyond its influence through strategic major party positioning.

2.7 Net Effect of Signature Requirements

A useful metric to gauge the total effect of the signature requirement on third party electoral success is the expected number of votes,

$$E[\text{votes}] = Pr(\text{enter}) \times E[\text{votes}|\text{enter}] \tag{2.5}$$

I simulate the expected number of votes for varying levels of the signature requirement using the estimated parameters from Tables 2.5 and 2.7. Control variables were set to their mean or mode – the former if the variable continuous and the latter if dichotomous.[21] This simulation shows that a third party should *rationally* support a ballot access petitioning requirement, assuming that the two dimensions of success are equally weighed. There is some optimal barrier to entry that balances the trade-off between a decrease in the likelihood of entry and an increase in expected votes via the quality effect. Although I do not put too much weight on the specific point estimate of the maximizing signature requirement (∼6000 signatures), the simulation is instructive because it illustrates that there is *some strictly positive* ballot access level that maximizes expected vote. One again sees that the effect of the requirement appears to be quite small – just a fraction of a percentage point. However, simply finding that the signature requirement does not have a negative, monotonic effect on expected votes is a pretty striking result.

[21] Clarify (King, Tomz and Wittenberg, 2000) is used to calculate predicted probabilities.

Table 2.12: Simulated Effect of Signatures on Expected Number of Votes

No. signatures (1000)	Pr(entry)	E[ln(vote)|entry]	E[vote]
3	0.784	0.770	1.829
4	0.760	0.804	1.843
5	0.735	0.838	1.852
6	**0.709**	**0.872**	**1.857**
7	0.682	0.906	1.856
8	0.654	0.940	1.850
9	0.625	0.974	1.838

Row with the maximum expected vote is bolded. The last column is the non-transformed (not logged) vote. That is, it is the exponential of the product of columns one and two, since vote = $e^{ln(vote)}$.

2.8 Concluding Remarks

This chapter clarifies the effect of ballot access requirements on third party electoral success. The effect depends upon what one means by electoral success. If one means the "ability to get on the ballot," then the signature requirement has a *negative* effect on success. Fewer non-major party candidates secure ballot access in districts with high signature requirements. However, if by success one means "a third party candidate winning votes," then the signature requirement has a *positive* effect on success.

The findings of this chapter have interesting theoretical and policy implications. Conventional wisdom would argue that barriers to entry are simply bad and that minor party success is monotonically decreasing in signature requirements, for which my naive empirical analysis finds some supporting evidence. Thus, perhaps the null is a negative effect, rather than simply no effect. A further implication of conventional wisdom is that the optimal requirement for a minor party is zero signatures. The two-equations model that I utilize strongly rejects the null of a negative effect. An implication of my findings is that some positive requirement is optimal for third

parties, which explains why they could rationally support a reduction of signature requirements rather than a complete abolition.

This chapter shows that changing petition requirements will only marginally change third party electoral success – and perhaps an ambiguous direction, since there are positive and negative effects on electoral success. The influence of the ballot access requirement pales in comparison to the influence of the first-past-the-post rule in U.S. elections. That is, the voting institution is the true barrier to third party success. The Green party understands the limits of changes to ballot restrictions, which is why their "Holy Grail" is instant runoff voting.[22] Unfortunately for third parties, voting institutions are much more difficult to change than ballot access laws, which leaves third parties pushing for institutional changes that can only marginally improve their electoral prospects.

[22]See `http://www.fairvote.org/articles/thirdparty083004.htm`.

Chapter 3

Anticipating Entry: Major Party Positioning and Third Party Threat

The existing work on third parties tends to focus on their observed effects on final electoral outcomes, such as winning a significant percentage of the votes or stealing votes from a major party to determine the winner. By this standard, third parties are rarely important. Rosenstone, Behr and Lazarus (1996) argue that third party success is a function of "major party failure," which is a condition that is not regularly met. Two articles consider the two most recent cases for third party spoiler candidates. Lacy and Burden (1999) find that Perot was not a spoiler candidate, contrary to some circles of conventional wisdom, as his candidacy only decreased Clinton's margin of victory over Bush. A recent article by Herron and Lewis (2007) examines the spoiler effect of Nader in the 2000 presidential election by analyzing ballots cast in Florida. Although Nader did throw the election to Bush by stealing votes from Gore, Nader stole nearly as many votes away from Bush. Therefore, the net gain of votes for Gore was modest, and the extraordinary closeness of the race in Florida was arguably the most significant factor that led to the spoiler outcome. Since such tightly-contested elections are extraordinary, one might again conclude that third parties rarely influence outcomes.

I argue that in order to find significant and consistent effects of third parties on electoral competition, one must look for more subtle effects by turning attention to dependent variables other than vote choice and vote share. This chapter illustrates how major party electoral competition – specifically major party candidate positioning – is influenced by the threat of third parties entering the election. Importantly,

this effect is a normal element of the two-party system and does not necessitate major party failure, close elections, or any other condition that is not met under normal American political circumstances. Thus, this chapter contributes to a deeper understanding of two-party competition by expanding the scope of study to include potential third party candidates and their nuanced influences on the major parties.

3.1 Theoretical Primer

The central argument is that we might not observe consistent third party success because the major party candidates *anticipate* the potential entry by a third party candidate and take preemptive actions to minimize any significant electoral success.[1] The *mere threat* of a potential entrant causes the major party candidates to act differently than they would if there was no potential for a third candidate. That is, even though the third party candidate does not garner many votes on election day – or even actually run in that election – that (potential) candidate already exerted a real influence on electoral outcomes by influencing major party candidate positioning.

The simple Downsian model of elections predicts that the two candidates will converge to the median voter. However, empirical evidence has found divergence to be the norm (Ansolabehere, Snyder and Stewart, 2001). The simple Downsian model makes several assumptions, and researchers have found the median voter result to be susceptible to perturbations in the assumptions. For instance, Berger, Munger and Potthoff (2000) find that divergence should be expected if one incorporates uncertainty of candidates' positions and risk-averse voters. Incorporating candidate policy preferences and uncertainty may also cause divergence (Calvert, 1985).

[1]Obviously, the first-past-the-post rule for electing members from single-member districts is the most significant impediment to third party success. Since my study focuses on U.S. elections, where this factor is constant, I focus on other barriers to their success to explain variation in success across U.S. elections.

Most relevant to my discussion, Palfrey (1984) finds divergent equilibria in the case of two established parties that choose platforms in the first period in anticipation of an entrant who chooses a platform in the second period. The two established parties, in maximizing their own vote shares, adjust their actions to minimize the entrant's electoral success. This anticipation of third party entry leads to divergence of the two established parties.

In this chapter, I extend the Palfrey result by examining how the *potential* for a third party candidate affects major party candidate positioning in the ideological space.[2] Whereas Palfrey assumes the third candidate enters with certainty, I show that the amount of major party candidate divergence – how sensitive they are to third party threat – depends upon the likelihood of entry. In the U.S., there is substantial variation across congressional districts in this likelihood. The electoral institution that varies across districts and has a predictable effect on the probability of entry is the ballot access signature requirement. As a barrier to entry, the signature requirement is detrimental to third party entry.

In section 3, a game theoretic model extends the case of uniformly distributed voters presented by Palfrey to motivate the hypothesis that higher levels of third party entry induces greater amounts of major party candidate divergence. I then take the theory to data in section 4. Analyzing candidate positioning in the 1996 U.S. House elections, I find strong statistical evidence of this third party effect.

[2]Hirano and Snyder (2007) also use the logic of spatial elections, but they are mostly concerned with major party reaction to a *specific* ideological third party. They show that the leftward movement by the Democratic party through the New Deal contributed to a decrease in leftist third party votes.

3.2 Game Theoretic Model

The set-up for the model is the familiar unidimensional spatial model of elections. The ideological space is the closed interval $[0, 1] \subset \mathbb{R}$. Voters have single-peaked and symmetric utility functions with ideal points uniformly distributed on the ideological space. In the first stage of the game, candidates D and R each choose their platform, θ_D and $\theta_R \in [0, 1]$, respectively. Without loss of generality, assume that $\theta_D \leq \theta_R$.

In the second stage of the game, a third candidate, T, enters with some commonly known probability, p. The probability of entry is incorporated as a strictly exogenous variable, where the value is not affected by any choice variable of any player.[3] Treating p as exogenous becomes particularly plausible when thinking of an exogenous cost to entry, which I do in the empirical sections to follow. If costs are exogenous and influence entry, then the probability to entry can be treated as exogenous. If T enters, she chooses a platform θ_T to maximize her vote share, given θ_D and θ_R.

There are two interpretations of the vote-maximizing third party assumption. In the first interpretation, there literally is only one potential third candidate who is most concerned with winning as many votes possible. If her goal is to be highly visible or to win some minimum percentage of the vote so that her third party can gain automatic ballot access in the following election, then maximizing votes is a plausible strategy. The second interpretation is that there is a continuum of potential third party candidates with ideal points spread uniformly throughout the ideological space, but only one enters the election. The candidate that enters (at her own ideal point)

[3] Although the actual entry decision of a third candidate depends partially upon the actions of the two established candidates, the model focuses on the probability of entry prior to the actions of D and R as the threat of entry. One plausible conjecture is that D and R have some "prior belief" of the probability of entry that they take as exogenous. That is, D and R believe that conditions, outside the reach of their own actions, largely determine the initial likelihood of entry. For an extension of the Palfrey (1984) model that endogenizes the probability of third party entry, see Bender and Haas (1996), who present a simulation.

is the one that would be most successful (i.e., win the most votes).

After all three candidates choose their location, the election takes place. The model assumes no abstention and no strategic voting. Two cases of the objective functions for D and R are considered. I first consider the case where D and R maximize vote share. In the second case, D and R maximize the probability of winning the election. The equilibrium strategies differ depending on the objective of D and R. Although I rely on the comparative statics from the case that D and R maximize the probability of winning to motivate the empirical analysis, I include both cases for the sake of completeness, since the assumption of vote-maximization is so commonly used in formal models of elections. As a technical note, because of an "open set problem," I introduce platform sequences in the following definition of the equilibrium, where a candidate chooses a sequence rather than a single, unique platform position. We will see that this is only relevant for candidate T.

Definition 1 *The strategy sequence profile* $(\theta_D^{n*}, \theta_R^{n*}, \theta_T^{n*})$ *is an equilibrium, where*

1. $\theta_D^{n*} = \theta_D^*$ *and* $\theta_R^{n*} = \theta_R^*$, *for all* $n \in \mathbb{N}$.

2. *(a) D and R maximize vote share,*

$$V(\theta_i^*|\theta_j^*, \theta_T^{n*}, p) \geq V(\theta_i|\theta_j^*, \theta_T^{n*}, p) \text{ for all } i \in \{D, R\}, i \neq j, \text{ and } \theta_i \neq \theta_i^*$$

OR

(b) D and R maximize probability of winning,

$$\theta_i^* = \max_{\theta_i} Pr(i \text{ wins}|\theta_j^*, \theta_T^{n*}, p) \text{ for all } i \in \{D, R\} \text{ and } i \neq j$$

3. *T maximizes vote share given θ_D and θ_R, in a limit equilibrium sense. For every $\varepsilon > 0$, $\exists\ K \in \mathbb{N}$ such that whenever $n > K$, the vote share for T under the sequence θ_T^n is within ε of the supremum of her payoffs over all her strategies, given θ_D and θ_R.*

Condition 1 states that the equilibrium positions of D and R will be simply some set position in the ideological space.[4] Condition 2 states that D does not have an incentive to deviate for the two cases we are considering: where D is maximizing (a) vote share, and (b) probability of winning. Condition 3 specifies "almost maximizing" strategy. Without this condition, T might not have a well-defined maximizing strategy, as we might run into an open set problem.[5] We can say that T's choice of platform approaches the limit x from above ($x+$) or from below ($x-$).[6] T's strategy can then be referred to as $x+$ or $x-$. If there is more than one vote maximizing location for T, assume T randomly chooses each position with equal probability. Lastly, an immediately obvious characteristic of the equilibrium is that the strategies for D and R are symmetric. That is, $\theta_R^* = 1 - \theta_D^*$. Thus, in the following propositions, I will characterize the equilibrium strategies only for D and T.

3.2.1 Maximizing Vote Share

This subsection models the election where D,R, and T maximize vote share.

Proposition 1 *If $p = 0$, then D and R converge to the median voter.*

This is an immediate result of the median voter theorem.

[4]The equilibrium does not actually require that D and R choose fixed positions, but it is a straightforward implication. I include Condition 1 to simplify notation.

[5]That is, T can always move infinitesimally closer to one of the parties to slightly increase her vote share, in the case where she is a more extreme candidate.

[6]This is similar to the notation used by Osborne (2000).

Proposition 2 *If $p = 1$, the equilibrium strategy is $\theta_D^* = \frac{1}{4}$. T will choose a platform randomly between D and R.*

See Palfrey (1984) for the proof.

These previous results characterize equilibrium strategies under the limiting cases of p. We now turn attention to the case when $0 < p < 1$. Assuming symmetric strategies and from the results of the limiting cases of p, we should expect any optimal choice would be some $\theta_D \in [\frac{1}{4}, \frac{1}{2}]$.

Proposition 3 *If $p \geq \frac{2}{5}$, the equilibrium strategy is $\theta_D^* = \frac{1}{4}$ and T locates randomly between D and R. If $0 < p < \frac{2}{5}$, then there is no equilibrium strategy.*

PROOF:

CASE 1. I first prove the non-existence case. Suppose $\theta_D \in (\frac{1}{4}, \frac{1}{2})$. If T enters the election, D's vote share from this strategy is

$$V_D(\theta_D|\text{T enters}) = \frac{1}{2}(\frac{1}{2}) + \frac{1}{2}(\frac{1}{2} - \theta_D)$$

The first term is where T enters just to the right of R, and D gets $\frac{1}{2}$. The second term is the case where T enters just to the left of D, and D is left with $\frac{1}{2} - \theta_D$. T chooses between these two possible locations with equal probability, since both maximize her vote share. If T does not enter the election, D gets $\frac{1}{2}$. D's expected vote share simplifies to

$$V_D(p, \theta_D) = \frac{1}{2} - \frac{1}{2}\theta_D p \tag{3.1}$$

D clearly has no incentive to deviate towards the right, as T will enter just to the left of D, squeezing D in the middle. Denote D's leftward deviating strategy from θ_D by $\theta'_D = \theta_D - \varepsilon$ for some $\varepsilon \in (0, \theta_D - \frac{1}{4}]$. D will obviously pick an infinitesimally

small ε, which will lead T to choose $\theta_T = \theta_R+$. In the limit, $V_D(p, \theta_D, \varepsilon) = \frac{1}{2}$ for all p. Deviating is always beneficial for D when $p > 0$, since $\frac{1}{2} >$(3.1) for all $p > 0$.

Now suppose $\theta_D = \frac{1}{2}$. D's expected vote share is

$$\frac{1}{2} - \frac{1}{4}p \tag{3.2}$$

Deviating is beneficial if $p > 0$, since $\frac{1}{2} >$(3.2) for all $p > 0$.

CASE 2. I now prove that $\theta_D = \frac{1}{4}$ is an equilibrium when $p \geq \frac{2}{5}$. Suppose now that $\theta_D = \frac{1}{4}$. D's expected vote share from this strategy is

$$V_D(p, \theta_D) = \frac{3}{8}p + \frac{1}{2}(1 - p) \tag{3.3}$$

Any leftward deviation is obviously not beneficial for all p, as T will enter between D and R, stealing some of D's votes in the process. To find the equilibrium, we turn attention to the values of p needed to sustain the divergent equilibrium against a rightward deviation by D. Denote D's rightward deviating strategy from $\theta_D = \frac{1}{4}$ by $\theta'_D = \frac{1}{4} + \varepsilon$ for some $\varepsilon \in (0, \frac{1}{2})$. D's expected vote share after a deviation is

$$V_D(p, \theta_D, \varepsilon) = p\left(\frac{1}{4} - \frac{\varepsilon}{2}\right) + (1 - p)\left(\frac{1}{2} + \frac{\varepsilon}{2}\right)$$

$$V_D(p, \theta_D, \varepsilon) = \frac{1}{2} - \frac{1}{4}p + \varepsilon\left(\frac{1}{2} - p\right) \tag{3.4}$$

If $p > \frac{1}{2}$, any deviation is obviously detrimental, as (3.4) would be decreasing in ε. If $p < \frac{1}{2}$, D's expected vote share is increasing in ε, so the most profitable deviation is a move all the way up to $\frac{3}{4} - \gamma$ for some infinitesimally small γ.[7]

[7]More technically, using the notation presented in the text, D's deviating strategy is the sequence strategy $\theta_D^{n\prime} = \frac{3}{4}-$. T can then pick her sequence such that for some $K \in \mathbb{N}$, $\theta_T^n < \theta_D^{n\prime}$ for all $n > K$.

Substituting $\varepsilon = \frac{1}{2}$ into (3.4), and solving (3.3)$\geq$(3.4) for p,

$$p \geq \frac{2}{5} \tag{3.5}$$

■

This result shows that we do not have to assume certain entry to obtain the full divergence prediction. All that is needed is for the third candidate to enter with some minimal probability. If this minimum is met, the two major party candidates act *as if* the third candidate enters with certainty. This result mirrors that of the contestable markets literature in economics: The *mere threat of entry* can push oligopolists to set price and outputs to zero profit, even though there is no actual entry (Baumol, Panzar and Willig, 1982).

3.2.2 Maximizing Probability of Winning

The preceding result assumes that D and R are vote-maximizing candidates, which might have led to the non-existence of equilibrium for $\theta_D \in (\frac{1}{4}, \frac{1}{2}]$ when $p > 0$. In this section, D and R are assumed to maximize the probability of winning the election, while T is still maximizing her vote share. I find that equilibria can be sustained for any p. The median voter result is robust for any value of p. The fully divergent equilibrium holds if $p \geq \frac{1}{2}$. If $p = \frac{1}{2}$, then multiple equilibria hold.

Proposition 4 *The median voter result, $\theta_D^* = \frac{1}{2}$, is an equilibrium for all $0 \leq p \leq 1$. If T enters, then she enters to either $\frac{1}{2}-$ or $\frac{1}{2}+$.*

PROOF: If T enters, then T will win the election with certainty. If T does not enter, D wins with probability $\frac{1}{2}$. Thus, D wins the election in equilibrium with

probability $\frac{1}{2}(1-p)$. Deviating will not benefit D, as any deviation will ensure D loses with certainty. Denote D's leftward deviating strategy from θ_D by $\theta'_D = \theta_D - \varepsilon$ for some $\varepsilon \in (0, \frac{1}{2}]$. If T does not enter, R will win the median voter and the election. If T does enter, T will enter just to the right of R, but closer to R than D. That is, $\exists\ K \in \mathbb{N}$ such that $\theta_T^n - \frac{1}{2} < \frac{1}{2} - \theta'_D$ for all $n > K$. This ensures that T will win the election over both D and R.

That is, $\theta_D = \frac{1}{2}$ is an equilibrium if

$$\frac{1}{2}(1-p) \geq 0$$

$$p \leq 1 \tag{3.6}$$

■

Proposition 5 *$\theta_D^* = \frac{1}{4}$ is an equilibrium for all $p \geq \frac{1}{2}$. If T enters, then she locates randomly between D and R.*

PROOF: D wins the election in equilibrium with probability $\frac{1}{2}$, regardless if T enters or not. D might benefit from deviating rightwards. If T does not enter, D will win the election with certainty. If T enters, T enters just to the left of D ($\theta_T = \theta'_D-$), and D loses the election with certainty. Any leftward deviation by D is detrimental. Thus, $\theta_D = \frac{1}{4}$ is an equilibrium if

$$\frac{1}{2} \geq (1-p)$$

$$p \geq \frac{1}{2} \tag{3.7}$$

■

Proposition 6 *Any $\theta_D^* \in [\frac{1}{4}, \frac{1}{2}]$ is an equilibrium for $p = \frac{1}{2}$. If T enters, then she enters to either θ_D^*- or θ_R^*+ with equal probability; that is, she is slightly extreme).*

PROOF: Propositions 4 and 5 show this is true for $\theta_D = \frac{1}{4}$ and $\theta_D = \frac{1}{2}$, so we are left to check for $\theta_D \in (\frac{1}{4}, \frac{1}{2})$. The probability of winning for any $\theta_D \in (\frac{1}{4}, \frac{1}{2})$ is $\frac{1}{2}$. D may deviate to the left. If T enters, T enters just to the right of R at $\theta_T = \theta_R+$, and D will win the election. D loses if T does not enter. For a rightward deviation, T will enter just to the left of D, $\theta_T = \theta'_D-$, and D will lose. D wins if T does not enter. Thus, $\theta_D \in (\frac{1}{4}, \frac{1}{2})$ is an equilibrium if

$$\frac{1}{2} \geq p \text{ and } \frac{1}{2} \geq 1 - p$$

$$\Rightarrow p = \frac{1}{2} \tag{3.8}$$

■

Notice that, as before, the mere threat of entry can induce full divergence. Certain entry is not necessary to sustain the fully divergent equilibrium. However, in the case when D and R maximize the probability of winning, multiple equilibria exist given any p.

Corollary 1 *If $p \geq \frac{1}{2}$, a divergent equilibrium Pareto-dominates the convergent median voter equilibrium.*

Although the equilibrium is not continuous and unique for all p, I make the following refinements. For $p < \frac{1}{2}$, the median voter outcome results. *Proposition 4* shows that for $p = \frac{1}{2}$, any position in $[\frac{1}{4}, \frac{1}{2}]$ is an equilibrium. I submit that we can assume that any equilibrium position is equally likely; thus, the expected position is some intermediate divergence, say at $\frac{3}{8}$. If $p > \frac{1}{2}$, the model predicts

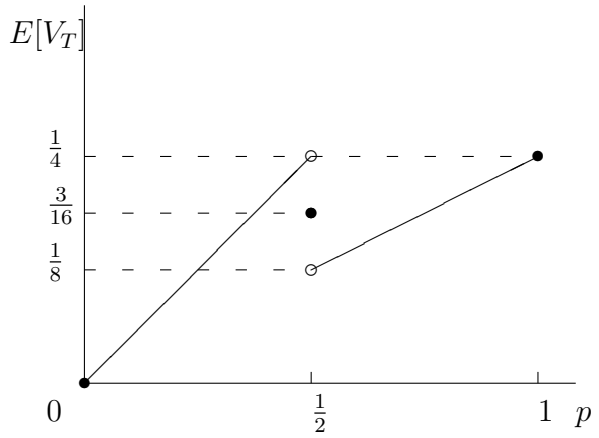

Figure 3.1: (Ex Ante) Expected Votes for T depending on p

either full convergence or full divergence. From *Corollary 1*, one can conjecture that the divergent equilibrium is more likely. The general prediction is that increasingly divergent equilibria can be sustained for higher values of p. And consequently, third party electoral success (vote share) is decreasing in the probability of entry – the more likely T is to enter, the worse she is expected to do in the election. Although, the ex ante expected vote for T is not clearly higher or lower depending on p.

3.3 An Empirical Test

The empirical analysis deviates significantly from other work on third parties by instead focusing on the major parties. The formal model suggests why one should look at the major parties' actions to gauge the influence of third parties. In the remainder of this chapter, I test the following hypothesis, derived from the formal model: As the threat of third party entry increases, the major party candidates will increasingly diverge.[8]

[8]This is not the first statistical test for major party candidate divergence due to third party candidates. Magee and Wolaver (2005) test for divergence in the 1996 U.S. House elections as well but do not find any third party effect. The dependent variable, convergence, equals one if

Two approaches are used to estimate the influence of third party threat on divergence. The first simply includes a set of proxies of third party threat to estimate their independent contributions to candidate divergence. A second approach uses a two-step model in order to test my hypothesis more directly. In the first step, a probit model estimates the probability of third party entry in 1996, using the proxies of third party threat as predictors. In the second step, I estimate divergence using as the independent variable of interest the *predicted probability* of third party entry, which is constructed from the first-step estimation. Both approaches find evidence of the influence of third party threat on major party candidate divergence.

3.3.1 Data

Ansolabehere, Snyder and Stewart (2001) show that candidate divergence is the norm throughout history in U.S. House elections. Their most detailed measure for candidate ideology is estimated from responses to the National Political Awareness Test (NPAT) in 1996, which asked each candidate over 200 policy questions on a wide range of issues.[9] Ansolabehere et al. use principal components factor analysis to scale the NPAT data and use the scale locations on the first factor, or "dimension." The scale scores are normalized such that the most liberal candidate is 0 and the most conservative candidate is 1. This measure of ideology is highly correlated with other commonly used measures of idealogy, such as ADA and NOMINATE scores. I

the two major party candidates would have voted the same way on some bill and zero otherwise. However, I hypothesis that the *level* of divergence will increase with higher threat from a third party candidate. Additionally, they use the 1996 third party vote share to control for the third party effect, which suffers from an endogeneity problem.

[9] Although there was a good response rate, many candidates did not participate in the survey. The appendix in Ansolabehere et al. details the imputation for missing candidates. The authors use available roll-call votes for the candidate (either before or after the election, whichever is available). Such imputation can be justified given the high correlation between ideology estimated from the NPAT survey and roll-call votes, for those candidates with both available.

rely on the Ansolabehere et al. estimates for ideology because the analysis requires estimates for ideological positioning for complete candidate pairs. In total, there are 301 candidate pairs, of which only 294 are included in the following analysis, due to a few considerations.[10]

Two sets of statistical models are presented. The dependent variable in the first is major party candidate *Divergence*, coded as the difference between the estimated Democratic and Republican candidate ideology scores in the district. The second model predicts *Candidate Positioning* for Republicans and Democrats separately, which simply uses the estimated ideology score for each candidate. Insights from Rapoport and Stone (2001, 2005) suggest that there may be inter-party differences in major party candidate positioning in the 1996 election, a point I will more fully discuss in a later section.

Variables of Threat of Entry

There are a few choices of proxies for p, the threat of third party entry. For a fuller explication see chapter 2, which explains in greater depth an empirical model of third party entry.

Recent Third Party Votes. The first proxy is the total vote share for non-major party candidates in the preceding general election for the office in that district, *1994 Third Party Vote Share*.[11] A third party candidate is more likely to emerge in a district that had a successful third party candidate in the previous election. Some districts in the previous House election were unopposed – only one major party can-

[10] Vermont is an obvious outlier and excluded, since the incumbent, Bernie Sanders, is a third party candidate. Louisiana districts are excluded because of the unique primary system.

[11] Doing the following analysis using the total vote share for the non-major party candidate *with the most votes* gives substantively identical and numerically nearly identical results.

didate ran for the office. Since minor party vote shares are inflated to some degree in such districts, I include a dummy, *Unopposed in 1994*, to denote districts that were unopposed and an interaction term, *Third Party Vote X Unopposed*, between the unopposed dummy and the minor party vote share.

Ballot Access Requirements. A third proxy for third party threat is the total number of signatures needed for non-major party candidates to successfully petition for ballot access, *Signatures* (in thousands). One hypothesis is that a higher ballot access requirement, as an entry cost and barrier to entry, decreases the threat of entry.[12] The cost of ballot petitioning, which is somewhere around one to two dollars per signature, deters potential candidates from entering the election. Depending on state, there may be different requirements for minor parties (to "form" and get ballot access) and for independent candidates. For some states, minor parties can only gain access through petitioning as an independent (so, some districts have identical values for both requirements). I use the minimum of the two possible requirements in the empirical analysis.

Although the simple inclusion of the ballot access variable and a predicted negative effect seems plausible, there are reasons not to expect such a clean relationship. Chapter 2 shows how ballot access requirements can have a *positive* effect on third party success through screening out lower-quality candidates and/or giving incentives to develop strong campaign organizations. As the cost to entry increases, major party candidates will be more sensitive to the possibility of a stronger, well-organized third

[12]This proxy might suffer from endogeneity. In states where third parties do well, one might expect *higher* signature requirements. That is, strategic major parties might try to deter entry by erecting higher barriers to entry (see Lewis-Beck and Squire, 1995). For now, I only consider the signature requirement as an exogenous cost. Although state legislatures can change these laws in response to third party activity, such laws are relatively "sticky" making an assumption of exogeneity plausible.

party candidate. Thus, we might in fact suspect a *positive* effect on candidate divergence. The intuition that higher quality third party candidates induce divergence is formally shown by Kim (2005). His model extends the Palfrey game by introducing a major party valence advantage over the entrant. This model predicts, generally, that the major party candidates converge as their valence advantage increases. Although the signature requirement has this quality effect, if the signature requirement increases beyond a point, then the benefits to third parties are outweighed by the costs – either the high cost leaves few resources to run a formidable campaign, or the high cost precludes the potential candidate from even gaining ballot access. This logic suggests the inclusion of a *Squared signatures* variable and the prediction of a positive coefficient for the constituent term and a negative coefficient for the squared term. The latter coefficient captures the hypothesis that increasing costs decreases candidate divergence. As a caveat, there may or may not be a negative total net effect of signatures on divergence. A negative squared term at least captures decreasing marginal returns to the benefits (quality effect) of the signature requirement.

District Heterogeneity. A last proxy is district *Heterogeneity*, measured by a Sullivan index.[13] One plausible conjecture is that third party candidates are more likely to emerge in diverse districts. The major parties have greater difficulty in "satisfying" all constituents in more diverse districts, which opens the door for third party candidates.

As a caveat, note that district heterogeneity might have an additional effect, beyond that just described. In addition to contributing to the potential for third party entry, the pull towards the median voter may be weaker in a heterogeneous district. Thus, we should expect greater divergence in diverse districts for this reason

[13]The variation of the index used here includes income, race, age, housing, and education.

as well.[14] Because of this possibility, estimates of this coefficient should be taken with a grain of salt, and the better proxies for threat are the signature requirement and previous third party vote share.

Table 3.1: Summary Statistics

Variable	Mean	Std. Dev.	Min	Max
Divergence	0.4772	0.1701	0.0355	0.8632
1994 Third Party Vote	0.0168	0.0259	0	0.1831
1992 District Perot Vote	0.1932	0.0582	0.0503	0.3322
Signature Requirement	3.71	3.68	0	13.65
District Heterogeneity	0.672	0.041	0.601	0.778

Quick Statistical Test of Threat Proxies

We can run a straightforward analysis to see whether these proxies of third party threat are representative of actual political outcomes. In the previous chapter, I estimate the influence of ballot access restrictions on third party electoral success on two dimensions: (1) ability to get onto the ballot, and (2) ability to win votes, conditional upon successful petitioning. Here, we are concerned with the first dimension, and I leave the reader to review the previous chapter for a more in-depth discussion on the data generating process.

The (dichotomous) dependent variable is whether or not at least one non-major party candidate gained ballot access. I use a probit model to estimate the influence of previous third party success, ballot access restrictions, and district heterogeneity (Sullivan index) on the dependent variable.[15] Here, I rerun the statistical model only

[14]Suppose there are two districts, one which is very diverse (probability mass spread out over the unidimensional space) and one that is very homogeneous (tight distribution around the median). A plausible conjecture is that a one unit move from the median towards the outside is not equal between these two districts. A one unit move is much more costly in the homogeneous district. Thus, one might expect the pull to the median voter to be weaker in the more diverse district.

[15]I tried including other explanatory variables, but these are by far the most robust.

Table 3.2: Probability of Entry, 1996

	(All Available) Coef./Std. err.	(In Sample) Coef./Std. err.
Signatures	-0.081**	-0.076**
	(0.02)	(0.02)
Heterogeneity	3.555*	2.398
	(1.75)	(2.13)
1994 Third House Vote	19.836**	30.965**
	(3.96)	(5.93)
Unopposed in 1994	-0.400	-0.476
	(0.26)	(0.32)
Unopposed X 1994 Vote	-14.374**	-17.078*
	(5.10)	(8.65)
Constant	-1.784	-1.189
	(1.16)	(1.41)
Log likelihood	-227.720	-151.999
LR χ^2	62.480	65.974
Obs.	422	294

Significance levels: †$p < .1$; * $p < .05$; ** $p < .01$

using 1996 House election data – the first column includes all available districts, and the second column only includes districts used in the later analyses (where candidate positioning data are available). The analysis in the previous chapter, which has a much larger sample size since it pools across multiple elections (U.S. House 1996-2000), suggests that this specification is quite good.

Theory predicts, and the probit estimates verify, that the ballot access requirement has a negative effect on the probability of a third party candidate gaining ballot access – higher costs to entry hinder minor party candidates from gaining ballot access. As expected, the third party vote share in the previous election for that office helps predict the probability of entry.[16] Third party candidates are more likely to emerge in districts where a third party candidate did well in the previous House elec-

[16] An omitted analysis shows that the 1992 Perot vote *does not* help predict the presence of a third party House candidate in 1996.

tion. Lastly, third party candidates are more likely to emerge in increasingly diverse districts, although the statistical relationship is weaker in the smaller subsample.

This auxiliary analysis shows that the proposed proxies are strong predictors of third party entry. The one caveat is that I include both the signatures and squared signatures variables to control for any quality effect, as discussed in the previous subsection. The negative effect of ballot access as a barrier to entry is captured in the (negatively signed) squared term.

Other Control Variables

Several other controls are included. A dummy variable denotes whether the district has a *Closed Primary*, coded 1 if closed and 0 otherwise. Closed primaries put pressure on the major party candidates to cater towards party activists, who tend to be ideologically more extreme. District *Ideological Extremity* is controlled for by including the absolute value difference of the district Dole (two-party) vote share from the national Dole vote share.[17] I expect that more extreme (less balanced) districts will have more divergent candidates. As Ansolabehere et al., one can also interpret this variable as a measure of partisan competition or balance. A candidate *Experience* dummy variable is included. The variable equals 1 if the challenger to the incumbent has held previous office or if both candidates for an open seat have held office, and 0 otherwise. Like Ansolabehere et al., I predict less divergence when both candidates are of high-quality. One might argue that frivolous and low-quality candidates are more likely to be ideologically extreme.

I also include the *1992 district Perot vote* in some of the following analyses. Other researchers have pointed out how Perot's success in 1992 had a lingering effect

[17] Coding this variable as the absolute value difference between the district Dole vote and 50% gives nearly identical results.

in later House elections (Rapoport and Stone, 2001, 2005). Here I test for possible Perot effects on candidate positioning, which I give further discussion later in the chapter.

3.3.2 Empirical Results

The results from two models are presented in Table 3.3.[18] The model in column 2 is identical to that in column 1 with the addition of the 1992 district Perot vote share.

The coefficients for the controls have the expected signs. Closed primaries contribute to candidate divergence. The district ideological extremity coefficient is also positive and statistically significant. Less ideologically-balanced districts have more divergent major party House candidates. As Ansolabehere et al. find, the negative (although statistically insignificant) coefficient for experience suggests that divergence is smaller in districts with experienced candidates.

The main independent variables of interest – proxies of third party threat – are the (squared) signature requirement, non-major party vote shares, and district heterogeneity. In the short model, the coefficients for these variables are in the predicted directions and statistically significant. Two of three are statistically significant in the full model. The negative coefficient for squared signatures is statistically significant in both models. As the barrier to entry increases, third party entry is less likely and major party candidates have less incentive to diverge. Notice that the direct (constituent term) signatures coefficient is positive, as predicted by the quality effect of the signature requirement. Thus, as noted earlier, this amounts to decreasing marginal returns to the quality effect of the requirement. I will return later to a

[18]The substantive results of this chapter also hold if divergence is coded as a dichotomous variable. That is, when the threat of entry is high, we observe divergence. The formal model under D and R maximizing vote share actually suggests this split. The dichotomous version of the DV was constructed by splitting districts at the overall mean value of the continuous measure.

Table 3.3: Candidate Divergence

	(1) Coef./StdErr.	(2) Coef./StdErr.
Signatures	0.027**	0.025*
	(0.01)	(0.01)
Squared Signatures	-0.002*	-0.002*
	(0.00)	(0.00)
1994 Third House Vote	0.927*	0.605
	(0.38)	(0.39)
Unopposed in 1994	-0.003	-0.010
	(0.04)	(0.04)
Unopposed X 1994 Vote	-0.077	0.214
	(0.58)	(0.58)
Heterogeneity	0.650*	0.958**
	(0.26)	(0.28)
Closed Primary	0.018	0.020
	(0.02)	(0.02)
Dist. Ideological Extremity	0.394**	0.478**
	(0.14)	(0.14)
Experience	-0.013	-0.014
	(0.02)	(0.02)
1992 District Perot Vote		0.545**
		(0.19)
Constant	-0.066	-0.379†
	(0.17)	(0.20)
Adj. R^2	0.163	0.184
Obs.	294	294

Significance levels: †$p < .1$; * $p < .05$; ** $p < .01$

discussion on the net effect of the signature requirement on candidate divergence. The 1992 Perot vote and the 1994 House vote both show some influence on candidate divergence. The 1992 Perot vote coefficient is positive and statistically significant column 2.[19] The 1994 House vote coefficient is positive and significant in the short model but drops significance in the full model.[20] Lastly, all three models show that candidates are increasingly divergent in more heterogeneous districts.

The short model shows strong evidence of the predicted positive effect of third party threat on divergence. As alluded to earlier, however, Rapoport and Stone (2001, 2005) suggest that Perot's 1992 success had lingering effects in later House elections and, consequently, should be controlled for in the empirical analysis. Empirically, this appears to be the case for candidate divergence in the 1996 House elections. The full model suggests that the 1992 district Perot vote might have a more robust effect on divergence than the 1994 House vote.[21,22] This result might not be so surprising, since midterm elections have lower turnout and are relatively low-profile compared to presidential elections. However, the results still seem to suggest that the 1994 third party House vote might also independently contribute to divergence and should also be included in the model. An omitted analysis suggests that not controlling for the 1994 House vote gives a slightly biased over-estimate of the Perot vote effect.

The next set of regressions parses apart the Perot effect empirically. In the fol-

[19] The results hold if a *south* dummy is included and also if only non-south observations are included. These checks assure that the positive coefficient for the Perot vote does not come from regional differences.

[20] The full model was also estimated including the 1992 House vote. Not surprisingly, the coefficient is very small and statistically insignificant, and the inclusion of the variable does not affect the sizes and statistical significance of the other coefficients. Additionally, to check for possible endogeneity between divergence and minor party vote share, I ran the model including the third party 1996 House vote as a control. Another model predicts the third party House vote using candidate divergence as a control variable. Neither test suggests any presence of endogeneity.

[21] Pairwise correlation between the 1992 Perot vote and 1994 third party House vote is 0.2384.

[22] An omitted regression that includes the 1992 third party House vote shows that Perot's district vote is the relevant presidential-year (1992) vote variable.

lowing section, I then provide two plausible explanations for the empirical patterns that emerge, one of which is that the district Perot vote was the prominent signal of third party threat for Republican candidates.

Rapoport and Stone (2005) suggest a starting point for an investigation of the Perot effect found in the estimation of divergence. Their third party dynamic works as follows. In 1992, Perot responded to major party failure by running a successful campaign and winning nearly twenty percent of the vote. The Republican party responded to his success by making a bid for his constituency in the 1994 election, adopting policy positions that were attractive to Perot supporters. This shift in the Republican party's policy commitments was largely made through the Contract with America, which stressed Perot issues, including balanced budget and reform. The Democratic party, on the other hand, did not make a strong and systematic bid for Perot supporters. This suggests that there may be inter-party differences in any influence of the Perot vote on positioning.

I estimate the positioning of Democrats and Republicans separately to examine any inter-party differences. In Table 3.4, the dependent variable is *Candidate Location*.[23] Note that positive coefficients translate to increased extremism for Republicans but increased moderation for Democrats. A few of the controls differ from the preceding analysis. I replace the ideological extremity variable with district vote share for Dole to control for overall district *Ideology*. There should be a positive correlation between candidate positioning and district ideology – conservative candidates are expected to run in more conservative districts. The candidate experience variable is replaced with a candidate-specific experience control, *Continuous Tenure*, measured as the number of consecutive terms held by the incumbent candidate in the district. As before, the expectation is that high-quality candidates will tend to

[23]This analysis only includes the candidates also included in the preceding analysis.

be more moderate.

Nearly all of the coefficients have the expected signs, and we can now tease out some inter-party differences. The notable discrepancies between Republicans and Democrats are the differential effects of third party vote shares and the signature requirement.[24] The Perot vote coefficient is larger than that for the House vote and is statistically significant for Republicans. Conversely, for Democrats, the 1994 House vote coefficient is larger and statistically significant, while the Perot vote coefficient is not. We see a similar differential pattern for the signature requirement variables, as they are only statistically significant for Democratic positioning. An omitted analysis shows these partisan differences are statistically significant. Lastly, district heterogeneity contributes strongly to Republican positioning but not that of Democrats. But since this variable might also be capturing something other than third party threat (strength of pull towards the median voter), too much should not be read into this result.[25]

Summary of Initial Results

Thus far, the statistical results lend some support to my hypothesis. In the short and full models (Table 3.3), two of the three threat proxies – the signature requirement and district heterogeneity – have the predicted effects on major party candidate divergence. Additional regressions suggest that the effect of third party threat is stronger

[24] One could argue that Democratic positioning in 1996 was a response to the sweeping Republican success in 1994. Including the district Republican two-party vote share in 1994 as a control produces similar results.

[25] These results are available from the author upon request. Pooling all candidates and including a party dummy and all interactions gives similar results. Democratic ideology scores are recoded as one minus the ideology score. The pooled model also omits the district ideology variable, since the dependent variable is now candidate extremism, rather than simply candidate positioning. From the pooled regression, the differences in the effects of the 1992 Perot vote and the 1994 House vote between Republicans and Democrats, noted in the main text, are statistically significant ($p < .05$ and $p < .01$, respectively). I present the results of two separate estimations for expositional purposes.

Table 3.4: Candidate Positioning

	Democrats Coef./Std. err.	Republicans Coef./Std. err.
Signatures	-0.028**	0.008
	(0.01)	(0.01)
Squared Signatures	0.002**	-0.001
	(0.00)	(0.00)
1994 Third House Vote	-0.712*	-0.143
	(0.31)	(0.32)
Unopposed in 1994	-0.048	0.019
	(0.03)	(0.03)
Unopposed X 1994 Vote	0.085	0.163
	(0.47)	(0.49)
Heterogeneity	-0.165	1.128**
	(0.22)	(0.23)
1992 District Perot Vote	-0.078	0.281†
	(0.16)	(0.16)
District Ideology	0.509**	0.620**
	(0.08)	(0.08)
Closed Primary	0.001	0.016
	(0.02)	(0.02)
Dem Tenure	0.005*	
	(0.00)	
Rep Tenure		-0.015**
		(0.00)
Constant	0.220	-0.332†
	(0.17)	(0.18)
Adj. R^2	0.262	0.227
Obs.	294	294

Significance levels: †$p < .1$; * $p < .05$; ** $p < .01$

for Democratic positioning (Table 3.4). The results for Republican positioning are a bit more mixed, since the only significant third party variable is the 1992 district Perot vote, which does not help predict third party entry (omitted probit analysis). District heterogeneity, however, contributes to conservatism, as predicted.

The next two sections explain the origin of these inter-party differences in candidate positioning in the 1996 House elections. I then turn to a stronger and more direct statistical test of the effect of third party threat on divergence and find additional evidence supporting my hypothesis.

Republican Positioning: Suggestive Evidence

The regression results thus far support the hypothesis that the threat of third party entry contributed to Democratic candidate liberalism (divergence), which I more fully discuss later. The results, however, are less straightforward for Republican positioning. There are two potential explanations for the lack of statistical significance of the 1994 House vote and signature variables for Republicans.

The first explanation follows the story of third party threat that is the focus of this chapter. The difference in regression estimates between Democrats and Republicans reflects the fact that, in 1996, the two parties used different pieces of information as signals of third party threat. Rapoport and Stone (2001, 2005) argue that the Republican party responded to Perot's success in 1992 by bidding for his supporters.

Two things are clear from the Rapoport and Stone third party dynamic. First, Perot's success influenced Republican positioning; however, positioning was influenced on the "reform" dimension, which was orthogonal to the dominant liberal-conservative dimension – the Contract shifted the Republican party towards Perot on the reform dimension. A natural question to then ask is whether Perot's success influenced Republican candidate positioning along the liberal-conservative dimen-

sion, which the estimates of candidate positioning, which I use, captures. Second, any Perot effect should be asymmetric. As opposed to the Republican party, the Democratic party did not make a concerted bid for Perot supporters.

A plausible conjecture is that the success of Perot was the prominent signal of third party threat (rather than the usual determinants of third party entry) for Republicans, since his success was the distinctive focal point for their party. More specifically, Republicans were sensitive to the possibility of potential congressional third party candidates who might try to take advantage of the second (reform) dimension, which Perot showed to be salient. Such third party candidates were more likely to emerge in districts where Perot did well in 1992, and this threat induced divergence (increased conservatism) on the dominant dimension. Note that even though the district Perot vote does not help predict the presence of a third party House candidate, this does not necessarily preclude the possibility that Republicans *believed* Perot's success to be a signal of third party threat.

The threat of reformist third candidates induced divergence on the dominant dimension, since potential reform candidates did not have strong policy commitments on the dominant liberal-conservative dimension.[26] That is, there was the possibility for a moderate reform candidate (like a Perot), as well as a conservative reform candidate (like a Buchanan). The logic of the unidimensional model I present in this chapter then still applies under this circumstance. Republican candidates had an incentive to diverge in the ideological space where they viewed potential reformist third candidates likely to emerge.

A second explanation deviates from the basic story presented thus far. Perhaps there was a different third party effect also in action during the 1996 elections, which only influenced Republican positioning. In particular, the Republican bid for the

[26]A working paper more formally explores third party threat in a two-dimensional space.

Perot constituency may have led to electoral conditions that attracted more conservative Republicans to districts where Perot did well in 1992. That is, the unique circumstances of the elections following 1992 for the Republican party may have contributed to a different third party effect that trumped the influence of third party threat, which my formal model analyzes and I argue is a feature of "normal" elections.

As Rosenstone et al. and others have argued, the success of Perot in 1992 was an outcome of severe dissatisfaction with the two major parties – i.e., major party failure. The two following years brought further dissatisfaction with the Democratic party, which controlled both Congress and the presidency. Furthermore, as just discussed, Rapoport and Stone argue that in the elections following the 1992 Perot success, the Republican party shifted its policy commitments to win over the Perot constituency. Thus, 1994, much like 1992, was not the usual election-year. Democrats were generally held out of favor, and Republicans made a push for control of Congress by appealing to Perot voters.

This scenario gave a partisan advantage to the Republican party, and conservative ideologues were able to ride this partisan tide into office. Furthermore, the size of the district Republican advantage is positively correlated to the 1992 district Perot vote, since more 1992 Perot supporters translates into more potential 1994 Republican supporters. Thus, following this explanation, we would expect Republican candidates to be more conservative in the districts where Perot performed well in 1992. This explanation is consistent with Rapoport and Stone's "third party dynamic" with an added twist. By bidding for third party supporters (Rapoport and Stone), the party had a valence advantage over the non-bidding party, which attracted extreme partisans to run and win office, who otherwise would have been too extreme for their districts (the twist). This candidate-type effect is similar to Rapoport and Stone's finding that experienced Republican candidates were attracted to districts where

Perot did well in 1992.

Although these conservative candidates were generally conservative beyond what district preferences would predict (in the regressions, the Perot vote has an effect after controlling for district ideology), they were still Republicans who participated in the bid for Perot supporters by signing the Contract, which was silent on more divisive issues that would display excessive conservatism. With their support for reformist issues in the Contract and the general dissatisfaction with the Democratic party dominated voters' decisions at the polls, conservative candidates were able to gain office. This explanation is consistent with the estimates of Republican positioning in Table 3.4, which shows that Republican candidates were more conservative in districts where Perot performed well in 1992.

Either mechanism – third party threat or the extension of Rapoport and Stone's third party dynamic – suggests that the influence of the Perot vote should be strongest in the election directly following his 1992 success. The following model estimates Republican positioning, but now separating out Republicans first elected in 1994.[27] Although the Perot effect may have continued for several elections after 1992, one would expect this effect to be strongest for the 1994 elections. The regression results in Table 3.5 show that those who were first elected in the 1994 election were more conservative in districts where Perot did well in 1992.[28] The strength of this relationship is muted for all other Republicans in the sample, as the Perot coefficient is much smaller. Thus, the influence of the Perot vote on Republican positioning is driven by Republican ideologues who capitalized on the 1994 Republican tide.

The findings in this section are a bit less clear, since there are multiple mechanisms

[27]None of these districts had the Republican candidate run unopposed by a Democrat in 1994; thus, the unopposed dummy and interaction are omitted.

[28]The higher Perot effect is also not likely due to regional differences, as 13 of the 44 first-term Republicans are from southern districts.

Table 3.5: Candidate Positioning: Republicans

	1994 Class Coef./Std. err.	All others Coef./Std. err.
Signatures	-0.015	0.011
	(0.01)	(0.01)
Squared Signatures	0.001	-0.001
	(0.00)	(0.00)
1994 Third House Vote	-0.822	-0.030
	(0.64)	(0.36)
1992 District Perot Vote	0.920**	0.198
	(0.30)	(0.19)
District Ideology	1.133**	0.630**
	(0.22)	(0.09)
Heterogeneity	1.583**	1.016**
	(0.46)	(0.26)
Closed Primary	-0.014	0.022
	(0.03)	(0.02)
Unopposed in 1994		0.017
		(0.03)
Unopposed X 1994 Vote		0.053
		(0.52)
Rep Tenure		-0.016**
		(0.00)
Constant	-0.990**	-0.251
	(0.33)	(0.20)
Adj. R^2	0.510	0.201
Obs.	44	250

Significance levels: †$p < .1$; * $p < .05$; ** $p < .01$

that plausibly describe the empirical patterns. However, either finding contributes significantly to extant literature on third party effects. One plausible explanation, which follows my formal model, is that the Perot vote was the prominent signal of third party threat. This should induce Republican divergence, which the regression results show. As a second explanation, Perot's success may have signaled favorable district electoral conditions, which attracted conservative candidates. This would be an illustration how third parties can influence electoral outcomes in numerous ways, even within a single election. Importantly, whereas the Rapoport and Stone third party dynamic stresses *reaction* to third parties, my framework stresses major party *anticipation*.

Democratic Positioning: Clearer Evidence

Although the data show a Perot effect that is unique to the Republican party in post-1992 elections and somewhat distinct from the intuition behind the formal model, the influence of the threat of entry should not be overlooked. First, as just discussed, Perot's success was taken as the prominent signal of third party threat by Republicans. Furthermore, the regression results in Tables 3.3 and 3.4 show that third party success in mid-term House elections and the level of the ballot requirement for non-major party candidates influenced divergence, particularly for Democratic candidates.[29] Higher barriers to entry, in the form of the number of signatures required for successful petitioning, deters potential third party challengers; consequently, major party candidates are less responsive to the threat of entry. Third party candidates are more likely to emerge in districts where a third candidate did well in the previous

[29]I can also dismiss as an origin of the former a preponderance of leftist candidates in the 1994 House elections. Out of 249 districts that had at least one third party candidate in 1994, only 27 can be considered to be clearly a leftist candidate. Many third party candidates in 1994 had a more "reformist" bent, and over 70 districts had a libertarian candidate.

election, leading to increased divergence.

Since the Democratic party did not develop an electoral strategy in specific response to Perot's success in 1992, the 1996 House elections were held under "normal political circumstances" for that party, and consequently, Democratic positioning was influenced by the usual determinants of third party entry. I can only speculate that Republican positioning would have been similarly influenced by ballot access restrictions and 1994 House third party success in the absence of Perot's successful run in 1992 (and the Republican party's response).

Further comment on the empirical results thus far is still in order. The results highlight the complex influence of ballot access requirements. One would be incorrect to argue that signature requirements should have a clear negative effect on divergence. Even including the squared signatures variable to capture non-monotonicities, Table 3.3 shows, counter-intuitively, that the signature requirement has a *net positive* effect on candidate divergence. Using estimates from the full model, we only find a negative net effect once the signatures variable takes a value of 12 (thousand). Only 10 out of the 294 district in the sample reach this threshold.

The problem is that even by controlling for the quality effect of the petition requirement with the squared signatures variable, the coefficient estimates still somewhat conflate these cross-cutting considerations. The goal of this chapter is to estimate the influence of the threat of entry on candidate divergence – not the influence of ballot access restrictions on divergence. The two effects are not synonymous.

The results in Table 3.3 and 3.4 also might conflate the influence of district heterogeneity. I posited two possible effects on divergence, both of which are positive. In order to deal with these issues and more accurately test the formal model, the next section explicitly models the threat of entry in the regression analysis.

3.3.3 An Alternative Statistical Strategy: Explicitly Modeling the Probability of Entry

The above analysis includes each proxy of the threat of third party entry separately. In this section, the hypothesis that an increased likelihood of third party entry induces greater major party candidate divergence is tested more directly. The independent variable of interest is the predicted probability of third party entry, *Pr(entry)*. This variable is constructed from the estimated probit model that predicts the presence of a third party candidate (Table 3.2, column 2). With this model specification, I again find that the probability of entry contributed to increasing Democratic candidate liberalism, while the Perot vote influenced Republican positioning in 1996.

Since I only expect previous vote shares will influence the probability of entry, they are not included in the following model that predicts candidate divergence. District heterogeneity, on the other hand, might influence both: the pull towards the median voter is weaker in more diverse districts, *and* third party candidates are more likely to emerge in diverse districts. The squared signatures variable is not included in the model, since the cost to entry is modeled in the predicted probability of entry, where I find a negative coefficient. But the signatures variable is included to capture the quality effect. Standard errors are adjusted to account for using a predicted probability as an independent variable.[30] I estimate the model,

$$y_i = \mathbf{x_i'}\beta_\mathbf{0} + \hat{p}_i\beta_1 + \varepsilon_i \tag{3.9}$$

where y is divergence, $\mathbf{x}$ is a vector of control variables, and $\hat{p}$ is the predicted value from the probit model on entry. We are most interested in the estimate of β_1.

In both models, the predicted probability of entry has a positive effect on major

[30]Standard errors are corrected using the procedure outlined by Murphy and Topel (1985).

Table 3.6: Candidate Divergence

	(1) Coef./Std. err.	(2) Coef./Std. err.
Pr(entry)	0.134*	0.091†
	(0.05)	(0.05)
Signatures	0.007*	0.005†
	(0.00)	(0.00)
Heterogeneity	0.371	0.765*
	(0.27)	(0.30)
Closed Primary	0.040*	0.041*
	(0.02)	(0.02)
Dist. Ideological Extremity	0.499**	0.575**
	(0.13)	(0.13)
Experience	-0.015	-0.016
	(0.02)	(0.02)
1992 District Perot Vote		0.582**
		(0.19)
Constant	0.049	-0.301
	(0.17)	(0.20)
Adj. R^2	0.142	0.167
Obs.	294	294

Significance levels: †$p < .1$; * $p < .05$; ** $p < .01$

party candidate divergence, as hypothesized. When the Perot vote is included, the size of the coefficient decreases but still reaches statistical significance at the 10% level ($p < .6$). Thus, we find that candidate divergence is greater in districts that are more likely to have minor party candidates. As before, the 1992 district Perot vote also contributes to divergence. The results also suggest that district heterogeneity mostly influences candidate positioning via the threat of entry, as the coefficient is a bit smaller (compared to Table 3.3) and is not statistically significant.[31]

To observe inter-party differences, we again estimate the positioning of Democrats and Republicans separately. As seen earlier, differences emerge. Democratic candidates were highly sensitive to the predicted probability of a third party entering. The positioning of Republican candidates, however, were sensitive to the Perot district vote share. As discussed earlier, one interpretation of this empirical finding is that Republicans viewed the likelihood of (reform-minded) third party candidates to be greater in districts where Perot performed well in 1992, which induced increasing Republican divergence.

Taken together, the evidence suggests that we do not need major party failure and the success of a highly visible third party candidate on the national scene in order for (the potential for) third parties to influence major party candidate positioning. *The influence of third parties on major party activity is much more fluid than conventional theories of third party effects suggest.* Major party failure is not a necessary condition for a third party effect. Relatively small signals of third party success (even in midterm election years) partially induce major party candidate platform strategies. The influence of barriers to ballot access further highlights how the *potential* for third party entry influences candidate positioning.

To get a sense of substantive effects, I simulate the influence of changes in the

[31]Omitted analyses show that these results are robust to models that exclude the Sullivan index.

Table 3.7: Candidate Divergence: Predicted Pr(Entry), Ds vs. Rs

	Democrats Coef./Std. err.	Republicans Coef./Std. err.
Pr(entry)	-0.094*	-0.037
	(0.05)	(0.06)
1992 District Perot Vote	-0.100	0.298†
	(0.16)	(0.16)
Signatures	-0.005†	-0.000
	(0.00)	(0.00)
Heterogeneity	0.026	1.163**
	(0.25)	(0.30)
Closed Primary	-0.024	0.024
	(0.02)	(0.02)
District Ideology	0.534**	0.611**
	(0.08)	(0.08)
Dem Tenure	0.006**	
	(0.00)	
Constant	0.111	-0.321
	(0.18)	(0.21)
Rep Tenure		-0.015**
		(0.00)
Adj. R^2	0.208	0.232
Obs.	294	294

Significance levels: †$p < .1$; * $p < .05$; ** $p < .01$

probability to entry on major party candidate divergence.[32] Increasing each of the explanatory variables for the probit entry model from the 25^{th} to the 75^{th} percentile (but reverse for signatures) increases the probability of a minor party candidate being on the ballot by 0.467. This change (using the estimates from Table 3.7) increases Democrat liberalism by 0.05 – over one-third of one intra-party standard deviation. Using the estimates from Table 3.6, this increase in probability increases candidate divergence between 0.035 (using the more conservative estimate of Table 3.6, column 2) and 0.057 (column 1), which is between one-fifth and one-third of one standard deviation of the candidate divergence variable. An important note is that, as before, there is a positive net effect of the signature requirement. That is, higher signatures lead to increased candidate divergence, due to the quality effect.[33]

Comparing this to some of the other determinants, districts with a closed primary have an ideological gap of around 0.035 larger than non-closed districts. Candidate experience has a similar effect. The variables with the largest influence on divergence appears to be district ideological extremity and district heterogeneity (separate from influence on the probability of entry). Moving from the 25^{th} to the 75^{th} percentile of the variables increases divergence by just under 0.05 for each variable. Thus, the effect of the probability of entry compares quite well to the other variables in the model.

A final regression (see Table 3.8) shows that it is the *potential*, rather than *actual*, third party entry that causes major party candidate divergence. Using the same regression but replacing the predicted probability of entry with a dummy variable for

[32] I use Clarify (King, Tomz and Wittenberg, 2000) to estimate marginal changes in the probability of a third party on the ballot.

[33] Moving from the 25^{th} to the 75^{th} percentile of the Perot variable increases Republican conservatism by .024, which is one-sixth of one intra-party standard deviation. Using the estimates from Table 3.6, column 2, the same increase in the Perot vote increases candidate divergence over one-quarter of one standard deviation.

Table 3.8: Candidate Divergence, Actual Non-major Candidate Entry

	(1) Coef./StdErr.	(2) Coef./StdErr.
Non-Major Candidate Present	0.018	0.012
	(0.02)	(0.02)
Signatures	0.004	0.003
	(0.00)	(0.00)
Heterogeneity	0.583*	0.947**
	(0.26)	(0.27)
Closed Primary	0.048*	0.046*
	(0.02)	(0.02)
Dist. Ideological Extremity	0.458**	0.559**
	(0.13)	(0.13)
Experience	-0.010	-0.013
	(0.02)	(0.02)
1992 District Perot Vote		0.654**
		(0.18)
Constant	-0.003	-0.377†
	(0.17)	(0.19)
Adj. R^2	0.125	0.160
Obs.	294	294

Significance levels: †$p < .1$; * $p < .05$; ** $p < .01$

actual third party entry in the district in 1996, we find that the presence of a third party candidate in that election has no effect on candidate divergence.

3.4 Concluding Remarks

Political competition is generally described as the competition between the Democratic and Republican candidates for electoral support and control of the government. Third party candidates rarely win elections or determine which major party candidate wins the election. One might then wonder whether third parties matter at all.

I argue that the potential for third party candidates can play a substantial role in shaping electoral outcomes and are an important aspect of the American two-party

system. The game theoretic spatial model shows that the threat of third party entry can influence electoral competition by causing the major party candidates to diverge in the unidimensional ideological space, and the amount of divergence is positively correlated with the level of threat. The major parties' *anticipation* of entry by a potential third party candidate drives this result. Notably, this third party effect is a normal aspect of the two-party system in that major party failure (or any other extraordinary circumstance) is not a necessary condition in order for this effect to emerge. Conversely, major party failure (and the initial electoral success of a third party candidate) is a necessary condition for the third party dynamics outlined by Rapoport and Stone (2001, 2005), since the major parties *respond* to third party success.

A statistical analysis of candidate positioning in the 1996 U.S. House elections provides evidence in support of my hypothesis. Although the empirical results capture some idiosyncracies of a post-Perot election, regression estimates of ideological positioning suggest that increased threat from third parties, inferred from recent electoral returns, district heterogeneity, and ballot access restrictions, creates incentives for major party candidate divergence. Additional regressions that explicitly model the probability of entry provide further supportive evidence.

The empirical evidence of third party threat is more straightforward for Democratic positioning, since the 1996 House elections (post-Perot) were like any other for that party. Democrats did not make a concerted bid for Perot supporters and were sensitive to the general third party threat. In contrast, Republicans, as Rapoport and Stone argue, were sensitive to the success of Perot and the second dimension of reform as part of the party's bid for Perot's constituency. Consequently, Perot's 1992 electoral success in the district had a much more influential role on the positioning of

Republicans.[34] One plausible explanation of the estimates of Republican positioning, which follows my formal model, is that Republicans viewed Perot's success as a signal of potential reform third party House candidates, which induced divergence along the dominant liberal-conservative dimension.

Although third parties do not win elections, they still exert a regular and significant influence in U.S. elections. The threat of entry can be enough to cause the major party candidates to alter their electoral strategies in order to deter anticipated electoral success of the third party. This anticipation can preclude any significant third party electoral success. The parsimonious formal model and statistical results highlight the importance for researchers to turn to dependent variables other than vote choice and vote share when searching for the effects of third parties in American politics.

[34]Unfortunately, reliable estimates of ideological positioning of candidate pairs is only available for the 1996 U.S. House elections, and the results may be to some degree unique to the electoral context of the 1990s. The NPAT survey has been administered since the 1996 elections, but response rates have dropped significantly. Personal correspondence with James Snyder, February 27, 2006.

Chapter 4

Third Party Motivations and Electoral Competition

Although Downs (1957) mentions the potential influence of third party candidates on major party candidate positioning, Palfrey (1984) was the first to formally show the effects. He shows that a third party entrant can lead to candidate divergence. I have shown elsewhere that we need not assume certain entry of a third candidate to induce major party candidate divergence.

These models assume that the third party candidate enters in the second stage of the game and maximizes her voter share given the location of the two major party candidates. However, the assumption of vote-maximization for the third party candidate might not be suitable. Most accounts of third parties in the U.S. stress the expressive rather than instrumental motivations. These parties use elections to either advertise an issue being ignored by the two major parties (issue salience) or supporting a policy stance distinct from the two major parties (issue position). In this chapter, I explore how third party candidate motivations influence major party candidate positioning.

4.1 The Model

The set-up for the model is the familiar unidimensional spatial model of elections. The ideological space is the closed interval $[0, 1] \subset \mathbb{R}$. Voters have single-peaked and symmetric utility functions with ideal points uniformly distributed on the ideological space. Candidates D and R each choose their platform, θ_D and $\theta_R \in [0, 1]$, respec-

tively. Without loss of generality, assume that $\theta_D \leq \theta_R$. These two candidates are assumed to be (roughly) Downsian: they choose platform locations to maximize their final rank-order in terms of vote-share. That is, D and R most prefer winning an election and least prefer coming in third place. I also assume that they prefer to be in outright second place over being tied for second.

$$\text{outright win} \succ \text{tie for win} \succ \text{outright second} \succ \text{tie for second} \succ \text{last}$$

4.1.1 Candidate T's Entry and Motivation

After D and R choose their platforms, T enters the election with some probability p, which captures variability in the threat of entry. The probability of entry is exogenous – that is, it is not a function of the positioning of D and R.[1] Treating p as exogenous is particularly plausible when thinking of an exogenous cost to entry. Higher values of p denote situations where barriers to entry, such as ballot access signature requirements, are lower, and, consequently, the threat of entry is higher.

To be sure, this model is quite stylized. The model is meant to approximate U.S. elections. Two major (Democratic and Republican) parties are established and (nearly) always compete in the election. Since they are established, the two major party candidates move first. This model captures the potential for the major parties to take anticipatory actions to minimize the electoral success of a third party candidate – what is called in the economics literature, *accommodated entry*. Since the probability of entry is a strictly exogenous parameter, I assume that third party

[1] Although the actual entry decision of a third candidate depends partially upon the actions of the two established candidates, the model focuses on the probability of entry prior to the actions of D and R as the threat of entry. One plausible conjecture is that D and R have some "prior belief" of the probability of entry that they take as exogenous. That is, D and R believe that conditions, outside the reach of their own actions, largely determine the initial likelihood of entry.

entry cannot be *blockaded* (aside from probabilistically, modeled by p, where we could assume $p = 0$) and that the two major parties cannot fully *deter entry*.

In this chapter, I derive equilibrium ideological positioning under three different third party candidate motivations: vote-maximizing, ideological, and policy-motivated. That is, I explore how different types/behavior of third party candidates might lead to different major party strategies.

Vote Maximizing

The first motivation is one that is usually given to candidates in spatial models of elections. The assumption is that candidates care only about winning votes; thus, their objective is to choose a platform that maximizes vote share. Another interpretation is that, if a third candidate emerges, she will emerge from the area of the ideological/policy space that the two major party candidates leave most exposed. That is, rather than there literally being a third candidate that enters the election, we can posit that there are several potential entrants, and the one that enters is the one that would be most successful. Equilibrium strategies are derived in chapter 2, which I reproduce here.

Ideological

The second candidate motivation is purely ideological. The third party candidate has an ideal point, and she gets utility not from winning votes, but rather, from simply competing in the election and representing/advocating her own ideal point. This motivation seems pretty consistent with descriptions of third party candidates in U.S. elections. Third party candidates generally are advocates for a particular position or issue. This policy commitment leaves the candidate relatively inflexible. They would rather lose potential votes than alter their policy stances.

Let t denote Candidate T's ideal point. Without loss of generality, we assume that $t \leq \frac{1}{2}$. Since she is assumed to be purely ideological, she enters the election at $\theta_T = t$. That is, entering the election and positioning at t give some positive utility, $b > 0$. Staying out of the election or entering at some position other than t gives some utility less than b. The parameter t is common knowledge.

Policy-Motivated

The final candidate motivation I consider is the policy-motivated candidate. T is concerned with policy implementation; thus, she cares about how distant the winning platform is from her ideal point.

4.2 Equilibrium Results

All proofs are found in the Appendix.

4.2.1 Vote-Maximizing T

In this section, D and R are assumed to maximize the probability of winning the election, while T maximizes her vote share. Without loss of generality, assume that $\theta_D \leq \theta_R$. And not stated as a condition but is immediately obvious, the strategies for D and R are symmetric. That is, $\theta_R^* = 1 - \theta_D^*$.

I find that equilibria can be sustained for any p. The median voter result is robust for any value of p. The fully divergent equilibrium holds if $p \geq \frac{1}{2}$. If $p = \frac{1}{2}$, then multiple equilibria hold.

Proposition 1 *The median voter result, $\theta_D^* = \frac{1}{2}$, is an equilibrium for all $0 \leq p \leq 1$. If T enters, then she enters to either $\frac{1}{2}-$ or $\frac{1}{2}+$.*

Proposition 2 *$\theta_D^* = \frac{1}{4}$ is an equilibrium for all $p \geq \frac{1}{2}$. If T enters, then she locates randomly between D and R.*

Proposition 3 *Any $\theta_D^* \in [\frac{1}{4}, \frac{1}{2}]$ is an equilibrium for $p = \frac{1}{2}$. If T enters, then she enters to either θ_D^*- or θ_R^*+ with equal probability; that is, she is slightly extreme).*

Notice that the mere threat of entry can induce full divergence. Certain entry is not necessary to sustain the fully divergent equilibrium. Although multiple equilibria exist given any p, the following corollary argues certain equilibria are more likely under certain conditions.

Corollary 1 *If $p \geq \frac{1}{2}$, a divergent equilibrium Pareto-dominates the convergent median voter equilibrium.*

Although the equilibrium is not continuous and unique for all p, I make the following refinements. For $p < \frac{1}{2}$, the median voter outcome results. *Proposition 3* shows that for $p = \frac{1}{2}$, any position in $[\frac{1}{4}, \frac{1}{2}]$ is an equilibrium. I submit that we can assume that any equilibrium position is equally likely; thus, the expected position is some intermediate divergence, say at $\frac{3}{8}$. If $p > \frac{1}{2}$, the model predicts either full convergence or full divergence. From *Corollary 1*, one can conjecture that the divergent equilibrium is more likely. The general prediction is that increasingly divergent equilibria can be sustained for higher values of p. And consequently, third party electoral success (vote share) is decreasing in the probability of entry – the more likely T is to enter, the worse she is expected to do in the election. Although, the ex ante expected vote for T is not clearly higher or lower depending on p.

4.2.2 Ideological T

Certain Entry

In this section, I first establish equilibrium strategies under certain entry, $p = 1$. Notice that this game of certain entry in the second-period by an ideological third candidate is isomorphic to the game where the third candidate enters *before* or at the *same time* as D and R. T's ideal point t is common knowledge, and she is not a strategic actor since she enters at t with certainty.

Equilibrium results show different possible outcomes. For the case $t = \frac{1}{2}$, no equilibrium exists. For all other values of t, we get divergence, except for the case where $t = 0$. In this latter case, D and R converge, although not at the median. Unfortunately for T, except for the extreme case of $t = 0$, her entry gives her a worse policy outcome than if she did not enter. Furthermore, given that t is moderate, the more extreme is t, the more extreme the winning platform is *opposite* direction of T's ideal point. The results change quite a bit once we relax certain entry.

The next proposition states that for extreme T's, D and R take divergent platforms on the same side of T.

Proposition 4 *If* $0 < t < \frac{1}{4}$*, then equilibrium platforms are* $\theta_D^* \in (t, \frac{2}{3} - t)$ *and* $\theta_R^* \in \left[\frac{2}{3} + \frac{1}{3}t, 1 - \frac{1}{2}(\theta_D^* - t)\right)$

As T increases in conservatism, D and R increase in conservatism as well. Furthermore, as under vote-maximizing T's, third party entry induces major party candidate divergence. Note that there is not a clear relationship between T's extremism and the amount of divergence. The maximum possible *divergence* decreases as T is more moderate, since $\frac{\partial \underline{\theta}_D}{\partial t} > \frac{\partial \bar{\theta}_R}{\partial t}$ – more extreme T's allow for more divergent platforms. Conversely, the minimum possible *divergence* increases in t, since $\frac{\partial \bar{\theta}_D}{\partial t} < 0 < \frac{\partial \underline{\theta}_R}{\partial t}$ – more extreme T's allow for more convergent platforms.

Proposition 4 also displays one of the main drawbacks to third party candidacies – the third party candidate is a spoiler for the more preferred party. By entering the election, T throws the election to R, who picks a conservative platform. We find a less stark result for more moderate T's. In fact, there are some conditions where T prefers R to win over D.

Proposition 5 *For $\frac{1}{4} < t < \frac{1}{2}$, D and R diverge. $\theta_D^* = (\frac{\theta_R^* - t}{2}, t)$, and $\theta_R^* \in [1-t, \tilde{r})$, where $\tilde{r} = min\{2-3t, 3t\}$ is an equilibrium. If $t = \frac{1}{4}$, then $\theta_D^* = \frac{1}{4}$ and $\theta_R^* = \frac{3}{4}$ is an equilibrium.*

In equilibrium, R wins the election. Notice that R is the candidate with the ideology opposite to that of T ($t < \frac{1}{2} < \theta_R^*$). However, there are equilibrium platforms for moderate T's, in which T prefers R winning over D. This contrasts to the unconditional spoiler outcome of Proposition 4, where D throws the election to the her least preferred candidate. A liberal T prefers throwing the election to R if $|\theta_R - t| < |\theta_D - t|$. That is, being a spoiler candidate is rational if D is too liberal and R is not too conservative.

In this equilibrium, moderate third party candidates cause major party candidate divergence. However, there is not a straightforward relationship between T's extremism and the amount of major party divergence. As the third candidate is increasingly moderate, the *minimum* amount of major party candidate divergence decreases, since $\frac{\partial(\underline{\theta}_R^* - \bar{\theta}_D^*)}{\partial t} < 0$. However, the maximum amount of divergence is non-monotonically related to T's ideology. There is a non-monotonic effect of T's ideal point and R's maximum potential conservatism, $\bar{\theta}_R$. For $\frac{1}{4} < t \leq \frac{1}{3}$, $\bar{\theta}_R$ is increasing in t. However, for $\frac{1}{3} \leq t < \frac{1}{2}$, $\bar{\theta}_R$ is decreasing in t – increasingly *liberal* T's allow for an increasingly *conservative* candidate R. Lastly, as T is increasingly liberal, D's most liberal available platform, $\underline{\theta}_D$ is increasingly conservative, since $\frac{\partial \underline{\theta}_D}{\partial t} < 0$.

The following proposition states that for essentially all T's, a convergent equilibrium does not exist. The only case that D and R converge is when $t = 0$.

Proposition 6 *There cannot be any convergent equilibria if* $0 < t < \frac{1}{2}$.

For the most extreme type T, we get full convergence, which is shown in the next proposition. Although D and R converge, the platform is not at the median voter. The platform is some position on the *opposite* side of the median voter from T's ideal point.

Proposition 7 *If* $t = 0$*, then equilibrium platforms are* $\theta_D^* = \theta_R^* = \frac{2}{3}$

Proposition 8 *If* $t = \frac{1}{2}$*, then no equilibrium exists.*

We have full convergence with entry by the most extreme type T, $t = 0$. We can also have convergence in the limit for increasingly moderate T's. That is, from Proposition 5, $lim_{t \to \frac{1}{2}} \theta_R = \frac{1}{2}$ and $lim_{t \to \frac{1}{2}} \bar{\theta}_D = \frac{1}{2}$.

Summary. Overall, the equilibrium results for certain entry by an ideological T show that third party candidates can induce major party divergence. The exceptions are the extreme cases of $t = 0$, where third party entry induces major party convergence, and $t = \frac{1}{2}$, where no equilibrium exists. Although D and R converge when $t = 0$, they do not converge to the median voter; and they converge to a platform on the other side of the median voter from T. These propositions also show that there is not a clear relationship between T's extremism and major party candidate divergence. That is, we cannot say that more extreme T's necessarily induce greater divergence.

Probabilistic Entry

I now show the equilibrium for the case where $0 < p < 1$. In this section, I assume that D and R are only concerned with winning the election – that is, D and R

choose platforms to maximize their expected probability of winning the election, with no consideration of rank-ordering should they not be in first-place under some circumstance (being in second or third place is equal).

A lemma shows that the equilibrium platforms under uncertainty are necessarily at or above the median voter. That is, once there is some chance – no matter how small – that T does not enter, we do not get equilibria where D (or R) is pulled towards T's ideal point. In fact, we find equilibria in this section where D's platform is pushed *away* from T's ideal point.

Lemma 1 *When there is some positive probability that T does not enter the election ($p < 1$), then no equilibrium can have $\theta_D < \frac{1}{2}$.*

The first result in this section shows that as T is more extreme, the maximum allowable threat of entry under which a median voter result holds increases. That is, the median voter result is more robust to extreme potential third party candidates.

Proposition 9 *$\theta_D^* = \theta_R^* = \frac{1}{2}$ is an equilibrium if*

1. *$0 \leq t < \frac{1}{6}$ and $p \leq \frac{1}{2}$*
2. *$t = \frac{1}{6}$ and $p \leq \frac{3}{7}$, or*
3. *$\frac{1}{6} < t \leq \frac{1}{2}$ and $p \leq \frac{1}{3}$*

The next result shows that conservative convergent equilibria exist. Furthermore, the potential conservative bias increases as T is more liberal.

Proposition 10 *More conservative convergent equilibria exist: $\frac{1}{2} < y^* < \frac{2}{3} - t$ is an equilibrium if $p = \frac{1}{2}$ and $0 \leq t < \frac{1}{6}$*

A last observation of convergent equilibria is that that there cannot be any conservative convergent equilibria ($y > \frac{1}{2}$) for more moderate T's ($\frac{1}{6} < t < \frac{1}{2}$). Since D and R are guaranteed to lose if T enters, they always have an incentive to move towards the median voter to increase their chance of winning in the event that T does not enter.

Proposition 11 *Divergent equilibria: Any θ_D and θ_R that satisfy $\theta_D \geq \frac{1}{2}$, $\theta_D < \theta_R < \frac{4}{3} - \theta_D$, $\max\{0, \theta_D + 2\theta_R - 2\} < t < 2 - 2\theta_D - \theta_R$, and either*

1. *$\theta_R > \frac{2}{3} - \frac{1}{3}t$ is an equilibrium if $p \geq \frac{1}{2}$.*
2. *$\theta_R < \frac{2}{3} - \frac{1}{3}t$ is an equilibrium if $p = \frac{1}{2}$*

Check this section's equation numbers. Comparing cases 1 and 2, one sees that if the threat of entry is high ($p > \frac{1}{2}$), then we can sustain more divergent equilibria. One can also see a non-monotonic effect of T's ideological extremity on potential divergence. R's platform must satisfy the following two conditions, (Solving equations (A-31) and (A-33) for r gives, respectively. See proof of Proposition 11 in Appendix.)

$$r < 2 - 2d - t = r_1 \tag{4.1}$$

and

$$r < 1 + \frac{1}{2}t - \frac{1}{2}d = r_2 \tag{4.2}$$

The inequality in 4.1 ensures R wins more votes than T, and 4.2 ensures R wins more votes than D. Therefore, the upper bound for R's equilibrium platform is $min\{r_1, r_2\}$, which is when both equations (4.1) and (4.2) are satisfied. Notice that r_1 is decreasing in t, while r_2 is increasing in t. For T's that are quite extreme ($t < \frac{2}{3} - d$), the upper bound for R's equilibrium platforms gets more conservative

as T becomes more moderate. This follows, since $\frac{\partial r_2}{\partial t} > 0$. For more moderate T's ($t > \frac{2}{3} - d$), R's upper bound equilibrium platform increases as T gets more liberal – that is, R can potentially can choose *more conservative* platforms as T is *more liberal*. This follows, since $\frac{\partial r_1}{\partial t} < 0$. Thus, for a certain range (more moderate T's), T induces divergence more from pushing R towards increased conservatism, rather than pulling D towards T's ideal point.

Lastly, we can solve for $r_1 < r_2$ to observe the conditions under which R will be most concerned with defeating T,

$$2 - 2d - t < 1 + \frac{1}{2}t - \frac{1}{2}d \tag{4.3}$$

$$t > \frac{2}{3} - d \tag{4.4}$$

This condition illustrates that R is most concerned with T when T is moderate. A more moderate T is competitive in this case, since she wins all the votes available to the left of her ideal point.

Summary. Once uncertainty is introduced, more convergent equilibria are possible. Similar to the case of vote-maximizing T's, divergent equilibria can only be sustained when the probability of third party entry is high enough ($p \geq \frac{1}{2}$). That is, higher threat of third party entry induces greater major party divergence.

4.2.3 The Policy-Motivated Third Party Candidate

The preceding observation notes the perverse effect of the third party candidate to entering the election, particularly for extreme T's: the spoiler effect. In the discussion of ideological motivation, candidate T gets utility from representing her ideal point in the election. However, one might instead think of "ideological" candidates as "policy-motivated" candidates. Wittman writes,

> To have policy goals does not mean that the politician is ideologically dogmatic, unconcerned with winning, or values platform position as an end itself, but rather that candidates, like voters, are interested in policy implementation." (1983, 142)

What happens to the game if we posit third party motivations to be Wittman's conception of policy-motivated candidates? In this case, T's (quadratic) utility function is,

$$U_T = \sum_{i \in \mathbf{C}} -Pr(\theta_i)(t - \theta_i)^2, \forall i \in \mathbf{C} \tag{4.5}$$

where $\mathbf{C} \subseteq \{D, R, T\}$ is the set of entered candidates, θ_i is candidate i's platform, and $Pr(\theta_i)$ is the probability that i's platform wins the election and is implemented.

Suppose that if T enters, then she still enters at her ideal point. However, suppose now that she has a choice of entering or not. If she does not enter, the outcome is the median voter. Besides for the case $t = 0$, where the expected policy is $\frac{4}{9}$, entering is not necessarily the best choice. She would prefer the median voter result over candidate R winning with a platform $\theta_R > \frac{1}{2}$.

Although, this reasoning to support non-entry by T seems plausible, an outcome where T commits to not entering cannot be an equilibrium. I have modeled this as a two-period game, where D and R pick their platforms in the first period, and T enters in the second period. Although T might announce that she will not enter, she cannot make a credible commitment. Suppose $t = \frac{1}{3}$. If T enters, then R will win the election with the platform $\theta_R \in [\frac{2}{3}, 1)$. T would like to announce and commit to not entering the election. However, if D and R believe T's announcement and locate at the median voter, then T would have an incentive to enter at her ideal point and win the election. This is true for any $t \in (\frac{1}{6}, \frac{1}{2})$. For these t's, entering at t will beat D

and R at the median. For a third candidate with $t \leq \frac{1}{6}$, T could enter at just above $\frac{1}{6}$ as the best available winning platform, which is clearly better than the median voter outcome. Therefore, T cannot credibly commit to not entering the election.

Let us assume that T enters with certainty, but now she can choose any platform $\theta_T \in [0, 1]$. That is, she can "misrepresent" her preferences. She picks θ_T to maximize (38) according to the game laid out thus far: D and R first pick platforms and are followed by T.

As noted earlier, there are some equilibrium platforms where T would prefer R to win instead of D, even though T is liberal ($t < \frac{1}{2}$). Using this fact, the following proposition specifies sincere equilibria. Sincere equilibria exist when T is moderately liberal, while D is extremely liberal and R is moderately conservative.

Proposition 12 *For moderate policy-motivated T's ($\frac{1}{4} < t < \frac{1}{2}$), there exist sincere platform equilibria. That is, T will sincerely enter at $\theta_T = t$, and D and R enter according to equilibrium platforms specified in Proposition 7, with the additional restriction that $|\theta_R^* - t| < |\theta_D^* - t|$.*

The equilibria are simply a subset of the equilibria in Proposition 7. In the second stage of the game, T will position in order to throw the election to the major party candidate with a platform closest to t. In this equilibrium, this candidate will be R. The additional restriction that we add in this proposition (compared to Proposition 5) is that T prefers R's platform over D's.

Example 1. Suppose $t = \frac{2}{5}$. From Proposition 4, $\theta_R \in [\frac{3}{5}, \frac{4}{5})$ and $\theta_D \in (\frac{\theta_R - \frac{2}{5}}{2}, t)$ are potential equilibrium platforms. No matter where T locates between D and R, she cannot win the election; thus, let $\theta_T = t$. T picking a winning platform outside of the interval $[\theta_D, \theta_R]$ is strictly dominated. Suppose further that $\theta_R = \frac{3}{5}$. Then $\theta_D \in (\frac{1}{10}, \frac{2}{5})$. Now, notice that D's possible platforms must be restricted further. In

the sincere equilibrium, T must prefer R over D. Therefore, D cannot be too moderate, in which case T would prefer D over R. The cutpoint that makes T indifferent between D and R is $c = \frac{1}{2}(\theta_D + \frac{3}{5})$. For entry at t to be rational, we must have $c < t$, which simplifies to $\theta_D < \frac{1}{5}$. Thus, one equilibrium is $\theta_R^* = \frac{3}{5}$, $\theta_D^* \in (\frac{1}{10}, \frac{1}{5})$, and $\theta_T^* = t = \frac{2}{5}$. Notice how the interval of platforms available to D is smaller than in Proposition 7.

The next conjecture specifies equilibria where T will rationally choose to misrepresent. In order to make a straightforward application of earlier propositions to the following conjecture, we now assume that T is conservative, $\frac{1}{2} \leq t \leq 1$.

Proposition 13 *For all types of T, there exist insincere platform equilibria. Assume T is conservative, $t > \frac{1}{2}$. Replace t with $\hat{t}$ in Propositions 4-7. Add the additional restriction that $|\theta_R^* - t| < |\theta_D^* - t|$. If $\exists\ \hat{t}$ such that the platforms chosen by D and R are given in any of the Propositions 4-7 and with the additional restriction, then that pair of platforms will be an equilibrium in the game with a policy-motivated T. T enters in the second stage at a platform consistent with D and R's platforms; that is, T chooses $\theta_T^* = \hat{t}$. These strategies constitute a subgame perfect Nash equilibrium.*

Let us start by observing the second stage, when T enters. Given θ_D and θ_R, T will locate to throw the election to the candidate closest to t. Therefore, T will locate such that her least preferred candidate will not win. We will see shortly that entering at $\hat{t}$ consistent with D and R's strategies is an optimal strategy for T.

Given this strategy, what positions can D and R choose in the first stage? Both know T's strategy of spoiling the election for her less preferred candidate. Given T's strategy, R just wants to make sure that he wins the election by ensuring that he is the favored major party candidate (i.e., $|\theta_R - t| < |\theta_D - t|$). D chooses a platform to at least place higher than T. The remainder of the proof follows those for Propositions 4-7 with the added restriction on R's platform. T's optimal strategy is to enter at $\hat{t}$

consistent with D and R's strategies, throwing the election to candidate R.

Example 2. If $t = \frac{3}{4}$, then $\theta_D^* = \frac{1}{4}$, $\theta_R^* = \frac{11}{15}$, and $\theta_T^* = \frac{1}{5}$ is an equilibrium. T has no incentive to deviate. R wins, and that outcome is better than if T picks a platform such that D wins instead. Neither D nor R have an incentive to deviate either. This was shown in Proposition 4. Lastly, T prefers θ_R^* to θ_D^*.

Notice that since T moves second in the game, she does not have complete control over which platforms D and R choose. *Several* of the equilibria shown earlier (Propositions 4-7 with restriction) are possible. As long as D and R play θ_D^* and θ_R^* as specified in the earlier propositions for *some* value of $\hat{t}$ (which has no necessary relationship to T's actual ideal point), then that will be an equilibrium. T will choose $\theta_T = \hat{t}$ that is consistent with θ_D^* and θ_R^*. However, T's ideal point has a further influence on the platforms of D and R, since there is the added restriction that T would indeed rationally enter as a spoiler candidate. That is, to ensure that T will rationally misrepresent her preferences by spoiling the election for D, R chooses a platform that is "appealing enough" to T. The following two examples illustrates this point.

Example 3. The added restriction, $|\theta_R - t| < |\theta_D - t|$, makes some conservative platforms for R not possible in equilibrium, given a moderate T. Suppose that $t = \frac{11}{20}$. From Proposition 7, $\theta_R \in [\frac{2}{3}, 1]$, $\theta_D \in (\frac{\theta_R - t}{2}, \frac{1}{3})$, and $\hat{t} = \frac{1}{3}$ is a potential equilibrium. However, notice that certain divergent equilibria are not possible in equilibrium. Suppose $\theta_D = \frac{1}{4}$. The cutpoint where T is indifferent between θ_D and θ_R is $c = \frac{1}{2}(\frac{1}{4} + \theta_R)$. Any θ_R such that $c > t$ cannot be an equilibrium, since T would not want R to win in this case – even though T is conservative ($t > \frac{1}{2}$), she prefers D to win. In our scenario, the most conservative platform R could choose is $\frac{17}{20}$. Therefore, an equilibrium is $\theta_D^* = \frac{1}{4}$, $\theta_R^* \in [\frac{2}{3}, \frac{17}{20})$, and $\theta_T^* = \hat{t} = \frac{1}{3}$.

Example 4. There are multiple equilibria for any t. Given the setup in Example 3, where $t = \frac{11}{20}$, we know from Proposition 4 that $\theta_D \in (\frac{1}{5}, \frac{7}{15})$, $\theta_R \in [\frac{11}{15}, 1-\frac{1}{2}(\theta_D - t))$, and $\hat{t} = \frac{1}{5}$ is a potential equilibrium. Suppose, as in Example 3, that $\theta_D = \frac{1}{4}$. Then $\theta_R \in [\frac{11}{15}, \frac{39}{40})$. In order for T to rationally spoil the election for D, we again need $c = \frac{1}{2}(\frac{1}{4} + \theta_R) < t$. Thus, the most conservative platform for R is, again, $\frac{17}{20}$. Therefore, another equilibrium is $\theta_D^* = \frac{1}{4}$, $\theta_R^* \in [\frac{11}{15}, \frac{17}{20})$, and $\theta_T^* = \hat{t} = \frac{1}{5}$.

Although there are multiple equilibria, they all share one noteworthy characteristic. A conservative T ($t > \frac{1}{2}$) will enter the election at a liberal platform ($\hat{t} < \frac{1}{2}$).

Discussion on Policy-Motivated Candidates

The main point of this section is to show that, given D and R are Downsian candidates, a policy-motivated T might enter at the opposite side of the ideological spectrum from her own ideal point. Doing so steals votes away from her less preferred major party candidate and throws the election to her more preferred candidate. This policy misrepresentation is optimal for all extreme T's. Moderate T's also might misrepresent. They, however, also can enter at their ideal point in some equilibria.

But how likely are we to find a third party candidate that entirely misrepresents her sincere preferences? The incentives to do so are stronger for more ideologically extreme third party candidates, who are the ones one would expect are more committed to expressing their ideal point. Should we expect a true-believer Green party supporter to actually run as a conservative to steal votes from the Republican and throw the election to the Democrat? This perplexing result highlights another assumption in the usual Downsian model that might make it unsuitable to studying third party candidates. The Downsian model analyzes a single-election without any consideration of future play. That is, are there rational strategies for policy-motivated third party candidates beyond the misrepresenting strategy of Conjecture 2? Prelim-

inary work suggests that introducing a time-horizon can lead to sincere preference revelation under any circumstances. The main logic is that third party candidates are willing to cost their preferred candidate the election in return for future policy concessions.

4.3 Final Remarks

The choice of the objective function for the third party candidate clearly influences the equilibrium platforms for the major party candidates. One constant finding, however, is that entry by a third candidate can induce major party candidate divergence, and the amount of divergence is sensitive to the likelihood of third party entry.

Furthermore, we find perverse effects from the perspective of an ideological third party candidate. In general, she will act as a spoiler, such that her least preferred candidate will win the election by her entry, and the policy outcome is worse than if she does not enter the election. Under uncertainty, equilibria where *both* major party candidates locate on the opposite side of the median voter from T's ideal point are possible. The equilibrium may either be convergent or divergent. And for an interval of T types, R can choose a more conservative platform as T becomes more liberal.

The last section on policy-motivated third party candidates suggests that further exploration of the spatial election model is needed. Specifically, modeling some dynamic aspect of electoral bargaining over a longer time horizon may be necessary to better understanding the influence of third parties in U.S. elections. The next chapter takes this next step.

4.4 Appendix: Proofs of Propositions

Proof of Proposition 1: If T enters, then T will win the election with certainty. If T does not enter, D wins with probability $\frac{1}{2}$. Thus, D wins the election in equilibrium with probability $\frac{1}{2}(1-p)$. Deviating will not benefit D, as any deviation will ensure D loses with certainty. Denote D's leftward deviating strategy from θ_D by $\theta'_D = \theta_D - \varepsilon$ for some $\varepsilon \in (0, \frac{1}{2}]$. If T does not enter, R will win the median voter and the election. If T does enter, T will enter just to the right of R, but closer to R than D. That is, $\exists\ K \in \mathbb{N}$ such that $\theta_T^n - \frac{1}{2} < \frac{1}{2} - \theta'_D$ for all $n > K$. This ensures that T will win the election over both D and R.

That is, $\theta_D = \frac{1}{2}$ is an equilibrium if

$$\frac{1}{2}(1-p) \geq 0$$

$$p \leq 1 \tag{A-1}$$

■

Proof of Proposition 2: D wins the election in equilibrium with probability $\frac{1}{2}$, regardless if T enters or not. D might benefit from deviating rightwards. If T does not enter, D will win the election with certainty. If T enters, T enters just to the left of D ($\theta_T = \theta'_D-$), and D loses the election with certainty. Any leftward deviation by D is detrimental. Thus, $\theta_D = \frac{1}{4}$ is an equilibrium if

$$\frac{1}{2} \geq (1-p)$$

$$p \geq \frac{1}{2} \tag{A-2}$$

■

PROOF OF PROPOSITION 3: Propositions 1 and 2 show this is true for $\theta_D = \frac{1}{4}$ and $\theta_D = \frac{1}{2}$, so we are left to check for $\theta_D \in (\frac{1}{4}, \frac{1}{2})$. The probability of winning for any $\theta_D \in (\frac{1}{4}, \frac{1}{2})$ is $\frac{1}{2}$. D may deviate to the left. If T enters, T enters just to the right of R at $\theta_T = \theta_R+$, and D will win the election. D loses if T does not enter. For a rightward deviation, T will enter just to the left of D, $\theta_T = \theta'_D-$, and D will lose. D wins if T does not enter. Thus, $\theta_D \in (\frac{1}{4}, \frac{1}{2})$ is an equilibrium if

$$\frac{1}{2} \geq p \text{ and } \frac{1}{2} \geq 1 - p$$

$$\Rightarrow p = \frac{1}{2} \tag{A-3}$$

■

PROOF OF PROPOSITION 4:

For these positions for T, in equilibrium, D and R will both locate to the right of T. I will show shortly why this is so. R will position so that he can win the election. R needs to make sure he picks a platform that does not allow D to win. Let r and d be the conjectured equilibrium position for R and D, respectively. Two conditions on R's platform need to be satisfied.

(i) The votes available to the right of r cannot be more than the votes available to locating between R and T. Otherwise, D could position at $r + \varepsilon$, which would make R worse off.

$$\frac{1}{2}(r - t) \geq 1 - r \tag{A-4}$$

$$r \geq \frac{2}{3} + \frac{1}{3}t \tag{A-5}$$

(ii) The second condition we need satisfied is that the votes available for D in the

middle cannot be too large. Otherwise, D will win instead of R.

$$\frac{1}{2}(r-t) < 1 - \frac{1}{2}(r+d) \tag{A-6}$$

$$r < 1 - \frac{1}{2}(d-t) \tag{A-7}$$

We now turn attention to D's potential equilibrium platform. D's only concern is to beat T, since in equilibrium he cannot beat R. D clearly does not want to position at t, since that only puts him in a tie for second-place with T. Choosing platform t would only make sense if T and D tie for first place. However, R wins as long as

$$1 - \frac{1}{2}(r+t) > \frac{1}{2}[\frac{1}{2}(r+t)] \tag{A-8}$$

$$r < \frac{4}{3} - t \tag{A-9}$$

which holds for the types of T considered in this proposition, $0 < t < \frac{1}{4}$.

Moving between T and R does not affect D's vote share. However, his platform does affect his ranking, since his platform partially determines T and R's vote shares. Since moving towards R gives T more votes, D cannot bee too conservative.

$$\frac{1}{2}(r-t) > \frac{1}{2}(t+d) \tag{A-10}$$

$$d < r - 2t \tag{A-11}$$

To find a closed-form solution for D's upper-bound equilibrium platforms, substitute (A-7) into (A-11),

$$d < 1 - \frac{1}{2}(d-t) - 2t \tag{A-12}$$

$$d < \frac{2}{3} - t \tag{A-13}$$

We now need to find the interval of t where this strategy is an equilibrium. t needs to be small enough such that D will choose to pick a platform between T and R. If t is too large, then D will instead locate to the left of T.

$$\frac{1}{2}(r-t) > t \tag{A-14}$$

$$r > 3t \tag{A-15}$$

Plugging in the lower bound on r from (A-15) into (A-5),

$$t < \frac{1}{4} \tag{A-16}$$

■

Proof of Proposition 5:

There cannot be an equilibrium with both D and R to the right of T. We saw in the proof for the previous proposition that in order for both D and R to locate to the right of T, we need $t \leq \frac{1}{4}$. Thus, one of the candidates would have an incentive to move just below (or at) t.

For D, the incentives are pretty clear. Since he locates to the left of t, he wants to locate close enough to t to ensure at least second place – that is, win more votes than T. We will show shortly that R wins the election in equilibrium; so, second place is the best D can do. Let r denote R's platform. The most liberal equilibrium platform D, denoted by d, could choose that gains more support in the election than platform t earns for candidate T is solved from

$$\frac{1}{2}(d+t) > \frac{1}{2}(r-t) + \frac{1}{2}(t-d)$$

$$d > \frac{r-t}{2} \tag{A-17}$$

Note that, technically, D would not want to have the exact same location with T (except at the boundary case $t = \frac{1}{4}$), which would lead to him splitting votes equally with T. Thus, the upper bound on D's equilibrium strategy is $t - \varepsilon$ for some infinitesimally small $\varepsilon > 0$ – hence, the open set in the proposition.

For R, the incentives are a little more complex, although still straightforward. R cannot choose a platform too close to T, since D will then have an incentive to deviate by jumping out just to the right of R and win the election. The point to which R can move towards T without giving D an incentive to deviate by jumping just to the right of R is $1-t$. This gives the lower bound of R's equilibrium strategy.[2]

More conservative platforms are also possible in equilibrium. Several conditions need to be satisfied.

(i) R needs to make sure that D cannot win by squeezing closer to the left of T. That is, R needs to win more votes than D's maximum possible vote share from shading just to the left of T.

$$1 - \frac{1}{2}(r+t) > t$$

$$r < 2 - 3t$$

(ii) In order for R to win the election, R also needs to win more votes than T. I solve for the bound on R's platform, which also depends on D's platform. At the

[2]This case is where it is relevant to make the major party candidate's objective function in terms of rank-order/probability of winning. If D and R are instead vote-maximizing, this would not be an equilibrium. R always has an incentive to move towards T to increase his vote share. But moving too close to T will give D an incentive to jump to the right of R. But then R would have an incentive to move to the right of D, until R positions such that D would rather locate just to the left of T. But then R has an incentive to move towards T. There are always incentives to deviate with vote-maximizing D and R.

upper bound of D's possible equilibrium strategies,

$$1 - \frac{1}{2}(r+t) > \frac{1}{2}(r-t)$$
$$r < 1$$

At the lower bound of D's possible equilibrium strategies,

$$1 - \frac{1}{2}(r+t) > \frac{1}{2}(r - \frac{1}{2}(r-t))$$
$$r < \frac{4}{3} - t$$

(iii) R also needs to make sure that D has no incentive to deviate to some platform between T and R. Deterring such a deviation ensures R will win the election.

$$\frac{1}{2}(r-t) < t$$
$$r < 3t$$

One can see that (i) is the sufficient condition if $\frac{1}{3} \leq t < \frac{1}{2}$, and (iii) is the sufficient condition if $\frac{1}{4} < t \leq \frac{1}{3}$. Let $\tilde{r} = min\{2-3t, 3t\}$. This is the upper bound on R's equilibrium platforms.

■

Proof of Proposition 6:

I will show that conditions for a convergent equilibrium cannot be satisfied. For these positions for T, in equilibrium, D and R would want to locate to the right of T, since there are more votes available in that space.

Given that both D and R locate to some identical location greater than t, one might conjecture that they would try to squeeze T by moving in close to the right of

t. Suppose D and R are convergent at $t + \varepsilon$ for some small $\varepsilon > 0$. This cannot be an equilibrium because either D or R has an incentive to deviate to $t+\varepsilon+\gamma$ for some small $\gamma > 0$ to capture all of the space to the right, rather than split that space with the other major party candidate, to win the election outright. The deviating candidate will win the election outright. This incentive to shade just to the right pushes the conjectured equilibrium platform away from T. In equilibrium, the available space to from shading to the left of the equilibrium position must be equal to the votes won by shading to the right. Otherwise, one of the major party candidates has an incentive to deviate. Let y be the conjectured equilibrium location for D and R. This condition is satisfied if

$$\frac{1}{2}(y - t) = 1 - y \tag{A-18}$$

$$y = \frac{2}{3} + \frac{1}{3}t \tag{A-19}$$

To find the interval on t for which this strategy could potentially be an equilibrium, we find the bound on t such that the votes available from the conjectured convergent equilibrium platform to the right of t is at least as large as the votes available for a candidate to locating at or just to the left of t. That is, neither candidate has an incentive to deviate to a divergent platform that places the two major party candidates on both sides of T.

$$\frac{1}{2}[1 - \frac{1}{2}(y^* + t)] \geq t$$

where y^* is the equilibrium platforms solved above. Substituting for y^* and solving for t,

$$t \leq \frac{1}{4} \tag{A-20}$$

If $\frac{1}{4} < t < \frac{1}{2}$, then there cannot be a convergent equilibrium because D would want to locate below T.

For $0 < t \leq \frac{1}{4}$, we check an additional condition. The conjectured convergent equilibrium position y also needs to ensure that D and R both win more votes than T. If not, then T wins and D and R tie for second-place. D could instead pick a platform to get in second-place outright, as shown in the proof for Proposition 4.

D and R defeat T if,

$$\frac{1}{2}[1 - \frac{1}{2}(y + t)] \geq \frac{1}{2}(y + t)$$

where y is the equilibrium platforms solved from (A-19). Solving for t, we get the inequality $t \leq 0$. Thus, a convergent equilibrium does not exist if $0 < t < \frac{1}{2}$.

■

Proof of Proposition 7:

Locating at 0 or $\frac{2}{3}$ makes it a three-way tie for first. Any other platform by D between t and r can put him no higher than second-place. However, $d = 0$ cannot be an equilibrium since R has an incentive to move towards 0 to win outright.

■

Proof of Proposition 8:

If D and R both converge to the median voter, then all three candidates win the election with probability $\frac{1}{3}$. However, both have an incentive to deviate to a different platform. A small deviation guarantees electoral victory, since the other two candidates split the remaining votes.

There also cannot be a divergent equilibrium around the median voter. Let us conjecture such an equilibrium, where D locates at y and R locates at $1 - y$. Both

candidates have an incentive to move infinitesimally closer to the median voter to win outright. There is always this incentive, regardless of how close y is to $\frac{1}{2}$.

■

Proof of Lemma 1:

R can always find a platform such that he defeats D and T if $\theta_D < \frac{1}{2}$. Thus, the only way that D can win the election with any positive probability is to pick a platform such that he defeats – or at least ties with – R when T does not enter the election. This incentive, which now dominates since there is some chance that T will not enter the election, drives D towards the median voter.

■

Proof of Proposition 9:

Case 1. Let us first show the median voter equilibrium for extreme T's. At the conjectured equilibrium $y = \frac{1}{2}$, D and R win with probability $\frac{1}{2}$. Deviating by picking some $y' < \frac{1}{2}$ is obviously not beneficial (Lemma 1). Deviating to some $y' = \frac{1}{2} + \varepsilon$ for some small $\varepsilon > 0$ gives an expected payoff of p (win if T enters). Thus, y is an equilibrium as long as $p \leq \frac{1}{2}$.

This equilibrium holds for all t such that both D and R locating at $\frac{1}{2}$ guarantees that they both defeat T. That is,

$$\frac{1}{2}(1 - (\frac{1}{2}t + \frac{1}{4})) > \frac{1}{2}t + \frac{1}{4} \tag{A-21}$$

$$t < \frac{1}{6} \tag{A-22}$$

Case 2. When $t = \frac{1}{6}$, then all three candidates win with equal probability when T enters. At the conjectured equilibrium, D and R win with probability $\frac{1}{3}p + \frac{1}{2}(1-p) =$

$\frac{1}{2} - \frac{1}{6}p$. We again find the bound on p such that neither D or R would want to deviate to some $y' > y$. The satisfying condition is $p \leq \frac{3}{7}$.

Case 3. For more moderate T's, the expected payoff for D and R is $\frac{1}{2}(1-p)$. If T enters, then T wins; otherwise, D and R win with equal probability. Deviating to $y' > y$ gives a payoff of p. y is an equilibrium if $p \leq \frac{1}{3}$. T can be nearly as moderate as the median voter. Let $\gamma = \frac{1}{2} - t$. D or R's deviating strategy is to pick some $y' < \frac{1}{2} + \gamma$, which gives an expected payoff of p.

■

Proof of Proposition 10:

For y in this range, D and R defeat T if T enters, who is located at t. This fact is derived from the condition that D and R both win more votes than T when they both pick platform y,

$$\frac{1}{2}(1 - \frac{1}{2}(t+y)) > \frac{1}{2}(t+y) \tag{A-23}$$

$$y < \frac{2}{3} - t = \bar{y} \tag{A-24}$$

The above expression for $\bar{y}$ is greater than $\frac{1}{2}$ if $t > \frac{1}{6}$.

One deviating strategy is to pick some platform $y' < y$. This guarantees a win in the case that T does not enter. For y to be an equilibrium, we need

$$1 - p \leq \frac{1}{2} \tag{A-25}$$

$$p \geq \frac{1}{2} \tag{A-26}$$

Another possible deviating platform is some $y' > y$. This deviation guarantees a win in the case that T enters for the parameter conditions in the proposition. That

is, t cannot be too moderate; otherwise, T would win the election if D or R deviates to the right. A rightward deviation is beneficial if it ensures electoral victory when T enters,

$$1 - y > \frac{1}{2}(t + y) \tag{A-27}$$

$$t < 2 - 3y \tag{A-28}$$

Notice that this condition necessarily satisfies the condition that D and R defeat T if they both locate at y and T enters. For neither candidate to have an incentive to deviate to some $y' > y$, we need

$$p \leq \frac{1}{2} \tag{A-29}$$

These two conditions imply $p = \frac{1}{2}$.

Notice that $y = \frac{2}{3} - t$ cannot be an equilibrium. At this platform, all three candidates win with equal probability if T enters. D and R's expected payoff is $\frac{1}{2} - \frac{1}{6}p$. To guard against a rightward deviation, we need $p \leq \frac{3}{7}$. To deter a leftward deviation, we need $p \geq \frac{3}{5}$. Both conditions cannot be satisfied; thus, y cannot be an equilibrium for $t = \frac{2}{3} - t$.

■

Proof of Proposition 11:

In this equilibrium, D wins if T does not enter, and R wins if T enters. The former is satisfied by $\frac{1}{2} \leq \theta_D < \theta_R$. Lemma 1 shows that $\theta_D \geq \frac{1}{2}$. The latter is satisfied if

(a) R wins more votes than T

$$1 - \frac{1}{2}(d + r) > \frac{1}{2}(t + d) \tag{A-30}$$

$$t < 2 - r - 2d = \bar{t} \tag{A-31}$$

and (b) R wins more votes than D

$$1 - \frac{1}{2}(d + r) > \frac{1}{2}(r - t) \tag{A-32}$$

$$t > d + 2r - 2 = \underline{t} \tag{A-33}$$

Case 1. If $\theta_R > \frac{2}{3} - \frac{1}{3}$, then D has no incentive to deviate. Deviating to exactly r has T winning the election, and D now wins the election if T does not enter with probability $\frac{1}{2}$, rather than with certainty if he does not deviate. Deviating to some platform to the right of R guarantees an electoral loss under any circumstance. If R deviates to D, then he gets an expected payoff of $\frac{1}{2}$. Thus, this equilibrium holds if $p \geq \frac{1}{2}$. Lastly, in order for equations (A-31) and (A-33) both to hold, we need,

$$\bar{t} > \underline{t} \tag{A-34}$$

$$r < \frac{4}{3} - d \tag{A-35}$$

Case 2. Deviating to R's platform will not increase D's expected payoff, since T wins in this case ($\theta_R > \frac{2}{3} - t$). If $\theta_R < \frac{2}{3} - \frac{1}{3}t$, then D could deviate either to exactly or just above R's platform. In either case, D has no incentive to deviate if $p \leq \frac{1}{2}$. R could deviate to D's platform to get an expected payoff of $\frac{1}{2}$. R has no incentive to deviate if $p \geq \frac{1}{2}$. These two inequalities imply $p = \frac{1}{2}$. Likewise to case 1, we also need (A-31) and (A-33) to hold, giving R's upper bound (check equation no.).

■

Proof of Proposition 12:

In this proposition, we look for sincere equilibria. In the second period, suppose that T enters at her ideal point $\frac{1}{4} < t < \frac{1}{2}$. I will show shortly that this strategy can be an equilibrium strategy of this subgame.

In the first period, D and R choose platforms knowing that T will enter at $\theta_T = t$. The equilibrium strategies for D and R are specified in Proposition 5. Under the strategies in that proposition, T acts as a spoiler by throwing the election to R. The last thing to show is that entering at t is T's best strategy. The condition under which this is true is when $|\theta_R^* - t| < |\theta_D^* - t|$ – that is, T prefers R winning over D.

■

Proof of Proposition 13:

Let us start by observing the second stage, when T enters. Given θ_D and θ_R, T will locate to throw the election to the candidate closest to t. We will see shortly that entering at $\hat{t}$ consistent with D and R's strategies is an optimal strategy for T.

Given this strategy, what positions can D and R choose in the first stage? Both know T's strategy of spoiling the election for her less preferred candidate. Given T's strategy, R just wants to make sure that he wins the election by ensuring that he is the favored major party candidate (i.e., $|\theta_R - t| < |\theta_D - t|$). D chooses a platform to at least place higher than T. The remainder of the proof follows those for Propositions 4-7 with the added restriction on R's platform. T's optimal strategy is to enter at $\hat{t}$ consistent with D and R's strategies, throwing the election to candidate R.

■

Chapter 5

Campaign Issue Breadth and Strategic Cooptation

Because third parties rarely win elections, other effects are purported to give at least a modicum of their relevance in U.S. electoral politics. One effect that is commonly referred to is their ability to bring up issues that are being ignored by the two major parties. Rosenstone, Behr and Lazarus succinctly summarize this view:

> Thus the power of third parties lies in their capacity to affect the *content* and *range* of political discourse, and ultimately public policy, by raising issues and options that the two major parties have ignored. In so doing, they not only promote their cause but affect the very character of the two-party system. (1996, emphasis mine, 8)

This chapter explores the dynamic between third and major parties on the range of political discourse. The next chapter turns the focus to specific content.

Third parties influence electoral outcomes by partially inducing the policy characteristics of the major parties. Chapter 3 elucidates one such indirect way third parties play a regular role in contemporary U.S. elections. Third parties can affect the ideological positioning of the major parties: the threat of third party entry induces major party candidate divergence.

A unidimensional framework, however, leaves much to be desired in any study of third parties. Most accounts of third parties in the U.S. context stress their role in advocating policy positions on issues that are being ignored by the two major parties. That is, third parties can play a part in electoral politics precisely because politics is multidimensional, or at least is potentially multidimensional.

5.1 Campaign Breadth

This chapter investigates one general characteristic of multidimensionality, what I call the "breadth of the campaign issue space" (i.e., the degree of multidimensionality or range of discourse). Issue breadth is simply the number of different issues mentioned in the major parties' campaigns.

5.1.1 Major Party Candidate Advertising

"Issue ownership" is the dominant framework for the strategic dynamics in campaign advertising (Petrocik, 1996; Budge and Farlie, 1983). In this framework, candidates emphasize issues on which voters view them more favorably. Carsey (2000) gives a more formal representation of this strategy by framing it in terms of Riker's heresthetic change (Riker, 1990). As Riker (1990, 47) states, "[h]eresthetic has to do with changing the space or the constraints on the voters in such a way that they are encouraged, even driven, to move themselves to the advantage of the heresthetician."

For purposes of my discussion, I will quickly review the basics of the Carsey (2000) spatial model. Assume that the issue space is two-dimensional. Each major party candidate is associated with a platform in the issue space. Central to this framework, their platforms are taken as fixed by all players in the model (the candidates and voters). Carsey outlines several motivations that justify this assumption of platform rigidity. Generally, voter perceptions of candidate (party) platforms are sticky, and there can be a credibility cost associated with a candidate (party) changing its platform (i.e., Austen-Smith and Banks, 1989; Berger, Munger and Potthoff, 2000). Voters have weighted Euclidian preferences. Using Carsey's notation, voter X's utility for candidate A is

$$U_X(\mathbf{a}) = [z_{11}(x_1 - a_1)^2 + z_{22}(x_2 - a_2)^2]^{\frac{1}{2}},$$

where $\mathbf{x} = (x_1, x_2)$ is voter X's ideal point, $\mathbf{a} = (a_1, a_2)$ is candidate A's platform, and z_{11} and z_{22} are the weights voter X places on the first and second dimensions, respectively.

Carsey's main argument, falling in line with Riker's heresthetic argument, is that candidates' efforts in the campaign are directed towards altering z_{11} and z_{22}, since $\mathbf{a}$ is fixed. Candidates therefore benefit from campaigning on favorable issues, as an increase in the salience of issues on which they hold a comparative advantage has a positive effect on voter utility.

5.1.2 Incorporating Third Parties

What effect might third parties have on major party campaigning in this agenda-setting framework? Although the heresthetic literature makes predictions on *which* issues a candidate could advantageously stress, it does not predict *how many* issues should be stressed. There are several potential issue dimensions on which a candidate holds a comparative advantage. The heresthetic framework predicts that stressing these issues is beneficial. It does not, however, predict how many of these potentially advantageous issues should be stressed by the candidate.

In some ways simply reiterating conventional wisdom on third parties, I hypothesize that third parties increase the issue breadth of major party electoral competition. One point of departure from conventional wisdom, however, is that I expect that the *threat* of third party entry, rather than actual entry, will have a positive effect on scope of political debate.

The two major parties (generally) prefer two-party competition over multi-party

competition, since a third party candidate takes away votes from one or both of the major parties. This makes preemptive cooptation an attractive strategy For instance, suppose a Green candidate enters the election. She will take votes disproportionately away from the Democratic candidate. The Democratic candidate therefore has an incentive to keep the Green candidate out of the election.

This logic is based on the assumption that third parties are motivated to enter the electoral arena in order to bring up an issue that the two major parties are currently ignoring. Therefore, if major parties want to deter initial entry, then one strategy is to preemptively coopt third party issues by discussing those issues in their own campaign. In my example, the Democratic party has an incentive to discuss environmental issues, even in elections where a Green candidate is not present, in order to decrease the incentive for future Green party challenges. In sum, the potential for third parties make electoral politics increasingly multidimensional by forcing the major parties to address a wider range of issues, which would otherwise be ignored.

I should note that the vote-stealing effect of a third candidate could be asymmetric. Consequently, third party entry could be beneficial for one of the major parties. For instance, if the Green party was the *only* potential third party, then the Republican party would support third party entry. However, I assume that there is a large range of potential third parties that could take votes from both major parties. The current chapter, as in the earlier chapter on ideological divergence, posits that the *general* threat of third party entry influences major party electoral strategies. Therefore, I do not explore in detail the *specific content* of major party advertisements and only use the broad concept of campaign issue breadth as the dependent variable. A study of issue-specific third party effects is reserved for the next chapter.

5.1.3 Reaction vs. Anticipation

In an earlier chapter, I showed that the *potential* for third party entry influences major party positioning – major parties diverge in the unidimensional ideological space in anticipation of possible third party entry. For issue salience (campaign issue breadth), however, one might question whether the mere threat of third party entry is strong enough to influence major party campaigns. That is, perhaps we should expect *reactionary*, rather than *anticipatory*, cooptation by the major parties.

First, a clarification of the earlier analysis is needed. I showed in a *cross-sectional* analysis that major party candidates are more divergent in districts where the threat of third party entry is higher. From this empirical pattern, I argue that third party threat *causes* major party divergence (King, Keohane and Verba, 1994). Importantly, I do not show that a particular candidate will change her platform in response to an increasing (or decreasing) third party threat. First, the threat of entry is relatively stable over time in any one district. Second, many studies show how candidate issue positions are also stable over time (Poole and Rosenthal, 1991). Furthermore, many multidimensional electoral models stress the inability for candidates to alter positions (e.g. Carsey, 2000). Actual third party entry therefore has a tough time influencing major party positioning, since positioning is sticky and cannot be easily manipulated in the course of a single campaign. In contrast to issue positioning, manipulating issue salience is easier to accomplish within a single campaign.

This discussion suggests that perhaps we ought to expect that the *actual entry* by third party candidates increases campaign breadth. If the major party candidates are competing under uncertainty and are risk-averse, then they may prefer to keep political debate focused on a narrow set of issues. They will only venture out to a wider range of issues when they are forced to do so by the presence of a third

party candidate. The mere threat of third party entry might not be strong enough to convince risk-averse major party candidates to discuss a more issues during the campaign.

The view of campaign agenda-setting dynamics in the existing literature also points out a need to clarify the meaning of major party anticipation in the context of this (and the next) chapter. By the beginning of the height of campaign season, the major party candidates know whether a third candidate has entered.[1] Campaigning in that election then does not have an influence on deterring entry in that election.[2] However, the content of the political debate during the campaign may influence third party entry in the following election. There are certainly events that occur during the term, such as the elected representatives legislative behavior, that will influence third party entry in the following election. But I argue that campaign issue content is still an important district characteristic that influences third party entry.

Note that the reaction I have stressed is reaction in the "short-term." That is, reaction within a single campaign. Another possibility is a "longer-term" reaction, whereby major party candidates react to third party entry in the election at time t in the following election at time $t+1$. I will also test for this possibility. However, I conjecture that previous third party entry will influence major party advertising via its contribution to the threat of third party entry.

Because of the fluid dynamics of campaign agenda-setting, this chapter will explore in detail both possible third party effects: *actual* third party entry (reactionary cooptation) and *potential* third party entry (anticipatory cooptation). Both are hy-

[1] I say "the height of the campaign season" because there is some chance that the outcome of third party ballot petitioning is not known by the beginning of the general campaign. Some states set the deadline for ballot petitioning after the major party primaries.

[2] An interesting dynamic that deserves future attention is the role of primary campaigns. To what extent does the primary campaign influence the entry decisions of third party candidates? Since the necessary campaign data simply do not exist at the congressional-level (to my knowledge), focusing on presidential primaries may be more fruitful.

pothesized to increase major party campaign breadth.

5.1.4 Incumbents vs. Non-incumbents

I conjecture that there are differences in the effect of third party threat on campaign advertising between incumbents and non-incumbents. I argue that incumbents are more likely to be sensitive to the potential of third party entry. Incumbents are more likely to be concerned with how their mix of campaign issues will influence future elections, and consequently strategically campaigning to anticipate third party competitors is a regular feature of their campaigns. Challengers and candidates for open seats, on the other hand, are not as concerned with the future. Their immediate concern is to win the current election and, consequently, will choose their campaign agenda to maximize that chance irrespective of third party threat.

5.2 Data

The dependent variable is a measure of campaign issue breadth, constructed from campaign advertising data from the 2000-2004 U.S. House elections. The data is taken from the Wisconsin Advertising Project (WiscAds), which draws from political advertisements on the major broadcast networks the 75 to 100 (depending on election-year) largest media markets (Goldstein, Franz and Ridout, 2002; Goldstein and Rivlin, 2005, 2007). Coders tracked what issues each advertisement mentioned. The campaign breadth variable is simply the total number of issues mentioned in the major party candidates' campaign advertisements.

I code a few different dependent variables, each to be used in the appropriate analysis. *No. of issues* is the number of distinct issues discussed by both major party candidates. *Incumbent no. of issues* is the number of issues mentioned in the

incumbent's campaign advertisements. *Challenger no. of issues* is the number of issues mentioned by the challenger in their campaign advertisements.

Two main independent variables are used in the analysis. First, a dummy variable *Third present* is coded 1 if a third party candidate was on the ballot in that House election, and 0 otherwise. The second is the predicted probability of third party entry, *Pr(entry)*, which is constructed as in earlier chapters.

Since a model of campaign breadth has not been done to my knowledge, there is not a standard set of controls. At this stage of the project, I keep the statistical models parsimonious. A third control is *District heterogeneity*. I expect that more diverse districts will have deeper campaign depth. I also control for *Campaign expenditures* (in millions of dollars), which is expected to have a positive effect as candidates with more money to spend can cover a larger range of issues. I also control for the cost of advertising in the district's media market with *Ad cost* (in $1,000's). This variable is the average cost to run a television advertisement in the district. As the cost increases, I expect that fewer issues will be mentioned. A candidate-specific control is also included, and the specific variable used depends upon the specific test (i.e., which dependent variable is used). These variables are introduced below in the discussion of the relevant model. Lastly, I include year dummies for the two presidential election-years, *2000* and *2004* (midterm election as the omitted year).

5.3 Actual Third Party Entry

5.3.1 Fundamental Problem of Causal Inference and Matching Methods

In the estimation of the effect of third party entry on campaign depth, we can use "matching methods" as an additional safeguard against omitted variable bias and

parametric model misspecification more generally. The observed outcome is campaign breadth. The causal (treatment) variable is third party entry. The causal claim I wish to test is whether entry by a third party candidate contributes to major party campaign breadth.

When using observational data, one encounters the "fundamental problem of causal inference" (Holland, 1986). Here I will review the problem as discussed by Ho et al. (2007) and Sekhon (Forthcoming). Let $y_i(T_i)$ be the outcome for observation i, given treatment assignment T_i. The variable T_i can equal either 0 if i did not receive the treatment, or 1 if i did receive the treatment. The effect of the treatment is

$$\text{Fixed causal effect for unit } i \equiv y_i(1) - y_i(0) \tag{5.1}$$

For any observation i, either $T_i = 0$ or $T_i = 1$. Consequently, one of the values of interest in equation (5.1) is an unobserved counterfactual, which gives the fundamental problem of causal inference. We can similarly state this problem to include a random stochastic component in outcomes by letting the outcome be a realization of a random variable $Y_i(T_i)$. The average treatment effect is

$$ATE = E[Y_i(1) - Y_i(0)] \tag{5.2}$$

In an experimental setting, where the assignment of the treatment is random (and not correlated with the outcome), one could easily estimate equation (5.2). In a setting with observational data, one is often more interested in the average treatment effect on the treated,

$$ATT = E[Y_i(1|T_i = 1)] - E[Y_i(0|T_i = 1)] \tag{5.3}$$

Equation (5.3) is not estimable since the second term is not observed.

Ho et al. (2007) discuss the benefits of data "preprocessing" in this situation. In experimental research, one can get clean inferences of treatment effects through random assignment. If assignment to the treatment group is independent of individual characteristics, then one can estimate treatment effects with a simple difference of means test. Random assignment avoids any omitted variable bias, even if the regression model does not include *any* controls. In the case at hand, we could get a nice estimate of the treatment effect (presence of third party) if third party entry was entirely random.

In observational research, however, data is not generated in a controlled setting whereby treatment assignment is completely random. In our case, third party entry is not expected to be random. Some districts are more likely than others to have a third party candidate (see Chapter 2). Thus, researchers in this setting include control variables, in addition to a dummy variable denoting treatment assignment, in a multivariate parametric analysis. However, as Ho et al. note, estimates of the treatment effect is often sensitive to model specification (especially omitted variable bias)

Matching methods help alleviate the problematic impact of omitted variable bias and other forms of model misspecification.[3] The goal of this technique is to eliminate or reduce the relationship between treatment assignment and other pretreatment covariates. Readers interested in the specific details should refer to Ho et al. (2007). They state the basic intuition:

> Our preprocessed data set will therefore include a selected subset of the observed sample for which T_i and X_i are unrelated, meaning that the

[3]Another possible estimation technique is difference-in-difference. Problems with this approach led me to using matching. The most glaring problem is that in the current context of third party entry, treatment could occur in any time period. This feature makes it problematic to estimate effects through cross-time comparisons, which a difference-in-difference approach would do.

treatment and control groups have the same background characteristics, or in other words that this relationship holds

$$\tilde{p}(X|T=1) = \tilde{p}(X|T=0),$$

where $\tilde{p}(\cdot)$ refers to the observed empirical density of the data, rather than a population density.

In this procedure, observations are differentially weighed in order to produce a sample where the treated an untreated groups "look alike." The term used to denote the level of similarity across groups is "balance." If perfect balance is achieved (where we are able to achieve perfect one-to-one matching), then when using the preprocessed data all covariates can be ignored, and the researcher can simply compare the means across the treated and untreated groups. However, using real data, we cannot achieve perfect matching. Therefore as Ho et al. suggest, one should a multivariate parametric analysis, which the researcher would have done anyway in the absence of matching, on the preprocessed data.

5.3.2 Matching in Action

In practice, there are several possible algorithms to match data in order to achieve balance. The results presented here use "genetic matching" (Diamond and Sekhon, 2005), where "[t]he idea is to use a genetic search algorithm to find a set of weights for each covariate such that the a version of optimal balance is achieved after matching" (Ho et al., 2007). Genetic matching outperformed "nearest neighborhood matching," results of which are available upon request.

The pretreatment covariates used are identical to those used in analysis in chapter 2: Ballot access *Signatures* requirement, *Previous third House vote*, and *District heterogeneity*. As before I also control for *Prev. unopposed* and its interaction with the previous House vote. These district-level attributes are correlated with treatment

assignment (as earlier probit models have shown), and are therefore used to gauge balance.

The genetic matching procedure used in the presented results matches on all individual covariates as well as the propensity score and uses a population size of 10,000. This combination seems to get a good balance of balance and efficiency.[4]

5.3.3 Results from Matching

The genetic matching procedure does improve balance considerably. Several diagnostics are presented to gauge the improvement in balance. Figures 5.1 and 5.2 contain quantile-quantile (QQ) plots for the variables included in the matching procedure. If the empirical distributions are the same in the control and treated groups, then the points in the plots would lie along the 45-degree line. Although we still see some deviations in the matched data, we see an improvement in balance for nearly all of the covariates. Lastly, table 5.2 provides a summary statistics based on the empirical differences between the treated and control groups. Again, we would like for the differences in means to be minimal across the groups. The first column in table 5.2 shows the percent improvement in the mean difference across the two groups (ranges up to 100, where higher is more balanced). The last three columns are based on the empirical QQ plots, showing various differences (mean, median, and maximum differences) between the two empirical quantile functions (treated and control groups), and therefore gives a good summary of which variables were are more or less able to balance on.

It turns out that the estimated treatment effect does not differ too much between the unprocessed and preprocessed data. I run a parametric analysis on the

[4] As the standard for balance increases, more and more observations are discarded, which leaves a smaller subsample available for the parametric analysis – hence, a decrease in efficiency. So as in many things in statistical work, this is a bit of a balancing act.

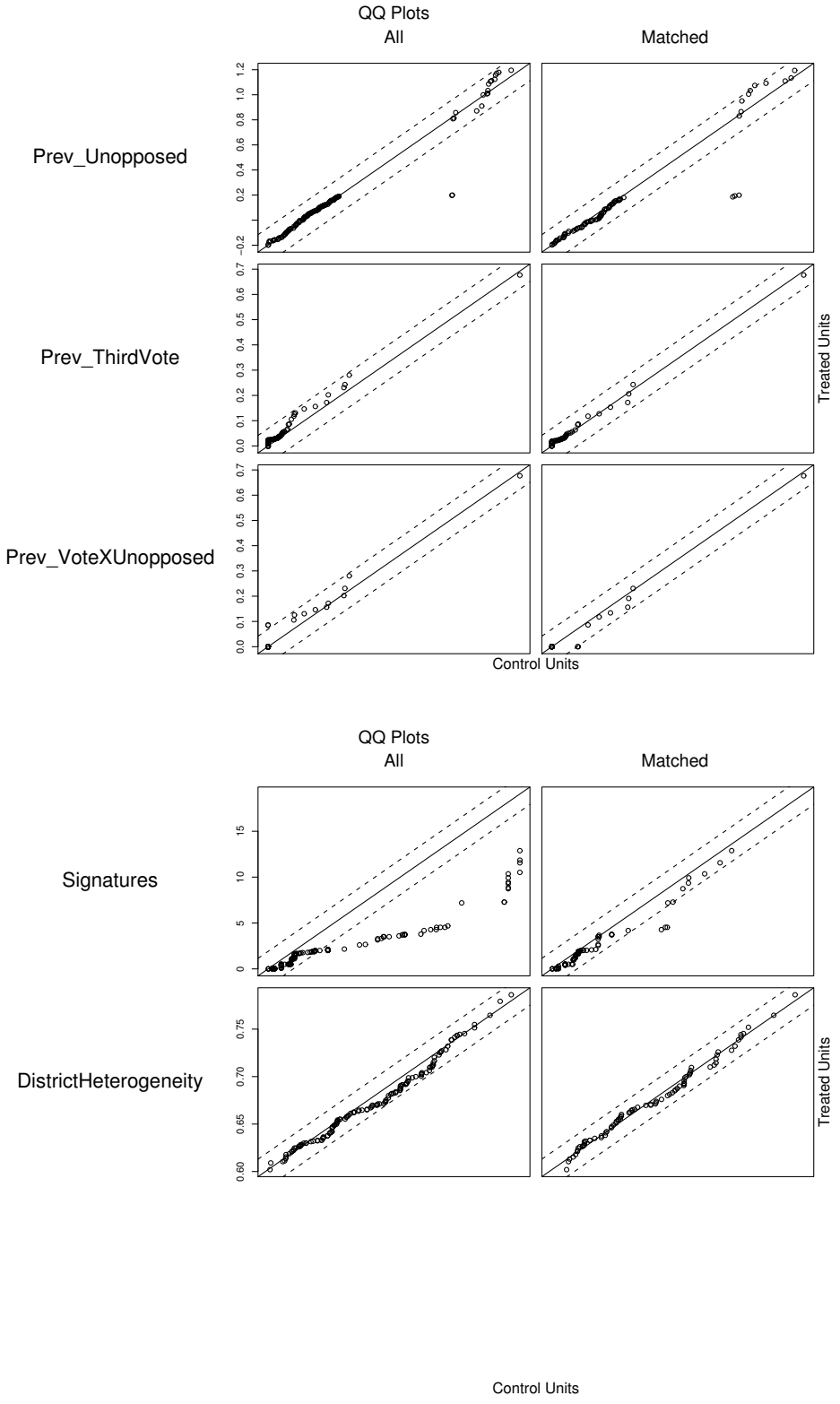

Figure 5.1: QQ-Plots

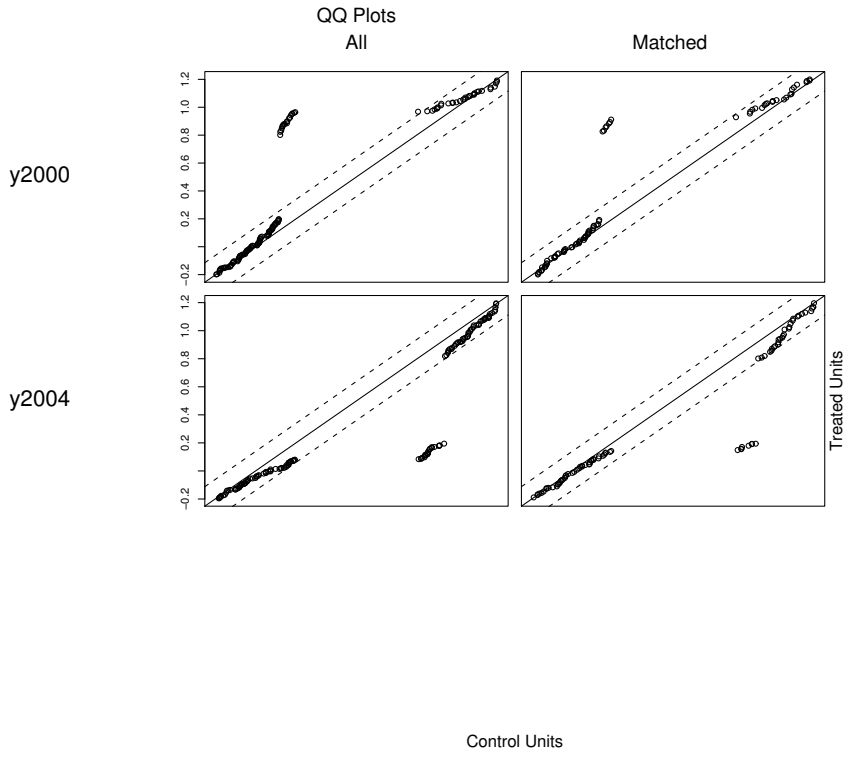

Figure 5.2: QQ-Plots, continued

Table 5.1: Percent Balance Improvement

	Mean Diff.	eQQ Med	eQQ Mean	eQQ Max
Distance	99.19	54.58	54.08	50.41
Prev. Unopposed	34.91	0	-152.44	0
Prev. ThirdVote	76.46	64.72	49.1	36.12
Prev. VoteXUnopposed	95.81	0	-17.61	15.86
Signatures	95.76	55.12	74.94	60.28
District Heterogeneity	36.13	39.95	38.41	28.97
2000	88.96	0	38	0
2004	95.11	0	38.8	0

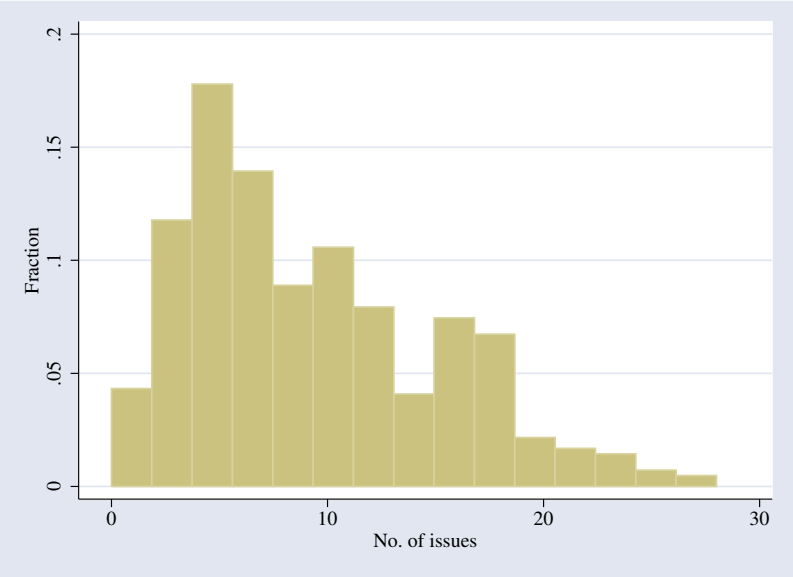

Figure 5.3: Distribution of Number of Issues

preprocessed data to estimate the treatment effect. Because of the overly-dispersed distribution of the dependent (count) variable, a negative binomial regression is used to estimate the number of issues mentioned in major party campaign advertisements. All matching covariates are then also included in the parametric analysis that follows matching. Running a parametric analysis after matching and "double-using" variables used in the matching stage is the safe route, since "[A]nalyses are "doubly robust" in that if either the matching analysis or the analysis model is correct (but not necessarily both) your inferences will be statistically consistent (Ho et al., 2004, 6)."

The estimation results are presented in Table 5.2. Advertising cost, incumbency, and expenditures all have their expected effects and are statistically significant.[5] The one exception is district diversity, which is not statistically significant. The variable of interest is the treatment dummy, *Third present*. Regardless of whether the data is

[5]Clustering standard errors on state does not change the results.

balanced or not and the specific balancing procedure used, there is no support for the hypothesis that the presence of a third party candidate increases campaign breadth. In fact, the sign of the coefficient for the dummy variable for third party entry is negative in all models.

5.3.4 Longer-term Reaction

The previous section tested whether the major parties responded to third party entry within a single election. One could also conceptualize response as occurring across elections: third party entry in an election influences major party electoral strategies in the following election. I test for this possibility by including the dummy variable *Previous third present*. The first column in table 5.3 uses as the unit of analysis total major party advertising. The second column is on incumbent advertising. One might imagine that the incumbent will be most sensitive to third party entry in the previous election.

Both estimated models show minimal support for a cross-election reactionary effect. There is a positive coefficient, as one would expect; however, the effect is not statistically significant. I contend that a better way to think of the effect of previous third party entry is through the logic of anticipation. That is, the major parties do (in a sense) react to recent third party entry because actual entry is a good signal of future third party threat. This anticipatory dynamic is the focus for remainder of the chapter.

5.4 Threat of Third Party Entry

Instead of major party *response* to third parties, I have stressed major party *anticipation* of third parties. This focus on anticipation is a significant departure from earlier

Table 5.2: Effect of Third Party Present on Campaign Issue Breadth (Negative Binomial Regression)

	Not Matched Coef./Std. err.	Matched Coef./Std. err.
No. issues		
Third present	0.000	0.012
	(0.06)	(0.06)
Prev. unopposed	-0.050	-0.007
	(0.10)	(0.11)
Prev. third vote	1.434	1.789†
	(0.97)	(1.05)
Prev. unopposed X third vote	-1.270	-1.736
	(1.08)	(1.17)
Signatures	-0.002	0.007
	(0.01)	(0.01)
District heterogeneity	-0.392	-0.394
	(0.64)	(0.71)
Incumbent	-0.351**	-0.303**
	(0.06)	(0.07)
Ad Cost	-0.415**	-0.439**
	(0.05)	(0.05)
Expenditures	0.235**	0.239**
	(0.02)	(0.02)
2000	-0.387**	-0.371**
	(0.07)	(0.07)
2004	-0.094	-0.108
	(0.06)	(0.07)
Constant	2.647**	2.578**
	(0.44)	(0.49)
lnalpha		
Constant	-2.136**	-2.050**
	(0.14)	(0.15)
Log likelihood	-1115.109	-963.591
LR χ^2	253.711	209.418
Obs.	400	344

Significance levels: $\dagger p < .1; *p < .05; ** p < .01$

Table 5.3: Effect of Previous Third Entry on Incumbent Advertising (Negative Binomial Regression)

	All Candidates Coef./Std. err.	Incumbents Coef./Std. err.
main		
Previous third present	0.060	0.057
	(0.05)	(0.05)
District heterogeneity	-0.469	-0.583
	(0.55)	(0.63)
Incumbent	-0.301**	
	(0.05)	
Ad cost	-0.421**	-0.361**
	(0.05)	(0.06)
Expenditures	0.237**	
	(0.02)	
2000	-0.412**	-0.342**
	(0.06)	(0.07)
2004	-0.124*	-0.138*
	(0.05)	(0.06)
Challenger quality		0.077
		(0.05)
Incumbent expenditures		0.338**
		(0.03)
Constant	2.658**	2.147**
	(0.38)	(0.43)
lnalpha		
Constant	-2.240**	-2.939**
	(0.14)	(0.30)
Log likelihood	-1255.067	-809.757
LR χ^2	291.312	143.563
Obs.	450	328

Significance levels: $\dagger p < .1; *p < .05; **p < .01$

works on the role of third parties in the U.S. two-party system. For reasons outlined above, I conjecture that a test for third party would be particularly difficult in the context of campaign issue breadth. However, the analysis in the previous section showed that the "seemingly easier" test could not reject the null of no third party effect. In this section, I test whether a theory of major party strategic anticipation can explain third party effects on campaign issue breadth.

As discussed in an earlier section, I expect that this anticipatory dynamic is stronger for incumbent candidates. I first present results of models using as the dependent variable the total number of issues discussed by the major party candidates together. I follow with a separate analysis for incumbents and challengers.

The independent variable of interest is the predicted probability of third party entry, *Pr(entry)*. This variable is the predicted values that are estimated from a probit model of third party entry, identical to the parameterization in chapter 2.

The estimated effect of the predicted probability of third party entry could be interpreted in a couple of ways. If the decision of what issues to discuss in the campaign must be made before the campaign, then a significant coefficient for *Pr(entry)* shows that the candidate chose the mix of issues in an attempt to preempt entry in *that* election. The issue content of campaigns, however, is much more fluid. And in fact the major party candidates know whether or not a third party candidate will enter by the start of the campaign.[6] Another interpretation – one which I favor – is that a positive coefficient shows that candidates discuss a broader range of issues in districts with a higher *general propensity* for third party candidates. As seen in chapter 2, the threat of entry is relatively stable district characteristic. Therefore, I argue that the predicted probability of entry in the current election also gives a good sense of

[6]There is some variation in when the major parties know. In fact, there are some states where the deadline for ballot petitioning is after the major party primaries. However, the timing is such that the bulk of the campaign is run with knowledge of third party entry.

Table 5.4: Negative Binomial Regression: Effect of Pr(entry) on Campaign Breadth

	(1)
	Coef./Std. err.
No. issues	
Pr(entry)	0.176
	(0.14)
Incumbent	-0.351**
	(0.06)
Ad cost	-0.411**
	(0.05)
Expenditures	0.236**
	(0.02)
District heterogeneity	-0.538
	(0.62)
2000	-0.426**
	(0.07)
2004	-0.095
	(0.06)
Constant	2.658**
	(0.43)
lnalpha	
Constant	-2.132**
	(0.14)
Log likelihood	-1118.356
LR χ^2	252.693
Obs.	401

Significance levels: $\dagger p < .1; * p < .05; * * p < .01$

the probability of entry in the following election. From the candidates' perspective, as well as the researchers, this measure is the best one available. Candidates use expectations from the current election to project to the next election.

Table 5.4 shows minimal support for a general influence of third party threat on major party advertising. The coefficient for $Pr(entry)$ is positive, as hypothesized, but does not reach statistical significance.[7] Incumbency, the cost of advertising, and

[7]As before, standard errors are corrected to account for the two-stage estimation (Murphy and Topel, 1985).

total major party expenditures all have their predicted effects and reach statistical significance. District diversity is the exception as it has a negative coefficient but is not statistically significant.

Before moving on to test the conjecture of incumbent and challenger differences in issue breadth, I split the sample to separately estimate total issue breadth in incumbent races and total issue breadth in open races. Following the logic for challengers to incumbents, I do not have an *a priori* expectation on the influence of third party threat on open seat candidates. Their immediate concern is to win the current election, which might or might not best be served by catering toward potential third party constituencies. For each subsample, I include a candidate quality control. In races with an incumbent, the presence of a high-quality challenger (as defined by Jacobson) contributes to greater campaign issue breadth. I therefore include *Challenger quality*. In open seat races, we should expect more discussed issues when both candidates have previously held elected office. *Open candidate quality* controls for this effect.

The estimation results are presented in Table 5.5. Among districts with an incumbent running for reelection, we find strong statistical evidence of a positive third party effect on major party campaign issue breadth. The coefficient in the first column of Table 5.5 is roughly twice the size of that found in Table 5.4 and is statistically significant. Interestingly, the coefficient for $Pr(entry)$ is negative in the estimation that only includes open seat races. This coefficient is also statistically significant at the 10% level. I am not yet sure what to make of this finding. One plausible explanation is that although there is generally a broader scope of issues in open seat races (see Table 5.4), a high likelihood of a third party competitor adds an additional level of uncertainty that makes focusing on a smaller range of issues a more attractive strategy for major party candidates.

Table 5.5: Negative Binomial Regression: Effect of Pr(entry) on Campaign Breadth (Incumbent vs. Open)

	Incumbent Coef./Std. err.	Open Races Coef./Std. err.
No. issues		
Pr(entry)	0.349*	-0.317†
	(0.17)	(0.18)
Challenger quality	0.097	
	(0.06)	
Ad cost	-0.426**	-0.377**
	(0.06)	(0.07)
Expenditures	0.271**	0.087**
	(0.02)	(0.02)
District heterogeneity	-0.729	-0.564
	(0.71)	(0.89)
2000	-0.395**	-0.579**
	(0.08)	(0.10)
2004	-0.088	-0.021
	(0.07)	(0.08)
Open race candidate quality		0.160*
		(0.08)
Constant	2.219**	3.288**
	(0.48)	(0.62)
lnalpha		
Constant	-2.129**	-4.458**
	(0.16)	(1.36)
Log likelihood	-880.182	-212.188
LR χ^2	195.971	62.802
Obs.	326	75

Significance levels: $\dagger p < .1; *p < .05; ** p < .01$

I now turn to further exploring districts with an incumbent running for reelection. To test for differences between incumbent and challenger advertising, Table 5.6 shows results for two models. The model in the first column uses as the dependent variable the number of issues discussed in incumbent campaign advertisements. The second column uses the number of issues in the challenger campaign as the dependent variable.

Notice that the estimated effect of third party threat is statistically significant at the 10% level in the expected direct for incumbents. This estimate gives suggestive evidence that major party incumbent candidates determine the number of issues that they discuss in the course of the campaign at least partially *in anticipation of potential third party entry in future elections.* That is, in districts where third party entry is greater, the major party candidates discuss a wider range of issues in the hope of deterring future third party challenges. Fewer issues are ignored by the major parties, which decreases the incentives for third party challengers.

Third party threat also has a substantively significant effect on incumbent advertising. An increase in the threat to entry from the 5^{th} to the 95^{th} percentile – roughly and increase in the predicted probability of entry from 0.2 to .9 – adds one additional issue to the campaign. Holding all other variables to their mean (or mode for dichotomous variables), this amounts to an increase of 4.5 to 5.4 issues.[8]

The third party effect for challengers, however, is indistinguishable from zero. As alluded to earlier, this result is not so surprising. Although the party out-of-office does have an incentive to preemptively coopt potential third party issues for future elections, the dominating incentive is to simply win the current election. This short-term strategy might include a strategy of anticipatory cooptation; but ignoring those potential third party issues might also maximize the challenger's chance of

[8] Clarify is used to estimate first differences (King, Tomz and Wittenberg, 2000).

Table 5.6: Effect of Pr(entry) on Campaign Breadth in Incumbent Districts (Negative Binomial Regression)

	Incumbent Coef./Std. err.	Challenger Coef./Std. err.
No. issues		
Pr(entry)	0.277†	0.172
	(0.16)	(0.26)
Challenger quality	0.080	
	(0.06)	
Ad cost	-0.372**	-0.385**
	(0.06)	(0.09)
Incumbent Expenditures	0.328**	
	(0.03)	
District heterogeneity	-0.302	-1.133
	(0.70)	(1.02)
2000	-0.307**	-0.494**
	(0.07)	(0.12)
2004	-0.049	-0.042
	(0.07)	(0.10)
Challenger Expenditures		0.378**
		(0.05)
Constant	1.774**	2.639**
	(0.47)	(0.70)
lnalpha		
Constant	-2.857**	-1.966**
	(0.30)	(0.21)
Log likelihood	-726.747	-477.309
LR χ^2	122.863	81.687
Obs.	296	182

Significance levels: $\dagger p < .1; *p < .05; ** p < .01$

winning the current election. Both strategies are certainly logical possibilities. In my estimated model, there is no discernible effect. It is however worth noting that the coefficient is positive, which is consistent with strategic cooptation.

In a final model, I check for the presence of any sort of ballot access quality effect, which I describe in chapters 2 and 3. I argue that the signature requirement might have a somewhat peculiar effect in that we should expect more competitive (higher quality) third party candidates in districts with a higher requirement. Following the logic of Kim (2005), one would expect a similar quality effect on major party advertising as for major party ideological positioning: If the third challenger is a low-quality candidate, then the major parties have less incentive to worry about that challenger's impact on electoral outcomes. As in chapter 3, I control for this quality effect by including the number signatures required for ballot access in the negative binomial regression.[9] The results in Table 5.7 show weak evidence for a quality effect. The coefficient is positive as expected but does not reach statistical evidence. But note that the coefficient for Pr(entry) more than doubles under this specification, which is consistent with the conjecture of cross-cutting effects of the signature requirement (as also seen in chapter 3).

5.5 Discussion and Concluding Remarks

This chapter has presented additional evidence of strategic anticipation by major parties to third party threat. Chapter 3 utilizes the unidimensional spatial framework to motivate the hypothesis that the threat of third party entry induces major party divergence. This chapter takes a first step towards a multidimensional analysis of third party effects and shows that the logic of strategic anticipation extends beyond

[9]This model specification is subject to all the same caveats as before. Including the number of signatures is only an indirect way of controlling for (potential) quality.

Table 5.7: Effect of Pr(entry) on Campaign Breadth on Incumbents (Negative Binomial Regression)

	Incumbent
	Coef./Std. err.
No. issues	
Pr(entry)	0.583†
	(0.32)
Signatures	0.016
	(0.01)
Challenger quality	0.082
	(0.06)
Ad cost	-0.378**
	(0.06)
Incumbent Expenditures	0.323**
	(0.03)
District heterogeneity	-0.683
	(0.78)
2000	-0.349**
	(0.08)
2004	-0.032
	(0.07)
Constant	1.802**
	(0.47)
lnalpha	
Constant	-2.871**
	(0.30)
Log likelihood	-726.136
LR χ^2	124.086
Obs.	296

Significance levels: $\dagger p < .1; *p < .05; ** p < .01$

one dimension.

The analysis shows that potential rather than actual entry influences major party electoral strategies. The matching procedure (essentially) creates two subsamples for comparison – one that received treatment and one that did not – that have balanced probabilities of third party entry. Controlling for the propensity to receive the treatment in this way, in addition to the parametric analysis on the preprocessed data, attempts to achieve a cleaner estimate of the treatment. The matching procedure with the additional parametric analysis shows that comparing two districts with identical probabilities of third party entry, one with an actual competing third party candidate and one without, the breadth of the major party campaigns are expected to also be identical.

Rather than actual entry, the potential for third party entry appears to influence major party campaign breadth. The statistical analysis shows that the probability of third party entry contributes positively to campaign breadth. That is, the major party candidates discuss a larger range of issues in districts where third party candidates are more likely to emerge. Major party candidates adopt this electoral strategy in order to deter potential third party challenges.

Chapter 6

Third Party Issues and Major Party Campaigns: Environmental Issues and the Green Party as a Test

The previous chapter moved towards a multidimensional analysis of third party effects in congressional elections. There I argue that the threat of third party entry contributes positively to what I call campaign issue breadth. The major parties campaign on a wider range of issues in districts where the threat of third party entry is higher. The logic is that by discussing potential third party issues, the major parties can discourage (or at least not encourage) their entry.

Thus far in the dissertation this logic has been applied to the "general threat" of third parties. That is, the dependent variables (ideological divergence and campaign issue breadth) and independent variables have not accounted for *specific issue content*. This last chapter attempts to move the analysis towards an increasing level of granularity by testing for issue-specific third party effects.

As a test, I use the salience of environmental issues and the threat of Green party candidates. I take this to be the cleanest test, since the Green party does run some candidates in congressional races, and the party has a very clear commitment to environmental issues.[1] I hypothesize that the major party candidates, particularly Democratic candidates, will stress environmental issues more heavily in districts where a third (Green) party candidate is more likely to emerge.

[1]The Green party certainly has other policy commitments. Ralph Nader, especially, was certainly not limited to environmental issues. However, the range of issue commitments is still much smaller than the Libertarian party, which is the

6.1 Theory

One popular perspective of the relevance of third parties in U.S. elections stresses the possibility of spoiler third party candidates. In this outcome, the third party candidate takes away support systematically from one of the two major party candidates. The logic behind this effect is straightforward.

The previous chapter introduced a multidimensional framework, borrowed from Carsey (2000). Candidates' issue positions are fixed, and they compete in an election by choosing their campaign agenda in order to influence issue salience in the electorate and consequently vote choice. Voters have weighted Euclidian preferences. Using Carsey's notation, voter X's utility for candidate A is

$$U_X(\mathbf{a}) = [z_{11}(x_1 - a_1)^2 + z_{22}(x_2 - a_2)^2]^{\frac{1}{2}},$$

where $\mathbf{x} = (x_1, x_2)$ is voter X's ideal point, $\mathbf{a} = (a_1, a_2)$ is candidate A's platform, and z_{11} and z_{22} are the weights voter X places on the first and second dimensions, respectively.

In the Carsey model, a candidate has an incentive to stress issues during the campaign on which they hold an advantage over their competitor. This strategic dynamic has been explored in detail in the issue ownership (Petrocik, 1996; Budge and Farlie, 1983) and heresthetic literatures (Carsey, 2000; Riker, 1990).

We can extend the logic of the existing campaign advertising literature to incorporate third parties to motivate the analysis of this chapter. Given that third party entry on environmental issues asymmetrically affects the major parties, we should expect the major parties to have different incentives Green party deterrence.

Suppose that the first dimension is economic and the second dimension is environment. Let $A \in \{G, D, R\}$ (that is, we have three candidates, Green, Democrat,

and Republican, respectively). If $z_{22} > 0$ and $g_2 < d_2 < r_2$, then the Green candidates entry has a negative effect on the Democrat's vote share (under some additional plausible assumptions). The Democratic candidate is hurt by Green party entry, as her entry squeezes the Democratic candidate in the middle, reducing the vote share.

The Democratic candidate has a clear incentive to deter Green party entry since entry will decrease her vote share. As argued in the previous chapter, one plausible assumption is that third party candidates are motivated to enter in order to bring attention to an issue that is currently being ignored by the major parties. The Democratic candidate can therefore discourage future entry by focusing more heavily on environmental issues during the current campaign. Doing so is a relatively costless strategy for the Democratic candidate according to the heresthetics literature. The environment is one issue that the Democratic party arguably has an advantage over Republicans and is therefore an issue they rationally could choose to campaign on. The potential for Green party entry provides an additional incentive for Democrats to focus on the environment.

The Republican candidate on the other hand is not negatively influenced by Green party entry directly. In fact, the Republican candidate could actually benefit from Green party entry, since it hurts the Democratic candidate. This is an interesting point that I will return to later in this chapter. Green party entry may increase the salience of environmental issues, which the Republican candidate would prefer to avoid. However, as the issue ownership and heresthetic literature suggests, the Republican's campaign strategy should be to continue to focus on issues that she has an advantage on.

I therefore expect that the threat of Green party entry will have a positive effect on Democratic advertising on the environment. I do not, however, have firm expectations on the effect on Republican advertising. I also test for a direct Green party

effect, which hypothesizes that major party candidates – particularly the Democratic candidate – will discuss the environment more in races that include a Green party candidate. This last hypothesis stresses major party *reaction* to third parties rather than *anticipation*.

6.2 Data

The dependent variables are constructed from campaign advertising data from the 2000-2004 U.S. House elections. The data is taken from the Wisconsin Advertising Project (WiscAds), which draws from political advertisements on the major broadcast networks the 75 to 100 (depending on election-year) largest media markets (Goldstein, Franz and Ridout, 2002; Goldstein and Rivlin, 2005, 2007). Coders tracked what issues each advertisement mentioned.

Two basic codings of dependent variables are used. First, a dummy variable is used to denote whether the relevant observational unit discussed the environment at all, *Mention environment*. A second coding is the proportion of aired television spots that mentioned the environment, *Proportion environment*. Several observational units are used in the analysis. One is "major party candidates." Since I hypothesize inter-party differences in Green party effects, I also analyze Democratic and Republican candidates separately.

Two third party variables are used in the analysis. First, the dummy variable *Green present* is coded 1 if a Green candidate was on the ballot in that district in that election and 0 otherwise. This variable is used to test the hypothesis that the actual presence of a Green candidate will influence major party campaign issues. I also utilize, as in earlier chapters, the predicted probability of Green party entry, *Pr(Green entry)*, which test my hypothesis that major party candidates are sensitive

to the potential of Green party entry.

I control for district preferences using survey responses from the National Annenberg Election Survey. Since these surveys are only available in 2000 and 2004, I restrict my analysis to these two elections. *Environment salience* is simply the percentage of respondents in the district who stated that the environment is the "most important problem facing the country today."[2] I expect that Green party candidates are more likely to run in districts where the public believes the environment to be an important issue. All else equal, I also expect the major party candidates to focus on the environment to focus on the environment more in districts where it is important.[3]

6.3 Analysis and Results

The next section takes as the independent variable of interest "actual Green party entry" to test whether the major parties *respond* to Green party entry in that election by increasing a discussion on environmental issues. I then test whether major party candidates are sensitive to the potential of Green party entry in the following section, using as the independent variable of interest the predicted probability of entry adapted from earlier chapters.

[2]An alternative district control variable, *Environment support*, is the district mean response to the question: "Protecting the environment and natural resourcesshould the federal government do more about this, the same as now, less or nothing at all?" I did not find any significant effect of district opinion on the environment on Green party entry. Results are available upon request.

[3]To be sure, there might be some endogeneity with this measure. In fact, the heresthetic literature suggests that the causal direction is largely from major party campaign to district salience. I do not attempt to tease apart this relationship, as I do not believe it sytematically biases inferences on my variable of interest. Future work will take more care in controlling for this endogeneity.

Table 6.1: Green present and mention of environment: All major candidates (pooled 2000-2004)

		Mention environment		
		0	1	Total
Green present	0	329	97	426
		(77.23%)	(22.77)	
	1	29	9	38
		(76.32)	(23.68)	
	Total	358	106	464
		(77.16)	(22.84)	

6.3.1 Effect of Actual Green Candidates

Tables 6.1 through 6.3 show the two-way relationship between the presence of a Green candidate and major party advertising on the environment (2000-2004 elections). We see two patterns but neither of which is statistically significant. First, the proportion of campaigns that makes some mention the environment is higher for Democrats than Republicans. Second, Democratic candidates appear slightly more sensitive to the presence of a Green party candidate. But again, neither relationship is particularly strong and do not come close to statistical or substantive significance.

The slight Democratic edge in the stress of environmental issues – but again not quite reaching statistical significance – is also seen in a comparison of the means of Democratic proportion environment and Republican proportion environment. The means are 0.067 and 0.049, respectively, with a difference-of-means test giving a two-tailed p-value of 0.1035.

It is somewhat surprising that Republicans mention the environment at nearly the identical rate as Democrats. Although the issue ownership literature would predict issue divergence, some work has found such divergence not to be the case. For instance, Smidt (2007) argues that manipulation of issue salience is largely out the hands of the

Table 6.2: Green present and mention of environment: Democratic candidates (pooled 2000-2004)

		Mention environment		
		0	1	Total
Green present	0	251	56	307
		(81.76%)	(18.24)	
	1	21	6	27
		(77.78)	(22.22)	
	Total	272	62	334
		(81.44)	(18.56)	

Table 6.3: Green present and mention of environment: Republican candidates (pooled 2000-2004)

		Mention environment		
		0	1	Total
Green present	0	290	49	339
		(88.55%)	(14.45)	
	1	28	3	31
		(90.32)	(9.68)	
	Total	318	52	370
		(85.95)	(14.05)	

candidates. Candidates, he argues, are motivated by persuasion-based, rather than agenda-setting, incentives. The statistical analysis of this chapter is not designed to adjudicate between these two camps. Therefore, I run all of the following analyses on the full sample of all candidates, as well as on Democratic and Republican advertising separately. In the full-sample, I take as the congressional district as the unit of observation, where the dependent variable is coded as environmental advertisements by either major party candidate. In the analysis on Democratic (Republican) candidate advertising, the dependent variable is the percentage of Democratic (Republican) television spots.

Another issue to keep in mind is that the Wisconsin advertising data only records whether an issue was mentioned at all during the advertisement. There are likely some subtle variations between the two parties in how they discuss the environment and whether the environment was a primary or secondary focus of the advertisement. Unfortunately, I cannot control for these subtleties in my analysis.

The two-way relationships presented in Tables 6.1 through 6.3 show little evidence of Green party candidates on major party campaign advertising. To test this proposition more rigorously, I now turn to a multivariate analysis.

For the remaining results reported in the main text of this chapter, a probit model estimates the probability that the environment is mentioned in any campaign advertisement. As mentioned earlier, a second possible coding of the dependent variable is the proportion of television spots that mentions the environment. In this case, a Tobit model is preferable with upper and lower bounds set at 0 and 1, which accounts for the nature of the dependent variable, which is a proportion with values falling between 0 and 1 and a significant number of values at 0.[4] However, since the

[4]The Tobit model is preferable to a generalized linear model (GLM) with a logit link and binomial family, which can also be used to when using a proportions dependent variable, because of the large number of zeros of the proportion.

vast majority of observations are at zero, I believe that the Tobit estimates might be a bit suspect. I leave all Tobit estimation results to the Appendix. The substantive effects (direction of third party coefficients) are nearly identical between the two alternative procedures.

The previous chapter uses matching methods to help gain more precise estimates of the third party treatment effect. In this chapter, the treatment is the presence of a Green party candidate. Because of the scarcity of Green candidates, using matching methods is not as attractive an option. Balancing the data set would come at a cost of efficiency from a loss in degrees of freedom. I therefore run a straightforward analysis by using a dummy variable, *Green present*, as the independent variable of interest.[5] Omitted results from using matching methods finds results similar to those presented here. As a control, I include *Environment salience*.[6] Since this control is only available in the 2000 and 2004 elections, the analysis is restricted to those two years. The mean and standard deviation of the variable is 0.0082 and 0.0091, respectively. The minimum value is zero, and the maximum is 0.055.

In Table 6.4, the coefficient for the Green present dummy variable is negative in the first column (all ads) but positive in the second column (Democratic ads). The negative sign is contrary to what one might expect, but the coefficient size is also quite small (compared to the coefficient in the second column), which suggests an particularly weak (zero) relationship. Neither coefficient is statistically significant at any conventional level, which shows that there is not a strong statistical relationship between the presence of a Green party candidate and major party dis-

[5] As in chapter 5, I also checked for "long-term" reaction – that is, reaction to Green party entry in the previous election. The omitted analysis found no effect.

[6] I also estimated models including total campaign expenditures in this and the following section on Green party threat. The coefficient never reached statistical significance. This variable was included to account for a budget constraint, which might influence the ability to campaign on a broader range of issues, such as the environment.

Table 6.4: Green Candidate Effect on Green Ads (Probit)

	All Ads	Dem Ads
	Coef./Std. err.	Coef./Std. err.
Green present	-0.139	0.443
	(0.31)	(0.35)
Environment salience	20.212*	24.693*
	(9.05)	(11.89)
2000	-0.074	-0.420†
	(0.17)	(0.22)
Constant	-0.885**	-0.994**
	(0.12)	(0.16)
Log likelihood	-159.507	-98.343
LR χ^2	5.074	7.716
Obs.	301	217

Significance levels: $\dagger p < .1; *p < .05; ** p < .01$

cussion of environmental issues. But notice that the coefficient is quite a bit larger when looking only at Democratic candidate advertising. The control variable, district salience of the environment, is statistically significant in the expected positive direction. Unfortunately, there is not enough variation in the data to run a probit model on Republican environmental advertising as the dependent variable.

Although not statistically significant, the relationship between Green candidate present and major party environmental advertising does appear to be a bit stronger for Democratic candidates. Again, this pattern is not statistically significant, but it is worth noting that the the estimated Green effect is much larger among Democratic candidates.[7] This pattern is consistent with the asymmetric third party effect posited in my theoretical discussion.

[7]Given how close the coefficient is to being statistically significant, I note that matching the data to improve balance (with the caveat of having a small treatment group) does not change this finding. In fact, the estimated coefficient is roughly similar, and the standard error increases.

6.3.2 Threat of Entry

The previous chapter helps narrow down the focus of the remaining analyses. The discussion there suggests that the content of campaign advertising by incumbents is most sensitive to third party threat. Following that discussion, I contend that the variable for the threat of Green party entry, which is described in detail below, measures the district's general propensity for a Green candidate. I hypothesize that (Democratic) incumbents are sensitive to this propensity, as they prefer to deter Green party entry in the current and future elections. The best measure of the probability of future Green entry (for both the researcher and the incumbent) is the expected likelihood of Green entry in the current election. Incumbents, who are concerned with solidifying their hold on their district for the current and future elections, incorporate this likelihood in their strategic calculus of campaign advertising.[8] Furthermore, theory suggests that the effect of Green party threat will be stronger for Democratic advertising. The statistical results therefore will focus on a comparison of incumbent Democrats with incumbent Republicans. Auxiliary analyses are left to the Appendix.

In the analysis of general third party threat, chapter 3 uses a probit model to predict the entry by any third party candidate. The independent variables in that model were district heterogeneity, previous House third party vote share, and the number of signatures required for successful ballot petitioning. Rather than use a dependent variable that captures some aspect of *general* third party threat, this chapter attempts to capture a *specific threat*: the threat of entry by a Green party

[8]Following the discussion in the previous chapter, I favor this interpretation of the threat of entry, since major party candidates generally know whether there will actually be a Green candidate on the ballot by the start of the campaign and changing the mix of campaign messages is relatively flexible (especially compared to changing policy positions). That is, incumbents do not anticipate entry in the current election, since they can choose campaign messages after Green party entry is known.

candidate.

I adapt the earlier probit model to account for this chapter's focus on environmental issues and the Green party. I estimate two alternative models, one of which allows for an analysis of the 2004 elections and the other which allows for an analysis of the 2000 and 2004 elections. The dependent variable of the probit model is a dummy variable that codes whether a Green party candidate ran in the election.

The two alternative Green candidate entry models vary in the predictor variables used. Both models include a dummy variable for the presence of a Green candidate in the previous House election and the number of signatures required for ballot access. The two models differ in what third independent variable is included. One model includes the district vote for Nader in 2000. I expect that congressional Green candidates are more likely to emerge in districts where Nader polled well in 2000. Using this measure limits the observations to the 2002 and 2004 elections. The second model includes the district salience of environmental issues. Green party candidates are expected to be more likely to run in districts where the public believes the environment is an important issue. Using this measure limits the observations to the 2000 and 2004 elections.

Both of the probit estimates support my expectations (see Tables 6.5 and 6.6).[9] Green party candidates are more likely to emerge in districts where Nader did well in 2000 and where a Green candidate ran in the previous House election. Green candidates are also more likely to emerge in districts that view the environment as an important issue. The ballot access requirement also has the predicted negative effect, although it does not reach statistical significance I also ran the probit model that includes both the district salience of the environment and the 2000 Nader vote. Not surprisingly, district salience of environmental issues is highly correlated to the Nader

[9]Using a rare-events logit gives nearly identical estimates.

Table 6.5: Presence of Green Candidate, 2002 and 2004 (Probit)

	(1)
	Coef./Std. err.
Green Prev. Election	0.521**
	(0.16)
2000 District Nader Vote	12.318**
	(3.07)
Signatures	-0.024
	(0.02)
2004	-0.155
	(0.12)
Constant	-1.484**
	(0.14)
Log likelihood	-280.727
LR χ^2	38.443
Obs.	835

Significance levels: $\dagger p < .1; *p < .05; **p < .01$

Table 6.6: Presence of Green Candidate, 2000 and 2004 (Probit)

	(1)
	Coef./Std. err.
Green Prev. Election	0.717**
	(0.19)
Environment Salience	22.290**
	(6.32)
Signatures	-0.022
	(0.02)
2000	-0.146
	(0.13)
Constant	-1.472**
	(0.12)
Log likelihood	-246.809
LR χ^2	28.946
Obs.	857

Significance levels: $\dagger p < .1; *p < .05; **p < .01$

Table 6.7: Green Threat Effect on Incumbent Green Ads, 2004 (Probit)

	Dem Ads	Rep Ads
	Coef./Std. err.	Coef./Std. err.
$\Pr(\text{Green})_1$	2.663	-0.288
	(2.80)	(3.75)
Environment Salience	33.309	68.528*
	(33.08)	(28.77)
Constant	-1.142**	-1.335**
	(0.41)	(0.43)
Log likelihood	-22.591	-30.114
LR χ^2	2.506	6.131
Obs.	41	68

Significance levels: $\dagger p < .1; * p < .05; * * p < .01$

vote in 2000 (correlation around 0.40), so controlling for both does not contribute much to model fit.

The predicted probabilities from the probit estimations are used to test the hypothesis that major party incumbents, particularly Democratic incumbents, will focus more heavily on environmental issues in districts that have a higher propensity for Green party House candidates. The predicted probabilities from the two alternative model specifications, labeled $Pr(\text{Green})_1$ and $Pr(\text{Green})_2$ respectively, give similar values. The pairwise correlation between the two measures for the 2004 (which is the only election where we have both predicted probabilities) is quite high at 0.785. I control for district salience of the environment as in the previous section, which is only available during presidential-election years. Since the first predicted probability uses the 2000 Nader vote, the analysis limited to only the 2004 election. With the second measure of probability of Green entry, I analyze the 2000 and 2004 elections.[10]

In Table 6.7, we see that $Pr(\text{Green})_1$ is not statistically significant.[11] However, it

[10] Although I was not able to calculate clustered-Murphy-Topel standard errors, controlling for only clustering does not appear to change the results at all.

[11] The predicted probabilities, $Pr(\text{Green})_1$ are calculated from an estimation that pools 2002 and

Table 6.8: Green Threat Effect on Incumbent Green Ads, 2000 and 2004 (Probit)

	Dem Incumbent Ads Coef./Std. err.	Rep Incumbent Ads Coef./Std. err.
$\Pr(\text{Green})_2$	1.771	-8.540†
	(3.98)	(5.01)
Environment Salience	29.205	70.892**
	(23.52)	(25.71)
2000	-0.669†	-0.331
	(0.38)	(0.30)
Constant	-1.004**	-0.615†
	(0.37)	(0.37)
Log likelihood	-41.316	-59.198
LR χ^2	6.077	10.568
Obs.	87	134

Significance levels: $\dagger p < .1; * p < .05; * * p < .01$

is worth noting that the coefficient for Democratic incumbents is positive as expected. The substantive effect of Green party threat is relatively strong. For Democratic advertising, holding independent variable values at their means, increasing from the 5^{th} to 95^{th} percentile for $Pr(\text{Green})_1$ increases the probability of mentioning the environment by 0.148. An increase in environmental salience across the same percentiles increases the probability by 0.196. Among Republicans, the effect of Green party threat is essentially zero, while an increase in environmental salience from the 5^{th} to 95^{th} percentile increases the probability of mentioning the environment by 0.371.

With an extra year of observations available in the estimation, the coefficient for $Pr(\text{Green})_2$ in Table 6.8 shows more promising results. As in the previous estimation, the predicted probability of Green entry has a positive effect on Democratic advertising on the environment, although as before it does not reach statistical significance.

Somewhat surprisingly I find a strong negative relationship between Green threat

2004. The second step regression (table 6.7), however, only uses 2004 data, since environmental salience is not available for 2002. Using only a subset of the first step estimates, as done here, satisfies all needed assumptions for consistent parameter estimates (see Murphy and Topel, 1985).

and Republican advertising. The coefficient for $Pr(\text{Green})_2$ is highly statistically significant at the 10% level among Republican advertising.[12] The coefficient for $Pr(\text{Green})_1$ was also negative but not statistically significant. This results suggests that rather than increase Democratic stress on the environment, the Green party influences the campaign agenda by *decreasing* Republican stress on environmental issues.[13] This negative effect, beyond being statistically significant, is also substantively significant. Increasing $Pr(\text{Green})_2$ from the 5^{th} to 95^{th} percentile decreases the probability of a Republican incumbent mentioning the environment by 0.331. From this estimated model, a similar increase in the salience of the environment increases the probability by 0.507. The positive effect of $Pr(\text{Green})_2$ on Democrats is much smaller, only increasing the probability by 0.0711.[14]

Although the estimated effects differs across tables 6.7 and 6.8, the effect of Green party threat appears to be quite strong. When there is any estimated effect (positive for Democrats, negative for Republicans), then the size of effect comes pretty close to that of the salience of the environment.

6.4 Discussion and Concluding Remarks

There are measurement issues that make an analysis of campaign advertising difficult. As earlier mentioned, the data does not specify *how* a candidate discussed a particular

[12] Although clustering does not appear to make a difference in any of the other analyses, in this case it does decrease the standard errors quite a bit. $Pr(\text{Green})_2$ is easily significant at the 5% level (but not accounting for variance from the first step estimation). But given caveats in chapter 2 and the small sample sizes here, I question whether it is safe to rely on asymptotic properties of the estimator in this instance. I therefore only present the more conservative estimates here.

[13] In omitted analyses, I did not find any evidence of a signature requirement quality effect. This is not surprising for two reasons. First, the relationship between Green party entry and the ballot access requirement is not as strong as in models of general third party entry. Second, as the analysis moves to such a specific level, it is difficult to have enough variation in the data to find strong statistical relationships.

[14] Clarify is used to estimate first differences (King, Tomz and Wittenberg, 2000).

issue, or whether the issue was primary or secondary in the advertisement. Second, a candidate's decision whether to discuss an issue is not a simple yes or no proposition. Rather, a decision to discuss the environment is embedded within a larger decision calculus of allocating time and money among several issues. Even with these potential problems, a few conclusions can be drawn from this chapter.

Since Green party supporters are drawn disproportionately from the Democratic base, I have argued that we should expect asymmetric effects between Democratic and Republican advertising. The probit estimates of Democratic and Republican advertising on the environment found evidence of asymmetric effects: the coefficient is positive for Democrats but negative for Republicans.

The most intriguing finding is the strong negative effect of Green party threat has on Republican advertising on the environment. Of all estimated effects, this effect was the largest and easily reached statistical significance. Environmental issues are stressed less by Republican candidates when the threat of Green party entry is higher. This pattern of Republican advertising is consistent with a strategy of *enticing* Green candidates to enter. That is, it seems as if Republican candidates purposely turn attention away from the environment in order to stimulate Green party entry. Republicans pursue this strategy since Green candidates (are at least expected to) hurt Democratic candidates' chances.

There real-world examples of an asymmetry in the incentives to keep minor parties off the ballot. An instance of a blatantly direct strategy, Republicans might want to help the Green Party to gain ballot access. A recent example of this strategy is the 2006 Pennsylvania Senate election between Bob Casey and Rick Santorum. In addition to a handful of Santorum supporters contributing money to potential Green candidate, Carl Romanelli, staffers on Santorums campaign helped collected signatures for the Green Party (Budoff and Cattabiani, 2006). By including Romanelli

on the ballot, Santorum supporters believed that they could benefit from a loss of Casey's electoral support to the Green candidate.

A less provocative explanation for the negative effect on Republicans is that with a higher probability of Green party entry, there is a greater chance that the environment will be more salient. This increased salience of the environment, which is on average a weak issue for Republicans, gives an added incentive for Republicans to focus on their strongest issues, which can lead to the negative coefficient.

Although the statistical analysis shows decent evidence of an influence on Republican advertising, it still does not give any firm conclusions, particularly on Democratic advertising. There are a few ways to interpret the results of the analysis of Democratic advertising on environmental issues.

One possibility is that *there is* some mix of reaction and anticipation that occurs in congressional elections. The data, unfortunately, is too sparse to find a strong statistical relationship. The fact that the coefficient signs (for the most part) in every statistical model point in the correct direction is encouraging. The analysis of the influence of actual Green party entry found a positive effect on Democratic stress on the environment. There is similarly a positive effect of the likelihood of Green entry, but again, is not statistically significant. Perhaps more data would uncover more accurate estimates of the true third party effect.

The statistical results might also signal that the motivating theory needs to be revisited. One could argue that Democratic candidates *favor* Green party entry. Green party entry has the potential of increasing the salience of the environment in the election. If we assume that the Democratic candidate has a favorable issue position relative to the Republican candidate, then increasing salience benefits the Democratic candidate. This reasoning, of course, assume that the Green candidate will not actually win many votes at the Democrats expense. But given the prevalence

of strategic voting in first-past-the-post elections, this assumption is defensible.

A final possibility is that the threat of entry by a Green party candidate does influence major party advertising, but the test of environmental issues and the Green party biases against finding an effect. That is, although environmental issues and the Green party is in some senses a clean test, there may be characteristics of the issue and the political landscape that bias against finding a robust effect. Environmental issues have taken a relatively prominent position in the parties' platforms for some time, particularly for the Democratic party. To the extent that the major parties have already incorporated environmental issues into their normal debate, Green party threat has little room to additionally influence the major parties. Consequently, as one of the common themes stressed by Democratic candidates, we are less likely to find effects of Green party threat across districts. But this pattern does not necessarily mean that the potential for Green party entry does not have an effect on the Democratic party. Rather the effect is at the national, party-wide level, which could explain the modest district-level estimated effect.

Although the results of this chapter are somewhat less robust, the empirical patterns are still consistent with the hypothesis that Green party threat influences major party advertising on environmental issues. Earlier chapters found that third party threat influenced candidate ideological positioning and campaign issue breadth, both of which are general candidate/party characteristics. Moving to an issue-specific context, this chapter contributes to earlier findings by presenting evidence of effects on environmental issues, which provides yet an additional piece of evidence of the far-reaching influence of third parties in U.S. congressional elections.

Table 6.9: Green Threat Effect on Percent Green Ads, 2004 (Tobit)

	Dem Ads	Rep Ads
	Coef./Std. err.	Coef./Std. err.
$\Pr(\text{Green})_1$	-0.317	-0.520
	(1.91)	(1.53)
Environment Salience	37.048†	33.951*
	(21.75)	(14.40)
Constant	-1.004**	-0.872**
	(0.35)	(0.28)
σ	0.985**	0.589**
	(0.21)	(0.14)
Log likelihood	-61.399	-39.906
LR χ^2	3.124	6.872
Obs.	106	120

Significance levels: $\dagger p < .1; * p < .05; * * p < .01$

6.5 Appendix A: All Candidates (Incumbents and Non-incumbents)

Although the main text focuses on the influence of Green party threat on incumbent candidates, the reader might be interested in making comparisons across party irrespective of incumbency. Tables 6.9 through 6.12 report Tobit and probit results of all candidates but separating Democrats and Republicans. Although not reaching statistical significance, it is puzzling that the coefficient for Green entry are negative for Democrats. There is a possibility that this relationship is an artifact of endogeneity between Green entry and major party advertising. See Appendix C for further discussion. Among Republican candidates I find the same substantive results as the coefficient is negative and reaches statistical significance at the 10% level.

Table 6.10: Green Threat Effect on Green Ads, 2004 (Probit)

	Dem Ads Coef./Std. err.	Rep Ads Coef./Std. err.
$\Pr(\text{Green})_1$	-0.152	-1.411
	(2.04)	(2.74)
Environment Salience	33.496	60.148*
	(22.49)	(23.85)
Constant	-1.005**	-1.443**
	(0.27)	(0.34)
Log likelihood	-52.996	-41.864
LR χ^2	2.273	6.697
Obs.	106	120

Significance levels: $\dagger p < .1; *p < .05; **p < .01$

Table 6.11: Green Threat Effect on Incumbent Percent Green Ads, 2000 and 2004 (Tobit)

	Dem Ads Coef./Std. err.	Rep Ads Coef./Std. err.
$\Pr(\text{Green})_2$	-2.378	-5.064†
	(1.89)	(2.94)
Environment Salience	32.915*	37.789*
	(13.09)	(15.41)
2000	-0.520*	0.002
	(0.20)	(0.17)
Constant	-0.622**	-0.662**
	(0.22)	(0.23)
σ	0.859**	0.729**
	(0.13)	(0.11)
Log likelihood	-108.098	-93.702
LR χ^2	10.013	12.124
Obs.	215	230

Significance levels: $\dagger p < .1; *p < .05; **p < .01$

Table 6.12: Green Threat Effect on Incumbent Green Ads, 2000 and 2004 (Probit)

	Dem Ads Coef./Std. err.	Rep Ads Coef./Std. err.
$\Pr(\text{Green})_2$	-2.268	-7.070†
	(2.20)	(3.97)
Environment Salience	34.845*	49.840*
	(14.89)	(20.32)
2000	-0.511*	-0.042
	(0.23)	(0.24)
Constant	-0.777**	-0.854**
	(0.22)	(0.29)
Log likelihood	-98.058	-91.227
LR χ^2	7.489	10.249
Obs.	215	230

Significance levels: $\dagger p < .1; * p < .05; * * p < .01$

6.6 Appendix B: Tobit Models

An alternative coding of the dependent variable is the percentage of aired television spots that mentions the environment as an issue. On this dependent variable, a Tobit model is most appropriate. As stated in the main text however, these estimates might be suspect given that there is such a large proportion of zeros (see Figures 6.1 and 6.2). As seen in Tables 6.13-6.15, the Tobit regressions give substantively similar findings to the probit results in the main text.

6.7 Appendix C: Influence of Previous Campaign Advertising on Green Party Entry

One might question interpretation of the coefficients for Pr(Green entry). In particular, endogeneity between Pr(Green entry) and campaign stress on the environment might be present. The negative coefficients we observe for Pr(Green entry) may then

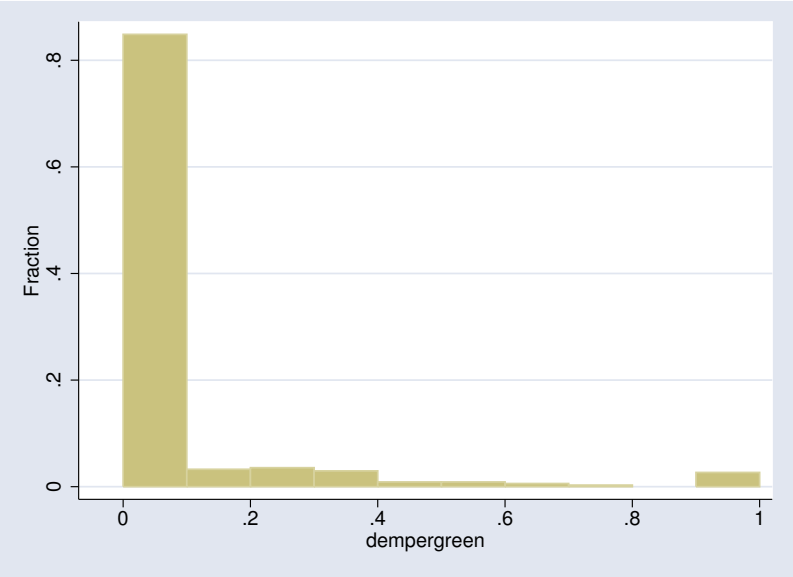

Figure 6.1: Percent of Ads on Environment: Democrats

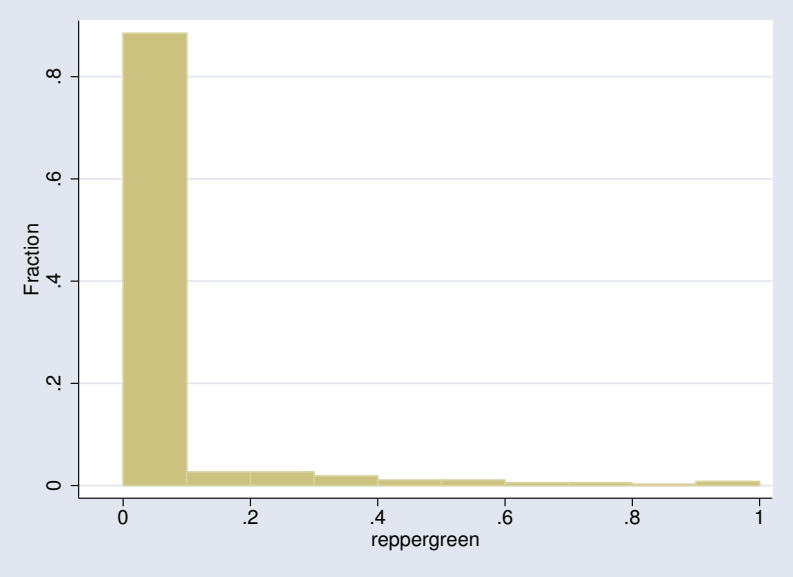

Figure 6.2: Percent of Ads on Environment: Republicans

Table 6.13: Green Candidate Effect on Percent Green Ads (Tobit)

	All Ads Coef./Std. err.	Dem Ads Coef./Std. err.
Green Present	-0.121	0.256
	(0.17)	(0.29)
Environment Salience	12.884**	23.020*
	(4.79)	(10.47)
2000	-0.078	-0.438*
	(0.09)	(0.20)
Constant	-0.492**	-0.843**
	(0.09)	(0.20)
σ	0.551**	0.872**
	(0.06)	(0.14)
Log likelihood	-151.594	-109.116
LR χ^2	7.413	8.765
Obs.	301	217

Significance levels: $\dagger p < .1; *p < .05; **p < .01$

Table 6.14: Green Threat Effect on Incumbent Percent Green Ads, 2004 (Tobit)

	Dem Ads Coef./Std. err.	Rep Ads Coef./Std. err.
$\Pr(\text{Green})_1$	1.532	0.320
	(2.49)	(1.97)
Environment Salience	41.228	33.884*
	(31.14)	(15.49)
Constant	-1.075*	-0.766*
	(0.53)	(0.30)
σ	0.997**	0.559**
	(0.31)	(0.14)
Log likelihood	-27.828	-29.382
LR χ^2	2.730	5.892
Obs.	41	68

Significance levels: $\dagger p < .1; *p < .05; **p < .01$

Table 6.15: Green Threat Effect on Incumbent Percent Green Ads, 2000 and 2004 (Tobit)

	Dem Incumbent Ads Coef./Std. err.	Rep Incumbent Ads Coef./Std. err.
$\Pr(\text{Green})_2$	0.547	-6.376
	(3.16)	(3.88)
Environment Salience	29.523	53.301*
	(19.24)	(20.59)
2000	-0.662*	-0.164
	(0.33)	(0.22)
Constant	-0.739*	-0.508†
	(0.36)	(0.29)
σ	0.822**	0.749**
	(0.19)	(0.14)
Log likelihood	-46.323	-63.726
LR χ^2	7.516	11.465
Obs.	87	134

Significance levels: $\dagger p < .1; * p < .05; * * p < .01$

be an artifact of this endogeneity. I test for this possibility by estimating a model to predict Green party entry and using major party stress on the environment in the preceding election campaign. Because of data availability for each variable needed for estimation, the estimation is limited to the 2004 campaigns. I do find a negative coefficient, consistent with this concern of endogeneity. But it does not reach statistical significance, which lends some justification to the interpretation of the coefficient used in this chapter.[15] The fact that the coefficient is positive for Democratic advertising also suggests that the measure is not excessively endogenous.

[15]Coding the independent variable of interest as a dummy – 1 if there was some mention of the environment in the previous campaign and 0 otherwise – gives similar results.

Table 6.16: Effect of 2002 Advertising on 2004 Green Entry (Probit)

	1
	Coef./Std. err.
Prev. Environmental Ads	-1.296
	(1.91)
Green Prev. Election	0.516
	(0.45)
Environment Salience	45.428†
	(25.17)
Signatures	-0.017
	(0.04)
Constant	-1.805**
	(0.31)
Log likelihood	-34.898
LR χ^2	4.625
Obs.	157

Significance levels: $\dagger p < .1; *p < .05; ** p < .01$

Chapter 7

Conclusion

Many observers of U.S. elections believe that third parties have little consequence in the American two-party system. They rarely win significant shares of the vote, and they even more rarely win elections. I however have argued that third parties can play a consistent role in U.S. elections and are a regular feature of the two-party system. Major party strategic anticipation lies at the heart of third party effects. Thus, third parties influence the political system via the major parties. The logic of strategic anticipation stresses how the absence of major party failure can in fact be a consequence, rather than evidence of the absence, of third party influence on political outcomes.

The two major parties, I have argued, adopt electoral strategies in anticipation of potential third party entry. In the unidimensional framework, the threat of entry induces major party divergence. In the absence of any third party threat, convergence to the median voter is the predicted major party platforms. The threat of a third candidate, however, induces major party policy differentiation. Using candidate positioning data in the 1996 U.S. House elections, I found that the probability of third party entry does contribute to increasing major party divergence.

My dissertation then moved to a multidimensional analysis of elections. Such a move is necessary as most accounts of third parties stress their role in advancing issues that are being ignored by the major parties. Using campaign advertising data, I assess the ability of third parties to influence major party advertising. I found that the potential of third party entry contributes to major party campaign issue breadth.

The greater the likelihood of entry, the broader the scope of campaign advertising. The last chapter considered more closely issue-specific third party effects. I found that the threat of Green party candidates contributes to differential major party stress on the environment. Although I did find some evidence that Green party threat contributes to Democratic stress on the environment, I found a negative effect of Green party threat on Republican stress on the environment. That is, interestingly the majority of the inter-party differences is due to the negative effect the Green party has on Republican candidates. Republicans act as if they purposefully were ignoring the environment in order to entice Green party entry, which would benefit Republicans since the Greens disproportionately receive votes from the Democratic base.

7.1 The Future of Third Parties

It is almost mandatory for any study of third parties to end with a consideration of the prospects for future third party success. These sorts of conclusions are often misguided however. They are generally predicated on the premise that third parties have minimal to no influence in the current state of affairs and that significant changes are needed to achieve "a better tomorrow" for third parties.

My position is that third parties already have a significant influence in American politics. The main point of my dissertation is that we do not need any significant exogenous shock in order to "finally see real third party effects," and we should not be discouraged in the relevance of third parties by their lack of apparent electoral success. Third parties can influence politics in spite of their inability to win elections, and in fact, have an influence precisely because of this lack of observable electoral success.

But my findings do not support a passive understanding of third parties. That is, one should not take for granted that the threat of entry will always have an influence in U.S. elections. Political entrepreneurs must always be active in responding to major party failures (or the potential for major party failures) in order for the threat to be credible. That is, the logic of major party anticipation assumes that *if* there is any incentive for outside challengers, *then* some third candidate will fill the void.

There are moderators to this threat. First, there must be some constituency that the third party entrepreneur can capitalize on. That is, the threat is in the ability to win votes, so there must be some potential constituency to have any effect. In my empirical analysis, I controlled for the potential constituency through a measure of district diversity (in chapters 2 through 5) and support for the environment (in chapter 6).

Second, electoral institutions moderate the extent to which third party threat has an effect. If the barrier of third party entry is too high, then the threat of entry is not credible. In this case, the major parties can act as if under a political duopoly, since the cost of entry is too high for any third candidate to realistically enter the election. Importantly however, there is not a straightforward monotonic relationship between entry cost and third party threat. If the barrier to entry is extremely low, then many frivolous candidates might enter, which the major parties can also ignore. I showed this empirically in the unidimensional case in chapter 3 (and to a lesser extent in chapter 5).

7.2 The Future of the Two-Party System

Unless drastic electoral reforms are enacted, such as a move to proportional representation, the two-party system will persist. Although we will consistently have

two major parties winning nearly all offices, the character of the two-party system can fluctuate over time. Rosenstone, Behr and Lazarus (1996) focus on the extreme in major party failure. The APSA Committee on Political Parties also stressed that there can be a wide variation in the quality of our two-party system in their argument for a more responsible system.

The APSA committee, however, missed an important actor, which has been the focus of my dissertation. Third parties – and more importantly the mere threat of third parties – are an integral component of the two-party system. As long as there is a potential for an outside competitor to attract dissatisfied voters, the major parties have incentives to adopt a strategy of anticipation. The actions that arise for this strategy can lead to positive outcomes, such as policy differentiation and an increased scope of political debate. Third parties in this way can contribute to the health hand life of the two-party system.

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