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Ethan Feldman April 1, 2022

Clean Elections and Competition: Evidence from Connecticut

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Abstract

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Both scholars and the general public speculate whether corporate campaign contributions to incumbents harm challenger candidates and electoral competition. This paper investigates the effect of Connecticut's Citizen's Election Program (CEP) on electoral competitiveness. Using a synthetic control design with new financial and electoral data, I find that the CEP has not increased the percentage of contested incumbents and the percentage of challengers who win their elections in Connecticut's lower house. This suggests that reformers should consider other avenues outside campaign finance when attempting to increase electoral competition.

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1 Introduction

When Democrats took control of the federal government in 2021, many expected them to pass a popular bill to allow medicare to negotiate drug prices. However, a surprise obstacle emerged. Swing-state Senator Krysten Sinema, who had campaigned for price negotiation in 2018, signaled her opposition to the proposal, dooming its chances in the divided Senate. Though she offered no concrete reasons for this change, opponents were quick to seize on campaign contributions as the cause. Sinema had received 121,000 dollars from pharmaceutical companies in 2019 and 2020, more than they had given when she was running for office (Perez and Sirota, 2021). The causal pattern was settled for most: Sinema had changed her policy positions in exchange for campaign funds. However, this theory makes the critical assumption that corporate donations would increase the Senator's chances of reelection, making her race less competitive. While it is undoubtedly true that corporations favor incumbents with their giving (Fournaies and Hall, 2014), it is unclear if they decrease electoral competition with campaign contributions. To answer this question it is necessary to look at state level reforms.

In 2005 Connecticut created the Citizen's Election Program (CEP), a voluntary program that provides state legislative candidates with grants if they adhere to strict donation regulations. When examining the rhetoric of advocates for the law, similar patterns to the aforementioned anecdote emerge. Common Cause Connecticut, a leading reform group that pushed for the CEP, argued in a 2018 report that one of the program's key successes was that "legislative candidates have access to ample funds to wage truly competitive races, and voters have a real choice at the ballot box" (Rotman and Nightingale, 2020). When interviewed in the report, both the state senate and house minority leaders mentioned that the program provided "increased opportunity for candidates to compete" (Rotman and Nightingale, 2020). This emphasis on competition is not without reason, as research shows that higher levels of political contestation leads politicians to be more responsive to their citizen's needs (Hobolt and Klemmensen, 2007). However, while Common Cause Connecticut shows the CEP has made candidates more financially competitive, they do not actually demonstrate any of the program's electoral effects (Rotman and Nightingale, 2020). Thus, this paper seeks to determine whether the CEP has increased the level of electoral competition in Connecticut, measured by the percentage of races that are contested by challengers, and the percentage of challengers who win their elections. I do this by first establishing that the CEP has in fact changed the campaign finance landscape in Connecticut. I then develop a decision theoretical framework for how the CEP will effect individual candidates, and analyze the program using a synthetic control design along with descriptive statistics to ensure my findings are causal in nature.

2 The Literature on Public Financing and Competition

Competition, is typically understood in two ways: whether a race is contested, and what the margin of victory is. Proponents of clean elections programs argue that because challengers using these programs can gain access to as much money as an incumbent, races should have closer margins and be more contested. There is some evidence for this theory. Numerous studies show that special interests throw their weight behind powerful incumbents whom they hope to influence (Fournaies and Hall, 2014; Fournaies and Hall, 2017; Barber and Eatough, 2020). Much scholarly attention has been devoted to whether clean elections actually follow this expected pattern. Looking at the first stage of any election, Brogan and Mendilow (2012)a show that clean election laws lead to more primary challengers and intra-party volatility. Studies of whether clean elections programs in Arizona and Maine have increased the number of contested general elections have come to mixed conclusions: Maine's has not increased contestations, while Arizona's has (Miller, 2013; Powell, 2012). However, Miller notes that many of these new challengers are running for seats firmly held by one party that they have no chance of winning. This finding is echoed by Salka (2012), who studies whether candidates who use public funding have held office before, and theorizes that competitive seats typically draw strong challengers who could raise enough money to run without the law, and clean elections just subsidize inexperienced candidates in unwinable seats. This picture is challenged by other scholars, who find that these programs decrease electoral margins of victory, which they see as evidence that experienced and quality candidates benefit from clean elections (Malhotra, 2008; Mayer and King, 2012; Brogan and Mendilow, 2012b). Hall (2014), using a regression discontinuity design, also finds that these programs decrease victory margins, and the incumbency fundraising advantage, but instead shows that this is because special interests who typically support incumbents are now banned from contributing. Werner and Mayer (2012) use a synthetic control approach to show that Arizona's clean election program halved the incumbency advantage, and provides yet another theory that clean elections are such a shock to the electoral system that incumbents had not yet figured out how to adapt. Finally, survey research on whether clean elections programs persuade quality candidates comes to differing conclusions. Surveying candidates who ran for office in Connecticut before and after its CEP was enacted, Hamm and Hogan (2009) find that the number of candidates who had previously held elected office was significantly lower after the CEP. In contrast, La Raja (2009), who surveyed local office holders in Connecticut in 2006 and 2007, found that the CEP was effective in recruiting candidates that outside groups considered "quality", though these candidates were not necessarily those most likely to win.

Overall, the literature on clean elections and electoral competition finds that clean elections programs sometimes increase the number of contested seats, and decrease incumbency advantages. However, it is divided on the quality of new

candidates who run under clean elections, as well as why incumbents fair worse. This paper aims to build on this literature in three ways. First, most investigations of clean elections programs focus on Maine and Arizona, while I use new data from Connecticut. As can be seen from Figure 1, participation in Connecticut's program has proved far more durable and consistent than its counterparts (this could be due to the partisan makeup of the three states, Republican candidates are far less likely to utilize clean elections funding, and are severely underrepresented in Connecticut). This means that will have more data on participants in clean elections than other states. Second, while Werner and Mayer (2012) and Hall (2014) also use quasi natural experiment techniques to investigate how clean elections have changed incumbency advantages, studies of how it has changed the number of contested elections remain descriptive, with no causal link firmly established. Third, I develop a unique theory of candidate decision making to investigate the exact mechanism through which clean elections change electoral competition.

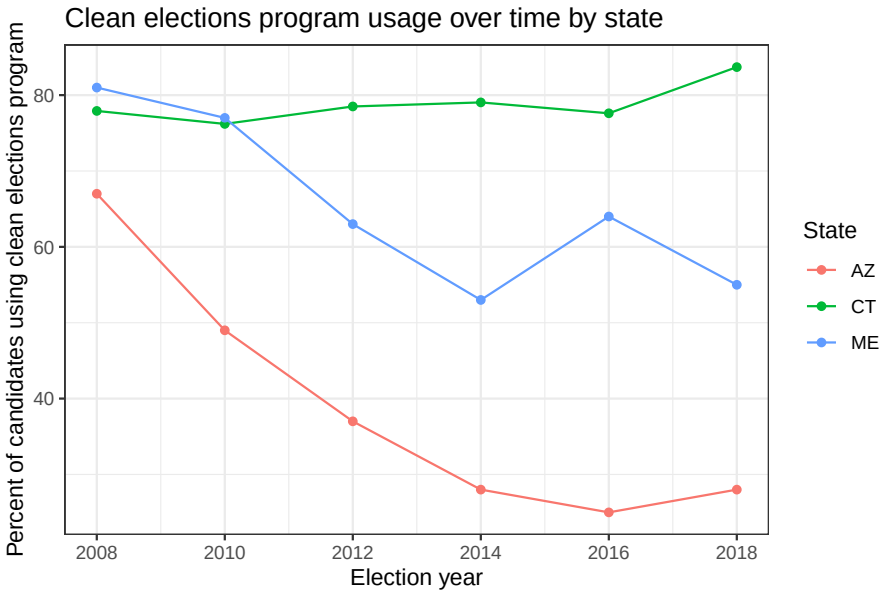

Figure 1: Participation in clean elections programs

3 Summary of the Citizen's Election Program

3.1 The Program

This section of the paper will discuss the details of the Citizen's Election Program and demonstrate that it has markedly changed campaign finance in CT. In 2005, Connecticut Governor John Rowland was imprisoned on corruption charges. This event, combined with the widespread perception of corruption in CT state politics, made campaign finance reform a pressing issue. After a series of debates, Republican governor Jodi Rell signed the Citizen's Election Program into law, over the objection of most Republican legislators (Connecticut General Assembly, 2005). The program had five stated goals: allowing candidates to compete without reliance on special interest money, allowing legislators to make decisions without the influence of special interests, restoring public faith in electoral/legislative processes, increasing citizen participation in elections, and providing the public with better campaign finance information (SEEC, 2022). The CEP first went into effect in the election of 2008. The CEP is a voluntary program: candidates for state offices abide by the program's rules, and in return receive a grant. Participating candidates were now only allowed to raise money from their personal savings or from individuals who each gave between $5 and $100 (SEEC, 2014). Candidates were only allowed to contribute set amounts themselves: $1,000 in the House, and $2,000 in the Senate. The caps on small donor fundraising were set at $5,000 in the House, and $15,000 in the Senate. Additional restrictions were placed on these small dollar donors. In the House, 150 of the small donors who gave had to come from the candidate's own district. In the Senate, the number was 300. Lobbyists were only allowed to contribute when the legislature was not in session. Principles of state contractors were prohibited from donations altogether. Because of the possibility that some donations could be disqualified, candidates were encouraged to raise a slight amount more than the qualification threshold. However, they were barred from spending any amount over the cap. Qualifying candidates could receive two grants, one in the primary and one in the general election. The primary grant was $11,140 in the House, and $38,990 in the Senate. The general grant totaled $27,850 in the House, and $94,690 in the Senate. Candidates running unopposed, against only minor party candidates, or in "party dominant" districts (districts where the number of voters registered with one party exceeds the other by 20%), received reduced grants.

Several changes to the law have been made to the program since its introduction. Individuals are now allowed to give up to $270 via credit card, though the $100 cap remains for other donation methods (SEEC, 2022). The grant amounts have similarly been raised by a few thousand dollars each.

One important note is that unlimited independent expenditures are still permitted in Connecticut. It is possible that donors could simply begin giving to these committees, skirting the law. In totality, the CEP attempts to remove special interest influence from politics by banning all donations to participating candidates except a small amount from individuals, in exchange for grants.

3.2 Effects of the Program

This section will demonstrate that the Citizen's Election Program has had a significant effect on Connecticut's campaign finance landscape. Participation rates in the CEP have been consistently high: 73% of legislative candidates participated in the program in its first year, and in 2018, 85% participated (OpenSecrets, 2021). As most candidates are now regulated by the CEP, should expect to observe two major patterns: small individual contributions making up the majority of donations and candidates raising the exact amount needed to qualify for the program.

Figure 2 shows that the first pattern has clearly occurred. Small donors as a share of total donations immediately surged following the enaction of the CEP, while other categories plummeted.

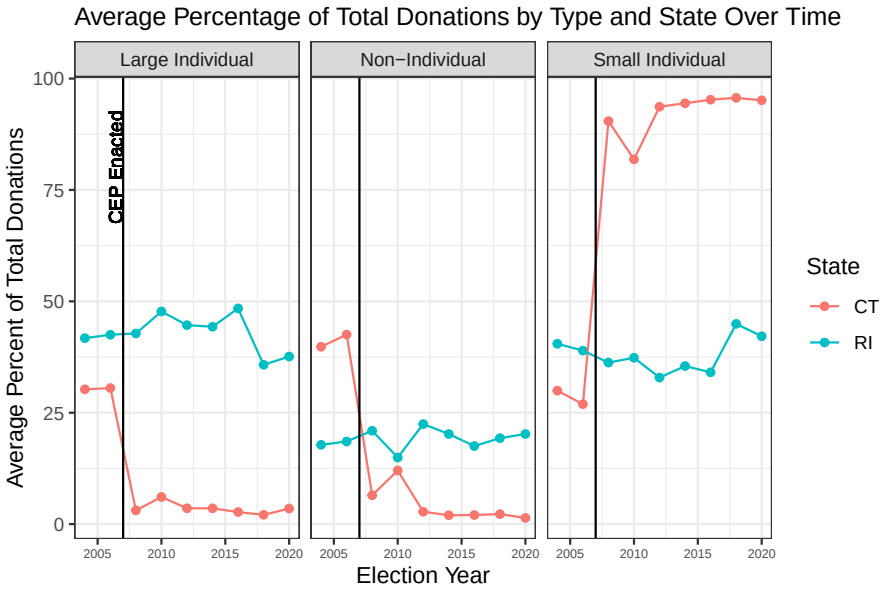

Figure 2: Average Percentage of Total Donations by Type and State Over Time

Figure 3 demonstrates the second expected pattern. In 2006, candidates raised vastly different amounts of money from small donors. In 2008, nearly all of them converged on the black lines, which represent the maximum amount of small donations a candidate could raise (and the amount needed to qualify for the CEP grant). The data includes all donations, including those gathered as buffers should some be disqualified, which explains why some candidates raised above the limit in 2008.

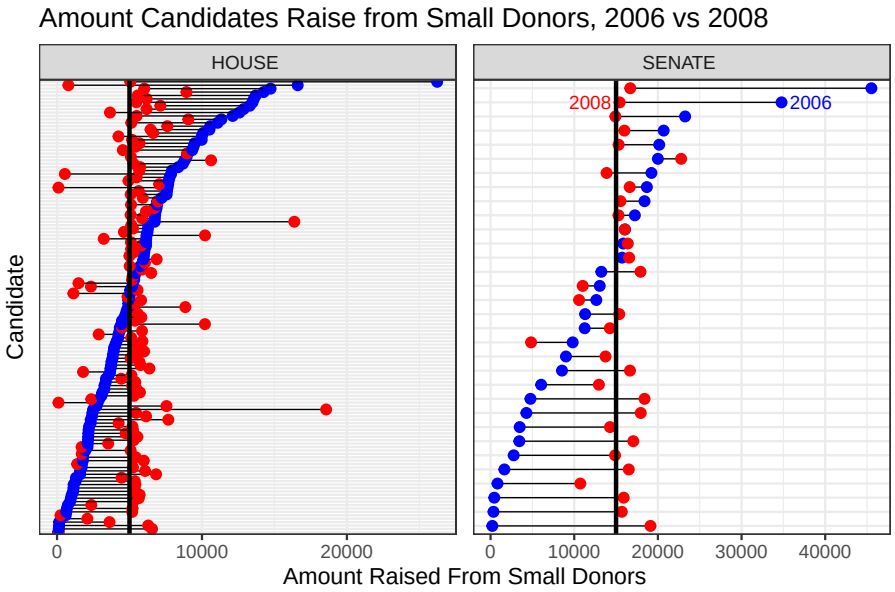

Figure 3: Amount Candidates Raise from Small Donors, 2006 vs 2008

4 Theory

This section will lay out the theoretical backings for my expectations of the impact of the CEP on the number of challengers who run and win their seats. Candidates must decide whether to run or not run. Part of this decision is based on whether they will attract enough donors to be monetarily competitive. However, donors also must decide if they will give or withhold money to said candidate, based on their own calculations.

The interaction between candidates and donors before and after the CEP can be analyzed as a game with two stages, visualized in Figure 4. In the first stage, a candidate must decide to run. In the next stage, a donor decides whether to donate. Because the donor's decision is based in large part on ideological positioning of the candidate, the game will be solved twice, once for an "extreme" candidate, and the next for a "moderate" candidate. Based on this game, I can see which decision-making factors the CEP will affect that could ultimately induce more candidates to run and win their offices.

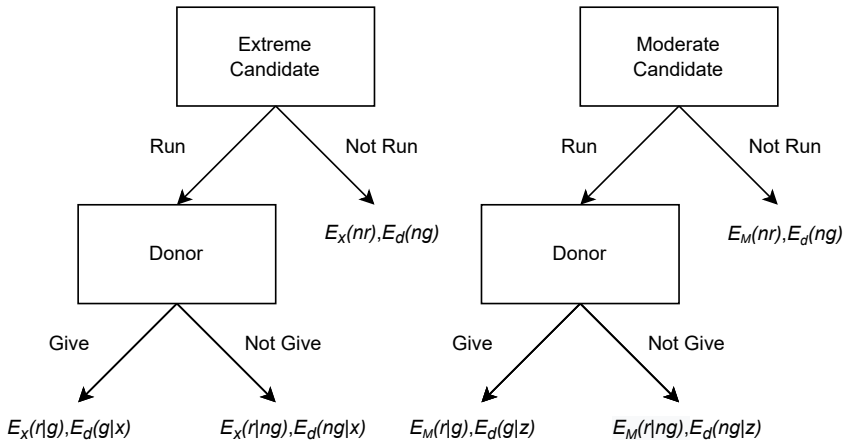

Figure 4: Theory Decision Tree

4.1 Before CEP

I choose to solve the game backwards, starting with the second stage, where a donor decides whether to give or withhold their money. I solve both the moderate and extremist second stage games before moving on to the first stage, and then to the game post CEP.

4.1.1 Donor to Extreme Candidate Before CEP

Donor D will give when $E_d(g|x) > E_d(ng|x)$,

Where P_g is probability candidate wins given the donor gives,
P_{ng} is probability candidate wins given the donor does not give,
$U_d(E)$ is the utility the donor gets from the extreme candidate winning,
$U_d(L)$ is the utility the donor gets from the extreme candidate losing,
C_g is the cost to the donor of giving,

Expanded:

$$E_d(g|x) = P_g * U_d(E) + (1 - P_g) * U_d(L|g) - C_g$$

and,

$$E_d(ng|x) = P_{ng} * U_d(E) + (1 - P_{ng}) * U_d(L|ng)$$

Now I set the expanded sides across from each other and solve

$$P_g * U_d(E) + (1 - P_g) * U_d(L|g) - C_g > P_{ng} * U_d(E) + (1 - P_{ng}) * U_d(L|ng)$$

$$(P_g - P_{ng}) * (U_d(E) - U_d(L)) > C_g \tag{1}$$

Equation 1 shows that as the impact the donor's donation has on the odds of the candidate winning grows, the ideological difference between the candidates grows, and the cost of giving drops, the donor is more likely to give.

4.1.2 Donor to Moderate Candidate Before CEP

Donor D will give when $E_d(g|z) > E_d(ng|z)$,

Where P_g is probability candidate wins given the donor gives,
P_{ng} is probability candidate wins given the donor does not give,
$U_d(M)$ is the utility the donor gets from the moderate candidate winning,
$U_d(L)$ is the utility the donor gets from the moderate candidate losing,
C_g is the cost to the donor of giving,

Again, expanded:

$$E_d(g|z) = P_g * U_d(M) + (1 - P_g) * U_d(L|g) - C_g$$

$$E_d(ng|z) = P_{ng} * U_d(M) + (1 - P_{ng}) * U_d(L|ng)$$

Set equal and solve:

$$P_g * U_d(M) + (1 - P_g) * U_d(L|g) - C_g > P_{ng} * U_d(M) + (1 - P_{ng}) * U_d(L|ng)$$

$$P_g - P_{ng} * (U_d(M) - U_d(L)) > C_g \tag{2}$$

The outcome of the game with the moderate candidate is much the same as the extreme candidate. However, I assume that: $U_d(E) > U_d(M)$, as research has consistently shown that donors are much more ideologically orthodox than the general population.

4.1.3 Extreme Candidate Decision to Run Before CEP

Extreme candidate X will run if $E_x(r|.) > E_x(nr|.)$, where $. = g, ng$

Where P_g is probability candidate wins given the donor gives,
P_{ng} is probability candidate wins given the donor does not give,
$U_x(E)$ is the utility the extreme candidate gets from winning,
$U_x(L)$ is the utility the extreme candidate gets from losing,
C_r is the cost to the candidate of running,

Expanded:

$$E_x(r|g) = P_g * U_x(E) + (1 - P_g) * U_x(L|g) - C_r$$

and

$$E_x(r|ng) = P_{ng} * U_x(E) + (1 - P_{ng}) * U_x(L|ng) - C_r$$

as well as

$$E_x(nr|g) = E_x(nr)$$

and

$$E_x(nr|ng) = E_x(nr)$$

In the "universe" of P_g, I solve and get:

$$E_x(r|g) = P_g * U_x(E) + (1 - P_g) * U_x(L) - C_r > U_x(nr)$$

$$E_x(r|g) = P_g * U_x(E) + (1 - P_g) * U_x(L) - U_x(nr) > C_r \tag{3}$$

In the "universe" of P_{ng}, I solve and get:

$$E_x(r|ng) = P_{ng} * U_x(E) + (1 - P_{ng}) * U_x(L|ng) - C_r > U_x(nr)$$

$$E_x(r|ng) = P_{ng} * U_x(E) + (1 - P_{ng}) * U_x(L|ng) - U_x(nr) > C_r \tag{4}$$

I assume that $P_g > P_{ng}$ meaning the candidate will always prefer to be in the universe where there are potential donors. As the odds of the candidate winning increase, as the ideological difference between the candidates grows, and as the cost of running decreases, the candidate is more likely to run. The cost term is crucial to understanding the potential impact of the CEP. If the cost of running is always very low or very high before the CEP, then the candidate will always run or never run, regardless of any changes to the right side of the equation. Additionally, if the cost of running is so extreme, and reduction associated with the CEP would need to be large enough to be observed.

4.1.4 Moderate Candidate Decision to Run Before CEP

Moderate candidate M will run if $E_M(r|.) > E_M(nr|.)$, where $. = \{g, ng\}$

Where P_g is probability candidate wins given the donor gives,
P_{ng} is probability candidate wins given the donor does not give,
$U_M(E)$ is the utility the moderate candidate gets from winning,
$U_M(L)$ is the utility the moderate candidate gets from losing,
C_r is the cost to the candidate of running,

Expanded, have:

$$E_M(r|g) = P_g * U_M(E) + (1 - P_g) * U_M(L|g) - C_r$$

and

$$E_M(r|ng) = P_g * U_M(E) + (1 - P_{ng}) * U_M(L|ng) - C_r$$

as well as

$$E_M(nr|g) = E_M(nr)$$

and

$$E_M(nr|ng) = E_M(nr)$$

In the "universe" of P_g, I solve and get:

$$E_M(r|g) = P_g * U_M(E) + (1 - P_g) * U_M(L|g) - C_r > U_M(nr)$$

$$E_M(r|g) = P_g * U_M(E) + (1 - P_g) * U_M(L|g) - U_M(nr) > C_r \quad (5)$$

In the "universe" of P_{ng}, I solve and get:

$$E_M(r|ng) = P_{ng} * U_M(E) + (1 - P_{ng}) * U_M(L|ng) - C_r > U_M(nr)$$

$$E_M(r|ng) = P_{ng} * U_M(E) + (1 - P_{ng}) * U_M(L|ng) - U_M(nr) > C_r \quad (6)$$

I assume that $P_g > P_{ng}$. The outcome of the game with the moderate candidate is much the same as the extreme candidate.

4.1.5 Summary of before CEP

In totality, before the CEP, donors will be more likely to donate in races where their donation has a higher impact, and where the candidate they are donating to is very ideologically different from their opponent. Overall, they will also prefer ideologically extreme candidates. Candidates will be more likely to run when they know they can attract the donor, when they have a higher chance of winning, and when they are significantly ideologically different from their opponent. Additionally, the CEP will only have an observable impact on the number of candidates running if the cost of running is always very low or high.

4.2 Changes After the CEP

I posit that the CEP could have two possible effects. First, the cost of running will shrink for candidates. Part of the cost of running an election is the effort a candidate needs to expend. The CEP means that candidates must raise far less money from donors, meaning they must spend less time fundraising, lowering the effort needed. Second, the impact of the donor's donation will be greatly increased, as their donation is now tied to the candidate receiving the grant and remaining monetarily competitive.

In order to isolate the effects of these mechanisms, I will consider each separately, by showing how changing the quantity associated with the factors in the previous section changes the outcomes observed.

4.2.1 Scenario 1 Change in Running Cost

In this case C_r would be replace by C_{rcep} where:

$$C_r > C_{rcep}$$

This means these equations 3 and 5 would become:

$$P_g * U_x(E) + (1 - P_g) * U_x(L) - U_x(nr) > C_{rcep} \tag{7}$$

$$P_{ng} * U_x(E) + (1 - P_{ng}) * U_x(L) - U_x(nr) > C_{rcep} \tag{8}$$

Under these circumstances, the candidate would be more likely to run after the CEP.

4.2.2 Scenario 2: Change in Donor Impact

In the case where the donor's power is increased, P_g,P_{ng},and C_g could all change. However, as these changes all amount to increasing the likelihood a donor will donate, I will simply consider a replacement of P_g with P_{ng} where:

$$P_{gcep} > P_g$$

This means that equation 1 would become:

$$P_{gcep} - P_{ng} * (U_d(E) - U_d(L)) > C_g \tag{9}$$

4.3 Implications

These changes in the model after the CEP allow me to answer the following three questions. First, in which scenarios will there be an increase in contested elections. Second, under what conditions will challengers consistently qualify for the CEP. Third, under what conditions will challengers be more or less likely to win their elections under the CEP. As I have split the scenarios to isolate their effects, I do the same when evaluating their implications.

4.3.1 Implication 1: Change in Running Cost

1. In which scenarios will the number of contested elections increase? This question deals with how the CEP will affect the first stage of the game. As discussed previously, candidates who have very high and low costs of running will not be affected by the law, regardless of the drop in cost. Looking at the other side of equations 3 and 5, candidates who have very high or very low chances of winning, and those who are very different or not different should not be affected. This is visualized in Figure 5. In between each color, there are two lines, representing the plotting of $P_g = \frac{C_r}{(U_x(E)-U_x(L))}$, the lower line, and $P_g = \frac{C_{rcep}}{(U_x(E)-U_x(L))}$, the upper. As the figure shows, challengers who face medium costs, medium odds of winning, and some differentiability, will drive an increase in contested elections.

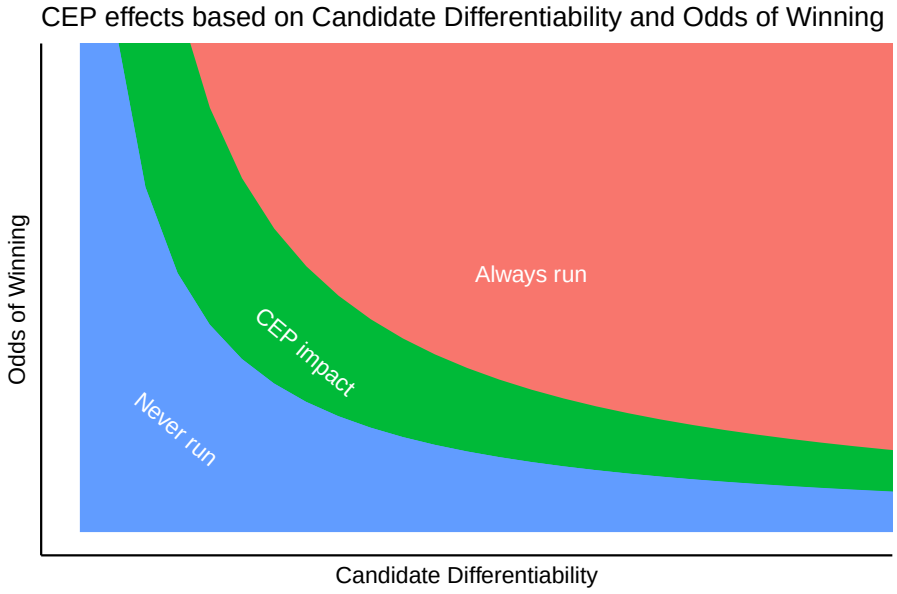

Figure 5: CEP effects based on Candidate Differentiability and Odds of Winning

2. Under what conditions will challengers consistently qualify for the CEP? This question deals with how the CEP will affect the second stage of the game. First, observe the second term of equation 1. In races where the candidate is like the incumbent, there will not be a substantial difference in qualification numbers. Additionally, if the cost of giving is very high (the candidate cannot gather that many donors), there will likely not be an impact. Finally, if the donor will have a very large or small impact in the race, the CEP will likely not have an impact. Taken together, candidates will qualify for the CEP in races that are competitive (high donor impact) and with differentiable opponents. This relationship is visualized in Figure 6.

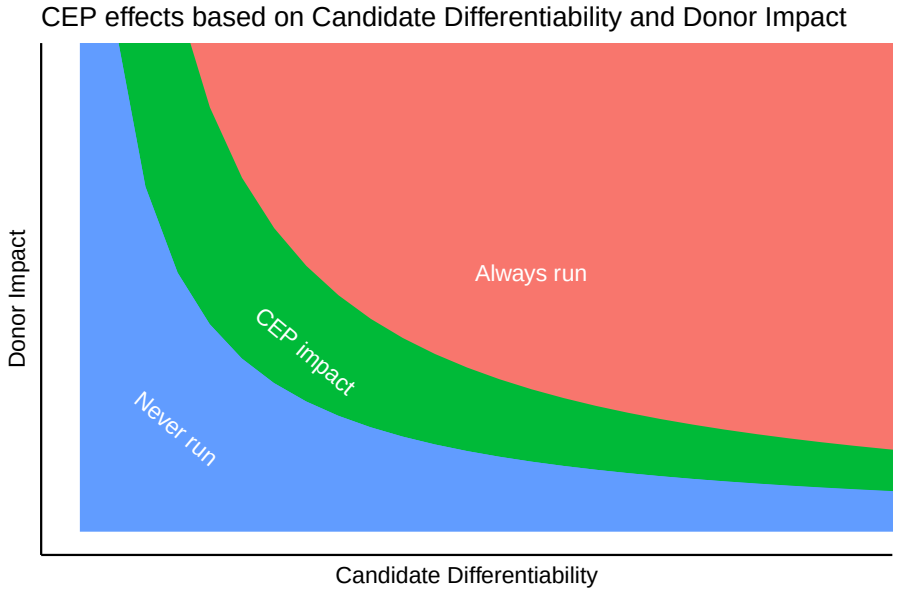

Figure 6: CEP effects based on Candidate Differentiability and Donor Impact

3. Under what conditions will challengers be more or less likely to win their elections under the CEP? It is helpful to think about the candidates split by likelihood of winning rather than ideology. Some candidates will always lose their elections, and some will always win, regardless of their CEP qualification status. However, if more challengers who always win or always lose are incentivized to join the race, there could be a shift in overall challenger success. So, when will the losers and winners enter the race? A losing candidate will have a low value of P_g and P_{ng}, meaning that if more of them choose to run under CEP, they will need to be very differentiated from their opponents, and have low costs of running. Therefore, challengers will be more likely to lose if they have low costs of running, a pool of donors (P_g vs P_{ng}), and are very different from their opponent. One additional note is that the overall odds of winning for candidates may drop if more run, as they are making elections more competitive.

4.3.2 Implication 2: Change in Donor Impact

1. In which scenarios will there be an increase in contested elections? Again, I would like to know how the CEP will affect the first stage of the game. An overall increase in candidates should occur, as candidates will recognize that donors will be more likely to give and perceive themselves in the "world" where they receive donations. Again, there will be an increase in contested elections in races with medium costs to the challenger, medium odds of winning, and some differentiability.

2. Under what conditions will challengers consistently qualify for the CEP? This second stage of the game is changed in this scenario. Donors will always be more likely to give as they will have a higher impact on donations. However, as before, this impact will be felt more strongly by candidates of medium differentiability, and with costs of giving that are low enough to observe the impact of changes on the other side of the equation.

3. Under what conditions will challengers be more or less likely to win their elections under the CEP? As before, I view candidates on a spectrum from winners to losers. Here because the value of P_g has been raised to P_{gcep}, candidates will not need to be as politically differentiable as those in scenario 1 to run. However, this may be cancelled out by the lack of change in the cost of running under this scenario. Again, candidates who would otherwise lose their elections enter the race in cases where to lose if they have low costs of running, a pool of donors (P_g vs P_{ng}), and are different from their opponent.

5 Empirical Strategy

I will use two empirical strategies to test my hypothesis. First, in order to determine whether the CEP has increased the number of contested seats and challenger wins in CT, I will use a synthetic control research design. Second, to identify the mechanism behind my observations, I will use descriptive statistics within CT to see if observe patterns consistent with the theory developed in section 4.

5.1 Synthetic Control

In order to obtain a causal estimate of the effect of the CEP, I use a synthetic control design. Using the weighted averages of data from other states during the same time period, I create a "synthetic Connecticut" where there was no CEP. By observing the differences in our outcome of interest between the synthetic and "treated" CT, I obtain an estimate of the treatment effect of the CEP. I specifically just compare these trends among the lower houses of each state legislature, as state senates vary widely by election timing and term length. To ensure that the estimate of pre-treatment synthetic CT does not depend on erroneous outdated trends, I restrict the years of analysis to 1998-2016.

To create synthetic CT, I must decide which of the state's characteristics are most important to weight for. I have chosen five "controls" in total. These five

controls are intended to minimize the difference between the outcome of interest in synthetic and treated CT before the treatment (CEP), to ensure our post trend differences are as accurate as possible. First, as in every synthetic control design, I will weight more heavily on states who's past trend (either number of contested seats or number of challenger victories) aligns with CT's. My assumption is that if a state has similar trends to CT in these metrics, the underlying factors in these states must also be similar. Second, I control for the professionalization of the state's legislature, as states with more professional legislatures will likely draw higher quality and more dedicated challengers and incumbents. Third, I control for the percentage of the state house that is Democratic, as Democrat dominated states such as CT, incumbents may benefit from an apathetic voting pool who assumes that the same party will win every election, or that their specific district will not flip control of the legislature. Fourth, I control for the presence of partial public funding programs such as matching funds, as these may have similar effects on challengers as the CEP. Fifth and finally, I control for the percentage of voters who turnout in the highest turnout election in the state. Higher turnout could reflect a more knowledgeable voter-base more receptive to incoming challengers, or conversely, a large group of voters voting on some higher office, and less aware of challengers at the state level. I use these same controls for both outcomes of interest.

I am forced to omit seven states as control units due to various reasons: AZ and ME because they previously instituted clean elections programs and thus could not be compared to CT pre-CEP, NE because of its lack of a state house, and AL, LA, MD, MS, NJ, and VA due to their off-cycle or staggered elections.

5.1.1 Synthetic Control Results: Percentage of Seats Contested

In this section, I report the results of the synthetic control showing the effect of the CEP on the percentage of seats contested in CT (excluding open seats). As seen in Table 1, based on the controls previously specified, our synthetic CT is primarily made up of Hawaii, Rhode Island, and Minnesota. This makes sense, as all three state legislatures are heavily Democratic and semi-professional. MN and CT also have above average voter turnout rates.

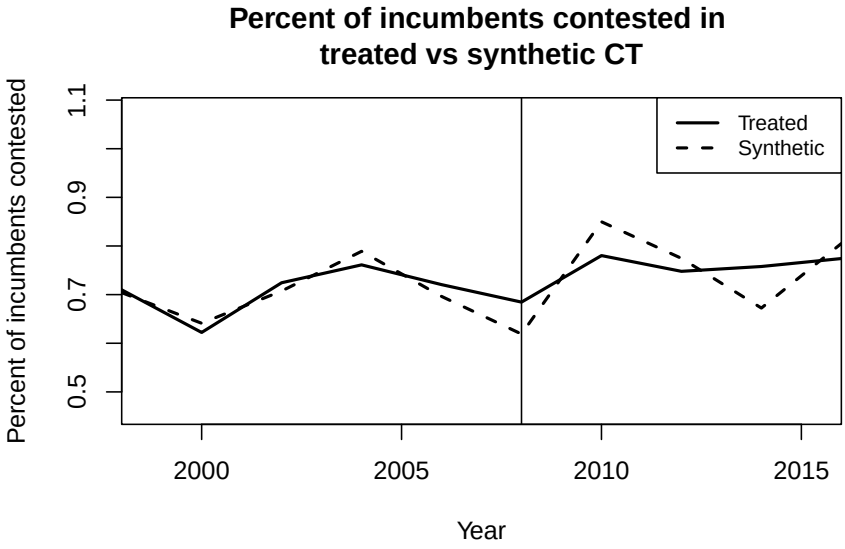

Figure 7: Percentage of contested seats in synthetic and treated CT

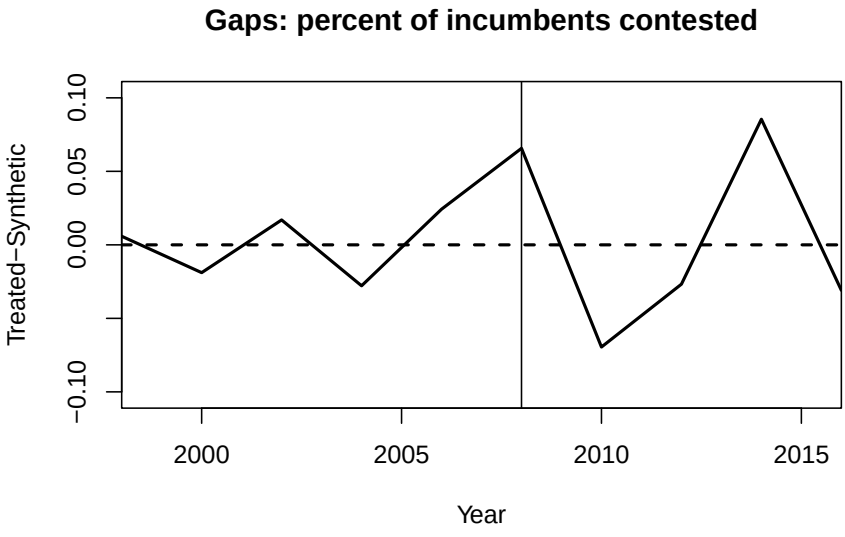

Figure 8: Gaps in percentage of contested seats in synthetic and treated CT

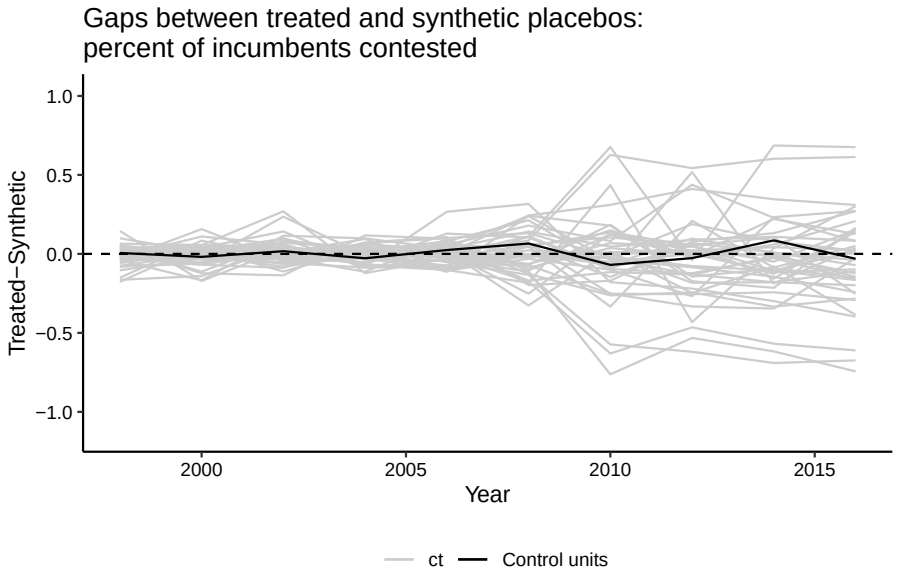

Figure 9: Gaps in percentage of contested seats in synthetic and treated placebos

Figure 7 shows that the synthetic CT provides a reasonably good fit pre-treatment. Yet as can be seen from Figures 8 and 9 the synthetic and treated CT's do not appreciably differ. Additionally, when synthetic counterparts are created for each state, and the same the gaps are visualized in Figure 11, CT stands out for its lack of change after the CEP was implemented. Clearly, the CEP has not had an effect on the percentage of seats contested.

5.1.2 Synthetic Control Results: Percentage of Challengers Winning Elections

I now repeat the previous analysis, but change the outcome of interest to the percentage of challengers who win their elections when facing incumbent candidates. As can be seen from Table 2, the weighted states have changed slightly based on controlling for a different past trend. AR and MA have replaced RI and HI as the largest contributors to synthetic CT for this analysis, as their past outcome of interest more closely follows CT.

Again, the CEP's impact appears minimal. The differences between the percentage of challengers who win their elections in synthetic and treated CT are relatively small as seen in Figures 10 and 11. When compared to the differences for other control units and their synthetic pairs, CT again appears average, though a bit higher than most of the other controls. Overall, the CEP does not appear to have increased the small percentage of challengers who beat incumbent candidates.

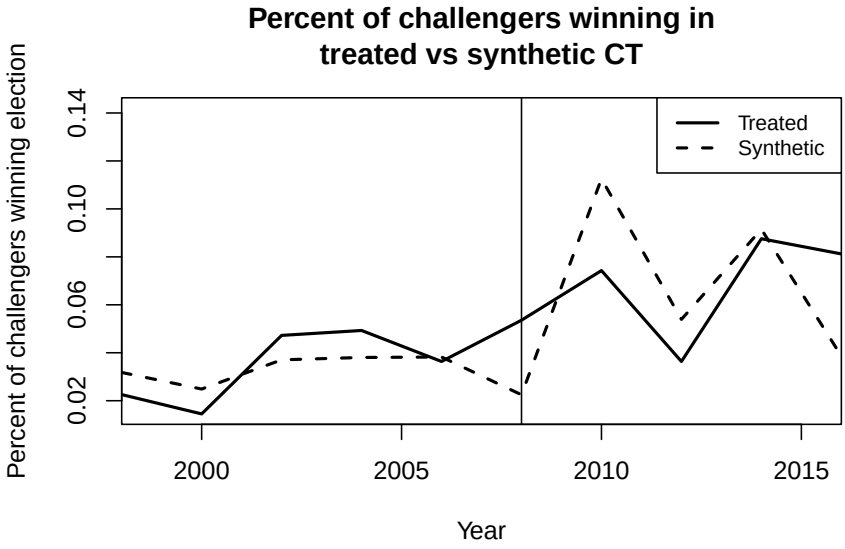

Figure 10: Percentage of challengers winning election in synthetic and treated CT

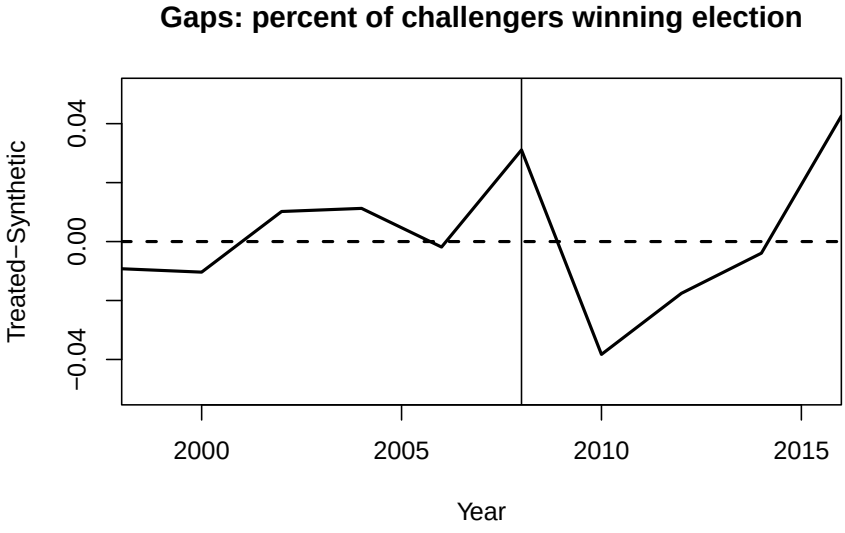

Figure 11: Gaps in percentage of challengers winning election in synthetic and treated CT

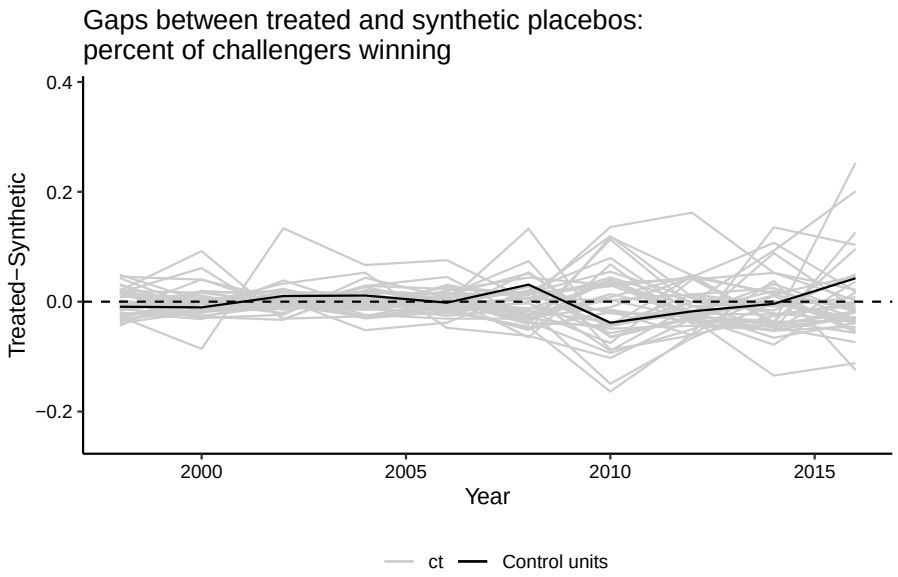

Figure 12: Gaps in percentage of challengers winning election in synthetic and treated placebos

5.2 Descriptive Investigation

In this section, I will use descriptive statistics to observe how well the patterns expected from my theory fit the data. This analysis is split into three parts: how the CEP effects the number of contested seats, which types of candidates qualify for the CEP, and how the CEP has effected the number of challengers who win their elections. I categorize candidates based on their ideological difference from their opponent which is the differences between the contestant's CFScores (Bonica, 2014), and their odds of winning, represented by the percentage of the vote that their party took in the previous election.

5.2.1 Expectation 1

Are potential candidates with medium differentiability and medium odds of winning more likely to contest incumbents? Unlike other expectations, these candidate measures are not all visible, as some seats are uncontested. However, all incumbents are observed, and if one is very ideologically extreme and has high odds of winning, then their potential challenger would be have a high differentiability and lower odds of winning, and the converse should also hold. Thus, I use information from incumbents to evaluate this expectation. After the CEP: the average odds of winning for contested incumbents should decrease, the average ideological extremity of contested incumbents should increase, and "medium" incumbents contested at higher rates.

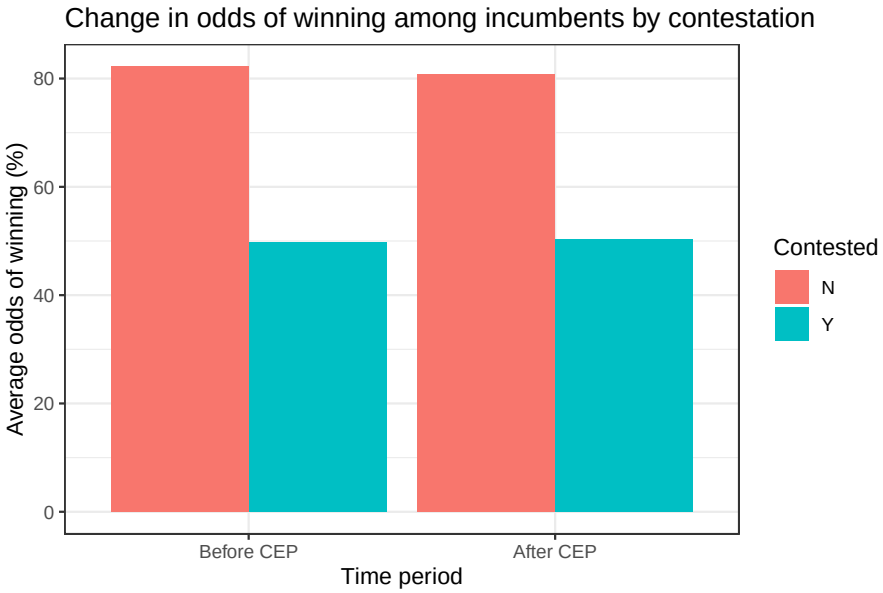

Figure 13: Change in odds of winning among incumbents by contestation

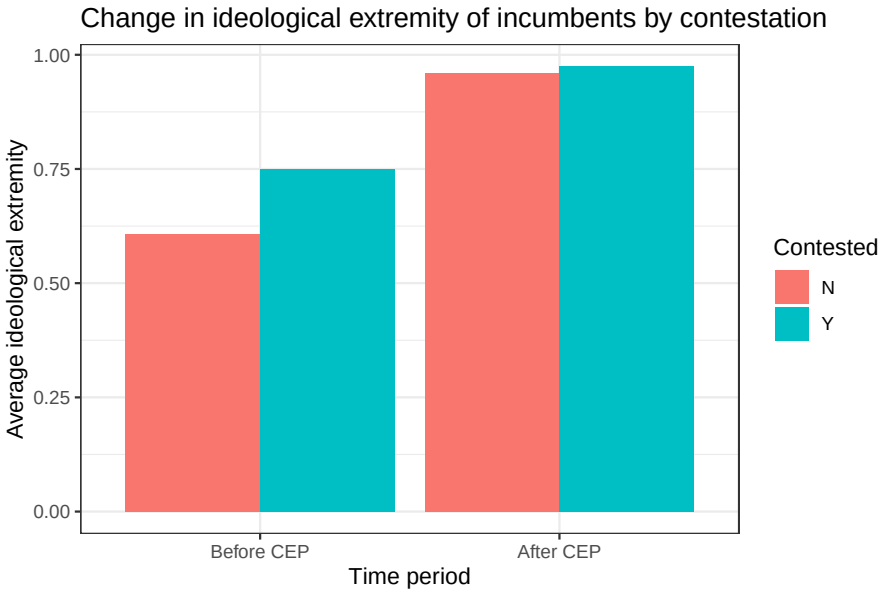

Figure 14: Change in ideological extremity of incumbents by contestation

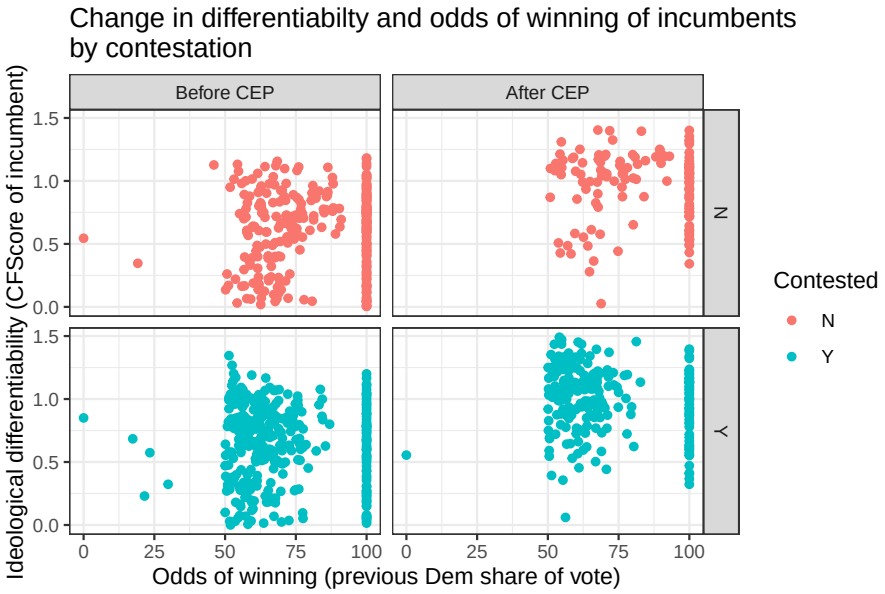

Figure 15: Change in differentiabilty and odds of winning of incumbents by contestation

Figure 13 shows that this first prediction is incorrect, as the average odds of winning for contested incumbents remains almost exactly the same after the CEP. Figure 14 at first appears to confirm prediction two, as the average ideological extremity of contested incumbents is greatly increased after the CEP. However, the extremity of uncontested incumbents also rose significantly after the CEP, suggesting that all incumbents have gotten more ideologically extreme overtime, as opposed to a CEP effect on challengers. Finally, Figure 15 demonstrates a similar ideological rise among all incumbents, and it appears that there has been little change in the types of incumbents contested. Overall, these descriptive measures do not support the expectation of my theory being true.

5.2.2 Expectation 2

The second expectation is that candidates who qualify for the CEP will have medium to high odds of winning and ideological differentiability. Figure 16 plots these two quantities against each other, separated by whether the candidate qualified for the CEP. Candidates who qualify for the CEP appear to be more concentrated among those candidates with moderate and higher odds and differentiability in the top right corner of the graph. However, defining how the "medium" candidates fair on this system is rather subjective, and it could be that those candidates who qualify for the CEP would have faired just as well under a different campaign finance regime.

Additionally, this operationalization may be able to help distinguish between whether the CEP improves candidate outcomes by lowering their costs of running, or by increasing the impact of donors. Given that the majority of challengers qualify for the CEP, this provides some evidence that donors now feel their donations have more of an impact, and are willing to fund candidates who may not be especially differentiable or likely to win.

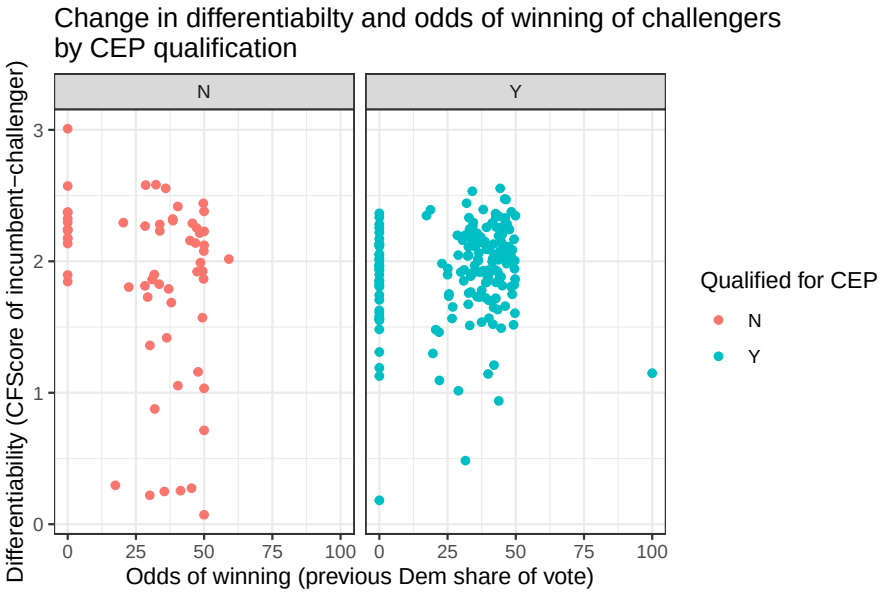

Figure 16: CEP qualification among challengers by ideological differentiability and odds of winning

5.2.3 Expectation 3

The final expectation is that challengers with medium ideological differentiability and medium odds of winning will be more likely to win their elections than before the CEP. This expectation is not seen in the data in Figure 17, as the relationship between odds and differentiability appears the same among challengers who win their elections before and after their elections. The data does not support my third expectation.

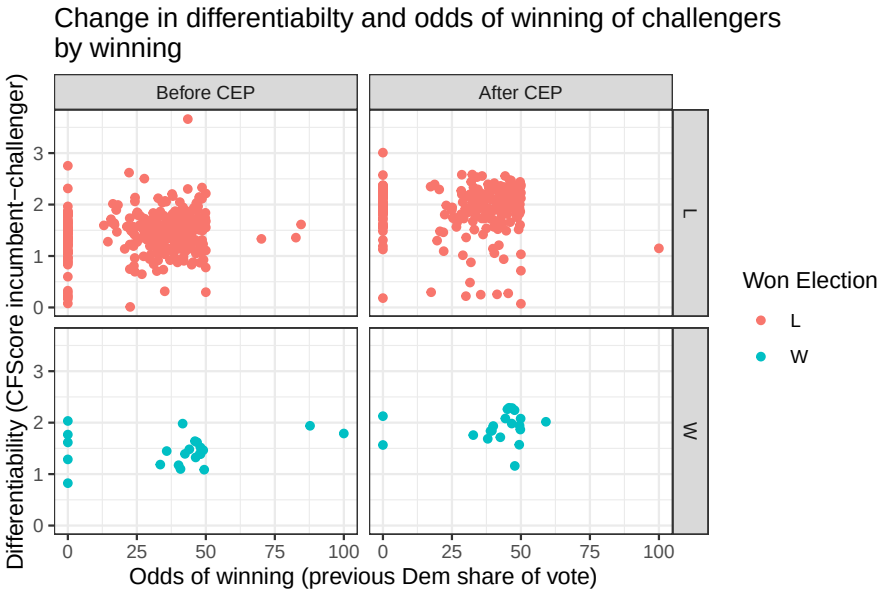

Figure 17: Election outcomes among challengers by ideological differentiability and odds of winning

6 Discussion

Taken together, the results of the synthetic control and descriptive analyses suggest that the CEP has not improved the electoral environment for challengers, directly contradicting previous scholarly findings, and the conventional wisdom among advocates and legislators in CT. This leads to two distinct questions: why does the CEP fail to improve challenger outcomes, and why does my analysis come to differing conclusions than past investigations?

My decision theoretical model may explain why the CEP does not function as expected. First, when examining the number of contested races, equations 3 and 5 show that if the cost of running is very high or very low, and the magnitude of the change of the CEP is not very large, no changes in the candidate's differentiability or odds of winning will cause them to change their decision. This suggests that raising money was either not a large cost for a candidate to consider running, or that raising the amount needed to qualify for the CEP is just as burdensome as raising money prior to the program. This would also help to explain the lack of change in the amount of challengers who win their elections. If the decisions candidates make are unchanged after the CEP, then the quality of challengers will also not change, explaining the lack of a glut of low quality losing candidates or high quality replacements lured by a more attractive campaigning experience. This could also imply that the monetary advantages of incumbency may not be the largest contributing factor for incumbents' electoral

advantages.

An additional possibility could be the omission of independent expenditures from the CEP restrictions. Independent expenditures have risen in CT, although the data is incomplete and it is difficult to tie the increase to the CEP. However, there have been reports of outside expenditures specifically targeting CT state elections as the candidates are financially constrained under CEP restrictions. Perhaps corporate donors have simply redirected their funds from the candidates themselves to independent expenditures. This would mean that incumbents are just being propped up from a different source.

Why does this analysis contradict the findings of previous research such as Hall 2014? One possibility has to do with the CEP's unusually high uptake compared to its clean election counterparts in other states. Perhaps lesser used programs attract higher quality candidates, who perhaps utilize these programs due to strong ideological commitments that also help them electorally. Another possibility may be the outcomes of interest used. For example, Werner and Mayer (2012) who also use a synthetic control design to investigate a clean elections program, study how that program effects their measure of "incumbency advantage" that mainly takes into account the percentage of the votes a candidate receives. Perhaps the CEP has lessened the margins of victory of incumbents, though not by enough magnitude to result in any noticeable changes in challenger victories. This analysis ultimately suggests that policymakers consider other avenues of reform if they wish to improve challenger outcomes and increase electoral competitiveness. Perhaps other costs to candidates could be addressed, such as publicity, through subsidizing local news outlets. Ultimately, focusing on campaign finance as a primary burden to challengers while seeking to level the playing field, appears to be a dead end.

7 Conclusion

This analysis seeks to determine if Connecticut's Citizen's Election Program has increased electoral competitiveness by increasing the number of contested seats and the number of challengers who win their elections. I contribute to the literature on clean elections programs and electoral competition in three ways. First, by utilizing new data from the CEP, which also has a significantly higher participation rate than previously studied programs. Second, by identifying the mechanisms that drive the effects of the CEP with a novel decision theoretic model. Third, by grounding my estimates in causal methodology using a synthetic control research design. I find that the CEP does not increase the number of contested seats in CT's lower house, nor does it increase the number of winning challenger candidates. Analysis of my theoretical expectations suggests that this is because the CEP does not lower the cost of running a campaign enough to induce new candidates to run for office, or that the costs of raising money were never significant barriers for candidates in the first place. These findings lead me to suggest that policymakers look beyond campaign finance regulation when attempting to increase competition in their state.

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10 Synthetic Control Unit Weights

State	Weight
HI	.27
RI	.24
MN	.20
MA	.05
AK	.01
AR	.01
CO	.01
DE	.01
FL	.01
GA	.01
IA	.01
ID	.01
IL	.01
IN	.01
NC	.01
ND	.01
VT	.01
WA	.01
KS	.01
KY	.01
MO	.01
MT	.01
NH	.01
NM	.01
OH	.01
OK	.01
OR	.01
PA	.01
SC	.01
TN	.01
TX	.01
UT	.01
WI	.01
WY	.01
CA	0
MI	0
NV	0
NY	0
WV	0

Table 1: Weights assigned to each control unit in first synthetic control

State	Weight
AR	.32
MN	.22
MA	.20
RI	.04
CO	.01
DE	.01
FL	.01
GA	.01
HI	.01
IA	.01
ID	.01
IN	.01
KS	.01
KY	.01
MI	.01
MO	.01
NC	.01
NM	.01
NV	.01
NY	.01
OH	.01
OK	.01
PA	.01
SC	.01
TX	.01
UT	.01
WA	.01
WI	.01
WV	.01
AK	0
CA	0
IL	0
MT	0
ND	0
NH	0
OR	0

Table 2: Weights assigned to each control unit in second synthetic control