Entry into Electoral Races and the Quality of Representation*

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Abstract

U.S. Congressmen are very likely to be reelected and survey evidence suggests that voters are satisfied with their representatives. On the other hand, a large political science literature interprets the high incumbent reelection rate as evidence of lacking entry by strong challengers, analyzing its sources, consequences, and potential cures. This paper analyzes the extent to which there is a pool of potential candidates voters prefer to actual candidates, and what policies are effective at encouraging entry by preferable candidates. I construct a novel dataset with detailed information on the political experiences and prominence of actual as well as potential candidates and use it to estimate an entry and voting model. My estimates show that there is a large pool of preferable potential candidates who stay out of electoral races. I simulate the effects of different policies that have been suggested in the literature to make elections more competitive. Introducing term limits and imposing campaign spending limits can have unintended consequences, and increasing the compensation of

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representatives substantially encourages the entry and election of preferable candidates. I demonstrate that the stronger a winning candidate is according to my estimates, the less extremely he votes in Congress, and the more federal funds he attracts for his district.

1 Introduction

"If the people can choose only from among rascals, they are certain to choose a rascal."

(V.O. Key, "The Responsible Electorate")

Figure 1 shows the incumbent reelection rate in the U.S. House of Representatives over the past 50 years. On average, 93% of incumbents were reelected. One way to interpret this fact is that voters are satisfied with their representatives. In the American National Election Studies (ANES) conducted from 2000 to 2008, 79.44% of respondents stated they approved of their representatives. On the other hand, in a 2010 CBS News/New York Times poll, only 9% of respondents reported Congress members deserved reelection.[1] 60% of respondents in a 2013 NBC News/Wall Street Journal poll said they would replace every single member of Congress, including their own representatives, if they could.[2] A large political science literature interprets high incumbent reelection rates as evidence of a lack of entry by strong candidates who decide to stay out of electoral races for various reasons.[3]o The purpose of this paper is to answer two questions. The first is whether there is a substantial pool of potential candidates who stay out of electoral races and whom voters prefer to actual candidates. The second question is which policies encourage entry by preferable candidates most effectively. I define a candidate as preferable, or electorally strong, if he possesses characteristics voters value in elections, holding constant the ideological match between the candidate and his constituents. These characteristics might be desirable because they are predictive of a candidate's post-election behavior or because they are a signal of general competency.

Two main challenges arise when tackling these questions. The first concerns data availability and measurement. To evaluate the electoral strengths of various candidates, one requires a good sense of what candidate characteristics voters value. Data on these characteristics must be available

[1]See http://www.cbsnews.com/htdocs/pdf/poll_oil_spill_062110.pdf (accessed on 10/16/2013).

[2]See http://msnbcmedia.msn.com/i/MSNBC/Sections/A_Politics/_Today_Stories_Teases/Oct_poll.pdf (accessed on 10/16/2013)

[3]Abramowitz (1991) documents a lack of competitiveness in general elections in the 1980s. Wrighton and Squire (1997) show how the number of uncontested House seats has developed between 1912 and 1994. Ansolabehere et al. (2005) show that for at least the past 65 years, the same is true in primary elections.

for both actual candidates and potential candidates who choose to stay out of electoral races. The second challenge is the development of an appropriate empirical model. Candidates' entry decisions are endogenous and might select on characteristics unobservable to the econometrician. The estimation framework must take them into account to recover unbiased estimates of electoral strength. Moreover, entry decisions must be under policy control to assess how various policies influence the strengths of entering candidates.

The existing studies address the issue of defining and measuring electoral strength by imposing a narrow "objective" quality measure. Typically, this measure is a dummy variable regarding whether a candidate held political office prior to entering,[4] or, in the case of the policy literature, candidates' education levels.[5] The problem with these unidimensional measures of candidate strength is their narrow scope, and more importantly, it is unclear to what extent voters value them. In nearly all previous studies, the pool of potential candidates is ignored and analysis is restricted to actual candidates. Analysis typically lacks an empirical framework in which entry decisions are under policy control, though exceptions are Diermeier et al. (2005) and Keane and Merlo (2010). Most political science literature focuses on what political conditions in districts and in the nation as a whole, or what incumbent behaviors lead to arrival of politically experienced candidates.[6] Another branch of the literature examines various policies that influence

[4]Examples from recent years include Lazarus (2008a,b); Maestas and Rugeley (2008); Goodliffe (2007); Hetherington et al. (2003); Carson (2005); Sabella (2009); Gowrisankaran et al. (2008); Goodliffe (2001).

[5]See e.g. Ferraz and Finan (2011), Fisman et al. (2013) and Gagliarducci and Nannicini (2013) for recent examples.

[6]Most do this by regressing arrival of politically experienced candidates on several independent variables. For example, Bond et al. (1985) and Bond et al. (1997) find that an incumbent's previous vote share, the normal vote of the district, national tides, and ideological discrepancies between incumbent and constituents affect the probability of arrival of experienced and well financed candidates. Squire (1989), Copeland (1989), Krasno and Green (1988), Jacobson (1989), Carson (2005) and Carson et al. (2011) report similar findings. Adams and Squire (1997) argue that arrival probabilities increase for experienced candidates when the size of the pool of strong candidates is large. Several papers follow the same methodology but focus on "amateur" candidates or estimate arrival probabilities separately for these and "experienced" candidates, such as Canon (1990), Canon (1993), Romero (2004) and Lazarus (2008a). Some papers focus on only a few races and use detailed information on candidates' strengths and their motivations to run by identifying and interviewing potential candidates, such as Kazee (1980), Kazee (1983), Maisel and Stone (1997), Maestas et al. (2006) and Stone et al. (2004).

the expected quality of elected representatives. Theoretical papers typically find that the policy in question has ambiguous effects on the expected quality of representatives, and empirical evidence regarding most policies is inconclusive due to contradictory findings.

The primary contribution of this paper is to address the two issues mentioned above. I create a dataset with detailed information on the political experiences of potential and actual candidates and construct a novel measure of how well known candidates are among constituents. I collect these data for all U.S. Congressional primary and general election candidates from 2002 through 2010 and a large pool of potential candidates, consisting of elected officials in various offices and the candidates that ran for these offices (e.g. state legislators, county officials, mayors, judges, and CEOs). I then specify an empirical model that integrates potential candidates' entry decisions and citizens' voting decisions. Using observed vote shares and entry decisions combined with candidate characteristics, the model allows me to recover estimates for candidates' electoral strengths and to simulate policy counterfactuals in a straightforward manner.

Apart from its data and methodological contributions, this paper provides a number of empirical results that are novel and contribute to the understanding of voting, political entry, and the effects of policies on entry. My empirical analysis first investigates what the data reveal about the relative strengths of potential candidates compared to actual candidates. I demonstrate that there is a large pool of potential candidates who are more prominent than actual candidates are. Moreover, they have experiences in political offices and other jobs that actual candidates only rarely possess. Potential candidates' entry decisions are sensitive to the attractiveness of entering a race: Senate races, larger districts/states, and open seat races[7] attract a larger number of candidates who are more prominent but not necessarily more experienced than candidates in the remaining races. To be able to evaluate the electoral strengths of various candidates, one needs to know to what extent voters value candidate characteristics such as prominence and experiences in political offices. A naïve way to answer this question is to run an OLS regression of vote shares in general elections on candidate characteristics. This regression suggests that prominence and experiences in various offices are important predictors of electoral strength.

[7]Open seat races are races in which no incumbent participates. This might be the case because the incumbent retired or passed away.

However, since the regression conditions on candidates' entry decisions, unobservable candidate characteristics might bias the estimates. For this reason, I present estimates from a model designed to take this endogeneity bias into account, and show that a large pool of potential candidates voters prefer to actual candidates exists. Winning candidates in Senate races, larger districts/states, and open seat races are stronger than candidates in the remaining races.

Given that preferable potential candidates exist and are sensitive to the conditions under which electoral races take place, the next question is what policies are effective at encouraging their entry and election. I provide a number of novel mechanisms through which three prominent policies influence the electoral strengths of entering candidates and show how they must be implemented to raise the strengths of representatives. One popular policy suggestion in the literature is the introduction of term limits. In my framework, introducing term limits creates two effects. The benefit of being in office is lowered since incumbents enjoy it for a shorter period of time (see Diermeier et al. (2005)), but the share of open seat races is increased, which attracts stronger candidates (see Elhauge (1998) and Gowrisankaran et al. (2008)). While the previous literature has acknowledged either one of these effects, to my knowledge this is the first paper to analyze them jointly and to provide empirical evidence on their relative magnitudes. Model simulations show that imposing term limits lowers the number and strengths of representatives.

Another prominent policy suggestion is to increase the financial compensation of Congressional representatives. This influences candidates with varying strengths differently through two channels. On the one hand, the policy disproportionately influences potential candidates who are at the margin of entering. If mostly weak candidates are at the margin of entering because they have worse outside options, increasing financial compensation could increase the number of weak candidates. I demonstrate that, in fact, electoral strength is uncorrelated with being at the margin of entering. While stronger candidates do possess better outside options, their higher probabilities of winning make entry as attractive at the margin as for weak candidates. On the other hand, holding the attractiveness of entering constant, increasing the benefit of holding office should disproportionately influence strong candidates. Since they are more likely than weaker candidates to win elections, they are also more likely to enjoy the higher benefits of being in office. Given that the first effect influences all candidates equally and the second effect favors strong candidates, I find that increasing financial compensation leads to stronger entering and winning candidates. The previous literature acknowledges that increasing the attractiveness of holding a seat can decrease candidate strength,[8] yet, the combination of the two effects, and their empirical evaluations, are novel.

The last policy I examine is the introduction of campaign spending limits. While the previous literature focuses primarily on incumbents' relative advantages in raising and spending campaign funds,[9] I present an alternate mechanism that determines the effect of limiting campaign spending. Depending on the degree to which candidate characteristics that attract campaign funds correlate with characteristics voters value, campaign spending can boost the winning probabilities of either strong or weak candidates. Spending limits can then have positive or negative effects on the expected strengths of representatives. I find that the ability to raise campaign funds correlates positively with electoral strength, and hence winning candidates are weaker under spending limits.

Electing candidates voters like is important to the extent that voters select candidates that will perform in their favor after they win elections. Analysis in this paper focuses on candidates' entry decisions, and not directly on the post-election behavior of winning candidates. However, I demonstrate that electoral strengths and post-election behaviors of election winners correlate strongly. Although strong candidates do not sponsor more bills in Congress, they vote more moderately and less in unison with their parties, and attract more federal funds for their home districts. These facts suggest voter behavior is consistent with selecting candidates who will behave in the voters' interests.

The remainder of this paper proceeds as follows. In Section 2, I present the data and reduced form results. I introduce an entry and voting model in Section 3 and estimate it in Section 4. In Section 5, I present the results from the policy counterfactuals and in Section 6, I show how estimated electoral strength correlates with behavior in office. In Section 7, I conclude.

[8] See e.g. Messner and Polborn (2004), Mattozzi and Merlo (2008), Poutvaara and Takalo (2007), and Caselli and Morelli (2001).

[9] See e.g. Pastine and Pastine (2012), Meirowitz (2008), Epstein and Zemsky (1995), and Abramowitz (1991).

2 Data and Reduced Form Results

I use Federal Election Commission (FEC) data on all U.S. Congressional elections from 2002 through 2010 to assemble a dataset of electoral candidates. The data consist of vote shares, names, and party affiliations of all primary and general election candidates. Table 1 contains summary statistics for the election data. To construct a dataset of potential candidates, I assemble data on state legislators, elected officials of state and county offices, mayors, CEOs, and judges. I also include candidates for these offices, when appropriate. I discuss data collection, data sources, and data availability across states and years in the appendix. Table 2 contains summary statistics for the pool data. I merge both datasets and capture about 81% (90%) of all candidates who won the election in the House (Senate). Considering both election winners and losers, I capture 51%. Only about 12.2% of all candidates actually held political office prior to entering; the remaining 38.8% that are captured in the pool were candidates for one of the offices. For unmatched candidates, I search online for information concerning prior political experiences and, if any relevant experience is found, adjust the information on their political experiences.

To construct a proxy for the prominence of candidates among constituents, I collect media mentions for each candidate by searching for full names on newslibrary.com.[1] I control for name commonness by counting the number of times a full name occurred in census data from 1910 through 1930.[2] I then regress media mentions on the number of times the name occurs in census data and use only the residual of this regression. In order to make media mentions comparable across years and states, I construct a media index by subtracting the mean of media mentions in state s and year t, $\text{Media } \bar{\text{M}}\text{entions}_{s,t}$, from a candidate j's media mentions at time t, $\text{Media mentions}_{j,t}$, and dividing by the standard deviation in media mentions, $\sigma_{s,t}$:

[1] newslibrary.com is a digital newspaper archive that has full text articles for over 5000 local and national newspapers. I performed an audit study by randomly picking 50 candidates and checking what share of hits were about the candidate in question and found that, on average, the success rate was 91%.

[2] Currently, these are the latest years in census data for which full names are accessible publicly.

$$\text{Media Index}_{j,t} = \frac{\text{Media Mentions}_{j,t} - \text{Media }\bar{\text{M}}\text{entions}_{s_j,t}}{\sigma_{s_j,t}} \tag{1}$$

To avoid capturing news articles that cover campaign efforts and might be endogenous with respect to candidate strength, I collect media mentions from four years to two years before the respective election took place. Only media mentions in newspapers within respective states are captured. In Table 3, I show that having prior political experience, or a highly visible job, correlates strongly with the media index. Being a candidate in Senate or open seat elections, and being an incumbent is associated with a high media index. Using ANES data from 2000 through 2008, I regress whether respondents recall the name of a candidate on his media index, and find that the probability to recall the respective candidate increases by 34.5% (1.71 percentage points) for a unit increase in the media index, a highly significant result.

To get an idea of the kind of candidates who enter electoral races and how they perform in elections, I examine the 2004 Illinois Senate race in which Barack Obama won the Senate seat. The Senate seat had been vacated by retiring Republican Senator Peter Fitzgerald. Republican challenger Ryan withdrew after the primary election, which he had won, and the party selected Keyes to fill the vacancy on the general election ballot. Table 4 presents all candidates, including their party affiliations, their previous offices/occupations, their vote shares, and media mentions in Illinois. This table is informative for several reasons: First, note that there are many more media mentions in the 24 months leading up to the election than in the 24 months prior. The reason is most likely campaigning and its coverage in newspapers. Next, notice that candidates expected to have little media coverage before running for office have nearly no media mentions until 24 months before the election. Vote shares correlate positively with media mentions, even those from at least 24 months before the election. Media mentions in the 24 months leading up to the election appear to predict vote shares better, which is expected if newspaper articles report more about strong candidates or if writing about candidates increases their vote shares.

Turning attention away from a single race and toward the main dataset, I examine what the raw data reveal about the characteristics of potential candidates and compare them to those of actual candidates. Mentioned previously, only 12.2% of all actual candidates had prior political experiences, and approximately half of them at least ran for office prior. Among election winners, the respective shares are larger. By construction, the pool of potential candidates only includes people who have at least run for office before and a lot of them have experiences in offices that actual candidates only rarely possess. For example, governors and CEOs almost never enter Congressional races, but are captured in the pool of potential candidates. State legislators, on the other hand, regularly enter Congressional races. The degree to which voters value experiences in these offices determines to what extent voters prefer experiences of potential candidates to those of actual candidates.

Apart from candidates' political experiences, their prominence might be an important component of electoral strength. Figure 2 shows the empirical CDF for the prominence of actual candidates and compares it to the one for the pool of potential candidates. Although the two CDFs look almost indistinguishable, the one for the pool has a much longer tail of very prominent potential candidates. Figure 3 shows empirical CDFs for only the most prominent candidate in each election and the most prominent potential candidate in each year and state. There is a large number of potential candidates who are significantly more prominent than the most prominent actual candidates.

Candidate vote shares reveal how voters evaluate various candidates. Table 5 shows regression results in which vote shares of general election candidates are regressed on several candidate characteristics. A higher media index is associated with significantly higher vote shares for challengers but not for incumbents. Candidates whose party had higher vote shares in the last presidential election, incumbents, and candidates with prior political experiences in various offices receive higher vote shares. To the extent that campaign spending influences voters' evaluations of candidates, an important question is how campaign donors value various candidate characteristics. In Table 6, I present regression results with total campaign funds as the dependent variable. I show that, on average, incumbents vastly outperform challengers in attracting campaign funds. Having prior political experiences only partly closes the gap between challenger and incumbent campaign spending. Adding candidates' prominence to the regression almost fully explains the remaining gap. Prominent challengers with prior political experiences are able to attract campaign funds almost at the level of incumbents.

The vote share and campaign fund results suggest both voters and donors value political experiences and prominence in candidates. If this is confirmed by estimates of electoral strength, it implies a large number of potential candidates whom voters prefer to actual candidates. The next question is whether any variation in the set of candidates who decide to enter electoral races is observed. Table 7 shows regression results, using electoral races as units of observation. Senate races, races in larger and wealthier districts, and open seat races attract a larger number of candidates who are more prominent but not more experienced. Depending on how voters value prominence relative to political experience, this has implications for the evaluation of policies that increase the attractiveness of a seat, or the share of open seat races.

In the next section, I specify an empirical model that allows me to estimate the electoral strengths and outside option values for actual and potential candidates. With these estimates, I can then evaluate the relative strengths of actual candidates and simulate the effects of different policies on entry decisions.

3 Entry and Voting Model

I develop a simple entry and voting model with two time periods. In the first, potential candidates choose whether to enter the electoral race in their respective district,[1] and in the second, citizens decide which candidate to vote for, or to abstain from the election.

Let L be the set of the 50 U.S. states. J is the set of potential candidates. Candidate j is affiliated with party $j_p \in \mathcal{P}$. In the first stage of the game, all candidates choose simultaneously whether to enter the electoral race in their respective district or to stay out of the race. Formally, y_j denotes j's strategy and we have that

$$y_j \in \{0, 1\} \; \forall j \in J \tag{2}$$

where the zero stands for staying out of the race. Every candidate j who decides to enter an electoral race enters the primary election of party j_p.[2]

In the second stage, I citizens make their voting decisions. Each voter i decides which candidate to vote for in exactly one primary as well as the general election, or to abstain. Let J^P denote the set of primary election entrants in a district. Citizen i's strategy is denoted by $z_i = [z_i^P \; z_i^G]$ where

$$z_i^P \in \{0, J_i^P\} \tag{3}$$

and zero stands for abstention from the election. The candidates with the most votes in each primary election as well as independent candidates compete in the general election. Denote the set of general election candidates as J^G. We have that

$$z_i^G \in \{0, J_i^G\} \tag{4}$$

[1] I only observe the state each potential candidate resides in. I randomly assign each potential candidate a district within his state.

[2] Independent candidates enter the general election directly.

The candidate with the most votes in the general election wins the election and becomes the incumbent.[3] Before I describe Nash equilibria in this game, I explain the payoff structures for both voters and candidates in more detail.

3.1 Voters

Citizens vote for candidates based on the candidates' characteristics. The utility that citizen i gets from voting for candidate j is

$$\begin{aligned} u_{ij} &= v_j + \varepsilon_{ij} && (5) \\ v_j &= Q_j + \xi_j && (6) \\ Q_j &= \beta X_j + \alpha S(X_j, \eta_j) + \eta_j && (7) \\ S &= \beta^S X_j + \beta^{S\eta}\eta_j && (8) \end{aligned}$$

where v_j is the deterministic utility part, ε_{ij} is an error term, Q_j is the candidate's quality (shorthand for electoral strength), $(\beta, \beta^S, \beta^{S\eta})$ are parameter vectors, ξ_j is a taste shock, and X_j (η_j) are characteristics of candidate j that are observable (unobservable) to the econometrician. $S(\cdot)$ is campaign spending and α is the effectiveness of campaign spending. Taste shock ξ_j enters a candidate's quality as an ex ante unobservable shock, which ensures that there is uncertainty regarding who will win the election. I make the following functional form assumptions:

Assumption 1 $\varepsilon_{ij} \sim T1EV(\sigma_\varepsilon)$, iid across i and j.

This assumption allows me to obtain a closed form solution for expected vote shares.

Assumption 2 $\xi_j \sim T1EV(\sigma_\xi)$

This assumption allows me to obtain a closed form solution for each candidate's ex ante probability of winning the election.

[3] Tied elections are decided by a coin toss.

Assumption 3 $\eta_j \sim N(0, \sigma_\eta)$

This assumption facilitates the numerical integration that is necessary when the objective function for the estimator is computed.

I assume that taste shocks ξ_j only realize after the entry decisions have been made, and that quality Q_j for all candidates is observed by all candidates.

Summarized, the model allows for candidate characteristics observed by everyone, including the econometrician $(X_j, S(\cdot))$, characteristics observed by everyone but the econometrician $(\eta_j, \varepsilon_{ij})$, and characteristics that only realize at the time of the election and thus are not observed by candidates at the time of entry ξ_j.

Abstaining from the election gives voter i a utility of

$$u_{i0} = \varepsilon_{i0} \tag{9}$$

where ε_{i0} is a $T1EV(\sigma_\varepsilon)$ error term.

The expected share of citizens who vote for candidate j is, due to Assumption 1,

$$s_j^l = \frac{exp(v_j)}{1 + \sum_{j' \in J_j^l} exp(v_{j'})} \text{for } l \in P, G. \tag{10}$$

where l indexes the election type, and J_j^P denotes the set of all entrants in the primary election j participates in.

3.2 Candidates

Potential candidate j enters an electoral race only if his outside option utility V_j^0 is smaller than the benefit he obtains from running for office. If he runs, with probability P_j^W he wins the election and gets V which is the value of being in office. With probability $1 - P_j^W$, he loses the election and keeps his old job. Additionally, he must pay a cost of running for office, $C_j = C + \varepsilon_C$. Thus, j enters the electoral race only if

$$\begin{aligned} V^0(X_j) &\leq P^W(Q_j, Q_{-j}) \cdot V(Q_j) \\ &\quad +(1 - P^W(Q_j, Q_{-j})) \cdot V^0(X_j) - C_j \qquad (11) \\ \Leftrightarrow 0 &\leq P^W(Q_j, Q_{-j}) \cdot \left[V(Q_j) - V^0(X_j)\right] - C_j \qquad (12) \end{aligned}$$

where $-j$ denotes the equilibrium set of candidates who decide to enter the race, other than j. I make the following functional form assumption:

Assumption 4 $C_j \sim \mathcal{N}(C, \sigma_C)$

This assumption allows me to obtain a convenient expression for the probability that the net benefit of entering is positive, conditional on the equilibrium set of candidates.

I set up the value functions as

$$\begin{aligned} V(Q_j) &= \pi(N) + \delta\left[P_I^W(Q_j, Q_{-j}) \cdot V(Q_j)\right. \\ &\quad \left.+(1 - P_I^W(Q_j, Q_{-j})) \cdot V^0(X_j)\right] \qquad (13) \\ V^0(X_j) &= \pi^0(X_j) + \delta V^0(X_j) \qquad (14) \\ \pi(N) &= \beta^\pi N \qquad (15) \\ \pi^0(X_j) &= \beta^0 X_j \qquad (16) \end{aligned}$$

where $\pi(N)$ is the consumption utility derived from being in office, as a function of the district's characteristics N and a parameter vector β^π, and δ is a discount factor. $\pi^0(X_j)$ is the period utility of the candidate's outside option where β^0 is a parameter vector. $P_I^W(Q_j, Q_{-j})$ is the probability to win reelection as incumbent. I assume that potential candidates either enter an electoral race or stay out of Congress forever.

For ease of exposition, I will suppress the arguments for all functions $f(A_j)$ and instead write the latter as f_j. Assuming an infinite horizon, I solve for the net value of being in office:

$$V_j - V_j^0 = \frac{\pi - \pi_j^0}{1 - \delta P_{I,j}^W} \tag{17}$$

The ex ante probability that potential candidate j wins the election is

$$P_j^W = P_j^{W,P} \cdot P_j^{W,G} \tag{18}$$

where $P_j^{W,P}(\cdot)$ is the probability of winning the primary election and $P_j^{W,G}(\cdot)$ is the probability of winning the general election, conditional on having won the primary election.

Using Assumption 2, I solve for the ex ante winning probabilities:

$$\begin{aligned}
P_j^{W,P} &= Prob\left(\frac{exp(v_j)}{\sum_{j''\in J_j^P} exp(v_{j''})} \geq \frac{exp(v_{j'k})}{\sum_{j''\in J_j^P} exp(v_{j''})} \forall j' \in J_j^P\right) \\
&= Prob\left(Q_j + \xi_j \geq Q_{j'} + \xi_{j'} \ \forall j' \in J_j^P\right) \\
&= \frac{exp\left(\frac{Q_j}{\sigma_\xi}\right)}{\sum_{j'\in J_j^P} exp\left(\frac{Q_{j'}}{\sigma_\xi}\right)} && (19) \\
P_j^{W,G} &= \int \frac{exp(v_j^{P*})}{\sum_{p\in\mathcal{P}} exp(v_p^{P*})} f(v^*)dv^* && (20) \\
\text{where } v_j^{P*} &\equiv max_{j'\in J_j^P}\{v_{j'}\} \sim T1EV\left(log\left(\sum_{j'\in J_j^P} exp\left(\frac{Q_{j'}}{\sigma_\xi}\right)\right)\right) && (21)
\end{aligned}$$

v_{jk}^{P*} is the expected quality of candidate j, conditional on having won the primary election. $f(\cdot)$ denotes the joint pdf of v^*, the stacked vector of v_{jk}^{P*}. It follows that the probability of winning the general election, conditional on entry, is

$$P_j^W = \frac{exp\left(\frac{Q_j}{\sigma_\xi}\right)}{\sum_{j' \in J_j} exp\left(\frac{Q_{j'}}{\sigma_\xi}\right)}$$

where $J_j \equiv J_j^P \bigcup J_j^G$ is the set of all candidates that decided to enter the race in candidate j's district.

Define the net benefit of entering the race as follows:

$$\Delta V_j \equiv P^W(Q_j, Q_{-j})(V(Q_j) - V^0(X_j)) - C_j \tag{22}$$

A Nash equilibrium in pure strategies is defined by the citizens' voting decisions $z^* = \{z_1^*, ..., z_I^*\}$ and the potential candidates' entry decisions $y^* = \{y_1^*, ..., y_J^*\}$ such that

$$z_i^{l*} = arg\ max_{j \in \{0, J_i^l(y_1^*, ..., y_J^*)\}}\ u_{ij}\ \forall i = 1, ..., I,\ \forall l \in \{P, G\} \tag{23}$$

$$y_j^* = arg\ max_{y_j \in \{0,1\}}\ y_j \cdot \Delta V_j(y_1^*, ..., y_J^*)\ \forall j = 1, ..., J \tag{24}$$

The game could have many Nash equilibria in pure strategies, but in any equilibrium in pure strategies, the following conditions are necessary. All candidates who enter a race must derive a positive net benefit from entering that race and all candidates who stay out the race do not want to enter the race, both conditional on the equilibrium set of entrants:

$$\Delta V_j(y_1^*, ..., y_J^*) < 0 \text{ if } y_j = 0 \tag{25}$$

$$\Delta V_{jk}(y_1^*, ..., y_J^*) > 0 \text{ if } y_j = 1 \tag{26}$$

4 Estimation

4.1 Empirical Strategy

The earlier entry literature deals with the problem of estimating a model with multiple equilibria by selecting an equilibrium and computing the likelihood of the game.[1] More recently, new approaches to estimating games with multiple equilibria emerged that do not require the selection of equilibria. Chernozhukov et al. (2007), minimize an objective criterion function that consists of the distance between observed moments in the data and the respective necessary equilibrium conditions. The objective is to construct parameter sets that are consistent estimates of the set of set of parameter values that satisfy the empirical restrictions. The sets constructed take the form of a contour set of a sample criterion function. Quantiles of these contour sets can be estimated by simulation and bootstrap methods, laid out in Section 4 of Chernozhukov et al. (2007).

Moment inequalities, and the corresponding criterion function take the form

$$\begin{aligned} E_P[m_j(\theta)] &\leq 0 \\ Q(\theta) &= ||E_p[m_j(\theta)]' W^{1/2}(\theta)||_+^2 \\ (x)_+ &\equiv max(x, 0) \\ (x)_- &\equiv max(-x, 0) \end{aligned}$$

where $W(\theta)$ is a continuous and diagonal matrix with strictly positive diagonal elements for each θ. Inference on the parameter vector Θ can be based on the empirical analog of Q,

$$min_\theta \; Q_n(\theta) = \left|\left| \left[\frac{1}{n} \sum_j m_j(\theta) \right]' W_n^{1/2}(\theta) \right|\right|_+^2$$

Moment equalities and the corresponding criterion function take the form

[1] See e.g. Bresnahan et al. (1987), Bresnahan and Reiss (1991), and Berry (1992).

$$
\begin{aligned}
E_P[m_j(\theta)] &= 0 \\
Q(\theta) &= ||E_p[m_j(\theta)]' W^{1/2}(\theta)||^2
\end{aligned}
$$

Inference on Θ can be based on the empirical analog of Q,

$$
min_\theta \; Q_n(\theta) = \left\| \left[\frac{1}{n} \sum_j m_j(\theta) \right]' W_n^{1/2}(\theta) \right\|^2
$$

Estimating the model, I use both observed entry decisions and observed vote shares as data. Entry decisions offer necessary equilibrium inequalities (equations (25)-(26)) and vote shares equilibrium equalities:

$$
s_j^l = \tilde{s}_j^l \;\forall j \in J^l, \text{ for } l \in P, G \tag{27}
$$

where $(\tilde{s}_j^l)$ are the expected (observed) vote shares for candidates who decide to enter.

In addition, in order to estimate σ_ε, σ_η, and σ_ξ, I use the following moment conditions:

$$
\begin{aligned}
E\left[P_j^W - 1_{\{j \text{ wins}\}}\right] &= 0 & (28)\\
E\left[y_j - \oplus\left(\frac{\Delta V_j}{\sigma_{\varepsilon_C}}\right)\right] &= 0 & (29)\\
Var\left(\tilde{\xi}_j^P\right) - \sigma_\eta^2 + \sigma_\xi^2 \cdot \frac{\pi^2}{6} &= 0 & (30)\\
Var\left(\tilde{\xi}_j^G\right) - \sigma_\eta^2 + \sigma_\xi^2 \cdot \frac{\pi^2}{6} &= 0 & (31)
\end{aligned}
$$

where

$$\tilde{\xi}_j^P = ln\left(\frac{\tilde{s}_j^P}{\tilde{s}_0^P}\right) - Q_j \tag{32}$$

$$\tilde{\xi}_j^G = ln\left(\frac{\tilde{s}_j^G}{\tilde{s}_0^G}\right) - Q_j \tag{33}$$

Moment condition (28) uses the fact that in expectation, j should win with conditional (on entering) probability P_j^W, and helps identify σ_ξ. Moment condition (29) uses the fact that the probability of j entering is equal to $\oplus\left(\frac{\Delta V_j}{\sigma_{\varepsilon_C}}\right)$, and helps identify σ_{ε_C}. Moment conditions (30) and (31) use the fact that the variance of the residuals $\left(\tilde{\xi}_j^P, \tilde{\xi}_j^G\right)$ is equal to the sum of the variance of ξ_j and η_j, which helps to identify σ_ξ and σ_η.

Thus, we have that:

$$Q(\theta) = \begin{cases} \int [W^1(\theta)(\tilde{\xi}_j^P)^2 + W^2(\theta)(\tilde{\xi}_j^G)^2 + W^3(\theta)\left(\Delta V_{jk}\right)_-^2 + W^4(\theta)\left(P_j^W - 1_{\{j \text{ wins}\}}\right)^2 & \\ +W^5(\theta)\left(y_j - \oplus\left(\frac{\Delta V_j}{\sigma_\varepsilon}\right)\right)^2 + W^6(\theta)\left(Var\left(\tilde{\xi}_j^P\right) - \sigma_\eta^2 + \sigma_\xi^2 \cdot \frac{\pi^2}{6}\right)^2 & \\ +W^7(\theta)\left(Var\left(\tilde{\xi}_j^G\right) - \sigma_\eta^2 + \sigma_\xi^2 \cdot \frac{\pi^2}{6}\right)^2 \phi\left(\frac{\eta}{\sigma_\eta}\right)]d\eta & \text{if } y_j \neq 0 \\ \int \left[W^3(\theta)\left(\Delta V_{jk}\right)_+^2 + W^5(\theta)\left(y_j - \oplus\left(\frac{\Delta V_j}{\sigma_\varepsilon}\right)\right)^2\right] \phi\left(\frac{\eta}{\sigma_\eta}\right) d\eta & \text{if } y_j = 0 \end{cases}$$

and where I weigh each moment by the inverse of its variance $W^m(\theta),\ m = 1,\ 2,\ ...,\ 7$.

Since I must integrate over all entrants' unobserved η_j, the integral has a dimension of up to 30 (i.e., maximum number of entrants). Numerically integrating over 30 dimensions is unfeasible. Therefore, I approximate the integrals by treating the numerators and denominators in the primary and general elections, respectively, as random variables (see equations (19) and (20)). The numerator in the primary election represents a candidate's own unobservable quality. The denominators represent all primary and general election competitors' qualities, respectively. This leaves me with three dimensions to integrate over (i.e., numerator in the primary election, denominator in the primary election=numerator in the general election, denominator in the general election). Note that each element in the numerators and denominators is log-normally distributed: $v_j \sim ln\mathcal{N}(O_j, \sigma_\eta^2)$ where $O_j \equiv \beta X_j + \alpha S(X_j)$ is the observable part of candidate quality. The sum of log-normally distributed random variables does not have a closed form solution but can be approximated reasonably well, using the approximation due to L. F. Fenton:

$$\sum_j Q_j \sim ln\mathcal{N}\left(\mu_j, \sigma_j^2\right) \tag{34}$$

$$\text{where } \sigma_j^2 = ln\left[(e^{\sigma_\eta^2} - 1)\frac{\sum e^{2O_j}}{(\sum e^{O_j})^2} + 1\right] \tag{35}$$

$$\mu_j = ln\left[\sum_j e^{O_j}\right] + \frac{\sigma_\eta^2 - \sigma_j^2}{2} \tag{36}$$

I use a nested Gaussian quadrature on a sparse grid to perform numerical integration and I confirm numerically that the approximation performs accurately.

The following parameters are estimated: β, β^π, β^0,C, σ_ξ, σ_{ε_C}, and σ_η. Since (β^π, β^0, C) are only identified up to scale, I fix C. I assume that $\delta = 0.95$ and I demonstrate that my results are robust to the choice of δ in Section 5. The constants in β^π and β^0 cannot be estimated separately and thus I can only identify their difference.

For any values of α and β^S, β can be pinned down. I estimate β^S with OLS directly from the data. Since nothing in the data allows me to convincingly identify α, I calibrate it using estimates of the return to campaign spending from the literature. Suppose, an increase in \$ dollars is estimated to lead to an increase in vote shares of Δs. I calibrate α by increasing randomly selected candidates' campaign spending by \$ and searching for the value of α that, on average, leads to an increase in vote shares of Δs. In the following analysis, I use the median of a range of estimates in Gerber (2004)'s literature review on the return to campaign spending. For each \$100,000 of additional campaign spending, the vote share increases by 1%. I show that my qualitative results are robust to the return to campaign spending in Section 5.

4.2 Identification

Although all parameters in the model are identified by both vote shares and entry decisions, some of the parameters rely more on the latter and vice versa. β is identified jointly by vote shares and entry decisions: What parameters make the observed vote shares, combined with observed entry decisions and controlling for varying outside options, most likely? β^{π} is identified primarily by how large the probability of winning must be to attract candidates. This depends on the number and quality of entrants in districts with disparate characteristics. β^{0} is identified primarily by how large the probability of winning for candidates with disparate characteristics must be to induce entry. The moments in the data that reflect this are the number of entrants with respective characteristics in electoral races with varying winning odds. The number of entrants per race pins down the average winning probabilities which, combined with the value of being in office, determines σ_{ε_C}. σ_{ξ} and σ_{η} are identified by the variance of the residual in the vote share equations. Additionally, the theoretical probability of winning helps pin down σ_{ξ}.

4.3 Structural Estimation Results

Table 8 displays the structural estimation results. The reduced form results on electoral strength from Section 2 are confirmed: A higher media index is associated with electoral strength for challengers but much less so for incumbents. Candidates whose parties had higher vote shares in the last presidential election, incumbents as well as candidates with prior political experiences in various offices are valued by voters. The larger the state, the more valuable it is to hold its seat, and Senate seats are more valuable than House seats. The magnitudes of estimated outside option values reflect how likely potential candidates with varying experience are to enter elections, given their probability of winning.

Table 9 compares real data with simulated data and shows summary statistics for election outcomes. The simulated model fits the real data well. In Table 10, I replicate reduced form regressions with the simulated dataset. I regress general election vote shares on candidate characteristics, and find that the coefficients are similar. In Table 11, I test the out-of-sample fit of my model. I simulate election outcomes for 2012 Congressional elections, which were not used in the estimation. I find that the model predicts the expected quality of winners, as well as most other summary statistics pretty well. The model does predict too few candidates and the reason is that in 2012, Congressional races attracted about 0.6 more candidates on average, in comparison to the average value for 2002 through 2010.

I compare the electoral strengths of actual candidates to those of potential candidates in Figure 4. The strength of the set of actual candidates on average statistically dominates the pool of potential candidates for the most part. However, in Figure 5, I show the that strength CDFs for the best potential candidate in each district statistically dominates that of actual candidates. This suggests there is potential for policies to increase the strengths of representatives.

Policies that change the incentives to enter electoral races disproportionately influence entry decisions by potential candidates who are at the margin of entering. One reason the best potential candidates choose not to enter electoral races is shown in Figure 6. Electoral strength correlates positively with the outside options of candidates. This is expected if characteristics valued by voters are also valued outside of Congress. If strong candidates possess higher outside options, this means that, all else equal, they are less likely to be at the margin of entering since a lower net benefit of being in office makes entry less likely at the margin. However, in Figure 7, I demonstrate that strong potential candidates who stay out of electoral races, perhaps unsurprisingly, are more likely than weak potential candidates to win elections. This means the benefit of entering is higher than for weak candidates, all else equal. In Figure 8, I show that the two effects cancel each other out; there is no correlation between electoral strength and the net benefit of entering for potential candidates who stay out of electoral races.

I can now consider the effects of increasing the value of being in office. Although this raises the attractiveness of entering an election for all potential candidates, the effect is greater for candidates more likely to win the election since they are more likely to enjoy the benefits of being in office. On the other hand, candidates more likely to be at the margin of entering are affected more by the policy. As was just mentioned, strong candidates are as likely as weak candidates to be at the margin of entering and they are more likely to win elections. Hence, increasing the value of being in office disproportionately increases entry by strong candidates.

In Figure 9, more attractive elections attract stronger winning candidates. The best candidates in Senate elections and in larger states are better, on averages.

In Section 2, open seat races attracted more candidates that, on average, were more prominent though slightly less politically experienced than candidates in races with a running incumbent. Figure 10 compares the empirical CDFs of the best candidates' strengths in open seat races and races with a running incumbent. Electoral strength in open seat races statistically dominates electoral strength in races with a running incumbent, suggesting that, all else equal, policies that raise the share of open seat races increase candidate strength.

Another fact presented in Section 2 was that political experience and prominence correlated with raising campaign funds. Figure 11 shows that there is in fact a positive correlation between electoral strength and the ability to raise campaign funds.

5 Policy Counterfactuals

In this section, I analyze the effects of policies on the strengths of representatives. For all policies considered here, I simulate counterfactuals by drawing from the (η, ξ, ε) distributions and simulating entry. I simulate entry by first setting incumbents as candidates in their respective districts. Then I allow potential candidates to enter sequentially in reverse order of their net benefit of entering. I do this until the sequence converges in a Nash equilibrium in the simultaneous game; that is, all candidates that have entered a race derive positive net benefit from entering, and all potential candidates staying out of all races derive negative benefit from entering the race. Once the entry process is complete, candidates compete in primary and general elections. The general election winner becomes the new incumbent and the entry process for the next election begins. I do this until all elections from 2002 through 2010 are simulated.

5.1 Term Limits

In my first counterfactual, I introduce term limits at various levels T. I do this by setting

$$V - V^0 = \sum_{t=0}^{T} \left(\delta P_I^W\right)^t (\pi - \pi^0) - C \tag{37}$$

where $T \to \infty$ corresponds to the original specification without term limits.

Introducing term limits creates two effects. First, it makes winning the election less attractive since the incumbent gets to enjoy the perks of being in office for a shorter period. Demonstrated in the previous section, all else equal, this leads to fewer and weaker candidates since the decrease in attractiveness of entering positively correlates with electoral strength. However, there are more open seat elections, which, all else equal, leads to more and stronger candidates as explained in the previous section. In Figure 12, the two effects are displayed over the length of the term limit.

Table 12 displays results of the counterfactual in which I allow incumbents to be in office for up to six terms. Introducing term limits decreases the number of candidates, the mean electoral strength, and the winner's strength in comparison to benchmark data.

The effect of imposing term limits should, in principle, depend on the discount rate Congressional representatives have for future periods of being in office. The more they discount the future, the smaller the negative effect of imposing term limits is. In Table 17, which displays results for the case in which $\delta = 0.8$ instead of $\delta = 0.95$, the effect of introducing term limits is indeed stronger.

The results are partly consistent with the literature. Diermeier et al. (2005) find that imposing term limits decreases the probability of running for incumbents, and the effect is larger for strong incumbents. Keane and Merlo (2010) offer similar results, but they find term limits influence both achievers and non-achievers equally regarding their decisions to exit Congress. Gowrisankaran et al. (2008)'s results agree with mine in that term limits can increase the strengths of candidates. However, they find the effect decreases in the length of the term limit whereas I find the opposite result. This is unsurprising since they consider only one of the two countervailing effects imposing term limits creates, the positive effect of increasing the share of open seat races. They ignore the fact that imposing term limits also decreases the attractiveness of running for office.

5.2 Financial Compensation

The second policy counterfactual I consider is an increase in the financial compensation of Congressional representatives. To run this counterfactual, I need to know the marginal utility of money, λ. Diermeier et al. (2005) estimate (in 2005 U.S. \$) the net value of a Senate (House) seat to be \$2,144,921 (\$789,693), using detailed data on Congressional and post-Congressional wages. This value corresponds to $V_j - V_j^0$. I calibrate λ by searching for the parameter $\hat{\lambda}^{-1}$ such that

$$\frac{1}{n}\sum_j \hat{\lambda}^{-1} \cdot (V_j \hat{-} V_j^0) = 789,693 \tag{38}$$

where I average over all House incumbents and $V_j \hat{-} V_j^0$ denotes the estimated net value of being in office. This calibration is valid since $V_j - V_j^0$ is only identified up to scale. Multiplying the entry equation (11) by any constant, and in particular by λ, leaves entry decisions unaffected. I can, for example, double the salary in my counterfactual by taking the salary of representatives in 2005 (\$324,200 for one term) and setting

$$\pi_j - \pi_j^0 = \widehat{\pi_j - \pi_j^0} + 324,200 \cdot \hat{\lambda} \tag{39}$$

As was mentioned in the last section, the effect of raising the financial compensation on the strengths of representatives is ambiguous. For illustrative purposes, imagine two types of candidates: strong candidates with high outside option V_H^0 and weak candidates with low outside option V_L^0. Suppose $V - V_L^0 > 0$, $V - V_H^0 << 0$ and $C_j = C > 0 \; \forall j$. In the benchmark scenario, P_L^W and P_H^W denote the cutoff winning probabilities such that the two types of candidates are just willing to enter:

$$P_L^W = \frac{C}{V - V_L^0} > 0 \tag{40}$$

$$P_H^W = max\left\{\frac{C}{V - V_H^0}, 0\right\} = 0 \tag{41}$$

In the benchmark scenario, no strong candidate wants to enter. Suppose now that V gets raised to $V^* > V$ such that $V^* - V_H^0 < 0$. The new cutoff winning probabilities are

$$P_L^{W*} < P_L^W \tag{42}$$

$$P_H^{W*} = 0 \tag{43}$$

Thus, with a raised value of holding office, strong candidates still do not want to run for office while weak candidates are more willing to enter. This is a scenario in which more weak candidates enter while the entry decisions by strong candidates remain unaffected. In a world with more than two types of candidates, the issue is more complicated but the intuition remains valid. When strong candidates are less likely than weak candidates to be at the margin of entering, increasing the value of holding office increases entry by weak candidates disproportionately, all else equal.

Table 13 displays results of the counterfactual for increases in financial compensation by 10%, 20%, and 50%. Raising financial compensation increases the number of candidates, the mean electoral strength, and the winner's strength. Considering the results from the last section, this is plausible. Strong candidates are as likely to be at the margin of entering as weak candidates. They are also more likely to win elections which means they will be more affected by an increase in financial compensation. The magnitude of the effect is large. For a 20% increase in the financial compensation, the expected strengths of House representatives rise approximately to those of Senators.

Table 18 shows that results are robust to the monetary value of holding a House seat used for calibrating λ. Although the qualitative results are unchanged, the effect of increasing financial compensation is smaller for higher monetary values of holding a House seat. The reason is that the benefit of holding a seat is the sum of financial compensation and non-financial benefits. Thus, the more a seat is worth, the less important is financial compensation. However, even for a value twice as high as the one estimated in Diermeier et al. (2005), the effects of raising financial compensation are large.

The results are compatible with findings from the previous literature. Keane and Merlo (2010) show that reducing Congressional salaries by 20% leads to the exit of members of Congress, especially by the more skilled representatives. Ferraz and Finan (2011) find that higher wages increase competition for municipal government seats in Brazil and improve quality and behavior of incumbents. In Gagliarducci and Nannicini (2013)'s study of elections for Italian municipal governments, a higher wage attracts better educated candidates. Diermeier et al. (2005) find that the incumbent reelection rate increases after a wage increase, which is something I do not find. An important difference between this paper and Diermeier et al. (2005) is that their simulations are restricted to behaviors of incumbents in Congress and thus their analysis does not consider the effects of wages on the candidate pool.

5.3 Campaign Spending Limits

In this section, I consider the introduction of campaign spending limits. The estimated parameters that determine a candidate's strength are the joint effect of a candidate's characteristics on the voters' evaluations of the candidate and the impact of these characteristics on campaign spending: $\hat{\beta} = \beta + \alpha \cdot \beta^S$. In Section 4, I described how I calibrated α.

I introduce spending limits L by setting each candidate's campaign spending equal to

$$S_j = \begin{cases} E[S_j|Q_{jk}] & \text{if } E[S_j|Q_{jk}] < L \\ L & \text{if } E[S_j|Q_{jk}] \geq L \end{cases} \tag{44}$$

Table 14 displays the results of campaign spending limits set at various levels. While spending limits increase the number of candidates, the quality of candidates decreases. For very high spending limits, results converge to the benchmark scenario with unlimited spending.

In the last section, it was shown that electoral strength and the ability to raise campaign funds correlated positively. This explains why I find positive effects when imposing campaign spending limits. If strong candidates, on average, raise more campaign funds than weak candidates, limiting campaign spending creates negative effects by increasing the electoral advantages of weak candidates.

Table 19 displays results for the case in which I calibrate α with a lower return to campaign spending. \$100,000 leads to an increase in the vote share of 0.5% instead of 1%. Qualitative results are unchanged, and even quantitatively, there are no large differences.

My results are broadly consistent with the literature. Milligan and Rekkas (2008) find that larger spending limits lead to fewer candidates and smaller winning margins in Canadian elections. Stratmann (2006) evaluates changes in contribution restrictions across states. He shows that limits on giving narrow the margin of victory, and lead to closer elections for future incumbents and a higher number of candidates. Hamm & Hogan (2008) find that low contribution limits increase candidate emergence in state legislative elections.

6 Behavior in Office

Although this paper identifies candidate characteristics that are popular in elections, an important question is whether estimated electoral strength predicts post-election behavior of those candidates who win elections. For this purpose, I regress various achievements of winning candidates on their estimated electoral strengths. I distinguish between horizontal strength and vertical strength. While horizontal strength considers how attractive an incumbent is ideologically, proxied by the presidential vote share of the affiliated party, vertical strength measures political experience and prominence. I present the results in Table 15.

The number of bills that a member of Congress sponsors[1] is not significantly correlated with horizontal or vertical strength. For federal spending directed toward the home district,[2] I find the same result with opposite signs: Although federal spending is uncorrelated with horizontal strength, it correlates positively with vertical strength. Roll call votes of incumbents who are horizontally strong are more extreme and vertically strong incumbents vote less extremely. Similarly, horizontally strong incumbents are more likely to vote in unison with their parties while vertically strong incumbents are less likely to do so.[3] Finally, I regress voters' satisfaction with incumbents on strength using ANES data, and find no significant correlation.

These results suggest a few implications. First, the fact that electoral strength is a good predictor of multiple dimensions of incumbent behavior suggests that either voters identify candidates who will perform in their interests or that voters reward high effort in office. Another implication is that Congressional representatives face a multitasking problem; they must decide how much

[1]Data on sponsored bills are from Adler and Wilkerson (n.d.).

[2]I use data from Berry et al. (2010), who compile a dataset from the Federal Assistance Award Data System (FAADS) on non–defense related spending. He adopts the tactic used by Levitt and Snyder (1995, 1997) to separate broad-based entitlement programs from federal programs that represent discretionary spending. They calculate coefficients of variation in district-level spending for each program contained in the FAADS data and use the coefficients to separate programs into two categories of low-variation programs that have coefficients of variation less than 3/4, and high-variation programs that have coefficients of variation greater than or equal to 3/4.

[3]The extremeness of a representative's votes is the distance from the House median voter, measured in terms of first-dimension DW-NOMINATE scores (see McCarty et al. (1997); Poole and Rosenthal (1997); Poole (2005)). I use a standard party unity score, which measures the percentage of times a representative votes with his or her party when the parties are divided.

effort to exert in various dimensions. The fact that vertical strength does not correlate with the number of sponsored bills but positively with federal spending, moderate votes, and defecting from the party line, suggests constituents do not value sponsorship of many bills as much as bringing home pork and voting moderately.

To my knowledge, the finding on federal spending is novel. The majority of the distributive politics literature focuses on committee membership and majority party statuses as determinants of federal spending. I find that neither horizontal nor vertical strength correlates with being a member of the majority party, of the Appropriations Committee, or of the Ways and Means Committee. Controlling for committee membership and being in the majority party does not change any results.

To examine how the strength estimates perform when predicting incumbent behavior in comparison to measures of electoral strength used in the literature, I regress the outcome measures on a dummy variable regarding whether the respective incumbent held a political office before being elected. The results, presented in Table 16, show that a dummy for political experience alone does not predict any of the outcome measures.

7 Conclusion

In this paper, I compare the electoral strengths of potential candidates who stay out of electoral races with those of actual candidates, and analyze what policies encourage entry and election of strong candidates. I estimate a model that integrates candidates' entry decisions and citizens' voting decisions with detailed data concerning candidates' prior political experiences and prominence. I find that there is a large pool of potential candidates whom voters prefer to actual candidates. Some of the policies suggested frequently in the literature as instruments to increase the electoral strengths of representatives can lead to weaker representatives, depending on the parameter values that determine electoral strengths and outside options of candidates. My estimates reveal that increasing financial compensation of Congressional representatives has a robust, positive effect on the strengths of representatives. The reason is that strong candidates are as likely to be at the margin of entering as weak candidates and they are more likely to win elections. It follows that increasing the benefit of being in office disproportionately affects strong candidates' entry decisions. I also show that imposing term limits has two countervailing effects on candidate strength. Although a higher share of open seat races increases the strength of candidates, the benefit of being in office is lower with term limits. I find a decrease in the strengths of representative. Finally, I show that electoral strength correlates positively with the ability to attract campaign funds. For this reason, campaign spending limits have positive effects on the strengths of representatives. While the paper focuses on voting and entry decisions and not on post-election behavior of incumbents, I show that candidates who are valued highly by voters do behave differently from weaker candidates after they win elections. Strong candidates do not sponsor more bills, but they vote less extremely, and manage to attract more federal funds for their districts than weak candidates. An interesting route for future research would be to further investigate the connection between what candidate characteristics are valued by voters on election day, and what behavior is valued by constituents after the election.

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Table 1: Summary Statistics: Candidates

Variable	Mean	St.dev.	Min	Max
Total Campaign Funds in $	745970	1979480	0	63253520
Media Mentions (State, 2 yrs)	175	535	0	36055
Media Mentions (State)	982	2159	0	49665
Media Mentions (U.S., 2 yrs)	807	4456	0	398771
Media Mentions (U.S.)	4029	12859	0	608497
Media Mentions (National Media, 2 yrs)	17	105	0	8968
Media Mentions (National Media)	120	471	0	18173
# Entrants Primay Election	4.31	2.77	1	28
# Entrants General Election	2.85	1.21	1	13
Open Seat Race	.085	.279	0	1
Incumbent	.046	.210	0	1
Senate Race	.069	.253	0	1
Unopposed Incumbent	.062	.240	0	1
Candidate Prev. Ran for Office	.517	.500	0	1
Candidate Prev. Office Holder	.122	.327	0	1
Offices held by candidates prior to running				
State Government	.013	.115	0	1
Governor	.004	.061	0	1
State Legislature	.076	.265	0	1
County Official	.018	.132	0	1
Mayor	.011	.102	0	1
Judge	.005	.073	0	1
CEO	.000	.015	0	1
U.S. House	.015	.120	0	1
U.S. Senate	.002	.042	0	1

Notes: Table displays summary statistics for all primary and general election candidates in U.S. Congressional elections from 2000 through 2010. Media mentions are collected for up to two years before the respective election took place. Whenever "2 yrs" appears, media mentions were collected for the previous two years (e.g. from 11/1/2000-11/1/2002 for the 2004 election), otherwise they were collected for the full available time period (e.g. from 11/1/1990-2002). "State" means media mentions were collected from newspapers within the respective state. "National Media" stands for national media outlets and "U.S." for all available US newspapers.
"Candidate Prev. Ran for Office" means the candidate was matched with the potential candidates in the entry pool, i.e. he was either an office holder or candidate for one of the captured offices. "Prev. Office Holder" is a dummy for having held at least one of the captured offices and only counts challengers (i.e. incumbents are not taken into accont). All other mentioned offices refer to having held the respective office.

Table 2: Summary Statistics: Pool of Potential Candidates

Variable	Mean/Sum	St.dev.	Min	Max
Media Mentions (State, 2 yrs)	19	146	0	16546
Office holders or candidates (when appropriate) for:				
State Government	3185			
Governor	1184			
State Legislature	72672			
County Official	30594			
Mayor	3432			
Judge	10784			
CEO	22242			

Notes: Table displays summary statistics for the pool of potential challengers.

Table 3: Correlates of Media Mentions Index

Dep. Variable Pool	Media Index All Candidates	Media Index Challengers
Senate Race	0.324	0.135
	(0.023)	(0.015)
Incumbent	0.845	
	(0.035)	
Open Seat Race		0.108
		(0.013)
Presidential Vote Share	0.124	0.110
	(0.033)	(0.023)
Candidate Prev. Ran for Office	0.120	0.073
	(0.016)	(0.011)
Offices held prior to running		
State Government	0.779	0.768
	(0.062)	(0.053)
Governor	0.508	1.418
	(0.113)	(0.1)
State Legislature	0.182	0.361
	(0.022)	(0.021)
County Official	0.038	0.008
	(0.057)	(0.039)
Mayor	0.120	0.134
	(0.072)	(0.05)
Judge	0.256	0.362
	(0.095)	(0.072)
CEO	0.422	0.541
	(0.208)	(0.346)
U.S. House	0.485	1.138
	(0.035)	(0.044)
U.S. Senate	1.853	1.569
	(0.073)	(0.124)
Constant	-0.489	-0.484
	(0.016)	(0.011)
R-squared	.449	.275
N	11777	9209

Notes: Table displays correlates of the media index explained in Section 2. Standard errors are in parentheses. "Candidate Prev. Ran for Office" means the candidate was matched with the potential candidates in the entry pool, i.e. he was either an office holder or candidate for one of the captured offices. "Presidential Vote Share" is the vote share that the affiliated party received in the respective district in the last presidential election. All other mentioned offices refer to having held the respective office.

Table 4: Candidates in 2004 Illinois Senate Race

Name	Party	Background	Primary Election Vote Share	General Election Vote Share	Total Media Mentions		
					1990-Election	2000-2	2002-Election
Barack Obama	D	IL State Sentor	52.77%	69.97%	3939	165	3579
Daniel W. Hynes	D	IL Comptroller	23.71%		295	109	110
M. Blair Hull	D	Businessman	10.82%		131	8	122
Maria Pappas	D	Cook County Treasurer	6.03%		1765	251	767
Gery Chico	D	Chief of Staff Chicago Mayor, President Chicago Public Schools	4.30%		1349	153	628
Nancy Skinner	D	TV & Radio Commentator	1.30%		326	1	563
Joyce Washington	D	CEO of Washington Group Healthcare Consulting	1.08%		627	195	418
Alan Keyes	R	Diplomat, Presidential Candidate		27.05%	2094	28	1561
Jack Ryan	R	Investment banker	35.48%		2620	174	2196
Jim Oberweis	R	Owner of Oberweis Dairy, Former Senate Candidate	23.54%		977	164	759
Steven J. Rauschenberger	R	IL State Senator	20.04%		317	117	114
Andy McKenna	R	Businessman	14.69%		650	6	544
Jonathan C. Wright	R	Former State Representative	2.60%		72	23	46
John Borling	R	Retired Major General Air Force	2.02%		476	3	465
Norm Hill	R	Army veteran	0.85%		232	14	214
Chirinjeev Kathuria	R	Businessman	0.77%		367	0	364
Albert J. Franzen	I	Retiree		1.58%	26	0	25
Jerry Kohn	LBT	High school teacher		1.35%	97	4	91

Notes: The table includes all (non write-in) candidates for the 2004 Illinois Senate Race, as reported by the FEC. Media mentions are collected on newslibrary.com from November 1 to November 1 of the respective years. The search term consists of the full name, as displayed in the table.

Table 5: General Election Vote Shares and Candidate Characteristics

Dep. Variable	Vote Share
Media Index	0.033
	(0.003)
Incumbent	0.231
	(0.006)
Tenure of Incumbent	-0.009
	(0.001)
(Media Index)^2	-0.001
	(0)
(Media Index)xIncumbent	-0.035
	(0.003)
Presidential Vote Share	0.665
	(0.006)
Candidate Prev. Ran for Office	0.005
	(0.003)
Offices held prior to running	
State Government	0.008'
	(0.01)
Governor	0.067
	(0.018)
State Legislature	0.023
	(0.004)
County Official	0.026
	(0.011)
Mayor	0.045
	(0.013)
Judge	0.042
	(0.018)
CEO	0.057
	(0.031)
US House	0.035
	(0.006)
US Senate	-0.010
	(0.011)
Constant	0.049
	(0.003)
R-squared	0.859
N	7752

Notes: Table displays correlates of general election vote shares for all general election candidates in U.S. Congressional elections from 2000 through 2010. Standard errors are in parentheses. "Candidate Prev. Ran for Office" means the candidate was matched with the potential candidates in the entry pool, i.e. he was either an office holder or candidate for one of the captured offices. All other mentioned offices refer to having held the respective office. "Presidential Vote Share" is the vote share that the affiliated party received in the respective district in the last presidential election.

Table 6: Correlates of Campaign Spending

Dep. Variable	Campaign Funds		
Senate Race	2058275	2035154	1670973
	(55966)	(55693)	(54686)
Open Seat Race	538982	457270	371356
	(50148)	(50439)	(48412)
Candidate Characteristics			
Incumbent	1264916	822850	124861
	(47255)	(62339)	(63785)
Presidential Vote Share	540170	365427	357456
	(88752)	(89728)	(85886)
Prev. Office Holder		592463	251167
		(54902)	(53723)
Media Index			643657
			(20754)
Constant	-122675	-120932	180507
	(38815)	(38599)	(38190)
R-squared	0.187	0.196	0.265
N	10219	10219	10205

Notes: Table displays correlates of campaign funds for all primary and general election candidates in U.S. Congressional elections from 2000 through 2010, as reported by the Federal Election Commission. "Presidential Vote Share" is the vote share that the affiliated party received in the respective district in the last presidential election. "Prev. Office Holder" is a dummy for having held at least one of the captured offices and only counts challengers (i.e. incumbents are not taken into accont). Standard errors are in parentheses.

Table 7: Competitiveness of Elections

Dep. Variable	# Cand.	Mean Media Index	Max Media Index	Share Experienced
Relative Size of Pool	1.070	-0.087	-0.076	-0.024
	(0.202)	(0.027)	(0.068)	(0.022)
Senate Race	1.835	0.213	0.871	-0.001
	(0.228)	(0.03)	(0.076)	(0.024)
Open Seat Race	4.241	0.248	1.220	-0.134
	(0.159)	(0.021)	(0.053)	(0.017)
Population in 100k	0.026	0.001	0.010	-0.001
	(0.003)	(0)	(0.001)	(0)
Median HH Income	0.136	0.006	0.018	-0.013
	(0.026)	(0.004)	(0.009)	(0.003)
Constant	2.426	-0.418	-0.419	0.771
	(0.191)	(0.026)	(0.065)	(0.021)
R-squared	.311	.103	.318	.033
N	2727	25898	2598	2727

Notes: Table displays regression results with U.S. Congressional electoral races from 2000 through 2010 as units of observation. "# Cand" stands for the number of candidates. "Share Experienced" is the share of candidates that held or ran for a political office prior to entering. "Relative Size of Pool" refers to the number of candidates in each state, divided by 1000 times the number of electoral races in the respective state. "Median HH income" is the median household income for households who reported positive income, taken from Census data. Standard errors are in parentheses.

Table 8: Structural Estimates

Parameter	95% Confidence Set	
Candidate Quality		
β_{Media}	[0.19	0.21]
$\beta_{Media \times Incumbent}$	[-0.13	-0.10]
β_{Media^2}	[-0.00	0.00]
$\beta_{Incumbent}$	[0.94	0.98]
$\beta_{PresShare}$	[3.50	3.63]
Office held prior to election		
$\beta_{StateOffice}$	[0.23	0.26]
$\beta_{Governor}$	[0.14	0.18]
$\beta_{StateLeg}$	[0.35	0.37]
$\beta_{CountyOffice}$	[0.00	0.04]
β_{Mayor}	[-0.18	-0.13]
β_{Judge}	[-0.37	-0.35]
β_{CEO}	[0.04	0.14]
β_{House}	[0.05	0.07]
β_{Senate}	[0.14	0.19]
$\beta_{RanForOffice}$	[0.06	0.10]
Value of Office		
$\beta^{\pi} - \beta^{0}$	[998.11	1095.48]
β^{π}_{Senate}	[62.39	104.54]
β^{π}_{Pop}	[0.01	0.03]
β^{π}_{GDP}	[13.79	19.18]
Value of Outside Option		
β^{0}_{Media}	[23.00	34.74]
Office held prior to election		
$\beta^{0}_{StateOffice}$	[160.66	183.12]
$\beta^{0}_{Governor}$	[187.87	224.18]
$\beta^{0}_{StateLeg}$	[320.57	386.17]
$\beta^{0}_{CountyOffice}$	[105.02	131.84]
β^{0}_{Mayor}	[392.08	408.38]
β^{0}_{Judge}	[210.13	333.00]
β^{0}_{CEO}	[530.03	657.15]
β^{0}_{House}	[141.58	217.40]
β^{0}_{Senate}	[156.24	279.76]
$\beta^{0}_{RanForOffice}$	[225.66	302.01]
Other Parameters		
σ_{ξ}	[1.0067	1.167]
σ_{η}	[0.38	0.46]

Notes: Table shows 95% confidence sets for the model laid out in Section 3. See Section 4 for how the estimates are computed.

Table 9: Model Fit: Summary Statistics

Statistic	Data	Simulated Model
# Entrants	4.24	4.24
	0	0.02
Mean Quality	1.71	1.69
	0	0.01
Winner Quality	2.6	2.96
	0	0.02
Mean Media Index	0.7	0.69
	0	0.05
Max Media Index	2.88	2.92
	0	0.14
Share of Candidates Prev. Office Holders	0.37	0.38
	0	0
Share of Candidates Prev. Ran for Office	0.28	0.45
	0	0
Turnout	0.42	0.42
	0	0
Winner Quality in Races w/ Incumbent	2.52	2.88
	0	0.02
Winner Quality in Open Seat Races	3.36	3.23
	0	0.01
Incumbent Reelection Rate	0.92	0.82
	0	0

Notes: Table compares the dataset of all primary and general election candidates in U.S. Congressional elections from 2000 through 2010 to the simulated dataset, as explained in Section 5. Sampling standard errors are in parantheses.

Table 10: Model Fit: Replicating Voting Regressions

	Dep. Variable: Vote Share	
Indep. Variable	Data	Simulated Model
Constant	0.06	0.01
	0	0
β_{Media}	0.02	0.03
	0	0
$\beta_{Media \times Incumbent}$	-0.02	-0.02
	0	0
β_{Media^2}	0	0
	0	0
$\beta_{Incumbent}$	0.22	0.29
	0.01	0.01
$\beta_{PresShare}$	0.63	0.78
	0.01	0.01
$\beta_{StateOffice}$	-0.01	0.04
	0.01	0.01
$\beta_{Governor}$	0.06	0.03
	0.02	0.02
$\beta_{StateLeg}$	0.03	0.04
	0	0
$\beta_{CountyOffice}$	0.03	-0.02
	0.02	0.02
β_{Mayor}	0	-0.09
	0.04	0.04
β_{Judge}	0.06	-0.05
	0.03	0.03
β_{CEO}	0.02	0
	0.03	0.03
β_{House}	0.04	0.02
	0.01	0.01
β_{Senate}	0.01	0.05
	0.01	0.01
$\beta_{RanForOffice}$	-0.02	-0.02
	0	0

Notes: Table shows regression results, where the vote share in the general election is the dependent variable. The first column displays results for the dataset of all primary and general election candidates in U.S. Congressional elections from 2000 through 2010. The second column displays results for the simulated dataset, as explained in Section 5. Standard errors are in parantheses.

Table 11: Model Fit: Out-of-Sample Prediction of 2012 Elections

Statistic	Data	Simulated Model
# Entrants	5.02	4.07
		0.03
Mean Quality	1.54	1.62
		0.01
Winner Quality	2.4	2.54
		0
Mean Media Index	0	0.7
		0.01
Max Media Index	1.35	2.7
		0.01
Share of Candidates Prev. Office Holders	0.28	0.44
		0.02
Share of Candidates Prev. Ran for Office	0.24	0.41
		0.01
Turnout	0.53	0.44
		0
Winner Quality in Races w/ Incumbent	2.41	2.55
		0.01
Winner Quality in Open Seat Races	2.27	2.43
		0.14
Incumbent Reelection Rate	0.89	0.82
		0.03

Notes: Table compares summary statistics for all 2012 U.S. Congressional primary and general elections to the simulated data predicted by the model for the 2012 elections, as explained in Section 5. Sampling standard errors are in parantheses.

Table 12: Counterfactuals: Term Limits

Statistic	Benchmark	T=1	T=2	T=3	T=4	T=5	T=6
# Entrants	4.24	2.5	2.9	3.25	3.43	3.61	3.72
	0.02	0.04	0.02	0.01	0.01	0.02	0.02
Mean Quality	1.69	1.15	1.38	1.44	1.51	1.53	1.55
	0.01	0.03	0.02	0	0	0.01	0.01
Winner Quality	2.96	2.13	2.48	2.63	2.69	2.75	2.8
	0.02	0.02	0.01	0.01	0	0	0.03
Mean Media Index	0.69	0.26	0.29	0.36	0.39	0.44	0.55
	0.05	0.04	0.02	0.02	0.02	0.04	0.02
Max Media Index	2.92	0.93	1.16	1.47	1.62	1.86	2.26
	0.14	0.11	0.06	0.07	0.05	0.13	0.07
Share of Candidates Prev. Office Holders	0.38	0.26	0.24	0.25	0.25	0.27	0.31
	0	0	0	0	0	0	0
Share of Candidates Prev. Ran for Office	0.45	0.62	0.6	0.59	0.57	0.55	0.52
	0	0	0.02	0	0.01	0	0
Turnout	0.42	0.2	0.29	0.33	0.36	0.37	0.39
	0	0	0	0	0	0	0
Winner Quality in Races w/ Incumbent	2.88	2.67	2.48	2.59	2.65	2.69	2.75
	0.02	0.06	0.01	0	0.01	0	0.04
Winner Quality in Open Seat Races	3.23	2.03	2.49	2.68	2.79	2.9	2.96
	0.01	0.01	0.02	0.01	0.01	0	0.01
Incumbent Reelection Rate	0.82	0.97	0.89	0.89	0.88	0.87	0.87
	0	0.01	0.01	0.01	0	0	0

Notes: Table shows summary statistics for the case in which the model in Section 3 was simulated under term limits. The "Benchmark" column displays summary statistics for the benchmark case in which the model was simulated without term limits. The header of each column indicates the length of the term limit. Sampling standard errors are in parantheses.

Table 13: Counterfactuals: Compensation Increase

Statistic	Benchmark	Comp. Inc. 20%	Comp. Inc. 20%	Comp. Inc. 50%
# Entrants	4.24	4.5	4.82	5.76
	0.02	0.04	0.01	0.04
Mean Quality	1.69	1.77	1.85	2.02
	0.01	0.03	0	0.02
Winner Quality	2.96	3.05	3.16	3.4
	0.02	0	0.01	0.02
Mean Media Index	0.69	0.78	0.89	1.08
	0.05	0	0.01	0.03
Max Media Index	2.92	3.29	3.81	4.86
	0.14	0.07	0.05	0.13
Share of Candidates Prev. Office Holders	0.38	0.4	0.43	0.52
	0	0	0.01	0
Share of Candidates Prev. Ran for Office	0.45	0.45	0.44	0.4
	0	0	0	0
Turnout	0.42	0.43	0.45	0.49
	0	0	0	0
Winner Quality in Races w/ Incumbent	2.88	2.97	3.07	3.31
	0.02	0	0.03	0.03
Winner Quality in Open Seat Races	3.23	3.31	3.46	3.72
	0.01	0.03	0.03	0.01
Incumbent Reelection Rate	0.82	0.78	0.75	0.65
	0	0.01	0.01	0

Notes: Table shows summary statistics for the case in which the model in Section 3 was simulated with increased financial compensation. The "Benchmark" column displays summary statistics for the benchmark case in which the model was simulated under default financial compensation. The header of each column indicates the increase in financial compensation. Sampling standard errors are in parantheses.

Table 14: Counterfactuals: Campaign Spending Limits

Statistic	Benchmark	L=0	L=50k	L=100k	L=250k	L=500k	L=750k	L=1m	L=1.5m	L=2m
# Entrants	4.24	5.11	5.07	5.02	4.99	4.84	4.73	4.72	4.61	4.56
	0.02	0.01	0.03	0.05	0.02	0.04	0.01	0	0.03	0.03
Mean Quality	1.69	1.29	1.31	1.35	1.41	1.5	1.55	1.55	1.58	1.59
	0.01	0	0.01	0	0	0.02	0.01	0	0	0
Winner Quality	2.96	2.42	2.44	2.48	2.56	2.67	2.73	2.74	2.82	2.82
	0.02	0.01	0.01	0.02	0.02	0.01	0.02	0.02	0	0
Mean Media Index	0.69	0.11	0.09	0.1	0.1	0.11	0.14	0.17	0.25	0.28
	0.05	0	0.01	0	0.01	0.01	0.01	0.01	0	0.01
Max Media Index	2.92	1.05	0.99	1.01	0.98	1.01	1.08	1.19	1.43	1.54
	0.14	0.01	0.02	0.01	0.03	0.03	0.05	0.05	0.02	0.02
Share of Candidates Prev. Office Holders	0.38	0.33	0.33	0.32	0.33	0.31	0.33	0.33	0.35	0.35
	0	0.01	0	0.01	0	0	0.01	0	0	0.01
Share of Candidates Prev. Ran for Office	0.45	0.5	0.5	0.51	0.5	0.51	0.5	0.49	0.47	0.48
	0	0.01	0.01	0.01	0	0	0.01	0	0	0
Turnout	0.42	0.31	0.31	0.32	0.33	0.35	0.36	0.37	0.38	0.38
	0	0	0	0	0	0	0	0	0	0
Winner Quality in Races w/ Incumbent	2.88	2.36	2.37	2.41	2.49	2.61	2.67	2.67	2.76	2.77
	0.02	0	0.02	0.02	0.03	0	0.03	0.03	0	0
Winner Quality in Open Seat Races	3.23	2.65	2.71	2.75	2.82	2.92	2.96	2.99	3.01	3.01
	0.01	0.04	0	0.02	0.05	0.02	0.01	0	0.01	0.01
Incumbent Reelection Rate	0.82	0.72	0.72	0.73	0.71	0.73	0.74	0.76	0.74	0.77
	0	0.01	0	0.01	0	0.01	0.02	0.01	0	0

Notes: Table shows summary statistics for the case in which the model in Section 3 was simulated under campaign spending limits. It was assumed that an additional \$100,000 leads to an increase in the vote share of 1%. The "Benchmark" column displays summary statistics for the benchmark case in which the model was simulated without spending limits. The header of each column indicates the magnitude of the spending limit. Sampling standard errors are in parantheses.

Table 15: Incumbent Behavior and Candidate Quality

Dep. Variable	ln(Spending)	Distance from Median Voter	Party Unity	# Bills	Like Incumbent
Vertical Quality	0.199	-0.052	-3.735	0.341	0.004
	0.036	0.006	0.309	0.448	0.006
Horizontal Quality	-0.065	0.141	8.287	1.355	0.046
	0.059	0.009	0.469	0.723	0.009
Member W&M Comm.	0.156	0.020	1.854	2.530	0.017
	0.092	0.016	0.814	1.072	0.014
Member Appr. Comm.	0.036	-0.043	0.555	-5.222	0.026
	0.074	0.013	0.657	0.871	0.011
Member Maj. Party	-0.138	-0.213	-4.830	3.305	0.004
	0.925	0.159	8.214	10.741	0.142
President's Party	-0.200	-0.222	7.631	-1.383	0.006
	0.925	0.159	8.216	10.743	0.142
Constant	19.963	0.665	89.760	13.605	0.969
	0.041	0.007	0.364	0.491	0.006
R-squared	0.034	0.657	0.035	0.047	0.007
N	1177	1177	1175	1121	1177

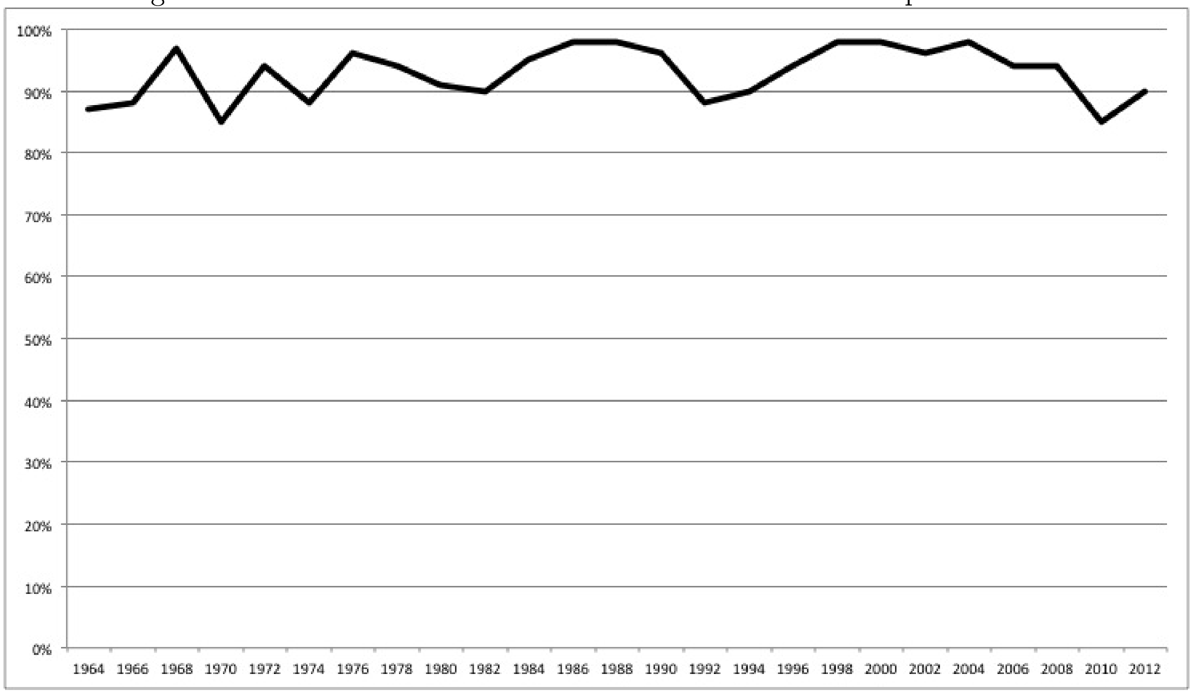
Notes: Table displays regression results where various behaviors of Congressional representatives from 2000 through 2010 are regressed on their characteristics. Standard errors are in parentheses. "ln(spending)" is the natural log of federal spending directed toward the representative's district. I use data from Berry et al. (2010), who compile a dataset from the Federal Assistance Award Data System (FAADS) on non–defense related spending. He adopts the tactic used by Levitt and Snyder (1995, 1997) to separate broad-based entitlement programs from federal programs that represent discretionary spending. They calculate coefficients of variation in district-level spending for each program contained in the FAADS data and use the coefficients to separate programs into two categories of low-variation programs that have coefficients of variation less than 3/4, and high-variation programs that have coefficients of variation greater than or equal to 3/4. "Distance from Median Voter" is the distance of a representative's roll call votes from the House median voter, measured in terms of first-dimension DW-NOMINATE scores (see McCarty et al. (1997); Poole and Rosenthal (1997); Poole (2005)). "Party Unity" measures the percentage of times a representative votes with his or her party when the parties are divided. "# Bills" is the number of bills a representative sponsored during a given term. Data on sponsored bills are from Adler and Wilkerson (n.d.). "Like Incumbent" is the share of respondents in the ANES who state they like their representative. "Horizontal Quality" is the part of estimated candidate quality that considers how attractive an incumbent is ideologically, proxied by the presidential vote share of the affiliated party. "Vertical Quality" is the part of estimated candidate quality that measures political experience and prominence. "W&M Comm." refers to the ways and means committee and "Appr. Comm." refers to the appropriations committee.

Table 16: Incumbent Behavior and Political Experience

Dep. Variable	ln(Spending)	Distance from Median Voter	Party Unity	# Bills	Like Incumbent
Previous Office Holder	-0.020	-0.002	-0.887	2.148	0.012
	0.099	0.017	0.881	1.201	0.015
Member W&M Comm.	-0.065	0.141	8.287	1.355	0.046
	0.059	0.009	0.469	0.723	0.009
Member Appr. Comm.	0.156	0.020	1.854	2.530	0.017
	0.092	0.016	0.814	1.072	0.014
Member Maj. Party	0.036	-0.043	0.555	-5.222	0.026
	0.074	0.013	0.657	0.871	0.011
President's Party	-0.138	-0.213	-4.830	3.305	0.004
	0.925	0.159	8.214	10.741	0.142
Constant	-0.200	-0.222	7.631	-1.383	0.006
	0.925	0.159	8.216	10.743	0.142
R-squared	19.963	0.665	89.760	13.605	0.969
N	0.041	0.007	0.364	0.491	0.006

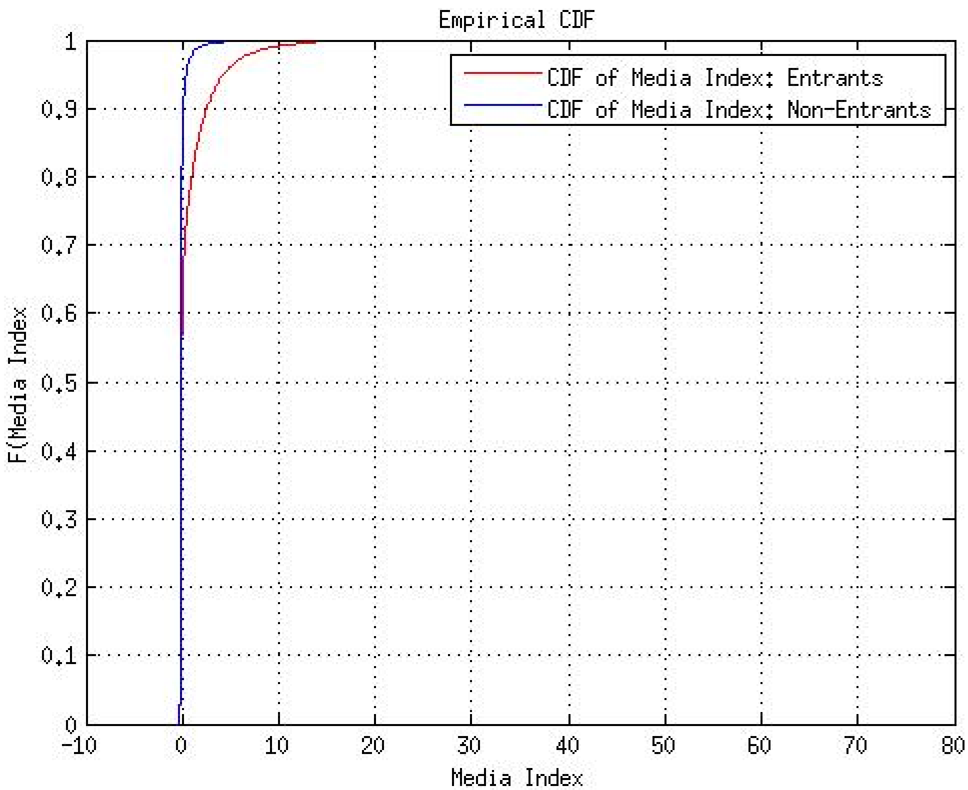
Notes: Table displays regression results where various behaviors of Congressional representatives from 2000 through 2010 are regressed on their characteristics. Standard errors are in parentheses. "ln(spending)" is the natural log of federal spending directed toward the representative's district. I use data from Berry et al. (2010), who compile a dataset from the Federal Assistance Award Data System (FAADS) on non–defense related spending. He adopts the tactic used by Levitt and Snyder (1995, 1997) to separate broad-based entitlement programs from federal programs that represent discretionary spending. They calculate coefficients of variation in district-level spending for each program contained in the FAADS data and use the coefficients to separate programs into two categories of low-variation programs that have coefficients of variation less than 3/4, and high-variation programs that have coefficients of variation greater than or equal to 3/4. "Distance from Median Voter" is the distance of a representative's roll call votes from the House median voter, measured in terms of first-dimension DW-NOMINATE scores (see McCarty et al. (1997); Poole and Rosenthal (1997); Poole (2005)). "Party Unity" measures the percentage of times a representative votes with his or her party when the parties are divided. "# Bills" is the number of bills a representative sponsored during a given term. Data on sponsored bills are from Adler and Wilkerson (n.d.). "Like Incumbent" is the share of respondents in the ANES who state they like their representative. "W&M Comm." refers to the ways and means committee and "Appr. Comm." refers to the appropriations committee.

Figure 1: Incumbent Reelection Rate in the U.S. House of Representatives



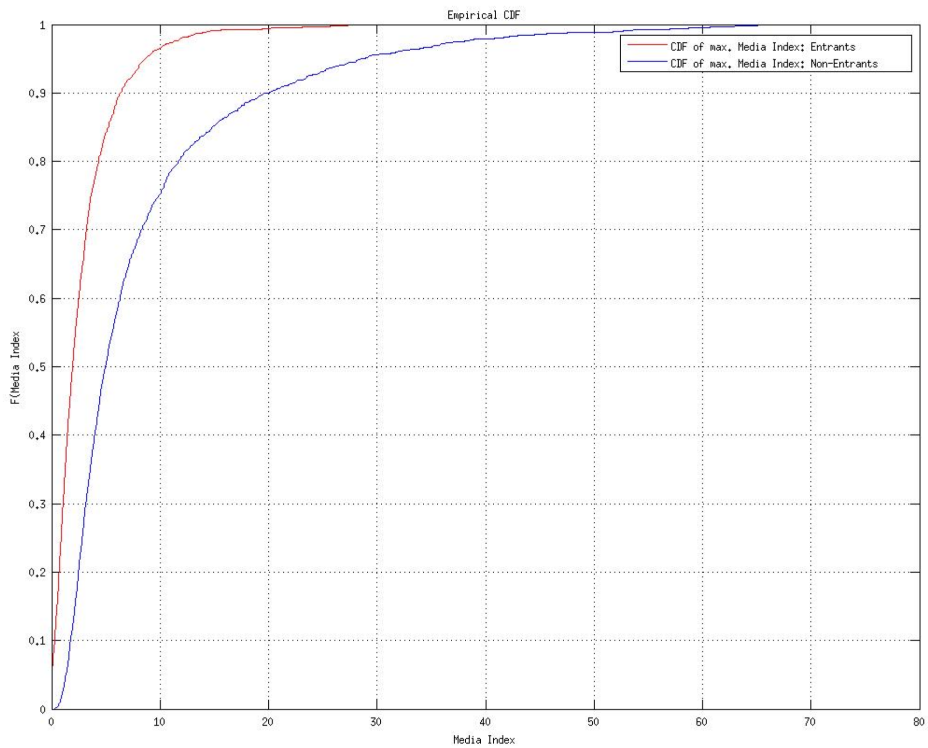
Notes: Figure shows the incumbent reelection rate in the U.S. House of Representatives. Source: http://www.opensecrets.org/bigpicture/reelect.php, accessed on October 15 2013.

Figure 2: Prominence: Entrants vs. Non-Entrants



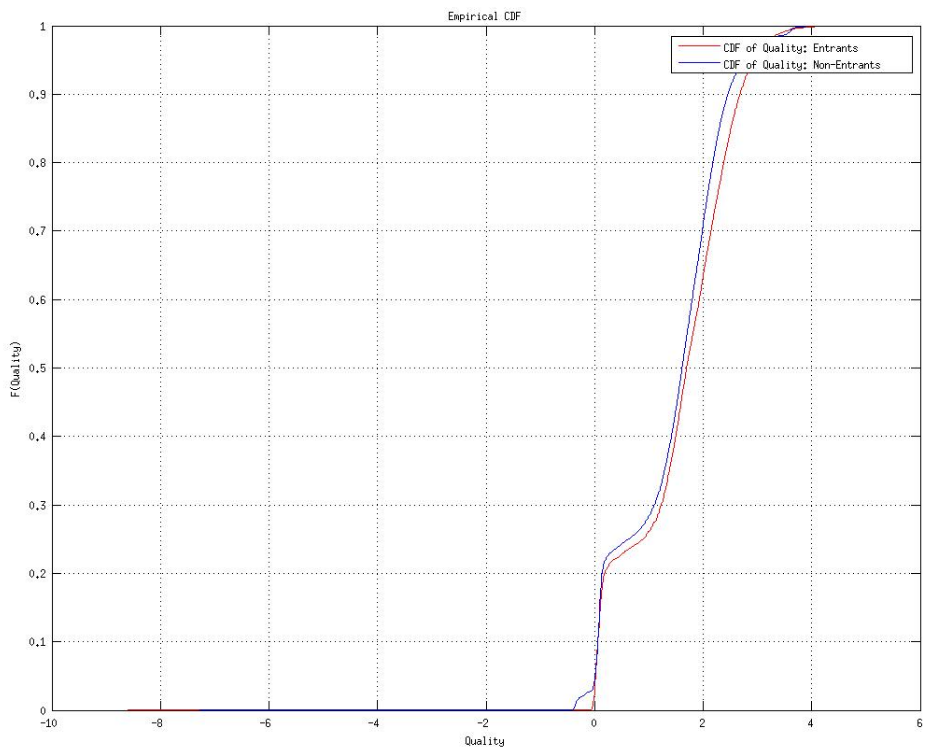
Notes: Figure shows the empirical CDF of the media index for entrants (all primary and general election candidates in U.S. Congressional elections from 2000 through 2010) as well as for all non-entrants that are captured in the pool of potential candidates, as explained in Section 2.

Figure 3: Prominence: Most Prominent Entrants vs. Most Prominent Non-Entrants



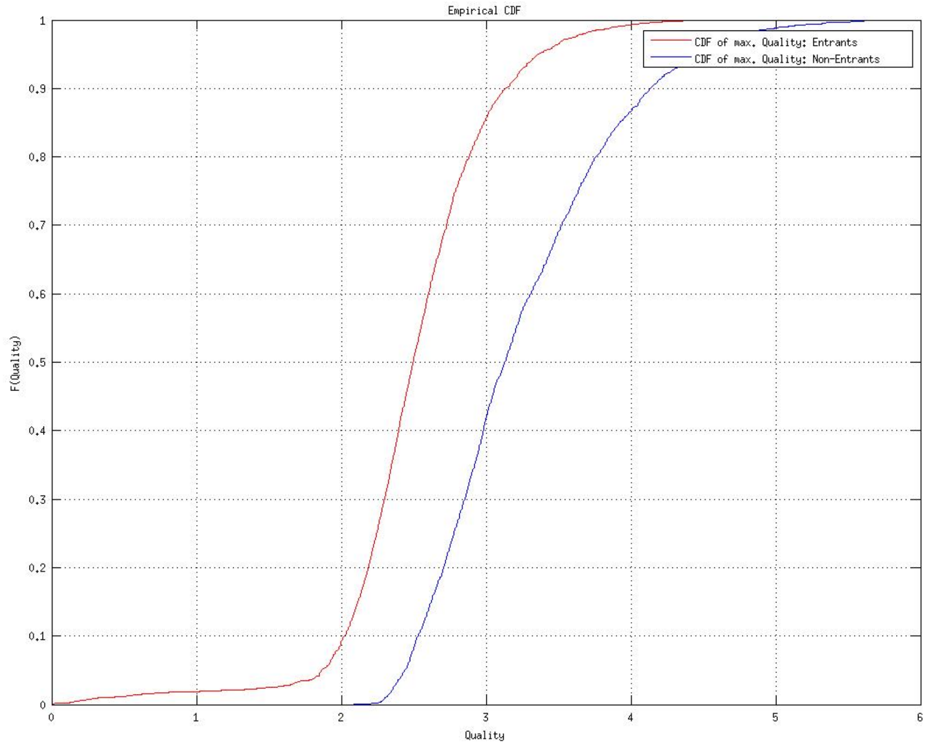
Notes: Figure shows the empirical CDF of the media index for the most prominent entrants in each district (from all U.S. Congressional primary and general elections from 2000 through 2010) as well as for the most prominent non-entrants in each state and year that are captured in the pool of potential candidates, as explained in Section 2.

Figure 4: Candidate Quality: Entrants vs. Non-Entrants



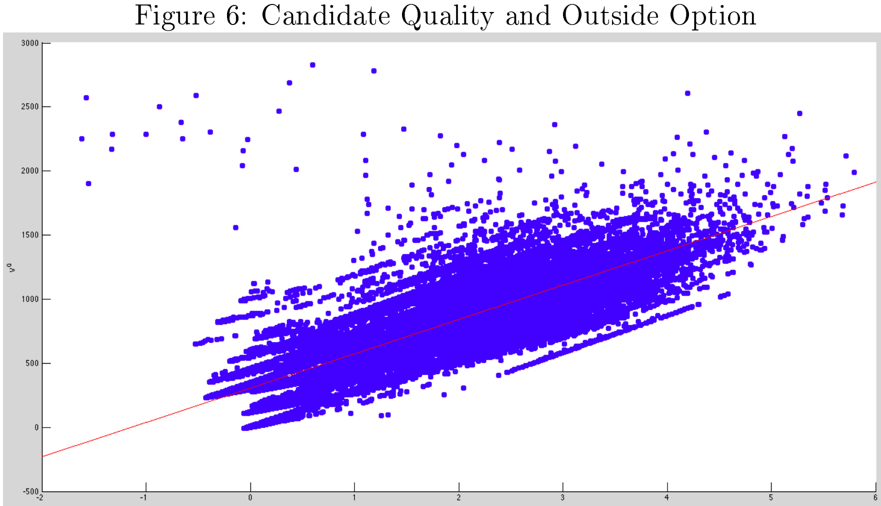
Notes: Figure shows the empirical CDF of the estimated quality for entrants (all primary and general election candidates in U.S. Congressional elections from 2000 through 2010) as well as for all non-entrants that are captured in the pool of potential candidates, as explained in Section 2.

Figure 5: Candidate Quality: Best Entrants vs. Best Non-Entrants



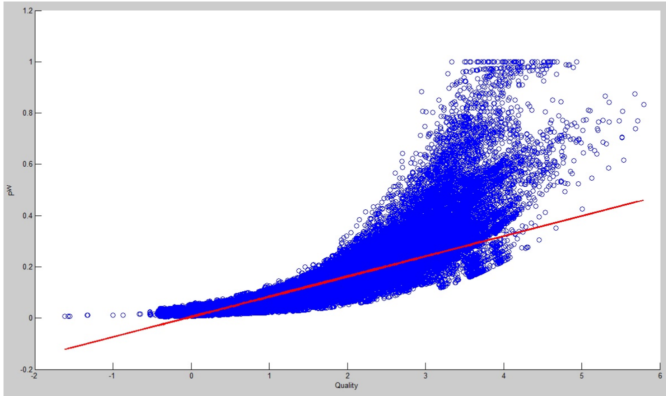
Notes: Figure shows the empirical CDF of the estimated quality for the highest quality entrants in each district (from all U.S. Congressional primary and general elections from 2000 through 2010) as well as for the highest quality non-entrants in each state and year that are captured in the pool of potential candidates, as explained in Section 2..

Figure 6: Candidate Quality and Outside Option



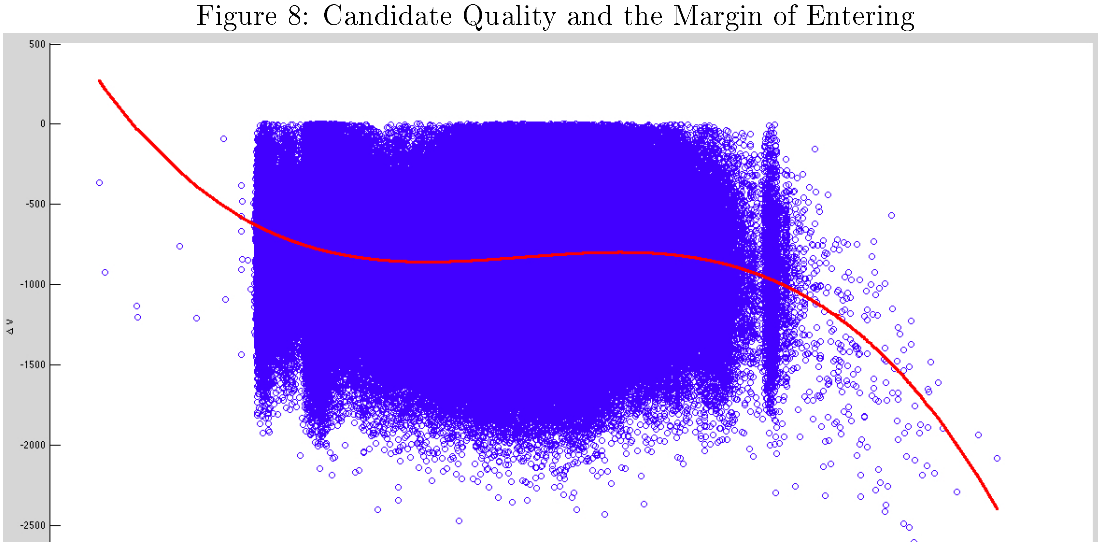
Notes: Figure shows the estimated outside options and qualities for candidates. The red line displays the linear fit.

Figure 7: Candidate Quality and the Probability of Winning



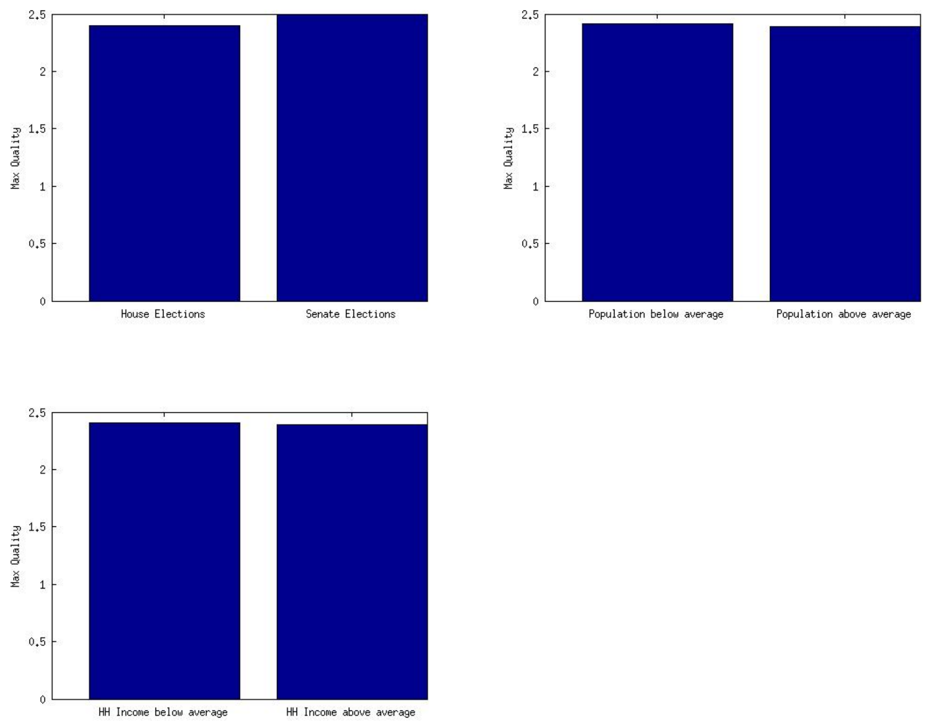
Notes: Figure shows the probability of winning, P^W, for all non-entrants in the benchmark simulated dataset on the vertical axis. The horizontal axis shows the respective estimated qualities.

Figure 8: Candidate Quality and the Margin of Entering



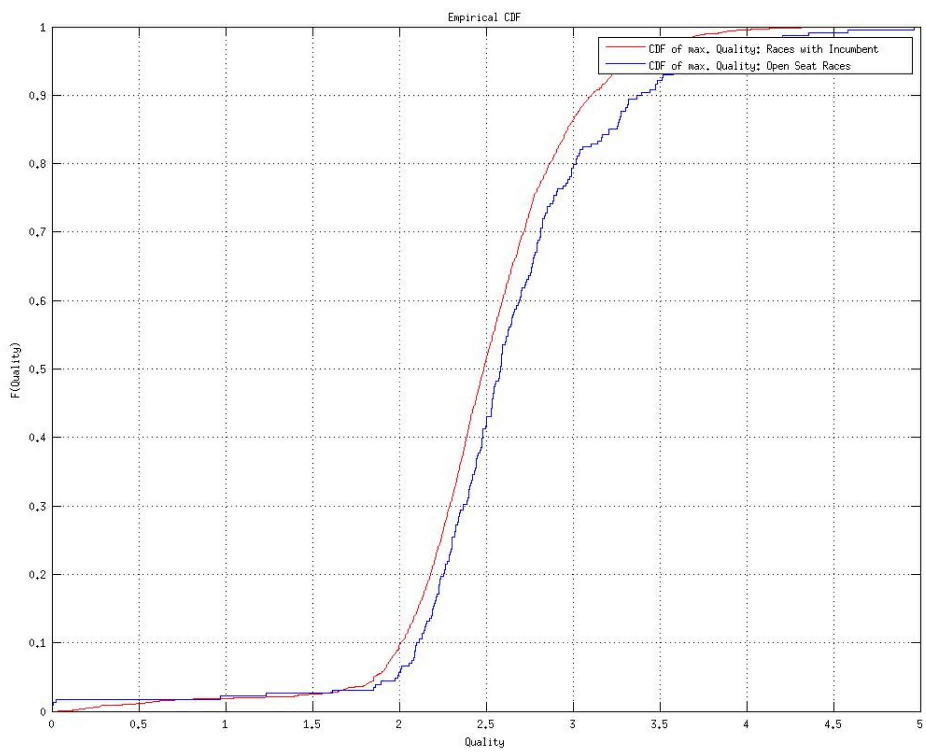
Notes: Figure shows the net benefit of entering for all non entrants, ΔV, in the benchmark simulated dataset on the vertical axis. The horizontal axis shows the respective estimated qualities. The red line is an estimated polynomial of degree 3.

Figure 9: District Characteristics and Candidate Quality



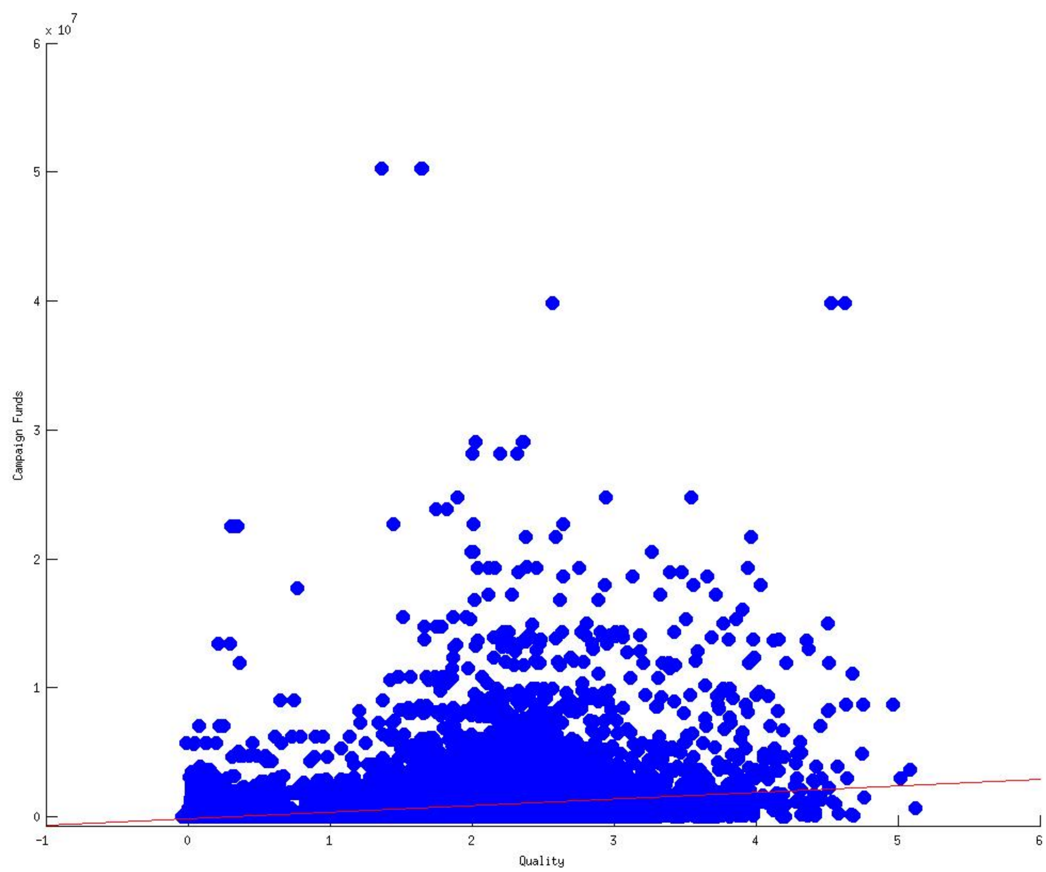
Notes: Figure shows the average quality of election winners. The first graph distinguishes between House elections and Senate elections, the second between states with a below average population and those with an above average population and the third graph distinguishes between districts with a below average median household income and an above average median household income.

Figure 10: Candidate Quality in Open Seat Races and Races with an Incumbent



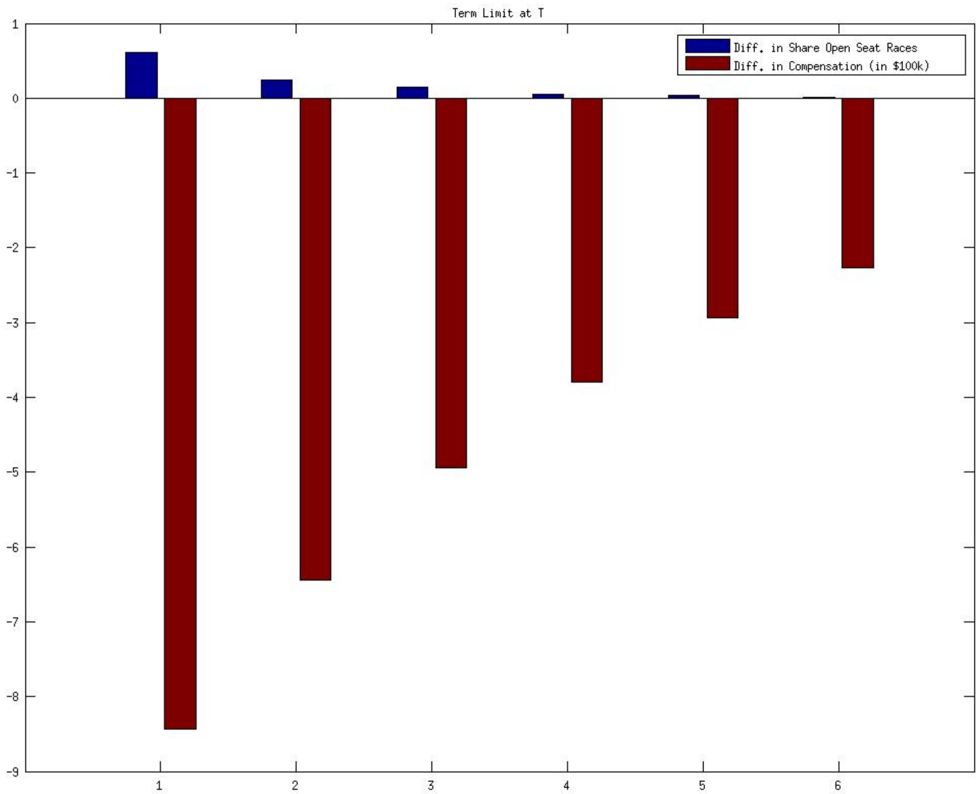
Notes: Figure compares the empirical CDF of the estimated quality for the highest quality entrants in races with an incumbent and open seat races, respectively.

Figure 11: Campaign Spending and Candidate Quality



Notes: Figure shows candidates' total campaign funds on the vertical axis and estimated qualities on the horizontal axis. The red line displays the linear fit.

Figure 12: The Two Effects of Introducing Term Limits



Notes: Figure compares the benchmark simulated data without term limits and the simulated datasets with varying term limits. The horizontal axis indicates the length of term limits T. The blue bars show the difference in the share of open seat races where the share of open seat races in the benchmark scenario is subtracted from the share of open seat races under term limits. The red bars show the equivalent wage decrease per term in office, in \$100k, that results by imposing term limits (see Section 5 for how I calibrate the model to express magnitudes in terms of \$).

Appendix

Robustness Checks

Table 17: Robustness Check: Term Limits, $\delta = 0.8$

Statistic	Benchmark	T=1	T=2	T=3	T=4	T=5	T=6
# Entrants	4.24	2.5	2.83	3.06	3.13	3.2	3.22
	0.02	0.04	0.03	0.02	0.03	0.04	0.02
Mean Quality	1.69	1.15	1.36	1.41	1.48	1.49	1.53
	0.01	0.03	0.01	0.01	0.01	0.02	0.01
Winner Quality	2.96	2.13	2.44	2.55	2.61	2.65	2.71
	0.02	0.02	0.01	0	0	0.02	0.03
Mean Media Index	0.69	0.26	0.27	0.36	0.38	0.41	0.53
	0.05	0.04	0.04	0.02	0.01	0.05	0.05
Max Media Index	2.92	0.93	1.07	1.38	1.48	1.58	1.93
	0.14	0.11	0.1	0.06	0.04	0.15	0.15
Share of Candidates Prev. Office Holders	0.38	0.26	0.24	0.25	0.25	0.27	0.32
	0	0	0	0	0	0	0
Share of Candidates Prev. Ran for Office	0.45	0.62	0.6	0.59	0.58	0.57	0.53
	0	0	0.02	0	0.01	0	0.01
Turnout	0.42	0.2	0.29	0.32	0.34	0.35	0.37
	0	0	0	0	0	0	0
Winner Quality in Races w/ Incumbent	2.88	2.67	2.46	2.54	2.59	2.62	2.68
	0.02	0.06	0.02	0	0.01	0.01	0.04
Winner Quality in Open Seat Races	3.23	2.03	2.42	2.57	2.66	2.73	2.81
	0.01	0.01	0	0.01	0.02	0.03	0
Incumbent Reelection Rate	0.82	0.97	0.89	0.9	0.9	0.89	0.9
	0	0.01	0.01	0.01	0	0	0

Notes: Table shows summary statistics for the case in which the model in Section 3 was simulated under term limits and with $\delta = 0.8$. The "Benchmark" column displays summary statistics for the benchmark case in which the model was simulated without term limits and with $\delta = 0.95$. The header of each column indicates the length of the term limit. Sampling standard errors are in parantheses.

Table 18: Robustnes Check: Compensation Increase

Statistic	Benchmark	Comp. Inc. 10% $V-V^0$=\$394,846	Comp. Inc. 10% $V-V^0$=\$789,693	Comp. Inc. 10% $V-V^0$=\$1,579,386
# Entrants	4.24	4.36	4.5	4.8
	0.02	0.02	0.04	0.02
Mean Quality	1.69	1.76	1.77	1.84
	0.01	0	0.03	0.03
Winner Quality	2.96	3.02	3.05	3.17
	0.02	0.01	0	0.02
Mean Media Index	0.69	0.72	0.78	0.88
	0.05	0.01	0	0.02
Max Media Index	2.92	3.04	3.29	3.73
	0.14	0.02	0.07	0.1
Share of Candidates Prev. Office Holders	0.38	0.39	0.4	0.44
	0	0.01	0	0.01
Share of Candidates Prev. Ran for Office	0.45	0.45	0.45	0.43
	0	0	0	0.01
Turnout	0.42	0.42	0.43	0.45
	0	0	0	0
Winner Quality in Races w/ Incumbent	2.88	2.95	2.97	3.08
	0.02	0.01	0	0.02
Winner Quality in Open Seat Races	3.23	3.26	3.31	3.47
	0.01	0.01	0.03	0.01
Incumbent Reelection Rate	0.82	0.79	0.78	0.75
	0	0	0.01	0

Notes: Table shows summary statistics for the case in which the model in Section 3 was simulated with increased financial compensation. The header of each column indicates what monetary value for holding a House seat was used to calibrate the marginal utility of money, λ. The "Benchmark" column displays summary statistics for the benchmark case in which the model was simulated under default financial compensation. Sampling standard errors are in parantheses.

Table 19: Robustness Check: Campaign Spending Limits

Statistic	Benchmark	L=0	L=100k	L=250k	L=500k	L=1m	L=1.5m	L=2m
# Entrants	4.24	5.07	5.03	5.03	5.01	4.84	4.78	4.68
	0.02	0.02	0.03	0.03	0.05	0.01	0.02	0.02
Mean Quality	1.69	1.3	1.32	1.33	1.39	1.5	1.53	1.54
	0.01	0.02	0	0	0.02	0	0.01	0.01
Winner Quality	2.96	2.44	2.45	2.49	2.54	2.68	2.74	2.74
	0.02	0.01	0	0.01	0	0.01	0.01	0.01
Mean Media Index	0.69	0.1	0.11	0.11	0.1	0.11	0.15	0.18
	0.05	0	0	0.02	0	0	0.01	0.01
Max Media Index	2.92	1.02	1.03	1.06	1	1.01	1.14	1.2
	0.14	0.02	0.02	0.08	0.03	0.01	0.05	0.05
Share Candidates Prev. Office Holders	0.38	0.33	0.32	0.33	0.33	0.32	0.33	0.34
	0	0	0	0.01	0	0	0	0
Share Candidates Prev. Ran for Office	0.45	0.5	0.5	0.5	0.5	0.5	0.49	0.48
	0	0.01	0.01	0.01	0	0	0	0
Turnout	0.42	0.31	0.31	0.32	0.33	0.35	0.36	0.36
	0	0	0	0	0	0	0	0
Winner Quality in Races w/ Incumbent	2.88	2.38	2.39	2.43	2.49	2.62	2.68	2.67
	0.02	0.01	0	0.02	0.01	0	0	0.01
Winner Quality in Open Seat Races	3.23	2.69	2.69	2.74	2.78	2.93	2.96	2.99
	0.01	0.03	0	0.01	0.04	0.02	0.01	0.02
Incumbent Reelection Rate	0.82	0.71	0.72	0.71	0.72	0.71	0.72	0.75
	0	0.01	0.01	0.01	0.01	0	0.01	0.01

Notes: Table shows summary statistics for the case in which the model in Section 3 was simulated under campaign spending limits. It was assumed that an additional $100,000 leads to an increase in the vote share of 0.5%. The “Benchmark” column displays summary statistics for the benchmark case in which the model was simulated without spending limits. The header of each column indicates the magnitude of the spending limit. Sampling standard errors in parantheses.

Data Appendix

The election data, including the names of candidates, their party affiliations, and vote shares in primary and general elections, are retrieved directly from the FEC (www.fec.gov).

Data on the population and median household earnings of Congressional districts and states are retrieved from the United States Census Bureau (factfinder2.census.gov).

To collect data on the names and party affiliations of state officials, I visited various official state election sites that are listed in Tables 20 and 21. I collected data on all elected state officials for which the data were available.

Data on county officials were downloaded from various sources. In some states, data were retrieved from official election sites such as the ones in Tables 20 and 21. In other states, the site of the Secretary of State or the respective county association has lists of county officials. In some cases, I had to use the "internet archive" http://wayback.archive.org/ in order to access earlier versions of the respective websites which allowed me to get data on previous county officials.

I used the following sources to get data on judges: The Lower Federal Court Confirmation Database (Martinek (2005)), A Multi-User Data Base on the Attributes of U.S. District Court Judges, 1789-2000 (Gryski et al. (n.d.)), and A Multi-User Database on the Attributes of U.S. Appeals Court Judges (Zuk et al. (n.d.).

The data on mayors come from Ferreira and Gyourko (2009).

I retrieved data on CEOs from Standard & Poor's Compustat Capital IQ People Intelligence. I assign each CEO to the state that his corporate HQ is associated with.

Survey data are from the American National Election Studies (ANES (2010)).

Tables 22 and 23 list the earliest and latest years for which I was able to collect data in each state for all offices.

Table 20: Data Sources for State Officials, Part 1

State	Data Source
Alaska	http://www.elections.alaska.gov/ei_return.php
Alabama	http://www.sos.alabama.gov/elections/ElectionInfo.aspx
Arkansas	http://www.sos.arkansas.Pov/elections/historicalElectionResults/Pages/default.aspx
Arizona	http://www.azsos.gov/election/PreviousYears.htm
California	http://www.sos.ca.gov/elections/statewide-elections.htm
Colorado	http://www.sos.state.co.us/pubs/elections/Results/Archives.html
Connecticut	http://www.ct.gov/sots/cwp/view.asp?a=3179&q=392194
Delaware	http://elections.delaware.gov/information/electionresults/election_archive.shtml
Florida	https://doe.dos.state.fl.us/elections/resultsarchive/index.asp
Georgia	http://www.sos.ga.gov/elections/election_results/
Plain	http://hawaii.gov/elections/results/
Iowa	http://sos.-owa.gov/elections/results/index.html
Idaho	http://www.sos.idaho.gov/elect/results.htm
Illinois	http://www.elections.il.gov/electioninformation/DownloadVoteTotals.aspx
Indiana	http://www.in.gov/sos/elections/2400.htm
Kansas	http://www.kssos.org/elections/elections_statistics.html
Kentucky	http://elect.ky.gov/results/2000-2009/Pages/default.aspx
Louisiana	http://www.sos.la.gov/tabid/153/default.aspx
Massachusetts	http://www.sec.state.ma.us/ele/
	http://www.mass.gov/anf/research-and-tech/gov-data-and-docs/state-docs-and-resources/ state-docs-online/massachusetts-election-statistics.html
Maryland	http://www.elections.state.md.us/elections/2012/index.html
Maine	http://www.maine.gov/sos/cec/elec/prior1st.htm
Michigan	http://www.michigan.gov/sos/0,4670,7-127-1633_8722—,00.html
Minnesota	http://www.sos.state.mn.us/index.aspx?page=137
Missouri	http://www.sos.mo.gov/enrweb/electionselect.asp?eid=256&arc
Mississippi	http://www.sos.ms.gov/elections_results_prior.aspx

Table 21: Data Sources for State Officials, Part 2

State	Data Source
Montana	http://sos.mt.gov/elections/Results/index.asp
North Carolina	http://www.ncsbe.gov/content.aspx?id=69
North Dakota	https://vip.sos.nd.gov/ElectionResultsPortal.aspx
Nebraska	http://www.sos.ne.gov/elec/prev_elec/index.html
New Hampshire	http://sos.nh.gov/ElectResults.aspx
New Jersey	http://nj.gov/state/elections/election-information-archive.html
New Mexico	http://www.sos.state.nm.us/Elections_Data/
Nevada	http://nvsos.gov/index.aspx?page=93
New York	http://www.elections.ny.gov/2012ElectionResults.html
Ohio	http://www.sos.state.oh.us/sos/elections/Research/electResultsMain.aspx
Oklahoma	http://www.ok.gov/elections/The_Archives/Election_Results/index.html
	http://www.ok.gov/elections/support/rslt_shl.html
Oregon	http://oregonvotes.org/pages/history/archive/index.html
Pennsylvania	http://www.electionreturns.state.pa.us/ElectionsInformation.aspx?FunctionID=0
Rhode Island	http://www.elections.state.ri.us/elections/preresults/
South Carolina	http://www.scvotes.org/2010/09/08/election_results
South Dakota	http://sdsos.gov/content/viewcontent.aspx?cat=elections&pg=/elections/pastelections.shtm
Tennessee	http://www.tn.gov/sos/election/results.htm
Texas	http://elections.sos.state.tx.us/elchist.exe
Utah	http://elections.utah.gov/election-resources/election-results
Virginia	http://www.sbe.virginia.gov/cms/Election_Information/Election_Results/Index.html
Vermont	http://vermont-elections.org/elections1/election_info.html
Washington	https://wei.sos.wa.gov/agency/osos/en/press_and_research/PreviousElections/Pages/default.aspx
Wisconsin	http://elections.state.wi.us/section.asp?linkid=155&locid=47
West Virginia	http://www.sos.wv.gov/elections/history/electionreturns/Pages/default.aspx
Wyoming	http://soswy.state.wy.us/Elections/ElectionResults.aspx

Table 22: Data Availability Part 1

State	State Govt.		Governor		State Legisl.		Judge		Mayor		US House		US Senate		CEO	
AL	1998	2010	1990	2010	1986	2002	1990	2010	1991	2007	1986	2010	1986	2010	1998	2011
AK	1990	2010	1990	2010	1986	2002	1990	2010	1990	2007	1986	2010	1986	2010	1998	2011
AZ	2010	2010	1990	2010	1986	2002	1990	2010	1990	2007	1986	2010	1986	2010	1998	2011
AR	1994	2010	1990	2010	1986	2002	1990	2010	1990	2004	1986	2010	1986	2010	1998	2011
CA	1998	2010	1990	2010	1986	2002	1990	2010	1990	2007	1986	2010	1986	2010	1998	2011
CO	1998	2010	1990	2010	1986	2002	1990	2010	1991	2007	1986	2010	1986	2010	1998	2011
CT.	1998	2010	1990	2010	1986	2002	1992	2004	1991	2007	1986	2010	1986	2010	1998	2011
DE	1998	2010	1992	2008	1986	2002	1991	2002	1990	2007	1986	2010	1986	2010	1998	2011
FL	1998	2010	1990	2010	1986	2002	1990	2010	1990	2006	1986	2010	1986	2010	1998	2011
GA	1998	2010	1990	2010	1986	2002	1990	2010	1991	2005	1986	2010	1986	2010	1998	2011
HI	1990	2010	1990	2006	1986	2002	1994	2000			1986	2010	1986	2010	1998	2011
ID	1998	2010	1990	2010	1986	2002	1992	2006	1993	2005	1986	2010	1986	2010	1998	2011
IL	1998	2010	1990	2010	1986	2002	1990	2010	1991	2007	1986	2010	1986	2010	1998	2011
IN	2000	2004	1992	2008	1986	2002	1993	2008	1991	2003	1986	2010	1986	2010	1998	2011
IA	1998	2010	1990	2010	1986	2002	1990	2010	1991	2005	1986	2010	1986	2010	1998	2011
KS	1998	2010	1990	2010	1986	2002	1990	2010	1990	2005	1986	2010	1988	2010	1998	2011
KY	2003	2007	1991	2007	1986	2002	1990	2010	1991	2004	1986	2010	1986	2010	1998	2011
LA	2003	2003	1991	2003	1987	2003	1990	2008	1990	2005	1987	2011	1987	2011	1998	2011
ME	1990	2010	1990	2010	1986	2002	1990	2003	.	.	1986	2010	1986	2010	1998	2011
MD	1998	2010	1990	2010	1986	2002	1990	2010	1991	2004	1986	2010	1986	2010	1998	2011
MA.	2002	2010	1990	2006	1985	2002	1991	2003	1990	2005	1985	2010	1986	2010	1998	2011
MI	1998	2010	1990	2010	1986	2002	1990	2010	1991	2005	1986	2010	1986	2010	1998	2011
MN	2002	2010	1990	2010	1986	2002	1992	2010	1990	2005	1986	2010	1986	2010	1998	2011
MS	2003	2011	1991	2011	1987	2003	1990	2010	1997	2005	1987	2011	1987	2011	1998	2011
MO	1996	2000	1992	2008	1985	2002	1990	2010	1990	2005	1985	2010	1986	2010	1998	2011

Notes: Table displays the time range for which data in the respective state and office are available.

Table 23: Data Availability Part 2

State	State Govt.		Governor		State Legisl.		Judge		Mayor		US House		US Senate		CEO	
MT	1996	2008	1992	2008	1986	2002	1990	2010	1991	2005	1986	2010	1986	2010	1998	2011
NE	2002	2010	1990	2010	1986	2002	1990	2010	1990	2005	1998	1998	1986	2010	1998	2011
NV	1998	2010	1990	2010	1986	2002	1990	2010	1992	2005	1986	2010	1986	2010	1998	2011
NH	2004	2008	1990	2010	1986	2002	1990	2001	1991	2005	1986	2010	1986	2010	1998	2011
NJ	1993	2009	1993	2009	1985	2003	1990	2003	1990	2007	1985	2010	1987	2010	1998	2011
NM	1998	2002	1990	2006	1986	2002	1990	2010	1990	2006	1986	2010	1986	2008	1998	2011
NY	1998	2010	1990	2010	1986	2002	1990	2004	1991	2005	1986	2010	1986	2010	1998	2011
NC	1992	2008	1992	2008	1990	2002	1990	2010	1991	2005	1990	2010	1990	2010	1998	2011
ND	1996	2010	1992	2008	1986	2002	1990	2010	1990	2002	1986	2010	1986	2010	1998	2011
OH	1998	2010	1990	2010	1986	2002	1990	2010	1991	2005	1986	2010	1986	2010	1998	2011
OK	1998	2010	1990	2010	1985	2002	1990	2010	1990	2005	1985	2010	1986	2010	1998	2011
OR	2000	2008	1990	2010	1986	2002	1990	2008	1990	2004	1986	2010	1986	2010	1998	2011
PA	2000	2008	1990	2010	1986	2002	1990	2009	1991	2007	1986	2010	1986	2010	1998	2011
RI	1998	2010	1990	2010	1986	2002	1992	2002	1990	2005	1986	2010	1986	2008	1998	2011
SC	2002	2010	1990	2010	1985	2002	1990	2004	1991	2004	1985	2010	1988	2008	1998	2011
SD	1998	2010	1990	2010	1986	2002	1990	2006	1991	2003	1986	2010	1986	2010	1998	2011
TN	1990	2006	1990	2006	1986	2002	1990	1985	1990	2005	1986	2010	1986	2010	1998	2011
TX	1998	2010	1990	2010	1986	2002	1990	2010	1990	2006	1986	2010	1986	2010	1998	2011
UT	2000	2008	1992	2010	1986	2002	1991	2006	1991	2005	1986	2010	1986	2010	1998	2011
VT	2000	2010	1990	2008	1986	2002	1990	2003	.	.	1986	2010	1986	2010	1998	2011
VA	2006	2008	1993	2009	1985	2003	1990	2004	1990	2006	1985	2010	1985	2010	1998	2011
WA	2004	2008	1992	2008	1986	2002	1990	2010	1991	2005	1986	2011	1986	2011	1998	2011
WV	2000	2008	1992	2011	1986	2002	1990	2010	1991	2001	1986	2010	1986	2010	1998	2011
WI	1998	2010	1990	2010	1986	2002	1990	2009	1990	2005	1986	2010	1986	2010	1998	2011
WY	1990	2010	1990	2010	1986	2002	1990	2010	.	.	1986	2010	1986	2010	1998	2011

Notes: Table displays the time range for which data in the respective state and office are available.