

The Impact of Unions on Municipal Elections and Urban Fiscal Policies*

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The efficient decentralized provision of public goods requires that special interest groups, such as municipal unions, do not exercise undue influence on the outcome of municipal elections and local fiscal policies. We develop a new political economy model in which a union can endorse one of the candidates in a local election. A politician that prefers an inefficiently large public sector can, therefore, win an election if the union can provide sufficiently strong support during the campaign. We have assembled a unique data set that is based on union endorsements that are published in leading local newspapers. Our empirical analysis focuses on municipal elections in the 150 largest cities in the U.S. between 1990 and 2012. We find that challengers strongly benefit from endorsements in competitive elections. Challengers that receive union endorsements and successfully defeat an incumbent also tend to adopt more union friendly fiscal policies.

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1 Introduction

States and local jurisdictions play essential roles in the allocation of public goods and services in the U.S. and other developed countries that have adopted a decentralized organization of government (Oates, 1972). The efficient decentralized provision of public goods requires that local politicians adopt policies that are preferred by the “median voter.”¹ Inefficiencies arise when special interest groups can influence the political process. This paper focuses on the most important local special interest group: municipal unions.² We provide a new model that captures the impact of local unions on the outcome of municipal elections and local fiscal policies and tests the empirical implications of the model using a new unique data set.

Since the early 1960’s public sector unions have increasingly represented municipal workers in collective bargaining in most U.S. cities. While there is some debate in the literature about the objectives of municipal unions, there is broad agreement that municipal unions can extract rents from local governments.³ We model the behavior of a union as seeking direct transfers from a local government to the union and its members. These transfers can take the form of higher wages and benefits, but they may also include more favorable work rules or higher levels of employment.⁴ From the perspective of voters, who primarily care about the quality and the costs of providing

¹Calabrese, Epple, and Romano (2011) suggest that distortions from inter-jurisdictional competition must also be small to obtain efficient allocations.

²According to 2011 CPS data, 43.1 percent of local public employees are union members and 46.6 percent are covered under union contract. 63.5 percent of police officers and 61.1 percent of firefighters are union members.

³For a detailed discussion of the objectives of unions see Farber (1986).

⁴Lewis (1990) suggests that municipal wages are, on average, 8 to 12 percent higher than wages in the private sector. More recently, Hoxby (1996) finds positive effects of unionization on teacher compensation. Frandsen (2011) finds similar effects for firefighters and police officers who are also studied in this paper.

local public goods and services, transfers to unionized workers create inefficiencies, since the city does not operate at a cost minimum.⁵ Everything else equal, voters prefer that the city pays competitive wages and benefits avoiding unnecessary transfers to unionized workers.

Political economy reasons may prevent the city from operating efficiently since local politicians have incentives to accommodate public sector unions.⁶ While there is some agreement that private companies maximize profits or shareholder value, there is less agreement about the objectives of local politicians. Local politicians care about the welfare of the citizens, but they also want to win elections. Public sector unions can affect the electoral outcomes by mobilizing its members, increasing voter-turnout, endorsing a politician, and providing staffing for a campaign. We model the objective function of a local politician as a weighted average of the objectives of voters and the objectives of a municipal workers' union. Moreover, politicians differ in the weight that they assign to the public cause. As a consequence, some politicians are more union-friendly than others.

We consider a game in extensive form in which an incumbent faces a challenger in a local election. This election can be thought of as a primary within a party that controls a city or a general election between candidates from different parties in a competitive, non-partisan environment. Voters know the preferences of the incumbent, based on his or her historical record in office. Voters face more uncertainty about the position of the challenger. One key assumption of our model is that the union is better informed about the preferences of potential challengers than the public. This assumption is plausible since unions often track politicians and have better

⁵Feiveson (2011) shows that unions can also determine how cities spend intergovernmental transfers. Cities in states with with pro-union collective bargaining laws spend a higher fraction of transfers on increased wages than cities in other states.

⁶In the absence of market discipline, Gregory and Borland (1986) argue that the public sector outcomes are primarily determined by political considerations.

access to candidates than individual voters.

Given these informational asymmetries, the union can convey a signal to voters by endorsing a candidate. The voters observe the endorsement decision of the union before the election. Voters also receive a common preference shock associated with each politician. The outcome of each election is, therefore, *ex ante* uncertain. Since politicians cannot commit to a policy or a transfer to the union prior to the election, the politician that wins the election implements his preferred policy when in office. We focus our analysis on perfect Bayesian equilibria. We provide conditions which guarantee that equilibria exist and characterize their properties.

One key finding of the theoretical analysis highlights the inherent conflict faced by the municipal union. Union support increases the chances of winning the election. This “muscle effect” depends on how well the union is organized in the city and how much support it can generate among likely voters.⁷ At the same time, the endorsement generates a negative informational externality. Voters observe the endorsement and update their beliefs about the position of the challenger. If the challenger receives the endorsement, voters will infer that the challenger places a higher weight on the objectives of the union than the incumbent. A necessary condition for the existence of an equilibrium with endorsement is that the positive “muscle effect” is larger than the negative informational effect. This condition is not sufficient to generate an endorsement if the difference in positions between politicians is small or if the endorsement costs are large.

The second contribution of the paper is that we have assembled a novel data set

⁷Voter turnout is notoriously low in many municipal elections, which makes it possible that get-out-the vote campaigns of unions can be effective. Courant, Gramlich, and Rubinfeld (1979) argue that unions care about employment size to increase the political strength of the union. Bennet and Orzechowski (1983) provide some evidence that suggests that unions have a significant impact on local elections.

that includes municipal elections in the largest cities in the U.S. The unique feature of our data set is that we have collected detailed information on union endorsements. To our knowledge, there have been no previous papers that empirically investigate the impact of union endorsements. Previous empirical papers have used different measures of union strength or unions activity. One commonly used variable constructed by Freeman and Valletta (1988) measures the collective bargaining strength of unions at the state level. Other popular variables are the fraction of of unionized workers or the fraction of workers that are covered by a union contract. While these are interesting outcome variables, they are not direct measures of a union’s political activities. To obtain a better measure we focus on union endorsements.

We collected the information about union endorsements by searching electronic archives of local newspapers. Most cities in our sample have, at least, one large local newspaper which covers local political events. The influence of newspapers on voting behavior has been widely studied in political economics.⁸ Local newspapers provide an important forum for politicians and unions to announce their positions and are, therefore, reliable sources to obtain endorsement information.

Our data set consists of general and run-off elections held in large U.S. cities during the past two decades. We supplement these data with U.S. Census data that characterize urban fiscal policies. Our final sample consists of 292 elections that pitted an incumbent mayor against a challenger in one of 92 different cities. Our paper is the first paper that provides a rigorous empirical analysis of the effects of union endorsements on electoral and economic outcomes for a large sample of U.S. cities.

⁸Snyder and Stromberg (2010) find that voters have better information about their House Representatives if there is local newspaper coverage. Knight and Chiang (2011) find that newspapers endorsements are influential in voters’ decisions during presidential elections. Gerber, Karlan, and Bergan (2009) find that local newspapers affect readers’ voting decisions in gubernatorial elections.

The third contribution of the paper is that we provide new evidence and quantify the impact of unions on local elections and fiscal policies. Our empirical analysis reveals some evidence that a union endorsement leads to an increase in the win probability of the politician who receives the endorsement. There is stronger evidence that challengers benefit from endorsements.

Our model also has significant implications for the change in public policy after the election. Consider the case in which the union endorses the challenger, and the challenger defeats the incumbent in the election. In this case, our model predicts an increase in the size of the public sector following the election. Our empirical analysis provides some evidence suggesting that challengers that receive a union endorsement adopt more union-friendly fiscal policies after they have defeated an incumbent.

Our paper is closely related to the topic of the special edition of the journal which focuses on aggregate implications of local public finance. It has been widely recognized that fiscal federalism and interjurisdictional competition can have a variety of positive economic effects. Tiebout (1956) argues that fiscal competition leads to a better tailoring of expenditure policies to local needs.⁹ “Tiebout competition” may also lead to efficiency gains in the provision of public goods.¹⁰ Besely and Case (1995) show that fiscal decentralization can lead to increased levels of efficiency due to “Yard Stick Competition.” Brennan and Buchanan (1980) argue that decentralization is an effective mechanism to control governments’ expansive tendencies due to increased electoral accountability. Epple and Romer (1991) show that decentralization provides an effective tool to limit potentially harmful redistribution. Finally, decentralization

⁹Epple and Sieg (1999) and Epple, Romer, and Sieg (2001) provide an empirical test of these sorting models.

¹⁰Competition between the public and private sector may also be beneficial. Friedman (1955), suggested to use vouchers to increase competition among public and private schools to raise school quality. Hoxby (2000) provides some empirical evidence that suggests that competition among public school districts increases test scores.

may also lead to more experimentation with innovative policies (Rose-Ackerman, 1980).

Despite these potential benefits of decentralization, some researchers and policy analysts have argued that the recent economic recession has put state and municipal finance under stress which calls into question the sustainability of fiscal federalism.¹¹ Some local politicians appear willing to accommodate local unions and public employees, leading to an adoption of policies that are not in the interest of voters.¹² These inefficiencies in local public finance can have potentially large implications for the aggregate economy. The analysis of this paper addresses these questions by focusing on the impact of municipal unions on local fiscal policies.¹³

The rest of the paper is organized as follows. Section 2 provides a model to analyze the impact of unions on municipal elections and fiscal policies. Section 3 describes the new data set that we have collected for the empirical analysis of this paper. Sections 4 presents the main empirical findings. Section 5 offers some conclusions that can be drawn from this analysis.

¹¹Alesina and Spolaore (1997) have argued that fiscal decentralization may be excessive.

¹²The New York Times published an article by Santos and Chen (2012) on the front page claiming that Michael Mulgrew, the president of the New York teachers' union, is a "coveted friend for the people who hope to become the next mayor."

¹³There has been little research that focuses on special interest groups at the state or local level. Ferreira and Gyourko (2009) find no evidence that political partisanship of the mayors affect the size of city government, the allocation of local public spending, or crime rates. Boustan, Ferreira, Winkler, and Zolt (2011) find that growing inequality is associated with an expansion in government revenues and expenditures on a wide range of services in U.S. municipalities and school districts.

2 A Model

We develop a model to study the impact of a special interest group on electoral outcomes and fiscal policies in a city.¹⁴

2.1 Preferences and Actions

There are three types of players in our model: a large number of voters, a union, and two politicians seeking to be elected to become the mayor of a city. We distinguish between an incumbent denoted by I and a challenger denoted by C .

There is a continuum of voters with mass normalized to one. Voters care about the policy enacted after the election. Let R denote the exogenously given revenue available to the municipality and T the transfer to the union.¹⁵

Assumption 1

The quality of public good provision is given by

$$q = q(R - T) \tag{1}$$

The transfer to the union thus creates an inefficiency in public good provision. Voters would prefer to set $T = 0$.

The union only cares about the magnitude of the transfer that it receives from the elected politician.¹⁶

¹⁴Coate and Morris (1995) study transfers to special interest groups under commitment. Grossman and Helpman (1996) study how special interest groups make contributions to affect the equilibrium policy platforms under commitment. Grossman and Helpman (1999) treat endorsements as a language of communication between well-informed interest group leaders and lesser informed members.

¹⁵It is straight forward to endogenize local revenues. The key results of the paper only depend on the fact the politicians can be ranked on a one-dimensional index by voters.

¹⁶Our model abstracts from the fact that unions can have a positive impact on welfare by affecting

Assumption 2

The utility function of the union is given by $u_g(T)$, which is strictly increasing in T .

Prior to the election the union can endorse, at most, one politician and provide active campaign support for the endorsed politician. Let d_g denote an indicator variable that is defined as follows:

$$d_g = \begin{cases} 1 & : \text{ if the union endorses the incumbent,} \\ 0 & : \text{ if the union endorses neither candidate,} \\ -1 & : \text{ if the union endorses the challenger.} \end{cases} \quad (2)$$

Endorsement costs are denoted by $c \in \{c^I, c^C\}$. The endorsement influences the outcome of the campaign by shifting voter preferences. As explained in detail below the union chooses an endorsement strategy to maximize expected utility.

Voters' preferences satisfy the following conditions:

Assumption 3

a) The utility function of each voter is additively separable between the utility associated with policy q , a common preference shock for each the politician, and the endorsement effect of the union. Hence voter's preferences can be expressed as:

$$\begin{aligned} u_v(q^I) + v^I + a^I 1_{\{d_g=1\}} \\ u_v(q^C) + v^C + a^C 1_{\{d_g=-1\}} \end{aligned} \quad (3)$$

where a_C and a_I measure the "muscle" effect of the endorsement.

b) $v = v^C - v^I$ is a continuous random variable with full support and distribution denoted by $F(\cdot)$.

For simplicity we assume that utility is the same for all voters.¹⁷

the quality of local goods and services.

¹⁷All of our main results can be extended cases with voter heterogeneity over policies.

Politicians care about voters, but they also need to win elections. Since the union can affect the electoral outcome, politicians care about unions. We model the objective function of a politician as a weighted average of voters' preferences and union preferences. Some politicians are more "pro-union" than others. We capture this heterogeneity by assuming that politicians differ in the weight that they place on union preferences.

Assumption 4

a) A politician has a utility function that is given by:

$$(1 - \theta) u_p(q) + \theta u_p(T) \tag{4}$$

where $\theta \in [0, 1]$ is drawn from distribution $G(\cdot)$.

b) For each value of θ there exists a unique maximizer of the politician's utility, denoted by $T_0(\theta)$, where $T_0(\theta)$ is strictly increasing in θ .

Assumption 4b implies that the function T_0 is invertible, hence the politicians type is given by $\theta = T_0^{-1}(q)$.

2.2 Timeline, Information, Strategies, and Equilibrium

We model the game between voters, the union, and the two politicians as a sequential game in extensive form with incomplete information. The timing of decisions is as follows:

1. The challenger type is drawn from the distribution $G(\theta)$.
2. The type is known to the union, but unknown to the voters.
3. The union decides whether or not to endorse one of the politicians.
4. The voters observe the endorsement and update their beliefs.

5. Voters elect one of the two politicians as the mayor of the city.
6. The mayor implements his or her preferred policy.

See Figure 1 for an illustration.

A pure strategy for the union is a mapping from the type space of challengers, denoted by $\Theta = [0, 1]$, into the endorsement space, $E = \{1, 0, -1\}$.

A pure strategy for each voter is a mapping from the endorsement space $E = \{1, 0, -1\}$ into the voting space, $V = \{1, -1\}$. Since there are only two candidates, sincere voting is a dominant strategy for each voter.

A pure strategy for a politician is mapping from Θ into the transfer space. As we have discussed above, a politician cannot commit to a policy or a transfer to the union prior to the election. Hence, the dominant strategy of a politician is to implement $T_0(\theta)$ after the election.

The equilibrium concept is a perfect Bayesian equilibrium in pure strategies.

2.3 Equilibrium

For given value of θ^I , the equilibrium strategy of the union can be characterized by a partition of Θ denoted by $\{\Theta_1, \Theta_0, \Theta_{-1}\}$ such that

$$d_g = \begin{cases} 1 & : \theta^C \in \Theta_1 \\ 0 & : \theta^C \in \Theta_0 \\ -1 & : \theta^C \in \Theta_{-1} \end{cases} \quad (5)$$

Given this strategy, voters will update their beliefs about the challenger according to Bayes' Rule.¹⁸ The incumbent's probability of winning the election conditional on

¹⁸Here we implicitly assume that all Θ_j are not empty. We consider the case of corner solutions below.

the endorsement strategy is, therefore, given by:

$$\begin{aligned}
S_1 &= F(u_v^I - E[u_v^C \mid \theta^C \in \Theta_1] + a^I) \\
S_0 &= F(u_v^I - E[u_v^C \mid \theta^C \in \Theta_0]) \\
S_{-1} &= F(u_v^I - E[u_v^C \mid \theta^C \in \Theta_{-1}] - a^C)
\end{aligned} \tag{6}$$

The expected utility of the union is then:

$$\begin{aligned}
\pi_1 &= S_1 u_g^I + (1 - S_1) u_g^C - c^I \\
\pi_0 &= S_0 u_g^I + (1 - S_0) u_g^C \\
\pi_{-1} &= S_{-1} u_g^I + (1 - S_{-1}) u_g^C - c^C
\end{aligned} \tag{7}$$

Proposition 1 provides conditions that guarantee an equilibrium exists, with all three actions $d_g = \{1, 0, -1\}$ arising as equilibrium outcomes:

Proposition 1 *Define the strategy of the union as:*

$$d_g = \begin{cases} 1 & : \theta^C < K_1(\theta^I) \\ 0 & : \theta^C \in [K_1(\theta^I), K_2(\theta^I)] \\ -1 & : \theta^C > K_2(\theta^I) \end{cases}$$

with $0 \leq K_1(\theta^I) \leq \theta^I \leq K_2(\theta^I) \leq 1$. $K_1(\theta^I)$ and $K_2(\theta^I)$ are the solution to the following two equations:

$$T_0^{-1} \left\{ u_g^{-1} \left(u_g^I - \frac{c^I}{F(u_v^I - E[u_v^C \mid \theta^C < K_1]) + a^I} - F(u_v^I - E[u_v^C \mid \theta^C \in [K_1, K_2]]) \right) \right\} = K_1$$

$$T_0^{-1} \left\{ u_g^{-1} \left(u_g^I + \frac{c^C}{F(u_v^I - E[u_v^C \mid \theta^C \in [K_1, K_2]]) - F(u_v^I - E[u_v^C \mid \theta^C > K_2]) - a^C} \right) \right\} = K_2$$

This strategy is an equilibrium strategy if the advertisement effect is sufficiently strong, i.e. if a^I and a^C satisfy:

$$\begin{aligned}
E[u_v^C \mid \theta^C < K_1(\theta^I)] - E[u_v^C \mid \theta^C \in [K_1(\theta^I), K_2(\theta^I)]] &< a^I \\
E[u_v^C \mid \theta^C \in [K_1(\theta^I), K_2(\theta^I)]] - E[u_v^C \mid \theta^C > K_2(\theta^I)] &< a^C
\end{aligned}$$

A proof of Proposition 1 is provided in Appendix A.

Broadly speaking, Proposition 1 shows that the union endorsement has two effects in equilibrium. First, it directly increases the probability of winning of the endorsed candidate. We denote this as the “muscle effect.” In practice, the union can accomplish this by mobilizing its members and increasing turnout of pro-union voters, a strategy also known as “mobilizing the base.” Moreover, local unions sometimes provide staffing or administrative support for campaigns of politicians that are endorsed.¹⁹

Second, the endorsement conveys information to uninformed voters about the position of the challenger. We denote this effect as the “informational externality.” In our model, the informational externality is purely negative, harming the politician that receives the endorsement. It is not difficult to extend our model in which we have a second type of voter for whom the union endorsement is a positive informational externality. We can view the second type of voter as ideological assuming that this type only turns out for an election if the union explicitly tells him to do so.

A necessary condition for the existence of an equilibrium with endorsement is that the positive “muscle effect” is larger than than the negative “informational externality.” This condition is not sufficient to generate an endorsement if the difference in positions between politicians is small or if the endorsement costs are large.

Proposition 1 assumes an interior solution for the thresholds that characterize the union’s strategy, i.e. $K_1, K_2 \in (0, 1)$. We can extend the result in Proposition 1 and consider three special cases that arise when the solution to the system of equations that defines the thresholds has, at least, one corner solution. The first case arises when $K_1 \leq 0$, $K_2 \in (0, 1)$. In this case, $\{\theta^C : \theta^C < K_1\} = \emptyset$, so $d_g = 1$ will never

¹⁹We mainly abstract from campaign contributions which play a much larger role in state and federal elections.

be selected in equilibrium. To guarantee that $d_g = 1$ is not a profitable deviation, we need to specify voters' belief off the equilibrium path, i.e. specify beliefs about θ^C when $d_g = 1$ is played off the equilibrium path.

Assumption 5 *If $\Theta_1 = \emptyset$ and voters observe $d_g = 1$, they believe that $\theta^C = 0$*

Assumption 5 then implies that $E(u_v^C | d_g = 1) = E(u_v^C | \theta^C = 0)$. The probabilities of winning the election are now given by:

$$\begin{aligned} S_1 &= F(u_v^I - E[u_v^C | \theta^C = 0] + a^I) \\ S_0 &= F(u_v^I - E[u_v^C | \theta^C \in [0, K_2(\theta^I)]]) \\ S_{-1} &= F(u_v^I - E[u_v^C | \theta^C \in (K_2(\theta^I), 1]] - a^C) \end{aligned} \quad (8)$$

A corner solution arises if $K_1(\theta^I)$ satisfies the following condition:

$$K_1 = T_0^{-1} \left\{ u_g^{-1} (u_g^I - \frac{c^I}{F(u_v^I - E[u_v^C | \theta^C = 0] + a^I) - F(u_v^I - E[u_v^C | \theta^C \in [0, K_2]])}) \right\} \leq 0$$

The equilibrium strategy of the union in this case is given by:

$$d_g = \begin{cases} 0 & : \theta^C \in [0, K_2(\theta^I)] \\ -1 & : \theta^C \in (K_2(\theta^I), 1] \end{cases} \quad (9)$$

The second case arises when $K_1 \in (0, 1)$, $K_2 \geq 1$. Similar to the first case, we need to specify voters' beliefs about θ^C when $d_g = -1$ is taken.

Assumption 6 *If $\Theta_{-1} = \emptyset$ and voters observe $d_g = -1$, they believe that $\theta^C = 1$.*

Assumption 6 implies that $E(u_v^C | d_g = -1) = E(u_v^C | \theta^C = 1)$. Again define:

$$\begin{aligned} S_1 &= F(u_v^I - E[u_v^C | \theta^C \in [0, K_1(\theta^I)]]) + a^I \\ S_0 &= F(u_v^I - E[u_v^C | \theta^C \in [K_1(\theta^I), 1]]) \\ S_{-1} &= F(u_v^I - E[u_v^C | \theta^C = 1] - a^C) \end{aligned} \quad (10)$$

Let $K_2(\theta^I)$ satisfies the following equation:

$$K_2 = T_0^{-1} \left\{ u_g^{-1} \left(u_g^I + \frac{c^C}{F(u_v^I - E[u_v^C | \theta^C \in [K_1, 1]]) - F(u_v^I - E[u_v^C | \theta^C = 1] - a^C)} \right) \right\} \geq 1$$

while $K_1 \in (0, 1)$. The equilibrium strategy of the union is given by:

$$d_g = \begin{cases} 1 & : \theta^C \in [0, K_1(\theta^I)) \\ 0 & : \theta^C \in [K_1(\theta^I), 1] \end{cases} \quad (11)$$

The last case arises when $K_1 \leq 0$, and $K_2 \geq 1$. Specifying off-equilibrium beliefs as before, we obtain the following probabilities:

$$\begin{aligned} S_1 &= F(u_v^I - E[u_v^C | \theta^C = 0] + a^I) \\ S_0 &= F(u_v^I - E[u_v^C | \theta^C \in [0, 1]]) \\ S_{-1} &= F(u_v^I - E[u_v^C | \theta^C = 1] - a^C) \end{aligned} \quad (12)$$

The equilibrium strategy of the union is then given by:

$$d_g = \begin{cases} 0 & : \theta^C \in [0, 1] \end{cases} \quad (13)$$

To illustrate the main results of Proposition 1, we consider a fully parametrized numerical example of our model.²⁰ The optimal strategy of the union is plotted in Figure 2. The two axes denote the type of the incumbent and the type of the challenger. The lines in the plot denote the cut-off levels, K_1 and K_2 that characterize the optimal strategy of the union. The 45 degree line satisfies $\theta^I = \theta^C$ and falls between the two cutoff values K_1 and K_2 . There are three subsets of the underlying type space that deserve special attention. Subset 1 is the set of θ^I in which only $d_g \in \{0, -1\}$ arise as equilibrium outcomes. Subset 2 is the set of θ^I in which $d_g \in \{1, 0, -1\}$ arise in outcomes. Subset 3 is the set of θ^I with only $d_g \in \{0, 1\}$ are chosen in equilibrium.

²⁰Details about our parameterization and calibration are available upon request from the authors.

We have also performed some comparative static exercises. First, we investigate how the optimal strategy varies as we decrease the endorsement costs. We find that for every value of θ^I the region of θ^C with no endorsement decreases. The cheaper the endorsement is, the more active is the union. Second, we decrease the advertising effect. We find that for every value of θ^I , the region for θ^C with no endorsement increases. The intuition is that the lower advertising effect makes it harder to offset the negative signaling effect of the endorsement. Hence the union is less active.

We can also show the equilibrium that we have characterized in Proposition 1 is unique in the following sense.

Proposition 2 *The above equilibrium is the only equilibrium with all three actions $d_g = \{1, 0, -1\}$ being used in the equilibrium strategy of the union.*

A proof of Proposition 2 is provided in Appendix A.

Equilibrium imposes strong restrictions on the change in public policy after an election. Consider the case in which the union endorses the challenger, and the challenger defeats the incumbent in the election. In that case, our model predicts an increase in the size of the public sector following the election. Similarly, if the union endorses the incumbent, and the challenger wins the election, the model predicts a decrease in the size of the public sector. We expect only small policy changes if nobody is endorsed. If an incumbent is reelected, the size of public sector does not change. Proposition 3 formalizes this result.²¹

Proposition 3

- a) *If $d_g = 1$ and the challenger wins then $\Delta T < 0$*
- b) *If $d_g = -1$ and the challenger wins then $\Delta T > 0$*
- c) *If $d_g = 0$ and the challenger wins then $|\Delta T| \leq \epsilon$*

²¹Here we only consider the case of an interior solution. The corner solution cases can be analyzed using a similar logic.

A proof of Proposition 3 is provided in Appendix A.

3 Data

Our empirical analysis focuses on the 150 most populous cities in the U.S., as classified by the 2010 U.S. Census. For each city, we focus on elections that were held between 1990 and 2012. In our final sample, 10.87 percent of all cities are located in the east, 34.78 percent in the west, 35.87 in the south, and 18.48 in the midwest. Cities in our sample can be classified into two types. First, there are partisan cities that require political candidates to enter a race with a party affiliation. In our final sample, partisan elections are only held in 15.22 percent of all cities in the sample. The vast majority of cities are thus non-partisan. In these cities, candidates are not allowed or are not obligated to run with a party affiliation.²² In some non-partisan elections, it is common knowledge which candidates are members of and backed by which parties; in others, parties are not involved.²³

There are two different types of elections that occur during our sample period: general elections and run-off elections. General elections have potentially more than two candidates. If the general election does not determine a winner, a run-off election is held between the two candidates that received the most votes in a general election, but failed to obtain an absolute majority of the votes. For partisan cities, we also collect data on Democratic and Republican primaries. For each election type we construct a list of candidates as well as information on vote shares, partisanship,

²²Nonpartisan elections are generally held for school boards, and are also common in the election of judges.

²³In 1915, A.C. Townley founded the Nonpartisan League in North Dakota as a backlash against partisan politics. This movement quickly spread across the Midwest and attracted much attention in large cities. More recently, Proposition 14 in California mandated that all elections for municipal offices in California have to be nonpartisan. It was approved by 54 percent of the voters in 2010.

and incumbency status. We have obtained the election data from two different data sources. First, we called the city registrar in each city and asked for historical election data. Second we cross-checked the information with data from a website called Ourcampaigns.²⁴

In addition, we constructed mayoral histories for each city going back to the 1980's. Based on this historical data, we can then classify cities into two types: cities that were primarily controlled by one party during the observed history and cities that are more competitive and have mayors from different parties. In our sample, the fraction of cities that are controlled by one party since 1990 (1980) is 27.17 (21.74) percent.

We also collected data characterizing differences in political institutions. Most cities impose, some sort of term limit. In many cities mayors can only be elected for two successive periods. We find that 89.13 percent of all cities have term limits for mayors. We also characterize the strength of the office of the mayor. We consider the position of a mayor as strong if he is directly elected by majority rule and if he is at the same time the head of the administration (i.e. if there is no professional city manager at the top of the city administration.) In our sample, 63.04 percent of all cities have strong mayors.

We have obtained endorsement data from two different data sources. First, we called the different municipal unions in each city. This approach was time consuming and did not yield in a high response rate. Second, we relied on local newspaper coverage to measure endorsements. We utilize an electronic database called "Newsbank" that contains rich, searchable, full-text of international, national, regional, and local newspapers. We assign a newspaper to a city if the newspaper has the city's name in the title or if the newspaper serves the county and surrounding counties with headquarters in the city.

²⁴The web site is <http://www.ourcampaigns.com/> Ourcampaigns is a large electronic community with 8,674 registered members and contains detailed information on 267,420 political races.

We consider three types of public sector unions: police unions (such as local chapters of the Fraternal Order of Police or the Police Officers' Association), firefighters' unions (such as local chapters of the Fraternal Order of Firefighters and the International Association of Firefighters) and teachers' unions (such as local chapters of American Federation of Teachers and National Education Association). If there are multiple unions in a city we aggregate unions of the same type and treat these as one union.²⁵ We focus on police, firefighters and teachers because these occupations have a long established tradition of unionization and are well organized in almost all cities. For instance, the Fraternal Order of Police, founded in 1915, has over 325,000 members organized in 2,100 local chapters. The International Association of Firefighters, founded in 1918, has 298,000 members in more than 3,200 locals. American Federation of Teachers, founded in 1916, has 1.1 million members in around 600 locals²⁶. Police officers (firefighters/teachers) account on average for 16.61 (11.02/33.77) percent of public sector employment in our sample as well as 20.64 (13.92/38.36) percent of the payroll.

For each candidate, we search the local newspapers in the election year using the following key words:

- police + candidate name + city name + mayoral election + endorsement
- firefighter + candidate name + city name + mayoral election + endorsement
- teacher + candidate name + city name + mayoral election + endorsement

²⁵In addition, we also collected data on city employee's unions such as local chapters of American Federation of State, County and Municipal Employees and local chapters of Services Employees International Union.

²⁶It is noteworthy that only 11 out of 92 cities in our sample have positive expenditures on elementary and secondary school teachers' payrolls. School districts are typically independent from municipal governments. We include teacher union activities for those 11 cities only as our theory predicts that unions participate in elections to manipulate their payrolls.

The database returns the articles with specific key words that we read to identify whether a public sector union endorsed the candidate. Since it is hard to determine at which stage of the election process the endorsement comes, we treat each endorsement as an endorsement for the entire length of the mayoral election.

We also collect data on city populations, public sector employment, and payrolls by functions from the Annual Survey of Public Employment and Payroll collected by the U.S. Census Bureau.²⁷ We use full-time equivalent employees to measure employment. We adjust the payroll data by the Consumer Price Index - All Urban Consumers, published by Bureau of Labor Statistics. The base period is 1982-84. We normalize the public sector size and total payrolls by the city population. We interpolate the missing values.²⁸

To construct the sample used in the empirical analysis, we start with the 150 most populous cities based on 2010 U.S. Census. First, we exclude Cincinnati and all cities in Arizona. Cincinnati adopts a different election system from our model: they elect six council members at one election, and the top candidate automatically becomes mayor. In Arizona, state law forbids local unions to participate in political activities in regions where they have a member. Therefore, local unions cannot make endorsement decisions as described in our model. The sample size shrinks to 141 cities. We managed to assemble election results of 723 elections in 124 cities.

The second step is to find police union, firefighter union and teacher union endorsements from local newspapers and phone conversations. That step reduces the sample to 97 cities and 499 elections. In the third step, we only keep elections with an incumbent and more than one candidate reducing the sample to 92 cities and 299 elections, including 294 general elections, 60 runoff elections, 9 Republican primaries, and 24 Democratic primaries. In the fourth step, we restrict our sample to elec-

²⁷<http://www.census.gov/govs/apes/>

²⁸An appendix is available upon request which provides details.

tions with full public sector data reducing the sample to 92 cities and 292 elections, with 287 general elections, 59 runoff elections, 9 Republican primaries and 24 Democratic primary elections. Finally, we keep only elections with full turnout data. We delete one general election, and the rest remain the same. Table 1 provides summary statistics for the sample used in the subsequent analysis.

4 Empirical Results

We investigate the impact of union endorsements on election outcomes. From the perspective of our theoretical analysis, the main outcome of interest is the probability that the incumbent is reelected. However, there is separate interest in the vote share of the incumbent which provides a continuous measure of the electoral success of the incumbent. In addition we consider the impact of endorsements on voter-turnout. This outcome measures how effectively a union can mobilize its base. Finally, we consider the impact of union endorsements on urban fiscal policy outcomes that capture the “transfers” generated by the union. Here we focus on salaries of unionized employees as well as employment levels.²⁹

4.1 The Impact of Unions on Elections

We can classify elections by observed endorsement status. Table 2 summarizes the election path that mimics the game developed in Section 2 of the paper. We find that there is a strong incumbency advantage. Incumbents won 35 of 41 elections in which they received endorsements. Incumbents won 181 out 200 elections without endorsements and 24 out of 44 elections with endorsements of the challengers.³⁰ The

²⁹We do not have reliable measures of total compensation or benefits. Moreover, we are lacking data that characterize work rules or hiring and firing practices.

³⁰There are 14 elections with multiple endorsements.

mean of margin of victory in elections with no endorsements is 39.99 percent. The mean margin of victory is 33.44 percent if the incumbent is endorsed. It drops to 16.47 percent when the challenger is endorsed.

Our model predicts that the effect of an endorsement on the endorsed politician's probability of winning the election should be positive, but potentially small. If the union endorses the incumbent, the advertising effect increases the incumbent's vote share while the signaling effect decreases the share. To test these predictions, we estimate Logit models to quantify the impact of an endorsement on the winning probability of the incumbent. Our model specifications control for the full vector of observed heterogeneity among cities which includes geographic dummy variables, as well as variables capturing partisanship, one-party control, term limits, and mayoral strength. Table 3 shows the results of our maximum likelihood estimates. We distinguish between general elections, run-off-elections and key elections. The key election can be a primary, a general or a run-off election. We use the one with the highest turn-out.

Table 3 shows that the endorsement has no significant effect for incumbents. That is not surprising since most incumbents are safe and are reelected with wide margins of victory. We find that challengers benefit much more from an endorsement than incumbents. Moreover, the effect on the incumbent's reelection probability is not only negative (as predicted by our model) and statistically significant different from zero, but the effect is large in magnitude. Our estimates that the probability of winning reelection is reduced by 22 to 41 percentage points if the challenger receives an endorsement.

It is important to recognize that this part of the analysis suffers from a potential endogeneity problem. Unions may decide to endorse candidates for reasons that have not been modeled thus far. For example, it is possible that candidates differ in quality or "valor," which is observed by the union, but unobserved by the econometrician. In

that case a union may decide to endorse the higher quality candidate who is also more likely to win the election. In particular, challengers that receive the endorsement of the union may be better candidates. While it is not difficult to extend our theoretical model to account for differences in quality among politicians, it is more challenging to deal with these issues empirically. In the absence of suitable instruments, one may be able to construct a control function estimator which exploits additional observed outcomes that are monotonic functions in the underlying quality of the candidates. Finding these types of outcomes is, however, challenging. Alternatively, unions may have a preference for “winners” since they need to deal with successful politicians. While this is another plausible explanation for potential endogeneity, it seems to be less of an issue in our application. We observe, for example, that the vast majority of incumbents do not receive union endorsements despite the fact they are reelected with almost 90 percent probability.

The vote share of the incumbent provides an alternative measure of the electoral success of the incumbent. This measure has the advantage that it is continuous. As a consequence, we also regress the vote share of the incumbent on union endorsement controlling for observed and unobserved city characteristics. Table 4 summarizes the main results. Note that the base category is that nobody is endorsed. The city characteristics include geographic locations, whether to hold partisan elections, single party in power, term limit, and whether strong mayor. Overall, the findings are qualitatively and quantitatively similar to the results reported above. There is a large negative effect if a union endorses the challenger or if both candidates receive endorsements.³¹

Next we consider the impact of union endorsement on election turn-out. A union can influence the outcome of a local election by mobilizing its base including union

³¹Key elections are defined as party primary elections for cities with single party in power since 1990, and the type of election with highest voter turnout rate otherwise.

members as well as friends and family of members. We, therefore, investigate whether there is a systematic relationship between election turnout and union endorsement.

Table 5 summarizes the main results. Overall, we find some evidence that suggests that union endorsements increase voter turn-out. This finding is true for endorsements of incumbents as well as challengers. The effect is larger if a challenger is endorsed and in key elections.

4.2 The Impact of Unions on Urban Fiscal Policy

We focus on the impact of endorsements on urban fiscal policies. Recall that Proposition 3 predicts that spending goes up if the challenger is endorsed by the union and the challenger defeats the incumbent. We can test this predictions using a difference-in-difference estimation strategy. Let y_{it} denote the outcome of interest. Consider the following regression model:

$$y_{it} = \alpha_i + \alpha_t + \sum_{s=1}^S \gamma_{1s} L_{it-s} E_{it-s}^C + \epsilon_{it} \quad (14)$$

where L_{it} is a dummy that is equal to one if the incumbent lost the election at time t and zero otherwise. E_{it}^C is one if the challenger received a union endorsement in the election at time t and zero otherwise. We include lagged variables to account for possible adjustment costs, since it may take some time for a new administration to implement changes in fiscal policy. This identification strategy accounts for time-invariant unobserved city characteristics and aggregate shocks.³²

Broadly speaking, our model implies that the public sector should grow whenever the newly elected mayor is likely to be more “pro-union” than the incumbent that lost the election. Table 6 shows the results of our estimations for the full sample.

³²We do not include a contemporaneous effect since municipal elections are typically held at the end of the calendar year.

All coefficients reported in Table 6 are predicted to be positive.³³ We find that this is case. However, only a small subset of all coefficients are statistically significantly different from zero. We, therefore, conclude that there is some evidence that suggests that challengers that are endorsed by the union tend to increase spending and or salaries if they manage to defeat an incumbent.

Proposition 3 also predicts that spending and payrolls should decrease, if the union endorses the incumbent and the challenger wins. The corresponding regression model is given by

$$y_{it} = \alpha_i + \alpha_t + \sum_{s=1}^S \gamma_{2s} L_{it-s} E_{it-s}^I + \epsilon_{it} \quad (15)$$

where L_{it} is a dummy that is equal to one if the incumbent lost the election at time t and zero otherwise. E_{it}^I is one if the incumbent received a union endorsement in the election at time t and zero otherwise. All coefficients γ_{2s} are predicted to be negative. When we estimate this regression we find no evidence that supports our model. In particular, the estimates of γ_{2s} are insignificant and have both positive and negative signs. This finding is consistent with the view that it is hard to downsize the public sector in the short run. Existing contractual agreement make it virtually impossible to cut salaries. Moreover, reductions in employment can only be achieved by not filling openings that arise due to voluntary attrition.

5 Conclusions

We view the findings of this paper as promising for future research. An interesting extension would be to study open elections in which there are no established incumbents. One drawback of studying open elections is that theory does not easily provide

³³Observations with no fire sector or police sector are excluded from respective regressions. Size per capita is increased by 10000.

clear predictions about the sign and magnitude of the change in policy that we would expect after the election. It is, for example, possible that a unions may endorse a candidate in an open election that is less supportive of the union than the previous incumbent.³⁴

Another promising line of research is to consider the following two-period extension of our model. In the first period there is an open election without an incumbent. In the second period, the incumbent runs against a new challenger. We can view the analysis in this paper as pertaining to the sub-game that arises in the second period. The extended model then endogenizes the incumbency status and allows voters to (potentially) punish first round winners that adopt unpopular policies. While it is compelling to pursue this idea, extending the model to a multi-period environment is not trivial. A key problem is that the strategy spaces of politicians, unions and voters are more complicated which makes it much harder to characterize an equilibrium of the game.

³⁴Another interesting idea for future research is to examine if teacher unions endorse union-friendly candidates in school board elections.

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A Proofs

Proof of Proposition 1:

Assume that $S_1 > S_0 > S_{-1}$. We will provide conditions later on which guarantee that this condition holds. For $d_g = 1$ to be equilibrium outcome, we need that unilateral deviations by the union are not profitable. Hence we need that $\pi_1 > \pi_{-1}$ which implies that

$$u_g^c < u_g^I - \frac{c^I - c^C}{S_1 - S_{-1}} \quad (16)$$

Moreover, we need that $\pi_1 > \pi_{-0}$ which implies

$$u_g^C < u_g^I - \frac{c^I}{S_1 - S_0} \quad (17)$$

Note that equation (17) implies equation (16). Hence we have:

$$\theta^C < T_0^{-1}\{u_g^{-1}(u_g^I - \frac{c^I}{S_1 - S_0})\} \equiv K_1(\theta^I) \quad (18)$$

Similarly, for $d_g = -1$ to be equilibrium outcomes, we need $\pi_{-1} > \pi_0$ which implies

$$u_g^C > u_g^I + \frac{c^C}{S_0 - S_{-1}} \quad (19)$$

as well as $\pi_{-1} - \pi_1 > 0$, which implies as seen above:

$$u_g^C > u_g^I + \frac{c^C - c^I}{S_1 - S_{-1}} \quad (20)$$

Since equation (19) implies equation (20), we have:

$$\theta^C > T_0^{-1}\{u_g^{-1}(u_g^I + \frac{c^C}{S_0 - S_{-1}})\} \equiv K_2(\theta^I) \quad (21)$$

Moreover, we have

$$\begin{aligned} S_1 &= F(u_v^I - E[u_v^C \mid \theta^C < K_1(\theta^I)] + a^I) \\ S_0 &= F(u_v^I - E[u_v^C \mid \theta^C \in [K_1(\theta^I), K_2(\theta^I)]]) \\ S_{-1} &= F(u_v^I - E[u_v^C \mid \theta^C > K_2(\theta^I)] - a^C) \end{aligned} \quad (22)$$

Thus $K_1(\theta^I)$ and $K_2(\theta^I)$ solves the system of equations:

$$T_0^{-1}\left\{u_g^{-1}\left(u_g^I - \frac{c^I}{F(u_v^I - E[u_v^C | \theta^C < K_1] + a^I) - F(u_v^I - E[u_v^C | \theta^C \in [K_1, K_2]])}\right)\right\} = K_1$$

$$T_0^{-1}\left\{u_g^{-1}\left(u_g^I + \frac{c^C}{F(u_v^I - E[u_v^C | \theta^C \in [K_1, K_2]]) - F(u_v^I - E[u_v^C | \theta^C > K_2] - a^C)}\right)\right\} = K_2$$

Finally, $S_1 > S_0 > S_{-1}$ requires that

$$E[u_v^C | \theta^C < K_1(\theta^I)] - E[u_v^C | \theta^C \in [K_1(\theta^I), K_2(\theta^I)]] < a^I \quad (23)$$

$$E[u_v^C | \theta^C \in [K_1(\theta^I), K_2(\theta^I)]] - E[u_v^C | \theta^C > K_2(\theta^I)] < a^C \quad (24)$$

Q.E.D.

Proof of Proposition 2:

Given $S_1 > S_0 > S_{-1}$, there can be only one equilibrium as shown in equilibrium analysis. To have other equilibrium, one of the following inequalities must be true: $S_0 > S_{-1} > S_1, S_{-1} > S_1 > S_0, S_{-1} > S_0 > S_1, S_1 > S_{-1} > S_0$ or $S_0 > S_1 > S_{-1}$. We will rule them out by contradictions. Suppose at equilibrium, $S_0 > S_1 > S_{-1}$. Then, to have $d_g = 1$ rather than $d_g = 0$, $\pi_1 - \pi_0 > 0$ and hence:

$$\theta^C > T^{-1}\left\{u_g^{-1}\left(u_g^I + \frac{c^I}{S_0 - S_1}\right)\right\} \equiv \hat{K}$$

So the strategy must have the form

$$d_g = 1 \text{ if } \theta^C \in (\hat{K}, \bar{K}]$$

$$d_g = 0 \text{ if } \theta^C \in [\underline{K}, \hat{K}]$$

for some $\underline{K}, \bar{K} \in [0, 1]$.

If $\hat{K} \geq 1$ or $\hat{K} < 0$, then this is trivially not an equilibrium with all three actions $d_g = \{1, 0, -1\}$ arising in equilibrium outcomes.

If $\hat{K} \in [0, 1)$, then the vote size would be

$$S_1 = F(E[u_v^I - u_v^C | \theta^C \in (\hat{K}, \bar{K}]] + a^I)$$

$$S_0 = F(E[u_v^I - u_v^C \mid \theta^C \in [\underline{K}, \hat{K}]])$$

and hence $S_1 > S_0$ which is a contradiction.

The other four cases ($S_0 > S_{-1} > S_1, S_{-1} > S_1 > S_0, S_{-1} > S_0 > S_1, S_1 > S_{-1} > S_0$) can be ruled out by the same method. Q.E.D.

Proof of Proposition 3:

For the interior solution, by assumption $S_1 > S_0$,

$$\begin{aligned} K_1 &= T_0^{-1}\left\{u_g^{-1}\left(u_g^I - \frac{c^I}{F(u_v^I - E[u_v^C \mid \theta^C < K_1] + a^I) - F(u_v^I - E[u_v^C \mid \theta^C \in [K_1, K_2]])}\right)\right\} \\ &< T_0^{-1}\{u_g^{-1}(u_g^I)\} = \theta^I \end{aligned} \quad (25)$$

Similarly, by assumption $S_0 > S_{-1}$,

$$\begin{aligned} K_2 &= T_0^{-1}\left\{u_g^{-1}\left(u_g^I + \frac{c^C}{F(u_v^I - E[u_v^C \mid \theta^C \in [K_1, K_2]]) - F(u_v^I - E[u_v^C \mid \theta^C > K_2] - a^C)}\right)\right\} \\ &> T_0^{-1}\{u_g^{-1}(u_g^I)\} = \theta^I \end{aligned} \quad (26)$$

Therefore, we have $K_1 < \theta^I < K_2$. Since $d_g = 1$ if $\theta^C < K_1 < \theta^I$, we have $T_0(\theta^C) < T_0(\theta^I)$, and thus if the challenger wins, $\Delta T < 0$.

Similarly, because $d_g = -1$ iff $\theta^C > K_2 > \theta^I$, we have $T_0(\theta^C) > T_0(\theta^I)$, and thus if the challenger wins, $\Delta T > 0$.

For the third case, since $d_g = 0$ iff $\theta^C \in [K_1, K_2]$, then $T_0(\theta^C) \in [T_0(K_1), T_0(K_2)]$, $T_0(\theta^C) - T_0(\theta^I) \in [T_0(K_1) - T_0(\theta^I), T_0(K_2) - T_0(\theta^I)]$, define $\epsilon = \max\{|T_0(K_1) - T_0(\theta^I)|, |T_0(K_2) - T_0(\theta^I)|\}$, we have $|T_0(\theta^C) - T_0(\theta^I)| \leq \epsilon$.

Q.E.D.

Tables and Figures

Figure 1: Timeline and Game Predictions

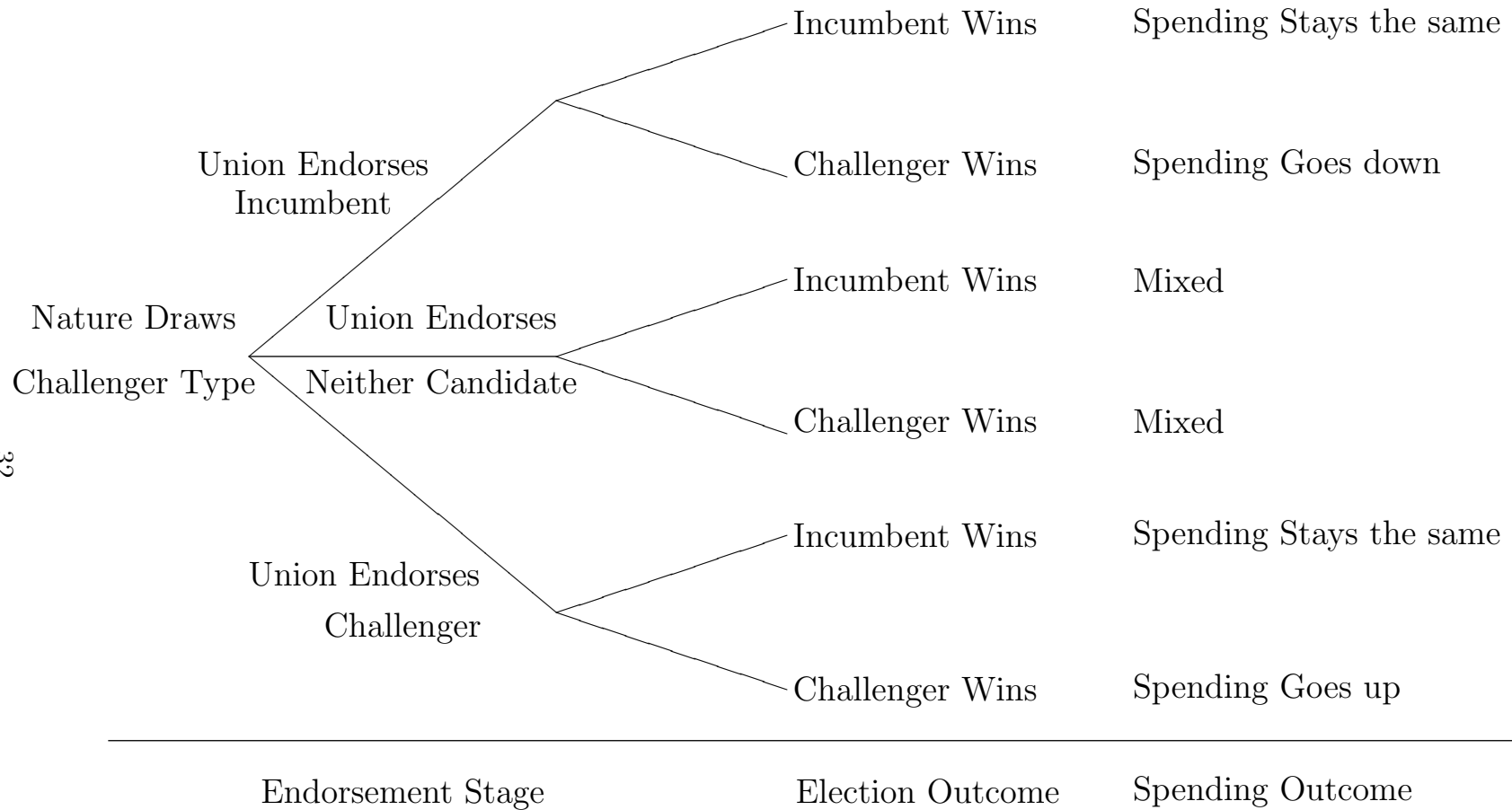


Figure 2:

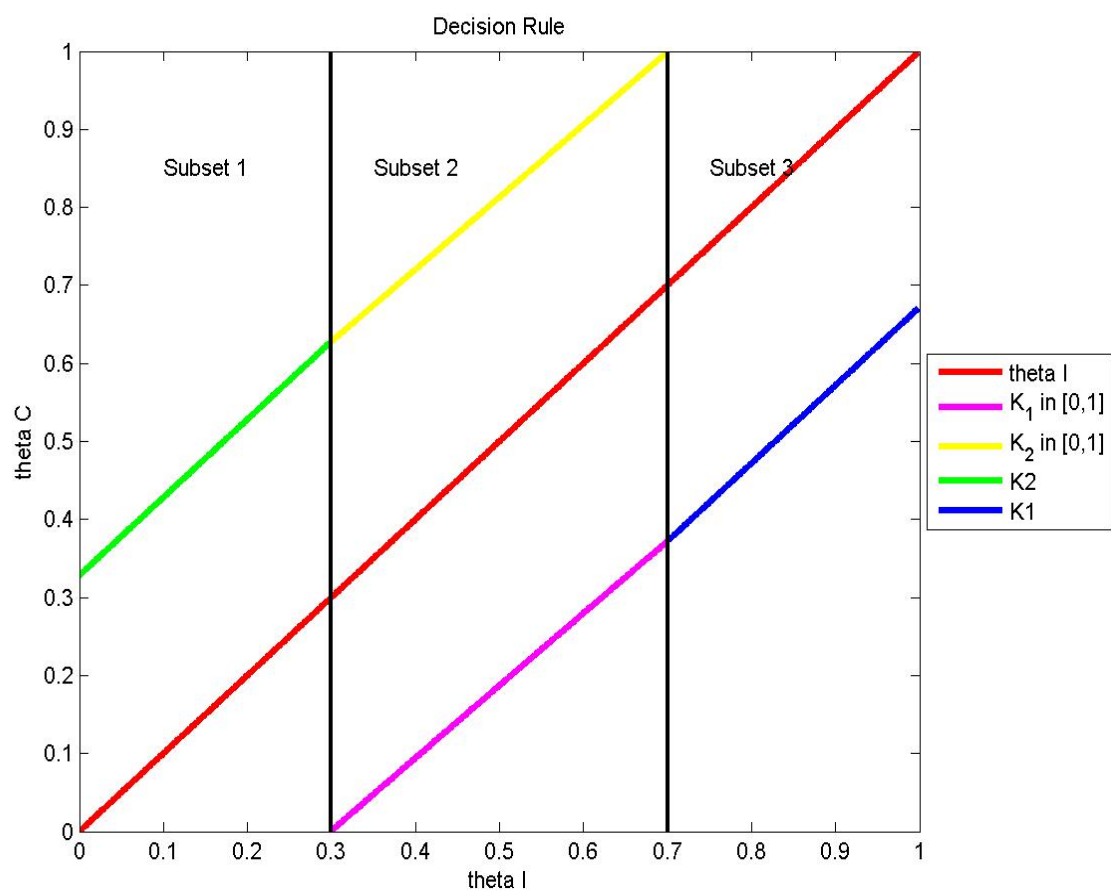


Table 1: Summary Statistics

	Mean	SD	10%	90%	Cities	Elections
Population	546197.22	909826.76	158137.51	867688.35	92	292
Public Sector Size/ Population	0.02	0.01	0.01	0.04	92	292
Payroll/Population	413.94	288.34	201.42	816.53	92	292
Police Size/Public Sector Size	16.61	5.70	8.50	22.99	92	292
Fire Size/Public Sector Size	11.02	3.78	6.09	16.21	91	290
Teacher Size/Public Sector Size	33.77	8.04	25.99	44.21	11	36
Police Payroll/Public Sector Payroll	20.64	6.97	11.02	28.40	92	292
Fire Payroll/Public Sector Payroll	13.92	4.82	7.64	20.53	91	290
Teacher Payroll/Public Sector Payroll	38.36	9.85	26.29	50.04	11	36
Turnout Rate in General Elections%	15.49	8.08	6.24	25.00	92	286
Turnout Rate in Runoff Elections%	21.77	8.67	12.61	33.49	31	59
Turnout Rate in Repub Primaries%	4.32	2.70	1.88	8.29	5	9
Turnout Rate in Dem Primaries%	13.70	6.69	3.63	20.86	10	24

Note: The table above provides summary statistics for the key variables in the data set.

Table 2: Path Analysis

	Endorse Incumbent Only		Incumbent
	Marginal Victory	33.44	Wins
	Obs	41	35
			Challenger
			Wins
			6
	Endorse Nobody		Incumbent
	Marginal Victory	39.99	Wins
	Obs	200	181
			Challenger
			Wins
Total			19
299			
	Endorse Challengers Only		Incumbent
	Marginal Victory	16.47	Wins
	Obs	44	24
			Challenger
			Wins
			20
	Endorse Both		Incumbent
	Marginal Victory	16.60	Wins
	Obs	14	7
			Challenger
			Wins
			7

Note: This table illustrates union endorsements and election outcomes in our sample.

Table 3: Incumbent's Probability of Winning

Dependent Variable: Incumbent Wins			
Sector	Police, Firefighter or Teacher Unions		
Election Type	General	Runoff	Key Election
incumbent endorsed	-0.091	-0.094	-0.068
	[0.067]	[0.147]	[0.064]
challenger endorsed	-0.345***	-0.218	-0.401***
	[0.065]	[0.175]	[0.074]
both endorsed	-0.518***	-0.464**	-0.491***
	[0.135]	[0.226]	[0.120]
City characteristics	YES	YES	YES
Obs	294	60	299

Note: This table reports results from logit regressions of incumbents' win probabilities on endorsements.

Table 4: Endorsements and Incumbents' Share

Dependent Variable: Incumbent Share						
Sector	Police, Firefighter or Teacher Unions					
Election Type	General		Runoff		Key Election	
incumbent endorsed	-4.81	-3.90	-1.72	1.34	-2.80	-1.81
	[3.13]	[5.20]	[5.41]	[8.55]	[2.91]	[4.85]
challenger endorsed	-22.42***	-23.31***	-8.90*	-11.45	-22.17***	-23.36***
	[2.92]	[3.86]	[5.15]	[10.06]	[2.73]	[3.59]
both endorsed	-17.81***	-23.90***	-8.95	-5.20	-17.32***	-23.05***
	[3.16]	[5.51]	[6.08]	[19.76]	[2.48]	[4.98]
City characteristics	YES		YES		YES	
City and Year Dummies		YES		YES		YES
Obs	294	294	60	60	299	299
R-Square	0.237	0.573	0.261	0.832	0.238	0.594

Note: This table reports results from regressions of incumbents' vote shares on endorsements.

Table 5: Endorsement and Voter Turnout

Dependent Variable: Turnout Rate						
Sector	Police, Firefighter or Teacher Unions					
Type	Key	General	Runoff	Key	General	Runoff
incumbent endorsed	2.769**	0.664	1.548	2.656**	0.830	3.689
	[1.096]	[0.940]	[2.245]	[1.251]	[0.933]	[5.345]
challenger endorsed	4.886***	3.634***	0.756	3.671***	1.832	4.135
	[1.239]	[1.217]	[2.541]	[1.045]	[1.483]	[4.450]
both endorsed	9.447***	8.137**	5.238	7.186***	3.895	2.339
	[3.223]	[3.258]	[4.289]	[1.602]	[2.551]	[4.470]
City characteristics	YES	YES	YES			
City and Year Dummies				YES	YES	YES
Obs	292	286	59	292	286	59

Note: This table reports results from regressions of voter turnout on endorsements.

Table 6: Urban Fiscal Policies

Dependent Variables	Size/Population			Payroll/Population		
	Sector	Total	Police	Fire	Total	Police
Incumbent Loss * Challenger endorsed: t-1	0.507	1.465	4.120	8.388	2.905	8.863
	[4.157]	[1.250]	[3.343]	[11.740]	[2.825]	[6.305]
Incumbent Loss * Challenger endorsed: t-2	0.413	1.821	4.115	13.450	2.166	10.940*
	[3.435]	[1.281]	[3.550]	[10.370]	[3.068]	[6.027]
Incumbent Loss * Challenger endorsed: t-3	5.029	2.237	1.392*	21.040*	3.115	3.949*
	[3.919]	[1.671]	[0.753]	[12.070]	[3.892]	[2.291]
Incumbent Loss * Challenger endorsed: t-4	8.209*	2.480	0.384	18.250	4.134	0.931
	[4.651]	[1.727]	[1.123]	[14.050]	[3.721]	[3.679]
City and Year Dummies	YES	YES	YES	YES	YES	YES
Obs	1,365	1,365	1,361	1,365	1,365	1,361
R-square	0.970	0.909	0.843	0.967	0.885	0.831

Note: This table reports results from regressions of fiscal policy variables interactions between endorsements and election outcomes to test whether more union friendly politicians increase the share of transfers to union members.