Direct Democracy and Public Employees

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This paper explores the effect of direct democracy on employment and wages of local government employees. Critics of direct democracy argue that initiatives empower public sector interest groups, allowing them approve laws that increase their compensation. Proponents of direct democracy, on the hand, argue that initiatives allow the public to counteract the tendency of public employee unions to raise their wages and the tendency of elected officials to increase government employment for patronage reasons. These claims are assessed by comparing the public sector employment and wage policies of a sample of 500+ cities in 2000. When public employees are allowed to bargain collectively, wages are about 18 percent higher. Initiatives appear to cut these wages by about 5 percent but do not have measurable effect on employment. When public employees are not allowed to bargain collectively, initiatives appear to cut employment but not wages. These patterns hold for municipal workers as a group as well as for most government functions, but police and administrative employees do not fit the pattern.

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1. Introduction

A long tradition in political economy views policy as the product of competition between interest groups. Bentley (1908/1995) is an early classic, and the more recent models of Stigler (1971), Peltzman (1976), Becker (1983), and Grossman and Helpman (2002) have spawned a vast literature. While the importance of interest group competition is a central theme in political economy, the question of how institutional rules affect competition and policy is relatively unexplored. Indeed, the institutional context is relegated to the background in many studies, reflecting an implicit assumption that the rules of the game are of secondary importance or "are simply a veil that can be pierced by astute politicians and voters" (Poterba, 1995, p. 165).

The purpose of this paper is to examine the impact of a particular institution, the initiative process, on policymaking in American cities. The initiative is a form of direct democracy in which individuals outside the legislature are allowed to propose new laws that are then adopted or rejected in a vote of the population at large. This institution is widespread: more than 70 percent of Americans live in either a state or city where the initiative is available (Matsusaka, 2004), and according to a recent survey, over 80 percent of cities allow initiatives, including most of the largest cities. Ballot propositions are also used to make local policy decisions outside the United States, including Western and Eastern Europe, Taiwan, Japan, and South Korea.

The initiative process changes the rules of competition by allowing individuals and groups outside the official government to make policy proposals, breaking the agenda control of elected officials. Theory suggests that opening up the agenda typically benefits the majority of citizens because the median voter will reject any proposal that changes the status quo in an adverse way (Gerber, 1996; Matsusaka and McCarty, 2001). Existing evidence is generally consistent with the view that initiatives move policy toward the median voter's position.[1] However, the theoretical conclusion that initiatives help the median voter is more tenuous outside the complete information context of most

[1] Matsusaka (2006b) appears to contain the most direct evidence, documenting that initiative states are 17 to 19 percent more likely to adopt the majority policy position than noninitiative states for a set of high profile issues. Gerber (1999) and Matsusaka (2004) contain less direct evidence. See Lupia and Matsusaka (2004) for a survey.

models. When voters are uncertain about the consequences of policies or when politicians are uncertain about voter preferences, giving agenda control to outsiders can make the median voter worse off as politicians may accommodate extreme groups to avoid the risk of extreme ballot propositions (Gerber and Lupia, 1995; Matsusaka and McCarty, 2001). Moreover, the idea that direct democracy might actually benefit special interests rather than the electorate at large because of voter ignorance is held by many political observers (for example, Broder (2000)), and remains one of the central criticisms of direct democracy (Bowler and Donovan, 1998). Although a formal model of the idea remains to be written, the intuition is that interest groups may have an advantage in informing their supporters and motivating them to vote that allows them to pass laws that hurt the majority.[2]

This paper focuses specifically on the connection between the initiative process and employment and wage policies in American cities. The role of direct democracy in public sector employment has not been previously explored, to the best of my knowledge, but it seems ripe for study. As of 2004, 21.5 million people worked in the public sector, roughly 15 percent of the labor force, and over 64 percent (13.7 million) of them were employed by local governments. Local governments are a key point at which many citizens interact with their government, and they are the primary providers of education, police, fire protection, water, sewage, and other services that are critical to quality of life. Moreover, labor services are a huge component of local government spending, totaling $464 billion in 2003, and comprising 40 percent of local government budgets.[3]

Local governments are also interesting from an interest group point of view. Unlike in the private sector, unionization rates remain high among public employees, with 41 percent of local government workers covered by unions in 2004, and public employee unions are often active in candidate elections and ballot proposition campaigns.

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[2] The idea that interest groups might be able to achieve nonmajoritarian policies because of organizational advantages has been modeled; Peltzman (1976) is an influential example. What has not been shown is that the interest group's advantage will be increase when direct democracy is available.

[3] The numbers in this paragraph are adapted from various tables in *Statistical Abstract of the United States*, 2007.

With a large, organized interest group in place, cities provide an appealing environment to study the influence of interest groups, with and without direct democracy.

The main finding of the paper is that employment and wage policies are significantly different when the initiative is available than when it is unavailable, and that the changes are qualitatively different when collective bargaining is available than when it is unavailable. To structure the empirical analysis, I develop a simple political economy model where wages and employment are determined by the interaction of three forces: first, politicians want to hire "too many" workers for patronage reasons, second, public employees seek to increase their wages when collective bargaining is available, and third, voters can choose wage and employment policies they prefer to the status quo when initiatives are available. As discussed below, all three of these assumptions are common in the literature. When collective bargaining is available, public employees negotiate higher wages, and politicians reduce employment in response to the higher wages. From the citizen's perspective, the status quo features too high a wage but an employment level that may be too high, too low, or optimal. Introduction of the initiative then results in wage reductions but has an ambiguous effect on employment. In contrast, when collective bargaining is not available, from the citizen's perspective, the status quo features too much employment as politicians make patronage hires, but the wage is not necessarily too high. Introduction of the initiative in this case results in employment cuts and has an ambiguous effect on wages. In short, the theory predicts that the initiative reduces wages when collective bargaining takes place, and reduces employment when collective bargaining does not take place.

To explore these implications, the paper examines a sample of 500+ medium-to-large American cities in 2000. The strength of public employees in each city is proxied by whether or not state law permits collective bargaining for local government employees. The initiative status of each city is identified from a new dataset that describes the direct democracy provisions in the 1,000 largest American cities. The empirical strategy, common in the literature on institutions, is to compare the policies of cities with and without initiatives (controlling for other factors) and to attribute the differences to availability of the initiative. Three central findings emerge. First, collective bargaining is associated with higher wages and lower employment, consistent with the

traditional theory of union bargaining. Second, in cities with collective bargaining, the initiative is associated with large, statistically significant wage cuts. Wages are on average 18.4 percent higher in cities with collective bargaining, but the gap is cut by nearly a third (5.1 percent) when the initiative is available. Third, in cities without collective bargaining, the initiative does not have a strong connection to wages but is associated with large, significant employment reductions of about 29 percent.

I also explore employment and wages for several important local government functions individually. The same basic patterns – initiatives cut wages when collective bargaining is available and cut employment when collective bargaining is not available – emerge across most functions, including fire protection and streets and highways. However, two functions are exceptional, police and administration. For police, collective bargaining results in higher wages but not in lower employment, suggesting that politicians are hesitant to trade off workers for wages. In this situation, the initiative is associated with job cuts but not wage cuts. The most unusual case is for administration, where collective bargaining is associated with higher wages and higher employment. In addition, there is no evidence that the initiative cuts wages or employment, and some statistically significant evidence that the initiative increases wages. This pattern could be interpreted as supporting the view that public employees in administrative jobs are adept at using the initiative process to help themselves, which seems consistent with evidence that administrative positions are the last to be cut when voters approve tax and spending limits (Figlio, 1998; Figlio and O'Sullivan, 2001).

The paper is part of a growing literature on the policy effects of direct democracy. A substantial literature has documented that initiatives tended to cut spending and taxes in American states over the last several decades and similar patterns have been found for Swiss cantons and communes.[4] There is little evidence on how the spending cuts are achieved, or how reduced revenue affects the operations of government. Since in many

[4] See Matsusaka (2005) for a survey. Much of the Swiss evidence is in a stream of studies by Lars Feld and Gebhard Kirchgässner, with coauthors, for example, Feld and Kirchgässner (1999, 2000, 2001), Feld (2002), and Feld and Matsusaka (2003). There is also a small literature on initiatives and spending in American cities that suggests higher spending in initiative cities, but not consistently (Zax, 1989; Farnham, 1990; Matsusaka, 2004, ch. 3).

cases initiatives take the form of tax and expenditure limits, the paper can also be seen as part of a large literature that investigates the consequences of fiscal constraints (Poterba and Rueben, 1995). There is also growing evidence on how initiatives have altered state social policies (Gerber, 1999; Matsusaka, 2006b) and election laws (Tolbert, 1998; Persily and Anderson, 2005; Matsusaka, 2006a), but to the best of my knowledge, there is no statistical evidence on the connection between direct democracy and government labor practices or government operations in general.

The paper is arranged as follows. Section 2 develops a theoretical framework to motivate and interpret the evidence. Section 3 describes and summarizes the data. Section 4 reports the main results on the different policies of initiative and noninitiative cities. Section 5 concludes.

2. Theory

This section develops a simple model in which elected officials derive patronage benefits from public workers, collective bargaining allows public employees to drive up wages, and the initiative matters through its influence on agenda control. The basic setup follows Gerber (1996) and Matsusaka and McCarty (2001) (and thus Romer and Rosenthal (1979)), and draws on the model of public sector wage determination in Babcock et al. (1997) (which itself is based on a long tradition in labor economics (Farber, 1986)). I am particularly interested in how the initiative interacts with interest group (here, public employees) influence, so to make comparisons, the model is developed first in the case where collective bargaining by government employees is not allowed, and then compared with an extended model in which collective bargaining is allowed.

A. Effect of Initiative When Collective Bargaining Is Not Allowed

A city with N residents chooses the number of public employees, L, and the wage per worker, w, associated with provision of a public service, such as police or fire protection. Public employees are identical in terms of skill, with a nondecreasing supply curve $w = S(L)$, that is, in order to hire L workers, the city must pay a wage greater than

or equal to $S(L)$.[5] It is possible to pay a wage greater than $S(L)$, and public employees will want the city to do so. Denote the number of public employees per capita as $l = L/N$.

Citizens care about the number of workers per capita, l, and consumption x of some other good, according to $u(l, x)$, which is increasing and concave in both arguments. All citizens are assumed to have identical preferences and pay the same amount of taxes, wl.[6] Given income y, denoted in units of the consumption good, and normalizing the price of x to one, a citizen's budget constraint is $wl + x = y$. The utility function can then be expressed as $U(l, wl) \equiv u(l, y - wl)$. For citizens, the first-best public employee policy, denoted $P^* = (l^*, w^*)$, is the solution to: $\max U(l, wl)$ subject to $w \geq S(L)$ Citizens prefer to choose (l, w) on the supply curve; they never find it optimal to pay a higher wage than necessary to elicit the desired quantity of labor. Figure 1 depicts a possible outcome.

In the absence of initiatives, employment and wages are set by elected officials, the mayor, city manager, city council, and so on. Elected officials are assumed to care about the utility of citizens because they must stand for reelection, but they also receive private benefits from public sector employment per se. Elected officials may benefit from public sector jobs because it gives they control over patronage, they enjoy running a larger organization, or because government workers can help them in elections (Wilson, 1961). Elected officials will be treated as a unitary actor called "the politician" with a utility function of $V(l, w) = U(l, wl) + \alpha l$, where $\alpha > 0$ captures the value of patronage to the politician.[7] If not constrained by the initiative, the politician chooses (l, w) to

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[5] It would be straightforward to endogenize the supply curve by assuming that the public employees are drawn from the pool of all citizens. In this case, the supply curve is simply the opportunity cost of the citizens. I did not go down this path because it does appear to lead to an substantive insights.

[6] Alternatively, u could be thought of as the preferences of the median voter, but I have not yet proved that such a median exists.

[7] Some definitions of patronage require the jobs to pay a supra-market wage, with the idea that workers are unlikely to view a job as a benefit unless it pays a premium (Wilson, 1961). If the supply curve is upward-sloping, however, all but the marginal worker will earn in excess of their opportunity costs, and so will strictly prefer working for the government. The case where government officials prefer higher wages is

maximize *V*. The politician, like the citizens, does not want to pay any more than is necessary to elicit a given amount of labor so chooses a policy $P_0 = (l_0, w_0)$ that lies on the supply curve. It is straightforward to show that the politician hires more public employees than citizens would hire, $l_0 > l^*$, and pays them at least as much, $w_0 \geq w^*$.[8] Intuitively, the politician has a greater "demand" for public employees. Because the politician is willing to move farther out along the supply curve than the citizens would like, the politician must pay a higher wage if the supply curve is upward sloping. Therefore, in the absence of initiatives, policy P_0 prevails, as shown in Figure 1.

Now suppose initiatives are available. Any group can propose an alternative policy, $P_I = (l_I, w_I)$ and citizens would choose between the initiative and the status quo $P_0 = (l_0, w_0)$. Because citizens must approve a proposal for it to go into effect, only initiatives that increase the utility of citizens will win. To see the possible winning proposals, Figure 1 shows the citizen's indifferent curve U_0 (dashed) through the point P_0. Policies below the indifference curve deliver higher utility to the citizens, and policies below the supply curve are infeasible, so the set of potentially successful initiatives is the shaded region. Several implications follow. First, initiatives will succeed only if they reduce public sector employment. Second, an initiative that proposes a wage increase could be approved. Voters would like lower wages, but may be willing to accept higher wages as part of a package that reduces total expenditure (taxes) if forced to choose between that and the status quo. Third, only initiatives that reduce total expenditure can succeed. Intuitively, initiatives that reduce employment make the voter better off only if they reduce the tax burden.

If there was no cost to proposing an initiative, then some citizen would propose an initiative $P_I = P^*$, voters would approve the proposition, and the outcome would be at the

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further discussed below. The main implications of this section – initiative cuts employment and expenditure but may increase or decrease wages – would also hold if the politician received a private benefit from total expenditure, as in Romer and Rosenthal (1979), rather than employment alone.

[8] Formally, the result follows because the slope of the politician's indifference curve is greater than the slope of the citizen's indifference curve at every point, and at P^*, the citizen's indifference curve is tangent to the supply curve,

citizen's ideal point. In practice, however, it is costly to collect signatures and run a ballot proposition campaign. The price tag for placing a measure on the ballot runs $1 to $10 per signature, and cities often require signatures equal to 10 to 15 percent of the vote cast in the previous election (Gordon, 2004). For a statewide measure in California, normally it costs at least $1 million to put a measure on the ballot. Systematic information is not available on the cost of running a local ballot proposition campaign once a measure is on the ballot, but credible statewide campaigns in California often require at least $20 million, and the record for a single campaign is $150 million spent by both sides on Proposition 87 in 2006. As a result of the significant costs of making a proposal, there is no guarantee that an initiative at the citizen's ideal point will be proposed. Without further information on which groups are capable of making proposals, we can only conclude that initiatives will bring about a policy shift into the shaded region. The testable implication is that in the absence of collective bargaining, introduction of initiatives will reduce employment and expenditure, but have an ambiguous effect on wages.

B. Collective Bargaining Is Allowed

Policy outcomes and the effect of initiatives are different when collective bargaining is allowed. To study the impact of collective bargaining on local government employees, I follow Babcock et al. (1997) and assume public employee groups seek to maximize the wage paid to their members, w.[9] When initiatives are available, wage-setting involves only negotiations between the politician and representatives of public employees. The bargaining process is modeled by assuming that public employees choose the wage, subject to providing the politician with a reservation level of utility. This incorporates the idea that the final policy is compromise between the two sides, and is a version of the "efficient contracts" approach to union bargaining (Farber, 1986).

[9] An alternative assumption is that public employee groups care about both wages and employment. However, as Farber (1986) notes, union contracts always set conditions on wages but rarely specify employment. In any case, the qualitative features of the model would be similar if the objective function of the public employees was also increasing in employment, with the main difference that collective bargaining could to lead to an increase in employment.

Figure 2 depicts the indifference curve for the politician that corresponds to a reservation utility, V_0. Public employees maximize their wage subject to remaining on or below V_0, resulting in a collective bargaining outcome $P_{CB} = (l_{CB}, w_{CB})$.

Several implications follow. First, and most obvious, wages are higher when collective bargaining takes place than when it does not take place ($w_{CB} > w_0$). Collective bargaining wages are also higher than the wage at the citizen's ideal point, P^*. Second, employment is lower with collective bargaining ($l_{CB} < l_0$).[10] This can be understood as the politician's reaction to the higher wage: faced with a higher price for employees and thus a higher price for patronage, the politician prefers to cut back on the quantity of labor.[11] Although the diagram suggests that employment under collective bargaining is higher than the employment at the citizen's ideal point, either relation is possible. The effect of collective bargaining on total expenditure is ambiguous as well.

Now consider what happens if the initiative is introduced. As before, only a proposition that makes the citizens better off than the status quo will be approved. However, determining the status quo is a bit more complicated in this situation. At first glance, P_{CB} might seem like a candidate for the status quo. If so, then any initiative that delivered a utility to the citizens at least equal to P_{CB} (and was above the supply curve) would be feasible. The reason P_{CB} might not be the status quo is that availability of the initiative is likely to change the bargaining game between the politician and public employees. Both groups are aware that a future initiative may undo the policy they negotiate, which changes the set of policies they will agree to.

To say more about how availability of the initiative affects policy in this case, it is necessary to add more structure to the model about potential initiatives. In principal, initiatives could be proposed by individuals whose preferences are aligned with citizens, the politician, or public employees. I focus on the case where proposals originate with

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[10] Collective bargaining reduces employment if and only if that the peak of V_0 is to the left of P_0, that is, if the slope of the politician's indifference curves is decreasing in w. A sufficient condition for this to hold is that the cross-derivative of *u* is nonpositive.

[11] This result can be reversed if public employees have a strong preference for more employment as well as higher wages.

citizen groups. In this case, if an initiative appears, it will propose policy P^*. Suppose the cost of putting an initiative before the voters is C, measured in units of utility. The citizen group will go forward with the initiative if and only if the status quo offers a utility less than $U_C = U(l^*, w^* l^*) - C$. Figure 2 represents the indifference curve for some U_C. The indifference curve U_C provides an additional constraint on the negotiation between the politician and public employees – if they agree to a contract outside the bounds set by U_C, the citizen group will override the contract with an initiative.

With this threat in the background, we can now identify the equilibrium policy choice. As before, the public employees maximize the wage subject to delivering the politicians a minimum utility of V_0, and now also subject to providing the citizens a minimum utility of U_C. The solution is $P_I = (l_I, w_I)$, as indicated in Figure 2. This policy choice by construction will not be overridden by an initiative – indeed, there will not even be an initiative on the ballot – but the outcome is nevertheless different from the case where the initiative is unavailable. This is often referred to as the “threat” or “indirect” effect of the initiative, and there are many instances where it is important in practice.[12] In particular, availability of the initiative reduces the wage ($w_I < w_{CB}$), employment ($l_I < l_{CB}$ l), and total expenditure.[13]

Comparing with Figure 1, we can see that the initiative has a different effect on policy depending on whether collective bargaining takes place. Without collective bargaining, the initiative cuts employment and has an ambiguous effect on wages. With collective bargaining, the initiative cuts wages. It also cuts employment, but a

[12] An interesting recent example comes from the city of Los Angeles. In November 2006, the city council passed a living wage ordinance that applied to hotels near LAX airport. After business groups began collecting signatures for an initiative, the city council repealed the ordinance in February 2007, and in March 2007, passed a version somewhat more accommodating to business interests.

[13] If other groups can propose initiatives, then P_I can defeated by any policy below U_C. For example, public employee groups could propose a winning measure that increased wages and cut employment, while elected officials could propose a winning measure that would cut wages further and increase employment. Of course, if these groups were inclined to propose initiatives, then it would change the initial policy. Those extensions unfortunately are beyond the scope of this paper.

comparison of Figures 1 and 2 shows that the employment cuts are smaller when collective bargaining takes place. These are the primary empirical implications to be investigated.

C. Implementing Initiative Outcomes

Initiatives that explicitly specify both wages and the number of government employees are rare. I am not aware of a single example other than those that set the wages and number of elected officials. It is natural to ask, then, how the policy changes implied by the theory can be implemented in practice. One way, and perhaps the most common, is by preemptive action of government officials. Rather than run the risk of an initiative that will result in a policy at the citizen's ideal point, they would prefer to adopt a status quo that yields the citizen a high enough utility to deter the initiative.

Another approach would be to adopt an initiative that limits total spending. Propositions of this nature are not at all rare, and are often coupled with requirements that subsequent expenditure or tax increases must be approved by the voters. A spending limit of $wl < k$ can be represented as a hyperbola in Figures 1 and 2, where any policy choice above or to the right of hyperbola is not permitted. If the hyperbola cuts through P^*, then the optimal policy choice for the politician under the spending constraint would be P^*. Thus, although it might seem like a crude tool, a tax and expenditure limit can be an effective way to force the politician to adopt wage and employment policies favored by the citizens.

3. Data Sources and Basic Patterns

The empirical part of this paper studies the employment and wages of a sample of cities in 2000. The most difficult information to obtain concerns the initiative status of cities. There is no central clearinghouse for such information, and the data source used in most previous studies – the ICMA's Form of Government Survey – is unreliable. The ICMA data are collected through a survey of city clerks and it appears that the respondents often report incorrectly.[14] For initiative information, this paper utilizes a new

[14] For example, in the 1996 survey, only 198 of 311 California cities indicate that the initiative is available, even though California law appears to grant initiative rights to citizens in every city in the state (California

data set – the *Legal Landscape Database* produced by the USC-Caltech Center for the Study of Law and Politics and the Initiative and Referendum Institute at USC – collected by examining the state constitution, state statutes, municipal charters, and municipal ordinances for the 1,000 largest cities in the United States and 10 largest cities in each state.[15] This database describes the direct democracy provisions, if any, for approximately 1,500 American cities in 2005.[16] The variable of interest from this database is a dummy equal to one if a city allows initiatives (proposals for new ordinances or charter amendments that are placed on the ballot by citizen petition), and zero otherwise.

The initiative data were matched to a variety of Census data from 2000. Information on city wages and employment by function was taken from *Local Government Employment and Payroll Data, 2000*. Demographic and economic information was taken from American FactFinder. The employment and payroll data and the demographic and economic data are based on samples, and not comprehensive, resulting in the loss of about 500 observations from the *Legal Landscape Database* after merging.[17] Because the initiative information is for a single year, it was not possible exploit time series variation in initiative status.

Finally, information on collective bargaining laws for local government employees in each state was taken from the *NBER Public Sector Collective Bargaining*

Constitution, Article 2, Section 11; California Statutes, 9200-9224). It may be that the city clerks who fill out the surveys are unaware of the state provisions, or may misunderstand the somewhat ambiguous survey questions. For a discussion of the ICMA survey, see Matsusaka (2003).

[15] This does not eliminate the possibility of error. A city may be classified incorrectly is if the researchers who assembled the data failed to discover provisions for the initiative and referendum somewhere in the city charter or code.

[16] This dataset was collected by the USC-Caltech Center for the Study of Law and Politics and the Initiative & Referendum Institute, under a grant from the Haynes Foundation. It is publicly available at www.iandrinstitute.org. The current draft of this paper uses the preliminary version of the data set.

[17] For more information on the employment and payroll data, see *Government Employment*, U.S. Census Bureau, March 2000. The source files are 00empst.dat and 00empid.dat. The demographic and economic data are extracted from Census 2000 Summary File 1 (SF1) 110-Percent Data and Census 2000 Summary File 3 (SF3) – Sample Data, available at www.factfinder.census.gov.

Law Data Set.[18] This data set describes separately the state laws for police, firefighters, teachers, and "other" local government workers, using a six category classification. For each group of workers, I classified a state as allowing collective bargaining if state law granted employees a right to meet or contained an implied or explicit duty to bargain. A state was classified as not having collective bargaining if collective bargaining was prohibited, the law was silent, cities were authorized but not required to bargain, or employees had the right to present proposals but no other rights.[19] When studying city employees in aggregate, I classified a city as having collective bargaining overall if it had collective bargaining for two or more out of police, firefighters, and "other."

To give some perspective on the prevalence of direct democracy, Table 1 reports the percentage of cities in the sample that allow initiatives. Overall, 83.3 percent of sample cities allow the initiative. This is quite a bit higher than the numbers reported in Matsusaka (2003) that were based on ICMA data. For example, in the ICMA's 1986 survey, 42 percent of cities reported having the initiative, 42 percent reported not having the initiative, and 16 percent did not know or did not respond. As discussed above, the lower reported prevalence of the initiative in the ICMA survey is probably due to errors made by the city clerks who complete the surveys.[20]

Table 1 reveals several patterns that are important for the subsequent empirical analysis. First, initiatives are most likely to be available in the West (95.8 percent cities) and least likely to be available in the Midwest (63.6 percent) and Northeast (65.4 percent). A similar pattern appears for state-level initiatives (available in 24 of 50 states),

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[18] I use the updated numbers for 1996 that were collected by Kim Rueben, who I thank for providing the data. When data for 1996 were unavailable, I used information from 1991, the most recent year otherwise available.

[19] Thus, collective bargaining represents codes 4-6 in the data set and no collective bargaining represents codes 0-3. I experimented with other cutoff points or using a variable that take on values from 1 to 6, and the results are fairly similar, although the cutoff I use tends to give the best fit. I also explored information on right to strike and right to work laws that are included in the data set, but the collective bargaining laws seem to have more explanatory power.

[20] The different numbers do not seem to be due to differences in the regions or populations of the sample cities because the differences remain even within region and city size subsamples. Compare Table 1 here with Tables 4 and 5 in Matsusaka (2003).

where most states west of the Mississippi allow them. Table 1 also shows that cities are much more likely to permit initiatives in states that allow statewide initiatives than cities in states that do not allow statewide initiatives, 94.5 percent compared to 59.1 percent. Finally, Table 1 shows that initiative availability is more common in large than small cities, consistent with the ICMA data. Except for cities with a population below 25,000, there is a monotonic relation, rising from 78.6 percent availability to 87.5 percent availability in cities with a population over 250,000.[21]

There is no systematic information on when cities adopted the initiative or how often initiative status changes. However, the impression from a variety of less systematic sources suggests that most cities with the initiative adopted it long before the sample period, and the lack of any mention in the sources of cities repealing the initiative process suggests that it rarely happens. It seems likely that most initiative cities adopted the process between 1900 and 1920, in the midst of the Progressive movement, the period when most statewide initiative processes were adopted. San Francisco and Vallejo in California were apparently the first cities to adopt, in 1898. By 1900, Nebraska and South Dakota had granted initiative rights to most cities, and Arkansas, Colorado, Maine, Montana, Oklahoma, Ohio, Oregon, Utah, and Wisconsin followed in the next decade (Oberholtzer, 1911, ch. 17). A 1911 survey of states and cities (Bradford, 1911, ch. 19) found that initiative charter amendments were allowed in 38 of 51 cities examined and state statutes allowed municipal initiatives in 15 of 21 states.[22] The cities that allowed initiative in by 1910 included Oakland and San Diego in California, Colorado Springs in Colorado, Miami and St. Petersburg in Florida, Lewiston in Idaho, Lynn and Haverhill in Massachusetts, Grand Rapids and Pontiac in Michigan, Reno in Nevada, Greensboro and Wilmington in North Carolina, Portland in Oregon, Dallas and Fort Worth in Texas, and Spokane and Tacoma in Washington. Portland was particularly energetic is using the new process, voting on 7 initiatives in 1909 and 8 in 1911 (Oberholtzer, 1911, p. 428). The apparent fact that most cities adopted the initiative process almost a century ago is

[21] High initiative availability for the smallest cities is likely to be due to the fact that the dataset oversamples the smallest California cities.

[22] California, Idaho, Illinois, Iowa, Kansas, Louisiana, Minnesota, Montana, New Jersey, North Dakota, South Carolina, South Dakota, Washington, Wisconsin, and Wyoming.

important in the empirical analysis to allay some concerns about the endogeneity of the process.

In order to get a sense of how cities spend their funds, Figure 3 provides a breakdown of employment and payroll for local governments as of March 2000. Local governments include counties, municipalities, townships, and special districts. Education and hospitals, an important part of local spending, are excluded since most of this money is spent by school districts and counties, not cities. The four most important functions in terms of employment or payroll are police, administration, streets and highways, and firefighters. Accordingly, the analysis that follows focuses on these four functions as well as on overall municipal employment and payroll.

Table 2 reports the summary statistics for employment, wages, and payroll function for the cities in the final sample. Here and throughout, employment is expressed as full time equivalent (FTE) employment per 10,000 city residents. Wages are annualized total payroll divided by FTE employment. Payroll is total expenditure on wages (wages times employment) on an annualized basis. One important limitation of these data is that they do not include information on the benefits part of compensation. Benefits are likely to be a significant part of total compensation, but there is no a priori reason to expect their omission to bias the key coefficients below one way or another.[23] Table 3 shows that for the sample cities, police employment averages 25.97 per 10,000 residents, with an average annual salary of $45,945, and payroll expenditure of $9.83 per capita. Consistent with the aggregate information in Figure 3, the sample summarized in Table 2 indicates that the number of employees and payroll expenditure is greatest for police, followed by fire. Average wages are highest for fire, followed by police, administration, streets, and "all other." The table also indicates the identity of the extreme observations. On the low end of employment, Mission Viejo is a city of about 90,000 in Southern California that subcontracts many of its city services, such as trash collection and street sweeping. New Brunswick is a city of about 50,000 in central New Jersey that

[23] Another issue that should be kept in mind is that some cities report no expenditure for a given function, presumably because they have subcontracted out the service to the county or a neighboring city. Such observations are not included in the estimates by function although they appear as zeroes in the totals.

is home to Rutgers University, and the site a prominent downtown revitalization program in the 1980s.

4. Empirical results

The analysis that follows seeks to identify policy changes brought about by the initiative. The approach is to estimate policy difference between initiative and noninitiative cities, controlling for other explanatory factors, with regressions of the form

(1) $$Y_i = \alpha_0 + \alpha_1 I_i + \alpha_2 B_i + \alpha_3 I_i B_i + \alpha_4 X_i + e_i,$$

where *i* indexes a city, Y_i is the dependent variable (employment, wages, or payroll), I_i is a dummy variable for whether city *i* allows the initiative, B_i is a dummy variable for whether collective bargaining is allowed in the state of city *i*, $I_i B_i$ is an interaction term that allows the effect of the initiative to be conditional on availability of collective bargaining, X_i is a vector of control variables, e_i is an error term, and $\alpha_0, \ldots, \alpha_4$ are coefficients to be estimated. If the controls are adequate, policy differences between initiative and noninitiative cities can be attribute to the initiative. In this specification, the effect of the initiative is conditional on whether or not collective bargaining is available, so the effect of the initiative is given by α_1 if collective bargaining is not available ($B_i = 0$) and is given by $\alpha_1 + \alpha_3$ if collective bargaining is available ($B_i = 1$). This approach does reveal the precise mechanism by which the policy changes come about – directly through actual ballot propositions or indirectly through the threat of an initiative – but it captures the full net effect of having the initiative available in a city.

A. All Functions Combined

Table 3 presents three regressions of the form (1) that seek to explain the employment, wages, and personnel expenditure for city workers as a whole. Each column in Table 3 reports estimates from a regression with the dependent variable indicated at the top of the column. Before discussing the coefficients of primary interest, α_1, α_2, and α_3, a few comments on the control variables are in order (summary statistics are in the

appendix). The purpose of the control variables is to capture factors that might influence employment and wages independent of the initiative availability and collective bargaining status. The first three variables are connected to population. If there are fixed costs to provided public services (such as building a fire station), populous city may enjoy economics of scale in the provision of services, making them a better investment. As can be seen, large cities do employ more workers per capita, pay them more, and spend more overall. A densely populated city may be able to provide public services at a lower cost, for example, requiring fewer fire stations per square mile, than a sparsely populated city. Again, the table indicates that dense cities do employ more public workers. They also pay them more and spend more overall. The third population variable is the growth rate over the previous decade. This variable is included to capture lags in the provision of public services. A rapidly developing city may be slow to increase provision of public services in response to a larger population. The estimates weakly support this interpretation, showing that growing cities employ fewer public workers, pay them less, and spend less overall, but the coefficients are not generally distinguishable from zero. Two income-related control variables are included to proxy for demand for public services. Income per capita, as expected, is positively related to employment, wages, and expenditure, consistent with the idea that demand for public services increases with income. The poverty rate is positively associated with employment and expenditure, and negatively associated with wages. Since income per capita is also included in the regression, the poverty rate may be capturing information about the dispersion of income, or poor populations may bring specific problems, such as crime, that increase the demand for public services. Finally, two regional dummies are included, one for cities in southern states and the other for cities in western states. These variables are included to capture omitted variables that are correlated with region, such as political culture and supply factors. They are also needed to separate initiative from regional effects since, as shown in Table 1, availability of the initiative is quite different across regions. Consistent with most cross-section spending regressions, cities in southern states appear to be more fiscally conservative, spending less and hiring fewer workers. Cities in western states, in contrast, hire fewer workers but pay them higher wages on average. Overall, the employment and spending regressions explain about one-quarter of the

variation and the wage equation explains almost two-thirds of the variation. Evidently, much remains to be explained, but these numbers are not bad for cross-sectional regressions of this nature, and suggest that some important sources of variation are being captured.

Because of the interactive specification for the variables of interest, initiative effects are conditional and in some cases given by combinations of coefficients, making them difficult to read directly from Table 3. Table 4 reports the effects in a more transparent way, using the estimates for the models in Table 3.[24] Each city can either allow or not allow the initiative ($I = 1$ or $I = 0$), and collective bargaining can be available or unavailable ($B = 1$ or $B = 0$), creating four possible configurations. The main entries in Table 4 show the estimated level of employment, wages, or payroll expenditure conditional on initiative and collective bargaining status, relative to a city without the initiative and without collective bargaining. For example, the top left cell reports $\alpha_1 + \alpha_2 + \alpha_3$, and the number indicates that a city with both the initiative and collective bargaining employs 71.32 fewer workers (per 10,000 residents) than a city without the initiative and without collective bargaining. The difference is statistically different from zero at better than the 1 percent level. The rightmost column shows the marginal effect of collective bargaining and the bottom row in each panel shows the marginal effect of the initiative. For example, the top entry in the right column indicates that when initiatives are available, cities with collective bargaining employ 31.54 fewer public workers (per 10,000 residents) than cities without collective bargaining.

Panel A shows the effects on employment, always expressed in workers per 10,000 residents. Collective bargaining is associated with lower employment, regardless of whether the initiative is available: both collective bargaining effects are negative and different from zero at better than the 1 percent level. Panel B shows the effects on wages. Here we see that collective bargaining increases wages, by 12.4 percent when the initiative is available and 18.4 percent when the initiative is unavailable. Thus, consistent with the theoretical analysis above, collective bargaining is associated with higher wages

[24] A more cautious phrasing would refer to "differences between cities with and without the initiative" rather than "initiative effects," reserving judgment on whether the differences are *caused* by the initiative. Nevertheless, at times I speak of "effects" simply because it is less cumbersome to read.

and lower employment. Table C shows that this results in lower payroll expenditure overall, although estimated effect when the initiative is available can only distinguished from zero at the 12 percent level of significance. Recall that theory was ambiguous about the effect of collective bargaining on total payroll.

The novel predictions of the theory concern the effect of the initiative process. The main implication is that the initiative has a different effect depending on whether or not collective bargaining takes place. When collective bargaining does not take place, the initiative cuts employment and expenditure, but has an ambiguous effect on wages. The initiative primarily counteracts the politician's tendency to increase patronage. When collective bargaining does take place, the initiative cuts wages, and also may cut employment, but by less than when collective bargaining does not take place. In this case, the initiative primarily counteracts the higher wages that emerge from collective bargaining.

Consider first the cities without collective bargaining. Consistent with the theory, panel A indicates the employment is lower by 39.78 workers in cities with the initiative than cities without the initiative, and the difference is significant at the 1 percent level. The difference is sizeable compared to the mean employment of 136.58 workers. Panel B shows that average wages are within 1 percent of each other in initiative and noninitiative cities, a difference that cannot be distinguished from zero at conventional levels of significance. Payroll spending, shown in panel C, is also lower in initiative than noninitiative cities, but just shy of the 10 percent level of statistical significance. In short, the evidence generally supports the theoretical implication that the initiative will mainly cut employment when collective bargaining does not take place.

Turning to cities that do have collective bargaining, panel A shows that the initiative is associated with a modest decline in employment of 3.34 workers, a difference that is not statistically different from zero. As the theory predicts, the initiative cuts employment less when collective bargaining is available than when collective bargaining is not available. The main finding is in panel B, which shows that wages are 5.1 percent lower in cities with the initiative than cities without the initiative. This effect is different from zero at better than the 1 percent level of significance. Since the collective bargaining wage premium is 18.4 percent when the initiative is not available, the

evidence suggests that the initiative undoes about one-third of the wage premium associated with collective bargaining. The effect on total payroll in Panel C is negative, consistent with the theory, but is not estimated precisely enough to distinguish from noise. In short, when collective bargaining is available, the main effect of the initiative is to cut wages. The effect on employment is modest because collective bargaining already reduces employment, counteracting the tendency of the politician to pad the payroll with patronage workers.

In order to assess the robustness of these findings, I estimated the regressions under a variety of alternative specifications and subsamples. In particular, I considered additional control variables (median age, urbanization, race of population, crime rate), included financial variables (income, wages) in levels rather than as logarithms, and estimated the models after deleting all Western states. To make sure outliers were not driving the results, I also estimated the regressions after winsorizing the dependent variables at the first and ninety-ninth percentiles. None of these changes resulted in a materially different set of conclusions, suggesting the results are fairly robust.

B. Individual Functions

It is also interesting to examine the connection between the initiative and personnel policies for individual government functions. Citizens and politicians are likely to make different tradeoffs between employment and wages across functions, leading to different initiative and collective bargaining effects. For example, citizens appear to view firefighters with some sympathy, while administrators are often seen as wasteful bureaucrats. Certain job functions may be more appealing for patronage purposes than others. For example, streets and highways jobs might be easier to fill with patronage employees who drop by the office once a day to punch the clock, and administrative and "other" jobs might be easier to fill with persons who can provide political services to the incumbents such as organizing campaign events, compared to, say, police and fire fighting jobs, which might be scrutinized more closely by the public.

In order to study the relation between initiatives, collective bargaining, and employment policy for individual functions, I estimated employment, wage, and payroll regressions analogous to those in Table 3 for each of five main functions (administration,

firefighters, police, streets and highways, and "all other"). I then used the regression coefficients and errors to calculate the marginal effects of collective bargaining and the initiative, as in the right columns and bottom rows of each panel of Table 4. Table 5 contains the results. Each panel contains employment, wages, and payroll expenditure results for a single function. The top row in each panel reports the difference between collective bargaining and no collective bargaining when the initiative is unavailable. This shows the marginal effect of collective bargaining. For example, the number 18.1 in panel under wages indicates that administrators are paid 18.1 percent more in a city with collective bargaining than a city without collective bargaining, conditional on there being no initiatives. As can be seen, collective bargaining is associated with higher wages in all functions, and the effects are all different from zero at better than the 1 percent level. Collective bargaining is also associated with lower employment for all functions except administration, and the differences are statistically different from zero at conventional levels of significance except for police.

The second and third rows in each panel show the difference between outcomes in cities with and without the initiative (for short, the "initiative effect"), conditional on whether or not collective bargaining is available. The last row in each table reports the difference in the initiative effect for cities with and without collective bargaining. For example, the numbers in panel E indicate that the initiative cuts employment by 1.23 when collective bargaining is available, by 56.65 when collective bargaining is unavailable, and that initiative's impact on employment is 55.42 greater when collective bargaining is available than when it is unavailable.

Three functions – firefighters, streets and highways, and all other – fit the general pattern we saw in Tables 3 and 4. These functions together comprise 70 to 75 percent of employment and payroll. For each of them, we see that the initiative cuts employment more in cities without collective bargaining than cities with collective bargaining, and the difference is statistically significant at the 5 percent level or better for streets and all other jobs. The coefficient of -1.55 for streets and spending is large compared to the mean employment level, and suggests that jobs in this function may be particularly attractive to politicians for patronage purposes, leading voters to make big cuts when they have control. The wage evidence is also generally consistent with the theory. The initiative is

associated with wage cuts between 2.7 percent and 3.1 percent when collective bargaining occurs, and for streets and all other jobs, wage cutting is more severe with rather than without collective bargaining, although only the streets difference is statistically significant. As for payroll expenditure, the effects are generally insignificant in statistical terms, except for all other jobs, where the initiative is associated with lower spending in the absence of collective bargaining.

The evidence for police and administration is incongruent with the other findings, suggesting that the political economy of these two functions may be different in important ways. For police, unlike any of the other categories, collective bargaining does not have a statistically significant negative effect on employment, although it is associated with 16.0 percent higher wages and an additional 1.44 spending per capita. Such a pattern would be consistent with the theory if citizen and politician utility functions displayed a strong unwillingness to trade off employment for wages or if policy unions were willing to accept lower wages in exchange for greater employment. The estimates indicate that the initiative cuts employment by a statistically significant 2.17 workers when collective bargaining is present but does not cut wages. This suggests that voters use the initiative to reduce employment in the face of the higher wage, essentially making the job cuts that the politicians are unwilling to make. The net result is lower payroll expenditure when initiatives are available, consistent with the idea that voters accept the higher wages, but choose to cut back on police services in response.

The most anomalous case is for administration. Like all of the other spending functions, collective bargaining is associated with higher wages, in this case 18.1 percent higher. Unlike any of the other functions, however, collective bargaining is associated with an increase in employment, and the effect is statistically different from zero at the 5 percent level. Such an outcome would only be consistent with the theory if public employees in this function had preferences for both higher employment and higher wages. Administrative workers might prefer having more co-workers because it could reduce their work load and make their jobs less demanding. The problem with this interpretation if that we would expect the initiative to trigger cuts in wages and spending. However, the initiative appears to be associated with higher employment and wages, although the effects cannot be statistically distinguished from zero. Why voters would not

use initiatives to undo part of the collective bargaining consequences is not clear. Equally puzzling is the finding that the initiative is associated with higher wages when collective bargaining is available. It is hard to explain this pattern in terms of the theory developed above, or any of the more natural extensions of the theory. Perhaps the simplest explanation is that administrative employees are particularly skilled at controlling the initiative agenda, and are able to put proposals that advance their interests on the ballot, apparently to the detriment of the citizens at large. Such an interpretation would seem to square with evidence suggesting that administrative positions are the last to be cut in response to a tax and expenditure limit (Figlio, 1998; Figlio and O'Sullivan, 2001).

5. Discussion

The main message of this paper is that the initiative matters for government employment policies, and that it matters in a way that is predictably different depending on whether or not collective bargaining takes place. When collective bargaining is available, the initiative primarily cuts wages. When collective bargaining is unavailable, the initiative primarily cuts employment. These results are consistent with a model in which elected officials, left to themselves, tend to pad the public payroll with patronage workers. When initiatives are available and voters perceive public employment to be excessive, they reduce employment and payroll expenditure. When collective bargaining takes place, unions negotiate higher wages, and elected officials reduce employment in response, partly alleviating the patronage problem. In this context, employment is not necessarily excessive from the viewpoint of voters, and initiatives are used to cut wages rather than employment.

In the model that motivates the empirical work, all of the changes brought about by the initiative are beneficial to citizens. This happens by assumption in the model because only helpful initiatives will be approved by voters, and the politician and public employees understand this when they negotiate. The implication that initiatives can never make the voters worse off is a fairly consistent finding of complete information models (Matsusaka and McCarty, 2001). To the extent that the empirical evidence is consistent with the predictions of the model, it lends support to the idea that initiatives lead to policies that make the voter better off. However, this conclusion should be viewed with

caution because there are more complicated models with asymmetric information in which citizens are made worse off by having initiatives available. Matsusaka and McCarty (2001) show that when the politician is uncertain about citizen preferences, the politician may adjust policy in a way that favors the interest group in order to deter an initiative campaign by an extreme group. Similarly, Gerber and Lupia (1995) show that the politician may distort policy in a way harmful to the citizens if the voters are uncertain about which policy is closest to their ideal point. It is not immediately clear how the empirical results could be rationalized by either of these models, but absent a careful investigation, we cannot reject the possibility.

The evidence also provides a perspective on tax and expenditure limitations. Beginning in the mid-1970s, voters approved a wave of ballot propositions that limited state and local taxes and expenditures, the most famous of which was California's property tax cutting Proposition 13. Since then a large literature has assessed the impact of tax and expenditure limits (TEL) on government behavior. Many studies find that TELs limit taxes and spending as they were intended to do, but a surprising large number of studies fail to find clear effects (Abrams and Dougan, 1986; Dye and McGuire, 1997; Gerber, Lupia, McCubbins, and Kiewiet, 2001). Poterba and Rueben (1995), a study closely related to this one, finds slower wage growth but only weak evidence for slower employment growth after adoption of a TEL. As discussed above, a tax and expenditure limit is one way the employment and wage reductions associated with the initiative can be brought about. However, it is not the only way. Cuts can also be brought about preemptively by elected officials without the need for an initiative. One possible explanation for the mixed results in the literature is that voters when voters are interested in implementing employment and spending cuts, they resort to TELs in some cases, but in other cities, astute politicians make the cuts themselves in order to prevent a TEL from coming to the ballot (as happens in the model developed above). If this is the case, there may not be observable differences between states and cities with and without TELs. The main difference would be between states and cities where TELs are possible, namely those states and cities where initiatives are possible. Put differently, the important institutional feature behind tax and spending cuts is likely to be the initiative, not the

TEL. The finding in this paper and others of local and state expenditure cuts associated with the initiative lends support for this idea.

Finally, opinion polls concerning TELs often find that voters believe that spending can be cut without reducing services, what Sears and Citrin (1985) called the "something for nothing syndrome." While such beliefs are sometimes viewed with skepticism by journalists and scholars, in the context of the model above, it is entirely possible for a TEL to cut taxes without reducing government services. When collective bargaining drives wages above competitive levels, a TEL that leads to wage cuts can reduce expenditure without reducing the services supplied by government (as measured by employment). When a TEL triggers an employment reduction, public services would presumably decline, but reducing these "patronage" jobs saves voters more in taxes than it costs them in lost services.

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Appendix

Table A. Summary Statistics for Control Variables

Variable	Mean	S.D.	Minimum	Maximum
Dummy = 1 if initiative allowed	0.77	0.42	0	1
Dummy = 1 if collective bargaining allowed, overall	0.75	0.44	0	1
Dummy = 1 for collective bargaining, police	0.73	0.44	0	1
Dummy = 1 for collective bargaining, fire	0.76	0.42	0	1
Dummy = 1 for collective bargaining, other	0.63	0.48	0	1
Population	11.42	0.83	9.94	15.90
Population density	3.62	2.99	0.01	26.40
Population growth, 1990-2000	12.48	18.94	-21.40	169.40
Income per capita	21.13	5.86	9.76	46.16
Poverty, percent	8.26	3.46	1.40	17.63
Dummy = 1 if Southern state	0.30	0.46	0	1
Dummy = 1 if Western state	0.29	0.45	0	1

Note. The unit of observation is a city. Statistics are calculated using 565 observations, except for income and poverty, which are calculated using 564 observations. Standard errors are in parentheses beneath coefficient estimates. Employment, wage, demographic, and economic information is for 2000. Population is expressed as a natural logarithm, density is thousands of people per square mile, population growth is a percent, income per capita is in thousands of dollars, poverty is the percent of the population with an income less than 150 percent of the poverty rate, and Southern and Western states follow Census divisions.

Figure 1. Viable Initiatives with No Collective Bargaining

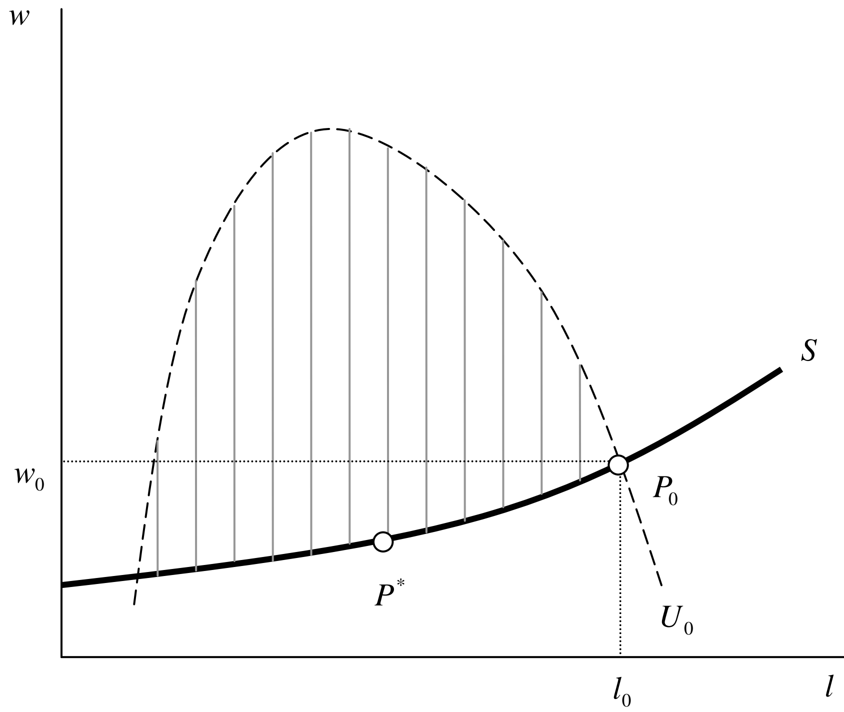


Figure 2. Employment and Wages with Collective Bargaining

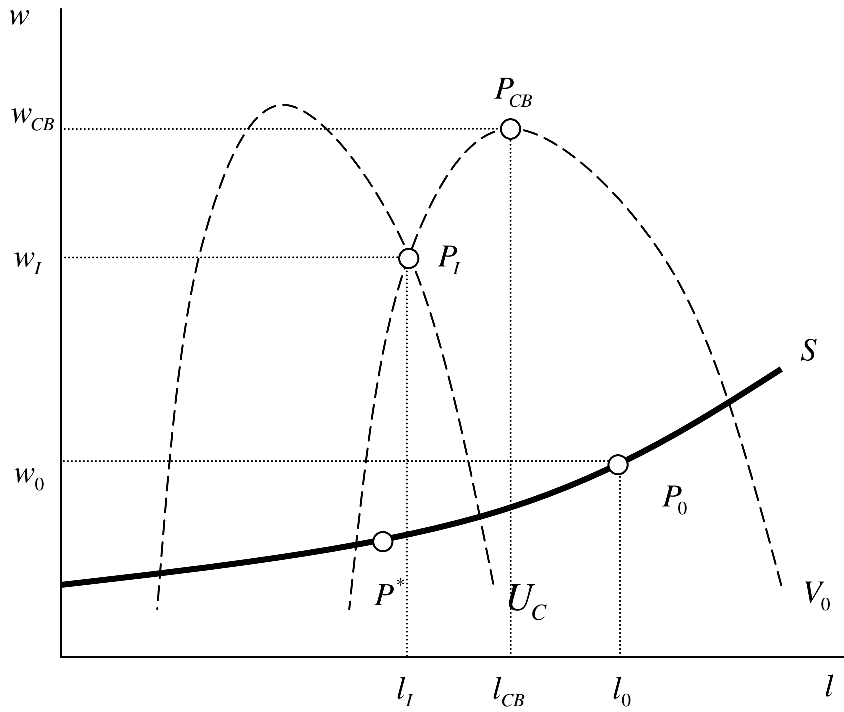
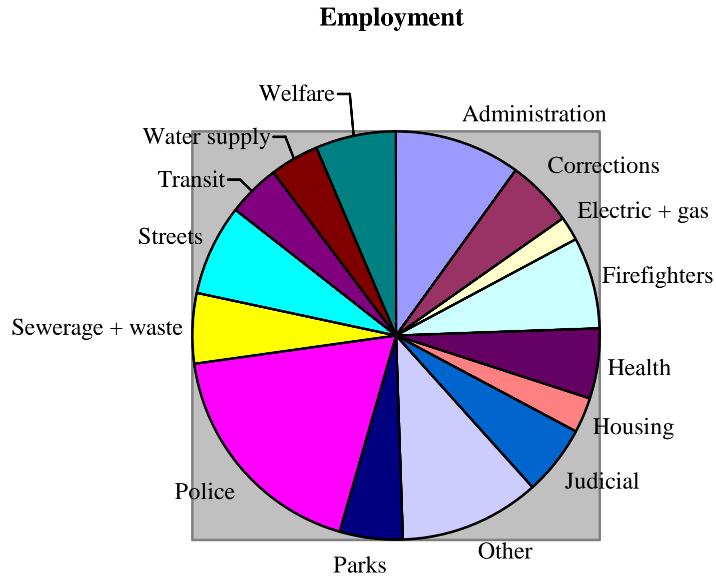


Figure 3. Employment and Payroll for Local Governments, 2000



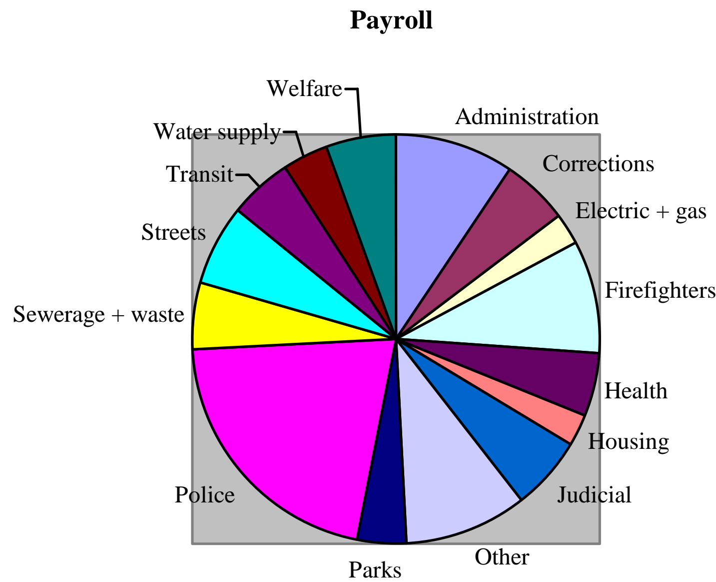


Table 1. Percentage of Cities with Initiative

	Percent of cities with initiative	N
All cities in sample	83.3	1,311
West	95.8	641
South	80.1	301
Midwest	63.6	261
Northeast	65.4	107
Initiative states	94.5	895
Noninitiative states	59.1	416
Population < 25,000	88.6	360
Population 25,000 to 50,000	78.6	365
Population 50,000 to 100,000	81.6	353
Population 100,000 to 250,000	84.0	169
Population > 250,000	87.5	64

Note. The sample includes (with a few exceptions) the largest 1,000 cities in the United States and the 10 largest cities in each state, as of 2005. Regions follow Census definitions: West includes AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY; South includes AL, AR, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV; Midwest includes IA, IL, IN, KS, MI, MN, MO, NE, ND, OH, SD, WI. Population numbers are Census estimates for July 1, 2005. Cities are classified as having the initiative if they allow citizens to propose charter amendments or ordinances by petition that are put to a vote of the citizens at large. Initiative and population data are from the *Legal Landscape Database*.

Table 2. Summary of Employment Policy

Variable	Mean	S.D.	Minimum	Maximum	N
A. Employment[a]					
Police	25.97	9.66	0.77	77.93	558
Fire	16.59	7.50	0.05	71.00	527
Streets	7.99	4.39	0.22	29.99	563
Administration	10.17	5.38	1.93	37.05	565
All other	77.32	89.79	1.22	723.24	565
TOTAL	136.58	101.58	12.78	786.03	565
			(Mission Viejo, CA)	(New Brunswick, NJ)	
B. Wages[b]					
Police	45,945	11,130	17,449	80,798	558
Fire	49,141	13,289	14,238	96,794	527
Streets	38,547	10,295	7,345	82,682	563
Administration	41,422	8,541	18,933	73,953	565
All other	35,609	7,419	16,416	64,296	565
TOTAL	40,866	8,431	23,320	70,115	565
			(Cape Girardeau, MO)	(Oakland, CA)	
C. Payroll[c]					
Police	9.83	4.11	0.13	35.05	558
Fire	6.58	3.11	0.01	35.80	527
Streets	2.48	1.38	0.07	10.61	563
Administration	3.49	1.93	0.31	13.05	565
All other	23.18	28.62	0.48	233.34	565
TOTAL	44.98	33.15	5.59	259.51	565
			(Mission Viejo, CA)	(New Brunswick, NJ)	

Note. The unit of observation is a city. Panel A reports summary statistics for city employment. Panel B reports summary statistics for the average wage. Panel C reports summary statistics for total payroll expenditure per resident.

[a] FTE employment per 10,000 residents.

[b] Average FTE wage.

[c] FTE employment per resident times average wage.

Table 3. Regressions of Employment, Wages, Expenditure for All Functions

	Dependent Variable		
	Employment[a] (1)	Wages[b] (2)	Payroll[c] (3)
Dummy = 1 if initiative available	-39.77** (16.19)	.009 (.23)	-8.53 (5.28)
Dummy = 1 if collective bargaining	-68.98*** (17.52)	.184*** (.025)	-10.59* (5.71)
Dummy =1 if initiative and collective bargaining	36.44* (19.22)	-.060** (.027)	5.13 (6.27)
Population	16.78*** (4.83)	.047*** (.007)	7.82*** (1.57)
Population density	3.57** (1.41)	.012*** (.002)	1.89*** (0.46)
Population growth, 1990-2000	-0.45* (0.24)	-.0002 (.0003)	-0.11 (0.08)
Income per capita	3.15*** (0.84)	.008*** (.001)	1.55*** (0.27)
Poverty, percent	8.92*** (1.66)	-.008*** (.002)	3.09*** (0.54)
Dummy = 1 if Southern state	-2.93 (10.66)	-.082*** (.015)	-6.71* (3.48)
Dummy = 1 if Western state	-51.69*** (11.06)	.143*** (.016)	-13.58*** (3.61)
Intercept	-127.81** (59.64)	9.803*** (.085)	-90.66*** (19.45)
R^2	.253	.652	.238
$\bar{R}^2$	.239	.646	.224

Note. The unit of observation is a city and the sample includes 564 observations. Standard errors are in parentheses beneath coefficient estimates. Employment, wage, demographic, and economic information is for 2000. Population is expressed as a natural logarithm, density is thousands of people per square mile, population growth is a percent, income per capita is in thousands of dollars, poverty is the percent of the population with an income less than 150 percent of the poverty rate, and Southern and Western states follow Census divisions. Significance levels on coefficients are indicated as: * = 10%, ** = 5%, *** = 1%.

[a] FTE employment per 10,000 residents.

[b] Natural logarithm of the average FTE wage.

[c] FTE employment per resident times average wage.

Table 4. Conditional Effects of Initiative and Collective Bargaining

	Panel A. Employment[a]		
	Collective bargaining ($B=1$)	No collective bargaining ($B=0$)	Collective bargaining effect: $(B=1)-(B=0)$
Initiative available ($I=1$)	-71.32***	-39.78**	-31.54 $p=.003$
Initiative not available ($I=0$)	-67.98***	…	-67.98 $p<.001$
Initiative effect: $(I=1)-(I=0)$	-3.34 $p=.781$	-39.78 $p=.014$	

	Panel B. Wages[b]		
	Collective bargaining ($B=1$)	No collective bargaining ($B=0$)	Collective bargaining effect: $(B=1)-(B=0)$
Initiative available ($I=1$)	.133***	.009	.124 $p<.001$
Initiative not available ($I=0$)	.184***	…	.184 $p<.001$
Initiative effect: $(I=1)-(I=0)$	-.051 $p=.003$	.009 $p=.693$	

	Panel C. Payroll[c]		
	Collective bargaining ($B=1$)	No collective bargaining ($B=0$)	Collective bargaining effect: $(B=1)-(B=0)$
Initiative available ($I=1$)	-13.99***	-8.53	-5.46 $p=.119$
Initiative not available ($I=0$)	-10.59*	…	-10.59 $p=.064$
Initiative effect: $(I=1)-(I=0)$	-3.40 $p=.384$	-8.53 $p=.107$	

Note. Panel A is based on regression (1) in Table 3. Panel B is based on regression (2) in Table 3. Panel C is based on regression (3) in Table 3. The main entries show the effect of initiative and collective bargaining status relative to a benchmark city with no initiative and no collective bargaining. The border column and row show the net effect of collective bargaining and the initiative, respectively. Significance levels on coefficients are indicated as: * = 10%, ** = 5%, *** = 1%.

[a] FTE employment per 10,000 residents.

[b] Natural logarithm of the average FTE wage.

[c] FTE employment per resident times average wage.

Table 5. Effects of Collective Bargaining (CB) and Initiative by Function

	Employment[a]		Wages[b]		Payroll[c]	
	Effect	*p*	Effect	*p*	Effect	*p*
	Panel A. Administration					
CB effect | no initiative	1.91*	.061	.181***	.000	1.02***	.004
Initiative effect | CB	0.33	.630	.012	.549	0.16	.488
Initiative effect | no CB	0.47	.584	.068***	.009	0.28	.344
Initiative difference	-0.14	.896	-.056*	.080	-0.11	.751
	Panel B. Firefighters					
CB effect | no initiative	-2.85**	.020	.172***	.000	0.24	.651
Initiative effect | CB	-0.39	.638	-.031	.217	-0.47	.189
Initiative effect | no CB	-1.32	.260	-.050	.162	-0.74	.151
Initiative difference	0.94	.494	.019	.645	0.27	.656
	Panel C. Police					
CB effect | no initiative	-0.83	.552	.160***	.000	1.44**	.019
Initiative effect | CB	-2.17**	.023	-.014	.574	-1.11***	.008
Initiative effect | no CB	0.92	.469	-.010	.765	0.15	.781
Initiative difference	-3.08**	.043	-.004	.918	-1.26*	.059
	Panel C. Streets and Highways					
CB effect | no initiative	-1.83**	.028	.232***	.000	0.23	.397
Initiative effect | CB	0.44	.433	-.027	.278	0.04	.842
Initiative effect | no CB	-1.55**	.026	.045	.152	-0.08	.717
Initiative difference	1.99**	.020	-.072*	.061	0.12	.670
	Panel E. All other					
CB effect | no initiative	-53.70***	.002	.167***	.000	-10.38*	.053
Initiative effect | CB	-1.23	.913	-.029	.171	1.65	.646
Initiative effect | no CB	-56.65***	.000	.012	.638	-13.32***	.003
Initiative difference	55.42***	.002	-.041	.201	11.67**	.034

Note. The numbers in each panel are based on three regressions, one for each of the dependent variables indicated at the top of each column. The specification of the model and the explanatory variables are the same as in Table 3, except that the collective bargaining variables in this table pertain specifically to firefighters, police, and "other" jobs. Administration, streets and highways, and all other jobs use the "other" collective bargaining classification. The regressions include 564 observations for administration and all other, 526 observations for firefighters, 557 observations for police, and 562 observations for streets and highways. Significance levels for the null hypothesis that the effect is zero are indicated as: * = 10%, ** = 5%, *** = 1%. The *p*-values are also reported.

[a] FTE employment per 10,000 residents.

[b] Natural logarithm of the average FTE wage.

[c] FTE employment per resident times average wage.