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The Impact of Political Institutions on Fiscal Decisions in the United States

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The Impact of Political Institutions on Fiscal Decisions in the United States

by

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Abstract

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by

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Doctor of Philosophy in Economics

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This dissertation identifies the impact of various political institutions on public finance decisions in the United States. The particular institutions covered are the local voter initiative process, mayoral term limits, and political party allegiances; I utilize various econometric techniques to identify how each of these institutions influences the fiscal decisions at the state or municipal levels.

Chapters 2 and 3 provide two different approaches to identifying the effects of the local initiative. The initiative process influences policy directly as citizens are able to implement their desired policies; however, the threat of initiative also has the potential to influence the policies that elected officials will pass. In Chapter 2, I explain the history and utilization of the local initiative in California. In particular, I identify the factors that are associated with citizen initiatives, and thus a stronger threat of citizen action. Using data from local elections and initiaitives in California, I find that a strong political majority increases the probability of bringing a citizen initiative to the ballot; the presence of a majority increases the probability of success. Racial diversity leads to an increase in governance initiatives; these areas have more diverse preferences and are thus more likely to be dissatisfied with governance, on average. These cities cannot agree on the specific policies they prefer (they propose no more tax, land use, or initiatives of other categories), but they can agree to limit the powers of government. I also find that the use of the local initiative does not lead to significantly altered fiscal outcomes. The exception to this is that governance initiatives are associated with higher levels of outstanding debt and interest obligations, even when controlling for racial diversity and income.

Chapter 3 provides a direct test of whether the availability of the local voter initiative and recall processes and term limits influences municipal fiscal decisions in the United States. Using an adaptation of the Campbell-Mankiw (1990) model of forward-looking decision making, I find that the threats of voter initiative and recall do not significantly influence local fiscal policies. This suggests that voter preferences and local fiscal policy are aligned in the absence of these institutions. Term limits lead to increased short-sighted decision making, by removing officials' accountability to voters. This effect is roughly equivalent to removing almost all access to municipal borrowing. The analysis improves upon previous studies of US municipal fiscal policy by utilizing a panel of annual observations of government fiscal choices between 1970 and 2004 for more than 500 local jurisdictions. In

doing so, the research design identifies the extent to which cities act according to a rational tax-smoothing model or are short-sighted in their fiscal decision making over time. In addition to term limits, large and diverse populations are associated with short-sighted fiscal policies.

Chapter 4 applies the probabilistic voting model to construct a measure of party allegiance for jurisdictions in the United States. This political score isolates underlying voter preferences from characteristics that uniquely influence each election and is used to test the core and swing voter hypotheses of intergovernmental transfers. I find that party ties are important determinants of state-to-local transfers in the Northeastern United States and in California. In particular, when Democrats gain seats in state legislatures, they tend to reward their core constituencies. In California, Democrats also reward swing constituencies. When Republicans gain seats in state legislatures, they reward swing constituencies.

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Chapter 1

Introduction

California's current and ongoing budget crises have made extensive headlines and been the topic of public debate. Voters famously recalled Governor Gray Davis in 2003, largely in response to the state budget crisis that resulted from the dot-com bubble burst. However, prior to 2003 and subsequently, budgetary problems have plagued California. As one interest group states: "Californians are angry. Our schools are failing, our infrastructure is crumbling, our prisons overflow and our financing system is bankrupt. We have a legislature that can pass neither budget nor reforms" (August 19, 2009, repaircalifornia.org).

This discussion led to observers to speculate as to how California found itself short $26 billion in revenues for the FY2010.[22] The immediate cause of the crisis is the recent economic downturn; states and local governments across the nation are also in fiscal distress.[36] However, the recurring difficulty faced by legislators to balance California's budget has sparked public criticism. The ongoing crises have been additionally fueled by political factors as well as the unique fiscal obstacles faced by the state.

The economic downturn had disproportionate effects on California because of the state's reliance on the individual income tax. Further, the strict limitations on the budget approval and revenue raising processes have nearly paralyzed the state legislature in passing a balanced budget. California's laws are such that, in the case of disagreement amongst legislatures, voters are faced with budget item referenda. But voters have not proved able to implement sound policies to alleviate the recurring budgetary problems. The fundamental mistrust that California voters have in the government, and the restrictive legislation that they have enacted since the 1970s, has further hampered the state's ability to improve its fiscal situation.

Three main factors have been blamed for the ongoing crises faced by the state of California: the reliance on the volatile income tax that was prompted by the passage of Proposition 13, the initiative and referenda process as a whole, and the supermajority legislative approval required to pass a budget or raise revenues. Public outrage has peaked and citizens and interest groups are calling for a constitutional convention to redraft the rules of California's government. Unfortunately, there is little consensus on which reforms would alleviate the fiscal problems in California. The political feasibility of any such reforms is a discussion deserving of its own dissertation.

The unique tax structure in California originated with the passage of the statewide citizen initiative called Proposition 13 in 1978. Proposition 13 created a 1% property tax rate limit and rolled back property tax assessments to their 1975 level. The initiative further restricted increases in assessment to 2%.[1] This combination of a very low overall rate limit and a strict assessment increase limit is one of the most restrictive in the nation according to several metrics.[2] [56, 31] For example, this had real effects on San Francisco's revenue structure: property tax revenues fell from $780 million (38% of own-revenues) in 1977 to $408 million (21% of own-revenues) in 1980.[48]

In California, Proposition 13 left a significant gap in local revenues and resulted in local governments becoming increasingly dependent on the state as a source of revenues. At the local level, various fees and special assessments have become commonplace. At the state level, the income tax has become the most important source of revenues. This has lead to tax revenues that are dependent on the volatile high tech economy of California. This volatility, combined with the tendency to rapidly increase state spending levels during economic booms and maintain these levels when revenues are not growing, has contributed to the ongoing fiscal crises in California.

During downturns, legislators look to various revenue sources, like fees, sales taxes, and loans from local governments. In 1991, for example, Governor Pete Wilson raised taxes by $7 billion in response to a $14 billion deficit; some of this increase was achieved by creating temporary tax brackets. However, temporary changes in tax rates not only create dead weight loss,[3] but they are politically unpopular. In 2003, when facing a $38 billion deficit, Governor Gray Davis tripled the state's car tax and, shortly thereafter, was recalled by voters. During the most recent budget shortfall, when measures aimed at balancing the budget were sent to voters on May 19, 2009, all propositions were defeated. The measures included a 4-year tax hike, the re-allocation of money from child-development and mental-health programs to the general fund, and borrowing from future lottery proceeds. Not surprisingly, the only proposition that passed was Proposition 1F which capped pay raises for legislators.

These ballot measures were widely viewed with skepticism as haphazard efforts to temporarily relieve the state budget mess. However, the difficulties faced by legislators were not necessarily of their own making. As Mark Baldassare puts it, "A lack of planning and preparedness is at least partly a result of limits the public placed on government itself through restrictive initiatives..." [5].

The active utilization of the initiative and referendum is unique to California. The history of these processes and the initiative industry that has arisen in the state is further described in Chapter 2. One conclusion of this chapter is that at the local level at least, racial diversity is associated with an increased use of the initiative to reform the ways in which government operates. Indeed, California is the most racially and economically diverse state in the nation; combined with the active initiative industry and political culture, this

[1] Properties are reassessed at market value when they are sold.

[2] Indeed, many states have passed legislation that limits the taxing power of local governments. Propostion 2.5 in Massachusetts in 1980 is another notorious policy implemented during the Property Tax Revolt, and is generally considered to be the second strictest property tax limitation, after Proposition 13. However, most of these reforms were not nearly as restrictive as California's Proposition 13.

[3] See Barro, 1979.

has resulted in strict limitations on governance at both the local and state levels.

In attempts to gain influence over the state budget, voters have initiated various spending programs, such as a mandatory allocation of 40% of the general budget to education. Spending passed by initiative cannot be overturned, except by further initiative. Although these programs perhaps more accurately reflect voter preferences, they limit the amount available for basic state programs and legislative spending. I refrain here from making a normative statement about the allocation of state funds. Indeed, voters have valid reasons for initiating certain spending programs when they believe the legislature is not spending with their interests in mind. However, the legislature faces institutional obstacles in passing budgets that may limit its ability to please voters.

In Chapter 2, I explain the factors that are associated with initiative activity at the local level. I do not attempt to fully explain this activity at the state level, but the role of the initiative process in California's fiscal problems is a topic of much debate. Indeed, voters have initiated legal restrictions on state budgeting powers and the mistrust of legislators that permeates voter beliefs will continue to make reforms politically difficult.

One particularly restrictive policy that was enacted by voters is the requirement of a supermajority vote to pass the budget. This law was passed by voter initiative as a lesser known of detail of Proposition 13 in 1978.[4] Importantly, the supermajority approval requirement adds significant obstacles in the budget process, making timely agreements nearly impossible.

Although not addressed directly in my dissertation, it is worthwhile to note that special interests also play a unique roll in the California legislature. According to Stratmann (2005), special interest groups spend more money in California than in any other state, spending $522 million between 1992 and 1998 on ballot measures, including $256 million in 1998 alone. Between 2000 and the 2004, interest groups spent $494 million on passing or defeating ballot measures.[5][6] [59]

It is no secret that these groups have significant influence over budgets and policies. Stratmann's meta-analysis finds that contributions affect voting in the federal legislature.[59] And anecdotal evidence suggests that these groups have significant electoral and fiscal control over politicians and spending in California. One union member actually threatened Democrats at the Budget Conference Committee Hearing in May, 2009: "The power, the backing helped many Democrats get into office who would not have done so without the assistance of the homecare workers union. We helped to get you into office, and we got a

[4] Rhode Island and Arkansas are the only other states that have this requirement. Additionally, California requires a 2/3 legislative vote to raise new taxes. This law exists in twelve other states. However California is the only state that has both requirements. [46] There is empirical evidence that these restrictions have real effects on the ability of lawmakers to modify revenues and implement new spending. (See, for example Knight (2000) and Gails and Tieslau (2000). [32, **?**])

[5] In real March 2004 dollars.

[6] Voters (perhaps accurately) perceive that the government is controlled by special interests. A recent poll by the Public Policy Institute of California finds that trust in the state government is at the lowest levels ever recorded, with likely voters having less trust than all residents. Only 16% of likely voters say they trust the state government to do what is right always or most of the time. 68% of residents and 76% of likely voters say that the state is pretty much run by a few big interests. Only 16% of likely voters believe it is run for the benefit of all the people. Interestingly, trust in the federal government is significantly higher.[6]

good memory. And come November, if you don't back our program, we'll help to get you out of office." [7]

In recent years, California has fallen behind in the country in areas of spending such as infrastructure, education, highways, and prisons, yet continues to be one of the highest spending states in the country.[**?**] It is likely that spending on special interests has contributed to this gap in expenditures.

In order to improve fiscal outcomes in the future, it is critical to understand the roles of the underlying political institutions in the budgetary process. In this dissertation, I do not attempt to solve the ongoing state level fiscal problems in California. Rather, I attempt to identify the relationships that exist between certain political institutions and fiscal outcomes. Indeed, many of my findings are relevant to the design of any government system and will inform future debates surrounding the restructuring of institutions. Motivating this dissertation with a description of the particularly complex political economy of California serves to highlight the need for a deeper understanding of the underlying institutions that exist in states and cities across the United States.

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[7] SEIU Official Public Testimony, Budget Conference Committee, May 27, 2009.

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Chapter 2

Initiative Use in California Cities

> "The people are not supposed to govern; they are not supposed to decide issues. They are supposed to decide who will decide."-George F. Will, 1977

> "For twenty years I preached to the students of Princeton that the Referendum and the Recall was bosh. I have since investigated and I want to apologize to those students. It is a safeguard of politics. It takes power from the boss and places in the hands of the people." -Woodrow Wilson, 1911

2.1 The Initiative and Local Finances

The initiative and referendum are historical institutions which were controversial in their inception and remain controversial in their practice today.[1] Much of the criticism of these institutions lies in the argument that citizens make poorer policy decisions than government officials. In order to inform this debate, I identify outcomes of the voter initiative. In this chapter, I provide an historical background of the initiative and a description of its utilization in California cities today. I then identify the effect of the initiative on fiscal outcomes for California cities.

The initiative potentially influences policy in two ways. First, voters have the ability to directly implement policies by a popular vote. Second, anticipating the use of voter initiative, politicians have incentives to implement voter-preferred policies thereby winning political rents and avoiding use of the ballot. Thus, the availability of local initiative is likely to be associated with different policy outcomes. Any study that utilizes cross-sectional variation in the availability of the voter initiative inherently captures both the effects of actual policies initiated by voters, as well as policies initiated by politicians under the threat of initiative.

This threat varies across jurisdictions for several reasons. Basic obstacles to initiating a policy vary across jurisdictions; for example, the number of signatures required to place a measure on the ballot and the time allotted to do so. In New York City, for

[1] The initiative process allows voters to petition to bring policy measures to a popular vote. The referendum is the process by which the legislature defers approval of policies to a popular vote.

example, signature gatherers have 120 days to collect 50,000 signatures. In Los Angeles, signature gatherers have 200 days to collect as many signatures as 15 percent of votes cast in the previous Mayoral election. For cities that require a certain percentage of registered voters, this number typically ranges from 5 percent to 15 percent. Time requirements to gather signatures range from 60 days to an unlimited number of days.[41] Tracy Gordon (2004) finds that greater procedural obstacles are associated with less frequent utilization of the initiative.

The threat of citizen-initiated policy is likely to differ across jurisdictions for political reasons as well. A city that is politically unified and faces few disagreements might see fewer citizen initiatives relative to a politically divided city, because citizen demands are adequately met by popularly elected officials. Alternatively, a stable political majority is likely associated with a greater probability of success at the ballot box and thus an increase in initiative use might be expected. Although demographic characteristics are likely to account for much of this political variation, specific political climates are potentially significant omitted variables when considering the effects of the initiative.

Intuitively, the threat of direct democracy is stronger in cities where voters more frequently bring measures to the ballot. Policies differ in these cities for several reasons: citizens have enacted policies via the ballot box, politicians are more responsive to citizen demands under the threat of direct democracy, and politics in these areas are such that citizens are more likely to be involved and thus have particular demands for government.

In this chapter, I identify the variables that are associated with voter initiatives. Gordon (2004) presents evidence that cities that rely more heavily on the voter initiative are more populous cities and face a greater degree of income diversity. These characteristics likely result in differing policies based on constituency needs, independent of political institutions. Controlling for these observable differences, Gordon finds that cities with more frequent initiatives have higher revenues, but differences in expenditures are not statistically significant. This is suggestive that initiative use might be associated with different fiscal decisions. In order to isolate any effects of the initiative process, both the demand for government and the political climate must be accounted for; in addition to demographic variables that capture demand for local government, I consider recent electoral competition and fiscal status in my specification.

Several difficulties arise in studying the effects of local initiatives. First, voter-initiated policies differ remarkably across jurisdictions and years; each policy is likely to have a unique effect on city finances. Categorizing potential effects into a single dimension is difficult, and the ex ante hypothesis of any effect is unclear. For example, the dimension analyzed in Chapter 3 is a measure of short-sightedness, or fiscal sensitivity to current revenues. It might be the case that voters have more forward looking policy preferences than politicians because their residential tenure is longer than the politician's career. In this case, perceiving that politicians are seeking short-term rewards, voters will implement policies that serve to discipline politicians. An alternative, more skeptical, hypothesis is that voters are ill-equipped policy-makers and have naive preferences for short-sighted policies.

Using data from California cities, this chapter identifies the differences in fiscal behavior for cities that have a history of utilizing the citizen initiative process. I show that several of these demand-side variables are important determinants of the use of the initiative. Controlling for these variables, I further isolate the relationship between initiative use and budgetary outcomes. I find that the threat of the initiative does not significantly alter fiscal outcomes in California. In Chapter 3, I present further evidence that this is likely to be the case in the rest of the country as well.

The next section provides a brief history of direct democracy in the United States. Section 2.3 summarizes studies that have identified the effects of direct democracy on fiscal outcomes. Section 2.4 describes the data used to analyze local initiative measures in California, section 2.5 presents first and second stage results, and section 2.6 concludes.

2.2 History of Direct Democracy in the United States

The introductory quotations[2] summarize the main debate surrounding direct democracy. Indeed, this debate originates with James Madison and Thomas Jefferson during the framing of the US Constitution; Madison held strong faith in the process of representative democracy and the checks and balances instituted to maintain a strong republic. Jefferson advocated that citizens be as active and powerful in the political process as possible.

The desire to increase citizen representation in government led 24 states to adopt some form of direct democracy: the initiative, recall, referendum, or any combination thereof. Populists, prolabor Democrats, and Progressive reform groups were responsible for initiating direct democracy in most of these states in the early twentieth century. Although the specifics of how these electoral mechanisms are implemented, each of these serves to increase the influence to the electorate in policy decisions. The initiative allows citizens to petition to bring any measure to a popular vote. The recall options is a special case of the initiative, where citizens petition to remove an elected official from office. In some cases, the governing body might submit a referendum to the voters for approval. In this case, the policy originates in the legislature or council rather than citizen petition.

The direct democracy movement was most successful in the western United States, for various reasons. These states were the most recently admitted to the union, and thus were still establishing governing institutions during the Progressive era of the late 1800s and early 1900s. Every state that was admitted since 1870 has instituted the referendum, with the exception of Hawaii. And each of these, with the exception of New Mexico, have instituted the initiative. When framing their constitutions, these states were farther away from the Madisonian fears of mob rule, and malleable to the current Populist and Progressive ideals.

Western state legislatures were also famously controlled by special interest politics, whereas immigration and urbanization had pluralized east coast legislatures to a greater extent. In California, for example, Governor Hiram Johnson ran on direct democracy platform in response to the stronghold that the Southern Pacific Railroad and the Knights of the Royal Arch had on the state legislature. He brought the initiative and referendum to the state and all local governments in California in 1911. Several railroad-dominated cities in California had already implemented the local initiative since 1902 when a constitutional amendment was passed allowing municipal governments to do so. In Oregon, the legislative

[2] Cited originally by Cronin (1989).

influence of Standard Oil, the Pullman Company, a few large telegraph companies, and the railroads similarly led to the adoption of the initiative and referendum. In other western states, similar influences led to direct democracy.[**?**]

Figure 2.1a depicts the states and cities across the US that have the initiative option. The geographic concentration of the statewide initiative in western states is clear. Initiative status for cities is identified by a city's response to the 1996 International City/-County Management Association Form of Government survey.[3] The local initiative is more popular in cities that are located in initiative states. According to John Matsusaka, the initiative is available in 77 percent of western cities, 47 percent of northeast cities, 35 percent of southern cities, and 49 percent of midwestern cities.[42]

Since the early 1900s, voters have utilized the initiative process to further limit the activities of the state government, particularly in California.

> "Californians have voted in favor of initiatives that have changed their state constitution and thus exerted their authority over the executive, legislative, and judicial branches of state government. They have voted for initiatives that limited the terms of state office holders, restricted the amount of money they pay in local property taxes, mandated the amount of funding the state legislature must earmark for programs they like, eliminated government programs they did not care for, decriminalized the use of drugs that the government deems illegal, determined the length of prison sentences so that judges and legislators cannot use their discretion, and changed the voting rules for primaries so that parties cannot determine who votes for candidates. Sometimes, the public's distaste for government dictates has let to legal battles that have been resolved by courts' overturning their initiatives, resulting in more distrust of government. " -Mark Baldassare [5]

Political disenchantment in California peaked again in the 1970s and voters acted by initiating many of the limitations quoted above. Further, they constrained local governments by capping property taxes with the passage of Proposition 13. Thus began the nation-wide tax revolt, fueled by national political cynicism.[4] In California, the passage of Proposition 13 severely limited property taxation by capping rates at 1978 levels. And since the 1970s, the use of voter initiative has grown. From 1971-2005 California voters brought 157 initiatives to the ballot, most of them after Proposition 13, compared to just 42 from 1940-1970. [16]

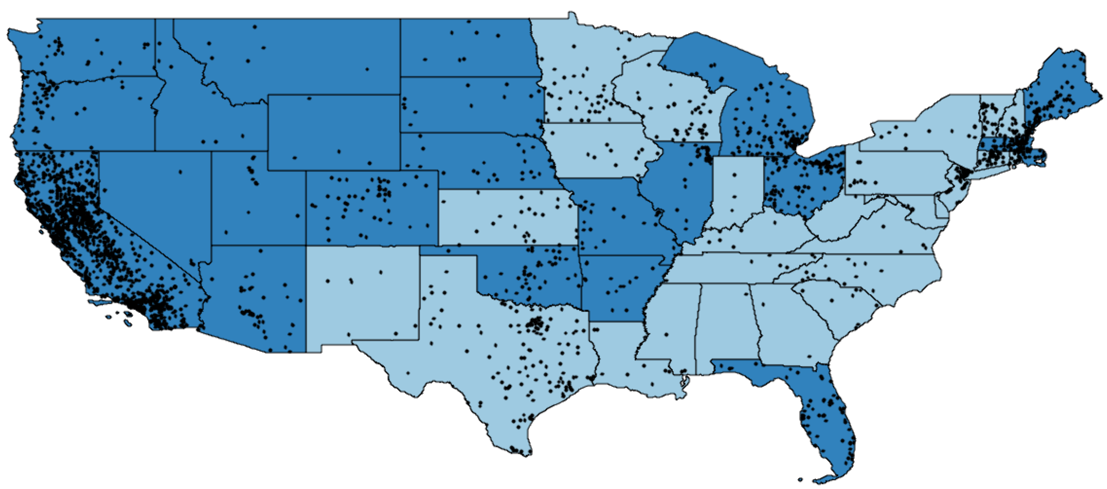
Another result of voter mistrust of government in the California is the active "initiative industry" in California. McCuan et al., describe in detail the extent to which consultants, for-profit signature gatherers, and other actors have industrialized the initiative process in California. They note that firms are contracted to get measures on the ballot

[3]Note that this survey was sent to just over half of the cities in the US. The average number of responses per state was 93. Note that all California cities are reported to have the initiative, regardless of response to the survey. Certain states were under-represented in the survey: 17 cities from Montana responded, 12 from Nevada, 8 from North Dakota, 18 from South Dakota, and 18 from Wyoming.

[4]State surveys captured growing sentiments of government mistrust.[16]

Figure 2.1: **Cities with the local initiative option (of those that responded to the 1996 ICMA Survey).**

(a) Dark states have the statewide initiative



and campaign for votes in other states as well, but the costs are much greater in California. Indeed, other states import campaign services from California![43]

As highlighted by Bowler and Donovan (1998), a shortcoming of the initiative process is that revenue and expenditure decisions are independent, providing voters only one half of the fiscal equation; this often leads to tax cuts with constant demands for services and thus a highly constrained legislature. This leads to voting behavior that resembles the sentiments of one voter: "It turns out that letting me vote on stuff is a bad idea, for much the same reason that giving me a credit card was a bad idea: I love stuff and hate paying for it."[58]

2.3 Related Literature

Critics of direct democracy claim that the initiative process gives unknowledgeable voters undue control over legislation and that the policy outcomes are often ineffective or even destructive. There is some evidence that voters often do not have complete information when voting, but by using informational "shortcuts" and signals from endorsements, voters do not consistently make less efficient policies than do legislatures.[5]

Tracy Gordon (2004) provides a detailed overview of initiative use in California at the state and local levels. She finds that cities that use the initiative are larger, growing, and economically diverse. She compares fiscal outcomes of cities that are high users of the initiative to those that rarely or never use the initiative and finds that there is little difference between the two. High-use cities have marginally higher revenues, but there is no difference in expenditures.

Matsusaka (2004) finds that initiative states spend and tax less than non-initiative states, since the mid-1970s. Further, initiative states are no more likely to borrow than noninitiative states. He also concludes that statewide initiatives are used to "reign in" state spending when legislatures deviate from public opinion. Although he does not address the various effects of tax revolt policies like Proposition 13, Matsusaka asserts that, at the state level, the initiative process does not have a deleterious effect on state finances and may even serve to discipline the legislature.

Other studies have examined the effects of specific propositions. For example, the various impacts of property tax revolt measures have been widely explored.[6]

Most studies until now, have considered the initiative process as a whole, or examined the effects of specific propositions. Aside from Gordon (2004), there has been virtually no analysis of the local initiative process. In this chapter, I consider the frequency of local initiative usage as well as the composition of local initiatives. In chapter 3, I consider the general availability of the initiative process. A review of the current literature on the state level initiative makes clear that drawing general conclusions about the initiative process is difficult; reigning in spending might be desirable, but more detailed analyses of specific policies are necessary as this voter-imposed discipline has potentially important consequences.

[5] See for example, Lupia (1994), Cronin (1989)[39, 18]

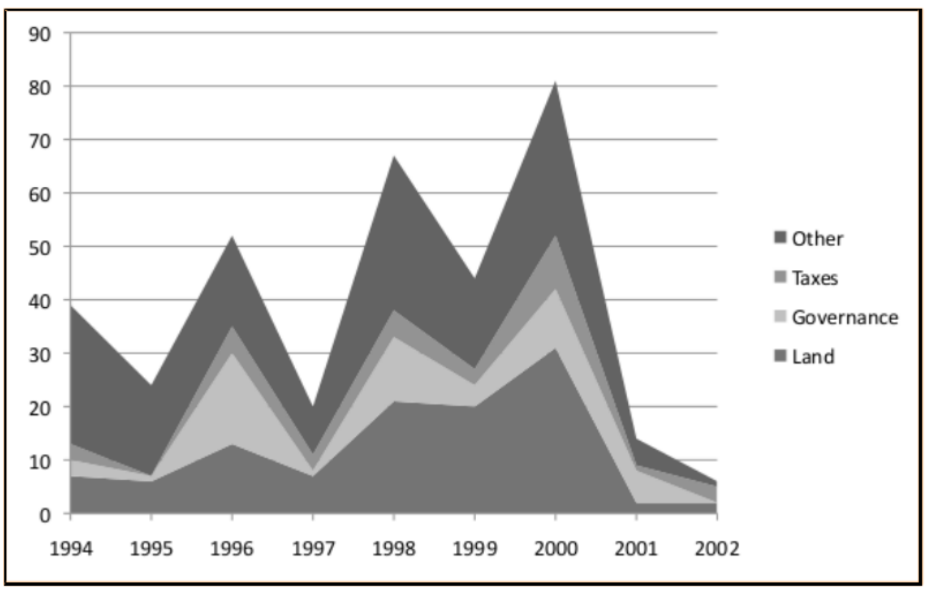
[6] See, for example, Brunner and Sonstelie (1996) [13], Bowler and Donovan (2004)[?], and Shapiro and Sonstelie (1982)[?]

2.4 The Local Initiative in California Today

Many state-level studies, as well as the analysis in Chapter 3, are limited to identifying cross-sectionally whether or not a city had access to the local initiative. These studies do not consider the extent to which citizens bring measures to the ballot, or the credibility of the threat of initiative action. There is wide variation in the extent to which a citizens bring measures to the ballot. In California, for example, between 1990 and 2002, 211 cities voted on 419 local initiative measures.[7] These measures range from new taxes, to issues related to governance, to miscellaneous issues facing cities. For example, in 1995, voters in San Buenaventura approved an initiative to impose a $35 tax to fund libraries. In 1998, voters in Escondido approved an initiative that requires voter approval to amend the City's general plan in any way. Also in 1998, an initiative to regulate the sale of certain type of fireworks failed in Moreno Valley.

Figures 2.2 and 2.3 depict the timing and categorization of local initiatives in California between 1990 and 2004.

Figure 2.2: **Ballot initiatives by type in California cities since 1994**



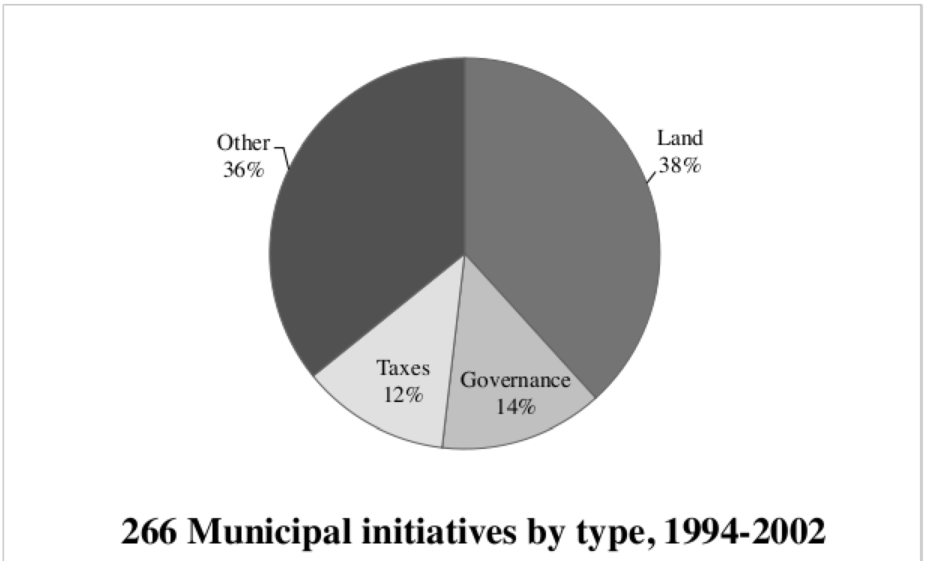
Notably, term limits are one of the most popular governance initiatives passed at the local level. In 1996, for example, seventeen cities in California proposed term limits on their mayors, city councils, or both. All of these overwhelmingly passed. Chapter 3 examines the impact of term limits on local fiscal decisions in more detail. Largely during the 1990's, cities across the country enacted similar term limit laws.

It is unclear that these types of policies would systematically influence municipal fiscal positions in any direction.[8] However, given the controversy surrounding the local

[7] There are 474 incorporated cities in California.

[8] I leave for further research the costs imposed on voters of signature collection, campaigning, and the

Figure 2.3: **Ballot initiatives by type in California cities since 1994**



initiative, it is important to determine the outcomes of initiative actions, one aspect of which is fiscal positions. Note further that there have been attempts to discern the impact of initiatives on state fiscal positions[9]; decisions made at the local and state levels vary considerably, and the analyses should be considered independently from one another.

The only state for which there is comprehensive local elections and initiative information is California. In Chapter 3, I utilize a time series taken from the Annual Survey of Government Finances, which includes only 68 cities in California. This limits the statistical power of any analysis that utilizes the full time series. However, the Government Finance data is available for all cities in five year intervals.

With limited power from the small annual time series, this study examines cross-sectional outcomes using a dataset that combines fiscal, elections, and initiative data for all cities in California. As mentioned, the financial series is taken from the Annual Survey of Government Finances conducted by the Census Bureau. Local election data are available for all cities from the California Elections Data Archive (available from 1994 onward). Local initiative data were provided by Tracy Gordon, and are described in more detail in Gordon (2004). These data are appended with demographic information from the 1990 Census.

costs incurred, in certain cases, by holding special elections.

[9] See for example, Matsusaka (1995)

2.5 Results

2.5.1 Cross-sectional analysis with full sample

In California, cities that frequently utilize the initiative are observably different from cities that do not utilize the initiative. Table 2.1 displays the outcome of a probit model, where the probability of a citizen initiative coming to a popular vote is the dependent variable. Column (1) considers all categories of initiatives. Columns (2) through (5) consider initiatives related to taxes, governance, land use, and other issues, respectively.

Although demographic features are likely to be correlated with the electoral environment, this is a variable that is not explicitly considered in existing empirical specifications. To capture the extent to which a city is politically unified, I include indices of electoral unification for mayoral and council races.[10] Intuitively, a more unified city will be more pleased, on average, with policy actions taken by representatives and thus less likely to utilize the initiative. Conversely, a city with a strong political majority might be more likely to bring a citizen measure to the ballot, because the existence of a majority increases the probability of a successful initiative.

Fiscal conditions might also prompt the use of the initiative, if voters perceive that policies are responsible for poor operating balances, for example. Thus, a lagged value of the operating balance is included in the specification.[11] Electoral cycles are also controlled for, by including a dummy variable for even years.

Electoral unification in mayoral races is associated with an increased probability of citizen initiative action in all categories of initiatives; the increased probability of success leads to a more politically active constituency. Interestingly, the measure of unification for council races is not a determinant of initiative activity.

Constituents appear to respond to fiscal situations; a smaller lagged operating balance is associated with initiative action, particularly tax measures.

Cities that use the initiative tend to have a greater share of college educated citizens. Median income is negatively associated with the probability of a governance or 'other' initiative. These variables capture the demand for local government. A larger population increases the probability of initiative action, but not for any particular category of initiative. The share of the population that is elderly is not a significant determinant of initiative action.

Interestingly, racial diversity is positively associated with initiative action, but only in the governance category.[12]

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[10]Electoral popularity is measured by Herfindahl indices using vote shares of each candidate, s_i. N is the number of candidates.

$$H = \frac{\sum_{i=1}^{N} s_i^2 - 1/N}{1 - 1/N}$$

[11]The operating balance is measured as the number of standard deviations from the mean balance for all cities in a given year.

[12]Racial diversity is measured as $1 - \sum S_i$ where S_i is the share of the city population that is of racial group, $i =$ black, white, and Hispanic.

Table 2.1: **Probit model: Probability of a popular vote on a citizen initiative.**

	Category of initiative				
	Any Vote (1)	Tax (2)	Governance (3)	Land Use (4)	Other (5)
Electoral unification, Mayor	0.212	0.025	0.027	0.116	0.040
	(5.01)**	(2.72)**	(2.04)*	(5.42)**	(1.78)
Electoral unification, Council	-0.004	-0.012	-0.028	-0.047	0.024
	(0.06)	(0.56)	(1.01)	(1.01)	(0.72)
Lagged Balance[a]	-0.169	-0.030	-0.026	-0.064	-0.065
	(2.13)*	(2.24)*	(0.98)	(1.49)	(1.57)
% College educated	0.001	0.000	0.000	0.000	0.001
	(4.30)**	(0.86)	(2.73)**	(2.57)*	(4.47)**
Population[b]	0.000	0.000	0.000	0.000	0.000
	(2.06)*	(1.25)	(0.75)	(1.91)	(1.42)
Household median income[b]	-0.001	-0.000	-0.000	-0.000	-0.001
	(2.11)*	(0.09)	(2.20)*	(0.64)	(2.60)**
Racial diversity	-0.008	0.003	0.016	-0.026	0.008
	(0.36)	(0.51)	(1.97)*	(1.76)	(0.60)
% Over 65 years	-0.001	-0.000	-0.000	-0.000	-0.000
	(1.10)	(1.26)	(0.54)	(0.19)	(0.50)
Even year	0.051	0.008	0.010	0.018	0.017
	(6.03)**	(2.75)**	(2.88)**	(3.51)**	(3.54)**
Observations	2280	2280	2280	2280	2280

Absolute value of z statistics in parentheses
* significant at 5%; ** significant at 1%
Marginal effect of independent variables reported.
[a]measured in standard deviations from the mean
[b]X/1,000

2.5.2 Differences in budgetary outcomes in California cities

Gordon finds that cities that are high users of the initiative have higher per capita revenues than do cities that are not high users. As Gordon points out, we cannot conclude from this correlation that the initiatives cause higher revenues. Cities with high initiative use might have a higher demand for government services, or experience more issues and controversies that lead to more initiatives. These cities are likely to be more difficult to govern, because they are more diverse, for example.

Thus, it is important to control for the characteristics of a city that are associated with demand for government. In the proceeding OLS specification, I control for demographic characteristics of a city: population, racial diversity, median income, and educational attainment. Table 2.2 displays the OLS estimation of equation 2.1.

$$F_{it} = \alpha + *I_{it} + \gamma * X_i + \epsilon_{it} \tag{2.1}$$

Where F_i is the fiscal outcome of interest, measured as standard deviations from the mean for all cities. Outcomes considered are per capita operating balance (columns (1) and (2)), interest payments as a percent of general revenues (columns (3) and (4)), and outstanding debt as a percent of general revenues (columns (5) and (6)). I_i is a dummy variable for whether or not a city has brought an initiative to a popular vote in the past five years. X_i is a vector of demographic and political characteristics that were shown to be important in the determination of initiative use in the first stage.

In table 2.1, the estimation is reported for any recent initiative as well as a recent initiative related to governance issues (for example, term limits). Other initiative categories are not reported here, although the results are similar to those in columns (1), (3), and (5) for initiatives related to taxes, land, and other issues.

A recent vote on an initiative does not influence the size of the operating balance.[13] Interestingly, a greater margin of victory for the most recent Mayoral race is associated with smaller balances. Median income and elderly populations are associated with larger balances, whereas larger populations are associated with smaller balances.

Cities that have initiated a governance measure in the past five years see larger interest payments and outstanding debt, as a percent of revenues (columns (4) and (6)). The margin of win for mayor and council are not significant determinants of debt behavior.

Outcomes not reported but also considered are per capita revenues and expenditures, and charges and special assessments as a percent of general revenues. The effect of a recent initiative on these outcomes is not significantly different from zero.

2.6 Conclusion

The preceding analysis is an attempt to identify the demographic and political characteristics that are associated with the use of the local initiative. Expanding on Gordon (2004), I find that political economy variables are important determinants of initiative use; a stronger majority win for the Mayor is associated with increased probability of constituents bring initiatives to a vote, in particular those related to governance and land use. This is supportive of the notion that a politically unified city faces fewer electoral obstacles in bringing measures to a vote; signatures are easier to collect, and the probability of success is greater.

Increased racial diversity is associated only with governance initiatives. Diverse areas have a wider variance of preferences for government; this is likely to lead to a more dissatisfied population, on average. It is thus perhaps no surprise that, although these constituencies cannot agree to propose specific tax or land policies, they can agree to reform the governance process.

A smaller balance is associated with an increase in utilization of the initiative process, particularly for tax related measures. This is suggestive that the decision to bring an initiative to the ballot is responsive to fiscal situations. However, the second stage reveals that these cities have average fiscal outcomes relative to the rest of the state. Although a regression of fiscal outcomes on the decision to vote on a measure should be interpreted with caution, because of this potential endogeneity, cities that utilize the initiative do not end up in consistently different fiscal positions from average.

The exception to this is that cities that have recently voted on a governance measure tend to have higher levels of outstanding debt and interest obligations, controlling

[13] Operating balance is defined as per capita general revenues, excluding intergovernmental transfers, minus per capita direct expenditures, excluding capital outlays.

Table 2.2: **Standard deviations from mean budgetary outcomes following initiative(s).**

	Balance		Interest Obligations		Outstanding Debt	
	(1)	(2)	(3)	(4)	(5)	(6)
Recent Initiative, Any	-0.001		0.212		0.162	
	(0.006)		(0.191)		(0.196)	
Recent Initiative, Governance		-0.001		0.313		0.290
		(0.005)		(0.156)**		(0.160)*
% College Educated	-0.000	-0.000	0.000	0.000	-0.002	-0.001
	(0.000)	(0.000)	(0.003)	(0.003)	(0.003)	(0.003)
Electoral Unification, Mayor	-0.033	-0.033	-0.250	-0.248	-0.303	-0.301
	(0.009)***	(0.009)***	(0.260)	(0.259)	(0.265)	(0.265)
Electoral Unification, Council	-0.010	-0.010	-0.262	-0.251	-0.315	-0.303
	(0.009)	(0.009)	(0.253)	(0.253)	(0.259)	(0.258)
Population	-0.000	-0.000	0.000	0.000	0.001	0.001
	(0.000)**	(0.000)**	(0.000)*	(0.000)*	(0.000)**	(0.000)**
Household Median Income	0.001	0.001	-0.005	-0.005	-0.003	-0.003
	(0.000)***	(0.000)***	(0.004)	(0.004)	(0.004)	(0.004)
Racial Diversity	0.005	0.005	0.235	0.248	0.232	0.244
	(0.008)	(0.008)	(0.239)	(0.238)	(0.244)	(0.244)
% Over 65	0.001	0.001	-0.033	-0.033	-0.034	-0.034
	(0.000)***	(0.000)***	(0.007)***	(0.007)***	(0.008)***	(0.008)***
Year 2002	0.009	0.009	-0.041	-0.043	-0.050	-0.051
	(0.003)***	(0.003)***	(0.079)	(0.078)	(0.081)	(0.080)
Constant	0.010	0.010	0.556	0.533	0.619	0.597
	(0.006)*	(0.006)*	(0.172)***	(0.172)***	(0.176)***	(0.176)***
Observations	623	623	623	623	623	623
R-squared	0.12	0.12	0.06	0.07	0.07	0.07

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

for observable characteristics.

Chapter 3

Direct Democracy, Term Limits, and Fiscal Decisions in US Municipalities

3.1 Introduction

The extent to which local governments are able to smooth expenditures over time through economic fluctuations is an unresolved question in public finance. Positive political models of taxation and revenue predict that optimizing governments will smooth taxes and revenues across periods by incorporating any knowledge of future revenues into current decisions. Governments smooth taxes and expenditures by accumulating savings during periods of economic growth and utilizing savings or borrowing during economic downturns. However, governments at both the federal and sub-national levels do not consistently smooth taxes and expenditures over time and often face insufficient revenues and savings to cover expenditures and debt obligations. Balanced budget constraints at the state and local level impair smoothing ability by restricting debt usage. Thus, reasonable deviations from perfect tax and expenditure smoothing are expected, but excess fiscal sensitivity to revenue variations leads to frequently distressed budgets.

In the extreme case of fiscal distress, cities have declared bankruptcy or received bailouts from outside agents. In 1975, New York City was famously saved by its teacher union which invested $150 million from pension funds to help the city meet debt obligations. In 1994, Orange County, California was home to the largest municipal bankruptcy in history. Complete bankruptcy is a rare occurrence; since 1937 there have been fewer than 500 Chapter 9 bankruptcy petitions filed.[1] Nonetheless, the threat of bankruptcy, drastic cuts in services, or tax increases required to avoid bankruptcy, can each have serious long-term consequences for a city and its residents. A significantly short-sighted fiscal policy is associated with volatile swings in service provision, in government employment, and in tax rates. Alone, this volatility creates dead weight loss. And, to the extent that state and federal governments provide distressed governments with additional grants, short-sighted

[1] http://www.uscourts.gov/bankruptcycourts/bankruptcybasics/chapter9.html

municipal budgeting imposes a potentially significant externality on other governments.

There are several policy decisions associated with tax-smoothing. During good economic times, for example, voters are likely to seek tax cuts, not recognizing a need for excess revenues and perhaps not trusting politicians to save the funds. Indeed, politicians face various incentives to spend liquid funds to please their constituents or to implement their own agendas. But, such tax cuts or spending programs limit the ability to save liquid funds during upswings and thus the ability to utilize savings during downturns. Issuing debt during downturns is an alternative to saving but balanced budget requirements limit deficit financing.

In this chapter, I examine several institutional factors that influence policy decisions, namely the local initiative, the local recall option, and term limits. The initiative process, whereby voters bring policies to the ballot box by collecting signatures, has come under attack for poor fiscal policy actions. With limited empirical evidence supporting any effect of the initiative on fiscal policy, the criticism has largely stemmed from a few controversial voter initiatives, like Proposition 13 in California.

The initiative can systematically affect fiscal policy if voters are consistently better or worse decision makers than politicians. Opponents of the initiative process argue that voters make poor decisions because they are not well-informed, or they use the initiative for personal gains rather than for the good of the electorate. However, proponents argue that the initiative is an important disciplining mechanism and leads to better policies.

The initiative has the potential to influence policy directly, through voter-initiated policies, and indirectly as a threat to politicians. If politicians perceive that voters will pass a law at the ballot box, then politicians stand to make electoral gains by passing it themselves.[23, 10] Whether or not the initiative process affects fiscal policy is a highly relevant policy debate; in California, opponents blame the initiative for many of the states fiscal woes.

Another form of direct democracy, the recall enables citizens to vote for a politician's removal from office by collecting signatures. The threat of being recalled from office gives politicians incentives to manipulate taxes and spending to please voters. During good economic times, for example, a politician's seat is threatened if she does not cut taxes according to voter demands. Importantly, both the initiative and recall option serve to align constituent and politician interests by giving voters direct access to ballot items.

Term limits, though, may serve to either align or misalign voter and politician interests. Since 1970, voters have increasingly supported the implementation of term limits. When term limits are implemented, it is most common to limit Mayors to two terms in office. Proponents argue that career politicians become increasingly harder to oust from office; incumbency status and fundraising capabilities provide career politicians with unfair advantages over challengers. Thus, supporters believe that term limits serve to align voter and politician interests.

Economic theory, however, predicts that term limits misalign interests. Firstly, there are no formal barriers to ousting a bad politician; with bad politicians voted out of office, term limits only serve to shorten the careers of good politicians. Secondly, term limits dramatically shorten a politician's time horizon, by ensuring that after typically one or two terms, the incumbent will not be eligible to reap the benefits of far-sighted behavior.

As a result, she faces incentives to spend government money to implement her preferred policies, or limit the spending behavior of future policy-makers.[2] Besley and Case (1995) provide empirical evidence consistent with the theory that term limits misalign interests; Democratic governors faced with term limits spend and tax more than those eligible for re-election.

With limited empirical evidence supporting arguments for or against term limits, the debate remains relatively theoretical. I contribute to this debate by providing evidence of the effect of term limits on local fiscal policy.

In this chapter, I test several hypotheses of why local fiscal policy deviates from reasonable tax-smoothing behavior. I test the roles of voter initiative, recall, term limits, and political preferences in government fiscal policy. In doing so, I contribute to ongoing policy debates surrounding the use of initiative, recall, and term limits. I also identify whether liquidity constraints and population characteristics contribute to the ongoing fiscal troubles faced by many local governments in the United States.

To identify these influences on fiscal policy, I adapt Campbell and Mankiw's (1990) model of forward-looking decision making for government spending. Originally developed to identify the extent to which individuals act according to the permanent income hypothesis, the λ-model estimates the proportions of current spending that is funded by current and permanent resources. This model has been adapted to government spending in only a few studies, all of which have been carried out using European data.[3] The only attempt to estimate the extent to which US states and municipalities are forward-looking was conducted using aggregate data.[4] With one observation for all state and local governments per year, the interpretation and credibility of the previous work is dubious. Without observing microeconomic spending and tax decisions, an estimate of aggregate government fiscal strategy does not provide any insight as to why government policies display excess sensitivity to revenue variatiability. I estimate the model using panel data from 506 US municipalities. By observing fiscal decisions for 506 cities over 35 years, I am able to identify the economic conditions and constraints that are associated with decisions to smooth taxes or to act short-sightedly.

My main findings are:

- The threat of local initiative and recall do not significantly influence local fiscal policy. However, I cannot identify the effect of voter initiated policies on fiscal outcomes.
- Municipal term limits are more closely associated with short-sighted fiscal policy.
- Ethnic diversity, liquidity constraints, and local tax structures are also important determinants of fiscal sensitivity to revenue variations.

The next section summarizes the literature related to direct democracy and term limits. I also summarize the few studies that have applied Campbell and Mankiw's model of

[2] See, for example, Tabellini and Alesina, 1990 [3]; Persson and Svensson, 1989[50]; Besley and Case, 1995 [9].

[3] See, for example, Dahlberg and Linstrom (1998) or Borge and Tovmo (2007).

[4] See Holtz-Eakin (1994).

individual consumption decisions to government spending. Section 4.3 presents the empirical framework, discusses the econometric obstacles, and presents an instrumental variables approach. Section 3.4 presents the data used in the empirical estimation. Section 4.5.2 provides the empirical results, and section 3.6 concludes.

3.2 Empirical Context

This chapter is related to two areas of study. First, there is limited evidence of the effects of the initiative, recall, and term limits at the local level; most analyses of these institutions are carried out at the state or federal levels. Second, there is a series of work exploring the extent to which governments comply with an optimal tax-smoothing model. This study uses municipal data to identify the fiscal effects of the initiative, recall, and term limits. In particular, I expand upon the tax-smoothing literature to identify differences in tax-smoothing behavior related to the availability of the initiative and recall options, and the presence of term limits.

There is limited empirical evidence of the effect of the initiative, recall, and term limits at the local level. Tracy Gordon (2004) conducts one of the first studies of local initiatives. She uses data on local initiatives in California and finds that larger and more diverse cities are more likely to bring measures to the ballot. She also concludes that cities that regularly utilize the initiative have higher per capita own-source revenues and expenditures, compared to cities that rarely bring initiatives to the ballot.

At the state level, studies of direct democracy have addressed several aspects of the initiative and recall; for example, whether voters make better or worse decisions using the initiative than do state legislators, and if voters are ill-equipped make complicated decisions. The general finding is that, on average, voters are able to utilize "informational shortcuts" and do not approve worse policy than lawmakers.[18, 39] Another branch of literature explores whether or not majority groups use the initiative to oppress minorities. The findings here are mixed.[5] Matsusaka (1995) explores the fiscal effects of voter initiatives at the state level. He finds that states with the initiative spend less and rely more on fees and charges and less on taxes than do non-initiative states.[40]

Term limits have been shown to influence fiscal policy at the state and federal levels. Besley and Case (1995) show that Democratic governors in the United States spend and tax more during years when they are faced with binding term limits, compared to years when they are eligible for re-election.[9] At the federal level, Johnson and Crain (2004) find that single-term limits lead to a steady increase in government size over time. In countries where terms are limited to two consecutive terms, fiscal policy is more volatile and government growth is smaller than growth in countries with single-term limits.[30]

The tax-smoothing literature is based on Barro (1979) who predicts that all current knowledge of future revenues is incorporated into government spending, and changes in taxes or expenditures are updated in every period according to new information.[7] Excess sensitivity to shocks represents a departure from tax-smoothing. This prediction is similar to the permanent income hypothesis of individuals.

[5] See, for example, Wenzel et. al (1998) [60].

Expanding on the work of Hall (1978)[26], Campbell and Mankiw (1990) present the λ-model in the context of individual consumption decisions. The model identifies the extent to which individuals deviate from the permanent income hypothesis in consumption.[14][6] Holtz-Eakin et al. (1994) adapts the Campbell and Mankiw model to government expenditure decisions. Using this model and aggregated NIPA data for US states and local governemnts, Holtz-Eakin (1994) finds that all changes in spending are determined by short-term fluctuations in revenues; state and local governments are excessively sensitive to unexpected changes in revenues. [20] As mentioned, this measure says little about the decision-making process associated with government tax-smoothing and is relatively uninformative as to why sub-national governments in the United States have short-sighted fiscal policies.

Since then, there have been few studies focused on US municipal fiscal policy. Wildasin (2002) uses time-series techniques in an attempt to identify the dynamics of municipal revenues and expenditures under balanced budget constraints. He concludes that grants play an important tax-smoothing role for larger municipalities and those with larger debt burdens.[**?**] He does not address the extent to which changes in revenues and expenditures are anticipated and planned, respectively.

Borge and Tovmo (2007) use data from Norwegian local governments to estimate the Campbell-Mankiw model for local governments. To test whether balanced budget constraints or other institutional factors limit forward-looking behavior, they split the sample in various ways. They consider party fragmentation and fiscal health as possible constraints to tax-smoothing budgeting behavior. They find that increased liquidity leads to more tax-smoothing behavior, and political fragmentation is associated with more short-sighted budgeting.[11]

Studies using dis-aggregated European data find that European local governments smooth taxes and expenditures relatively well.[7] In many cases, these studies fail to reject perfect tax-smoothing behavior, whereas Holtz-Eakin et al. (1994) does not reject fully short-sighted behavior. Of course, the difference in estimates between European countries and the US might be attributed to differing political and financial institutions. But, until now, there have been no studies using dis-aggregated data for the United States. Thus, as Dahlberg and Lindstrom (1998) point out, it is impossible to know whether the difference in estimates between the United States and European countries is a result of institutional differences, or simply an artifact of the use of aggregated versus dis-aggreated data.[**?**] To answer this question, I estimate a model of forward-looking government decision making, using a panel of 506 municipalities in the United States under various liquidity and political costraints.

In the United States, the effects of liquidity constraints and political institutions on local fiscal policy have not been rigorously tested. In the remainder of the chapter, I provide a framework in which to test the magnitude and variation of the effects of various constraints and institutions on local fiscal policy.

[6] Campbell and Mankiw estimate that individuals consume between 40 and 50 percent of their current income, which is a significant departure from the permanent income hypothesis. On the other hand, Hall (1978) concludes that individual consumption closely resembles the permanent income hypothesis.

[7] See for example, Dahlberg and Lindstrom (1998), Borge and Tovmo (2007).[**?**, 11]

3.3 Empirical Strategy

This section presents an adaptation of Campbell-Mankiw's (1990) model of forward-looking consumption decisions. The model provides a convenient way to parameterize the extent to which fiscal decisions are short-sighted or consistent with tax-smoothing policy. Barro (1979) predicts optimizing governments will smooth taxes and expenditures across years by incorporating all knowledge of future revenues into current fiscal decisions. The extent to which decisions to change tax rates and expenditures are made by fully incorporating information about the future, or with excess sensitivity to temporal changes in revenues, is an empirical question. Deviations from tax-smoothing policy are potentially explained by political incentives to spend or change tax rates. The model outlined below identifies the extent to which governments act according to a tax-smoothing model or deviate by enacting short-sighted tax and expenditure policies. By estimating this model for similar cities facing different political institutions, I am able to identify whether or not these institutions affect fiscal decisions.

Municipal planners are assumed to maximize an time-separable inter-temporal utility function $U(G_t)$, subject to a balanced budget constraint. Planners choose the level of government spending in t. The utility function is general; it can be interpreted as the utility function of the median voter under the assumption that planners are responsive to the median voter. Alternatively, if the planner implements her preferred policy, the utility function can be thought of as the planner's utility over spending. Thus, the utility function is not constrained by any specific social welfare function, re-election concerns, or political agendas, for example.

$$\max_{G_t} E_t[\sum_{j=0}^{\infty}(1+\rho)^{-j}U(G_{t+j})]$$

s.t.

$$G_t \leq R_t + T_t - K_t + S_t(1+r_t)$$

R is current revenues, T is transfers from other governments, K is capital spending, and S represents beginning of period savings. G is current government spending minus capital expenditures. Capital expenditures are included in the budget constraint and are assumed to be exogenous. Similar to the interest rate and transfers, in this model the timing and magnitude of capital projects are exogenous across years and do not directly enter the utility function. Intuitively, these expenditures affect current expenditures to the extent that capital project costs enter into the general budget.

In practice, capital projects are undertaken for several reasons. Capital expenditures would not be exogenous to current revenues if surpluses were invested as capital projectst during upswings, for example. For now, I categorize capital projects and budgets as exogenous to the current expenditure decision. Because of this, I include capital expenditures in the right hand side of the regression. I further address this assumption in the results section. Capital expenditures should also be included if it is the case projects are funded through a separate budget; it is plausible that capital expenditures influence the marginal utility of current spending, through some process not captured by the utility function.

The Euler equation resulting from the optimization problem characterizes the optimal spending path.[8]

$$E_t\left[\left(\frac{1+r_{t+1}}{1+\rho}\right)\frac{U'(G_{t+1})}{U'(G_t)}\right] = 1$$

The planner will equate the expected marginal utility of government spending across periods .

Following Hansen and Singleton [27], the Euler equation can be rewritten as,[9]

$$E_{t-1}[\Delta lnG_t] = \mu + \sigma E_{t-1}[r_t] \tag{3.1}$$

If governments smooth expenditures perfectly across years, then they act according to equation (3.1); changes in current spending are funded by permanent resources μ and the expectation of the interest rate. If, on the other hand, governments are completely short-sighted, then changes in current government spending are financed by concurrent changes in revenues as in equation (3.2). This is derived by forcing savings to be zero in each period. Intuitively, a planner would act short-sightedly if she did not have an intertemporal utility function and was only concerned with utility in the current period. This would occur if she were only concerned with re-election or was faced with term limits, for example.

$$E_{t-1}[\Delta lnG_t] = E_{t-1}[\Delta lnR_t] \tag{3.2}$$

In reality, governments have incentives to act according to a tax-smoothing model in addition to responding to changes in current revenues; actual fiscal policy is likely to fall somewhere between perfect tax-smoothing and completely short-sighted budgeting. The extent to which local governments act according to the tax-smoothing model and engage in short-sighted budgeting is identified by taking a weighted average of equations (3.1) and (3.2). In equation (3.3), an estimate of λ equal to 0 is consistent with perfect tax and expenditure smoothing; λ equal to 1 is consistent with fully short-sighted government spending behavior.

$$E_{t-1}[\Delta lnG_t] = (1-\lambda)\mu + \lambda E_{t-1}[\Delta lnR_t] + (1-\lambda)E_{t-1}[r_t] \tag{3.3}$$

As discussed above, capital spending, the real interest rate, and transfers from state and federal governments are important exogenous influences on the general budget. Thus, the main empirical specification includes these variables. Removing the expectations, the

[8] The budget constraint can also be written as,

$$\sum_{t=0}^{\infty}\left[\prod_{s=0}^{t}\left(\frac{1}{1+r_{t-s}}\right)\right]G_t = S_t + \sum_{t=0}^{\infty}\left[\prod_{s=0}^{t}\left(\frac{1}{1+r_{t-s}}\right)\right](R_t+T_t-K_t)$$

[9] This assumes

$$U(G_t) = \frac{G_t^{1-\theta}}{1-\theta}$$

Also, $\sigma = \frac{1}{\theta}$.

empirical specification is presented in equation (3.4). In the data, only the actual changes in revenues and expenditures are available, not the expectations. The error term consists of updated beliefs about future permanent resources, as well as a transitory shock that affects revenues. Updated expectations are correlated with changes in current revenues, as the shock contains information about the future. The next section addresses this correlation.

$$\Delta lnG_t = (1-\lambda)\mu + \lambda\Delta lnR_t + \theta_1\Delta lnK_t + \theta_2\Delta lnT_t + \theta_3 r_t + (1-\lambda)\epsilon_t \tag{3.4}$$

Estimates of λ are presented in section 4.5.2. Government spending, current revenues, capital expenditures, and transfers are measured per capita. General spending is defined as general expenditures minus capital expenditures, per capita. Current revenues is defined as general revenues minus intergovernmental transfers, per capita. I also include the real interest rate on the right hand side of the regression. [10]

3.3.1 Endogenous current resources

In the model, ϵ_t represents an innovation in the assessment of permanent income from $t-1$ to t. These innovations are not orthogonal to changes in current revenues, which are likely to contain information about future permanent resources. Thus, OLS estimates of λ will be inconsistent. The common correction for endogenous current resources is to use instrumental variables. Importantly, ϵ_t is orthogonal to any variable which is in the government's information set at $t-1$. Following Campbell and Mankiw (1990), I employ lagged values of the right hand side variables as instruments for changes in current revenues in time t. Lagged changes in revenues are orthogonal to innovations of permanent resources from $t-1$ to t and predict revenues in time t. Similarly, lagged values of transfers, capital expenditures, and the interest rate also predict changes in revenues and are included as instruments in the estimation. Appendix table A.1 reports the results of the first stage.

Using lagged variables as instruments for changes in current resources might be problematic if there exists serial correlation in forecasts of permanent resources. This might happen if fiscal adjustment is slow and the effect of a given shock is distributed across subsequent years. To address this concern, I use lags of three to six years as instruments. Under the assumption that the instruments are uncorrelated with the error term, the two-step generalized method of moments (GMM) estimator is the appropriate GMM estimator. The GMM estimator is used to address the fact that I am using four lagged values of each of five variables to instrument for the change in current revenues in time t. The Hansen J statistic is used to test the hypothesis that the instruments are exogenous. The null hypothesis of the Hansen J statistic is that the over identifying restrictions are valid. A failure to reject this hypothesis supports the intuition that the instruments are exogenous. Upon inspection of various lag specifications, I find that lags of three to six years most consistently satisfy this assumption. Section 3.5.1 presents alternative lag structures in more detail.

[10] Real interest rate computed as $\frac{1+nominal_t}{1+\frac{GDPdeflator_t}{GDPdeflator_{t-1}}} - 1$.

For a discussion and presentation of an OLS and IV specifications, please see the appendix.

3.4 Data

To estimate λ, the extent to which municipal governments are short-sighted in their fiscal policies, I use panel data for 506 municipalities in the United States. Fiscal data are available from the Annual Survey of Government Finances, conducted by the Census Bureau.

I use the 1996 International City/County Management Association (ICMA) Form of Government survey to identify the cities in the Annual Survey of Government Finances panel have the initiative or recall option as well as whether term limits were in place in 1996. The ICMA Form of Government survey is circulated to local governments every five years beginning in 1981. Surveys are sent to about half of all cities in the country. The survey includes about forty questions, including whether the initiative or recall are available to residents at the local level. As with all survey data, the ICMA survey is subject to some shortcomings; across years, there is variation in the response rate and wording of questions, so it is difficult to compare summary statistics across years.[41] Nonetheless, the ICMA survey is the most robust source of data on local legislative laws.

Of the 506 cities in the Survey of Governments sample, 323 responded to the ICMA survey. To the extent that these cities responded accurately, the shortcomings of the ICMA survey should not affect the identification of initiative, recall, and term limits for these cities. Figures 3.1, 3.2, and 3.3 summarize the survey response rates and share of cities with these institutions, by population. Figure 3.5 shows the geographic distribution of cities that enacted mayoral term limits prior to 1996 and figure 3.4 presents the distribution of years that term limits were enacted.[11] [12]

Cities that have access to state level initiative and recall are more likely to have the local initiative and recall. Similarly, cities that have term limits are likely to have both the local initiative and recall. Figure 3.6 displays the relative frequencies of these institutions for cities in states with and without the state-level initiative.

Demographic data are from the City and County Data Books, published every five years. Of the 506 cities in the Annual Survey sample, 435 appear in the City and County Data Books. The data are summarized in table 3.1.

[11] Cites in this sample are those that responded to the 1996 International City/County Management Association Form of Government Survey. Note that mayoral term limits continued to be popularly implemented through the end of the 1990s; the map significantly understates the prevalence of mayoral term limits.

[12] Two-thirds of term limit cities in this sample limit the Mayor to two terms in office, 24 percent allow three terms, and the remaining cities allow for four terms in office.

Figure 3.1: **Distribution of cities with local initiative by population size**

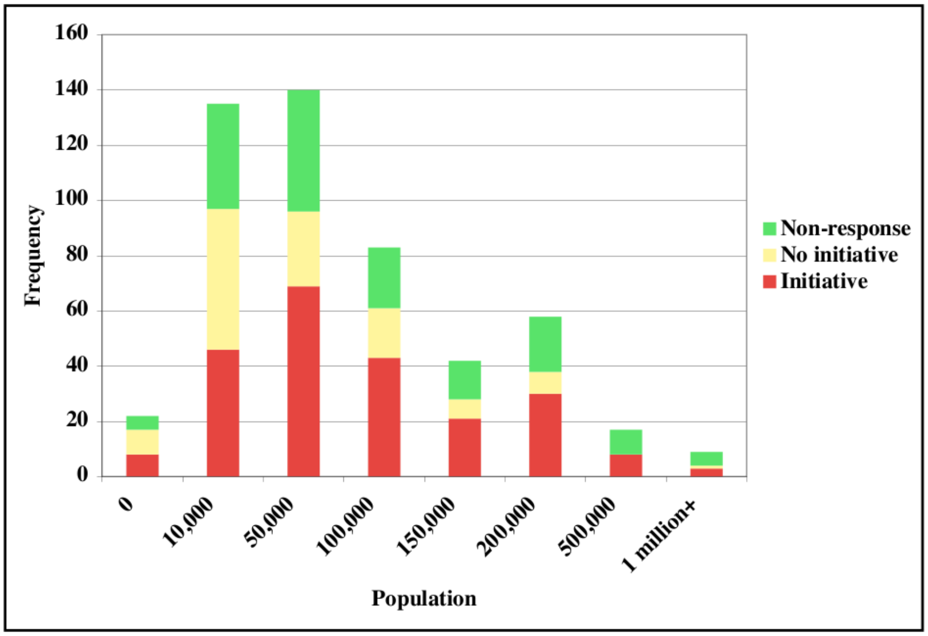


Figure 3.2: **Distribution of cities with local recall by population size**

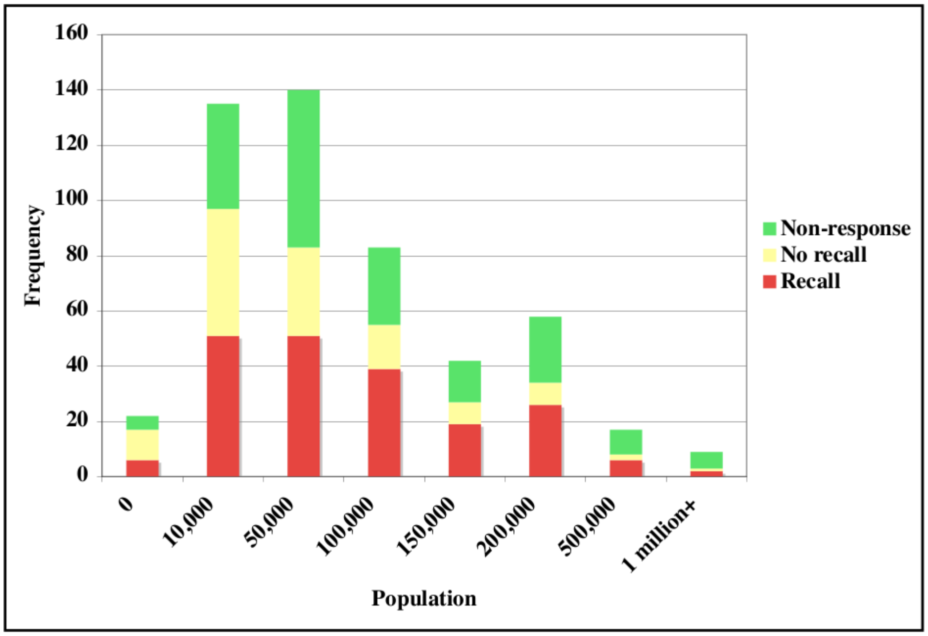


Figure 3.3: **Distribution of cities with mayoral term limits by population size**

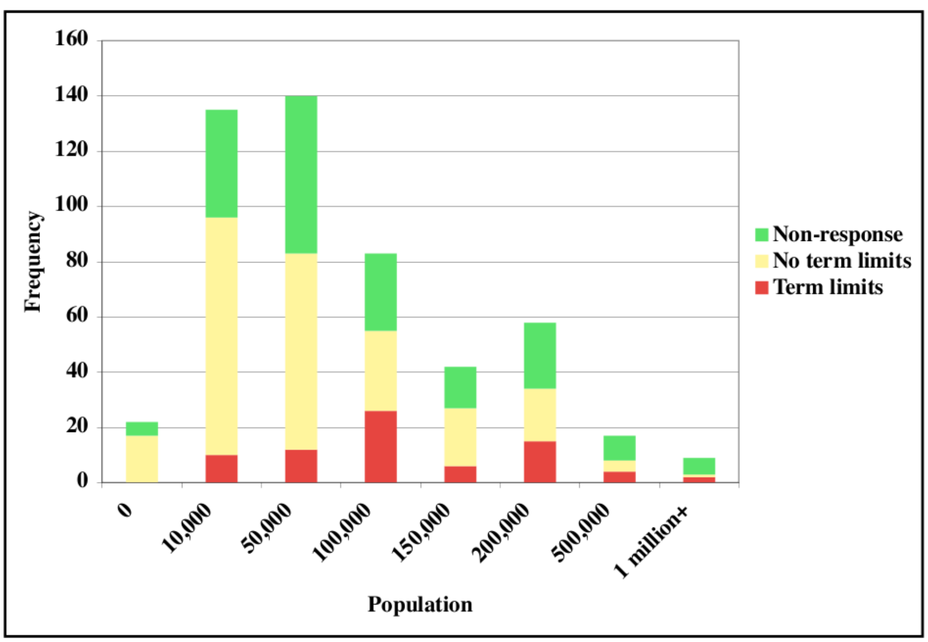


Figure 3.4: **Number of cities in ICMA survey enacting term limits, by year**

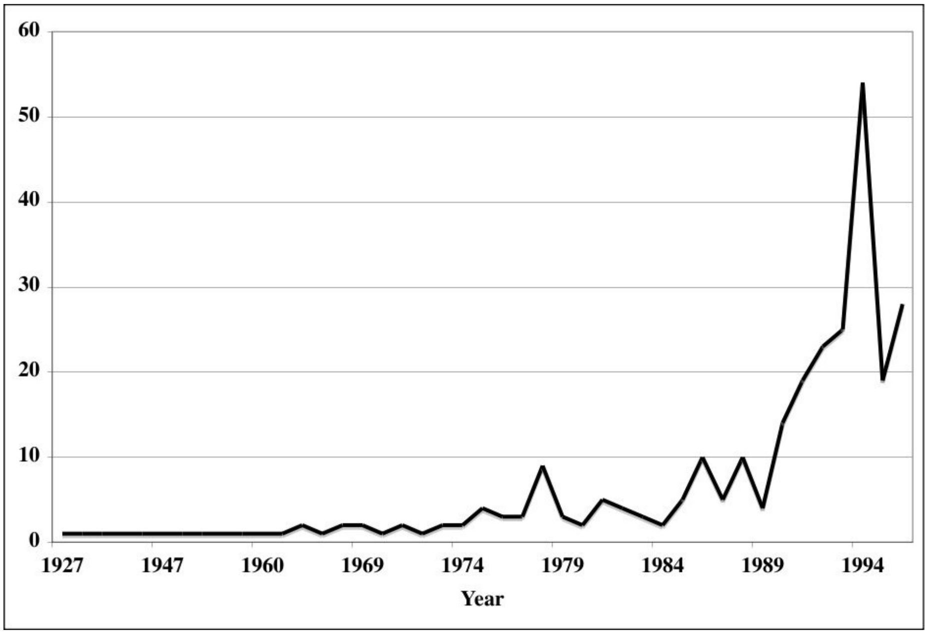


Figure 3.5: **Cities enacting mayoral term limits prior to 1996, of those that responded to 1996 ICMA Survey.**

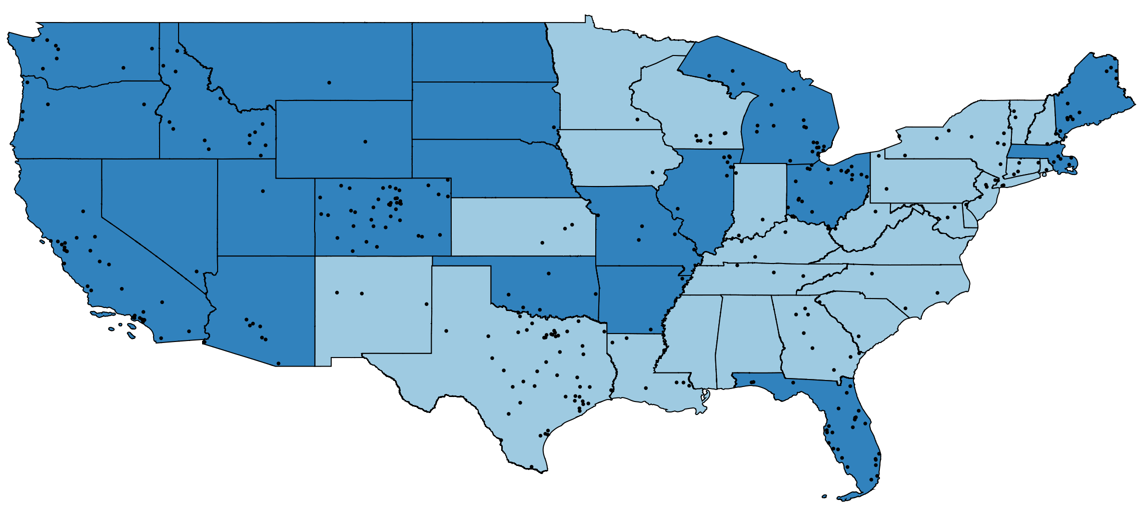


Figure 3.6: **Shares of cities with initiative, recall, and/or term limits**

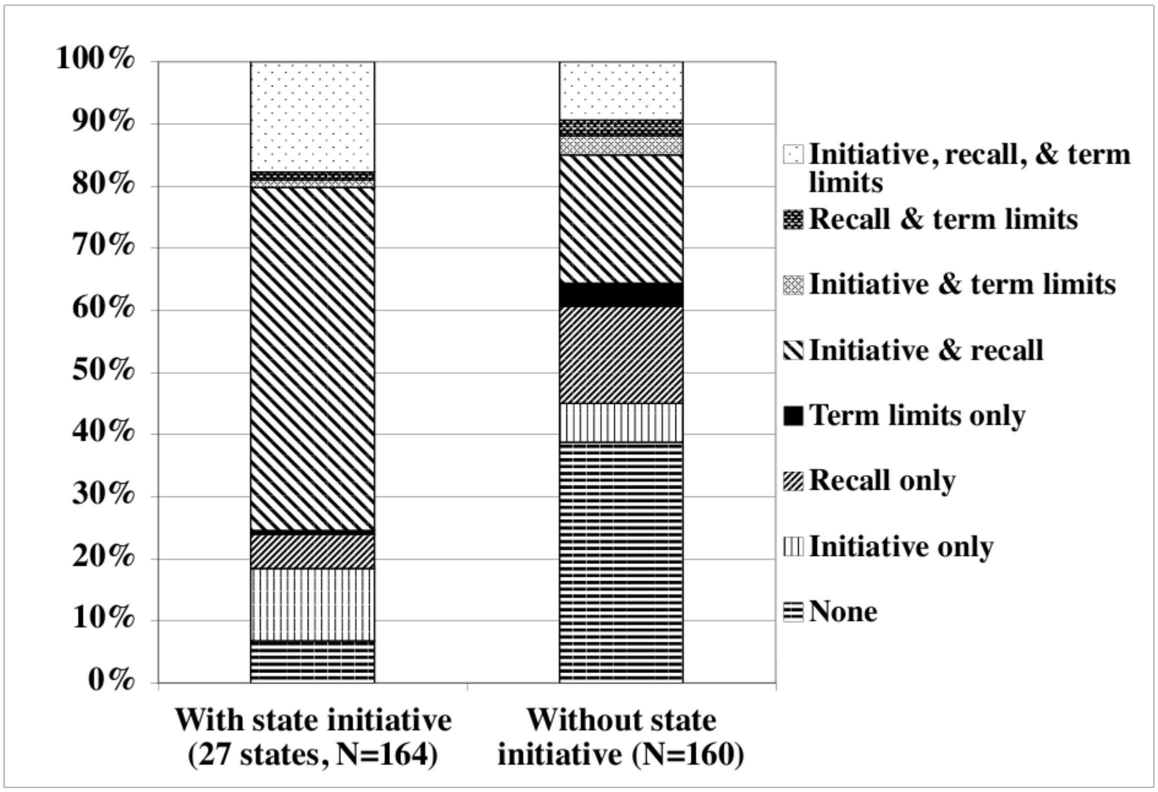


Table 3.1: **Summary Statistics, year 2000 cross-section**

	All cities in annual Census	**All cities in ICMA & Census**	**Initiative**	**Initiative ex. CA**	**No initiative**
Revenue ($)	2,111	1,957	1,885	1,978	2,094
Transfers from State ($)	324	257	237	234	295
Direct Expenditures ($)	2,031	1,876	1,810	1,922	2,000
Capital Expenditures ($)	342	324	324	342	324
Outstanding debt ($)	2,001	1,989	1,931	2,002	2,100
Population	167,796	140,723	161,396	131,284	101,769
% White	68	69	68	76	70
% Black	16	13	10	12	20
% Hispanic	16	17	20	13	8
% Over age 65	12	12	12	13	13
% Owner Occupied	56	58	57	58	60
Median HHd Income ($)	40,895	42,488	42,948	38,726	41,336
Political Score	8	4.4	3.8	0.4	5.7
# Cities	506	349	228	160	121
	Recall	**Recall ex. CA**	**No Recall**	**Term limits (as of 1996)**	**No term limits (as of 1996)**
Revenue ($)	1,967	2,010	2,024	2,064	1,972
Transfers from State ($)	233	248	320	209	282
Direct Expenditures ($)	1,878	1,934	1,961	1,928	1,906
Capital Expenditures ($)	333	340	324	341	326
Outstanding debt ($)	1,875	1,884	2,226	2,374	1,920
Population	153,162	126,086	110,266	255,221	107,900
% White	71	75	71	68	72
% Black	11	13	17	12	13
% Hispanic	17	13	9	19	13
% Over age 65	12	13	13	12	13
% Owner Occupied	58	59	59	57	58
Median HHd Income ($)	42,190	38,565	41,937	43,072	41,751
Political Score	0.5	-0.6	7.6	-1.4	4.34
# Cities	232	164	117	64	259

Dollar amounts are per capita

I argue that the presence of the local initiative and recall is exogenous to present city characteristics. The vast majority of cities that adopted direct democracy institutions did so in the early 1900s, around the same time that it was adopted by most of the 24 states that have adopted the initiative. [?] As illustrated in figure 3.6, cities with access to the state level initiative are more likely to also have local access to both the initiative and recall than cities without access to the state level initiative. Term limits are most likely to be passed in cities with both the recall and the initiative. About 20 percent of the cities in both initiative and non-initiative states have term limits.

I compare cities with and without the initiative and recall processes, thereby estimating the average effect of these institutions. As explored in chapter 2, in practice, the accessibility of the initiative process varies across cities.

The summary statistics presented in table 3.1 show that cities with and without the initiative and recall have similar fiscal characteristics, except non-initiative and non-recall cities have more outstanding debt, on average. Cities with recall and initiative have slightly lower incomes and larger population and are more Republican.[13]

Term limits, however, have been largely implemented since 1970 with a bulk of cities passing term limit laws in the 1990s. It is possible that the implementation of term limits is endogenous to fiscal policy; cities with worse fiscal policy are more likely to adopt term limits as a disciplining mechanism for officials. Or simply, cities that adopt term limits are different from cities that do not adopt term limits. This endogeneity is a problem only if the factors that led to the implementation of term limits is associated with the financing decisions of current revenues and expenditures. It is unlikely that term limits were enacted in response to fiscal choices; the main arguments presented in favor of term limits center around the fund-raising and public awareness advantages held by incumbents. Many of the arguments for term limits are emotional appeals to limit the powers of government similar to "We want a government of the people, by the people, and for the people, not a tyrannical ruling class who care more about deals to benefit themselves, than their constituents."[14]

According to the summary statistics, cities with term limits have larger populations and a larger share of Republicans than cities without term limits. They also have more outstanding debt, but appear similar in other fiscal and demographic characteristics. Comparing fiscal policy of cities with and without term limits is likely to give a biased estimate of the effect of term limits on fiscal policy. Thus, to identify the effect of term limits on fiscal decisions, I estimate equation (3.4) for cities that adopt term limits for the five year time periods before and after the adoption of term limits.[15]

[13] The political score is a measure derived in chapter 4.

[14] From www.termlimits.org, a major lobbying group for term limits.

[15] An additional reason for this choice of specification is that the ICMA survey provides term limit status as of 1996. Since then, several more cities have adopted term limits. Thus, an estimate of λ for cities without term limits will include information from cities inaccurately categorized as not having term limits if they enacted limits after 1996. I am currently exploring ways to update the ICMA data.

3.5 Results

The presence of initiative does not guarantee its utilization, of course. But the threat of initiative provides incentives to city officials to implement policies preferred by the median voter. Thus, by simply having the initiative option, voters potentially have a larger influence over local government. [23] Unfortunately, I do not have data on the number of voter-initiated ballot measures at the municipal level, so I can only test the hypothesis that the threat of initiative has an effect on fiscal policy.

Similarly, the threat of recall is a potentially significant factor in local fiscal decisions. For example, voters might prefer short-sighted policy decisions like tax cuts during good economic times. Responding to the threat of removal from office, local officials have greater incentives to implement voter-preferred policy. Ex ante, it is unclear whether voter policy preferences are more short-sighted or forward-looking than policies implemented by officials, in the absence of the threat of removal from office.

The threat of local recall is significant in many states. In 2009, there have been efforts made to recall mayors in Portland Oregon, Toledo Ohio, Mansfield Ohio, Point Pleasant Beach New Jersey, Soledad California, and many other cities across the US. In California, local recall data are available from the California Elections Data Archive. Between 1995 and 2004, there were 73 municipal recall votes in 30 different cities. On average, there are eight recall ballot measures per year in three different cities. City council recalls represent a large share of these recalls. Once a recall measure reaches the ballot in California, it is passed 74 percent of the time.

Table 3.2 presents the estimation of equation (3.4) for all cities responding to the ICMA survey, and for cities with and without the local initiative and recall. California cities are excluded from these estimates because all cities in California have access to the local initiative and recall.[16] Table 3.2 also presents the results for cities that enacted term limits, for the five year periods prior to and after the implementation of term limits. The p-values for the Anderson and Hansen J test statistics are reported. Newey-West standard errors, robust to arbitrary serial correlation, are reported.

The estimate of λ for all cities is .643 (column (1)), which is inconsistent with Holtz-Eakin et al.'s estimate of $\lambda = 1$ (although Holtz-Eakin includes state governments, in addition to local governments), and is larger than most estimates for European cities.[17] On average, about 64% of changes in current expenditures are financed with changes in current revenues. There is no statistical difference in forward-looking behavior for cities with and without access to the local initiative; estimates of λ are similar in magnitude.

Note that I am only identifying the availability of the initiative and not voter utilization of the initiative. It might still be the case that the policies enacted by voters are associated with short-sighted or tax-smoothing fiscal policy, relative to policies enacted by government officials. In California at least, most voter initiatives at the local level are concerned with land use and planning and not tax and finance issues.[24] At the state level, tax and expenditure items represent a larger share of voter-initiated ballot items. Thus, it

[16] California cities were granted this right in 1911 when the state adopted the initiative and recall under Governor Hiram Johnson.[24]

[17] Borge and Tovmo (2007) estimate $\lambda = .35$ for Norwegian cities, for example.

Table 3.2: **GMM estimation of equation (3.4) by access to initiative, recall, and implementation of term limits.**

	All	Initiative[1]	No Initiative	Recall[1]	No Recall	Pre Term Limits	Post Term Limits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ΔlnR_t, λ	0.643	0.452	0.370	0.369	0.270	0.324	0.663
	(0.116)**	(0.101)**	(0.153)*	(0.104)**	(0.133)*	(0.126)*	(0.109)**
ΔlnK_t	-0.015	-0.010	-0.007	-0.006	-0.006	0.001	-0.017
	(0.004)**	(0.004)*	(0.004)	(0.005)	(0.004)	(0.007)	(0.010)
ΔlnT_t	0.057	0.053	0.056	0.062	0.051	0.076	0.034
	(0.009)**	(0.014)**	(0.011)**	(0.015)**	(0.010)**	(0.023)**	(0.018)
r	0.001	0.001	0.004	0.003	0.005	0.003	0.010
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)*	(0.010)	(0.007)
Constant	0.000	0.003	0.001	0.000	0.001	0.002	-0.022
	(0.004)	(0.005)	(0.006)	(0.005)	(0.006)	(0.028)	(0.017)
Observations	9511	4329	3278	4435	3172	213	272
Anderson (p-value)	.000	.000	.058	.000	.014	.064	.001
Hansen (p-value)	.004	.003	.478	.126	.637	.238	.401

Newey-West standard errors in parentheses
* significant at 5%; ** significant at 1%

1. Excluding California cities.
Three through six year lags of ΔlnR_t, ΔlnG_t, ΔlnK_t, ΔlnT_t, and the real interest rate, are included as instruments for ΔlnR_t.

is perhaps no surprise that the threat local initiative has little effect on fiscal policy; these results should not be generalized to the state level.

The estimate for cities with recall are larger than that for those without the recall, but the difference is not statistically significant. On average, the threat of recall does not significantly affect municipal fiscal decisions.

Term limits do significantly influence local fiscal policy, though. Before cities implement term limits, 32 percent of current expenditures are financed with current revenues (column (6)). With 68 percent of current expenditures being financed through permanent resources, these cities are largely making fiscal decisions consistent with a tax-smoothing model. After term limits are implemented, however, fiscal decisions become much more short-sighted with only 34 percent of current expenditures being financed by permanent resources (column (7)). A common argument for term limits is that they prevent entrenchment of city officials who, over time, have more flexibility to implement their desired policies. However, term limits present officials with incentives to implement their desired policies when they are certain to not be in office in the next period. Indeed, the marked change toward short-sighted fiscal decision-making is consistent with the latter argument; term limits lead to less disciplined policy decisions.

3.5.1 Specification robustness checks

The most basic specification does not require the inclusion of government transfers, capital expenditures, and the real interest rate. However, these are included in the main specification because it is likely that they affect the expenditure decision. In each estimation, the coefficients on the additional right hand side variables are stable. For completeness, the estimation of equation (3.4) excluding the additional control variables is presented in table

3.3. In columns (3), (5), and (6), changes in current revenues lose explanatory power without the control variables. Further the additional explanatory variables are important as instruments; in columns (5) and (6), the Anderson test for instrument relevance fails to reject the hypothesis that the instruments are not identified.

Table 3.3: **GMM estimation of equation (3.4), basic specification**

	All	Initiative[1]	No Initiative	Recall[1]	No Recall	Pre Term Limits	Post Term Limits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ΔlnR_t, λ	0.529	0.598	0.359	0.389	0.444	0.208	0.692
	(0.117)**	(0.138)**	(0.239)	(0.126)**	(0.338)	(0.190)	(0.162)**
Constant	0.006	0.004	0.011	0.008	0.011	0.006	0.002
	(0.002)*	(0.003)	(0.005)*	(0.003)**	(0.006)	(0.007)	(0.004)
Observations	9769	4477	3388	4589	3276	217	281
Anderson (p-value)	.000	.002	.09	.000	.506	.233	.026
Hansen (p-value)	.000	.001	.822	.005	.574	.175	.295

Newey-West standard errors in parentheses
* significant at 5%; ** significant at 1%

1. Excluding California cities.
Three through six year lags of ΔlnR_t and ΔlnG_t are included as instruments for ΔlnR_t.

In the primary specifications, I include three to six year lags of all variables as instruments. This particular lag structure is chosen because it most consistently satisfies the exclusion restriction and relevance test for instrumental variables. Specifically, the null hypothesis of the Anderson statistic is rejected and the null hypothesis for the Hansen statistic fails to be rejected. An alternative lag structure of two and three year lags is reported in table 3.4. Again, the instrument generally fails to meet the criteria for validity, except for the pre and post term limit specifications. However, the point estimates for λ in these specification are negative and statistically insignificant, granting little economic insight into the effect of term limits on fiscal decisions. Appendix tables A.4 and

Term limits are the only local electoral institution for which I find an effect on fiscal policy in the main specification. In Table 3.2, I estimate λ for the time periods of five years before and after term limits are enacted. To provide evidence that the result is not spurious to the time periods specified, I estimate λ using different time periods. The sample is limited to cities that enacted term limits after 1990 to ensure that the full set of observations is available for the cities in the estimate.[18] Columns (1) and (2) of Table 3.5 present the results using a window of three years before and after the enactment of term limits, respectively. During the three years prior to the enactment, cities finance 23% of current expenditures with current revenues, compared to 73% afterward. Using a seven year window (columns (3)-(4)), λ rises to .717 from .25 before term limits. With a ten year window, the difference before and after term limits becomes smaller and is marginally statistically significant, but the point estimate still increases after term limits are enacted. Point estimates for before and after the enactment of term limits do not significantly change when the estimation window is expanded.

[18]The hypothesis that the instruments used in regressions including cities that passed term limits between 1987 and 1990 were not identified, could not be rejected.

Table 3.4: **GMM estimation of equation (3.4), alternative lag structure**

	All	Initiative[1]	No Initiative	Recall[1]	No Recall	Pre Term Limits	Post Term Limits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ΔlnR_t, λ	0.909	0.816	0.593	0.678	0.899	0.269	0.748
	(0.089)**	(0.116)**	(0.123)**	(0.095)**	(0.176)**	(0.177)	(0.159)**
ΔlnK_t	-0.023	-0.021	-0.013	-0.017	-0.019	0.003	-0.017
	(0.003)**	(0.005)**	(0.004)**	(0.005)**	(0.004)**	(0.009)	(0.012)
ΔlnT_t	0.052	0.055	0.048	0.060	0.043	0.034	0.019
	(0.006)**	(0.009)**	(0.010)**	(0.011)**	(0.009)**	(0.018)	(0.022)
r	-0.003	-0.001	0.001	0.000	-0.004	-0.004	0.008
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.011)	(0.007)
Constant	0.010	0.009	0.005	0.006	0.015	0.024	-0.018
	(0.004)**	(0.005)	(0.007)	(0.006)	(0.007)*	(0.032)	(0.019)
Observations	10602	4835	3659	4954	3540	221	287
Anderson (p-value)	.000	.000	.000	.000	.000	.145	.024
Hansen (p-value)	.000	.001	.010	.000	.052	.188	.374

Newey-West standard errors in parentheses
* significant at 5%; ** significant at 1%

1. Excluding California cities.
Two and three year lags of ΔlnR_t and ΔlnG_t are included as instruments for ΔlnR_t.

Table 3.5: **GMM estimation of equation (3.4). 3,7, and 10-year time windows surrounding enactment of term limits.**

	3 year window		7 year window		10 year window	
	Before	After	Before	After	Before	After
	(1)	(2)	(3)	(4)	(5)	(6)
ΔlnR_t, λ	0.229	0.733	0.250	0.717	0.441	0.660
	(0.102)*	(0.116)**	(0.086)**	(0.137)**	(0.068)**	(0.147)**
ΔlnK_t	0.002	-0.014	0.007	-0.024	-0.001	-0.017
	(0.009)	(0.014)	(0.007)	(0.011)*	(0.007)	(0.010)
ΔlnT_t	0.170	0.017	0.086	0.027	0.084	0.030
	(0.028)**	(0.024)	(0.021)**	(0.018)	(0.024)**	(0.015)
r	0.027	0.016	0.005	-0.028	0.005	-0.040
	(0.019)	(0.027)	(0.016)	(0.024)	(0.009)	(0.015)**
Constant	-0.063	-0.043	-0.007	0.061	-0.002	0.092
	(0.054)	(0.065)	(0.048)	(0.057)	(0.027)	(0.033)**
Observations	85	109	199	221	286	292
Anderson (p-value)	.043	.013	.079	.069	.001	.129
Hansen (p-value)	.488	.444	.246	.554	.212	.342

Newey-West standard errors in parentheses
* significant at 5%; ** significant at 1%
Three through six year lags of ΔlnR_t, ΔlnG_t, ΔlnK_t, ΔlnT_t, and the real interest rate, are included as instruments for ΔlnR_t. Only cities enacting term limits after 1990 included.

Column (1) of table 3.6 presents the main specification with a time trend included. Years, numbered 0 to 35 are, interacted with changes in current revenues. If short-sightedness increased over time then the coefficient on this term would be greater than zero; empirically, it is not statistically different from zero. Note that this result is robust to including various functions of the year variable. This is evidence that the decision to enact term limits is not endogenous to temporal fiscal choices.

Table 3.6: **GMM estimation of equation (3.4) with time trend, liquidity constraints, and property tax shares of revenues.**

	Time trend	Predicted debt	Property tax share of revenues
	(1)	(2)	(3)
$\Delta lnR_t, \lambda$	0.622	0.823	0.208
	(0.085)**	(0.094)**	(0.161)
ΔlnK_t	-0.015	-0.016	-0.018
	(0.003)**	(0.003)**	(0.003)**
ΔlnT_t	0.059	0.054	0.038
	(0.008)**	(0.007)**	(0.012)**
r	0.001	-0.001	-0.000
	(0.001)	(0.002)	(0.002)
$\Delta lnR_t * Year$	0.007		
	(0.004)		
$\Delta lnR_t * \hat{Debt}$		-0.045	
		(0.009)**	
$\Delta lnR_t * \hat{Debt}^2$		0.000	
		(0.000)**	
$\Delta lnR_t * property\_tax\_share$			0.053
			(0.017)**
$\Delta lnR_t * property\_tax\_share^2$			-0.001
			(0.000)**
Constant	0.001	0.007	0.003
	(0.004)	(0.004)*	(0.004)
Anderson (p-value)	.000	.000	.000
Hansen (p-value)	.033	.020	.049
Observations	13729	13242	13729

Newey-West standard errors in parentheses
* significant at 5%; ** significant at 1%
Three through six year lags of ΔlnG_t and all right hand side variables are included as instruments for ΔlnR_t.

3.5.2 Liquidity constraints

Liquidity constraints potentially limit the ability of governments to smooth taxes and expenditures during economic downturns. In the United States, the vast majority of state and sub-national governments are subject to a balanced budget constraint.[19] The stringency of balanced budget constraints varies across states, but typically prohibits running a deficit on the general operating budget and allows for some borrowing. Lastly, there are virtually no formal provisions for enforcing balanced budget laws. Although balanced budget laws are effective in limiting deficits[20], governments have some flexibility in circumventing these restrictions through debt, creative accounting, or in some states, deficit rollover. When revenues fall short of expenditures, governments must borrow or utilize savings to keep taxes and expenditures constant.[21] Access to credit markets and the reliability of intergovernmental transfers influence a government's ability to issue debt or borrow from other governments. But these sources of liquidity do not exist uniformly across governments.

Cities with higher per capita revenues, for example, are better able to service debt obligations and will have access to larger lines of credit. Similarly, state transfers to local governments are often important sources of revenues. Some of these transfers are more reliable than others, however, as certain localities have more permanent fiscal ties to state governments as a result of political or economic relationships.

Cities without the recall option have more outstanding debt, on average, than cities with the recall option. Similarly cities with term limits have more outstanding debt than do those without term limits. These differences might reflect disparities in access to credit, or they might be a result of short-sighted budgeting behavior or overspending. According to the tax-smoothing model, debt is utilized to smooth taxes and expenditures across years. When faced with political incentives to spend on short-term projects, however, it is likely that some officials use debt to fund current projects in the absence of revenue shortfall. If debt is utilized to smooth expenditures, cities with more debt would be expected to have a smaller estimate of λ. In the case with term limits, however, the exact opposite is observed. This suggests that debt is used to finance short-sighted projects.

Nonetheless, access to credit markets is likely an important determinant of a city's ability to smooth taxes and expenditures across years. Indeed, Borge and Tovmo (2007) find that municipalities with smaller liquidity constraints act according to the tax-smoothing hypothesis. To ensure that estimates of λ are not driven by disparities in access to credit, I estimate λ for cities with the greatest access to debt. I estimate access to debt by regressing per capita levels of outstanding debt on population, per capita revenues, the percentage of revenues from local property taxes, and quadratics in each of these terms. State fixed effects and the real interest rate are also included in the regression. For each city, access to debt is the outcome of linear projection of these variables onto outstanding debt. The coefficients of this estimation are reported in Table 3.7.

Table 3.8 presents the estimation of equation (3.4) for only the least constrained cities.[22] The estimate of λ for all of the least constrained cities is smaller than the estimate

[19] All state governments except West Virginia are subject to a statutory or constitutional balanced budget law. Nearly all municipal governments are required by law to balance budgets, either by local charter or state law.[37]

[20] See, for example, Poterba (1994) [51]

[21] Of course, they can also engage in so-called "creative accounting." Unfortunately, it is difficult to assess the extent to which this occurs in practice.

[22] The least constrained cities are defined as those with predicted levels of per capita debt greater than \$1,600, the mean predicted value.

for the full sample, suggesting that access to liquidity does enable tax-smoothing. The coefficients in columns (2)-(7), however, are remarkably consistent with the full sample specification; the effects of initiative, recall, and term limits on fiscal policy do not vary for cities with significant access to liquidity.

Table 3.9 presents the same estimation for cities with the least access to liquidity. [23] For these cities, the effect of term limits is no longer present. For cities with no liquidity, fiscal policy is short-sighted in the absence of term limits. When they are enacted, there is little flexibility to implement additional short-sighted policies.

Column (2) of table 3.6 provides more detail as to how access liquidity influences fiscal decisions. Predicted levels of debt and quadratics of predicted debt are interacted with changes in current revenues. Access to an additional $1,000 per capita of debt leads to a reduction of about 5% in the percent of changes in current spending that are financed with current expenditures.

Table 3.7: **OLS prediction of access to debt**

	Per capita outstanding debt
Population	-0.000
	(0.02)
Population^2	-0.000
	(2.51)*
Per capita revenue	1.726
	(97.18)**
(Per capita revenue)^2	-0.007
	(48.59)**
% From property tax	7.084
	(13.80)**
(% From property tax)^2	-7.068
	(9.00)**
r	0.083
	(3.66)**
Constant	-3.493
	(7.67)**
Observations	17204
R^2	0.62

Absolute value of t statistics in parentheses
* significant at 5%; ** significant at 1%

Includes state fixed effects.

[23] The most constrained cities are defined as those with predicted levels of per capita debt less than $1,000.

Table 3.8: **GMM estimation of equation (3.4) by access to initiative, recall, and implementation of term limits. Cities with significant access to credit.**

	All	Initiative[1]	No Initiative	Recall[1]	No Recall	Pre Term Limits	Post Term Limits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ΔlnR_t, λ	0.266	0.404	0.321	0.349	0.248	0.340	0.651
	(0.092)**	(0.095)**	(0.136)*	(0.098)**	(0.126)*	(0.098)**	(0.130)**
ΔlnK_t	-0.000	-0.007	-0.004	-0.010	0.002	-0.011	-0.013
	(0.004)	(0.005)	(0.004)	(0.006)	(0.004)	(0.008)	(0.010)
ΔlnT_t	0.066	0.054	0.042	0.061	0.029	0.046	0.046
	(0.015)**	(0.020)**	(0.013)**	(0.022)**	(0.012)*	(0.021)*	(0.020)*
r	0.004	0.003	0.004	0.004	0.004	0.009	0.016
	(0.002)*	(0.003)	(0.003)	(0.003)	(0.003)	(0.009)	(0.007)*
Constant	0.001	-0.002	0.002	-0.002	0.005	-0.014	-0.037
	(0.005)	(0.007)	(0.008)	(0.006)	(0.008)	(0.026)	(0.019)
Observations	7082	2272	1745	2422	1595	141	175
Anderson (p-value)	.000	.000	.018	.000	.006	.319	.012
Hansen (p-value)	.005	.005	.427	.030	.301	.738	.591

Newey-West standard errors in parentheses
* significant at 5%; ** significant at 1%
1. Excluding California cities.
Three through six year lags of ΔlnR_t, ΔlnG_t, ΔlnK_t, ΔlnT_t, and the real interest rate, are included as instruments for ΔlnR_t.
Only cities with predicted per capita debt levels greater than $1,600 are included in this specification.

Table 3.9: **GMM estimation of equation (3.4) by access to initiative, recall, and implementation of term limits. Cities with least access to credit.**

	All	Initiative[1]	No Initiative	Recall[1]	No Recall	Pre Term Limits	Post Term Limits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ΔlnR_t, λ	0.637	0.383	0.250	0.398	0.107	0.674	0.769
	(0.114)**	(0.131)**	(0.158)	(0.114)**	(0.129)	(0.061)**	(0.095)**
ΔlnK_t	-0.015	-0.010	-0.008	-0.006	-0.013	0.027	-0.001
	(0.004)**	(0.006)	(0.006)	(0.007)	(0.005)*	(0.019)	(0.015)
ΔlnT_t	0.084	0.085	0.056	0.075	0.087	0.135	0.011
	(0.013)**	(0.021)**	(0.018)**	(0.020)**	(0.018)**	(0.049)**	(0.020)
r	0.003	0.002	0.002	0.003	0.004	-0.002	0.014
	(0.002)	(0.003)	(0.004)	(0.003)	(0.004)	(0.010)	(0.009)
Constant	-0.001	0.002	0.006	-0.003	0.001	0.005	-0.033
	(0.007)	(0.009)	(0.011)	(0.010)	(0.012)	(0.030)	(0.024)
Observations	3858	1108	857	1111	854	43	137
Anderson (p-value)	.000	.035	.586	.013	.253	.035	.005
Hansen (p-value)	.008	.178	.442	.232	.298	.758	.594

Newey-West standard errors in parentheses
* significant at 5%; ** significant at 1%
1. Excluding California cities.
Three through six year lags of ΔlnR_t, ΔlnG_t, ΔlnK_t, ΔlnT_t, and the real interest rate, are included as instruments for ΔlnR_t.
Only cities with predicted per capita debt levels less than $1,000 are included in this specification.

3.5.3 Capital spending

In the empirical setup, capital expenditures were assumed to be exogenous. In reality, though, cities have some flexibility in the timing of capital expenditures. Certain types of capital projects can be delayed in the case of revenue shortfall, and one-time capital expenditures occur when revenues exceed expectations. The extent to which this substitution occurs depends on the revenue-elasticity of the tax base. In particular, cities that rely more on income and sales tax see more variability in revenues as these tax bases are sensitive to macroeconomic cycles. Cities that rely on property taxes, on the other hand, have more stable revenues and revenues do not often exceed expectations. The more revenue-elastic the tax system, the more variable capital spending is expected to be, as capital projects are more easily postponed to economic boom times. Pagano (2002) provides evidence that cities with revenue-elastic taxes are more likely to substitute funds in and out of capital projects in response to fiscal fluctuations.[49] For cities with revenue-elastic taxes, the timing of capital expenditures is endogenous to revenue fluctuations. By utilizing capital budgets as a method of saving across periods, current expenditures in these cities are expected to be less sensitive to revenue fluctuations than in cities with inelastic taxes.

The property tax share of revenues and its quadratic are interacted with ΔlnR_t and included in the main specification; these results are presented in column (3) of table 3.6. A city that receives 30 percent of its revenues from the property tax finances 90 percent of current expenditures with changes in current revenues,[24] compared to 21 percent for a city without property tax that relies on sales and income taxes.[25] Cities with revenue-elastic systems smooth current expenditures across years by adjusting the timing of capital projects. However, cities that rely on relatively inelastic taxes display excess sensitivity to current revenues in current spending decisions.

3.5.4 Voter characteristics

Cities with a greater share of Democrats tend to be larger and more diverse; the median voter in these cities is likely to have different policy preferences from the median voter in a city with a greater share of Republicans. Since the initiative and recall serve to align constituent and politician preferences, it might be the case that the effect of initiative, recall, or term limits varies by the political orientation of a city. For example, either Democratic or Republican cities might be more responsive to the median voter in the absence of the initiative or recall. Republican cities are likely to be more unified because the are typically more homogenous; thus Democratic cities are more likely to see changes in policy as a result of aligned voter and politician interests. Ex ante, it is unclear whether party preferences would systematically affect the impact of initiative, recall, and term limits.

On average, it is likely that there is a difference in tax-smoothing behavior between Democratic and Republican cities. Homogenous populations tend to agree on policy more than diverse populations; the average distance from the median voter preferred policy is smaller. Because of this, it is easier for politicians to please constituents. However, when

[24] $.208 + 30 * .053 + 30^2 * (-.001) = .898$

[25] Property taxes comprise 17 percent of revenues for the median city; a 30 percent share represents the 80th percentile of property tax shares.

populations are diverse, the average utility derived from any public good is smaller. This happens in part because people of one group have diminished utility when they perceive that other groups derive utility from the public good.[2] With lower values of public goods, residents in diverse cities are likely to prefer short-sighted policies and be less concerned with future fiscal health of the city.

To identify the political party preferences of cities, I utilize the municipal political score derived in chapter 4. This measure utilizes vote returns for presidential, senatorial, and gubernatorial races to predict the underlying preferences of citizens. It is constructed using demographic data and historical vote returns and is highly correlated with voter registration.[26] The political score can be interpreted as the share of Democrats in a city minus the share of Republicans.[27] So a score of 0 means the shares of Democrats and Republicans in a city are equal.

The estimates for Republican and Democratic cities are reported in table 3.10 and table 3.11, respectively. On average, Democratic cities have more short-sighted fiscal policies than do Republican cities ($\lambda = .769$ compared to $\lambda = .459$). The estimates of λ for cities with the initiative are larger than for cities without initiative; this difference is slightly larger for Democratic cities, although the difference is not statistically significant.

Table 3.10: **GMM estimation of equation (3.4) by access to initiative, recall, and implementation of term limits. Cities with Republican majority.**

	All[1]	Initiative[1]	No Initiative	Recall[1]	No Recall	Pre Term Limits	Post Term Limits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ΔlnR_t, λ	0.459	0.441	0.386	0.394	0.182	0.336	0.692
	(0.095)**	(0.076)**	(0.104)**	(0.066)**	(0.100)	(0.169)*	(0.160)**
ΔlnK_t	-0.010	-0.004	-0.016	-0.009	0.000	0.004	0.004
	(0.005)	(0.006)	(0.006)*	(0.005)	(0.009)	(0.030)	(0.016)
ΔlnT_t	0.074	0.066	0.114	0.075	0.090	0.141	0.040
	(0.009)**	(0.012)**	(0.024)**	(0.013)**	(0.023)**	(0.057)*	(0.040)
r	0.002	0.004	-0.000	0.002	0.003	0.002	0.035
	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)	(0.029)	(0.049)
Constant	0.004	-0.003	0.012	0.006	0.003	0.003	-0.076
	(0.007)	(0.009)	(0.011)	(0.009)	(0.013)	(0.083)	(0.115)
Observations	2064	959	600	1002	557	43	74
Anderson (p-value)	.000	.000	.191	.000	.036	.185	.008
Hansen (p-value)	.159	.128	.808	.214	.818	.515	.815

Newey-West standard errors in parentheses
* significant at 5%; ** significant at 1%
1. Excluding California cities.
Three through six year lags of ΔlnR_t, ΔlnG_t, ΔlnK_t, ΔlnT_t, and the real interest rate, are included as instruments for ΔlnR_t.
Only cities with a political score less than -5 are considered in this specification.

Estimates of λ for cities with the recall option are higher than for those without the option and even more so for Democratic cities. This suggests that the recall option leads to more short-sighted policies in Democratic and Republican cities. In these politically

[26] Indeed, voter registration would be the ideal measure of political preferences. Unfortunately, this is not widely available at the municipal level.

[27] See chapter 4 for more detail.

Table 3.11: **GMM estimation of equation (3.4) by access to initiative, recall, and implementation of term limits. Cities with Democratic majority.**

	All [1]	Initiative[1]	No Initiative	Recall[1]	No Recall[1]	Pre Term Limits	Post Term Limits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ΔlnR_t, λ	0.769	0.510	0.388	0.583	0.087	0.217	0.673
	(0.090)**	(0.106)**	(0.157)*	(0.118)**	(0.127)	(0.097)*	(0.155)**
ΔlnK_t	-0.009	-0.007	-0.010	-0.002	-0.011	0.003	-0.014
	(0.005)*	(0.005)	(0.006)	(0.005)	(0.006)	(0.015)	(0.027)
ΔlnT_t	0.110	0.125	0.058	0.108	0.079	-0.053	-0.006
	(0.022)**	(0.036)**	(0.022)**	(0.036)**	(0.027)**	(0.038)	(0.045)
r	0.001	0.003	0.001	0.005	-0.006	-0.002	0.019
	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)*	(0.014)	(0.014)
Constant	0.001	-0.000	0.010	-0.008	0.034	0.021	-0.060
	(0.006)	(0.008)	(0.009)	(0.009)	(0.009)**	(0.043)	(0.042)
Observations	3799	1185	743	1144	784	75	55
Anderson (p-value)	.000	.037	.187	.1397	.001	.000	.001
Hansen (p-value)	.525	.076	.464	.293	.629	.125	.250

Robust standard errors in parentheses
* significant at 5%; ** significant at 1%
1. Excluding California cities.
Three through six year lags of ΔlnR_t, ΔlnG_t, ΔlnK_t, ΔlnT_t, and the real interest rate, are included as instruments for ΔlnR_t.
Only cities with a political score greater than 10 are considered in this specification.

unified cities, the recall is a threat because voters have similar political preferences and thus a majority vote in favor of recall is more likely than in divided cities. When only the excluded (politically divided) cities are considered, there is no effect of the recall (not reported).

Term limits in Democratic cities increase short-sighted behavior; prior to the implementation of term limits, Democratic cities finance about 22% of current expenditures with current revenue, compared to 67% afterward. Term limits also lead to increased short-sighted budgeting in Republican cities; prior to the implementation of term limits, cities fund about 34% of changes in current expenditures with changes in current revenues, compared to 69% after term limits are enacted. The estimates of λ for Democratic and Republican cities before the implementation of term limits are not significantly different from one another; term limits appear to have a uniform impact on fiscal decisions across cities of different ethnic and political mixtures.

Table 3.12 provides more detail as to how demographics influence fiscal decisions. Demographic variables are available every five years from the City and County Data Books. For this specification, changes in expenditures and revenues are calculated in five year intervals. One (five year) lag of all variables used in the specification are included as instruments for ΔlnR_t and $\Delta lnR_T * X$, where X is the diversity index, percent of the population that is white, percent that is over age 65, population size (in thousands), percent that is college educated, median household income (in thousands of year 2000 dollars), percent of housing that is owner occupied, or the political score. Population size has the greatest impact on fiscal decisions (column (4)); the percent of the population that is white, over age 65, and the political score have smaller but statistically significant impacts on fiscal decisions. An increase in population of 1,000 people is associated with a decrease in the share of current spending that is financed by current revenues of 23 percentage points.

Table 3.12: **GMM estimation of equation (3.4) including demographic information**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta lnR_t, \lambda$	0.141	0.728	0.816	0.232	0.740	0.482	0.808	0.022
	(1.228)	(0.048)**	(0.148)**	(0.108)*	(0.168)**	(0.124)**	(0.196)**	(0.139)
ΔlnK_t	-0.004	-0.002	-0.002	0.004	-0.011	-0.004	-0.005	-0.001
	(0.007)	(0.007)	(0.007)	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)
ΔlnT_t	0.118	0.095	0.100	0.047	0.112	0.116	0.119	0.099
	(0.019)**	(0.014)**	(0.016)**	(0.016)**	(0.018)**	(0.022)**	(0.019)**	(0.015)**
r		0.143	0.136	0.139	0.120			0.140
		(0.018)**	(0.017)**	(0.017)**	(0.019)**			(0.017)**
$\Delta lnR_t * Score$								0.005
								(0.001)**
$\Delta lnR_t * \%owner\_occupied$							-0.004	
							(0.003)	
$\Delta lnR_t * median\_income^a$						0.004		
						(0.003)		
$\Delta lnR_t * \%college$					-0.004			
					(0.002)*			
$\Delta lnR_t * population^b$				-0.271				
				(0.081)**				
$\Delta lnR_t * \%over\_65\_years$			-0.039					
			(0.015)*					
$\Delta lnR_t * \%white$		-0.005						
		(0.001)**						
$\Delta lnR_t * diversity^c$	0.008							
	(0.016)							
Constant	-0.007	-0.339	-0.326	-0.313	-0.298	-0.005	-0.005	-0.328
	(0.009)	(0.040)**	(0.042)**	(0.039)**	(0.045)**	(0.012)	(0.008)	(0.040)**
Anderson (p-value)	.000	.000	.000	.000	.000	.000	.000	.000
Hansen (p-value)	.000	.019	.040	.191	.167	.000	.000	.017
Observations	713	1087	1087	1486	1087	713	713	1066

Robust standard errors in parentheses
* significant at 5%; ** significant at 1%
a. $/1000
b. population/1000
c. 1-Diversity Herfindahl index
Differences are measured over five year intervals. One five year year lag of ΔlnR_t, ΔlnG_t, ΔlnK_t, ΔlnT_t, the real interest rate, and $\Delta lnR_t * X$ are included as instruments for ΔlnR_t.

Liquidity constraints, tax revenue elasticity, and demographic variables each influence tax-smoothing behavior. The final specification controls for these factors to verify that term limits influence fiscal decisions independently of these factors. Table 3.13 presents the estimation of the equation (3.5) below, where I is a dummy variable indicating whether a city has the local initiative, recall, or is in the five year period following the implementation of term limits. Lagged values of $\Delta lnR_t * \mathbf{Z}$ are included as instruments for ΔlnR_t and $\Delta lnR_t * I$, where $\mathbf{Z}$ is predicted per capita outstanding debt, the property tax share of revenues, population size, and the political score.

$$\Delta lnG_t = (1-\lambda)\mu + \lambda \Delta lnR_t + \lambda_2 \Delta lnR_t * I + \theta_1 \Delta lnK_t + \theta_2 \Delta lnT_t + \theta_3 r_t + (1-\lambda)\epsilon_t \quad (3.5)$$

λ_2 is the impact of institution I independent of the factors discussed above. As expected $\lambda_2 = 0$ for cities with the initiative and recall (columns (1) and (2) of table 3.13). For cities with term limits $\lambda_2 = .178$; in the absence of term limits, cities finance about 43% of current expenditures with current revenues. After term limits are implemented, 61% of current expenditures are financed with current revenues. This increase of about 18% is about the same as moving from the 90th percentile of credit access to having no access to borrowing.

Table 3.13: **GMM estimation of equation (3.5)**

	Initiative[1] (1)	Recall[1] (2)	Post Term Limits (3)
$\Delta lnR_t, \lambda$	0.512	0.370	0.425
	(0.108)**	(0.108)**	(0.077)**
ΔlnK_t	-0.010	-0.010	-0.006
	(0.003)**	(0.003)**	(0.007)
ΔlnT_t	0.083	0.081	0.048
	(0.010)**	(0.009)**	(0.016)**
r	0.001	0.001	0.006
	(0.001)	(0.001)	(0.005)
$\Delta lnR_t * Initiative$	0.010		
	(0.142)		
$\Delta lnR_t * Recall$		0.213	
		(0.153)	
$\Delta lnR_t * Post\_Term\_Limit$			0.178
			(0.068)**
Constant	0.003	0.003	-0.013
	(0.004)	(0.004)	(0.015)
Anderson (p-value)	.000	.161	.446
Hansen (p-value)	.017	.013	.369
Observations	4987	4987	394

Newey-West standard errors in parentheses
* significant at 5%; ** significant at 1%
1. Excluding California cities.
Three through six year lags of ΔlnR_t, ΔlnG_t, ΔlnK_t, ΔlnT_t, the real interest rate, and $\Delta lnR_t * \mathbf{Z}$ where $\mathbf{Z}$ is predicted per capita outstanding debt, the property tax share of revenues, population size, and the political score, are included as instruments for ΔlnR_t.

3.6 Conclusion

On average, cities in the United States finance about 65% of changes in current expenditures with current revenues. If city officials acted according to a perfect tax-smoothing model, then current expenditures would be entirely financed with permanent resources. However, municipal budgets in the United States are subject to balanced budget constraints and revenues limit the amount of debt that a city can issue. Thus, some degree of short-sighted budgeting is expected. By utilizing panel data, I have shown that local governments in the United States act according to the tax-smoothing model to a greater extent than previously estimated.

I provide evidence that at the municipal level in the United States, the threat of voter initiatives does not significantly influence fiscal policy decisions. The initiative and recall options serve to align constituent preferences and policy. The finding that local initiative is not associated with different fiscal decisions suggests that fiscal preferences of constituents and policy are aligned in the absence of the initiative. This finding is consistent across Republican and typically homogenous cities and Democratic cities, which are typically more diverse. At the state level, these results might differ; voters tend to initiate more tax and fiscal measures at the state level relative to the local level. Additionally, the fiscal decisions made at the state level are different from the tax and expenditure responsibilities of municipalities.

The recall option leads to short-sighted decisions in Democratic and Republican cities. When cities are politically unified, the recall is a real threat to politicians. However, in the pooled sample, the recall option does not have an average effect on policy.

Theoretically, term limits could either act to align constituent and politician interests or misalign these interests. Voters tend to believe that term limits eliminate unfair political advantages and policy flexibility that accompanies long-term political careers. On the other hand, there are no institutional barriers to ousting poor politicians and there are potentially significant benefits to having an experienced leader in office. I contribute to this debate by presenting evidence that term limits serve to sever constituent and politician interests and that the implementation of mayoral term limits has a detrimental effect on local fiscal policy. Specifically, implementing term limits has a similar effect of losing essentially all access to borrowing.

Aside from term limits, I find that population characteristics, liquidity constraints, and the local tax structure also influence the time horizon of municipal fiscal decisions. The most forward looking cities in the United States are ethnically homogenous, have significant access to borrowing, and rely minimally on property taxes. These cities are able to borrow from creditors and adjust the timing of capital expenditures in order to maintain tax and current expenditure levels. Further, ethnic homogeneity reduces political disagreement and short-sighted decisions aimed at winning votes.

Short-sighted budgeting is associated with more volatile taxes and expenditures. In itself, this variance creates a dead weight loss. Further, in the case of economic downturns, cities with short-sighted practices do not have savings to sustain tax and expenditure levels. Intergovernmental grants from state and federal sources often provide the additional liquidity required to navigate economic downturns for these cities. Thus, short-sighted budgeting by municipalities potentially places a significant fiscal externality on other governments.

Chapter 4

The Political Economy of State Transfers to Municipalities

4.1 Introduction

Models of political economy often parameterize an individual's or constituency's political preference. For example, the median-voter model assumes that candidates know voter preferences and thus choose platforms that converge to the policy preferred by the median voter.[1] Probabilistic voting models expand upon the median voter framework by introducing political ideology or party bias. In these models, candidates have full knowledge of voter ideology and candidate popularity shocks are realized after platforms are announced.[2] Voter ideology also plays an important role in models of lobbying and special interest politics. In this chapter, I directly apply a probabilistic voter model to derive underlying voter ideologies in order to improve empirical tests of these and other political economy models. Indeed, this is a measure that is currently lacking in the literature. I then use this measure to test the "core" and "swing" voter hypotheses.

Models of electoral competition predict which constituencies, "core" or "swing", will receive transfers from upper tiers of government. Inman (1988) concludes that traditional equity and efficiency arguments do not explain the observed system of US federal transfers to local governments. Instead, he proposes that political economy models might better explain the system of intergovernmental transfers in the United States.[28] One group of models predicts that politicians will reward their core supporters (for example, Cox and McCubbins (1986)[17]), while another group predicts that politicians will give money to swing constituencies (for example, Dixit and Londregen (1998) [19], or Lindbeck and Weibull (1987) [38]). There is empirical evidence in favor of both hypotheses, but a major obstacle has been the identification of core and swing constituencies.

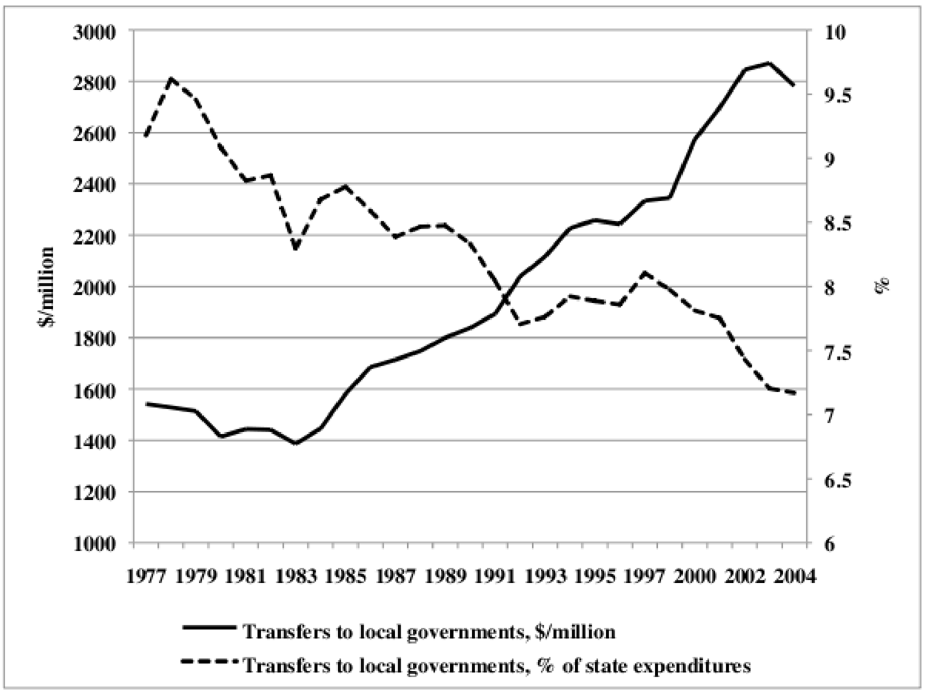
Not only do intergovernmental transfers provide an interesting laboratory for questions in intergovernmental political economy, but they represent a significant share of government spending. In FY2002, local governments received $355 billion in state aid and $43

[1] See Downs (1957).[21]

[2] See, for example, Lindbeck and Weibull (1987).[38]

billion from the federal government; states received $318 billion from federal and another $18 billion from local payments to the state. On average, 70% of state transfers to local government are allocated to education. In FY2004, each state allocated an average of $5 billion to local education and $2.8 billion to other transfers to local governments. These non-education transfers account for an average of 7% of state expenditures in FY2004, but range from 1.4% in Rhode Island to 21% in California.[3] As seen in Figure 4.1[4], the average dollar expenditure of these transfers almost doubled between 1977 and 2004, but as a share of total state expenditures, these transfers have fallen from almost 10% to just over 7%.[48]

Figure 4.1: **State transfers to local governments, US average**



For municipal governments, transfers from state and federal governments are significant and highly variable shares of their budgets. Since the 1980s, aid from state and federal governments accounts for an average 15% of municipal budgets. But, there is variation across states in the extent to which municipalities rely on state funds; many cities located in the South receive less than 1% from state governments, whereas many Western cities receive over half of their revenues from state and federal sources. During budget shortfalls, local aid programs are often the first to be cut [33]. Further, both state and federal governments modify aid programs and formulas regularly. California either expanded programs or reduced spending to local government every year between 1992 and 2004, with

[3] In my analysis, I will consider only non-eduction aid decisions because education formulas vary widely across states.

[4] All dollar amounts in this paper are normalized to constant 2004 dollars using the BLS regional CPI deflator.

the exception of 1995 and 1996. These changes come in various forms, ranging from tax policy changes to the expansion of specific programs, to changes in general aid formulas [45]. In the remainder of the chapter, I identify variations in transfers that result from political relationships between states and localities.

Swing constituencies are typically defined as having either historically close or variable election outcomes. Regardless of which definition is used, the problem with using election outcomes is that these do not consistently capture the underlying preferences of voters. In section 4.3, I illustrate further how election outcomes do not necessarily reflect the underlying identity of core, swing, or opposition jurisdictions.

If transfers are politically motivated, then this behavior has the potential to accentuate inefficiencies in the electoral and legislative process. Wallace Oates cautions a highly politicized system of intergovernmental grants and calls for a greater movement of understanding:

> "...the design and operation of systems of intergovernmental grants in a political setting is an issue of the first priority in fiscal federalism; we need to devote more attention to it."

[44]

Currently, California is facing major state-level budget cuts and many cities are in further fiscal distress. Given this fiscal turmoil, cuts in funding should be made to fiscally viable cities. If transfers are politically motivated, then there is the potential for state money to be inefficiently allocated. The pervasive lobbying efforts made by local governments to the state legislature suggest that political ties play a significant role in the distribution of state funds. A recent Sacramento Bee article reported that,

> "Despite mounting money woes, California's local government agencies continue to spend tens of millions each year to influence state government. Far more public funds were paid by cities, counties and school districts during the two-year legislative session that ended Dec. 1 than at any other time this decade..."

[53] Indeed, the City of Sacramento spent $797,232 on lobbyists in 2008, up from $228,269 in 2004 and $93,886 in 2000. In 2008, over $26 million were spent by municipalities in California, lobbying to the state government. [5] A system that limits the discretion of the state to distribute grant funds would obviate the use of tax revenues to garner funds from the state. [44]

California voters passed Proposition 13 in 1978 to limit the ability of local governments to raise property taxes. This legislation drastically increased the role of the state government in the distribution of local funds. Similar legislation was passed in several states, although California's Proposition 13 is famously the strictest. A highly centralized fiscal structure and a heterogenous population provide a fertile ground for a politicized system of intergovernmental transfers in California.

In this chapter, I provide evidence that in California and in the Northeastern United States, state legislators reward core constituencies. In California, swing cities are also

[5] Payments to lobbyists are reported by the California Secretary of State.

favored. Using an original measure of political preferences at the local level and changes in Democrat power at the state level, I find that Northeastern states reward core constituencies with an average value of 1.1% of local revenues, or about $14 million for each percentage gain in the state legislature.[6] California legislators rewards core constituencies with 3.7% of local revenues, or about $14 million; they give slightly more to swing cities: 4.2% of local revenues or almost $16 million.

$14 million represents a relatively small share of city budgets: in California, this translates to about 20-50% of police expenditures, 13-30% of annual capital expenditures, 8-15% of municipal wages, or 2-6% of average outstanding debt. In the Northeast, $14 million represents 13-27% of police expenditures, 8-18% of capital expenditures, 2-4% of municipal salaries and wages, or 1-3% of average outstanding debt. Nonetheless, large or persistent increases in Democratic control at the state level may result in significant expansions of municipal budgets over time, for the most Democratic cities. A gain of 3 seats in the California legislature would result in municipal funding increases that could potentially pay for an entire year of the police budget, expand capital projects by 60%, or reduce outstanding debt by 12%. But there is a potentially significant downside for core municipalities; changes in control at the state level lead to less certain revenues and thus hinders a municipality's ability to smooth expenditures from year to year.

The remainder of the chapter proceeds as follows. The next section provides a brief overview of the literature addressing targeting of intergovernmental transfers various constituencies. In section 4.3, I present a simple model of voter preferences. In section 4.4, I demonstrate that demographics can be used to infer political preferences over time for jurisdictions and calculate a political bias score for 435 cities in the United States. In section 4.5, I present my empirical approach and results. The final section concludes.

4.2 Current Literature

A limited number of studies utilizing data from the United States find evidence that political alignment matters for federal to state transfer decisions. Grossman (1994) finds that states with higher levels of Democrat support receive more funds under a Democratic federal government. Levitt and Snyder (1995) use congressional district data and find that districts with more Democratic constituents attract more funds from the Democratic congress, independent of the party affiliation of the district's representative. They assert that, during the time periods in question, the Democrat federal government implemented programs targeted at Democratic voters. They suggest that the government was able to identify these voters based on demographic and socioeconomic characteristics. Both studies are limited to cross-sections from time periods where Democrats held the house majority; they nonetheless conclude that transfers are targeted to supporters. Neither study explicitly distinguishes between core and swing constituencies [25, 35].

Attempts have been made to understand the federal-state and federal-local fiscal relationship in the United States. But the state-to-local aid decision has been left relatively untouched, largely because of the complexity of the decision and large variation across

[6] For a 2-chamber state with 140 total members, this is a gain of 1.4 seats.

states:

> "Interpreting state aid figures and developing empirical models of the aid decision in the state-local context are complicated by the fact that state-local fiscal structures differ greatly from one state to another and that the monetary aid flows between state and local governments are part of a larger set of decisions about the design of state-local intergovernmental relations. These decisions include how spending responsibilities are divided between state and local governments and how spending by local governments is to be financed. Because the differences across states in intergovernmental relationships reflect differences that are firmly rooted in each states historical development and have evolved only slowly over time, they are not very amenable to economic modeling." (Ladd, 1991) [33]

Ansolebehre and Snyder (2004) conduct the only comprehensive study of the state-to-local relationship in the United States. They consider per capita revenues to all local governments within a county, whether the party in power at the state level is Democrat or Republican, and an 8-year average of county votes to identify voter preferences. The authors have the advantage of a dataset with a large number of county observations over many years; they find that core counties receive more funds than do swing or opposition counties. Aside from Inman (1988), no study has addressed the aid decision to municipalities in the United States; several studies of other countries have found evidence that political alignment influences the distribution of transfers to municipalities. [7]

4.3 Voter Preferences

Theoretical models assume that parties know which voters constitute their core supporters.[17, 19] The ability to target constituencies with government funds relies on parties having this knowledge. Most analyses of party alignment use voting records as a measure of the strength of party preference.[8] However, the vote share for a particular candidate does not necessarily reflect the jurisdiction's preference for the candidate's party– which is likely to be an important variable in the decision to transfer funds to localities.

A single vote for a candidate might represent a preference for the platform of the candidate's party, a preference for that candidate's personal characteristics relative to her opposition, or both. An aggregated vote share includes the party bias of a jurisdiction as well as individual candidate error terms; thus, vote share is a noisy measure of a jurisdiction's party allegiance. To address this, authors have used various averages of votes over time,[9] but this too is limited by the availability of few votes for a given jurisdiction and time period. In this section, I present a simple model of voter behavior to motivate an empirical measure of preferences based on demographics.

[7] See, for example, Solle-Olle and Sorribas-Navarro (2008), Worthington and Dollery (1998), and Rodden and Widinson (2004). [57, 61, 52]

[8] See, for example, Grossman (1994) , Levitt and Snyder (1995). [25, 35]

[9] For example, Ansolebehre and Snyder (2007). [4]

Suppose there is a vector of policies that defines a politician's party, P. P reflects, for example, the tendency of Democrats to favor social insurance programs and income redistribution and the tendency of Republicans to favor socially conservative policies, smaller government, and lower taxes. A voter chooses to align along this basic vector with either party and further considers personal candidate characteristics when voting. Relevant candidate characteristics might include incumbency status, charisma, deviations from the party platform, campaign efforts, or popularity shocks.

Consider an election between two candidates, each aligned with a political party platform $P = D, R$. Candidates, c, are endowed with a popularity shock (or other individual characteristic that might influence voters) at the beginning of the election, v. Popularity shocks for each candidate, e_{Pcv}, are independently and identically distributed. Thus, candidates are represented by their policy platforms plus any personal deviations:

$$P + e_{Pcv}$$

Constituents vote for the candidate that provides them the greatest utility. A voter has a preference, e_i for D. $e_i = 0$ represents a voter who has no party allegiance and votes based on politician characteristics, e_{Dcv} and e_{Rcv}, alone. A large value of e_i represents a voter who is firmly committed to vote Democrat, a "core" supporter. A highly negative value of e_i represents a "core" Republican supporter who strongly opposes the Democratic platform. Thus, a Democratic voter, i, has preferences:

$$U_i(D + e_i) \geq U_i(R)$$

A constituent will vote for D if,

$$U_i(D + e_{Dcv} + e_i) \geq U_i(R + e_{Rcv})$$

and will vote for R if,

$$U_i(R + e_{Rcv}) > U_i(D + e_{Dcv} + e_i).$$

For example, a voter with a preference for D, $(e_i > 0)$, will vote for the Republican candidate if the Republican candidate is endowed with a large enough popularity shock and/or the Democratic candidate receives an especially poor popularity shock.

An important assumption is that popularity shocks, e_{Pcv}, for N candidates in V elections, are normal, independent and identically distributed, so that

$$\sum_{v=1}^{V}\sum_{c=1}^{N} e_{Pcv} = 0.$$

Further, individual preferences can be aggregated to a jurisdiction, J, level, so that the mean Democratic bias for a jurisdiction is given by,

$$\bar{e_J} = \frac{1}{I}\sum_{i=1}^{I \in J} e_{iJ}$$

4.4 Measuring Political Alignment

4.4.1 Demographic model

Previous studies simply use voting data to infer political preferences for various geographic divisions.[10] However, as described above, personal characteristics of candidates are independent of voter political preferences and may sway a constituent to vote against her preferred party. Although the actual vote might be an appropriate measure for some analyses, a measure of party allegiance is better suited for others. In this section, I present an econometric specification to predict political preferences for any geographic level for which demographic data are available; I implement this specification for 435 cities in the United States.

A person's stated party affiliation (e_i), and the party of the candidate for whom she votes are strongly correlated. According to the National Elections Survey for periods 1968-1996, constituents vote according to their stated party affiliation most of the time. Of the respondents who identified as Democrats, 81% and 77% voted for the Democratic candidate in the previous gubernatorial and presidential races, respectively. For identified Republicans, 84% and 86% voted for the Republican candidate in the previous gubernatorial and presidential races, respectively.[11]

In order to derive political biases from voting data, either candidate popularity shocks or voter biases must be identified. Currently, there is no comprehensive data available for popularity, charisma, or campaign efforts for candidates, further these variables might have heterogenous effects on different types of voters. On the other hand, there are several sources of data on voter characteristics. Voter registration is the best available measure of party allegiance, although it is not widely available at sub-state geographic levels in the United States. I argue that these political preferences can be inferred relatively well using demographic data, a source that is widely available from the deci-annual census, and every five years from the City and County Data Books.

Political scientists have provided some evidence that demographics are correlated with voter preferences. Aldrich et. al (2007) find that a demographic model performs similarly well to a model that utilizes voter opinions on issues to predict the party of a representative.[1] I provide further evidence that demographics are sufficient to infer party preference using The National Elections Survey for various years between 1968 and 1996. [54]

Survey respondents rate their party affiliation on a scale of 1 to 7, where 1 corresponds to a strong Democrat and 7 corresponds to a strong Republican. An ordered probit regression of a persons stated political score on a vector of demographic characteristics, X_i, indicates that several characteristics are significant in predicting a persons political score.

[10] See, for example, Grossman (1994) , Levitt and Snyder (1995), Ansolebehre (2008). [25, 35, 4]

[11] Respondents rated their party affiliation on a scale of 1 to 7, where 1 corresponds to a strong Democrat and 7 corresponds to a strong Republican. 3 is a Democrat-leaning Independent, 4, a true Independent, and 5, a Republican-leaning Independent. The percentages reported here were derived from respondents who rated themselves as 1 or 2 for Democrats and 6 or 7 for Republicans. Note that the correlation is smaller when leaning Independents are included.

The following model is estimated for several years between 1968 and 1996.

$$Score_i = B * X_i + \epsilon_i$$

The ordered probit specifications are reported in Table 4.1 for a selected set of the most statistically significant coefficients.[12] On the whole, the signs on the coefficients are of the expected sign; richer people tend to identify Republicans and blacks and hispanics identify as Democrats, as do Jewish people. Urban location is also a significant predictor of Democratic leaning. Men are more likely to identify as Republicans. Parental party affiliation is one of the strongest predictors of a persons political preference.

Table 4.1: **Ordered Probit: Self-reported political score**[a]

	1968	**1972**	**1974**	**1980**	**1988**	**1992**	**1994**	**1996**
Male	0.066	0.038	0.114	-0.010	0.177	0.237	0.254	0.315
	(0.90)	(0.72)	(2.19)*	(0.16)	(3.27)**	(4.86)**	(4.55)**	(5.52)**
Age: 65 to 74	-0.152	0.393	-0.693	-1.164	0.303	-0.112	-0.399	-0.049
	(0.31)	(1.31)	(3.11)**	(1.41)	(0.41)	(1.13)	(3.37)**	(0.08)
Black	-1.256	-0.710	-0.776	-0.705	-0.686	-0.702	-0.978	-0.892
	(11.13)**	(9.05)**	(9.23)**	(7.02)**	(8.23)**	(9.42)**	(10.73)**	(9.78)**
Hispanic				-0.137	-0.209	-0.038	-0.289	-0.265
				(0.93)	(2.20)*	(0.46)	(2.97)**	(2.73)**
Urban	-0.057	-0.062	-0.256	-0.183	-0.127	-0.286	-0.076	-0.165
	(0.75)	(1.09)	(4.54)**	(2.55)*	(1.96)	(5.11)**	(1.18)	(2.42)*
Top Income	-0.027	0.433	0.527	0.530	0.695	0.238	0.349	0.422
	(0.13)	(2.88)**	(3.49)**	(3.44)**	(3.70)**	(1.80)	(2.03)*	(2.68)**
Professional	0.403	0.239	-0.113	0.175	0.151	-0.437	0.002	-0.075
	(2.35)*	(1.90)	(0.90)	(1.28)	(1.02)	(3.83)**	(0.01)	(0.46)
Clerical	0.479	0.206	0.074	0.033	0.229	-0.315	0.166	0.055
	(2.74)**	(1.64)	(0.59)	(0.24)	(1.57)	(2.78)**	(1.18)	(0.34)
Upper Class	0.207	0.263	0.311	0.129	0.240	0.127	0.288	
	(2.06)*	(3.31)**	(3.73)**	(1.28)	(2.69)**	(1.57)	(3.08)**	
Protestant	0.270	0.227	0.218	0.067	0.174	0.284	0.401	0.362
	(2.11)*	(2.46)*	(2.59)**	(0.74)	(2.05)*	(4.52)**	(5.53)**	(4.72)**
Jewish	-0.697	-0.527	-0.657	-0.721	-0.279	-0.610	-0.733	-0.557
	(3.29)**	(3.20)**	(4.10)**	(3.91)**	(1.35)	(3.56)**	(3.76)**	(2.68)**
Democrat Father	-0.340	-0.387		-0.342	-0.218	-0.377		
	(3.97)**	(5.90)**		(4.18)**	(2.62)**	(5.26)**		
Observations	1531	2656	2433	1577	1999	2447	1772	1694

Absolute value of z statistics in parentheses
* significant at 5%; ** significant at 1%
[a]Self reported score: 1=Strong Democrat, 7=Strong Republican

The model predicts a persons stated political affiliation relatively well. Table 4.2 reports the distribution of predicted probabilities for each reported score of the 1 to 7 scale. The first panel represents the predictions for 1968, using the coefficients from the 1968 regression coefficients. A strong Democrat is predicted to be a strong Democrat with an average probability of .35 and is either a strong or moderate Democrat with average probability of .64. A strong Republican is predicted to be a strong Republican with an average probability of .2 and a moderate Republican with average probability .23. Although this is a seemingly small probability, it is the case that the self-reported score is, or is within one unit of, the *most likely* predicted score.

[12]See the appendix table B.2 for a complete list of variables used in the specification.

Table 4.2: **Distribution of predicted political scores. 1968 ordered probit coefficients, 1968 Data.**[b]

Reported \ Predicted	1	2	3	4	5	6	7
1	**0.35**	0.29	0.09	0.09	0.06	0.08	0.04
2	0.26	**0.29**	0.11	0.11	0.08	0.10	0.05
3	0.19	0.27	**0.11**	0.12	0.09	0.14	0.08
4	0.16	0.26	0.11	**0.13**	0.10	0.15	0.08
5	0.11	0.23	0.11	0.13	**0.11**	0.19	0.13
6	0.08	0.18	0.10	0.12	0.12	**0.22**	0.19
7	0.07	0.17	0.09	0.12	0.12	0.23	**0.20**

[b]Political score: 1=Strong Democrat, 7=Strong Republican.

Table 4.3: **Distribution of predicted political scores. 1968 ordered probit coefficients, 1972 Data.**[b]

Reported \ Predicted	1	2	3	4	5	6	7
1	**0.34**	0.29	0.10	0.09	0.06	0.08	0.03
2	0.26	**0.29**	0.11	0.11	0.08	0.10	0.04
3	0.21	0.27	**0.11**	0.11	0.09	0.13	0.08
4	0.16	0.25	0.11	**0.12**	0.10	0.16	0.10
5	0.13	0.22	0.10	0.12	**0.11**	0.19	0.13
6	0.10	0.20	0.10	0.12	0.11	**0.20**	0.16
7	0.08	0.17	0.09	0.12	0.11	0.22	**0.20**

[b]Political score: 1=Strong Democrat, 7=Strong Republican.

In order to make meaningful predictions of political behavior based on demographic characteristics, it is important that the relationship between demographics and politics remains relatively stable. In order to test this, I use the 1968 regression coefficients to predict political preferences for demographics and stated preferences in 1972 and 1980 (Tables 4.3 and 4.4).[13] The predictions are remarkably consistent from 1968 to 1980. Indeed, the coefficients are just as powerful in prediction 12 years later. This persistence in the relationship between demographics and political preferences validates the use of demographic data to predict political alignment of individuals over time.

4.4.2 Political score for US cities

The argument made above is that demographic variables are sufficient to calculate an individual's preference for the Democratic party, but not to predict how she will actually

[13]These years were chosen because the same set of demographic variables are available in the data.

Table 4.4: **Distribution of predicted political scores. 1968 ordered probit coefficients, 1980 Data.**[b]

Reported \ Predicted	1	2	3	4	5	6	7
1	**0.34**	0.29	0.10	0.09	0.07	0.08	0.04
2	0.25	**0.28**	0.10	0.11	0.08	0.12	0.06
3	0.19	0.27	**0.11**	0.12	0.10	0.14	0.08
4	0.16	0.25	0.11	**0.12**	0.10	0.16	0.10
5	0.11	0.21	0.10	0.12	**0.11**	0.20	0.15
6	0.08	0.18	0.10	0.12	0.12	**0.22**	0.19
7	0.09	0.17	0.09	0.12	0.11	0.22	**0.20**

[b]Political score: 1=Strong Democrat, 7=Strong Republican.

vote, although the two are highly correlated. In this section, I use similar demographic variables as those included in the National Elections Study to estimate $\bar{e_J}$ for 435 cities in the United States. Fiscal data is available from the Annual Survey of Government Finances, conducted by the Census Bureau. Municipalities with populations greater than 50,000, or those performing certain key functions (such as mass transit) are included in this survey from 1970-2004. Thus, the sample is comprised of the largest municipalities in the United States. There are 506 cities with annual observations in the Annual Survey. Demographic data are from City and County Data Books, published every five years. Of the 506 cities in the Annual Survey sample, 435 appear in the City and County Data Books. County vote returns for senate, gubernatorial, and presidential elections are available from 1970 to 2004.[29, 34]

For any one city's vote, a Democratic candidate's victory can be attributed to either a positive popularity shock for the Democratic candidate ($e_{Dcv} > 0$), a negative popularity shock for the Republican candidate ($e_{Rcv} < 0$), and/or a large citywide Democratic allegiance, ($\bar{e_J} > 0$). For a sufficiently large number of elections, $\bar{e_J}$ is easily recovered since $\sum_{v=1}^{V}\sum_{c=1}^{N} e_{Pcv} = 0$.

One option is to calculate the average Democrat vote share for a given jurisdiction over a sufficiently long time period. Ansolebehre and Snyder [4] use an eight year average of the Democratic vote share in a given jurisdiction to measure local preferences. Levitt and Snyder [35] use the average of three presidential election vote shares. Although these measures fare better than a single vote, the samples are not large enough to isolate preferences from popularity shocks.

Instead of taking an average of relatively few votes within a county, I regress election returns on demographics for all counties in the United States. This projection isolates party allegiance and the effect of candidate characteristics within counties, as long as candidate error terms are normal i.i.d. and demographics sufficiently predict party preferences. Specifically, I regress the actual vote of many elections in a given time period for all counties in the United States on observable characteristics that are correlated with

Democratic bias, $\bar{e_J}$.[14] Then, I predict $\bar{e_J}$ for 435 cities using the coefficients from the county regression. One major benefit from this approach is that, by estimating the preference coefficients for demographics, I can calculate preferences for jurisdictions where vote records are not consistently available. Presidential, senatorial, and gubernatorial voting records are available at the county level and demographics are available at both the county and city level.[15] [16]

I recover β, the vector of coefficients for a vector of demographic characteristics, X, on voter preferences using the following regression for counties, y, and all senate, gubernatorial, and presidential elections, v, in time period, t. $\%P$ represents the percentage of votes within a county for $P = D, R$. In addition to demographic characteristics, there might be variation in $\bar{e_J}$ across states for various reasons such regional economic variations or regional social conditions.[17] These variations in $\bar{e_J}$ are incorporated into the regressions by including State-Year fixed effects.

$$\%D_{ytv} - \%R_{ytv} = \alpha + \beta * X_{yt} + \gamma * (State\_Year) + e_{Dcv} + e_{Rcv} + \epsilon_{ytv}$$

Substituting $\sum_{v=1}^{V} \sum_{c=1}^{N} e_{Pcv} = 0$, the specification becomes,

$$\bar{e_{yt}} = \alpha + \beta * X_{yt} + \gamma * (State\_Year) + \epsilon_{yt}$$

I then make the following imputation for cities, J:

$$\bar{e_{Jt}} = \alpha + \beta * X_{Jt} + \gamma * (State\_Year)$$

.

The coefficients, β are reported in Table 4.5, for five time intervals. The coefficients are consistent with the self-reported political score model presented in Section 4.4.1 that utilizes National Survey Data. In the survey data, people in the top income percentile and people who consider themselves in the upper class are biased toward Republicans. The negative coefficient on % Owner Occupied Housing– a measure of wealth– represents a Republican bias.[18] Per capita income has a negative coefficient through 1988 which is consistent with the notion that richer people prefer Republicans, ceteris paribus. After 1988, the coefficient for median income is negative and statistically significant.

Survey data reveals that urban status is associated with being Democrat. Population density in Table 4.5 is highly correlated with Democratic preferences. As expected, Democratic support is increasing in the percentage of the population that is black and His-

[14] The time periods are determined by the City and County Data Book, published every five years.

[15] Demographic data are from the City and County Data Books, with supplements from the deci-annual Census. Vote returns are from ICPSR13 and uselectionatlas.org.

[16] Indeed, the same calculation can be made for census tracts, school districts, or any jurisdiction for which demographics are aggregated. This is a potentially valuable statistic for researches and politicians alike.

[17] For example, Southern whites who were historically Democrat turned largely Republican after the signing of the Civil Rights Act of 1964.

[18] Note that in Section 4.4.1 Democratic preferences were represented by smaller numbers on the 1 to 7 scale. For the remainder of the paper, however, a smaller number represents a more Republican bias. This is because the bias is derived from the difference of votes: $\%Dem - \%Rep$.

panic. Also consistent with the ordered probit model, Republican support is increasing in the percent male within a county.

The distribution of $\bar{e_{Jt}}$ is presented in the appendix, figure B.1.

Table 4.5: **County Vote Returns (%Dem-%Rep)**

	1970-1977	1978-1983	1984-1988	1989-1994	1995-2004
Population/ mile^2	0.002	0.005	0.005	0.003	0.003
	(1.54)	(4.14)**	(4.38)**	(3.31)**	(3.60)**
Population	-0.000	-0.000	-0.000	-0.000	0.000
	(0.38)	(1.00)	(1.63)	(0.39)	(0.84)
Birth Rate	-0.025	-0.880	-1.069	-1.374	-0.546
	(1.86)	(9.58)**	(11.05)**	(10.19)**	(5.27)**
Income Per Capita	-0.002	-0.001	-0.002	0.002	0.002
	(3.60)**	(2.48)*	(6.27)**	(6.46)**	(13.69)**
Median Income	0.002	0.000	0.001	-0.001	-0.001
	(4.23)**	(0.64)	(5.95)**	(8.46)**	(16.94)**
% Owner Occupied	-0.035	-0.093	-0.334	-0.006	0.198
	(6.07)**	(2.73)**	(7.00)**	(0.10)	(3.93)**
% Over 65	0.650	-0.553	0.115	-0.824	-0.930
	(4.50)**	(5.37)**	(1.09)	(6.94)**	(9.29)**
% White	-0.380	-0.270	-0.023	-0.472	-0.528
	(4.91)**	(6.54)**	(1.39)	(9.38)**	(14.72)**
% Black	-0.067	0.291	0.672	0.085	0.336
	(0.82)	(6.42)**	(22.06)**	(1.60)	(8.29)**
% Hispanic	0.339	0.072	0.389	0.190	0.342
	(8.31)**	(2.62)**	(12.48)**	(4.98)**	(11.17)**
% High School Graduates	-0.077	-0.639	-0.571	-0.287	0.219
	(1.08)	(11.18)**	(9.47)**	(3.41)**	(2.79)**
% College	-0.410	-0.612	-0.458	-0.281	0.123
	(6.41)**	(13.88)**	(9.61)**	(4.56)**	(1.74)
% Male	0.586	-0.603	-0.753	-0.772	-0.582
	(3.48)**	(3.39)**	(4.14)**	(3.90)**	(4.25)**
Constant	6.558	110.798	62.560	220.680	84.572
	(0.48)	(9.99)**	(5.88)**	(16.43)**	(8.80)**
Observations	7998	11330	11761	7997	12281
R-squared	0.30	0.42	0.31	0.34	0.35
State x Year FE	Y	Y	Y	Y	Y

Absolute value of t statistics in parentheses
* significant at 5%; ** significant at 1%

4.4.3 Validity of political score

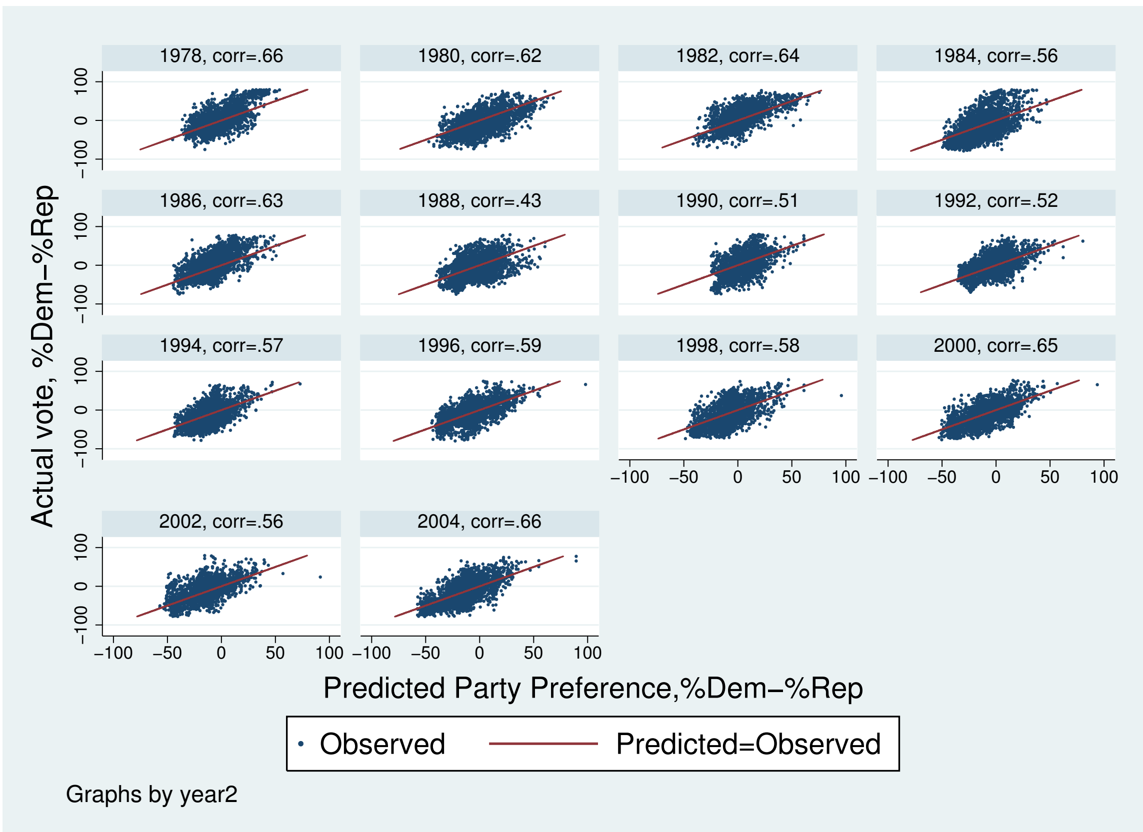
My analysis relies on the correct assignment of political preferences to cities. Thus it is important that my measure, derived from demographic characteristics, is consistent with other available measures and that coefficients used in the prediction are not spuriously estimated across periods.

Party allegiance and election outcomes

I define political bias as the percent of individuals within a jurisdiction that identify as Democrats, minus the percent that identify as Republicans. This measure is strongly correlated with the Democratic minus the Republican candidate's vote share in a given election. Of course, it is the case that individuals occasionally vote against their stated preferences.

Figure 4.2 presents the relationship between actual votes and political bias for US counties from 1978 to 2004. The measures are strongly correlated and have normally distributed candidate popularity shocks, represented by the distance from the observed point to the 45-degree line. Of course, $\bar{e_{Jt}}$ is derived from these votes and so this relationship is largely mechanical. Ideally, this would be testable for cities but unfortunately voting records are not available for municipalities.

Figure 4.2: **County votes and predicted political score**

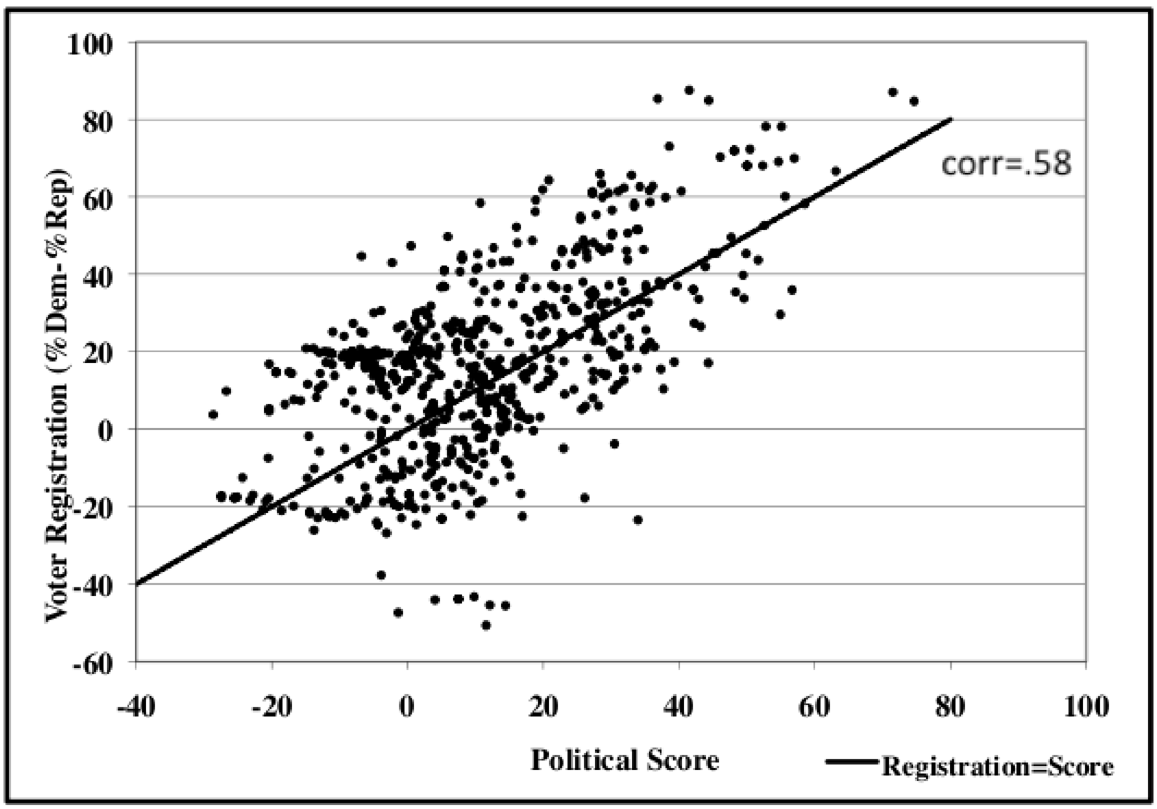


Party allegiance and voter registration

Voter registration is a good measure of party allegiance. Voters register as a Democrats, Republicans, various third party options, or decline to state their party affiliations. Those with strong preferences for Democrats will register Democrat, those with strong Republican preferences will register Republican, and those with a small e_i or $e_i = 0$ will register some other option. Within a municipality, the difference between registered Democrats and Republicans translates well into a measure of the Democratic bias, the measure derived from the county vote share regressions on demographics.

Voter registration data are available for cities in California from the Secretary of State's Report of Registration.[47] Figure 4.3 plots voter registration against the predicted measure of political bias for the 66 California cities in the sample.[19] Except for a few outliers, the prediction is a good proxy for voter registration. The two measures are highly correlated which additionally validates the use of demographic measures to infer political bias.

Figure 4.3: **Voter registration and political score**



[19] Voter registration from the years 1970, 1976, 1980, 1985, 1990, 1992, 1995, 1998, 2000, 2001, and 2001 are included.

Demographic coefficients over time

In section 4.4.1, I argue that demographics predict political score relatively well, especially for Democrats. In particular, I find that a self-reported "strong Democrat" is predicted to be either a strong or moderate Democrat with probability .64, and a strong Republican is predicted to be either a strong or moderate Republican with probability .43. [20] Although this is a seemingly small probability, it is the case that the self-reported score is, or is within one unit of, the *most likely* predicted score. Further, the relationship between demographics and political affiliation is stable over time; the coefficients estimated for the 1968 survey data predict political scores equally well for the 1980 survey data.

Coefficients estimated using county vote data should consistently estimate political bias for time periods in the future. In order to test this, I use coefficients from the 1978-83 regression to estimate the political bias for cities in all time periods.[21] Metropolitan populations tend to be highly mobile, thus we might expect some changes in demographic composition and political biases in these areas. But, to the extent that these changes happen slowly over time, the estimated bias of a city should be correlated with the prediction for subsequent time periods. Table 4.6 presents these correlations. Coefficients from 1983-1988 consistently predict political biases through 2004.

Table 4.6: **Correlation, Predicted political scores for municipalities using 1978-1983 regression coefficients**

	Score 1978-83	Score 1984-88	Score 1989-94	Score 1995-04
Score 1978-83	1			
Score 1984-88	0.95	1		
Score 1989-94	0.81	0.86	1	
Score 1995-04	0.75	0.82	0.85	1

[20] see Tables 4.2-4.4

[21] The income variable for 1970-1977 is median family income; after 1977 median household income is available. The 1978-83 coefficients are used for this exercise so that the variables used for estimation are consistent with the variables available in subsequent time periods.

4.5 Empirical Approach

In this section, I test whether state political parties use transfers to target core or swing supporters. Yearly city fiscal data is available for 506 cities with populations over 50,000 from the Annual Survey of Governments conducted by the Census Bureau. The political allegiance scores for cities are imputed as described above. The final sample is a time-series for 354 cities, with some gaps resulting from missing data in the City and County Data Books.

The main specification is,

$$\Delta ln(AID_{tJ}) = \alpha + \beta * \Delta(Dem_{t-1,s} * Q_{tJ}) \tag{4.1}$$

I use a first-differences approach to identify the effect of changes in Democratic power at the state level on funding to local governments. State legislatures, s, have Democratic advantage Dem. This measure is discussed more in the next section. Q_{tJ} is a vector of dummy variables indicating the quintile of $\bar{e_J}$ within a given 5-year period and state.[22] Political allegiance scores are transformed into quintiles in order to identify core, swing, and opposition cities on a 1 to 5 scale. By interacting these dummy variables with changes in state Democratic power, I am able to identify non-linear effects of these changes for different constituencies.

4.5.1 Measuring Party Power within States

There is not a standard measure of the influence that various political actors have on policy outcomes in state legislatures. In an attempt to quantify this process, authors have used different measures. Ansolabehere and Snyder derive an eight year moving average measure of the ruling party at the state level. They choose this window of time because budgets are made incrementally yet it also allows for short term changes in power to influence the measure. They define a year as being under Democratic control if (i) Democrats have the majority in both the legislative chambers and the Governor is a Democrat or (ii) if Democrats have a veto-proof majority in both chambers. They define Republican control analogously.[4]

Grossman (1995) measures party political strength by including the percentage of votes for a Democratic governor in the last election and the share of Democrats in the state house of representatives.[25] Sole-Olle and Navarro (2008) simply consider the party identification of the municipal politician and the upper tier politician.[57]

Existing measures of decision making power amongst political scientists include: a 50-25-25 weighted average of the decision making power of the governor and two legislative chambers (Berry and Berry, 1992 [8]); an equally weighted average of the governor and two chambers (Brown, 1995 [12]); and the seat share of the majority in the state legislature (Scholz and Wei, 1986 [55]).

A 2002 survey of 7,430 state legislators asked questions about the influence that various political positions held in determining outcomes in the legislators chamber. Re-

[22] Various definitions of categorizing cities from least Democrat to most were tested, yielding consistent results.

garding majority party leadership, minority party leadership, committee chairs, and the governor, legislators were asked to rate each position's relative influence on legislative outcomes on a 1 to 7 scale, where 1 corresponds to "no influence" and 7 corresponds to "dictates policy." As expected, the majority party leadership is perceived to have the most significant impact on policy, with an average score of 5.6. Committee chairs are the second most important with an average score of 4.9, followed by the governor, 4.1, and minority party leadership, 2.9.[15]

In the empirical analysis I use the difference in the combined share of Democrats in the upper and lower chambers minus the combined share of Republicans. This is a measure of the relative strength of the majority in power.[23] According to the legislative survey, this is the most important determinant of policy. Unfortunately, committee membership data–the second most important aspect of policy determination–is not currently available. Further, by using a continuous measure of party strength, I can infer the effects of changes in the strength of the majority as opposed to changes in the party in power.

4.5.2 Results

In this section, I present evidence that the political bias of a city matters in the distribution of state transfers in California and the Northeastern United States.

Equation 4.1 is estimated in first differences. By using first differences, city effects or city "neediness" is controlled for, as is the non-stationarity of state transfers. I also include a control for the change in (log) overall spending to local governments; coefficients remain stable when this is included.[24] Table 4.7 presents the results. Column (1) reports the most basic specification for all available years. The outcome variable is municipal receipts from state sources–excluding education– as a share of local revenues.[25]

The coefficient on changes in state legislative control for the most Democratic cities is .023; when Democrats gain an advantage of 1% in the legislature, the share of state revenues for these cities increases by 2.3%. An average city receives about 10% of revenues from the state, so this increase to 10.23% represents a small change in the composition of funding. When the sample is limited to individual census regions, larger effects emerge. In particular, Northeastern states return a coefficient of .113 for the most Democratic cities (Table 4.7, column 2). California cities return a statistically significant and positive coefficient for Republican and Democratic cities alike, but the magnitude is increasing from .147 for the most Republican cities to .264 for the most Democratic (column 6). With a coefficient of .33 for swing jurisdictions in the third quintile, it appears as though Californian legislators reward swing voters more than core supporters.

Table 4.8 presents the same regression for Northeastern states for time periods 1970-1979, 1980-1989, and 1990-2003 (columns 1, 2, and 3 respectively). The relationship is strongest for the initial time period, with a coefficient of .218 for the fourth quartile of Democratic support. Between 1970 and 1979, a Democratic gain of 1% in the state legisla-

[23] Note that, in the absence of third parties, this measure is analogous to the share of Democrats.

[24] These data are only available after 1977.

[25] See appendix table B.3 for results using the log of per capita transfers as the outcome. Results are comparable.

ture is associated with an increase in the state share of 22%. For an average Northeastern city during the 1970s, receiving 9.2% of its revenues from the state and having a total budget of $1.1billion, this represents and increase in state aid of $22 million.

After 1990, the coefficient on the second quartile of Democratic support is -.30. During this time, legislatures in the Northeast were strongly held by Democrats, with an average share of 62% across both chambers. Cities in the second quartile are most likely considered "swing" or opposition cities, with an average predicted Democratic bias of 6.1. The negative coefficient for this group suggests that these cities saw decreased funding, while the most Democratic cities were rewarded with increases in state funding.

Columns 4-6 of table 4.8 presents the results for California by decade. After 1980, a relation positive relationship exists between increases in Democratic control at the state level and transfers to Democratic cities. Although coefficients are positive for all cities, the magnitude is increasing monotonically in Democratic support between 1980-1989. For the most Democratic cities, the coefficient is .692. For the average city in California that receives 11.5% of its revenues from the state and has a budget of $335 million, an gain of 1% advantage in the state legislature corresponds to an increase of $30 million from the state. After 1990, the reward to being a core constituency is slightly decreased; swing cities in the third quintile are rewarded equally with the most Democratic cities in the fifth quintile. A coefficient of .2 during this period corresponds to an increase of $10 million from the state, still a significant sum of money for most cities.

Table 4.7: **(Equation 4.1) Change in revenues from state on change in Democrat share in state legislatures, interacted with municipal Democratic bias quintile**

	All States	Northeast	Midwest	South	West	CA
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta Dem * Q1$	0.012	-0.060	0.004	0.007	0.043	0.147
	(0.91)	(1.05)	(0.10)	(0.75)	(1.13)	(2.60)**
$\Delta Dem * Q2$	0.014	-0.016	0.007	0.004	0.075	0.187
	(1.09)	(0.26)	(0.15)	(0.42)	(1.75)	(2.75)**
$\Delta Dem * Q3$	0.000	0.056	-0.104	-0.003	0.077	0.333
	(0.03)	(0.81)	(2.19)*	(0.30)	(1.46)	(4.42)**
$\Delta Dem * Q4$	0.013	0.113	-0.058	0.001	0.097	0.292
	(0.92)	(1.90)	(1.19)	(0.08)	(1.67)	(3.44)**
$\Delta Dem * Q5$	0.023	0.113	-0.015	0.022	0.038	0.264
	(2.77)**	(2.75)**	(0.70)	(3.86)**	(1.15)	(3.49)**
Δ ln(total transfers)	3.928	2.901	1.501	1.094	9.349	14.060
	(8.07)**	(2.00)*	(1.70)	(1.86)	(8.86)**	(9.57)**
Constant	-0.199	-0.012	-0.040	-0.087	-0.598	-0.909
	(5.71)**	(0.12)	(0.64)	(2.15)*	(7.27)**	(8.43)**
Observations	10962	1410	3399	2929	3224	1700
R-squared	0.01	0.01	0.00	0.01	0.03	0.08

Absolute value of t statistics in parentheses
*significant at 5%; ** significant at 1%

When the sample is limited to only cities that received over ten percent of their revenues from the state in the previous year, the results are more pronounced for North-

Table 4.8: **Equation 4.1: By decade for cities in the Northeast and California**

	Northeastern cities			California cities		
	(1)	(2)	(3)	(4)	(5)	(6)
	1970-79	1980-89	1990-2004	1970-79	1980-89	1990-2004
$\Delta Dem * Q1$	-0.046	-0.048	-0.073	0.111	0.228	0.041
	(0.29)	(0.73)	(0.60)	(0.38)	(2.37)*	(0.74)
$\Delta Dem * Q2$	0.066	0.012	-0.300	-0.008	0.359	0.064
	(0.64)	(0.16)	(2.88)**	(0.03)	(2.55)*	(1.04)
$\Delta Dem * Q3$	0.014	0.108	0.075	0.123	0.495	0.200
	(0.19)	(1.07)	(0.76)	(0.54)	(2.67)**	(3.03)**
$\Delta Dem * Q4$	0.218	-0.060	-0.017	-0.014	0.664	0.161
	(2.36)*	(0.75)	(0.19)	(0.07)	(3.38)**	(2.11)*
$\Delta Dem * Q5$	0.095	0.129	0.109	-0.384	0.692	0.207
	(1.77)	(1.92)	(2.32)*	(2.16)*	(3.44)**	(3.22)**
Δ ln(total transfers)		4.229	1.641		31.336	6.153
		(1.67)	(1.03)		(9.31)**	(3.04)**
Constant	0.162	0.009	-0.150	0.817	-1.615	-0.271
	(0.56)	(0.05)	(1.34)	(1.95)	(6.75)**	(2.57)*
Observations	413	584	708	476	680	884
R-squared	0.02	0.02	0.02	0.01	0.21	0.03

Absolute value of t statistics in parentheses
*significant at 5%; ** significant at 1%

eastern cities. Table 4.9 presents these results. Core Republican cities see a decrease of 33% in the budget share of state transfers when Democrats gain representation in Northeastern states. Core Democratic cities are symmetrically rewarded with a 32% increase in the budget share of state transfers.

To test whether the ability to target transfers depends on the size of the majority, equation 4.1 is estimated for different majority sizes for Democrats and Republicans in state legislatures. Table 4.10 presents these results for time periods when Democrats hold a legislative majority. When Democrats hold more than 60% of seats, core cities are rewarded with funding increases, however, when majority size is small, these cities do not see increases in transfers.

Table 4.11 presents these results for time periods when Republicans hold a legislative majority. Interestingly, Republicans appear to target swing constituencies when they have a majority of $60 - 70\%$ of seats. An increase in the Republican majority leads to an increase of 45% in the state share of local budgets in swing cities.

Table 4.9: **(Equation 4.1) Change in revenues from state on change in Democrat share in state legislatures, interacted with municipal Democratic bias quintile. Cities with >10% revenues from state.**

	(1) All States	(2) Northeast	(3) Midwest	(4) South	(5) West	(6) CA
$\Delta Dem * Q1$	0.023	-0.325	-0.023	0.047	0.086	0.165
	(0.70)	(2.36)*	(0.40)	(0.96)	(1.28)	(2.00)*
$\Delta Dem * Q2$	0.036	-0.270	0.002	0.029	0.104	0.231
	(1.06)	(1.50)	(0.03)	(0.64)	(1.47)	(2.16)*
$\Delta Dem * Q3$	-0.021	0.231	-0.133	-0.002	-0.015	0.292
	(0.53)	(1.63)	(1.65)	(0.04)	(0.17)	(2.52)*
$\Delta Dem * Q4$	0.057	0.313	-0.076	0.021	0.100	0.332
	(1.46)	(3.37)**	(1.01)	(0.39)	(1.06)	(2.55)*
$\Delta Dem * Q5$	0.040	0.182	-0.026	0.046	0.029	0.235
	(2.26)*	(2.46)*	(0.65)	(2.45)*	(0.51)	(2.08)*
Δ ln(total transfers)	5.547	4.250	0.777	8.892	12.710	16.509
	(5.88)**	(1.88)	(0.57)	(2.68)**	(7.17)**	(7.94)**
Constant	-0.798	-0.780	-0.329	-1.294	-1.427	-1.766
	(11.25)**	(4.77)**	(3.35)**	(5.67)**	(9.98)**	(10.60)**
Observations	4607	689	1886	332	1700	972
R-squared	0.01	0.05	0.00	0.04	0.03	0.09

Absolute value of t statistics in parentheses
*significant at 5%; ** significant at 1%

Table 4.10: **(Equation 4.1) limited to Democrat majorities. Cities with >10% from state.**

	(1) $50 < \%Dem \leq 60$	(2) $60 < \%Dem \leq 70$	(3) %Dem > 70
$\Delta Dem * Q1$	-0.016	0.165	0.025
	(0.25)	(1.95)	(0.43)
$\Delta Dem * Q2$	0.032	0.070	0.016
	(0.49)	(0.73)	(0.30)
$\Delta Dem * Q3$	-0.130	0.213	-0.018
	(1.89)	(1.95)	(0.29)
$\Delta Dem * Q4$	-0.047	0.280	0.013
	(0.71)	(3.21)**	(0.20)
$\Delta Dem * Q5$	0.047	0.090	0.054
	(1.10)	(2.04)*	(2.43)*
Δ ln(total transfers)	-1.487	12.948	9.285
	(1.03)	(6.82)**	(3.57)**
Constant	-0.445	-1.456	-0.824
	(4.39)**	(8.83)**	(4.31)**
Observations	1808	1035	518
R-squared	0.00	0.06	0.04

Absolute value of t statistics in parentheses
*significant at 5%; ** significant at 1%

Table 4.11: **(Equation 4.1) limited to Republican majorities. Cities with >10% from state.**

	(1)	(2)	(3)
	$50 < \%Rep \leq 60$	$60 < \%Rep \leq 70$	%Rep > 70
$\Delta Rep * Q1$	0.095	0.042	-0.324
	(1.46)	(0.26)	(0.65)
$\Delta Rep * Q2$	-0.072	0.055	0.495
	(0.99)	(0.38)	(0.95)
$\Delta Rep * Q3$	-0.115	0.450	0.766
	(0.98)	(2.42)*	(0.56)
$\Delta Rep * Q4$	0.089	-0.117	-0.110
	(0.78)	(0.66)	(0.12)
$\Delta Rep * Q5$	-0.053	0.094	0.239
	(1.14)	(1.16)	(0.97)
Δ ln(total transfers)	6.735	-5.491	17.579
	(3.40)**	(1.31)	(1.83)
Constant	-0.918	-0.580	-1.934
	(5.72)**	(2.03)*	(1.99)
Observations	939	391	75
R-squared	0.02	0.03	0.06

Absolute value of t statistics in parentheses
*significant at 5%; ** significant at 1%

4.6 Conclusion

I find evidence in support of the core constituency hypothesis in the California and the Northeastern United States; strongly Democrat cities are rewarded when Democrats gain seats in the state legislatures. I also find evidence in California, that swing constituencies are rewarded as well; the swing and core constituency hypotheses need not be mutually exclusive. Additionally, when Republicans gain majority power, they tend to reward swing cities. Interestingly, Northeastern states and California tend to have strong Democrat majorities in state legislatures, suggesting that a strong majority is necessary to implement partisan spending.[26] Levitt and Snyder (1995) reach a similar conclusion for federal to local aid in the US.[35]

The average effect from 1970-2004 in California of a marginal increase in Democratic representation at the state level for the most Democratic cities is and increase in state funds of $14 million. In a given year, this accounts for 20-50% of police expenditures, 13-30% of annual capital expenditures, 8-15% of municipal wages, or 2-6% of average outstanding debt. In the Northeast, $14 million represents 13-27% of police expenditures, 8-18% of capital expenditures, 2-4% of municipal salaries and wages, or 1-3% of average outstanding debt.

It is perhaps no surprise that party politics play a strong role in California and not in other states. In California, Proposition 13 left a significant gap in local revenues. All cities relied more heavily on state funding following this reform, but interestingly, swing cities and the most Democratic cities were favored after 1978.

My analysis does not conclude that majority party alignment is the only political factor that influences the distribution of funds nor is it necessarily the most important. Surveys of state legislators reveal that they perceive both the majority party and committee membership to be significant determinants of the distribution of funds.[15] Thus, further empirical specifications might consider party committee membership as another explanatory variable.

One aspect of these transfers that I have not yet considered is the composition of state-to-local funds. As described above, although it represents a small share of the local budget $14 million could cover a significant portion of spending in a particular area for a city. It is an interesting question as to how exactly the majority party rewards its constituents, whether it is capital funding, general revenue, or targeted for more specific uses, such as public health or protection.

Since Inman (1988) called for political models of intergovernmental transfers, the debate between the core and swing constituency hypotheses has been left unresolved. Studies of federalism for the US find that transfers from the federal to state governments are likely politically motivated. However, at the sub-state level, there are simply very few studies. Ansolebehre and Snyder find that “core” counties receive proportionately more state funds than do swing or opposition. They have the advantage of having many within-

[26] Southern legislatures also tend to be highly Democrat, although Southern cities rely very little on states for funds, receiving an average of 4.6% of budgets from the state, compared to 10-13% in all other states. In the South, the small role of the state in local budgets diminishes the role of political relationships in the state transfer decision.

state observations. Using municipalities alone, I do not find a consistent relationship for all regions in the United States. It may be the case that state politicians do not manipulate non-education transfers to municipalities. Nonetheless, I do find a strong relationship between the state and municipalities in California–the state for which I have the most observations. I also find this relationship in the Northeastern United States, thus contributing to the body of evidence in support of the core constituency hypothesis. However, I also provide evidence that swing cities are rewarded in California, and when Republicans hold a legislative majority, and thus I do not reject the swing voter hypothesis.

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Appendix A

Appendix to Chapter 3

A.1 First stage results

Table A.1: **OLS estimation of first stage**

		ΔlnG_t
ΔlnG_t	L	-0.355
		(0.013)**
	L^2	-0.199
		(0.013)**
	L^3	-0.157
		(0.014)**
	L^4	-0.106
		(0.014)**
	L^5	-0.058
		(0.013)**
	L^6	-0.005
		(0.012)
ΔLnR_t	L	0.114
		(0.012)**
	L^2	0.070
		(0.012)**
	L^3	0.072
		(0.012)**
	L^4	0.050
		(0.012)**
	L^5	0.033
		(0.012)**
	L^6	0.016
		(0.011)
ΔlnK_t	L	0.007
		(0.002)**
	L^2	0.012
		(0.003)**
	L^3	0.008
		(0.003)**
	L^4	0.006
		(0.003)*
	L^5	0.005
		(0.003)*
	L^6	0.005
		(0.002)*
ΔlnT_t	L	0.027
		(0.005)**
	L^2	0.011
		(0.005)*
	L^3	0.012
		(0.005)*
	L^4	0.002
		(0.005)
	L^5	0.001
		(0.004)
	L^6	-0.002
		(0.004)
r	L	0.008
		(0.004)*
	L^2	0.014
		(0.006)*
	L^3	-0.014
		(0.006)*
	L^4	0.004
		(0.007)
	L^5	0.010
		(0.006)
	L^6	-0.007
		(0.004)
	Constant	-0.021
		(0.008)**
Observations		8852
R^2		0.10

Standard errors in parentheses
* significant at 5%; ** significant at 1%

A.2 OLS specification

The bias of OLS estimates depends on the correlation between updated assessments of permanent income and changes in current revenues. If this correlation is positive (negative), then OLS estimates will be biased upward (downward). Campbell and Mankiw, in their original application to individual consumption behavior, hypothesize that this correlation will be positive; increases in current income are associated with increases in permanent income. This seems most likely for individual decision makers; current income that is allocated to savings represents an increase in permanent income.

However, it is not necessarily the case that future permanent income and changes in current revenues are positively correlated when considering government budgets. In response to negative shocks to current revenues, governments will either be forced to cut spending, increase taxes, borrow, or utilize savings. If governments cut spending or raise taxes during economic downturns, outmigration may occur and property values may fall. These effects represent decreases in permanent resources. Borrowing is costly, resulting in higher future taxes and decreases in permanent resources, for the same reasons. Thus, when faced with transitory shocks, cities that are unable to utilize savings anticipate lower permanent resources.

This hypothesis implicitly assumes that governments fail to accumulate and utilize savings because they are constrained or undisciplined, not because they are irrational. They update forecasts of permanent resources based on current fiscal decisions. If they did not change forecasts, then the OLS estimates would not be biased; changes in current resources would be orthogonal to the error term.

The intuition outlined above can be formalized in a decomposed version of equation (3.3). A transitory economic shock, in the absence of government fiscal response, leads to a change in current revenues. However, governments respond by raising or lowering taxes, expenditures, debt, or savings. So, the full value of the shock will not be represented in a change in current revenues; the change in revenues captures a combination of the economic shock and fiscal responses. Considering these government responses to a shock, changes in current revenues and expenditures can be decomposed into the following variables.

$$\Delta lnR_t = s_t + t_t + w_t + d_t$$
$$\Delta lnG_t = G_{t-1} + g_t$$

s_t is the effect of the economic shock on revenues, t_t is the government's initiatied change in tax revenue, w_t is the government's utilization of savings, d_t is the government's issuance or retirement of any debt, and g_t is any adjustment to current spending that the government makes in response to the economic shock. Based on the preceding discussion, I make the following assumptions.

$$cov(s_t, \epsilon_t) > 0$$
$$cov(t_t, \epsilon_t) < 0$$
$$cov(w_t, \epsilon_t) = 0$$

$$cov(d_t, \epsilon_t) < 0$$

$$cov(g_t, \epsilon_t) > 0$$

According to the properties of covariance,

$$cov(\Delta lnR_t, \epsilon_t) = cov(S_t, \epsilon_t) + cov(t_t, \epsilon_t) + cov(W_t, \epsilon_t) + cov(D_t, \epsilon_t) + cov(g_t, \epsilon_t)$$

Since the magnitudes of these covariances are unknown, it is impossible to sign $cov(\Delta lnR_t, \epsilon_t)$, and thus the bias of the OLS estimates. OLS estimates of λ will be downward biased if economic shocks are met largely with changes in taxes and debt, upward biased if the government takes no fiscal action in response to shocks or if spending changes in response to shocks, and unbiased if only savings are used in response to shocks. Without a direct measure of the ex-ante level of the shock, it is difficult to determine the mixture of fiscal responses that governments utilize. Thus, by instrumenting for current year economic shocks, the bias of estimates is eliminated, although the direction of the bias is unclear.

Table A.2: **OLS estimation of equation (3.4) by access to initiative, recall, and implementation of term limits.**

	All	Initiative[1]	No Initiative	Recall[1]	No Recall	Pre Term Limits	Post Term Limits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ΔlnR_t, λ	0.451	0.453	0.414	0.503	0.340	0.428	0.458
	(0.039)**	(0.069)**	(0.047)**	(0.063)**	(0.035)**	(0.090)**	(0.077)**
ΔlnK_t	-0.007	-0.008	-0.004	-0.007	-0.006	0.001	-0.011
	(0.002)**	(0.004)*	(0.003)	(0.004)	(0.003)*	(0.010)	(0.011)
ΔlnT_t	0.056	0.056	0.045	0.059	0.040	0.036	0.049
	(0.006)**	(0.009)**	(0.009)**	(0.009)**	(0.008)**	(0.018)*	(0.021)*
r	-0.000	-0.001	-0.001	-0.001	-0.000	-0.000	0.007
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.009)	(0.009)
Constant	0.013	0.015	0.018	0.014	0.018	0.008	-0.011
	(0.004)**	(0.006)*	(0.007)**	(0.006)*	(0.006)**	(0.028)	(0.023)
Observations	11737	5365	4060	5494	3931	234	300

Newey-West Standard errors in parentheses

1. Excluding California cities.

A.3 Instrumental variables estimation

Table A.3: **IV estimation of equation (3.4) by access to initiative, recall, and implementation of term limits.**

	All	Initiative[1]	No Initiative	Recall[1]	No Recall	Pre Term Limits	Post Term Limits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ΔlnR_t, λ	0.597	0.399	0.271	0.415	0.242	0.339	0.621
	(0.130)**	(0.107)**	(0.209)	(0.129)**	(0.163)	(0.148)*	(0.144)**
ΔlnK_t	-0.013	-0.008	-0.002	-0.004	-0.006	0.003	-0.012
	(0.004)**	(0.005)	(0.005)	(0.005)	(0.004)	(0.010)	(0.012)
ΔlnT_t	0.067	0.083	0.056	0.085	0.054	0.061	0.027
	(0.010)**	(0.020)**	(0.012)**	(0.021)**	(0.011)**	(0.034)	(0.023)
r	0.002	0.004	0.005	0.004	0.005	0.007	0.009
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.011)	(0.009)
Constant	-0.001	-0.003	-0.001	-0.004	0.001	-0.012	-0.022
	(0.004)	(0.005)	(0.007)	(0.006)	(0.006)	(0.035)	(0.022)
Observations	9511	4329	3278	4435	3172	213	272
Anderson (p-value)	.000	.000	.058	.000	.014	.064	.001
Hansen (p-value)	.004	.003	.478	.126	.637	.238	.401

Newey-West standard errors in parentheses
* significant at 5%; ** significant at 1%
1. Excluding California cities.
Three through six year lags of ΔlnR_t, ΔlnG_t, ΔlnK_t, ΔlnT_t, and the real interest rate, are included as instruments for ΔlnR_t.

A.4 Alternative lag structure

Table A.4: **GMM estimation of equation (3.4), single year lag structure**

	All	Initiative[1]	No Initiative	Recall[1]	No Recall	Pre Term Limits	Post Term Limits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ΔlnR_t, λ	0.348	0.029	0.435	0.009	0.378	-0.316	-0.020
	(0.081)**	(0.068)	(0.157)**	(0.080)	(0.135)**	(0.430)	(0.248)
ΔlnK_t	-0.011	-0.002	-0.006	-0.005	-0.007	0.020	0.002
	(0.003)**	(0.004)	(0.004)	(0.005)	(0.004)	(0.019)	(0.013)
ΔlnT_t	0.035	0.028	0.050	0.044	0.049	0.071	0.053
	(0.011)**	(0.014)*	(0.012)**	(0.013)**	(0.012)**	(0.029)*	(0.027)
r	0.000	-0.002	0.001	0.001	0.000	0.031	0.009
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.021)	(0.011)
Constant	0.015	0.026	0.011	0.019	0.013	-0.076	-0.008
	(0.005)**	(0.006)**	(0.007)	(0.006)**	(0.008)	(0.060)	(0.029)
Observations	11355	5186	3925	5312	3799	230	296
Anderson (p-value)	.000	.000	.000	.000	.000	.07	.008
Hansen (p-value)	.000	.000	.033	.000	.007	.968	.147

Newey-West standard errors in parentheses
* significant at 5%; ** significant at 1%

1. Excluding California cities.
One year lags of ΔlnR_t and ΔlnG_t are included as instruments for ΔlnR_t.

Table A.5: **GMM estimation of equation (3.4), three to five year lag structure**

	All	Initiative[1]	No Initiative	Recall[1]	No Recall	Pre Term Limits	Post Term Limits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ΔlnR_t, λ	1.021	0.645	0.733	0.502	0.744	0.347	0.741
	(0.125)**	(0.110)**	(0.211)**	(0.110)**	(0.201)**	(0.135)**	(0.137)**
ΔlnK_t	-0.023	-0.013	-0.013	-0.008	-0.015	-0.001	-0.013
	(0.004)**	(0.005)**	(0.006)*	(0.005)	(0.005)**	(0.009)	(0.012)
ΔlnT_t	0.051	0.063	0.050	0.068	0.049	0.093	0.022
	(0.008)**	(0.013)**	(0.012)**	(0.015)**	(0.011)**	(0.024)**	(0.021)
r	-0.004	0.000	-0.001	0.002	-0.002	-0.001	0.006
	(0.002)	(0.002)	(0.004)	(0.002)	(0.003)	(0.010)	(0.007)
Constant	0.008	0.004	0.007	0.002	0.011	0.020	-0.013
	(0.005)	(0.005)	(0.008)	(0.005)	(0.007)	(0.029)	(0.019)
Observations	9880	4501	3407	4611	3297	215	277
Anderson (p-value)	.000	.000	.003	.000	.002	.114	.001
Hansen (p-value)	.076	.002	.411	.011	.265	.111	.645

Newey-West standard errors in parentheses
* significant at 5%; ** significant at 1%

1. Excluding California cities.
Three to five year lags of ΔlnR_t and ΔlnG_t are included as instruments for ΔlnR_t.

Appendix B

Appendix to Chapter 4

Table B.1: **Summary Statistics**

	All Years					
	All states	Northeast	Midwest	South	West	California
%Dem State Legislature	58	62	50	70	54	60
State to Local ex. Ed. ($M)	1,974	3,124	1,956	956	2,487	22,760
Total Muni. Revenue ($M)	389.2	1239	203.8	281.3	303.9	378.6
% From State	10.4	10.3	12.7	4.6	13.5	12.8
Per capita from state	158	268	172	76	171	157
Population	158,707	247,365	122,478	154,533	161,258	191,203
Q1	-12.5	-1.4	-13.4	-10	-18.1	-18.1
Q2	-3.8	5.9	-6	0.28	-9.1	-7.5
Q3	2.8	13.2	0	7.3	-2.7	-0.21
Q4	9.6	20.8	5.8	15	4.1	7.9
Q5	22.1	35.4	19.7	25.5	15.9	22.8
# Municipalities	435	59	130	116	130	68

	1970-1979					
	All states	Northeast	Midwest	South	West	California
%Dem State Legislature	63	61	52	81	58	62
State to Local ex. Ed. ($M)[2]	1528	2967	1601	667	1522	13970
Total Muni. Revenue ($M)	312	1109.6	175.891	195.4	196.9	248.8
% From State	11.3	9.2	12.5	5.5	16.5	18.2
Per capita from state	141	211	140	74	174	190
Population	147037	261821	128356	132744	127232	153231
Q1	-11	-3.4	-16	-3.6	-16.2	-15.4
Q2	-3.2	3	-10.1	6	-8.4	-6.3
Q3	3.7	10.7	-3.3	13.6	-1.8	0.23
Q4	10.6	16.6	2.4	22.1	4.3	6.5
Q5	20.2	27.5	12.5	32.8	12.7	16.4
# Municipalities	435	59	130	116	130	68

1980-1989	All states	Northeast	Midwest	South	West	California
%Dem State Legislature	60	61	52	75	53	60
State to Local ex. Ed. ($M)	1566	2739	1594	707	1803	16068
Total Muni. Revenue ($M)	360	1124.2	186.9	267.7	270.2	335.2
% From State	10.1	11	11.9	4.1	14	11.5
Per capita from state	148	266	153	67	162	135
Population	153886	239791	120780	149724	152449	181867
Q1	-13.5	-0.23	-12.1	-13.2	-20.7	-22.4
Q2	-4.1	8.2	-5	-0.18	-11.7	-11.9
Q3	2	14.3	-0.22	7.4	-5.5	-5.3
Q4	8.8	23.2	4.8	14.9	1.3	3.2
Q5	21.7	38.6	19.1	24.1	14.6	20.3
# Municipalities	435	59	130	116	130	68

1990-2004	All states	Northeast	Midwest	South	West	California
%Dem State Legislature	54	62	47	59	52	59
State to Local ex. Ed. ($M)	2362	3433	2291	1196	3182	29424
Total Muni. Revenue ($M)	454.3	1402.1	230.3	341.8	391.6	485.4
% from state	10.1	10.4	13.3	4.2	11.9	10.4
Per capita from state	175	306	201	83	175	152
Population	168817	243641	120247	170742	187820	220211
Q1	-12.7	-0.78	-12.8	-11.9	-17.5	-16.8
Q2	-3.8	6.1	-4.3	-3.1	-7.8	-5.3
Q3	2.7	14.2	2.2	3.1	-1.2	3
Q4	9.6	21.7	8.5	10.1	5.8	11.9
Q5	23.6	38.2	24.5	21.6	18.6	28.2
# Municipalities	435	59	130	116	130	68

Figure B.1: **Distribution of predicted Democratic bias for cities**

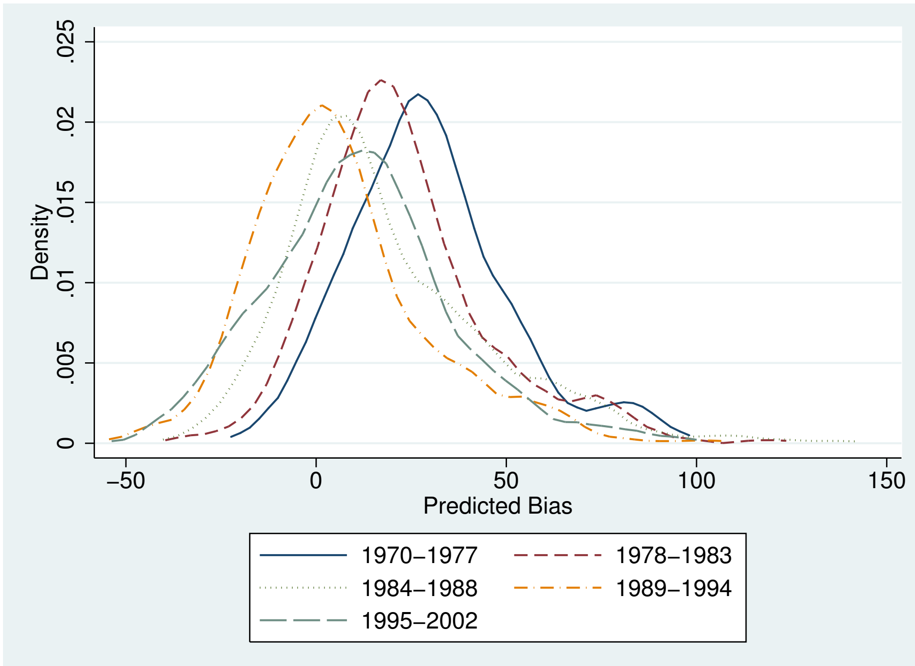

Figure B.2: **Democrat share in state legislatures, by census region**

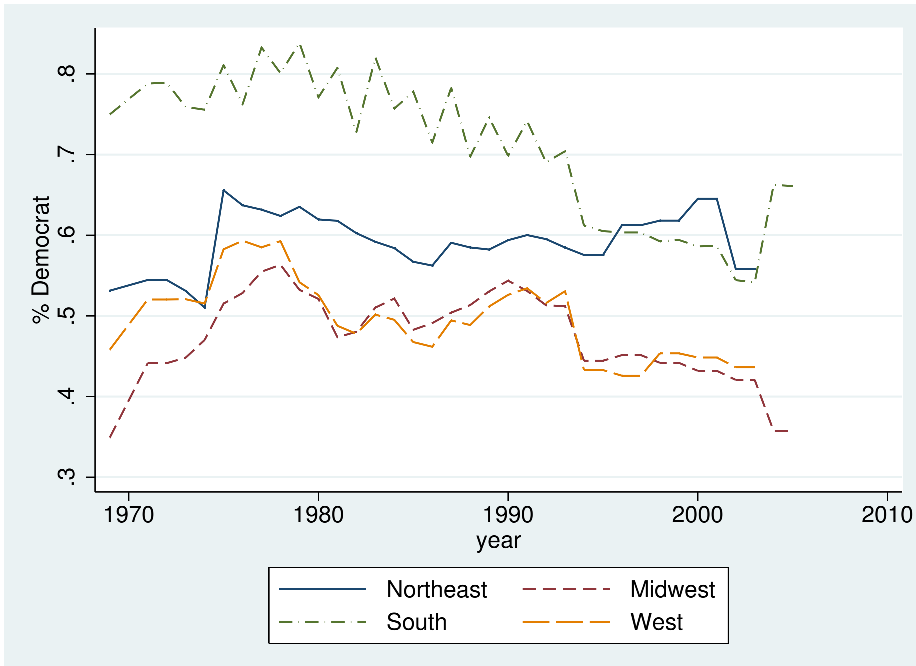

Table B.2: **List of demographic variables in National Elections Survey used in ordered probit specification**

Male	Occupation: Professional
Age: 17 to 24	Occupation: Clerical
Age: 25 to 34	Occupation: Service
Age: 35 to 44	Occupation: Labor
Age: 45 to 54	Occupation: Farm
Age: 55 to 64	Occupation: Homemaker
Age: 65 to 74	Education: Grade school
Age: 75 to 99	Education: HS dropout
Black	Education: HS graduate
Hispanic	Education: some college
Race: other	Education: Bachelor's degree
Urban	Working class
Rural	Middle class
Region: Northeast	Upper Class
Region: South	Religion: Protestant
Region: West	Religion: Catholic
Income: 0-20 %tile	Religion: Jewish
Income: 21-40 %tile	Democrat Father
Income: 41-60 %tile	Republican Father
Income: 61-80 %tile	Democrat Mother
Income: 81-100 %tile	Republican Mother

Table B.3: **(Equation 4.1) Change in ln(per capita revenues from state) on change in Democrat share in state legislatures, interacted with municipal Democratic allegiance quintile**

	(1) Full Sample	(2) Northeast	(3) Midwest	(4) South	(5) West	(6) California
$\Delta Dem * Q1$	0.001	-0.005	0.003	-0.002	0.010	0.017
	(0.35)	(0.81)	(0.96)	(0.80)	(3.26)**	(3.80)**
$\Delta Dem * Q2$	0.001	-0.008	0.002	0.000	0.010	0.021
	(0.86)	(1.14)	(0.49)	(0.07)	(3.14)**	(3.89)**
$\Delta Dem * Q3$	0.001	0.005	-0.006	-0.001	0.015	0.032
	(0.38)	(0.55)	(1.51)	(0.29)	(3.81)**	(5.44)**
$\Delta Dem * Q4$	0.002	0.002	0.001	0.001	0.013	0.025
	(1.20)	(0.32)	(0.16)	(0.32)	(2.97)**	(3.83)**
$\Delta Dem * Q5$	0.002	0.012	0.000	0.001	0.008	0.027
	(2.22)*	(2.47)*	(0.17)	(0.68)	(3.25)**	(4.64)**
Δ ln(total transfers)	0.424	0.362	0.211	0.403	0.712	0.957
	(7.33)**	(2.11)*	(2.75)**	(2.42)*	(8.77)**	(8.35)**
Constant	-0.005	0.017	0.007	-0.005	-0.028	-0.050
	(1.28)	(1.46)	(1.26)	(0.48)	(4.48)**	(5.92)**
Observations	10901	1404	3393	2881	3223	1700
R-squared	0.01	0.01	0.00	0.00	0.04	0.09

Absolute value of t statistics in parentheses
*significant at 5%; ** significant at 1%

Table B.4: **Equation 4.1: By decade for cities in the Northeast and California. Outcome, ln(per capita transfers from state)**

	Northeastern cities			California cities		
	(1) 1970-79	(2) 1980-89	(3) 1990-2004	(4) 1970-79	(5) 1980-89	(6) 1990-2004
$\Delta Dem * Q1$	-0.004	-0.003	-0.003	-0.011	0.015	0.010
	(0.23)	(0.53)	(0.18)	(0.76)	(2.10)*	(1.96)*
$\Delta Dem * Q2$	0.002	0.000	-0.038	0.001	0.025	0.011
	(0.21)	(0.05)	(2.33)*	(0.10)	(2.39)*	(1.94)
$\Delta Dem * Q3$	0.005	0.011	0.007	0.013	0.025	0.026
	(0.68)	(1.15)	(0.44)	(1.15)	(1.86)	(4.14)**
$\Delta Dem * Q4$	0.016	-0.005	-0.007	0.010	0.036	0.016
	(1.78)	(0.68)	(0.50)	(1.00)	(2.51)*	(2.22)*
$\Delta Dem * Q5$	0.009	0.009	0.017	-0.015	0.036	0.024
	(1.63)	(1.43)	(2.33)*	(1.77)	(2.41)*	(3.99)**
Δ ln(total transfers)		0.669	-0.138		3.205	0.534
		(2.76)**	(0.56)		(13.00)**	(2.75)**
Constant	0.046	0.009	0.000	0.065	-0.133	-0.018
	(1.57)	(0.57)	(0.01)	(3.17)**	(7.62)**	(1.79)
Observations	411	580	708	476	680	884
R-squared	0.02	0.02	0.02	0.01	0.29	0.05

Absolute value of t statistics in parentheses
*significant at 5%; ** significant at 1%