Presidential Power and Distributive Politics: Federal Expenditures In the 50 States, 1983-2001 *

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Abstract

What explains the differences in federal spending in individual states across time? The current empirical literature on distributive politics has focused on Congress and neglected the presidency in explaining the distribution of federal spending, and it has looked at limited periods of time. I address these flaws by using Bayesian multilevel techniques to model of spending on grants over an extended period (1983-2001). Presidential variables are found to influence the distribution of grant expenditures. These include predictors based on the Electoral College, indicators of state competitiveness in presidential elections, and a measure of ideological distance between the president and state Senate delegations.

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1 Introduction

Over the past two years, New York received about $32 per person in so-called "first responder" homeland security funding, while Alaska, with a little more than half a million people, collected $92 per person. Indeed, "[m]oney is so readily available that the Northwest Arctic Borough, a desolate area of 7,300 people that straddles the Arctic Circle, recently stocked up on $233,000 worth of emergency radio equipment, decontamination tents, headlamps, night vision goggles, bullhorns - even rubber boots." Requests for a jet by the governor of Alaska to "to help defend, deter or defeat opposition forces" was, however, rejected (Murphy 2004).

How do these amounts get determined? The recent conflict over homeland security funds points out much more general issues. Every year the federal government spends trillions of dollars across the states. There is a great deal of geographic and longitudinal variation. Iowa, for example, in 1984 received about $3,130 per person in inflation-adjusted dollars in total direct spending, whereas Alaska got nearly $9,160 per capita in 2001. Figure 1 summarizes the average spending by state between 1983 and 2001. The largest average spending amount (Alaska) exceeded the smallest average spending amount (Wisconsin) by over two times. When examining grants (Figure 2), a more discretionary subset of total spending, the largest spending (Alaska) average exceeded the smallest (Florida) by nearly four times.

What accounts for these vast differences? Is it simply a matter of different populations residing in each state, with different needs and capacities? Or is there scope for politics to affect the distribution of federal benefits? If so, does Congress or the President have more power in influencing spending?

Since the 1960s, political scientists have viewed distributive benefits as an inherent characteristic of U.S. politics. Their explanations of have focused on Congress as the locus of the distributive game. Explanations of distributive politics take one of several forms: congressional decision making is warped by interest group politics (Lowi 1969; McConnell 1966), the electoral incentives of MCs encourage them to engage in log-rolling and other activities that produce distributive goods (Arnold 1979; Mayhew 1974; Ferejohn 1974) and the collective nature of Congress defies the ability to hold individual legislators responsible for national consequences (Miller 1993; Moe 1993).

These approaches neglect the fact that Congress is but a single institution within a political system which mandates that multiple institutions produce of public policy outputs such as federal spending. The absence of the presidency from the literature is striking. To the extent that such critiques even consider the presidency, it is usually viewed as a counter-weight to Congress' dysfunction.

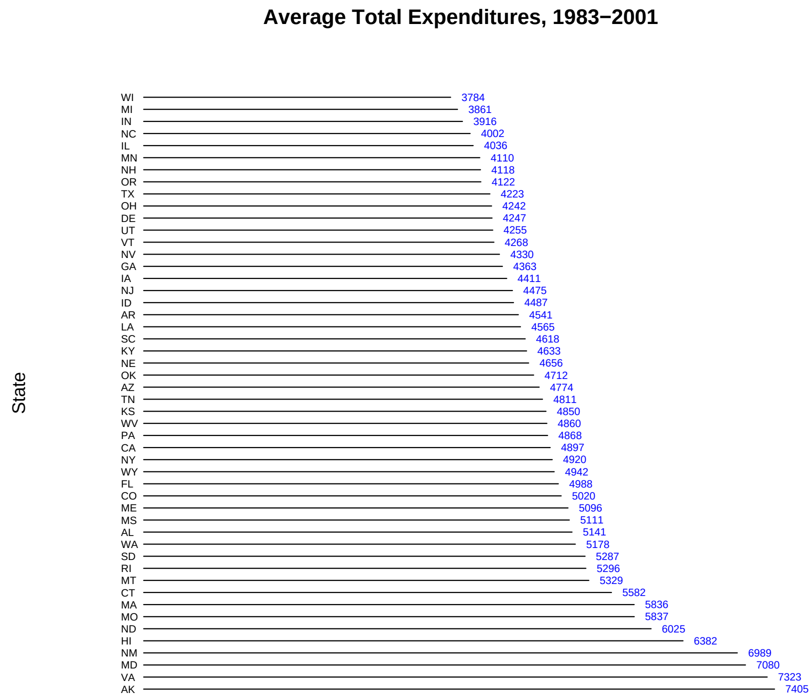

Figure 1: *Average Total Expenditures, 1983-2001*

The idea that the president would wish to minimize distributive benefits because of his national constituency and accountability does not hold up under careful scrutiny. The presidential electoral system does not feature a national election. Rather, a presidential candidate must put together a coalition of states that provide an Electoral majority, a strategy far different from one that would exist if a popular majority was sufficient. The malapportioned character of the Electoral College, along with the "unitary rule" which assigns all a state's electors to plurality winners, provide the president with electoral incentives to act strategically. One way to do this is by targeting federal dollars to specific states in order to increase his odds of winning reelection (or improving the odds of his successor). Further, I suggest that the president has a number of formal and informal powers that would permit him to engage in such distributive politics.

I develop a number of hypotheses regarding how a rational President would want to distribute federal dollars to the states based upon electoral incentives and available powers. I test these hypotheses to explain the distribution of federal expenditures across the 50 American states over 19 years. I build a new time-series cross-sectional data set that uses the rich and almost unutilized expenditure data found in the Consolidated Federal Funds Report (CFFR). This expenditure

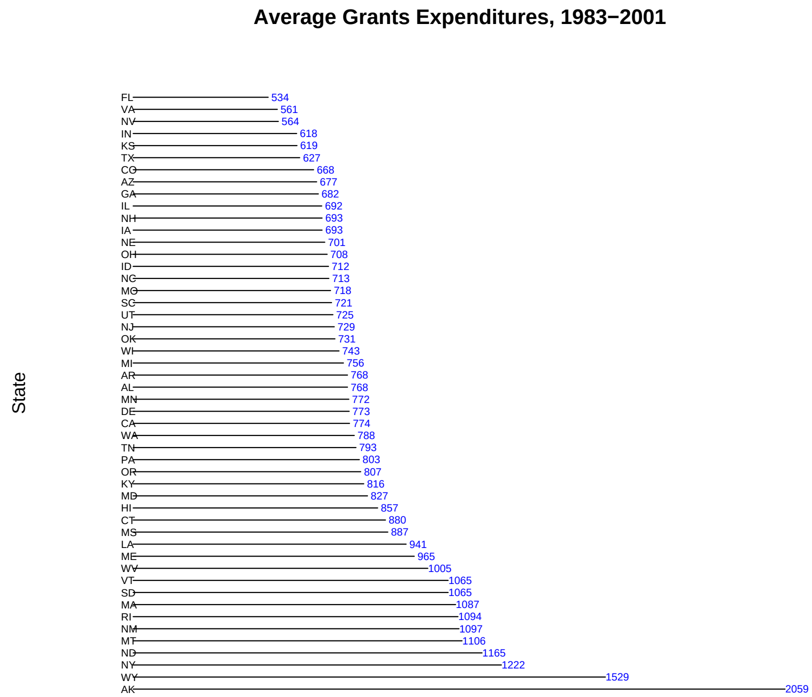

Figure 2: *Average Grants Expenditures, 1983-2001*

data is much more comprehensive than the much more commonly used Bickers-Stein Federal Awards Assistance Data (FAADS). I combine this with a huge host of covariates taken from the literature. The size of the data set I assemble allows me to test presidential distributive politics hypotheses while simultaneously controlling for Congressional influences and fiscal and demographic controls. To properly model the U.S. separation of powers system and control for a number of econometric problems associated with time-series, cross-sectional data, I employ a multilevel model using Bayesian estimation techniques.

I find that presidential politics predictors are consistently statistically and substantively significant. States that have more electoral votes per capita, that are more competitive, and that support the president tend to enjoy more federal expenditures per capita. This is after controlling for demographic, fiscal, and state effects.

This chapter will proceed as follows. In section 2, I examine the distributive politics literature in relation to Congress and the presidency. I argue that political scientists, despite strong intuitive reasons to the contrary, have largely neglected president. I suggest that states are the natural unit of analysis for studies focusing on the distributive consequences of presidential power. In section

3, I state the hypotheses I will be testing. In section 4, I describe the time-series cross-sectional data set I constructed to analyze state-level questions of distributive politics for my dissertation. I then go on to explain my empirical model and the Bayesian multilevel modeling approach in particular. Section 5 presents the results and discusses their significance. Section 6 concludes the paper and points out directions for future research.

2 Theory

The politician doles out bucketfuls of federal money and proudly points to his role in getting his constituent's "fair share." If the politician is particularly clever, he manages to stamp his name on whatever he manages to win, so that his constituents do not forget who was responsible for the highway they ride and the building in which they work. Such, anyway, is the popular image of politicians and their connection to federal expenditures.

The modern concept of distributive politics in the academic literature can be traced to Lowi (1969) and Mayhew (1974). Lowi elucidated the concept of distributive politics, writing that distributive policies "are characterized by the ease with which they can be disaggregated and dispensed unit by small unit .... These are policies that are virtually not policies at all but are highly individualized decisions that only by accumulation can be called policy. They are policies in which the indulged and the deprived, the loser and the recipient, need never come into direct confrontation." (Lowi 1969, 690) Mayhew argued that politicians used the tools of incumbency to deliver federal spending to their constituents in order to claim credit during the re-election campaign ("How much particularized benefits count for at the polls is extraordinarily difficult to say, but it will be hard to find a Congressman who thinks he can afford to wait around until precise information is available. The lore is that they count." (Mayhew 1974, 57)

2.1 Congress and Federal Expenditures

Distributive politics, the study of who gets what national resources, has been dominated by analyses of Congress. The massive geographic differentiation of states and districts seems to have created natural conditions for log-rolling behavior. This same rich variation begged for analysts to use it to explain public policy outcomes. Indeed, a rich spending literature arose which sought to answer why various members of Congress appeared to have varying ability to deliver the goods to their districts. And indeed, the Constitution invested Congress with "the power of the purse" in Article I. The President only had the power of the negative veto.

Electoral vulnerability is a prime candidate for a legislator-centered theory of distributive politics. Stein and Bickers (1995); Bickers and Stein (1996) evidence that vulnerable incumbents deliver more awards to their districts, though this was disputed by Alvarez and Saving (1997). The evidence for the consequences of Congressional committees on the distribution of spending has been far from overwhelming. Most studies have found no effects, while the others have found modest effects (Alvarez and Saving 1997; Ray 1980*a*,*b*; Rich 1989; Roberts 1990; Rundquist, Lee and Rhee 1996). Next, small states could disproportionally benefit from Senate malapportionment (Lee 1998; Lee and Oppenheimer 1999). Finally, partisan factors have been examined, both from the perspective of the dominance of the majority party and inherent differences between Republicans and Democrats (Bickers and Stein 2000; Su, Kamlet and Mowery 1993), with some evidence for differences (Levitt and Snyder 1995).

2.2 Presidential Power

The focus of political scientists, as noted above, has been on Congress for understandable reasons. However, there is some motivation to include the president in a study of federal expenditures.

This begins with the insight from Neustadt's seminal 1960 work on the presidency (Neustadt 1991). He argued that focusing on the president's formal powers in the separation of powers system is misleading. According to him, they are extremely weak; this necessitates the cultivation of informal sources of presidential influence such as prestige and persuasiveness, and the ability to engage shrewdly in the political process. One such method is "going public" (Kernell 1997) and directly appealing to the public to support their initiatives.

More recent work has emphasized instead the constitutional prerogatives of the presidency. Chief amongst these is the veto. Influential modern studies include Kiewiet and McCubbins (1985); Krehbiel (1998); Cameron (2000). These scholars and others have showed with basic spatial politics models that the veto was more powerful than previously thought. The rational expectation of its use led Congress to adjust its proposals to accommodate presidential preferences. Thus, the veto was powerful even when it was not actually invoked. Furthermore, the use of the veto was a costly signal that reveals private information about the president to Congress and therefore affects its counterproposals.

The president completely controls a sprawling, modern internal bureaucracy often referred to as the "institutional presidency," marked by organizations such as Executive Office of the President and the Office of Management and Budget (Heclo 1984). These institutions give the president substantial unilateral authority. Moe (1993) emphasizes how this centralized authority gives the president bargaining leverage relative to Congress, which is inevitably hobbled by collective action problems.

The President is the head of the executive branch. It is federal agencies that actually spend the money that Congress authorizes in legislation. The president has powers of appointment to these agencies. In addition, his ability to issue executive orders that have the force of law is being newly appreciated (Howell 2003). Consequently, the president is able to decisively change administrative policy direction.

Finally, the President is a politician just like members of Congress. He should potentially be just as subject to partisan bias and ideological effects. Incumbents campaigning for re-election should feel similar electoral pressures. Shaw (1999), for example, modeled the electoral college strategies (deciding which states were "base," "marginal," and "battleground") and determined that prior competitiveness of states was critically important to the formulation of general election strategies by candidates of both parties. These strategies determined the infusion of *campaign* resources into election contests.

2.3 Do Presidents Play Distributive Politics?

To the extent that political scientists have considered the place of the executive in distributive politics, the presidency is often considered a counter-weight to congressional excess due to the logrolling and particularistic benefits natural to legislators. Strains of this argument go back a long way. Madison, in Federalist #10, argues for a large republic (or a constituency) to counteract the mischief of faction, while Hamilton in Federalist #70 contends that a unitary executive is crucial for accountability. John Stuart Mill wrote that "To a minister, or the head of an office, it is of more importance what will be thought of his proceedings some time hence, than what is thought of them at the instant: but the assembly, if the cry of the moment goes with it, however hastily raised or artificially stirred up, thinks itself and is thought by everyone to be completely exculpated however disastrous may be the consequences." (Mill 1958).

McConnell (1966) argued that "when [the president's] power is husbanded and skillfully used he can make innovations of policy in the interest of those who are outside the pluralist scheme of rule." (351). Mayhew (1974) wrote of presidents, "Since presidents can be held individually accountable for broad policy effects and states of affairs ... [they] are less likely than congressmen to traffic in particularized benefits" (169). Arnold (1979) thought that presidents were generally more interested in broader policy goals than making "thousands of allocational decisions."

Modern theorists agree. Moe (1993) contends that the national constituencies of presidents lead them to be more concerned with governance than with re-election. Miller (1993) argues along complementary lines. He differentiates voter strategy in congressional and presidential elections, arguing that individuals vote against "fiscal responsibility" in the former to avoid a sucker's payoff. On the other hand, there is logic in voting for it in the latter because voters know that presidents can make more credible commitments to reduce spending. This is due to the heterogenous national constituency that presidents face. As Miller writes, "the president cannot get elected or reelected by appealing to the kind of narrow constituencies that elect representatives [from] the dairy districts of Wisconsin or the tobacco districts of North Carolina." (329)

In sum, the president is in a unique institutional position. First, he is a unitary actor not subject to collective action problems. Second, he has a national constituency that allows him the luxury of not responding to organized interests. Finally, the president's solitary position forces accountability for national economic outcomes, and not on individual members of Congress. All of this leads him to oppose the particularistic logrolls that come out of Congress.

There are problems with this line of analysis. First, quite apart from any particular institutional considerations, the drive for re-election is an instrumental necessity to get anything else accomplished, as Mayhew argued three decades ago. Second, the institutional arrangement created by the Constitution and subsequent amendments insures a powerful re-election motive. Presidential candidates need to win the majority of the Electoral College through a series of plurality rule elections. So candidates need to be finely attuned to geographic diversity and considerations; the presidential election is not a national contest. Finally, a greater concern for governance or fiscal responsibility is entirely compatible and is in no way mutually exclusive with presidential influence on the geographic (and other) distribution of federal expenditures. At the very least, side-payments may be a necessary cost to ensure an incumbent's re-election. We should not be surprised when presidential candidates fall all over themselves promising continuing support for ethanol subsidies in Iowa.

Furthermore, the pressure for re-election should not moderate in the second term, as it is well-known that administrations do what they can to support the campaigns of potential successors (not to mention the fact that these successors have been vice presidents in recent years). Indeed, given the competitiveness of presidential elections relative to congressional ones, the marginal payoff to resources devoted to the improvement of the electoral chances of an incumbent are likely to be greater.

2.3.1 Past Research on Presidents and Federal Spending

The analysis of the geographic distribution of federal funds is dominated by studies of Congress. The number of articles, theoretical and empirical, written on the presidential role is very small.

Kiewiet and McCubbins (1988) use a simple unidimensional spatial model to show that the presidential veto power affected equilibrium appropriations levels asymmetrically: they could reduce expenditures (somewhat), but could not increase them. McCarty (2000) develops a sequential bargaining model of presidential-legislative bargaining that relaxed the one-shot nature of spatial politics models. McCarty's model implies that the president's veto powers are far stronger than prior theoretical work assumed: they enable him to *target* spending to advantage members of his constituency. Both studies, however, do not specifically address geographic issues in presidential distributive politics.

On the empirical side, Mayer (1995) studied the announcement of procurement contracts and concluded that their announcement was accelerated in the October of presidential election years, especially for competitive states. There was no overall shift, however, in the total number of contracts in election years. In other words, these accelerations were symbolic. A small literature on the budget consequences of divided government generally argues that split control of the federal government generally leads to higher spending. McCubbins (1991) found that divided government combined with divided control of Congress in the 1980s led to rapid spending growth. Andres (1995) argues that pork-barrel "earmarking" should increase in periods of divided government, because unified government allows legislators to cement their distributive objectives through friendly contacts with the executive.

Kiewiet and Krehbiel (2000) provide evidence for the influence of a change in presidential administration on expenditures. They find that a change from a Republican to a Democratic administration increases predicted discretionary spending by $9 billion. Their time-series study, though conducted over a long period of time, still only has an N of 49. The number of alternative explanations that can be tested is limited.

Canes-Wrone (2001) showed empirical evidence that a strategy of public appeals by presidents do in fact affect legislated appropriations outcomes for various agencies over time, even in the face of contrary public opinion.

Mebane and Wawro (2002) argue that presidents are able to target federal spending to benefit local elites and voters important for their reelection. This ability varies by the types of spending. They look at annual county-level data for 1985-1988.

In sum, the few empirical studies of presidential influence on federal spending that do exist do not adopt states as units of analysis. Indeed, only Mebane and Wawro (2002) address the geographic aspect of presidential distributive politics. I will argue that states are central to any such analysis.

2.4 Presidential Studies and the Unit of Analysis

The primary problem in studying the president's influence on federal spending is choosing a proper unit of analysis. Typical units of analysis in studying the president, such as administrations, restrict the potential number of observations so much as to make inferences almost useless (King 1993). This limits our ability to draw general inferences.

The situation is even worse in regards to studying public policy outputs of government like spending, where comprehensive and detailed data has only been generated in the past few decades. The federal government has kept detailed data on its *geographic* spending patterns only since 1983, which means that only spending data exists for only four administrations.

One natural response is to shift the unit of analysis. Cameron (2000) studied the veto as the unit of analysis. In studying the political influences on spending, I will use states as the unit of analysis. Previous studies of the presidency do not explain the state-by-state geographic distribution of federal outlays. Indeed, there does not seem to be a study of modern budgetary politics that does this.

This is surprising, given the centrality of states to the constitutional structure of the American government. As the 2000 election reminded us, the objective of presidential candidates is winning a majority of electoral votes. While this means a national constituency for the president, it also means that states are a natural unit of analysis in studying the presidency. Simply put, different presidents are situated differently across the states. Whereas many actions and outputs of presidential administrations are national in character, much of their activity is geographically concentrated. In other words, presidents face different political environments within the various states, and can act in a manner that takes those differences into account.

The varying electoral vulnerability of presidents across states, for example, could induce variable behavior amongst them. The differences in the amount of electoral votes could drive presidents to devote different resources to different states. The partisan or ideological disposition of various state congressional delegations in relation to the president could improve or worsen that state's ability to garner resources.

Extending observations across time should improve the methodological situation further, as there is considerable longitudinal variation in addition to cross-sectional variation. Enabling the use of this additional variation is a strength of time-series cross-sectional data analysis, but there are additional complications (see section 4).

2.5 Malapportionment and Distributive Politics

2.5.1 Malapportionment in American Political Institutions

A focus on states naturally leads one to contemplate the important institutional fact of malapportionment. States do not stand equal to each other on population-based measures of representation. Indeed, in the Senate, California has the same number of Senators as Wyoming, despite having *seventy* times the population.

Lee (1998); Lee and Oppenheimer (1999) sees Senate malapportionment as consequential in terms of policy. Lee develops an index of state Senate representation (dubbed the "Lee Index" here), which is defined as the ratio of a state's population to 1/50th of the national population. A ratio of 1 indicates that "the state is neither over- nor underrepresented by reference to a one-person, one-vote standard; when it is less than one, the state is overrepresented; when it is greater than one, the state is underrepresented" Lee (1998)[38-9].

One way of graphically showing malapportionment of representation in relation to population is to perform a log-log plot. The x-axis represents the log of state population. The y-axis represents the log of some representational index. A slope of -1 (or 1, if the indices' scale is reversed) of a best-fit regression line indicates a very high degree of malapportionment (on average) in favor of small states. On the other hand, a slope of 0 indicates a lack of malapportionment (on average), or an indifference to state size in representation.

In Figure 3 I show representational malapportionment plots for three institutions in 2001: Senate, House, and Electoral College. To make the graphs' scales comparable, I standardize the logs of the indices. Thus, the y-axis represents standard deviations from the mean of the logged index. The Lee Index is shown to be equivalent to a Senators per Capita measure.[1] The Senate is essentially perfectly malapportioned, as is well known. Each state is guaranteed two Senators, no matter how small the state.

Because the House is periodically reapportioned, we should not be surprised that the average representational malapportionment of the House is near-zero. However, individual states exhibit over- and under-representation relative to the mean. This is due to the "lumpy" nature of reapportioned seats in the House. In 2001, Wyoming and Rhode Island appear to be quite over-represented, while Montana and Arizona appear very under-represented in the House. Rhode Island had two Representatives in the House following the 1990 Census for its 10 million citizens, whereas Montana had only one Representative after the reapportionment for its 9 million citizens.

[1]All representational per capita measures (Senators, Representatives, and Electoral College Votes) are actually per-100,000. This was done for convenience in analyzing regression coefficients.

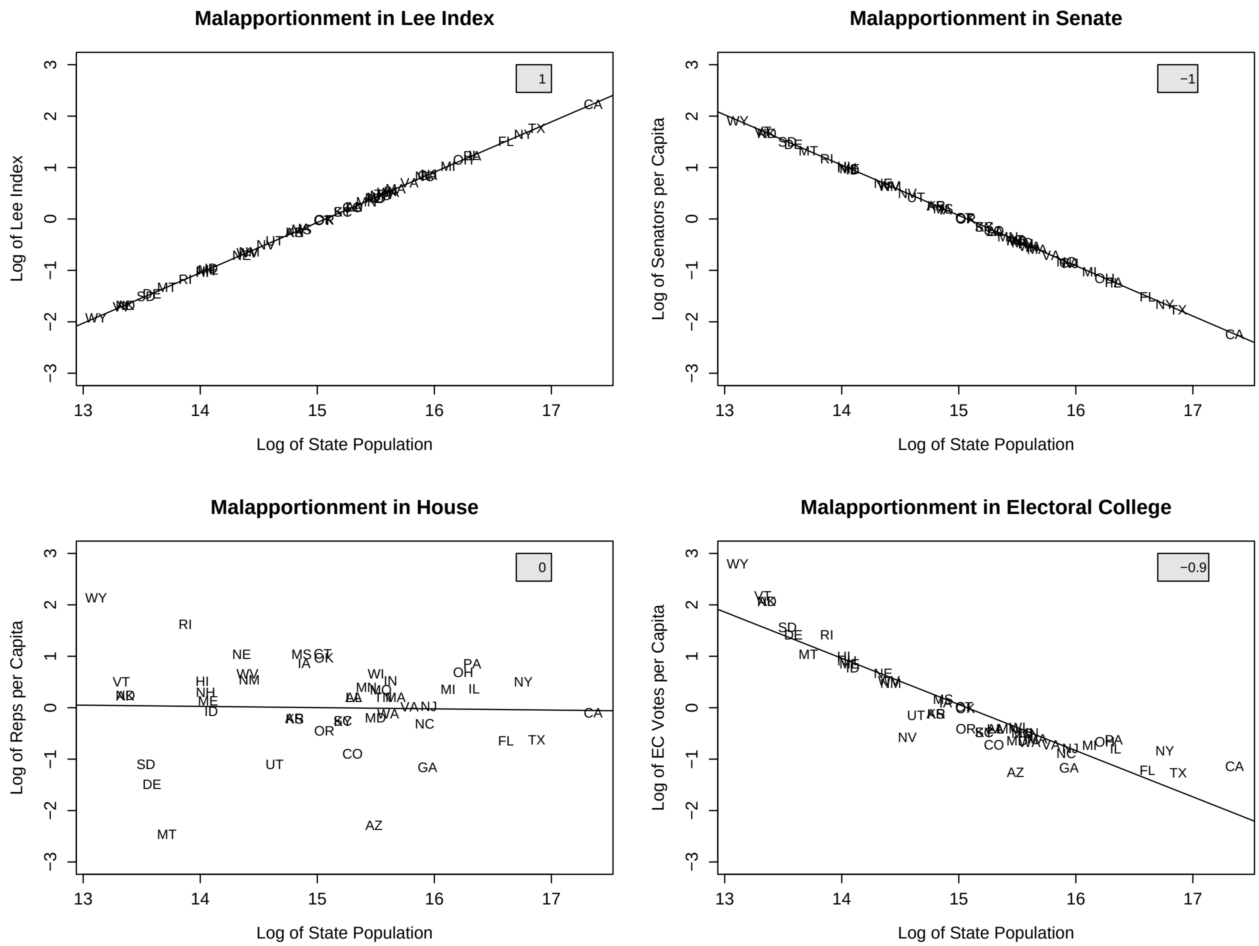

Figure 3: *Malapportionment in House, Senate, and Electoral College*

The Electoral College's average representational malapportionment is -0.9, indicating a very high degree of favoritism for small states. This is, of course, due to the fact that Electoral College votes are calculated as the sum of the number of Senators and Representatives for a state, guaranteeing a state no less than three EC votes. In other words, the perfect malapportionment of the Senate and the guarantee of no less than one Representative translates into a high degree of malapportionment in the College. There are some interesting dynamics that can be seen, however. There is a significant amount of deviation in terms of over- and under-representation from what we would expect. The big states of California, Texas, and Florida are approximately equally represented in the College, despite California's massive population lead. Furthermore, and surprisingly, some smaller states like Arizona and Georgia appear under-represented in the College relative to the large states of Illinois and New York. In short, the mechanical malapportionment inherent in Senate representation does not appear to be simply reproduced in the

College.

Looking closer at two states in particular, New York and Arizona, highlights the sensitivity of the EVPC measure to the "sticky" nature of decennial reapportionment. The Lee Index portrays Arizona as relatively overrepresented in 1983, and gradually rising to be fairly represented as of 2001. New York appears grossly underrepresented in 1983 and 2001 (with a slight drift in the 'fairer' direction). On the other hand, the EVPC measure has a far different portrayal of the two states. In 1983, Arizona was slightly underrepresented relative to New York. However, by the end of the time period, these states actually switched places. It is now Arizona-with a population of 5.3 million-that appears underrepresented relative to New York (19 million).

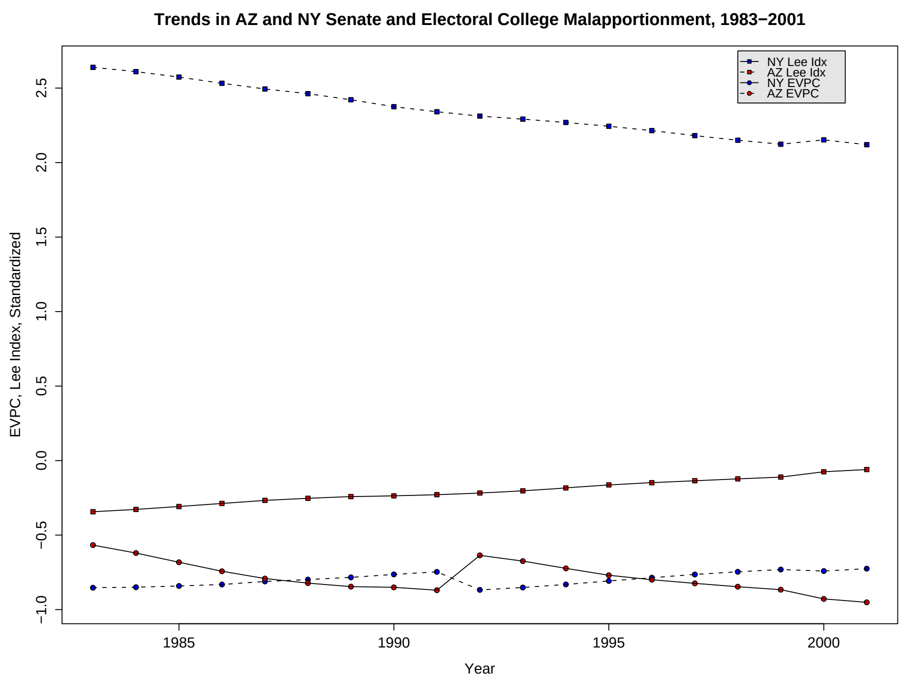

Figure 4: *Trends in Malapportionment Indices, 1983-2001*

The reason for these trends is simple. Arizona experienced rapid population growth in this time period, while New York did not. Whereas the 1990 reapportionment added one House seat and thus an extra EC votes to Arizona, it was not enough to offset the population-induced EC under-representation of Arizona. In sum, we can fairly say that the College underrepresents both large states and fast-growing ones, while overrepresenting small states and slow-growing ones.

2.5.2 Distributive Consequences of Malapportionment

Lee (1998) theorizes that small states are advantaged because they are relatively cheap coalition partners in distributive bargaining in Congress. She then finds evidence that Senate malapportionment does indeed lead to per-capita distributive gains for small states at the expense of large states.

However, Lee does not consider malapportionment in the Electoral College. It is quite possible that the relationship she finds between Senate malapportionment and federal spending allocations may be due in part to presidential, not congressional, responses to Constitutional incentives. She also only looks at a single cross-sectional slice of time. It is obvious that there are time dynamics in the degree to which states are over- and underrepresented in particular institutional settings.

3 Approach and Hypotheses

This paper seeks to test the effect of presidential politics on federal spending in the states across time. In so doing, it will fill some niches in distributive politics literature. First, as argued above, analysts have generally neglected the role of the president, something odd in a system of separated powers and delegated control of the bureaucracy.

Second, they ignored the rich amount of variation in spending that exists between states, even when examining the effect of congressional variables. Third, the time periods political scientists have studied have been on the whole rather short. The previously available time series of federal spending are often short. This paper analyzes data over a 19-year period. Importantly, this 19-year period of the 1980s and 1990s includes years of different party control of Congress, and periods of divided and unified government. These expansions of the data help to address a typical problem in the distributive politics literature: too many variables to study, and too few data points to provide leverage.

Fourth, the methodology used to study the political economy of federal spending has had some deficiencies. Data in this field has traditionally been in the form of time-series cross-section (TSCS), which is also sometimes referred to as panel data. TSCS data has strong advantages, but some characteristic problems as well. I have argued elsewhere (Shor, et. al. 2003) that my technique of Bayesian multilevel modeling is superior to the most popular current alternative-OLS with Beck-Katz panel-corrected standard errors.

4 Hypotheses

Presidents are strategic actors. They, no less than other politicians, attempt to maximize their chances for re-election. They do this in any number of ways. In the American context, winning re-election means paying close attention to the Electoral College map of the United States and to the rules of the electoral game. These rules mandate that electoral votes are assigned by the rule of adding the number of representatives and senators for a state, guaranteeing a malapportionment of electoral votes. Though not mentioned in the constitution, almost all states[2] assign their electoral college votes by the "winner-takes-all" or "unit" rule.

We know that presidents act in this strategic fashion. They are known to have developed an institutional capacity to take private polls on the national and state levels (Jacobs and Shapiro 1995) to determine their particular chances and support levels in given states. And journalistic accounts are filled with tales of presidents bearing gifts for important states.[3]

Which are the important states, however? There are three major possibilities. One obvious way for candidates to proceed is to give emphasis to electoral vote-rich states to get "more bang for the buck." That is, concentrate government resources on these states, even out of proportion to their population. A number of scholars have made this argument on both theoretical and empirical grounds for the expenditure of campaign resources. According to Brams and Davis (1974), candidates should optimally devote campaign resources in proportion to a state's population raised to the 1.5 power (the "3/2 rule"). Bartels (1985) estimated that Carter's 1976 campaign devoted advertising resources and campaign appearances in proportion to state population raised to the 1.7 power. Colantoni and Ordeshook (1975), on the other hand, derived and provided evidence for the contention that campaign spending is proportional to a state's population.

Yet campaign resources are one thing, but government resources commanded by an incumbent are another. They share similarities in that they both can be used to improve a candidate's chances for reelection, and are both limited in size. Their differences are striking, however. Government resources are immensely larger, though much more difficult to target, given the blunt tools a president has to work with. The time line is much longer, as a president has four years

[2]Maine and Nebraska are exceptions, assigning two electors each by winner-takes-all and two electors each by proportionality. The strategic incentives of the presidential electoral system would be drastically different if larger states than these adopted proportionality, as Colorado threatened to do with the defeated Amendment 36 in 2004.

[3]"This time, on his 27th trip to the Golden State as president, Clinton came with just a little something - a $1.3 million federal school grant - to add to the billions of dollars his administration has steered to California [as part of] a strategy to spend four years lavishing the nation's largest state with attention and money. In return, all he wants is the state's 54 Electoral College votes come November." David Dahl, "How Bill Clinton Bought California," *St. Petersburg Times* (Florida), September 15, 1996, page 1A. For a Republican example, see James Gerstenzang, "Santa Claus is an incumbent, states find as Bush dips into his federal goody bag," *Los Angeles Times*, March 11, 1992, page 13A.

to target federal spending and only a year or less to target campaign resources. In a campaign, the fixed cost of setting up campaign operations in the various states is far higher. Because of resource limitations and campaign finance regulations, presidential campaigns are largely self-help operations. On the other hand, the federal government has *already* invested considerable resources in establishing local distribution centers in all 50 states. As far as presidents are concerned, the fixed costs of spending (at least on established federal programs) are simply not relevant. Setting up operations in small states is therefore relatively more costly for campaigns than for the federal government on behalf of the incumbent.

In sum, the powerful resource constraints of campaigns force candidates to concentrate on populous states. Incumbents, however, have the luxury of an additional resource: federal spending. This resource can be spent in the opposite manner than campaign resources, favoring states with higher ratios of electoral votes to population. After all, "purchasing" an electoral vote in a smaller state is much cheaper than in a larger one-this is truly "more bang for the buck."

I operationalize this concept by dividing electoral votes by population to derive an electoral vote per capita (EVPC) ratio. The EVPC ratio also represents an intuitive measure of how rich states are electorally in respect to their populations.

We can now state the first hypothesis:

H1: The greater the number of electoral votes per capita, the greater the amount of federal spending on a per-capita basis.

Another possible way to prioritize states is by targeting "swing" or moderate states, that is, those states not fully committed to either candidate or party. This "swing voter" hypothesis has been analyzed both theoretically and empirically in the recent literature. Lindbeck and Weibull (1987) theorize that in an environment where groups differ in political but not consumption preferences, political actors favor groups with weak party affiliations. Similarly, Dixit and Londregan (1996) argue that when parties are equal in their ability to redistribute benefits–a condition likely to hold in modern America–politicians would tend to spend resources on "swing" voters, or those not fully committed to either party.[4]

It is well known that presidential candidates pay more attention to states that are competitive Colantoni and Ordeshook (1975); Shaw (1999). It is more efficient to concentrate on states that are potential winners for the candidate, than those who are safely in the pocket of either candidate. The marginal returns are simply higher.

I argue that this "competitiveness" effect should operate similarly in terms of presidential

[4] See also the debate on the allocation of New Deal spending in Wright (1974); Fleck (2001); Lindstadt (2005)

influence on government resources. If incumbents can affect the geographic distribution of resources, it is better to put them in areas that are likely to do more good for the re-election prospects of the incumbent or his successor.

Determining so-called "battleground" or highly competitive states can be done in several fashions. First, as the general election approaches, state polls reveal the competitiveness of the two major party candidates in a given state. By the time the two candidates are known, however, there are only a few months left until the election; too little time for presidential resources to make a decisive difference. Another approach incumbent administrations can use is to look back at the winning margins of each state (the absolute difference between the percent of the vote received by the state winner and the state loser) in the previous presidential election.

Florida after 2000 had a near-zero winning margin, whereas Utah in the wake of the 1980 election had a massive winning margin. Spending government money in the former may tip the tight balance in Bush's favor, while spending money in the latter may not have been as efficient for Reagan.

In sum:

H2: The more competitive a given state in a previous election, the more spending that state should expect in succeeding years.

On the other hand, a politician's "core supporters" may be the beneficiaries of governmental appropriations if politicians are risk-averse (Cox and McCubbins 1986). After all, the other party is similarly attempting to woo swing voters, if not with expenditures than with post-election promises of the same.

H3: If the incumbent administration won the state in the previous election, that state should do better in terms of spending (core supporters).

H4: The effect of competition should differ if the incumbent administration won the state in the previous election. If the administration won the state, the effect of competition should be negative (that is, core supporters are rewarded.) If the administration lost the state, the effect of competition should be positive (swing voters rewarded).

One political dimension along which states differ is the composition of their congressional delegations. Some states tend to send Democratic delegations, others Republican, and still others an even mix. Presidents should attempt to aid in the re-election of co-partisans

H5: States with congressional delegations (Senate or House) dominated by the presidential party does better in regards to expenditures relative to states represented by non-presidential party delegations.

To summarize:

Hypothesis	Expected Directed
H1: Electoral Votes Per Capita	+
H2: State competitiveness for presidential incumbent in last election	+
H3: Incumbent administration wins state in last election	+
H4: Competitiveness Interacted with Winning State	-
H5: Presidential party composition of state delegation in House/Senate	+

Table 1: *Summary of Hypotheses*

5 Political Controls

A debate raged in the American politics subfields in the 1990s as to the true strength of American political parties. Cox and McCubbins (1993) and Aldrich (1995) argued for the leading role of majority political parties in affecting public policy, while Krehbiel (1998) took the opposing view. Much of the argument has ignored actual policy outcomes across electoral districts. Levitt and Snyder (1995), however, found that partisan factors accounted for some of the geographical distribution of federal expenditures. Specifically, Democrats were partially successful in the late 1970s-at the height of their ascendance and after a long tenure as the majority party–in creating federal programs designed to aid Democratic voters. Alvarez and Saving (1997) find some evidence that majority party status has contributed to higher spending for Democratic districts, at least for the 101st Congress. In recent analysis, Balla et al. (2002) found support for a limited version of a partisan effect theory. Rundquist and Carsey (2002) found no support for the notion that state Senate and House delegations that were more Democratic obtained any more defense contracts than those that were less so. To test for majority party effects, I include the proportion of a state's Senate and House delegation that is a member of the majority party.

Martin (2003) suggests that members of Congress should be more attentive to geographic constituencies who are more politically involved. Areas with higher voting participation denote attentive publics, which in turn draw benefits provided by congressmen. A different dynamic should exist for presidents. It is true that some states, like Minnesota and Connecticut have consistently and considerably higher citizen turnout for presidential elections than other states like Hawaii and South Carolina. On the other hand, because the presidential electoral game is governed by the unitary rule within states, it does not matter how many votes an incumbent gets; only that he gets more than his opponent. High turnout should not advantage or disadvantage presidential candidates. To test for turnout effects, I include the percentage of the electorate actually turning out to vote in the last presidential election in the given state.

Hypothesis	Author	Expected Direction
House/Senate Malapportionment	Lee (1998); Lee and Oppenheimer (1999)	+
Majority Party Delegation	Cox and McCubbins (1993)	+
	Alvarez and Saving (1997)	+
	Krehbiel (1998)	Insig.
Turnout	Martin (2003)	+

Table 2: *Political Controls*

5.1 Demographic and Fiscal Controls

Since much federal aid is distributed by formula, we need to control for the differing populations of the states. We should expect federal aid, much of which is redistributive, to flow towards states with lower incomes, higher unemployment, and lower state wealth (as measured by gross state product). Furthermore, federal spending targets specific groups in the population that are not distributed evenly across states. I therefore include proportions of state populations that are senior citizens, employed in agriculture, and are urbanized.

I control for national wealth and fiscal balance, on the assumption that increases in either allows federal spending to increase faster than inflation. Note that these are year-level, space invariant predictors that can be directly incorporated into the multilevel model (as shown in the section below). Finally, I control for state-level, time-invariant effects of region and state size. I summarize these controls and their expected direction below.

Effect	Expected Directed
State-Year Controls	
Median per capita income	+
Proportion unemployed	-
Gross State Product	-
Proportion senior citizens	+
Proportion living in central cities	+
Year-Level Controls (Space Invariant)	
Real GDP	+
Surplus/Deficit as Proportion of GDP	+
Area	-

Table 3: *Demographic and Fiscal Controls*

6 Data and Methods

The data is a pooled TSCS of all 50 states. We have data for 19 years, from 1983 to 2001, resulting in a total of 950 individual-level observations. The multilevel data set has information at three levels of analysis: the individual-level (state-year) and two group levels (states and years). In other words, data that changes across time and space is individual-level; whereas information about the time context common to all states, or the state context common to all the measurements of a particular state are both considered group level. The outcome variable is measured at the individual (state-year) level.

6.1 Description of Dependent Variable

The outcome variables that I examine are aggregated and disaggregated per capita federal spending in a given state-year. I obtained expenditure data from the Consolidated Federal Funds Report (CFFR), which collects data from Federal agencies for spending in the entire United States.(U.S. Dept. of Commerce 2002) Expenditures are tracked geographically as well as thematically. Data has been archived by the CFFR only since 1983, which explains the time period selection of this project.

Broadly speaking, nearly all the major spending categories are covered: grants, salaries and wages, procurement contracts (defense and civilian), direct payments for individuals, and other direct payments.[5] Thus, the data set is agnostic about how federal spending is delivered to various geographic units. Sometimes it is through direct payments to individuals (Social Security checks), and other times through grants to states, cities, and other local political units for redistribution (Medicaid and some welfare payments). See below for a sample breakdown of spending for 2001, the last year in the data set. The CFFR is thus a nearly-comprehensive catalog of domestic spending (U.S. Dept. of Commerce 2002).[6]

The CFFR is a superset of the more commonly used Federal Awards Assistance Data (FAADS) (Bickers and Stein 1998), a commonly used data set in the distributive politics literature. FAADS excludes, for example, procurement and wage information, two large portions of the federal budget.

For this paper, I chose to concentrate on grants. Individual expenditures were summed up

[5] I am not here including the other major types of spending called "contingent liabilities." These include direct loans, guaranteed or insured loans, and insurance. This is because money is only spent if some contingency occurs, and need not be spent at all otherwise. This is a qualitatively different type of spending.

[6] Interest on the debt ($177 billion in 2002), the budgets of the intelligence agencies, and international affairs payments ($22 billion in 2002) are excluded.

Expenditures	Amount	Example
Retirement and disability	$600 billion	Federal pensions, Social Security, Veterans Administration
Other direct payments to individuals	$405 billion	Medicare, food stamps
Grants	**$339 billion**	**Public housing, infrastructure spending, social welfare transfer programs**
Procurement contracts	$246 billion	Defense and non-defense procurement
Salaries and wages	$188 billion	Defense and non-defense wages
Total expenditures and obligations	*$1.8 trillion*	

Table 4: *Fiscal 2001 CFFR Expenditure Amounts, by Type*

and aggregated by state to derive a total spending figure in a given state and year. This total was divided by state population to derive the per capita federal spending figure. Because there are still wide variations in this variable (from a low of $356 in Florida in 1987 to $3,203 in Alaska in 2001), I took the natural log of the per capita spending amount to smooth out these big differences.

6.2 Why Grants?

Using grants in this paper as an outcome variable of choice is worthwhile on a number of grounds. First, they are large. In fiscal 2001, grants totaled nearly 19% of the total budget (excluding items listed above), a not-insignificant amount. Second, grants are a highly discretionary spending item, unlike entitlements. Recipients tend to be political units like states and municipalities, and not individuals. This makes it easier to play with grant formulas, if they exist, or to adjust project-based grants in size, than it is to alter the automatic flow of entitlements to individuals.

Grants include programs thought to be highly susceptible to distributive politics, such as highway and urban mass transit spending. They also include programs not known for distributive bargaining, like welfare spending. Appendix 2 includes the CFFR's definition of grants, as well as a sample list of grant programs.

6.3 Explanatory Variables

The control variables were taken from the Census Bureau's Current Population Survey (CPS), an annual survey that gathers data on nearly 100,000 individuals across all states. Data was aggregated at the state level. The data is chiefly composed of demographic and employment variables, though some voting questions are asked biennially in November in the "Voter Supplement File" (U.S. Dept. of Commerce 1983-2002). Income data is from the Bureau of Economic Affairs (2002). Presidential vote totals were taken from Congressional Quarterly. Finally, real GDP and deficit data is from the 2003 Economic Report of the President produced by the Council of Economic Advisors.

To test for ideological effects, I subtract the average the first-dimension common-space Nominate scores for a state's Senate delegation from the common space score for the president in power that particular year.

Summary data and plots for the explanatory variables can be found in Appendix A.

6.4 Methodology

As is well known, time series cross-sectional (TSCS) data frequently suffers from three major inherent problems (1) serial correlation (2) heteroscedasticity, and (3) contemporaneous correlation. First, due of the time-series aspect to TSCS data, the errors are serially correlated. Second, the assumption of homoscedastic (equal) variances on the error term is violated. The source of this is usually unit heterogeneity, especially when there is large variation on the dependent variable (Beck 1995). Third, errors can violate the assumption of cross-sectional independence. That is, errors can be correlated across cross-sectional units (or panels) within time. This is usually due to common shocks felt across all units, or to unmodeled relationships between units (Stimson 1985).

The most popular modern estimator for analyzing time series cross-sectional data with a continuous dependent variable is classical OLS with the use of Beck-Katz panel-corrected standard errors Beck and Katz (1995) and a fix for serial correlation (such as a lagged dependent variable). More recently, (Beck and Katz 2001) have considered "random coefficients models" (RCMs) for TSCS data.[7] As they note, there has been an absence of RCMs for TSCS data in political science; nevertheless, they speculate that fully Bayesian models may be the best way to approach TSCS data. This is despite their Monte Carlo evidence that RCMs are quite powerful for predictive purposes for such data and for estimates of uncertainty.

This paper represents one of the few attempts to implement an RCM for time-series cross-sectional data.[8] Elsewhere I show Shor et al. (2005) simulation evidence that Bayesian estimation of a multilevel model yields results that are no worse than and often superior to the Beck-Katz approach.

[7]From a Bayesian framework, RCMs are hierarchical/multilevel models.
[8]Western (1998) is the most well-known other attempt.

The Bayesian multilevel model in this paper treats the state-year as the unit of analysis, but integrates data at the state (time-invariant) and year (space-invariant) "macro" levels simultaneously. Instead of modeling it as repeated observations of the same units, we treat the data as observations clustering in a clear structure in time and space. This structure is not hierarchical (therefore we adopt the term multilevel). State-years–the individual level measurements–can be thought of as "belonging" to individual years and individual states. There is something in common for all states in a given year, as well as all years for a given state.

On a theoretical level, such an approach is appealing because the observations in a given context of space or time are not independent of each other. This non-independence is ignored by classical linear regression. This means that, although we have 19 years of data for 50 states, we really have fewer than 950 independent measures.

Some of major additional advantages of the Bayesian multilevel approach, detailed in the methodological chapter of this dissertation, include (1) the ability to estimate group-level intercepts simultaneously with group-level predictors, (2) more accurate estimates of uncertainty around group-level predictors, (3) better explanation of group-level variation, (4) greater generality and extensibility.

6.4.1 The Model

The general form of the multilevel model is the following:

$$y_{it} = \alpha_i + \delta_t + \lambda_i t + (X\beta)_{it} + \epsilon_{it} \tag{1}$$

$$\text{where } \epsilon_{it} \sim N(0, \sigma^2_{\epsilon(i)}).$$

where y_{it} stands for estimated spending in a given state i (1 to 50) and year t (1 to 19, or 1983 to 2001), X is the matrix of state-year predictors, and B is the vector of coefficients to be estimated. $\lambda_i t$ are the estimated linear time trends (slopes) of spending for each state.[9]. This corrects for the autocorrelation present in all budgetary data, allowing for a separate trend for every state.

The multilevel nature of the model is revealed in the α and δ terms. The varying intercepts for states and years are themselves outcomes with means and variances that are estimated, allowing for the partial pooling described above. To take account of the varying variability of the errors

[9] Employing a lagged dependent variable is more efficient way of cleaning up serial correlation. However, it has some strong downsides (Achen 2000), and changes the nature of the research question from levels to changes in the outcome.

across units (panel heterogeneity), $\sigma^2_{\epsilon(i)}$ is subscripted i, indicating the estimation of a new error variance parameter per state.

$$\alpha \sim N(\mu_\alpha, \sigma_\alpha), \mu_\alpha = (Uh)_i, \sigma_\alpha \sim U(0, 1000) \tag{2}$$

$$\delta \sim N(\mu_\delta, \sigma_\delta), \mu_\delta = (Wg)_t, \sigma_\delta \sim U(0, 1000) \tag{3}$$

α is the indicator for state i (1 to 50) and δ is an indicator for year t (1 to 19, or 1983 to 2001). They are normally distributed with means derived from the product of the matrices of state- and year-level data (W and U) multiplied by the state- and year-level predictors (h and g). Their group-level variances σ_α and σ_δ are random (which is what makes this a random coefficient model), and are given very vague uniform priors. This is done to let the data entirely drive the estimates of the variances (Jackman 2000; Western 1996).[10] Note that these parameters are the source of additional uncertainty relative to least square-based estimators.

They are normally distributed with means derived from the product of the matrices of state- and year-level data (U, W) multiplied by the state- and year-level predictors (h, g). Their group-level variances σ_α and σ_δ are random (which is what makes this a random coefficient model), and are given very vague and uninformative uniform priors.

These indicators are useful for two reasons. First, we can include the variation in the data unexplained by group-level predictors. Second, they allow us to explicitly control for the context effects of space and time. Year and state indicators allow us to control for the inevitable problems of contemporaneous correlation and heteroscedasticity in the data. The advantage of Bayesian methods, as opposed to the more classic approach, is that collinearity does not prevent the estimation of any of the indicators, even in the presence of time-invariant parameters.

Note that these group level indicators can be considered "random intercepts with fixed slopes" because they modify the individual-level constant but do not vary with the level of any individual-level parameters. The assumption here is that causal factors affecting federal spending do not differ in different states and years. For now, this assumption seems reasonable enough, given the high similarity of states to each other relative to cross-country comparative research.

[10] Indeed, as Western (1996) writes, "for diffuse priors, the Bayesian results are close to OLS in the sense that the posterior distribution of coefficients is similar to a normal distribution with means and variances close to the OLS coefficients and squared errors." (171)

6.5 Estimation

The Bayesian multilevel models are estimated by Markov Chain Monte Carlo (MCMC) techniques as implemented in the Winbugs 1.4 software package Spiegelhalter, Thomas and Best (2002) I present the model code in the Appendix. The model was run with two chains of 250,000 iterations each. One-half of the iterations were discarded as a burn-in. The chains converged successfully for all the parameters of the model, as measured by the Gelman-Rubin-Carlin Rhat statistic. This statistic approaches 1 when a parameter achieves convergence in its multiple chains.

7 Results and Discussion

In this section, I break down the results of the empirical model described in the last section. I first describe the aggregate model fit and check the predictions of the model against the actual outcomes. I also do an out-of-sample check of fit to show that the multilevel model is doing very well in predicting spending values for state-years. Then, I present and discuss the parameter estimates, along with showing graphical plots of the effect of the significant predictors.

7.1 Model Predictions

The multilevel model's predicted total spending amounts per state-year were checked against the actual 950 measures of the dependent variable. The resulting plot is displayed below. The strong fit is shown by how closely the points are clustered around the 45-degree line. There appear to be very few outliers.

7.2 Parameter Estimates

The following table summarizes the parameter estimates from the fitted models. These are all summaries of the posterior distribution, and include the mean of the posterior for each predictor, the standard deviation, and the 95% confidence interval around the mean. They can be interpreted in roughly the same fashion as a standard table of coefficient estimates from more classical regression models.

Because the dependent variable is logged total expenditures in a given state-year, the parameter estimates are fairly easy to interpret. A one-unit change in a predictor leads approximately an x percent change in the outcome variable. For example, a 0.742 estimate for electoral votes per capita is should be interpreted as meaning a unit increase in this ratio is associated with 110

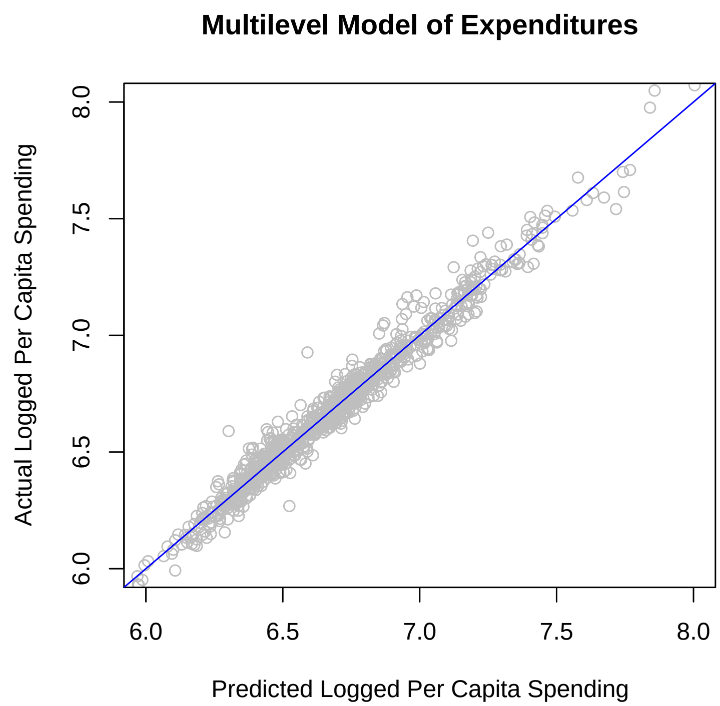

Figure 5: *Plot of predicted logged grants spending per capita versus actual spending.*

percent more spending per capita in a state-year (of course, the valid range of this predictor only goes from 0.15 to 0.66).[11] Statistical significance is taken here as 95% confidence intervals of the posterior means not crossing zero, and is marked by a bold font.

We can see that the parameter estimates are consistent with three of the four hypotheses in section 2. Electoral votes per capita, winning margin, an interaction between the two, and the ideological distance between president and the state Senate delegation proportion support for the incumbent in a state all show statistically significant effects.

The Lee Index of Senate malapportionment is not significant, and turnout differences in states do not change predicted amounts of spending. States represented by higher proportions of the majority party in the Senate receive statistically significant higher amounts of federal money, but not in the House.

[11] Given the presence of an interaction effect, this should only hold when the winning margin is zero (Florida 2000).

7.3 Predicted Effects

We can examine further the effect of individual predictors on the outcome variable, controlling for the effect of the other predictors. One effective expository method of doing this is using predictive plots. Here, the outcome variable is plotted on the y-axis and the variable of interest is plotted on the x-axis. The slope of the plotted line represents the effect of given predictor on the calculated prediction of the outcome. The values (not the slopes) of the other predictors are held at their means. Consequently, these plots are intuitive in the sense that one gets a feel for the direct effect of the predictor on the outcome for the actual range of values of the predictor.

7.3.1 Predicted Effects of Presidential Variables

The effect of electoral votes on federal spending is both statistically significant and substantively very strong, confirming hypothesis 1. States with more electoral votes per capita attract more federal grants. This effect is moderated, not enhanced, by an interaction with electoral competitiveness. In other words, those states with high winning margins (eg, those that are electorally uncompetitive), have stronger electoral vote effects. This is the opposite of hypothesis 3. The plot below illustrates this interaction. For median values of presidential winning margin, the slope on the EVPC effect is 0.93. For the maximum value of winning margin (heavy blue line), the slope of EVPC becomes 1.53, while the minimum value on winning margin (light red line), the slope of EVPC is simply the estimated main effect, or 0.742.

Electoral vulnerability, as measured by winning margin, is also significant. For states with average or low amounts of electoral votes per capita (red and blue lines in the plot), the winning margin is estimated to have the correct sign (negative), confirming hypothesis 2. That is, smaller winning margins are associated with more federal spending in the form of grants. On the other hand, those states rich in Electoral College votes in relation to their population have the opposite effect: larger winning margins (less competitiveness) leads to more spending, not less. Thus, support for hypothesis 2 is qualified by a significant interaction effect moving in the opposite direction from that expected by hypothesis 3.

Finally, in accordance with hypothesis 4, the greater the ideological distance between the incumbent president and a state's Senate delegation, the smaller the amount of spending. This effect is modest in substantive terms. The plot below renders this effect. The main effect is in black, with 100 random draws from the posterior means of the predictor in separate grey lines (to illustrate the level of uncertainty about the mean). The merging of the grey indicates the small degree of uncertainty (and the slight substantive effect of ideological distance.

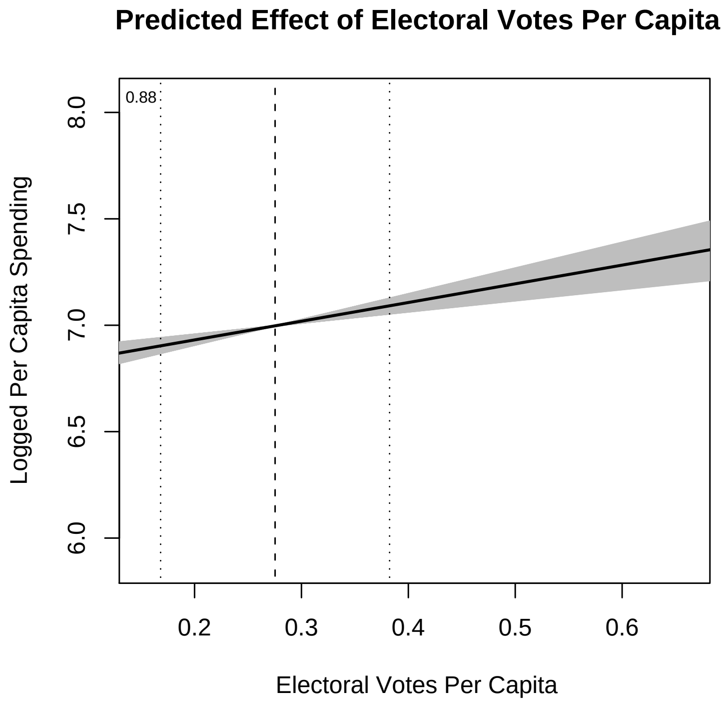

Figure 6: *Predicted effect of electoral votes per capita, 1983-2001, on* **logged grants expenditures**, *holding other predictors constant at their means. The shaded region represents a 95% posterior interval. The dashed line represents the mean of the variable, and the dotted lines 1 standard deviation from the mean.*

7.3.2 Other Political Effects

States represented by the majority party in the Senate are statistically significantly advantaged in terms of federal dollars. This does not occur for House delegations.

7.3.3 State and Time Effects

After accounting for explained and unexplained variation at the group and individual (state-year) level, how do states and time periods differ? The following plots show individual years, divided by bars representing a 95% confidence interval around the mean estimate. The most intuitive way to understand this plot is that after accounting for the individual (state-year) and group level (state and year) predictors included in the model, there are some years that have very high (or very low) spending, no matter which state. Note that these year intercepts are not measures of unexplained variance, but rather the combination of explained and unexplained variance.

The year plot shows a steady upward trend in total logged spending per capita (inflation-

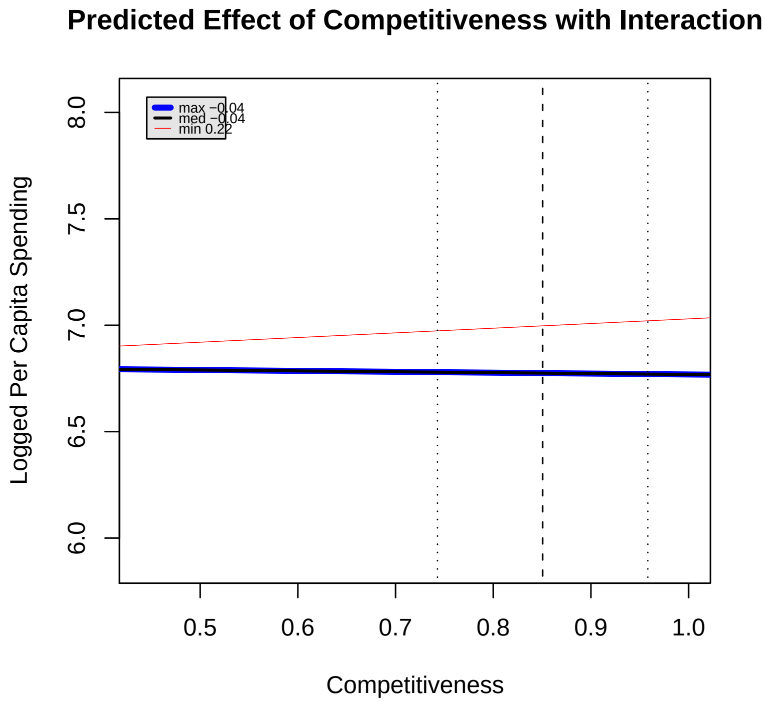

Figure 7: *Predicted effect of presidential electoral competitiveness in the states, 1983-2001, on* **logged grants expenditures***, holding other predictors constant at their means. The thick, blue line represents the effect of this variable at the maximum value of the interacted variable (e.g., when the incumbent administration won the past election in a given state). The light-weight red line represents the effect of this variable at the minimum value of the interacted variable (e.g., when the incumbent administration lost the past election in a given state). The dashed line represents the mean of the competition variable, and the dotted lines 1 standard deviation from the mean.*

adjusted). This is true even of George W. Bush's first year in office. The only periods that see relatively flatter spending increases was in Reagan's second term and Clinton's first. The plot below shows the calculated state intercepts from the posterior distribution of the multilevel model, and how far they are away from the total mean (along with 95% confidence intervals). As is true above, the intuitive way to understand this plot is to see which states have consistently higher (or lower) spending than others.

The majority of states stayed fairly close to the grand mean intercept (e.g., the average state effect, which here by construction is zero). Nevertheless, outliers existed. Alaska and New York are by far the most the most extreme positive outliers. That is, residents of these states enjoy sums of federal spending far above what they would have received living in other states, even after accounting for the major sources of differences between states. This makes sense, as these two states are perhaps the most affected by the economic activities of the federal government. In terms of negative outliers, Nevada was the most extreme, followed by Florida.

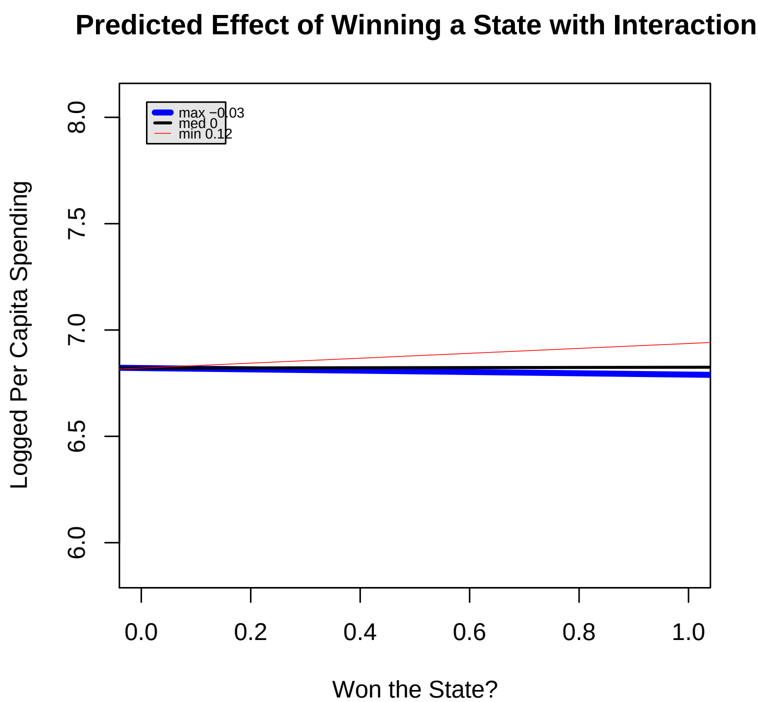

Figure 8: *Predicted effect of winning a state, 1983-2001, on* **logged grants expenditures**, *holding other predictors constant at their means. The thick, blue line represents the effect of this variable at the maximum value of the interacted variable (a a virtually tied election). The medium-weight black line represents the effect of this variable at the median value of the interacted variable (an election margin of 14%, or competition value of .86). The light-weight red line represents the effect of this variable at the minimum value of the interacted variable (an election margin of 56%, or competition value of .44).*

Notice that the ranking of states is similar to, but substantially different from the ranking of average state spending from 1983-2001 presented in the introduction. This plot is a more precise ranking, given that it takes into account predictors at the state-year, state, and year-level of analysis.

Another notable finding is that the uncertainty around the estimation of the group intercepts varies across states. Some states, like California, New York, Texas and Wyoming appear to have more uncertainty around the estimates of their means. This can be interpreted to mean that there is more year-to-year fluctuation of per-capita spending in these states. This is certainly something that warrants further investigation, as the variance in spending across states needs to be explained as well as the level of spending.

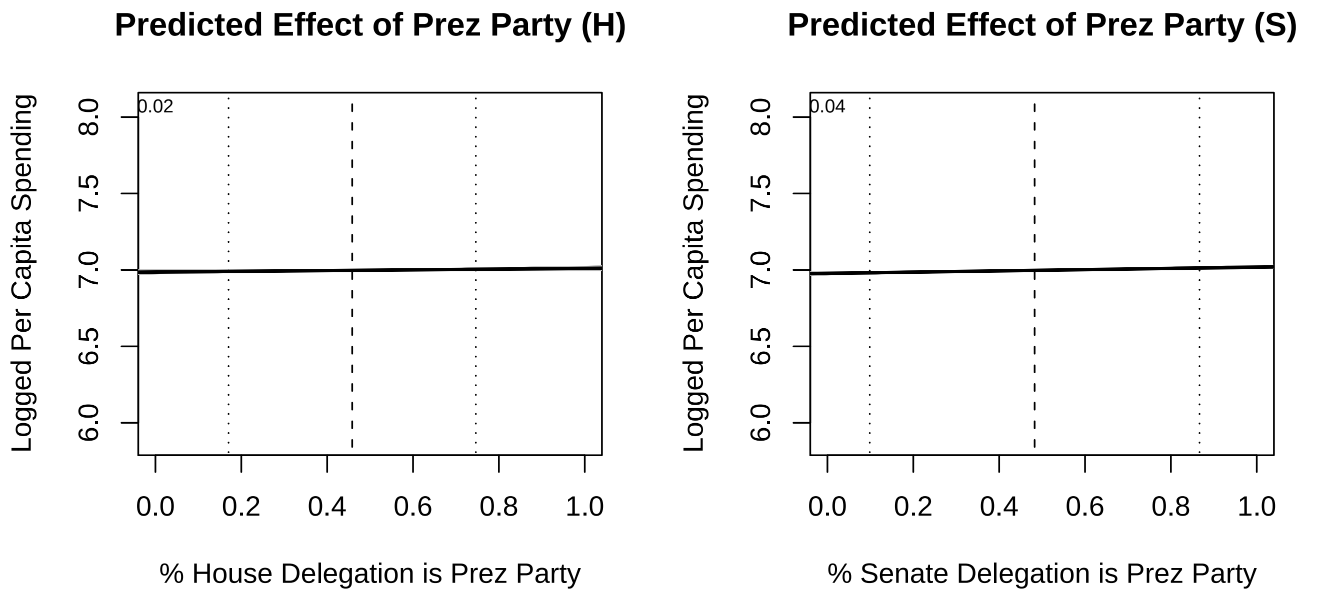

Figure 9: *Predicted effect of state delegations as composed of various proportions of the president's party, 1983-2001, on* **logged grants expenditures**, *holding other predictors constant at their means. The shaded region represents a 95% posterior interval. The dashed line represents the mean of the variable, and the dotted lines 1 standard deviation from the mean.*

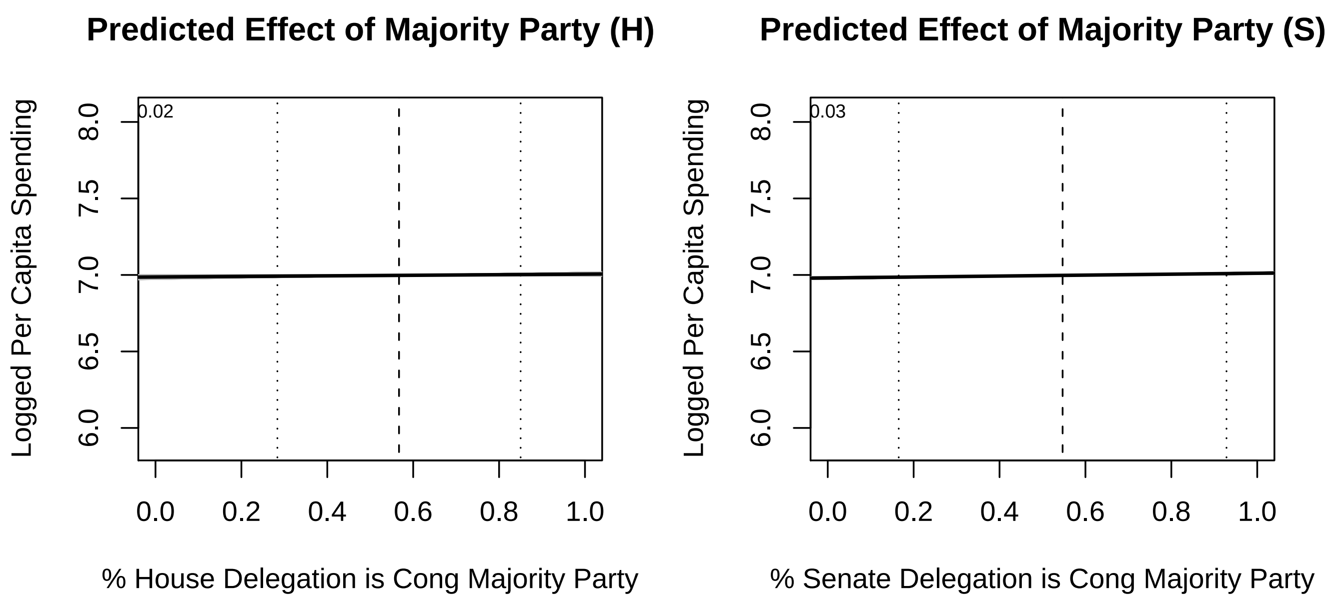

Figure 10: *Predicted effect of state delegations as composed of various proportions of the chamber majority party, 1983-2001, on* **logged grants expenditures**, *holding other predictors constant at their means. The shaded region represents a 95% posterior interval. The dashed line represents the mean of the variable, and the dotted lines 1 standard deviation from the mean.*

8 Conclusion

The existing distributive politics literature has largely ignored the presidency. When it has been addressed, the president was seen as a countervailing influence on the logrolling tendencies of Congress. I argue that this contention fails theoretically, given the electoral incentives and institutional capacities of the presidency. Presidents have to win reelection by building an Electoral College majority. Resource constraints force candidates to geographically target their efforts, which their institutional capacities allow them to do.

Empirically, I show strong support for my claims. Three of the four presidential hypotheses were confirmed. Institutions like the Electoral College appear to strongly affect the distribution of federal spending. This strongly contradicts the current wisdom that either presidents do not engage in this sort of distributive politics, or that they would disproportionally privilege states with a high number of electoral votes. Tighter races in past presidential elections focus more resources on "battleground" states. Competitive races in electorally vote-rich states, however, attract less funds than those in average or electorally vote-poor states.

Ideological compatibility between incumbent presidents and state Senatorial delegations lead to more money, though this effect is small. Furthermore, Senate delegations dominated by the majority party do better in terms of money than those delegations with a larger proportion of the minority party.

In summary, I have shown that ignoring the presidency in an analysis of distributive politics is wrong. The president may be a counterweight to Congress' tendencies in many respects in our separation of powers system. With respect to the geographic distribution of federal dollars, however, the president is no innocent.

References

Achen, Christopher. 2000. "Why Lagged Dependent Variables Can Supress the Explanatory Power of Other Independent Variables." Presented at the Annual Meeting of the Political Methodology, Los Angeles.

Aldrich, John H. 1995. *Why Parties? The Origin and Transformation of Political Parties in America*. Chicago: The University of Chicago Press.

Alvarez, R. Michael and Jason L. Saving. 1997. "Congressional Committees and the Political Economy of Federal Outlays." *Public Choice* 92(1-2):55–73.

Andres, Gary J. 1995. "Pork Barrel Spending-On the Wane?" *PS: Political Science and Politics* 28(2):207–211.

Arnold, R. Douglas. 1979. *Congress and the bureaucracy: A theory of influence*. New Haven: Yale University Press.

Balla, Steven J., Eric D. Lawrence, Forrest Maltzman and Lee Sigelman. 2002. "Partisanship, Blame Avoidance, and the Distribution of Legislative Pork." *American Journal of Political Science* 46(3):515–525.

Bartels, Larry M. 1985. "Resource Allocation in a Presidential Campaign." *Journal of Politics* 47(4):928–936.

Beck, Nathaniel and Jonathan Katz. 1995. "What to Do (And Not to Do) With Time-Series Cross-Section Data." *American Political Science Review* 89:634–647.

Bickers, Kenneth N. and Robert M. Stein. 1996. "The Electoral Dynamics of the Federal Pork Barrel." *American Journal of Political Science* 40(4):1300–1326.

Bickers, Kenneth N. and Robert M. Stein. 1998. "Federal Awards Assistance Data for 1983-1997.".

Bickers, Kenneth N. and Robert M. Stein. 2000. "The Congressional Pork Barrel in a Republican Era." *Journal of Politics* 62(4):1070-1086.

Brams, Steven J. and Morton D. Davis. 1974. "The 3/2's Rule in Presidential Campaigning." *The American Political Science Review* 68(1):113–134.

Cameron, Charles M. 2000. *Veto bargaining: presidents and the politics of negative power*. New York: Cambridge University Press.

Canes-Wrone, Brandice. 2001. "The President's Legislative Influence from Public Appeals." *American Journal of Political Science* 45(2):313–329.

Colantoni, Claude S., Terrence J. Levesque and Peter C. Ordeshook. 1975. "Campaign Resource Allocation Under the Electoral College." *The American Political Science Review* 69(1):141–154.

Cox, Gary W. and Mathew D. McCubbins. 1986. "Electoral Politics as a Redistributive Game." *Journal of Politics* 48(2):370–389.

Cox, Gary W. and Mathew McCubbins. 1993. *Legislative Leviathan: Party Government in the House*. Berkeley: University of California Press.

Dixit, Avinash and John Londregan. 1996. "The Determinants of Success of Special Interests in Redistributive Politics." *The Journal of Politics* 58(4):1132–1155.

Ferejohn, John A. 1974. *Pork barrel politics: rivers and harbors legislation, 1947-1968*. Stanford University Press.

Fleck, Robert K. 2001. "Inter-Party Competition, Intra-Party Competition, and Distributive Policy: A Model and Test Using New Deal Data." *Public Choice* 108(1 - 2):77–100.

Heclo, Hugh. 1984. *Executive Budget Making*. Federal budget policy in the 1980s Washington: Urban Institute.

Howell, Willaim G. 2003. *Power Without Persuasion: The Politics of Direct Presidential Action*. Princeton University Press.

Jackman, Simon. 2000. "Estimation and Inference are Missing Data Problems: Unifying Social Science Statistics via Bayesian Simulation." *Political Analysis* 8:307–332.

Jacobs, Lawrence R. and Robert Y. Shapiro. 1995. "The Rise of Presidential Polling: The Nixon White House in Historical Perspective." *Public Opinion Quarterly* 59(2):163–195.

Kernell, Samuel. 1997. *Going public: new strategies of presidential leadership*. Washington, D.C.: CQ Press.

Kiewiet, D. Roderick and Keith Krehbiel. 2000. "Domestic Discretionary Appropriations, 1950-1999: Here's The President, Where's the Party?".

Kiewiet, D. Roderick and Mathew D. McCubbins. 1985. "Congressional Appropriations and the Electoral Connection." *Journal of Politics* 47(1).

Kiewiet, D. Roderick and Mathew D. McCubbins. 1988. "Presidential Influence on Congressional Appropriations Decisions." *American Journal of Political Science* 32:713–736.

Krehbiel, Keith. 1998. *Pivotal politics: a theory of U.S. lawmaking*. Chicago: University of Chicago Press.

Lee, Frances E. 1998. "Representation and Public Policy: The Consequences of Senate Apportionment for the Geographic Distribution of Federal Funds." *Journal of Politics* 60(1).

Lee, Frances E. and Bruce I. Oppenheimer. 1999. *Sizing Up the Senate: The Unequal Consequences of Equal Representation*. Chicago: University of Chicago Press.

Levitt, Steven D. and James M. Snyder. 1995. "Political parties and the distribution of federal outlays." *American Journal of Political Science* 39(4):958–80.

Lindbeck, Assar and Jorgen W. Weibull. 1987. "Balanced-budget Redistrbution as the Outcome of Political Competition." *Public Choice* 52.

Lindstadt, Rene. 2005. "Core Supporters or Swing Voters? The Geo-Politics of New Deal Spending.".

Lowi, Theodore J. 1969. *The end of liberalism; ideology, policy, and the crisis of public authority*. New York: Norton.

Martin, Paul S. 2003. "Voting's Rewards: Voter Turnout, Attentive Publics, and Congressional Allocation of Federal Money." *American Journal of Political Science* 47(1):110–127.

Mayer, Kenneth R. 1995. "Electoral Cycles in Federal Government Prime Contract Awards: State-Level Evidence from the 1988 and 1992 Presidential Elections." *American Journal of Political Science* 39(1):162–185.

Mayhew, David R. 1974. *Congress: The Electoral Connection*. New Haven: Yale University Press.

McCarty, Nolan. 2000. "Presidential Pork: Executive Veto Power and Distributive Politics." *American Political Science Review* 94(1):117–129.

McConnell, Grant. 1966. *Private power and American democracy*. New York: Knopf.

McCubbins, Mathew D. 1991. *Government on Lay-Away: Federal Spending and Deficits Under Divided Party Control*. The Politics of Divided Government Boulder: Westview Press.

Mebane, Walter and Gregory Wawro. 2002. "Presidential Pork Barrel Politics.".

Mill, John Stuart. 1958. *Considerations on representative government*. New York,: Liberal Arts Press.

Miller, Gary J. 1993. Formal Theory and the Presidency. Researching the presidency: vital questions, new approaches Pittsburgh: University of Pittsburgh Press pp. 289–336.

Moe, Terry M. 1993. President, Institutions, and Theory. Researching the presidency: vital questions, new approaches Pittsburgh: University of Pittsburgh Press pp. 337–385.

Murphy, Dean. 2004. "Security Grants Still Streaming to Rural States." *The New York Times* .

Neustadt, Richard E. 1991. *Presidential power and the modern presidents: the politics of leadership from Roosevelt to Reagan*. New York: Free Press.

Ray, Bruce A. 1980*a*. *Congressional Promotion of District Interests: Does Power on the Hill Really Make a Difference?* Political benefits: empirical studies of American public programs Lexington, Mass.: Lexington Books.

Ray, Bruce A. 1980*b*. "Federal Spending and Selection of Committee Assignments in the U.S. House of Representatives." *American Journal of Political Science* 24(3):494–510.

Rich, Michael J. 1989. "Distributive politics and the allocation of federal grants." *The American Political Science Review* 83:193–213.

Roberts, Brian E. 1990. "A dead Senator tells no lies: seniority and the distribution of federal benefits." *American Journal of Political Science* 34(1):31–58.

Rundquist, Barry, Jeong-Hwa Lee and Jungho Rhee. 1996. "The Distributive Politics of Cold War Defense Spending: Some State Level Evidence." *Legislative Studies Quarterly* 21(2):265–281.

Rundquist, Barry and Thomas M. Carsey. 2002. *Congress and Defense Spending*. University of Oklahoma Press:Norman.

Shaw, Daron R. 1999. "The Methods Behind the Madness: Presidential Electoral College Strategies, 1988-1996." *The Journal of Politics* 61(4):893–913.

Shor, Boris, Joseph Bafumi, Luke Keele and David Park. 2005. "A Bayesian Multilevel Modeling Approach to Time-Series Cross-Sectional Data." Paper presented at the Annual Meeting of the Midwest Political Science Association, Chicago, IL.

Spiegelhalter, David J., Andrew Thomas and Nickey G. Best. 2002. *WinBugs Version 1.4*. Cambridge, UK: MRC Biostatistics Unit.

Stein, Robert M. and Kenneth N. Bickers. 1995. *Perpetuating the pork barrel: policy subsystems and American democracy*. Cambridge, England; New York: Cambridge University Press.

Stimson, James A. 1985. "Regression Models in Space and Time: A Statistical Essay." *American Journal of Political Science* 29:914–947.

Su, Tsai-Tsu, Mark S. Kamlet and David C. Mowery. 1993. "Modeling U.S. Budgetary and Fiscal Policy Outcomes: A Disaggregated, Systemwide Perspective." *American Journal of Political Science* 37(1):213–245.

Western, Bruce. 1996. "Vague theory and Model Uncertainty in Macrosociology." *Sociological Methodology* 26:165–192.

Western, Bruce. 1998. "Causal Heterogeneity in Comparative Research: A Bayesian Modelling Approach." *American Journal of Political Science* 42:1233–1259.

Wright, Gavin. 1974. "The Political Economy of New Deal Spending: An Econometric Analysis." *The Review of Economics and Statistics* 56(1):30–38.

Appendices

A Summary Statistics

Description	Var Name	Obs	Mean	Std. Dev.	Min	Max
Median household income, in 2001 $	income	950	0.47	0.08	0.31	0.72
% unemployed	unemploy	950	5.88	2.2	2	19.1
Proportion senior citizens	senior	950	0.12	0.02	0.02	0.18
Proportion employed in agriculture	agriculture	950	0.02	0.02	0	0.1
Proportion living in central city	centralcity	950	0.18	0.14	0	0.57
Gross state product	gsp	950	1.41	1.73	0.09	13.15
House Members Per 100,000	hpc	950	0.17	0.02	0.09	0.25
Senators Per 100,000	spc	950	0.1	0.1	0.01	0.44
HPC*Competitiveness	hpcwinm	950	0.15	0.02	0.07	0.24
SPC*Competitiveness	spcwinm	950	0.08	0.08	0.01	0.39
Competitiveness	winmargin	950	0.85	0.11	0.44	1
% Turnout	turnout	950	63.98	6.64	44.1	78.8
Prop. House delegation is Prez' party	hprzparty	950	0.46	0.29	0	1
Prop. Senate delegation is Prez' party	sprzparty	950	0.48	0.38	0	1
Indicator for a Republican President	reppower	19	0.58	0.51	0	1
Surplus/Deficit as % of GDP	budgetbal	19	-0.02	0.02	-0.04	0.03
Real US Gross Domestic Product	gdp	19	7.69	1.37	5.48	10.15
Logged area (100,000 sq mile)	lnarea	50	10.75	1.11	7.34	13.39

Table 5: *Summary Statistics, 1983-2001*

B Grant Programs in CFFR

"The grants category in the CFFR combines two grants categories listed in the CFDA and four grants categories found in the FAADS. The CFDA distinguishes two categories of grant: Formula Grants and Project Grants. The FAADS subdivides Formula Grants into two further categories: Block Grant and Formula Grant. The FAADS also subdivides Project Grants into two further categories: Project Grant and Cooperative Agreement. The CFDA defines 'Formula Grants' as 'Allocations of money to States or their subdivisions in accordance with a distribution formula prescribed by law or administrative regulation, for activities of a continuing nature not confined to a specific program.' The CFDA defines 'Project Grants' as 'The funding, for fixed or known periods, of specific projects or the delivery of specific services or products without liability for damages for failure to perform. Project grants include fellowships, scholarships, research grants, training grants, traineeships, experimental and demonstration grants, evaluation grants, planning grants, technical assistance grants, survey grants, construction grants, and unsolicited contractual agreements.'" ?.

National School Lunch Program
WIC Program
Child Care Food Program
State Administrative Matching Grants for Food Stamp
Nutrition Assistance for Puerto Rico
Grant awards for Department of Defense
Community Development Block Grants/Entitlement Grants
Community Development Block Grants/State's Program
Home Investment in Affordable Housing
Public and Indian Housing
Public and Indian Housing-Comprehensive Grant Program
Employment Service
Unemployment Insurance
Job Training Partnership Act
Airport Improvement Program
Highway Planning and Construction
Urban Mass Transportation Capital Improvement Grants
Urban Mass Transportation Capital Operating Assistance
Disaster Assistance
Educationally Deprived Children-Local Educational Agencies
Handicapped - State Grants
Rehabilitation Services-Basic Support
Family Support Payments to States (AFDC)
Low Income Home Energy Assistance
Social Services Block Grant
Child Support Enforcement
Administration for Children, Youth and Families-Head Start
Foster Care Title IV E
Medical Assistance Program (Medicaid)
Block Grants for Prev and Treatment of Substance Abuse

Table 6: *Typical Grant Programs in the CFFR*

C Correlation Table

D Multilevel Estimator Code

```
model   {
    for (i in 1:n)
        {
        y[i] ~ dnorm (mu[i], tau.y)

        mu[i] <- beta1 + xi.year*a.year[year[i]] + xi.state*a.state[state[i]]
                + d.trend.state[state[i]] * (year[i]-mean(year[]))
                + mu2[i] + mu3[i] + mu4[i]

        mu2[i] <- b.income*income[i] + b.unemploy*unemploy[i] + b.senior*senior[i]
                 + b.agriculture*agriculture[i] + b.singlefhhold*singlefhhold[i] +
                 b.gsp*gsp[i] + b.centralcity*centralcity[i]

        mu3[i] <- b.evpc*evpc[i] + b.competitive*competitive[i] + b.wonstate*wonstate[i]
                + b.woncompete*woncompete[i] + b.turnout*turnout[i]
                + b.swinmargin*swinmargin[i]

        mu4[i] <- b.hmajpdeleg*hmajpdeleg[i] + b.smajpdeleg*smajpdeleg[i] +
        b.hprzparty*hprzparty[i] + b.sprzparty*sprzparty[i]

        e.y[i] <- y[i] - mu[i]
        }

        constant <- beta1 + xi.year*mean(a.year[]) + xi.state*mean(a.state[])

    for (t in 1:nyear)

        {
        a.year[t] ~ dnorm (mu.year[t], tau.year)
        z.year[t] <- xi.year*(a.year[t] - mean(a.year[]))
        mu.year[t] <- d.0.year + d.budgetbal*budgetbal[t] + d.reppower * reppower[t] + d.gdp*gdp[t]
                    + d.trend * (t-mean(year[]))
        }

        d.0.year.adj <- xi.year*d.0.year
        d.budgetbal.adj <- xi.year*d.budgetbal
        d.reppower.adj <- xi.year*d.reppower
        d.gdp.adj <- xi.year*d.gdp

    for (k in 1:nstate)
        {
        a.state[k] ~ dnorm (mu.state[k], tau.state)
        z.state[k] <- xi.state*(a.state[k] - mean(a.state[]))
        mu.state[k] <- d.lnarea * lnarea[k]
        }

        d.lnarea.adj <- xi.state*d.lnarea

    for (m in 1:nstate)
        {
        d.trend.state[m] ~ dnorm(0,tau.trend.state)

        }

    d.0.year ~ dnorm(0, .001)
    d.trend ~ dnorm (0, .001)

    beta1 ~ dnorm(0, .001)
    b.income ~ dnorm (0, .001)
    b.unemploy ~ dnorm (0, .001)
    b.senior ~ dnorm (0, .001)
    b.agriculture ~ dnorm (0, .001)
    b.singlefhhold ~ dnorm (0, .001)
    b.gsp ~ dnorm (0, .001)
    b.centralcity ~ dnorm (0, .001)
```

```
b.evpc ~ dnorm (0, .001)
b.competitive ~ dnorm (0, .001)
b.wonstate ~ dnorm (0, .001)
b.woncompete ~ dnorm (0, .001)
b.turnout ~ dnorm (0, .001)

b.swinmargin ~ dnorm (0, .001)
b.hprzparty ~ dnorm (0, .001)
b.sprzparty ~ dnorm (0, .001)
b.hmajpdeleg ~ dnorm (0, .001)
b.smajpdeleg ~ dnorm (0, .001)

d.reppower ~ dnorm (0, .001)
d.budgetbal ~ dnorm (0, .001)
d.gdp ~ dnorm (0, .001)
d.lnarea ~ dnorm (0, .001)

# Hyperpriors

tau.y <- pow(sigma.y, -2)
tau.year <- pow(sigma.year, -2)
tau.state <- pow(sigma.state, -2)
tau.trend.state <- pow(sigma.trend.state, -2)

sigma.y ~ dunif (0,1000)
sigma.year ~ dunif (0,1000)
sigma.state ~ dunif (0,1000)
sigma.trend.state ~ dunif (0,1000)

xi.state ~ dnorm (0,.0001)
xi.year ~ dnorm (0,.0001)

sigma.state.adj <- abs(xi.state)*sigma.state
sigma.year.adj <- abs(xi.year)*sigma.year


}
```