

The Senate Electoral Cycle and Bicameral Appropriations Politics¹

Kenneth A. Shepsle

Harvard University

Robert P. Van Houweling

University of California at Berkeley

Samuel J. Abrams

Harvard University

Peter C. Hanson

University of California at Berkeley

July 31, 2007

¹The authors thank John Ellwood, Diana Evans, Larry Evans, Timothy Groseclose, John Patty, Kathryn Pearson, Nelson Polsby, Kenneth Scheve, Eric Schickler and Jason Wittenberg for helpful comments. Shepsle thanks the National Institute of Aging for financial support (RO1-AG021181). An earlier version of this paper was presented at the meetings of the American Political Science Association, Philadelphia, PA, 2006.

Abstract

We consider the consequences of the Senate electoral cycle and bicameralism for distributive politics, introducing the concept of contested credit claiming, i.e. that members of a state's House and Senate delegations must share the credit for appropriations that originate in their chamber with delegation members in the other chamber. Using data that isolates appropriations of each chamber, we test a model of the strategic incentives contested credit claiming creates. Our empirical analysis indicates that the Senate electoral cycle induces a back-loading of benefits to the end of senatorial terms, but that the House blunts this tendency with countercyclical appropriations. Our analysis informs our understanding of appropriations earmarking, and points a way forward in studying the larger consequences of bicameral legislatures.

1 Introduction

In terms of political agency in the United States, federal outlays to states and districts are where the rubber meets the road. Elected federal representatives – members of the House and Senate – scramble to deliver public dollars to their constituents. The motives of these agents are complex (Fenno 1973), but in the legislative field the stylized fact of which we are the most confident is the centrality of the desire for reelection (Mayhew 1974). As a consequence, politicians master the geographic, socioeconomic, and demographic complexion of their states and districts, as well as the profile of partisan, candidate, and policy preferences of various constituencies (Fenno 1978), in order to identify with and advance local interests and, as a by-product, their own careers.

The flow of federal outlays is orchestrated by constitutional procedures and institutional structures within which a variety of practices are at work. For our purposes, the most significant features are the bicameral arrangement of the legislature, the decentralized committee systems of the two chambers, and the electoral calendar. The two chambers have authorization, appropriation, revenue, and budget processes. Implementing these are structural units charged, first, with ex ante agenda and information-gathering responsibilities and, second, with ex post bargaining and oversight authority in order to direct the flow of fiscal largesse. Bicameralism means that these chamber-specific processes are not entirely insulated from their counterparts in the other chamber and, at the end of the day, must be synchronized and made compatible if a legislative product is to emerge.

There is a political tempo to these processes as well. The press of legislative business and the approach of a new fiscal year put logistical pressure on legislative leaders to complete spending decisions in a timely manner (though not always fully). The timing of elections, and the eagerness of those running to get home to their campaigns, bring additional “date-certain” pressures to bear. But there is another electoral rhythm of relevance – the term structure of representatives and senators. On the first Tuesday after the first Monday of November in even-numbered years, all 435 seats in the House are in play, while only a third

of those in the Senate are. Senate and House members differ in term length (six years versus two years) and constituency (states versus districts). But the Senate should not implicitly be thought simply a larger-constituency, longer-term version of the House. The Senate is a staggered-term legislative chamber. As established in Article I, Section 3 of the Constitution, Senate seats are partitioned into three classes (with the two seats of any state necessarily in different classes).¹ In any election year, contests for a third of these seats occur, but those for the remaining two-thirds are two years or four years into the future. The electoral connection, then, implicates every district in every state in House elections, but only thirty-three (sometimes thirty-four) of the fifty states in Senate elections.

Putting these three things together – reelection ambition, the necessity for bicameral reconciliation on legislation, and chamber-specific electoral rhythms – suggests something that not even the authors of Article I, Section 3 anticipated. One important source of bicameral tension arises within state delegations as senators and members of Congress operate on different time horizons and with different intertemporal perspectives.² The modest assumptions of retrospective voting (Fiorina, 1981, 2003) and recency bias, in which constituents assess past accomplishments giving greater weight to more recent performance – what Weingast, Shepsle, and Johnsen (1981) refer to as the “what have you done for me lately” principle (WHYDFML) – imply that reelection-conscious politicians, eager to make a maximal reputational impression on retrospectively inclined voters, will seek to deliver federal outlays to their states and districts just in time to be appreciated as their reelection campaigns kick into high gear.³ Thus, at the end of congress t , when a senator and his or her state-delegation

¹For the distribution of states across classes, and the time series of their initial assignments to classes, see <http://www.thegreenpapers.com/Hx/SenateClasses.html>. Table I gives the states in each class. Table II gives the order in which they were assigned, beginning with the first 22 Senators on May 15, 1789.

²See the miscellany of pamphlets, articles, letters, transcripts of debates in the Constitutional Convention and various state constitutional conventions, and diary entries assembled on each of the sections of the Constitution in the five-volume set, *The Founders' Constitution*, edited by Philip B. Kurland and Ralph Lerner (Indianapolis: Liberty Fund Press, 1987). The materials on Article I, Section 3, discussing the structure of Senate terms, is found in volume 2 at pp. 182-239. No appreciation of bicameral tension within state delegations is in evidence in these materials.

³Experimental evidence consistent with WHYDFML, as well as a discussion of theoretical issues surrounding this hypothesis of voter behavior, are found in Patty and Weber (2006).

colleagues in the House are in reelection campaigns, their joint incentives are correlated – all want the skids to have been recently greased with federal outlays in the state so that all can claim some credit. Likewise, at the conclusion of congress $t + 1$, when the other senator from the state joins his or her House colleagues in a reelection campaign, joint incentives are correlated. *In congress $t + 2$, however, there is no Senate election in the state, and the House delegation must plan reelection campaigns in the absence of a statewide (federal) race.*

Why should this matter? The answer derives from the staggered-term feature of the Senate. With only a portion of the Senate absorbed in a contest at each election date, and with all senators eager to shine in the run up to reelection as a consequence of WHYDFML behavior by constituents, the membership of the staggered-term Senate can arrange things in a manner not available to the simultaneous-term House membership. Specifically, senators can implement an intertemporal deal, allocating a disproportionate share of (discretionary) federal outlays to just those senators who can benefit most from them, namely those facing a reelection campaign “this time.” Each senator will be in this privileged category at the end of his or her six-year cycle. Since every senator would, according to the WHYDFML logic, prefer concentrated benefits toward the end of the cycle to a smoothing of benefits throughout the cycle, it is a deal to which all senators, in principle, could subscribe. Shepsle, Dickson, and Van Houweling (2004) argue that this deal is an equilibrium with off-the-path behavior policed by a rather simple “punishment scheme” (detering those who try to deviate by attempting to secure benefits when it is not “their” turn). Muthoo and Shepsle (2006) provide a rigorous demonstration of this result.

In this paper we introduce bicameralism to this model. To do so we build on a standard divide the dollar game in two ways. First, we add a simplified model of the conference bargaining process that allows us to illustrate basic inter-chamber dynamics. Second, we formalize the concept of *contested credit claiming*, i.e. that members of a state’s House and Senate delegations must share the credit for appropriations to their state even when they originate in the other chamber. This sets the stage for strategic interaction between

the chambers. We limit our attention here to the relatively simple question of how a non staggered-term House seeking a universalistic allocation of pork would best respond to the irregular appropriations that characterize the equilibrium distribution we identify for the staggered-term Senate. We use a data set of appropriations projects compiled by the Citizens Against Government Waste (CAGW) to examine hypotheses derived from our theoretical account. Along the way we draw on interviews of Appropriations Committee staff in both chambers to assist in framing the theory and interpreting the results of our analysis.⁴

We uncover several new dynamics of appropriations politics driven by the institutional features of bicameralism and the staggered term structure of the Senate. To preview our findings, across all substantive jurisdictions, the number of projects allocated by the Senate ranges between 15 and 30 percent higher (with a similar premium for dollar amounts) to states with incumbent senators standing for reelection than to other states, and the House regularly counteracts approximately two-thirds of this bias. These findings support our simple model of inter-chamber politics and contested credit claiming which points one way forward in the developing study of bicameral legislatures.

2 Theoretical Argument

Much of the empirical research on discretionary federal spending has, like research on Congress generally, focused heavily on the House. With some major exceptions (e.g. Lee and Oppenheimer 1999; Ansolabehere, Snyder, and Ting 2003), it is almost as though bicameralism did not exist at all. And, when the Senate is taken on board, it is often treated as essentially “House-like” – in particular, as a parallel chamber of simultaneous-term legislators. We cannot take on the full-blown agenda of bicameral politics here.⁵ However, as a step in that direction we want to know whether the existence of an upper chamber with

⁴In 2005 and 2006 we made trips to Washington, interviewing majority and minority Staff Directors, including former Directors, of Appropriations subcommittees in both chambers.

⁵Theoretical work on bicameralism includes Tsebelis and Money (1997), Diermeier and Myerson (1999), Sin and Lupia (2005), and Gailmard and Hammond (2006).

heterogeneous legislator time horizons arising from its staggered-term feature, and thus not synchronized with the tempo of the lower chamber, makes any difference for our models of pork barrel politics. In other words, does the fact of a Senate election (or its absence) in a given state at the end of a congress affect conventional wisdom about the allocation of federal outlays during that congress or the promise of future outlays?

If senators had a term length identical to that of representatives then we might expect no systematic effect of bicameralism (putting party and other institutional differences aside for the moment). Each chamber’s representatives would seek outlays for their states and districts in every congress. If senators had a term length different from representatives but all senators were up simultaneously, we might expect a bump in spending in all congressional districts in those years involving the Senate races. But if we have an arrangement like that ordained in Article I, Section 3, then we need to derive the implications of this for legislative pork-barrel preferences and politics.

There is considerable literature and lore outside of the pork-barrel context on how senators behave over the course of their term, and in particular on how they respond to constituent preferences that may display WHYDFML-like time biases⁶ And there is accumulated, but contingent, evidence that suggests senators change some types of behavior as they prepare to confront the voters. One issue that has received substantial attention is whether senators take different positions on roll call votes as election approaches (see Matthews 1960, Wainer, Gruvaeus, and Zill 1973, Jackson 1974, Amacher and Boyes 1978, Poole 1981, Elling 1982,

⁶For example, one eighteen year Senate veteran told Richard Fenno:

We say in the Senate that we spend four years as a statesman and two years as a politician. You should get cracking as soon as the last two years open up. You should take a poll on the issues, identify people to run your campaign in different parts of the state, raise money, start your PR, and so forth. (Fenno 1982, 29)

And Donald Matthew’s relates Senator Alben Barkley’s account of confronting a constituent he had assisted many times over the year about his betrayal of Barkley at the ballot box:

“Surely,” Barkley said, “you remember all these things I have done for you?”
“Yeah,” said Farmer Jones sullenly. “But what in hell have you done for me lately?”
(Matthews, 1960, 218)

Hibbing 1984, Thomas 1985, Wright and Berkman 1986, Shapiro et al. 1990, Bernstein 1991, Ahuja 1994). The conclusions are mixed – on many issues senators voting records display continuity over their terms. However, with respect to valence or "third-rail" issues, the evidence is unambiguous: senators avoid voting on the "wrong" side of these issues toward the end of their terms. (see Theriault 2005).⁷

Another question that has received significant scholarly attention is how senators spend their time as re-election approaches. Again, the case for behavioral cycles tracking electoral cycles is strongest for activities with clear electoral upsides and small electoral downsides. For example, senators can and do raise more money (Fenno 1982, Hall and Van Houweling 2006), travel back to their home state more often (Fenno 1982), and cosponsor more legislation (Campbell 1982) as election approaches. Theoretical expectations about how they will manage costly legislative activity are less easy to derive. Introducing and amending legislation in the year just prior to re-election, for example, might enhance their images, but as election approaches the opportunity cost of these activities is quite high given the alternatives of fund-raising and campaigning. Not surprisingly, empirical evidence on this point is mixed.⁸ Overall, however, when the benefits are clear and the costs manageable, senators do seem to confirm the folk wisdom of altering their positions and activities as re-election approaches.

Roll-call voting and allocating one's time and effort are individual choices entirely under a senator's control. A senator can shift action and emphasis as the election calendar requires.

⁷For example, take the 1991 pay raise bill engineered through the Senate by Majority Leader Robert Byrd. Most senators were eager for the bill to pass, but wished not to be recorded in support. Byrd was able to secure passage by building a coalition that did not include most of those who faced re-election in 1992. Timothy Groseclose brought this example to our attention, which we developed in Shepsle, Dickson, and Van Houweling (2004).

⁸Smith (1989, 136) studies amending activity and finds some suggestive evidence, although he does not focus on the issue of an electoral cycle. In four of the five Senates he examines, (84th, 88th, 92d, 96th, 99th) senators at the end of their first term are more likely to propose amendments than senators in the first four years of their first term. This same relationship does not regularly exist in the House. This finding can be explained by an apprenticeship norm in the Senate but it also fits a cyclical pattern. Smith's analysis combines all senators in their second term and above making any further inference about cycles difficult. Relatedly, Shiller (1995) finds that senators up for reelection are slightly more likely to introduce bills, but coefficients fall far short of traditional thresholds of statistical significance.

Earmarks and pork barrel projects are a different matter. They introduce a different dynamic because senators cannot single-handedly satisfy the WHYDFML bias of their voters by simply changing their behavior. While a senator may devote effort to get distributive projects awarded to his or her state at election time, this effort may not be sufficient to secure them. To get more means to take from other senators, and given the formally equal parliamentary status of senators there is no reason to assume, *a priori*, that this is possible even if a senator is willing to expend additional effort in the cause. In short, a model of the collective decision process inherent in passing appropriations legislation becomes necessary. Elsewhere we have addressed this puzzle of how a standard divide-the-dollar game might play out when senators have preferences driven by a WHYDFML effect (Shepsle, Dickson, and Van Houweling, 2004; Muthoo and Shepsle, 2006). In the next section, we provide a brief overview of the argument and then extend it to the bicameral setting.

2.1 Divide the Dollar in the WHYDFML Senate

Imagine three classes of senators $\{t, t + 1, t + 2\}$. One type faces reelection now (*class* t), another type faces election in the following congress (*class* $t + 1$), and the third faces reelection in the congress after that (*class* $t + 2$).⁹ In each congress there is a dollar of federal outlay to divide. We do not tackle the revenue side of the equation, so the total amount of outlay is taken as fixed and exogenous.¹⁰ In effect, we have a repeat-play version of the Baron-Ferejohn (1989) divide-the-dollar game. The difference in our version is that the senators are of different types, and this difference affects their preferences over alternative outlay profiles.

A senator values reelection, and his or her probability of reelection is written in terms of the outlays delivered to the folks back home. (Of course, this probability may be affected

⁹Here we describe the preferences of senators in a repeated divide-the-dollar game with different "types" of senators in a fictional unicameral context. We use this to explore strategic interaction in a bicameral context. In other work we assume there are l senators of each type, though we will walk through the argument with $l = 1$ without loss of generality.

¹⁰For a bicameral model in which taxes are determined endogenously, see Muthoo and Shepsle (2008).

by other things as well.) A senator of *class* t , for instance, is re-elected with probability $\pi(s_{t-2}, s_{t-1}, s_t)$, where s_i is the share of the dollar he or she secured for the state in congress i . Two assumptions about π are made. The first, weak monotonicity, says that in any congress more is no worse than less, i.e., the probability of reelection is weakly increasing in the amount of federal outlays in each of the three congresses of the electoral cycle. The second, the WHYDFML (or weak recency bias) principle, says that voters assess performance retrospectively, giving more weight to outlays in congress i than in congress $i - 1$.¹¹

Each congress an exogenously provided dollar is divided among the senators by majority rule. The closed-rule version of the congress t stage game is as follows. A senator is randomly recognized to make a proposal taking the form of an allocation of the dollar to the three senators in congress t . This proposal is immediately put to a vote. If a majority supports the proposal then it is implemented; if not then outlays are set to zero for each senator that congress. If each play of the stage game is history-independent, then the only equilibrium is one in which whoever is recognized to make a proposal proposes to take essentially the entire dollar for his or her own state.

If, however, players may condition their behavior in congress t on what has transpired in earlier congresses, then an equilibrium exists in which the senator recognized to make a proposal offers a portion of the dollar (perhaps the entire dollar) to the *class* t senator – the one who will face reelection at the conclusion of the present congress. The optimal portion cannot be described in general without further assumptions about π , but if this function is concave, then the optimal portion going to the *class* t senator is disproportionately large. In equilibrium, each senator is re-elected with probability $\pi(s_{t-2}^*, s_{t-1}^*, s_t^*)$, where s_i^* is the amount specified in the optimal distribution. Elsewhere we demonstrate that this distribution can be sustained with a punishment scheme.¹²

¹¹This is a stronger statement of recency bias than we require. The assumptions are precisely formulated in Muthoo and Shepsle (2006).

¹²Given the monotonicity assumption – π is weakly increasing in all its arguments – there is often a temptation to defect from this norm. This may occur if a senator early in her term of office is recognized and proposes to keep "too much" of the dollar for herself, giving a smaller than optimal amount to the senator about to face his voters. In effect, there is a temptation to secure extraordinary outlays even when it is not

The important point for present purposes is that this optimal distribution characterizes an intertemporal norm that in the congress just before his reelection campaign a senator receives a disproportionate share of what there is to get (and/or bears disproportionately less of the burdens others bear.) Senators engage in an intertemporal trade, foregoing some of their “fair share” of outlays in congresses more distant from their reelection date in exchange for getting more than this share close to reelection. Their staggered terms enable this.

In summary, we have a simple theoretical argument – stripped of many real-world features to be sure – that suggests a preference of senators to concentrate outlays in the latter congresses of a senator’s electoral cycle (back loading). In contrast, in many economic contexts the tendency is the opposite of back loading, pressing instead toward smoothing payoffs across all periods (concave utility function), or even front loading (positive discount factor). Retrospective voting and recency bias, however, promote this back loading of benefits – in particular, the extra weight voters give to the recent past relative to the more distant past induces senators to support an institutional arrangement that concentrates their share of outlays into the congresses that do them the most good.¹³ Our empirical analysis provides an initial test of whether the Senate back loads earmarks in the manner suggested by this theoretical account. Before proceeding examine this question, however, we embed our simple model of the staggered-term WHYDFML Senate in the broader context of bicameralism and contested credit claiming.

2.2 Bicameralism and Contested Credit-Claiming

Funds appropriated for a pork barrel project often have an unambiguous state-and-district address. Since a project is earmarked to a geographic destination, this allows the two senators and at least one member of the House delegation from the state to claim credit in principle

a senator’s “turn.” A simple punishment regime deters this temptation. If a senator should secure outlays for her state out of turn in violation of the norm, then the other senators punish her by not allowing outlays to her state in the congress in which she faces reelection. It may be shown that this punishment is credible and is sufficient to deter norm-violating behavior.

¹³We have *stipulated* WHYDFML behavior on the part of voters rather than deriving it as rational. That is, we take it as a behavioral regularity and do not, in the present paper, provide an explanation of it.

for it. A legislator may try to provide direct and verifiable evidence to constituents of the lengths to which he or she has gone to secure the result. But often legislators engage in cheap talk (effectively competing with other potential credit-claimants in a "press release game").¹⁴ We know of no attempt, in the more than three decades since Mayhew (1974) coined the concept, to provide micro-foundations for credit claiming. This is a problem inasmuch as many elected officials are potentially in a position to claim credit for a particular project.

Here we initiate an analysis of how contested credit-claiming might influence pork barrel politics in a legislature with a staggered-term upper chamber. To do so we develop an illustrative three state example of how a lower chamber whose members face re-election in each period and prefer a universal distribution of pork would optimally respond to an upper chamber that back loads appropriations.

To begin we assume that in each congress each chamber divides \$1 among three states generating chamber specific *pork vectors* with elements s_{ij} and h_{ij} , which identify Senate and House allocations in congress i to state j .¹⁵ We assume that the final bill simply adds up elements of these vectors to reach a *conference pork vector*, with elements $c_{ij} = s_{ij} + h_{ij}$.¹⁶ At the end of each congress, all House members face reelection (one at-large from each state).

¹⁴Many of the staff members we interviewed commented on the competition over credit-claiming through press releases. For example, a Senate Appropriations subcommittee staff director told us that he would only tell members of one particularly quarrelsome Senate delegation what projects their state received in the subcommittee markup when representatives for both senators were present in his office to hear the news at the same time.

¹⁵We assume that each House delegation has one at-large member. This leads to the same conclusions as the assumption that states have an identical number of districts that split the *House pork vector* evenly. However, it eliminates variation in state size from the model, which is one well understood source of bicameral tension (see Lee and Oppenheimer 1999 and Hauk and Wacziarg 2007). We have explored a model that incorporates states of different sizes and it suggests that the Senate will typically exaggerate the allocations it gives to small states and the House will veer from a universalistic distribution to counteract this Senate bias.

¹⁶Our interviews suggest that this simplification is surprisingly close to reality. One House Appropriations staff member described an account that was explicitly divided into four with each partisan delegation in each chamber having authority over its share. Other interviews suggested this was the implicit norm for many of the most heavily earmarked accounts, although it was typically not explicitly codified. When we asked whether the House adopts the strategy of using excessive appropriations to stake out bargaining positions, the House staff member who described the explicitly divided account informed us that this does not typically happen. One problem he noted with this strategy is that it creates a situation in which a member may lose an appropriation in conference for which he or she has already claimed credit. It is also worth noting that adding up the chamber specific vectors has the same consequences in our model as assuming the chambers split the difference on their allocation to each state.

Of the six senators (two from each state) only one from each of two different states faces re-election; neither senator from the third state is up.

We develop our example by considering senators driven by a strong WHYDFML effect that leads them to prefer an allocation that splits the dollar equally between the two states with senators standing for re-election and gives nothing to the other state. In this context, the *Senate pork vector* is $(0, \frac{1}{2}, \frac{1}{2})$.¹⁷ For maximum contrast we will assume that members of the House prefer universal distribution of the dollar, making the preferred *House pork vector* $(\frac{1}{3}, \frac{1}{3}, \frac{1}{3})$. If the members of a chamber retained full credit for the appropriations made by their chamber (and are not able to claim credit for the appropriations made by the other chamber) then the actions of the other chamber would be irrelevant to them. They would simply implement their preferred chamber specific *pork vectors* each period.

However, we want to consider what happens when members of one chamber can claim credit for a share of the allocations to their electoral jurisdiction produced by the other chamber. We formalize this with a single parameter $\gamma \in [.5, 1]$, where members of the originating chamber receive credit for γ of the allocations going to their states and the members of the other chamber receive $1 - \gamma$. Thus in congress i a House member from state j would receive credit for $\gamma h_{ij} + (1 - \gamma)s_{ij}$ of the *conference pork vector* c_{ij} , while the senators from state j would jointly receive credit for $(1 - \gamma)h_{ij} + \gamma s_{ij}$. Table 1a below provides illustrations of how the House can adjust its *House pork vector* to generate a *conference pork vector* that smooths payoffs for House members given various values γ .¹⁸

Table 1 here

¹⁷In this example, we do not treat how Senate delegations share credit for allocations made to their state. The senate allocation identified in the example is consistent with the assumption that a senator up for re-election from a state at the end of a congress gets full credit for any allocation to her state in that congress.

¹⁸The House best response allocates $h_j = \frac{3\gamma s_j - 3s_j + 1}{3\gamma}$ to the two states that have senators standing for re-election and $\frac{1}{3\gamma}$ to the state that does not have a senator standing for re-election and thus was allocated nothing by the Senate. The payoffs for the senate delegation are prior to any sharing within the delegation or WHYDFML discounting.

There are three things to note about these allocations. First, the House is always able to counteract the Senate’s strong WHYDFML-induced bias and allow its members to enjoy equal payoffs. Second, as we mentioned above, when credit is not shared across the chambers ($\gamma = 1$) the House need not anticipate or react to the Senate allocation because it is by definition irrelevant to the House payoffs. Finally, the total allocation to the states will be more lopsided when the chambers retain more credit for their pork vectors. This is most evident when considering the extreme values of the sharing parameter. If the members of each chamber retain all of the credit for the chamber’s allocations, then the bicameral allocations that states receive in the fattest congress in a cycle will be almost three times as large as what they receive in the leanest congress ($\frac{1}{3}$ vs. $\frac{5}{6}$). At the other extreme, when the two chambers share credit equally, the allocation to states will not vary because the House may fully compensate for the Senate WHYDFML bias, thereby ensuring smooth payoffs to its members. Thus, the ability of the Senate to satisfy the WHYDFML preferences of its members declines as members of each chamber manage to claim credit for the allocation made by the other chamber.¹⁹

One interesting extension of our simple model is to consider how retirement of incumbent senators might disrupt or distort the Senate cycle, and how this would influence the House response. If our WHYDFML premise is correct, then a retiring incumbent has little incentive to fight for pork (though our interviews suggest they still make routinized requests) and, more importantly, the chamber has little incentive to support an allocation giving a positive amount of pork to the retiring incumbent’s state. In our three state example, the Senate could adopt a pork vector of $(0, 0, 1)$, giving all of the dollar to the state of the only incumbent standing for re-election.²⁰ If the Senate made this allocation, the optimal response of the

¹⁹We have not yet formally demonstrated that the Senate back-loading pork vector and the House best response to it are in equilibrium. To do so requires us to give consideration to the issue of how senators not up for reelection from a state claim credit for pork received by the state in those years they are not up. This adds a complication to our analysis that is not relevant to the empirical work to follow (it concerns intra-state issues for a senatorial delegation), so we defer resolving it here.

²⁰The Senate could also adopt a more sophisticated response by reallocating some of the money that would have been claimed by the retiring incumbent to the incumbent that is not up in the cycle, so that the incumbent who is running does not achieve disproportionate gains from the retirement decision of the other

House would change as reflected in Table 1b.²¹ The basic dynamics do not change as long as the members of each chamber retains two-thirds or more of the credit for their chamber’s appropriations. Below that point the budget of the House is insufficient to fully smooth the payoffs to its member as is apparent in the row of the table where the sharing parameter, γ , is $\frac{1}{2}$.

In sum, we embed the WHYDFML effect, the Senate electoral cycle, and a House preference for universalism in a theoretical framework in order to demonstrate how contested-credit claiming affects the inter-chamber allocation of pork. Below we develop hypotheses that apply the basic insights of our approach to the real-world of appropriations politics.

2.3 Hypotheses

Our first hypothesis grows from our previous theoretical work on the Senate electoral cycle. The illustrative example above adopts a version of the WHYDFML effect that induces maximal back loading – to the point that the equilibrium allocation in the Senate would give nothing to a state in which neither member is standing for re-election. Our other theoretical treatments (Shepsle, Dickson, Van Houweling 2004, Muthoo and Shepsle 2006) do not depend on such a strong recency bias and allow the possibility of a more muted cycle.²² Thus, while the extreme WHYDFML bias in the illustrative development above is unlikely, we nevertheless anticipate that a state’s position in the electoral cycle and whether it has a running incumbent

incumbent in her cohort.

²¹The House best response allocates $h_j = \frac{1}{3\gamma}$ to the two states that do not have senators standing for re-election (and thus were allocated nothing by the Senate) and $1 - \frac{2}{3\gamma}$ to the state that does have a senator standing for re-election. This response generates universal credit-claiming payoffs for members of the House, except when the chamber’s budget constraint binds and it is impossible to equalize ($\gamma < \frac{2}{3}$).

²²Even voters with a recency bias might, for example, remember and punish their senators if they actually left the cupboard completely bare for an entire congress. Moreover, there is the possibility of a lag between when Congress appropriates and when a member can claim credit. For example, the credit a legislator gets from building a bridge may come when the bridge opens rather than when funds are allocated to begin construction. If this is the case, then we might see senators pursuing longer time-horizon projects earlier in their terms and instant-hits later. More generally, we might also see the House consistently allocating money to instant-hits and the Senate taking a more measured approach. Finally, another consideration that may attenuate cycles had to do with seeking credit at various stages – authorization, appropriation, outlay – from different groups in the geographic constituency. Credit claiming, in short is complex and multifaceted.

will affect its success in securing Senate appropriations:

Hypothesis 1 (Electoral Cycle): The electoral cycle in the Senate induces the appropriations process in that chamber to favor states with incumbent senators standing for reelection compared to states with no senate election or an incumbent retiring.

Our illustrative model explores the potential for the staggered-term Senate electoral cycle to create bicameral tensions in the appropriations process. One conclusion we reach is that the incentive for the House to take into account actions of the Senate depends on the degree to which House members are able to claim credit for appropriations that are initiated in the Senate and vice-versa. The model suggest that only if each chamber shared equal credit for the appropriations of the other chamber would the House be able to equalize outlays across states (jurisdictions) and thus fully compensate for the cyclical bias of the Senate.²³ However, if the House shares at least some of the credit for Senate actions, then we expect that if there is a cycle in Senate appropriations there will be a somewhat less distinct countercycle evident in the House. Our second hypothesis is:

Hypothesis 2 (Countercyclical Response): The House appropriations process will partially compensate for the cyclical bias inherent in the Senate process.

3 Data and Analysis

3.1 CAGW Data

Our empirical analysis is based on a data set of appropriations compiled by the Citizens Against Government Waste (CAGW). On its website the CAGW identifies pork that the Congress added to appropriations legislation for each year since 1995. The list is compiled by

²³See the last row of Table 1a, where the House counter to the Senate allocation produces two-thirds of a dollar going to each state (district).

CAGW researchers who examine appropriations bills for the projects that meet at least one, and usually two, of seven criteria.²⁴ In practice, most of the pork consists of projects not in the administration's budget request and added by only one chamber or in conference. The CAGW identifies the state that benefits from each project (if possible) as well as the stage in the appropriations process where it was added. This allows us to evaluate our hypotheses about how the appropriations process operates in the Senate as well as how the chambers strategically interact. We employ the earmark data for a ten-year period, 1995-2004. There is an observation during this period for each subcommittee-state-year. Thus, the data set initially contains 6500 observations (13 Senate Appropriations subcommittees x 50 states x 10 years), 4300 of which remain when we eliminate jurisdictions (see below) that did not add any CAGW identified pork to an appropriation bill in a particular year.

There are at least two possible concerns about these data. The first concern arises because the data set only includes projects that survived in the final bill. Thus it does not, for example, allow us to observe whether the House succeeds in removing projects that originated in the Senate bill and favored senators facing election. This cuts against our finding an in-cycle effect in the Senate and might also make it difficult to observe strategic interaction between the chambers – in this sense the data we are using offer a conservative test of our hypotheses.

The second concern arises from the fact that CAGW uses the initial presidential budget request as a baseline. If this budget request itself is shaped strategically, then we may be misestimating the total impact of biases in the congressional appropriations process on the distribution of pork across states. If, on the one hand, the administration attempts to mute the cyclical biases in the two chambers with its initial budget request by under-providing projects for in-cycle states, then the CAGW data might capture an over-reaction from the two chambers. This could lead us to overestimate the strength of the chamber specific biases,

²⁴These are: requested by only one chamber of Congress; not specifically authorized; not competitively awarded; not requested by the President; greatly exceeds the President's budget request or the previous year's funding; not the subject of congressional hearings; or serves only a local or special interest.

but only because the administration is already responding to these very biases. If, on the other hand, the administration request seeks to curry favor with in-cycle senators, then the CAGW data could understate the chamber specific biases. Either way, the CAGW data are unlikely to lead us to infer that cyclical effects exist if they do not.

Despite these reservations, we believe the CAGW data is well-suited to addressing our chamber-specific hypotheses. We should be clear that we are not examining the full blown budget-authorization-appropriation cycle in Congress; that is a much larger task. Rather we want to see whether traces of the effects our theoretical analysis implies are evident in the data on appropriations. We are skimming the cream off of the appropriations process and this limits the generality of our empirical analysis. However, our goal is to assess a fundamental intuition about how the chambers interact in this restricted setting, with an eye toward the possibility that similar dynamics may be present in legislative contexts that are more complex, contingent, and difficult to analyze empirically.

Table 2 displays the average number of CAGW pork projects per state in the period 1995-2004 that were added by the House, the Senate, or in conference; they are classified by Appropriations subcommittee jurisdiction. There are five subcommittees that the CAGW almost never identifies as adding particularized benefits to appropriations bills: District of Columbia, Foreign Operations, Homeland Security, Legislative, and Treasury. For the purposes of the remaining analysis we exclude these subcommittees. In the remaining nine jurisdictions the average number of CAGW coded additions per state from the Senate ranges from a low of 1 project per state for the Defense subcommittee to a high of 5.9 for the Veterans Affairs and Housing and Urban Development subcommittee. The range across jurisdictions is slightly wider in the House and in conference. One notable outlier in conference is the Labor & HHS jurisdiction which relies almost exclusively on the conference venue to earmark bills.

Table 2 here

Table 3 displays the average number of CAGW-coded additions per subcommittee-state

in each year in our data set. There is a strong trend over time in the average amount of pork per state. In the Senate, for example, the average number of projects for each state grows from less than one per subcommittee to around four over the ten-year period of analysis. The growth in the amount of CAGW pork added in the House and, particularly, in conference is even more substantial.²⁵ The CAGW claims that this trend is due to an increase in the number of projects added to bills that meet their criteria rather than a change in data gathering criteria or methods. This is broadly consistent with our interviews and press accounts of a notable increase in appropriations earmarks.

Table 3 here

3.2 Analysis of the Electoral Cycle

The constitutionally defined electoral cycle is exogenous to the fiscal needs of states and other institutional variables that could affect appropriations. This allows us to use a simple tabular analysis to infer the effect of having an incumbent senator seeking reelection on a state's success in securing projects.²⁶ As Table 4 shows, states that have an incumbent of either party seeking reelection do better in the Senate appropriations process than states with senators that are "out-of-cycle." Furthermore, states that have an in-cycle senator not seeking reelection collect substantially fewer appropriations.

Compared to the baseline category of states without a senator in cycle, having an incumbent standing for re-election leads to a 15% increase the number of projects (2.7 to 3.1 per year/per subcommittee) and a similar percentage increase in the average dollar amount

²⁵The growth of CAGW pork added in conference might be the consequence of the trend of bundling bills from multiple jurisdictions into omnibus appropriations bills. Our interviews suggest that this offers more opportunities for altering bills in ways that might not be possible if they had to stand alone after conference.

²⁶One potential complication would arise if the decision of incumbents about whether to seek re-election or retire were partly determined by their ability (due to committee positions, hard work, etc.) to secure their electoral futures through appropriations. This selection effect could lead us to overstate the advantages that accrue to states in years when their incumbents stand for re-election. We cannot rule out the possibility of this bias although we suspect that it is quite unlikely given all of the other factors that influence senators electoral fortunes.

of the projects (\$5.5 to \$6.3 million). The loss when a state has a standing senator that retires is slightly larger on average, with a decline of 30% in the number and dollar-amount of projects (2.7 to 1.9 and \$5.5 to \$3.8 million) secured by these states relative to states without a Senate election. For both comparisons we can be quite certain ($p < .01$ two-tailed) that the difference in the average number of appropriations did not arise by chance. The same is not true for the slightly noisier average total cost figures which only reach conventional levels of statistical significance when comparing states with incumbents running to those with incumbents retiring.

The second column of the table suggests that the House exhibits the opposite bias. Compared to states without a Senate election, the House gives on average 11% (2.7 to 2.4) fewer pieces of pork to states with senators running for reelection and 18% (2.7 to 3.2) more to those with senators retiring. Similar but slightly smaller cyclical patterns are evident in the total average dollar-amount of House appropriations. While none of these individual differences is statistically significant, the average number of projects that the a state receives from each House subcommittee when it has a senator retiring (3.2) is significantly ($p < .05$) larger than the number it receives when it has a senator running (2.4). The difference of .8 projects counteracts two-thirds of the Senate bias of 1.2 projects in the opposite direction. We also find expenditure patterns consistent with our hypotheses. Indeed, nearly fifty percent of the spending advantage in the Senate going to states with a senator running is eliminated by the House.

In sum, what the Senate giveth, the House (partially) taketh away. We find a positive bias in the Senate toward states with incumbents seeking reelection and a negative bias toward those with incumbent retiring that is consistent with our *Electoral Cycle* hypothesis, and a pattern of correction in the House consistent with our *Countercyclical Response* hypothesis.²⁷

Table 4 here

An examination of the consequences of the Senate electoral cycle by subcommittee ju-

²⁷Crespin and Finocchiaro (2006) offer a careful analysis of CAGW project costs.

risdiction conveys the depth and consistency of the interplay between the chambers. The cells in Table 5 display the difference in the change in average number of CAGW projects between states that had incumbent senators standing for reelection and states that had an incumbent retiring as a percentage of the number of projects going to states that had no Senate election. For example, the upper row indicates that in the Agriculture jurisdiction the Senate gave on average 17.6% *fewer* CAGW projects to states that had incumbent senators retiring than states that did not have an election and 29.2 % *more* to states that had an incumbent running as compared to states with no election. The total difference comparing these two extremes in the Agriculture subcommittee was 46.8% of the baseline number of CAGW-coded appropriations by the subcommittee. The final two columns in the first row indicates, the House counteracted much of this difference by allocating 36.4% percent fewer projects (relative to the baseline category) to states with running Senate incumbents than to states with retiring Senate incumbents.

For almost every subcommittee jurisdiction the Senate electoral cycle appears to influence the appropriations process in both chambers, with the Senate adding more projects for states that have a senator seeking reelection and the House partially counteracting this bias. One exception is the Labor & HHS jurisdiction, which funded fewer projects for states with senators running than for those that were out of cycle. However, in each chamber this subcommittee typically waits until conference to earmark, and thus the data for Labor & HHS in Table 5 is based primarily on a single congress in which the committee broke this pattern in the Senate. Another exception is the Commerce subcommittee which allocates more projects to states that have both retiring senators than to states with no election. Otherwise the patterns of thrust and counter-thrust by the Senate and House across all of the jurisdictions are remarkably consistent.

Table 5 here

In sum, the lottery-determined placement of states in the Senate electoral cycle, a natural

experiment conducted over nearly two centuries,²⁸ allows us to conclude with reasonable degree of statistical certainty that there is a causal relationship between a state having a Senate incumbent standing for re-election and the number of CAGW projects the state receives from the Senate. The countercyclical allocations we observe in the House have two implications. First, they help dismiss concerns that the patterns in the Senate are due to a chance coincidence of Senate electoral cycles with the appropriation needs and desires of states. If these patterns were due to chance characteristics of the in-cycle states then we would expect them to be echoed in the House rather than to disappear or reverse. Second, they are consistent with our theoretical expectation that the House should respond to the cyclical biases in the Senate by making up some but not all of the differences across states in light of shared credit-claiming opportunities.

Next we turn to structured statistical models to evaluate the robustness of our findings. One concern about the tabular analysis is that it does not account directly for the fact that we do not have fully independent observations in our dataset that includes multiple observations for each state and each subcommittee. Furthermore, the different levels of appropriations across subcommittees and over-time could introduce noise into the data that could lead to misleading inferences. To respond to these concerns we estimated the statistical models presented in Table 6.

The dependent variables in the first two models (columns 1-2 and 3-4) are integer counts of CAGW pork projects for each subcommittee-state-year. In the case of the Senate, this variable ranges from zero to seventy-four additions from a single subcommittee to a state in a year.²⁹ The independent variables are the now-familiar electoral cycle categories (with the excluded category being states without a Senate election) and dummy variables for each subcommittee jurisdiction and each fiscal year. The standard errors are estimated with a

²⁸The main lottery, as noted, occurred in 1788 for the eleven states that had ratified the Constitution by that time. Remaining states were placed in the cycle profile as they were admitted to the Union so as to smooth the number of senators in each of the three electoral classes.

²⁹Based on our estimates we can reject the null hypothesis that conditional variance of the number of CAGW projects for each venue is the same as the conditional mean, causing the standard Poisson count model to estimate artificially small standard errors.

robust sandwich estimator and clustered for subcommittee-state pairs.

Table 6 here

The negative binomial estimates are transformed into incident rate ratios to allow easy interpretation. For example, the coefficient for having a senator incumbent running is 1.18, which indicates that from any given baseline level of appropriations, having a senator running will yield about 118% of the projects that would be allocated to a state having no election. The coefficient of .80 for having an sitting senator retire indicates that a state will receive only 80% of the projects of a state having no senate election. These effects are easily distinguishable from the null hypothesis (incident rate ratio – irr – of 1.00) and roughly on par with those we found in the tabular analysis.

The count model for the House provides further support for the findings of our tabular analysis. The estimates indicate that a state with a retiring senator will about 114% of the projects it would if it had no senate election. In contrast, a state with a senator standing for reelection is estimated to receive only about 88% as many projects as a it would if it were out of cycle. Only the latter estimate reaches the conventional threshold of statistical significance, but a test of the hypothesis that the two coefficients are identical to each other (i.e. states that have incumbents running receive the same number of appropriations as states with incumbents retiring) can be easily rejected ($p < .01$).

One possible concern about focusing on the *number* of projects a state receives is that this could mask differences in the *size* of the projects. Our theoretical account suggests the possibility that Senate would not only allocate more projects to states with senators standing for reelection (and less to those with senators retiring) but that the projects might be larger (smaller) on average. On the other hand, one might be concerned that the differences we identify in the number of projects allocated to states at different points in the Senate electoral cycle are the result of how senators and representatives choose to spread their appropriation dollars across projects rather than differences in the amount of funds allocated to their

states. The final two models in Table 6 (columns 5-6 and 7-8) present OLS regressions on the natural log of the average cost of the appropriations that a subcommittee makes to a state in a year.³⁰ The models for the House and Senate do not provide support for either of these hypotheses. Thus, while the number of appropriations projects that states secure in the House and Senate waxes and wanes with the electoral cycle, the size of each individual project does not seem to be influenced by these same forces.

We estimated two additional models (not reported in the table) in order to check the robustness of our findings further. The first model controlled for agenda-setter status in each chamber. The Baron-Ferejohn divide-the-dollar approach that we adopted as the basis for our model of the bargaining process implies that players with agenda-setting power gain a disproportionate share the dollar being divided. In the context of the appropriations process, agenda setting power rests primarily in the hands of Appropriations Committee members. Among this select group, subcommittee members, and particularly the ranking members of party subcommittee delegations, have even greater agenda prerogatives (Fenno 1973). Thus, accounting for membership in this select group of agenda setters might further reduce the random variation in our results and add precision to our estimates. However, in the parlance of experiments, it can be argued that this variable is "post-treatment" with respect to the exogenous electoral cycle. It is, for example, possible that senators are assigned to important agenda-setter positions in the run-up to a close election just so they can gather more electorally valuable appropriations.³¹ If this were the case, then controlling for this effect in a model would tend to understate the true importance of the cycle. Although we

³⁰We used the natural log to model the declining marginal utility of project outlays. It also reduced the influence of a few very large projects and leads to residuals that appear less heteroskedastic. However, we find similar null results if we do not transform the dependent variables. If a state received no appropriation in a particular jurisdiction in a year the observation is dropped from this dataset.

³¹At the beginning of the 107th Congress, Senator Tim Johnson (D-SD) was given a seat on the panel because he was believed to be vulnerable in the 2002 election cycle to John Thune, South Dakota's popular at-large Member of Congress. Johnson ultimately defeated Thune by 524 votes after a campaign in which he touted his ability to deliver earmarks to South Dakota from his seat on the committee. Thune later won election to the Senate by defeating Senate Democratic Leader Tom Daschle. (Kane, Paul. "Senate Democrats Take Care of Vulnerable Incumbents. Johnson, Landrieu Snag Seats on Appropriations to Help Bring Home the Bacon Over Next Two Years." Roll Call, January 15, 2001.)

do find that agenda setters receive substantially more appropriations in their chamber than others, the estimates of the electoral cycle effects remain quite robust to the addition of agenda setter variables to the statistical models.³²

Another potential effect of agenda-setting power is reflected in the prospect that members of the majority party will exploit their numerical advantage, enabling them to take a disproportionate share of the discretionary pie. More directly relevant to our theory is whether the majority directs more resources to its incumbents that are standing for re-election and/or prevents the minority from pursuing this same strategy. The appropriations process is famously non-partisan, but it is possible that partisan comity has broken down in the increasingly polarized atmosphere in Congress in recent years. Our interviews were informative on this point. The majority and minority staff on Appropriations subcommittees in the Senate to whom we talked all claimed that the majority party did not take an unreasonably large share of appropriations. At the same time, they emphasized how the mechanics of the process are structured through partisan channels: Democratic senators who desire a project make the request to the Democratic delegation on the subcommittee of jurisdiction and similarly for Republicans. The partisan committee delegations, in turn, make decisions about whether to fund these requests independently although the majority has the final say on each one. Thus, while we do not expect a bias toward the majority, the mechanics of the request process allow for the two parties to adopt different internal strategies for appropriating discretionary monies.

However, when we estimate models that distinguish different electoral cycle categories by party (dummies for majority senator running, majority senator retiring, minority senator running, minority senator retiring) as well as dummy variables indicating the partisan composition of the Senate delegation, we do not uncover any significant differences in the effects of the Senate electoral cycle on appropriations associated with majority status.³³ Perhaps

³²Interestingly, we find some evidence that each chamber counteracts the favorable bias in the other chamber for its agenda setters. Thus, states with Senate agenda setters suffer in the House process and vice versa.

³³See Crespin and Finnichiario (2006) for an analysis that suggests the majority party does enjoy a

this is because of the longstanding norm of bipartisanship in appropriations that many subcommittee staff mentioned during our interviews. On the other hand, one minority staffer speculated that it is because the minority would "bring the whole goddamn thing down" if the majority did not allow them to offer help to their members at election time. In sum, the findings of our tabular analysis are strengthened by statistical models that control for heterogeneity across subcommittee jurisdictions and across time and for other institutional factors.

4 Conclusion

Our analysis provides strong support for our theoretical claim that the electoral cycle shapes the appropriations process. We leverage the exogenous electoral cycle to conclude that the Senate allocates substantially more CAGW projects and dollars to states in congresses when they have an incumbent senator standing for election compared to congresses when they do not have a senator standing for reelection. The Senate also allocates noticeably fewer projects (and dollars) to states that have a sitting incumbent who is retiring at the end of a congress. These combined effects mean that a state can expect appropriations for almost 45% fewer projects if its incumbent senator retires than if the senator were to run.

The *Countercyclical Response* hypothesis also receives support from our analysis which suggests that overall, and in nearly every jurisdiction considered separately, the House corrects for Senate cyclical biases, appropriating fewer projects to states that have senators standing for re-election and more to those with senators retiring. Our analysis suggests that the House blunts the Senate bias, reducing it by nearly two-thirds. On average the House allocates around 30% fewer projects to states with a senator running compared to states with a senator retiring.

disproportionate share of the dollar value of CAGW appropriations. We find some support for this claim. However, one difficulty with assessing this claim is that the effect of being the majority party is identified in our model by the fact that the Republican party held the Senate majority from 1995-2000, lost it to the Democratic party in 2001-2002, and regained it in the 2002 election. One could reach firmer conclusions either way if there were more reversals of the partisanship of majority status.

One might suspect that these cyclical pattern simply result from senators being more active in seeking appropriations in election years and their counterparts in the House taking note of this. Our interviews suggest that the story is more complicated. Subcommittee staff relate that senators actively push for earmarked pork-barrel projects *all the time* because the marginal cost of doing so is quite small with the existing staff apparatus and a routinized request process. It seems more plausible that the depressed level of appropriations associated with retirement is due to senators less aggressively pursuing them. While this might be the case, our interviews suggested that their offices still formally processed and regularly pursued requests even after their retirement decisions.³⁴

Most appropriations subcommittee staff volunteered that they differentiate whose projects will get support on the basis of who is, to use the staffers' term of art, "in cycle," and we believe their choices and those of their principals are key to establishing the patterns we find. One Senate subcommittee staff director, for example, reported that the staffs of senators who are out of cycle will often complain about not receiving a marginal earmark, but will typically accept the explanation that their requests were denied in order to prioritize those "in cycle." He explained that there were some Senate offices that were well known for nevertheless elevating their complaints to the "member-to-member" (i.e. senator to ranking Senate subcommittee member) level. In his jurisdiction, the subcommittee staff tried to anticipate which Senate offices would take this route and "shorted" them even further in the initial mark-up so the ranking member would have something to offer when the inevitable complaint came. Overall, this process makes requesting appropriations earmarks easy, putting the onus on the subcommittees and their staffs of evaluating the relative policy and political merits of member requests. This conveniently allows senators, continuously throughout their terms, to claim credit publicly for going to bat for home-state constituents,

³⁴Staff on each Appropriations subcommittee routinely survey members early in the process, encouraging them to submit project requests in a timely manner. In the House, the committee has instituted an automated process with a web-form that Representatives' offices complete online. In both chambers, members typically submit a substantially longer list of requests than can be funded. This allows them to inform their constituents and other interested parties that they have made formal request. However, the subcommittees require the offices to prioritize their serious requests. These prioritizations are closely guarded secrets.

while actually delivering at the right time – in the run-up to election.

Put together, our theoretical and empirical analyses suggest that the chamber-specific appropriations processes have marked biases that echo across the Capitol. The interplay between the electoral motive of legislators and the WHYDFML preferences of voters pulls Senate appropriations away from the smooth flow that members of the House would prefer. Yet our theoretical model suggests that the bicameral structure of the legislature blunts these chamber-specific tendencies, and our empirical analysis provides support for this.

Our study is of course restricted to the most malleable of appropriations – those for earmarks and other relatively minor discretionary programs. One reason to care about these small-beer spending measures is that they have been exploding over the past decade, as seen in our data and in other indicators. One of these indicators that we encountered face-to-face is the number of former appropriations staff (a few of whom we interviewed) that now make a healthy living in a cottage industry that hardly existed 15 years ago – lobbying for earmarks. Although most of the money the government spends is not yet within the reach of those who seek earmarks, they are managing to claim a growing share of programmatic, discretionary spending. To hear the more veteran Appropriations staffers tell it, the part of the sky they hold up is now falling. However, our analysis also uncovers compensating forces at work that may have more general implications for policy produced by bicameral legislatures. One insight from our theoretical analysis is that these strategic interactions and their consequences should depend substantially on the degree to which credit for legislative products is shared across the two chambers.

From a modeling perspective, we introduce the concept of *contested credit claiming* to a model with simple, and admittedly heavy-handed, assumptions. We anticipate that it will prove important as we move toward examining more complex theoretical settings. It is remarkable that so little progress has been made in theoretically unpacking and modeling (as well as empirically examining) the concept of credit claiming, given the central role it plays in our understanding legislator incentives for individual and collective action, and the

institutions that are shaped by these incentives. The empirical payoffs from our preliminary efforts to elaborate this concept suggest that it potentially provides a broad and fruitful line of research.

References

- Ahuja, Sunil. 1994. "Electoral Status and Representation in the United States Senate: Does Temporal Proximity to Election Matter?" *American Politics Quarterly* 22:104-118.
- Amacher, Ryan C., and William J. Boyes. 1978. "Cycles in Senatorial Voting Behavior: Implications for the Optimal Frequency of Elections." *Public Choice* 33:5-13.
- Ansolabehere, Stephen, James Snyder, and Michael Ting. 2003. "Bargaining in Bicameral Legislatures: When and Why Does Malapportionment Matter?" *American Political Science Review* 97: 471-481.
- Bernstein, Robert A. 1991. "Strategic Shifts: Safeguarding the Public Interest? U.S. Senators, 1971-86." *Legislative Studies Quarterly* 16:263-80.
- Baron, David P. and John A. Ferejohn. 1989. "Bargaining in Legislatures." *American Political Science Review* 83: 1181-1206.
- Bernstein, Robert A., Gerald C. Wright, Jr., and Michael B. Berkman. 1988. "Controversy: Do U.S. Senators Moderate Strategically?" *American Political Science Review* 82:237-45.
- Campbell, James E. "Cosponsoring Legislation in the U.S. Congress." *Legislative Studies Quarterly* 7:415-422.
- Crespin, Michael and Charles Finocchiaro. 2006. "Parties and the Politics of Pork in the U.S. Senate." Paper presented at the Conference on Party Effects in the U.S. Senate,

Duke University.

Elling, Richard C. 1982. "Ideological Change in the United States Senate: Time and Electoral Responsiveness." *Legislative Studies Quarterly* 7:75-92.

Evans, Diana. 2004. *Greasing the Wheels: Using Pork Barrel Projects to Build Majority Coalitions in Congress*. New York: Cambridge University Press.

Fenno, Richard F. 1973. *Congressmen in Committees*. Boston: Little-Brown.

Fenno, Richard F.. 1978. *Home Style*. Boston: Little-Brown.

Fenno, Richard F., Jr. 1982. *The United States Senate: A Bicameral Perspective*. Washington D.C.: American Enterprise Institute.

Fiorina, Morris P. 1981. *Retrospective Voting in American National Elections*. New Haven: Yale University Press.

Fiorina Morris P. 2003. "The 2000 U.S. Presidential Election: Can Retrospective Voting Be Saved?" *British Journal of Political Science* 33: 163-187 (with Samuel Abrams and Jeremy Pope).

Gailmard, Sean and Thomas Hammond. 2006. "Intercameral Bargaining and Intracameral Organization in Legislatures." Typescript. Michigan State University.

Hauk, Jr., William R. and Romain Wacziarg, "Small States, Big Pork," *Quarterly Journal of Political Science* 2 (2007): 95-106.

Hall, Richard L. and Robert P. Van Houweling. 2006. "Campaign Contributions and Lobbying on the Medicare Modernization Act of 2003." Paper presented at the 2006 Annual Meeting of the American Political Science Association, Philadelphia, PA.

Hibbing, John R. 1984. "The Liberal Hour: Electoral Pressures and Transfer Payment

- Voting in the United States Congress.” *Journal of Politics* 46:846-65.
- Jackson, John E. 1974. *Constituencies and Leaders in Congress: Their Effects on Senate Voting Behavior*. Cambridge, MA: Harvard University Press.
- Kirkpatrick, David. D. 2006. “Trading Votes for Pork Across the House Aisle.” *New York Times* (October 2): A1.
- Krehbiel, Keith. 1991. *Information and Legislative Organization*. Ann Arbor: University of Michigan Press.
- Kurland, Philip B. and Ralph Lerner (eds.). 1987. *The Founders’ Constitution*. Indianapolis: Liberty Fund Press (5 volumes).
- Lee, Frances E. and Bruce I. Oppenheimer. 1999. *Sizing Up the Senate*. Chicago: University of Chicago Press.
- Matthews, Donald R. 1960. *U.S. Senators and Their World*. Chapel Hill, NC: The University of North Carolina Press.
- Mayhew, David. 1974. *Congress: The Electoral Connection*. New Haven: Yale University Press.
- Muthoo, Abhinay and Kenneth A. Shepsle, "The Constitutional Choice of Bicameralism," in Elhanan Helpman, ed., *Institutions and Economic Performance* (Cambridge, MA: Harvard University Press, 2008), forthcoming.
- Muthoo, Abhinay and Kenneth A. Shepsle. 2006. “Information, Institutions, and Constitutional Arrangements.” Typescript. Harvard University.
- Patty, John W. and Roberto A. Weber. 2006. “Letting the Good Times Roll: A Theory of Voter Inference and Experimental Evidence.” *Public Choice* (forthcoming).

- Poole, Keith T. 1981. "Dimensions of Interest Group Evaluation of the U.S. Senate, 1969-1978." *American Journal of Political Science* 25:49-67.
- Shiller, Wendy J. 1995. "Senators as Political Entrepreneurs: Using Bill Sponsorship to Shape Legislative Agendas." *American Journal of Political Science* 39:106-203.
- Shapiro, Cathrine R., David W. Brady, Richard A. Brody, and John A. Ferejohn. 1990. "Linking Constituency Opinion and Senate Voting Scores: A Hybrid Explanation." *Legislative Studies Quarterly* 15:599-621.
- Shepsle, Kenneth A. 1978. *The Giant Jigsaw Puzzle: Democratic Committee Assignments in the Modern House*. Chicago: University of Chicago Press.
- Shepsle, Kenneth A., Eric S. Dickson, and Robert P. Van Houweling. 2004. "Bargaining in Legislatures with Overlapping Generations of Politicians." Typescript. Harvard University.
- Shepsle, Kenneth A. and Barry R. Weingast. 1987. "The Institutional Foundations of Committee Power." *The American Political Science Review* 81:85-104.
- Sin, Gisela and Arthur Lupia. 2005. "How the President and the Senate Affect the Balance of Power in the House." Typescript. University of Michigan.
- Smith, Steven S. 1989. "Call to Order: Floor Politics in the House and Senate." Washington D.C.: The Brookings Institution.
- Thomas, Martin. 1985. "Election Proximity and Senatorial Roll Call Voting." *American Journal of Political Science* 29:96-111.
- Theriault, Sean. 2005. *Power of the People: Congressional Competition, Public Attention, and Voter Retribution*. Columbus: Ohio State University Press.

- Tsebelis, George and Jeanette Money. 1997. *Bicameralism*. New York: Cambridge University Press.
- Wainer, Howard, Gunnar Gruvæus, and Nicholas Zill. 1973. "Senatorial Decision Making: The Determination of Structure." *Behavioral Science* 18:11-26.
- Weingast, Barry R. 1979. "A Rational Choice Perspective on Congressional Norms." *American Journal of Political Science* 23: 245-262.
- Weingast, Barry R., Kenneth A. Shepsle, and Christopher Johnsen. 1981. "The Political Economy of Benefits and Costs: A Neoclassical Approach to Distributive Politics." *Journal of Political Economy* 89: 642-664.
- Wright, Gerald, Jr., and Michael Berkman. 1986. "Candidates and Policy in United States Senate Elections." *The American Political Science Review* 80:567-90.

Table 1. Optimal House Responses to Senate Backloading

a) Both Senate Incumbents Running

γ	Pork Vectors			Credit Claimed	
	Senate	House	Conf.	Senate	House
1	$(0, \frac{1}{2}, \frac{1}{2})$	$(\frac{1}{3}, \frac{1}{3}, \frac{1}{3})$	$(\frac{1}{3}, \frac{5}{6}, \frac{5}{6})$	$(0, \frac{1}{2}, \frac{1}{2})$	$(\frac{1}{3}, \frac{1}{3}, \frac{1}{3})$
$\frac{3}{4}$	$(0, \frac{1}{2}, \frac{1}{2})$	$(\frac{4}{9}, \frac{5}{18}, \frac{5}{18})$	$(\frac{4}{9}, \frac{7}{9}, \frac{7}{9})$	$(\frac{1}{9}, \frac{4}{9}, \frac{4}{9})$	$(\frac{1}{3}, \frac{1}{3}, \frac{1}{3})$
$\frac{1}{2}$	$(0, \frac{1}{2}, \frac{1}{2})$	$(\frac{2}{3}, \frac{1}{6}, \frac{1}{6})$	$(\frac{2}{3}, \frac{2}{3}, \frac{2}{3})$	$(\frac{1}{3}, \frac{1}{3}, \frac{1}{3})$	$(\frac{1}{3}, \frac{1}{3}, \frac{1}{3})$

b) One Senate Incumbent Retiring

1	$(0, 0, 1)$	$(\frac{1}{3}, \frac{1}{3}, \frac{1}{3})$	$(\frac{1}{3}, \frac{1}{3}, \frac{4}{3})$	$(0, 0, 1)$	$(\frac{1}{3}, \frac{1}{3}, \frac{1}{3})$
$\frac{3}{4}$	$(0, 0, 1)$	$(\frac{4}{9}, \frac{4}{9}, \frac{1}{9})$	$(\frac{4}{9}, \frac{4}{9}, \frac{10}{9})$	$(\frac{1}{9}, \frac{1}{9}, \frac{7}{9})$	$(\frac{1}{3}, \frac{1}{3}, \frac{1}{3})$
$\frac{2}{3}$	$(0, 0, 1)$	$(\frac{1}{2}, \frac{1}{2}, 0)$	$(\frac{1}{2}, \frac{1}{2}, 1)$	$(\frac{1}{6}, \frac{1}{6}, \frac{2}{3})$	$(\frac{1}{3}, \frac{1}{3}, \frac{1}{3})$
$\frac{1}{2}$	$(0, 0, 1)$	$(\frac{1}{2}, \frac{1}{2}, 0)$	$(\frac{1}{2}, \frac{1}{2}, 1)$	$(\frac{1}{4}, \frac{1}{4}, \frac{1}{2})$	$(\frac{1}{4}, \frac{1}{4}, \frac{1}{2})$

Table 2. Average # of Project Additions per State by Subcommittee (FY 1995-2004)

	Average # of additions per state by subcommittee (1995-2004)		
	Senate	House	Conf.
Agriculture	2.02	1.46	0.18
Commerce	3.41	1.22	2.45
D.C.	0.00	0.00	0.00
Defense	1.00	0.66	0.13
Energy and Water	1.62	3.64	2.60
Foreign Operations	0.00	0.01	0.01
Homeland Security	0.03	0.02	0.01
Interior	2.79	1.07	1.28
Labor & HHS	1.45	0.03	16.74
Legislative	0.00	0.01	0.01
Military Construction	1.42	1.33	0.08
Transportation	4.65	6.11	5.44
Treasury	0.15	0.08	0.05
V.A. & H.U.D	5.90	6.99	5.39

Table 3. Average # of Project Additions to a State per Subcommittee by Fiscal Year

	<u>Senate</u>	<u>House</u>	<u>Conf.</u>
1995	0.72	0.60	0.07
1996	0.67	0.70	0.14
1997	0.88	0.98	0.32
1998	1.35	0.96	0.90
1999	1.62	1.51	1.79
2000	3.65	1.52	3.81
2001	4.40	2.48	4.67
2002	3.83	4.22	5.17
2003	4.43	5.14	6.65
2004	3.93	5.80	12.80

Note: Averages exclude subcommittees that almost never add CAGW Pork (D.C., Foreign Ops., Homeland Security, Legislative, and Treasury)

Table 4. Appropriations and the Electoral Cycle

		Average # of additions per state by subcommittee (FY 1995-2004)		
		Incumbent		
		Running	Senate	House
Number of items	Retire		1.9 ***	3.2
	Out of Cycle		2.7	2.7
	Running		3.1 ***	2.4
	Run - Retire		1.2 ***	-0.8 **
Total cost of items (millions of dollars)	Retire		\$3.8 *	\$4.4
	Out of Cycle		\$5.5	\$3.9
	Running		\$6.3	\$3.6
	Run - Retire		\$2.5 ***	-\$0.8 *

Note: Averages exclude subcommittees that almost never add CAGW Pork (D.C., Foreign Ops., Homeland Security, Legislative, and Treasury). T-tests for difference of means, *p<.10, **p<.05, *** p<.01. T-tests for rows labeled retire and running test the hypothesis that there is a difference of means between that row and the out of cycle row.

Table 5. Average Difference in Appropriations per year compared to States without a Senate Election (FY 1995-2004)

	<u>Senate CAGW Items</u>		<u>House CAGW Items</u>	
	<u>Senator Retiring</u>	<u>Senator Running</u>	<u>Senator Retiring</u>	<u>Senator Running</u>
Agriculture	-17.6%	29.2%	21.1%	-15.4%
Commerce	15.2%	19.5%	12.5%	-16.7%
Defense	-71.4%	30.0%	39.4%	-7.1%
Energy and Water	-13.3%	16.7%	14.3%	-2.9%
Interior	-26.7%	11.8%	20.0%	-9.1%
Labor and HHS*	-48.9%	-18.8%		
Military Construction	-15.4%	18.8%	6.7%	-16.7%
Transportation	-41.7%	5.9%	-1.5%	-15.8%
VA and HUD	-34.9%	14.9%	32.7%	-1.4%

Note: The Labor and HHS subcommittee typically earmarks in conference. However, it is included in this table because there are two years in which the substantial earmarks were added in the Senate.

Table 6. Models of Added Appropriations in the Senate and House (FY 1995-2004)

	Number of Projects <i>negative binomial</i>				Average Cost of Projects <i>regression on ln(average cost)</i>			
	Senate		House		Senate		House	
	irr	z-ratio	irr	z-ratio	coeff.	t-ratio	coeff.	t-ratio
Incumbent Retiring	0.80	-2.18 **	1.14	1.40	0.02	0.34	-0.01	-0.16
Incumbent Running	1.18	3.98 ***	0.88	-2.42 ***	0.06	1.64	-0.02	-0.42
No Election in Cycle								
	BASELINE CATEGORY							
Fiscal Year 1995	BASELINE CATEGORY							
1996	0.71	-3.49	1.16	1.47	-0.18	-1.63	0.00	0.04
1997	0.87	-1.34	1.79	5.04	-0.14	-1.25	0.33	2.45
1998	1.30	2.46	1.78	4.76	-0.14	-1.29	0.27	2.09
1999	1.48	3.52	2.56	7.98	-0.28	-2.58	0.10	0.80
2000	3.70	11.64	3.06	9.59	-0.18	-1.64	0.03	0.23
2001	4.49	12.91	5.27	13.23	-0.20	-1.89	0.01	0.06
2002	3.29	10.69	5.65	14.01	-0.21	-1.80	-0.21	-1.83
2003	3.38	10.74	5.90	14.84	-0.33	-3.17	-0.36	-2.99
2004	3.02	8.61	10.60	17.06	-0.45	-4.32	-0.27	-2.17
Agriculture	0.39	-5.12	0.28	-4.56	-0.54	-6.51	-0.71	-6.22
Commerce	0.56	-3.61	0.17	-6.75	0.02	0.22	-0.12	-0.70
Defense	0.17	-3.91	0.11	-6.73	1.63	9.41	1.27	10.65
Energy	0.31	-6.27	0.75	-0.90	-0.32	-3.11	-0.15	-1.13
Interior	0.58	-2.97	0.26	-5.10	0.07	1.00	0.15	1.27
Labor HHS	0.23	-8.12	0.00	-13.52	-0.15	-1.32	0.42	1.59
Military Construction	0.29	-8.91	0.35	-4.10	1.73	25.01	2.04	21.03
Transportation	0.78	-1.73	1.14	0.52	0.72	10.46	0.78	7.90
VA & HUD	BASELINE CATEGORY							
Constant					13.83	124.57	13.47	97.72
n	4300		4300		2623		1888	
log likelihood	-8354		-6848					

Note: The dependent variable for the first models are the number of projects added to appropriations bills in the specified chamber in a subcommittee-state-year. The dependent variable for the second models are the natural log of the cost of the average project added. The standard error are clustered for subcommittee-state pairs.

* p<.10, ** p<.05, ***p<.01