Estimating the Value of Proposal Power

By BRIAN KNIGHT*

> "Our office was approached and offered \$15 million for projects in Tulsa, and I told them my vote was not for sale. It was just \$15 million, dangling, cash for projects in the 1st Congressional District."
>
> —U.S. Rep. Steve Largent (R-OK)[1]

While the theoretical literature on noncooperative legislative bargaining has grown voluminous, there is little empirical work attempting to test a key prediction in this literature: proposal power is valuable. This paper aims to fill this gap in the literature by investigating the role of proposal power in the allocation of congressionally earmarked transportation projects across congressional districts in 1991 and 1998. Throughout the legislative process, the House Committee on Transportation and Infrastructure was granted significant proposal powers, thereby allowing for a direct test of this theoretical prediction.

For several reasons, congressional negotiations over the allocation of transportation funds are well suited to an empirical test of predictions from noncooperative bargaining models. First, these episodes meet the classic definition of a bargaining situation, which exists when agents engaged in negotiations have a common interest in agreement but conflicting preferences over the terms of agreement (Abhinay Muthoo, 1999). While there was widespread interest within Congress in funding these transportation projects, there was sharp disagreement and significant controversy over the cross-district allocation, which, in the end, was skewed for the benefit of members of the transportation committee. Second, while payoffs are difficult to measure in many bargaining environments, the distribution of transportation projects across congressional districts is both observable and publicly available. Third, the stakes involved in congressional bargaining tend to be large. The funding for the transportation projects examined here totaled \$5 billion in 1991 and \$8 billion in 1998, and these funds translate into increased reelection probabilities. Steven D. Levitt and James M. Snyder, Jr. (1997) estimate that an additional \$100 per capita in federal spending is worth as much as two percentage points of the popular vote for the incumbent in congressional elections. Fourth, these funds were earmarked for specific projects in congressional districts, rather than distributed to states according to formula, giving representatives significant discretion over the allocation of project spending across districts. Finally, while bargaining procedures are difficult to discern in many economic settings, congressional procedures of voting and proposals are well documented and correspond in a reasonable way to the process outlined in bargaining models.

The empirical specification in this paper adheres as closely as possible to the noncooperative legislative bargaining model of David P. Baron and John A. Ferejohn (1987, 1989). I incorporate only the following necessary modifications to the Baron and Ferejohn model: committees of multiple representatives, rather than a single proposer, and recognition probabilities that vary across representatives. This paper first provides a simple test of the predictions of this legislative bargaining model regarding the value of proposal power. The evidence supports the key qualitative prediction of the legislative bargaining model: members with proposal power, those sitting on the transportation committee, secure higher project spending than do those of other districts. Support for the quantitative predictions, which are more powerful than the qualitative predictions, is more mixed. I then empirically address several alternative theories of legislative organization and behavior.

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[1] Transcript from The News Hour with Jim Lehrer, March 30, 1998.

I. Related Literature

A related empirical literature has documented a positive correlation between federal spending in jurisdictions and representation by politically powerful congressional delegations. John A. Ferejohn (1974) finds that states with congressional representatives on relevant committees, especially those with tenure or in the majority party, received more water projects than other states. Cary M. Atlas et al. (1995) show that inequality in per capita political clout, due in part to each state having two senators regardless of population, has predictable and significant effects on the distribution of federal spending, net of federal taxes, across states. Levitt and James M. Poterba (1999) find that states with powerful representatives, who have seniority and service on influential committees, experienced more rapid economic growth than states with less powerful delegations. My empirical analysis of transportation projects offers several advantages over this existing literature. First, I correct for the possibility of preference outliers among the transportation committee members using fixed effects and instrumental variables approaches. Second, the theoretically guided approach used in my paper allows for a more powerful test of the model. In addition to the qualitative predictions examined in the existing literature, the theoretical legislative bargaining model provides quantitative restrictions on the value of proposal power. Finally, I consider specific congressional bargaining episodes, tightening the connection between the theoretical model of legislative bargaining and the empirical analysis. The previous literature has tended to aggregate bargaining outcomes across either federal spending programs or time.[2]

A second related literature studies bargaining over the formation of coalition governments in Europe, with a specific focus on the timing of agreements and government stability. While the bargaining model of Baron and Ferejohn predicts immediate agreement, Antonio Merlo (1997) and Daniel Diermeier et al. (2003) estimate the parameters of stochastic bargaining models, which predict delays in agreement, and find that the model explains well data on the timing, size, and durations of coalitions. Overall, this literature is complementary to my analysis. While these papers focus on the timing of agreements and government stability, I assume (and observe) that agreement is reached in the first round of bargaining, and focus on measuring distributive properties of agreements, namely the value of proposal power.

Finally, there is a large literature on bargaining experiments, which is surveyed by Alvin Roth (1995). Most relevant to this paper is Guillaume R. Frechette et al. (2003), who conduct classroom experiments designed to test legislative bargaining models. They find support for the qualitative predictions of the model: if legislative rules permit amendments, agreement is reached less quickly, coalitions are larger, and benefits are more evenly distributed. As is often the case in bargaining experiments, however, proposers consistently provide themselves less than what the model predicts. Again, I view my approach as complementary to the experimental approach. Disadvantages of the approach using field data include the lack of direct control over the bargaining procedures, and the possibility of logrolling across federal spending programs; this latter issue could play an important role in the equilibrium coalition that emerges with respect to a single issue. Advantages of my approach using field data are twofold. First, relative to the bargaining surplus in experimental settings, which is typically less than 100 dollars, the transportation projects considered here totaled in the billions of dollars. Second, while agents in experimental settings are often unfamiliar with the bargaining procedures, congressional representatives are experts in their field, having significant experience with and knowledge of legislative procedures.

II. Transportation Projects

In the United States, the federal government provides closed-end, or capped, matching grants to state governments for highway construction and maintenance. These grants are paid from the Highway Trust Fund (HTF), into which federal gasoline tax receipts are depos-

[2] A related literature studies the relationship between political power and electoral outcomes. Jeffrey Milyo (1997) finds that the Gramm-Rudman-Hollings budget rules, which increased the power of the House Committee on Budget relative to the House Committee on Appropriations, led to both an increase in campaign contributions to members of the Budget Committee and a reduction in the vote share of members of the Appropriations Committee.

ited. Historically, the federal government has allocated highway grants to state governments according to a formula that depends upon state characteristics. The recipient government then decides how to allocate these funds among specific projects, subject to the constraint that projects are designated as part of the Federal Highway Aid System (FHAS). Recently, rather than delegating to states this authority to allocate funds across projects, Congress has earmarked a significant portion of these funds for specific projects. The U.S. House of Representatives authorized \$5 billion for earmarked projects in 1991 and \$8 billion in 1998.

The process through which these projects were allocated was highly political, with members of the House Committee on Transportation and Infrastructure granted significant proposal power. Representatives first submitted project requests and associated funding levels to the committee, which then accepted, rejected, or modified these requests in its proposed distribution of project spending. In 1998, several representatives claimed to have received calls during this process from committee staff who offered them project funding in exchange for their support for the bill.[3]

In addition to having significant control over the initial allocation of projects, the committee and its proposal faced little or no competition once the measure was brought to the House floor. The authorization bill were considered under a modified closed rule, which sharply limited the number of amendments under consideration. While over 50 amendments were submitted for consideration in 1991 and over 30 were submitted in 1998, only a handful, 12 in 1991 and 6 in 1998, were deemed in order by the House Rules Committee (RC) and voted on by the entire House.[4] Although no member was allowed to submit an alternative, or competing, list of projects, Rep. Lindsey Graham (R-SC) was permitted to submit an amendment that would have stripped in total these projects from the bill in 1998. The amendment failed 79–337 on April 1, 1998, and the earmarked projects were included in the final version of the bill passed in the House. There was a strong correlation between support for the legislation and project spending; one source familiar with the process in 1998 claimed that any lawmaker who voted against the bill on the House floor would lose his road project.[5] While the Senate added projects during both conference committees, the bulk of projects authorized were those passed in the House. Presidents Bush and Clinton had threatened to veto the entire authorization bill over the inclusion of these projects, but both signed the legislation in the end.

III. Legislative Bargaining Model

A. *Setup*

Consider a generalized version of the Baron and Ferejohn legislative bargaining model.[6] The legislature consists of N_d (odd) districts, subscripted by d, and each district is represented by a single legislator. This legislature determines the cross-district distribution of projects from a fixed budget of size G, which can be interpreted as the surplus in the HTF. Payoffs depend upon the project size (g_d) in district d and the time period (t) in which agreement is reached:

$$U(g_d, t) = \delta^t g_d \tag{1}$$

where $\delta \in [0, 1]$ is the common discount factor.[7]

The legislative process is represented as a noncooperative bargaining game with infinite horizon. In the first stage, a proposal committee, a collection of N_p representatives, is recognized and puts forward a distribution of projects [$\mathbf{g} = (g_1, g_2, \ldots, g_{N_d})$]. This proposal cannot exceed the budget [$\sum_{d=1}^{N_d} g_d \leq G$] and must consist of

[3] *Congressional Quarterly Almanac,* 1998.

[4] *Congressional Quarterly Almanac* and Bureau of National Affairs, Daily Report for Executives, March 31, 1998.

[5] *Tulsa World,* March 25, 1998.

[6] Applications of the legislative bargaining model include comparative politics (Torsten Persson et al., 2000); federalism (Ben Lockwood, 2002; Timothy Besley and Stephen Coate, 2003; Knight, 2004b); intergovernmental transfers (Knight, 2002); legislative elections (Varadarajan V. Chari et al., 1997; Coate, 1997); legislative seniority (Richard D. McKelvey and Raymond Riezman, 1992); pork barrel inefficiencies (David P. Baron, 1991); social choice (Jeffrey S. Banks and John Duggan, 2000); special interest politics (Persson, 1998; Persson and Guido Tabellini, 2002; Elhanan Helpman and Persson, 2001; Morten Bennedsen and Sven E. Feldman, 2002); tax expenditures (Dhammika Dharmapala, 1999); and public investment goods (William Leblanc et al., 2000).

[7] A discount factor less than one may be interpreted in several ways: constituent impatience, uncertain reelection prospects for representatives, or simply an opportunity cost of continued bargaining.

nonnegative project sizes [$g_d \geq 0$, all d]. Under a closed rule, the committee has gatekeeping power; that is, no legislator can offer an amendment to the proposal. Given a proposal, all legislators vote on whether or not to accept the proposed distribution of funds or to continue the bargaining process. If a majority of legislators vote in favor, the proposal is implemented; otherwise, another committee is recognized to offer a distribution of projects. This process continues until a proposal is approved.

Given my aim to explain funding differences between committee and noncommittee districts in a simple model, I assume that the committee follows an equal sharing rule in allocating the share of the budget not offered to noncommittee districts.[8] Since proposal power is valuable in equilibrium, each representative will seek membership on the committee. To resolve this tension, Baron and Ferejohn adopt a random recognition rule. While Baron and Ferejohn consider equal recognition probabilities, we allow for a generalized recognition rule, under which nonmembers in period t are selected on the proposal committee in period $t + 1$ with probability $q \in [0, N_p/(N_d - N_p)]$, and members are selected with probability $1 - q(N_d - N_p)/N_p$.[9] In order for the upper bound on q to be less than unity, it must be the case that $N_p < N_d/2$; as will be shown, this condition holds empirically.

B. *Equilibrium Characterization*

Following Baron and Ferejohn, we restrict attention to the unique stationary, subgame perfect equilibrium. Denote V_p^t, V_c^t, and V_{-c}^t as the time t value of the game to members of the proposal committee, members of the coalition, and those excluded from the coalition, respectively. In a subgame perfect equilibrium, representatives prefer to implement the proposed allocation if the payment provided in this allocation exceeds the discounted value from continued bargaining. Noncommittee members thus support the allocation if the following inequality holds:

$$(2) \quad g_d^t \geq \delta\left[qV_p^{t+1} + (1-q)\left(\frac{N_c^{t+1}}{N_d - N_p} V_c^{t+1} + \frac{N_{-c}^{t+1}}{N_d - N_p} V_{-c}^{t+1}\right)\right]$$

where N_c denotes the coalition size and N_{-c} is the number of districts excluded from the coalition.

In order to maximize their own payoffs, the proposal committee has an incentive to: (a) use the entire budget [$G = N_p g_p^t + N_c^t g_c^t$]; (b) restrict the coalition size to that required for passage [$N_c^t + N_p = (N_d + 1)/2$]; (c) make the proposal support condition for noncommittee members in equation (2) binding; and (d) offer an allocation that will be approved [$V_{-c}^t = 0$]. Using these four conditions, one can express the coalition size and value of proposal power, the key measure in the empirical analysis, in the unique stationary, subgame perfect equilibrium, as follows:

$$(3) \qquad N_c + N_p = (N_d + 1)/2$$

$$(4) \quad V_p - V_{-p} = \frac{G}{N_p}\left[\frac{N_p(N_d - N_p - \delta N_c)}{N_p(N_d - N_p - \delta N_c) + \delta q N_c N_d}\right] > 0$$

where V_{-p} denotes the value of the game to noncommittee members. As shown in equation

[8] An unpublished appendix available from the author extends the model to include within-committee bargaining; in particular, a committee chair is randomly selected to make a proposal and is not bound by the equal sharing rule, but must instead secure majority support within the committee before bringing the proposal to the floor for a vote by the entire legislature. The key qualitative prediction, a positive value of proposal power, is maintained in this model, and, under certain parameter restrictions, the quantitative predictions are maintained as well.

[9] Ideally, one would use data from Congress on recognition probabilities. Unfortunately, given that the committee's proposal was adopted in the first vote in both cases, future recognition probabilities are unobservable. There are several possible interpretations of q. First, this may capture the possibility of jurisdictional battles between committees over the distribution of federal funds; such battles, which have largely been won by authorizers, are described more fully in Section V. In particular, the authorization committee may have been concerned that a protracted authorization process would increase the control of the appropriations committee, leading to unauthorized appropriations, and thus less control for authorizers over the geographic distribution of federal funds. Second, q may capture the likelihood of individual transfers onto the transportation committees in future legislative sessions.

(4), members of the proposal committee use both the impatience of other legislators and their ability to exclude representatives from the winning coalition in order to secure an above-average share of the bargaining surplus. Note that the value of proposal power is decreasing in the two key sources of bargaining power for noncommittee members: proposal rights (q) and the discount factor (δ). The remainder of this paper attempts to measure this value of proposal power.

IV. Empirical Analysis

A. *Data Description*

In order to match each of the projects with a congressional district, I relied on the project description in the bill. These descriptions provide a city or county name, which could be matched with a district in the Census Bureau publication *Congressional District Atlas.* For those cities or counties with multiple districts, I used a variety of additional sources, including maps from the *Atlas,* testimony before the Subcommittee on Surface Transportation, and press releases from representatives' Web sites. Some projects could not be assigned to a specific district, due either to the project being located in multiple districts or to insufficient information in the project description. Given this lack of information, I simply exclude these projects from the analysis.[10] Finally, project spending is converted into 1998 dollars.[11]

Table 1 provides summary statistics by year and committee representation. While almost all committee members received at least some project spending, 72 percent of noncommittee members in 1991 and 21 percent in 1998 were excluded from the coalition. Committee members and nonmembers averaged \$55 million and \$6 million, respectively, in 1991 and \$38 and \$14 million, respectively, in 1998. Regarding district characteristics, committee members tend to be from more rural districts and from districts with slightly lower income, relative to noncommittee members. As shown near the bottom of Table 1, committee members tend to have less political power in general: they have served fewer years in Congress and are less likely to chair another committee. These differences suggest the possibility of selection onto the transportation committee based upon observed characteristics. The empirical analysis to follow will control for these observed differences and also attempt to control for unobserved differences using fixed effects and instrumental variables techniques.

B. *Value of Proposal Power: Baseline Estimates*

In this section, we provide the first tests of the theoretical predictions, as expressed in equations (3) and (4). Regarding the prediction of minimum-sized coalitions, the theoretical model suggests two possible measures: (a) the proportion of representatives voting in favor of the committee's proposal; and (b) the proportion of districts receiving positive project spending. Unfortunately, the first measure can be incorporated only in 1998, given that, in 1991, Congress voted only over the entire authorization bill and thus no separate vote was recorded over the earmarked projects. During the 1998 authorization, a separate vote, in the form of an amendment to strip the earmarked projects from the larger bill, was permitted; a significant majority (337 to 79) voted to reject this amendment, and thus fund the projects, suggesting an oversized coalition.[12] Using the alternative, spending-based measure, the coalition was close to majoritarian in 1991, with committee and coalition members totaling 200 districts, or 46 percent of all districts. By contrast, the coalition in 1998 was oversized, with committee and coalition

[10] There were 56 projects coded as spanning multiple districts (totaling \$1.468 billion) in 1991 and 145 projects (totalling \$824 million) in 1998. As a robustness check on the decision to omit these projects from the baseline analysis, I estimated alternative specifications that allocated the project spending equally among the relevant districts. Results of these regressions, not reported here, provided similar estimates of the value of proposal power.

[11] I use a discount rate of 2.7 percent, the average inflation rate between 1990 and 1999.

[12] Knight (2004b) demonstrates a strongly positive relationship between district project spending and support for the funding of these projects in the vote over the 1998 amendment. The positive correlation between project spending and voting patterns demonstrates that the two measures suggested by the theoretical model are closely related.

TABLE 1—SUMMARY STATISTICS, 435 CONGRESSIONAL DISTRICTS

Variable	1991 Committee (N = 55)	1991 Others (N = 380)	1998 Committee (N = 72)	1998 Others (N = 363)	Description
Coalition member		0.3789		0.7851	
		(0.4858)		(0.4113)	
Project spending	54.8377	6.1135	38.4605	13.8307	Millions of 1998 dollars
	(74.8663)	(11.1448)	(19.9686)	(12.7047)	
Area	5.2670	8.5438	13.6034	6.9314	Square miles (thousands)
	(6.0412)	(32.1791)	(67.2563)	(15.0209)	
Percent urban	0.6772	0.7456	0.5835	0.6435	
	(0.2516)	(0.2199)	(0.3036)	(0.3194)	
Median income	23.1694	24.1214	34.7242	36.2777	Thousands of 1998 dollars
	(4.0508)	(4.8815)	(8.1339)	(9.5103)	
Percent agriculture & mining	0.0310	0.0337	0.0297	0.0291	Percent employed in industry
	(0.0261)	(0.0360)	(0.0243)	(0.0292)	
Percent construction & manufacturing	0.3389	0.3094	0.2650	0.2455	Percent employed in industry
	(0.0772)	(0.0780)	(0.0815)	(0.0945)	
Percent transportation & communication	0.0485	0.0488	0.0508	0.0491	Percent employed in industry
	(0.0161)	(0.0163)	(0.0157)	(0.0165)	
Percent trade	0.2189	0.2287	0.2407	0.2364	Percent employed in industry
	(0.0254)	(0.0268)	(0.0415)	(0.0375)	
Majority party	0.5818	0.6105	0.5694	0.5289	Member
	(0.4978)	(0.4883)	(0.4986)	(0.4999)	
Tenure	6.7818	11.7500	7.1806	10.0716	Years served in U.S. House
	(6.4541)	(8.4883)	(6.0101)	(8.1043)	
Other committee chair	0.0000	0.0553	0.0139	0.0551	Chair of other House committee
	(0.0000)	(0.2288)	(0.1179)	(0.2285)	
Transportation appropriations	0.0000	0.0237	0.0000	0.0358	Member
	(0.0000)	(0.1523)	(0.0000)	(0.1861)	
Surface transportation subcommittee	0.6545	0.0000	0.6528	0.0000	Member
	(0.4799)	(0.0000)	(0.4794)	(0.0000)	

Note: Sample averages, standard deviations in parentheses.

members totaling 357 districts, or 82 percent of all districts.[13]

The remainder of this section takes coalition sizes as given and more formally tests predictions related to the value of proposal power. For empirical purposes, consider project spending in district d as a function of committee membership:

$$g_d = \alpha + \beta P_d + u_d \tag{5}$$

where α and β represent parameters to be estimated, $P_d = 1[d \in P]$ denotes representation on the proposal committee, and u_d is a mean-zero unobservable. The parameter β represents the value of proposal power [that is, $\beta = E(g_d|P_d = 1) - E(g_d|P_d = 0) = V_p - V_{-p}$] and can thus be related to the theoretical model as follows:

$$\beta = \frac{G}{N_p}\left[\frac{N_p(N_d - N_p - \delta N_c)}{N_p(N_d - N_p - \delta N_c) + \delta q N_c N_d}\right]. \tag{6}$$

Qualitatively, the theoretical model predicts that the value of proposal power is positive ($\beta > 0$). As a test of this prediction, Table 2 provides baseline OLS estimates of the value of proposal power.[14] As shown in columns 1 and 2, the

[13] Of course, one could also view the oversized nature of the 1998 coalition as a rejection of the assumptions, rather than the predictions, of this model. One possible interpretation for this oversized coalition involves competing vote buyers. In an alternative legislative bargaining model, Tim Groseclose and James M. Snyder, Jr. (1996) argue that oversized coalitions are cheaper to form than are bare majority coalitions in the presence of competing vote buyers.

[14] While this OLS estimator assumes homoskedasticity, the theoretical model suggests heteroskedasticity, as $\text{var}(g_d|P_d = 0) > \text{var}(g_d|P_d = 1) = 0$ by the equal sharing rule within the committee. To address this issue, I calculated

TABLE 2—VALUE OF PROPOSAL POWER
(*Estimates by authorization year*)

Year	1991	1998	1991	1998
Transportation committee member	48.7242**	24.6298**	46.5125**	23.7359**
	(4.1002)	(1.8260)	(4.1472)	(1.8118)
Area			−0.0187	0.0296
			(0.0487)	(0.0236)
Percent urban			−17.9295*	−10.7392**
			(9.7919)	(3.1548)
Median income			−0.2314	−0.0082
			(0.3310)	(0.0849)
Percent agriculture & mining			−42.0968	−35.8667
			(58.9174)	(33.0946)
Percent construction & manufacturing			5.1603	4.3250
			(25.3825)	(7.8333)
Percent transportation & communication			148.3692	49.8293
			(98.0100)	(47.7914)
Percent trade			−49.2555	−25.2836
			(63.7762)	(20.4651)
R-squared	0.2459	0.2959	0.2647	0.3327
Sample size	435	435	435	435
Quantitative lower bound	57.1574	20.1150	57.1574	20.1150

Notes: OLS coefficients, standard errors in parentheses. ** 95-percent significance, * 90-percent significance, constant not reported. Dependent variable is transportation project spending located in the district. Quantitative lower bound is the minimum coefficient on transportation committee member that is consistent with the legislative bargaining model.

qualitative prediction regarding the positive value of proposal power is supported empirically, as the coefficient on the committee membership indicator is positive and statistically significant in both 1991 and 1998. Moreover, the R-squared of 0.2459 in 1991 and 0.2959 in 1998 demonstrates that committee membership alone explains a significant share of the distribution of these projects. This R-squared is quite high, given the reliance on cross-sectional data and an indicator as the sole right-hand-side variable.

While this qualitative prediction has been verified in the existing literature, such as in Ferejohn (1974), quantitative restrictions on the value of proposal power have not been explored to date. Using theoretically implied bounds on the discount factor ($\delta \in [0, 1]$) and recognition probabilities ($q \in [0, N_p/(N_d - N_p)]$), one can place the following quantitative restrictions on the value of proposal power:

$$\text{(7)} \qquad \beta \in \left[\frac{G}{N_p}\left(\frac{(N_d - N_p)N_{-c}}{(N_d - N_p)N_{-c} + N_c N_d}\right), \frac{G}{N_p}\right].$$

While the upper bound of this restriction requires simply that committee members offer nonnegative project spending to noncommittee members, the lower bound has more power: using the observed coalition sizes, the minimum value of proposal power was \$57 million in 1991 and \$20 million in 1998. While the point estimates in Table 2 fall in this restricted range for the 1998 authorization, the estimated value of proposal power for 1991 is below the theoretically implied minimum.

As a first robustness check of these baseline results, the final two columns of Table 2 provide OLS estimates with control variables. While committee membership explains a significant share of the distribution of projects, other district characteristics, such as preferences for

heteroskedasticity-corrected standard errors as a robustness check. These standard errors, not presented here, are similar to the standard errors in Table 2. Also, Tobit estimates, which account explicitly for zero spending in some districts, are not presented here but provide similar estimates of the value of proposal power.

TABLE 3—PARAMETER ESTIMATES
(*1998 authorization*)

	Assuming equal recognition	Lower bound	Upper bound (assumed)
Discount factor	0.9837	0.9412	1.0000
Recognition probability	0.1655	0.1537	0.1983

Notes: The first column, labeled assuming equal recognition, computes the discount factor implied by this assumption. The second column, labeled lower bound, uses the estimated value of proposal power in order to compute the minimum parameter consistent with the legislative bargaining model under the assumption that the other parameter is at its upper bound, as reported in the third column.

transportation services, may also have played a role in the bargaining process. To account for this possibility of heterogeneity in preferences, the final two columns provide estimates conditional on the following observable measures of preferences for transportation services: district area, percent urban, median income, and industry employment composition. The results of this regression demonstrate that the inclusion of these variables does not significantly add explanatory power, as the R-squared rises only slightly, and the estimated value of proposal power, the coefficient on committee membership, remains positive and statistically significant.

C. *Estimation of Underlying Parameters*

The preceding analysis uses the theoretical model to provide testable restrictions on the geographic distribution of federal funds. This logic can also be reversed: given a distribution of funds, which parameters from the theoretical model could generate the observed outcome? This section uses the baseline 1998 estimated value of proposal power, which fell in the quantitative bounds implied by the theoretical model, in order to estimate these underlying parameters. Unfortunately, one cannot use the single estimated value of proposal power (β) to identify separately the two key bargaining parameters (δ, q). Rather, I use two alternative approaches, which are described below.

First, given its frequent use in the theoretical literature on legislative bargaining, I consider equal recognition probabilities ($q = N_p/N_d$). Under this assumption, the implied discount rate is given as follows:

$$(8) \qquad \delta(\beta) = (G - \beta N_p)\left[\frac{N_d - N_p}{N_c G}\right].$$

Using the baseline estimated value of proposal power in 1998, the estimated discount factor, which is presented in Table 3, is close to one, suggesting significant patience on the part of legislators.[15]

The second approach places bounds on the two parameters using the estimated value of proposal power and restrictions on the joint parameter space. To generate these bounds, first note that the discount factor can be written as a decreasing function of future recognition probabilities:

$$(9) \qquad \delta(q, \beta) = \frac{(N_d - N_p)(G - \beta N_p)}{\beta q N_c N_d + N_c(G - \beta N_p)}.$$

Given that the recognition probability is bounded from above [$q \leq N_p/(N_d - N_p)$], we can place a lower bound on the recognition probability [$\delta \geq \delta(N_p/(N_d - N_p), \beta)$]. Table 3 reports the value of this lower bound, along with the assumed upper bound for the discount factor [$\delta \leq 1$]. As shown, these bounds are relatively tight. A similar exercise allows for bounds on the future recognition probability. In particular, the discount factor can be expressed as a decreasing function of the recognition probability:

[15] Under the interpretation of the discount factor as a reelection rate, this estimate is consistent with the high incumbency reelection rate, which was roughly 98 percent among incumbents seeking reelection in 1998.

TABLE 4—VALUE OF PROPOSAL POWER
(*Alternative legislative models*)

Specification	Partisan model	Informational model	Model with appropriators
Transportation committee member	34.2782**	39.9293**	34.4335**
	(4.4782)	(7.9118)	(4.4781)
Area	−0.0096	−0.0137	−0.0095
	(0.0131)	(0.0117)	(0.0133)
Percent urban	−17.2917**	−17.1128**	−16.9792**
	(6.4409)	(6.2020)	(6.2335)
Median income	0.1027	0.1066	0.1055
	(0.0837)	(0.0841)	(0.0820)
Percent agriculture & mining	−38.0982	−34.4695	−35.2027
	(38.9306)	(40.2019)	(38.5799)
Percent construction & manufacturing	0.3499	0.7295	0.5364
	(11.5870)	(11.5117)	(11.3774)
Percent transportation & communication	119.4087	115.9121	119.5312
	(74.0217)	(75.1123)	(71.7634)
Percent trade	−49.5564	−49.9290	−50.1992
	(31.4145)	(33.2670)	(32.5757)
Majority party	−0.8877		
	(2.0207)		
Surface transportation subcommittee		−8.6173	
		(11.7851)	
Appropriations subcommittee			4.6255
			(3.1199)
R-squared	0.2578	0.2611	0.2583
Sample size	870	870	870

Notes: OLS coefficients, standard errors (clustered at the state-level) are reported in parentheses. ** 95-percent significance, * 90-percent significance, constant not reported. Dependent variable is transportation project spending located in the district.

$$(10) \qquad q(\delta, \beta) = \frac{(N_d - N_p - \delta N_c)(G - \beta N_p)}{\beta \delta N_c N_d}.$$

Given that the discount factor cannot exceed one ($\delta \leq 1$), we can place a lower bound on the recognition probability [$q \geq q(1, \beta)$], which can be combined with the assumed upper bound [$q \leq N_p/(N_d - N_p)$]. As shown in Table 3, these bounds on recognition probabilities are also relatively tight.

V. Alternative Legislative Theories

This section empirically addresses several alternative theories of legislative organization and behavior. Several of these models, as discussed below, provide alternative explanations for the positive correlation between project spending and membership on the transportation committee; wherever possible, I attempt to incorporate additional measures in order to distinguish between these alternative theories and the baseline model of legislative bargaining.

A. *Partisan Models*

Political parties play a key role in the organization and operation of legislatures. Of particular interest for this study is the role of majority party leaders in the organization and operation of congressional committees. Committee chairs, who may have substantial within-committee bargaining power, are members of the majority party and are appointed by party leaders. Thus, while the committee may have significant proposal power, this power was granted by the majority party and thus may ultimately be used to further partisan objectives. In order to address the role of political parties in congressional committees, I incorporate measures of representative affiliation with the majority party, and column 1 of Table 4 presents the results of this regression.[16] As shown, conditional on membership on the transportation committee, which retains a positive and statistically significant effect, there is no evidence of an additional benefit associated with majority party affiliation, as this coefficient is small, negative, and statistically insignificant.

B. *Informational Models*

In the model of Thomas W. Gilligan and Keith Krehbiel (1987), committees gather information relevant to their jurisdiction and use this information in order to reduce the uncertainty associated with policy outcomes, which benefits both committee and noncommittee members. As a type of quid pro quo for the costly acquisition of this information, the floor provides the committee with a closed rule, which moves the equilibrium policy closer to the committee's most preferred policy.[17] While this informational model also predicts that proposal power is valuable to committees, this power was delegated to the committee as part of an agreement that ultimately benefits noncommittee members.[18] In order to address the predictions of this informational model empirically, I incorporate measures of potential differences in informational specialization within the committee. To the extent that legislators are rewarded for the costly acquisition of information, there should presumably be, in addition to a premium paid to committee members, a within-committee premium paid to well-informed members. Indeed, the transportation committee is organized in this very fashion: members on the Subcommittee on Surface Transportation, a subset of roughly two-thirds of members on the House Committee on Transportation and Infrastructure, are charged with responsibility over policy issues surrounding the adoption of the surface transportation authorization bill. As shown in column 2 of Table 4, however, there is no additional effect associated with membership on the surface transportation subcommittee, and the baseline committee coefficient remains positive and statistically significant. While subcommittee members do receive more than noncommittee members, as reflected in the baseline coefficient on committee membership, there is no evidence of rewards for within-committee informational specialization in surface transportation.

C. *Models with Appropriators*

While the empirical analysis focused on the role of the authorization committee and the associated authorization bill, which provides a multiyear legal basis for transportation spending, these funds must subsequently be appropriated, or made available for spending by federal agencies, on an annual basis. This multiplicity of authority has led to a turf battle over control of the process, and the resulting geographic distribution of funds. In order to measure any bargaining power for appropriators during the authorization process, I next include regressors indicating membership on the Transportation Appropriations Subcommittee (TAS) at the time of passage of the authorization bill. As shown in column 3 of Table 4, there is no evidence that appropriators received additional project funding on the margin, as this coefficient is small and statistically insignificant; the coefficient on the authorization committee membership, however, remains positive and statistically significant.[19] This evidence is consistent with Schick (2000) who argues that, at least within the sphere of federal transportation policy, this jurisdictional battle has been largely won by the authorization committee.[20]

[16] To conserve space, the regressions are pooled across the two authorization periods, and, given that redistricting occurred between 1991 and 1998, standard errors are clustered at the state, rather than congressional-district, level.

[17] This informational model of committees belongs to a larger literature arguing that legislatures are majoritarian institutions, adopting rules and procedures that ultimately benefit the median legislator. For empirical evidence on this point, see, among others, Keith Krehbiel's (1996) study of the airline smoking ban.

[18] While this informational model of committees incorporates only a single dimensional policy, similar ideas apply in the multidimensional policy space examined here. In exchange for the costly acquisition of information regarding transportation issues, the House may have provided the committee with a closed rule and the resulting disproportionate project benefits for districts represented by committee members.

[19] It is important to note that these results are not necessarily generalizable beyond transportation, as funds for many federal programs are appropriated without authorizing legislation (Allen Schick, 2000).

[20] In 1993, the appropriations committee attempted to redirect $300 million in funding from projects specified in the 1991 authorization bill to 58 projects outlined in the

D. *Committees as Preference Outliers*

Self-selection onto the committee by legislators representing districts with strong preferences for transportation projects could provide an alternative explanation for the positive correlation between transportation project funding and committee representation.[21] Although the regressions have included observable measures of preferences for transportation services, there may be important unobservable factors, such as the physical condition of highways in the district, which play a role in the assignment of representatives to committees.

I first address this alternative explanation by using within-district variation in committee membership. Following the Republican takeover of Congress in 1995, committees were reorganized, and the House Committee on Transportation and Infrastructure was expanded from 55 members to 72 members by 1998. Unfortunately, redistricting for the 1992 elections complicates the matching process. Using maps of congressional district borders from the *Congressional District Atlas,* I have linked 394 out of 435 districts in 1998 to an approximate 1991 counterpart.[22] As shown in column 1 of Table 5, the coefficient on committee representation remains positive and statistically significant. Given the redistricting-related difficulties in matching 1998 districts to an exact 1991 counterpart, I next conduct an alternative matched analysis that uses states, whose borders did not change between these two authorization years, as the unit of observation. As shown in column 2, these estimates also support the qualitative restrictions on the value of proposal power, as the committee coefficients are large and statistically different from zero.

One potential drawback of fixed-effects analyses, at both the district level and state level, involves endogenous *changes* in committee membership. In particular, residents of those districts securing significant funds in 1991 due to membership on the transportation committee may experience diminished marginal utility from transportation projects in 1998, and thus choose to transfer off of the committee. To address this limitation of the fixed-effects analysis, I next perform an alternative instrumental variables analysis using the presence of newly elected members as an instrument for committee representation. This choice of instrument is motivated by increases in the size of the transportation authorization committee witnessed during periods just preceding passage of the authorizing legislation. In particular, between the 1989–1990 legislative session and the 1991–1992 session, the committee grew from 49 members to 55 members, while between the 1995–1996 session and the 1997–1998 session, the committee grew even more substantially, from 60 to 72 members. Indeed, the first-stage results, shown in column 3, demonstrate that newly elected members are roughly eight percentage points more likely to be included on the transportation committee, a large effect relative to a baseline committee membership rate of 15 percent, and this relationship is statistically significant at the 95-percent level. While the first requirement for a valid instrument—explanatory power—seems to be satisfied, the second requirement—exogeneity—may be questioned, given that new members arguably have less political power in other dimensions. To address this concern, we also control for a linear measure of tenure, which is measured by the number of years served in tenure. In this case, the assumption required for identification is that unobserved determinants of project spending (u_d) are linear in tenure, and the identification thus rests on the fact that the instrument is a nonlinear function of tenure.[23] We should note, however, that if these unobserved determinants are nonlinear in tenure, then identification is more problematic. To address this concern, at least in part, we control for several observable measures of political power: partisan affiliation,

appropriations bill; many of these new projects were located in Michigan, the state represented by the chair of the House TAS. The RC ultimately sided with the authorization committee, finding that these 58 projects represented unauthorized appropriations, and the new projects were stricken from the appropriations bill.

[21] See, for example, John Londregan and Snyder (1994); Groseclose (1994); and Krehbiel (1990).

[22] Whenever possible, I then corroborated this match by both tracking the districts in which 1991 incumbents ran for reelection in 1992 and consulting descriptions of districts, which in some cases explained the relationship between district borders before and after redistricting (*Congressional Quarterly's Politics in America,* 1992).

[23] These arguments are developed more fully in an unpublished appendix, which is available from the author.

TABLE 5—VALUE OF PROPOSAL POWER
(*Committees as preference outliers*)

Specification	District FE	State FE	IV (1st stage)	IV (2nd stage)
Dependent variable	Funding	Funding	Committee member	Funding
Transportation committee member	22.7208**	29.9462**		33.1671*
	(4.1627)	(8.4396)		(19.8000)
Area	−0.1634	−0.1113	0.0003	−0.0116
	(0.3986)	(0.2035)	(0.0003)	(0.0145)
Percent urban	−10.3361	−44.2670	−0.1548**	−18.2933**
	(13.2783)	(29.7663)	(0.0624)	(8.1721)
Median income	0.1997	1.0809*	0.0001	0.1216
	(0.3172)	(0.5980)	(0.0001)	(0.0781)
Percent agriculture & mining	32.1087	243.1394	−1.1308**	−30.6805
	(113.2470)	(196.4250)	(0.3699)	(47.1319)
Percent construction & manufacturing	4.1903	22.0674	0.2530*	−1.5542
	(23.2984)	(30.6552)	(0.1353)	(12.4907)
Percent transportation & communication	192.0077	57.3324	1.1870	119.4736
	(172.7347)	(518.2366)	(0.8136)	(82.7502)
Percent trade	−56.5795	−50.4815	−0.1799	−42.0352
	(63.7192)	(144.6584)	(0.3430)	(30.4822)
Majority party			−0.0013	−0.3597
			(0.0187)	(2.0086)
Appropriations committee			−0.1266**	2.8240
			(0.0205)	(5.0946)
Other committee chair			−0.0443	−6.5896**
			(0.0284)	(2.9540)
Tenure			−0.0054**	0.4209**
			(0.0014)	(0.2017)
New member indicator			0.0849**	
			(0.0371)	
R-squared	0.6533	0.8340	0.0581	0.2729
Sample size	788	100	870	870

Notes: OLS and IV regression coefficients, standard errors are reported in parentheses. ** 95-percent significance, * 90-percent significance, constant not reported. Dependent variable is transportation project spending located in the district. IV standard errors are clustered at the state level. District FE uses matched districts before and after 1992 redistricting. State FE analysis aggregates all variables from the district-level to state-level averages.

appropriations committee membership, and an indicator for chairing other committees.[24] As shown in the second-stage results in column 4 of Table 5, after correcting for the possibility of self-selection onto the committee, committee membership continues to have a positive and strong effect on the distribution of transportation funds. The standard error, however, is significantly larger, likely reflecting the loss in power from focusing on a single determinant—newly elected representatives—of committee representation, and the coefficient is statistically significant at only the 90-percent level.

VI. Conclusion

This paper has provided a simple test of the theoretical literature on noncooperative legislative bargaining, using evidence from bargaining episodes in Congress over the distribution of transportation projects. The evidence supports the key qualitative prediction of the bargaining model: members with proposal power—those sitting on the transportation committee—secure higher project spending than do members from other districts. Support for the quantitative pre-

[24] Given that committee membership is endogenous, membership on the surface transportation subcommittee, a subset of committee members, is also endogenous. Thus, I drop the subcommittee variable from this instrumental variables analysis.

dictions regarding the value of proposal power, which are more powerful than the qualitative predictions, is more mixed. I then address several alternative legislative theories empirically and find that, after controlling for these alternative political measures, the estimated value of proposal power remains large and statistically significant. In finding support for the theoretical prediction regarding the positive value of proposal power, this paper contributes to a larger literature, as surveyed in Poterba (1996) and Besley and Anne Case (2003), demonstrating the importance of political institutions in determining both political and economic outcomes.

REFERENCES

Atlas, Cary M.; Gilligan, Thomas W.; Hendershott, Robert J. and Zupan, Mark A. "Slicing the Federal Government Net Spending Pie: Who Wins, Who Loses, and Why." *American Economic Review*, 1995, *85*(3), pp. 624–29.

Banks, Jeffrey S. and Duggan, John. "A Bargaining Model of Collective Choice." *American Political Science Review*, 2000, *94*(1), pp. 73–88.

Baron, David P. "Majoritarian Incentives, Pork Barrel Programs, and Procedural Control." *American Journal of Political Science*, 1991, *35*(1), pp. 57–90.

Baron, David P. and Ferejohn, John A. "Bargaining and Agenda Formation in Legislatures." *American Economic Review*, 1987 (*Papers and Proceedings*), *77*(2), pp. 303–09.

Baron, David P. and Ferejohn, John A. "Bargaining in Legislatures." *American Political Science Review*, 1989, *83*(4), pp. 1181–1206.

Bennedsen, Morten and Feldmann, Sven E. "Lobbying Legislatures." *Journal of Political Economy*, 2002, *110*(4), pp. 919–46.

Besley, Timothy J. and Case, Anne. "Political Institutions and Policy Choices: Evidence from the United States." *Journal of Economic Literature*, 2003, *41*(1), pp. 7–73.

Besley, Timothy and Coate, Stephen. "Centralized versus Decentralized Provision of Local Public Goods: A Political Economy Approach." *Journal of Public Economics*, 2003, *87*(12), pp. 2611–37.

Chari, Varadarajan V.; Jones, Larry E. and Marimon, Ramon. "The Economics of Split-Ticket Voting in Representative Democracies." *American Economic Review*, 1997, *87*(5), pp. 957–76.

Coate, Stephen. "Distributive Policy Making as a Source of Inefficiency in Representative Democracies." University of Pennsylvania, Penn Institute for Economic Research Working Papers: No. 97-041, 1997.

Congressional Quarterly's Politics in America. Washington, DC: Congressional Quarterly Press, 1992.

Dharmapala, Dhammika. "Comparing Tax Expenditures and Direct Subsidies: The Role of Legislative Committee Structure." *Journal of Public Economics*, 1999, *72*(3), pp. 421–54.

Diermeier, Daniel; Hulya, Eraslan K. K. and Merlo, Antonio. "A Structural Model of Government Formation." *Econometrica*, 2003, *71*(1), pp. 27–70.

Ferejohn, John. *Pork barrel politics: Rivers and harbors legislation, 1947–1968*. Stanford: Stanford University Press, 1974.

Frechette, Guillaume R.; Kagel, John H. and Lehrer, Steven F. "Bargaining in Legislatures: An Experimental Investigation of Open versus Closed Amendment Rules." *American Political Science Review*, 2003, *97*(2), pp. 221–32.

Gilligan, Thomas W. and Krehbiel, Keith. "Collective Decisionmaking and Standing Committees: An Informational Rationale for Restrictive Amendment Procedures." *Journal of Law, Economics, and Organization*, 1987, *3*(2), pp. 287–335.

Groseclose, Tim. "Testing Committee Composition Hypothesis for the U.S. Congress." *Journal of Politics*, 1994, *56*(2), pp. 440–58.

Groseclose, Tim and Snyder, James M., Jr. "Buying Supermajorities." *American Political Science Review*, 1996, *90*(2), pp. 303–15.

Helpman, Elhanan and Persson, Torsten. "Lobbying and Legislative Bargaining." *Advances in Economic Analysis and Policy*, 2001, *1*(1).

Knight, Brian. "Endogenous Federal Grants and Crowd-Out of State Government Spending: Theory and Evidence from the Federal Highway Aid Program." *American Economic Review*, 2002, *92*(1), pp. 71–92.

Knight, Brian. "Legislative Representation, Bargaining Power, and the Distribution of Federal Funds: Evidence from the U.S. Senate." National Bureau of Economic Research, Inc., NBER Working Papers: No. 10385, 2004a.

Knight, Brian. "Parochial Interests and the Centralized Provision of Local Public Goods:

Evidence from Congressional Voting on Transportation Projects." *Journal of Public Economics*, 2004b, *88*(3–4), pp. 845–66.

Krehbiel, Keith. "Are Congressional Committees Composed of Preference Outliers?" *American Political Science Review*, 1990, *84*(1), pp. 149–63.

Krehbiel, Keith. "Committee Power, Leadership, and the Median Voter: Evidence from the Smoking Ban." *Journal of Law, Economics, and Organization*, 1996, *12*(1), pp. 234–56.

Leblanc, William; Snyder, James M., Jr. and Tripathi, Micky. "Majority-Rule Bargaining and the Under Provision of Public Investment Goods." *Journal of Public Economics*, 2000, *75*(1), pp. 21–47.

Levitt, Steven D. and Poterba, James M. "Congressional Distributive Politics and State Economic Performance." *Public Choice*, 1999, *99*(1–2), pp. 185–216.

Levitt, Steven D. and Snyder, James M., Jr. "The Impact of Federal Spending on House Election Outcomes." *Journal of Political Economy*, 1997, *105*(1), pp. 30–53.

Lockwood, Ben. "Distributive Politics and the Costs of Centralization." *Review of Economic Studies*, 2002, *69*(2), pp. 313–37.

Londregan, John and Snyder, James M., Jr. "Comparing Committee and Floor Preferences." *Legislative Studies Quarterly*, 1994, *19*(2), pp. 233–66.

McKelvey, Richard D. and Riezman, Raymond. "Seniority in Legislatures." *American Political Science Review*, 1992, *86*(4), pp. 951–65.

Merlo, Antonio. "Bargaining over Governments in a Stochastic Environment." *Journal of Political Economy*, 1997, *105*(1), pp. 101–31.

Milyo, Jeffrey. "Electoral and Financial Effects of Changes in Committee Power: The Gramm-Rudman-Hollings Budget Reform, the Tax Reform Act of 1986, and the Money Committees in the House." *Journal of Law and Economics*, 1997, *40*(1), pp. 93–111.

Muthoo, Abhinay. *Bargaining theory with applications*. Cambridge: Cambridge University Press, 1999.

Persson, Torsten. "Economic Policy and Special Interest Politics." *Economic Journal*, 1998, *108*(447), pp. 310–27.

Persson, Torsten; Roland, Gerard and Tabellini, Guido. "Comparative Politics and Public Finance." *Journal of Political Economy*, 2000, *108*(6), pp. 1121–61.

Persson, Torsten and Tabellini, Guido. "Political Economics and Public Finance," in Alan J. Auerbach and Martin Feldstein, eds., *Handbook of public economics*, Vol. 3. Amsterdam: Elsevier Science, North-Holland, 2002, pp. 1549–659.

Poterba, James M. "Budget Institutions and Fiscal Policy in the U.S. States." *American Economic Review*, 1996 (*Papers and Proceedings*), *86*(2), pp. 395–400.

Roth, Alvin E. "Bargaining Experiments," in John H. Kagel and Alvin E. Roth, eds., *The handbook of experimental economics*. Princeton: Princeton University Press, 1995, pp. 253–348.

Schick, Allen. *The federal budget: Politics, policy, and process*, 2nd ed. Washington, D.C.: Brookings Institution Press, 2000.

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14. Askill H. Halse. 2016. More for everyone: The effect of local interests on spending on infrastructure. *European Journal of Political Economy* **43**, 41-56. [Crossref]
15. Lucas González. 2016. Presidential Popularity and the Politics of Distributing Federal Funds in Argentina. *Publius: The Journal of Federalism* **46**:2, 199-223. [Crossref]
16. Tuukka Saarimaa, Janne Tukiainen. 2016. Local representation and strategic voting: Evidence from electoral boundary reforms. *European Journal of Political Economy* **41**, 31-45. [Crossref]
17. Alexander Fouirnaies, Andrew Hall. 2016. How Do Interest Groups Seek Access to Committees?. *SSRN Electronic Journal* . [Crossref]
18. Anthony Fowler, Andrew B. Hall. 2015. Congressional seniority and pork: A pig fat myth?. *European Journal of Political Economy* **40**, 42-56. [Crossref]
19. Jon X. Eguia, Kenneth A. Shepsle. 2015. Legislative Bargaining with Endogenous Rules. *The Journal of Politics* **77**:4, 1076-1088. [Crossref]
20. Matthias Dahm, Amihai Glazer. 2015. A carrot and stick approach to agenda-setting. *Journal of Economic Behavior & Organization* **116**, 465-480. [Crossref]

21. Woo Chang Kang. 2015. Electoral cycles in pork barrel politics: Evidence from South Korea 1989–2008. *Electoral Studies* **38**, 46-58. [Crossref]
22. Geert Jennes, Damiaan Persyn. 2015. The effect of political representation on the geographic distribution of income: Evidence using Belgian data. *European Journal of Political Economy* **37**, 178. [Crossref]
23. Tuukka Saarimaa, Janne Tukiainen. 2015. Local Representation and Strategic Voting: Evidence from Electoral Boundary Reforms. *SSRN Electronic Journal* . [Crossref]
24. Kai Gehring, Stephan A. Schneider. 2015. Towards the Greater Good? EU Commissionerss Nationality and Budget Allocation in the European Union. *SSRN Electronic Journal* . [Crossref]
25. Zachary Horváth, Brian David Moore, Jonathan C. Rork. 2014. Does Federal Aid to States Aid the States?. *Growth and Change* **45**:2, 333-361. [Crossref]
26. Tuukka Saarimaa, Janne Tukiainen. 2014. I Don't Care to Belong to Any Club That Will Have Me as a Member: Empirical Analysis of Municipal Mergers. *Political Science Research and Methods* **2**:1, 97-117. [Crossref]
27. Woo Chang Kang. 2014. Electoral Cycles in Pork Barrel Politics: Evidence from South Korea 1989-2008. *SSRN Electronic Journal* . [Crossref]
28. Hülya Eraslan, Andrew McLennan. 2013. Uniqueness of stationary equilibrium payoffs in coalitional bargaining. *Journal of Economic Theory* **148**:6, 2195-2222. [Crossref]
29. Valentino Larcinese, James M. Snyder, Cecilia Testa. 2013. Testing Models of Distributive Politics using Exit Polls to Measure Voters' Preferences and Partisanship. *British Journal of Political Science* **43**:4, 845-875. [Crossref]
30. Stef Proost, Vera Zaporozhets. 2013. The political economy of fixed regional public expenditure shares with an illustration for Belgian railway investments. *Regional Science and Urban Economics* **43**:5, 808-815. [Crossref]
31. Valentino Larcinese, Leonzio Rizzo, Cecilia Testa. 2013. Why Do Small States Receive More Federal Money? U.S. Senate Representation and the Allocation of Federal Budget. *Economics & Politics* n/a-n/a. [Crossref]
32. David Albouy. 2013. Partisan Representation in Congress and the Geographic Distribution of Federal Funds. *Review of Economics and Statistics* **95**:1, 127-141. [Crossref]
33. Tuukka Saarimaa, Janne Tukiainen. 2013. Local Representation and Strategic Voting: Evidence from Electoral Boundary Reforms. *SSRN Electronic Journal* . [Crossref]
34. Robin Boadway, Jean-François Tremblay. 2012. Reassessment of the Tiebout model. *Journal of Public Economics* **96**:11-12, 1063-1078. [Crossref]
35. Gian-Claudia Sciara. 2012. Financing congressional earmarks: Implications for transport policy and planning. *Transportation Research Part A: Policy and Practice* **46**:8, 1328-1342. [Crossref]
36. Daniel Diermeier, Pohan Fong. 2012. Characterization of the von Neumann–Morgenstern stable set in a non-cooperative model of dynamic policy-making with a persistent agenda setter. *Games and Economic Behavior* **76**:1, 349-353. [Crossref]
37. Toke S. Aidt,, Julia Shvets. 2012. Distributive Politics and Electoral Incentives: Evidence from Seven US State Legislatures. *American Economic Journal: Economic Policy* **4**:3, 1-29. [Abstract] [View PDF article] [PDF with links]
38. Gian-Claudia Sciara. 2012. Planning for Unplanned Pork. *Journal of the American Planning Association* **78**:3, 239-255. [Crossref]
39. John Pender, Alexander Marre, Richard Reeder. 2012. Rural Wealth Creation Concepts, Strategies, and Measures. *SSRN Electronic Journal* . [Crossref]

40. P. Jean-Jacques Herings, Arkadi Predtetchinski, Volker Britz. 2012. On the Convergence to the Nash Bargaining Solution for Endogenous Bargaining Protocols. *SSRN Electronic Journal* . [Crossref]
41. D. Diermeier, P. Fong. 2011. Legislative Bargaining with Reconsideration. *The Quarterly Journal of Economics* **126**:2, 947-985. [Crossref]
42. Sarah F. Anzia, Christopher R. Berry. 2011. The Jackie (and Jill) Robinson Effect: Why Do Congresswomen Outperform Congressmen?. *American Journal of Political Science* no-no. [Crossref]
43. Raphael Godefroy. 2011. The Birth of the Congressional Clinic. *SSRN Electronic Journal* . [Crossref]
44. Yaniv Reingewertz. 2011. Identifying the Effect of Government Spending: Evidence from Political Variations in Federal Grants. *SSRN Electronic Journal* . [Crossref]
45. Hulya Eraslan, Andrew McLennan. 2011. Uniqueness of Stationary Equilibrium Payoffs in Coalitional Bargaining. *SSRN Electronic Journal* . [Crossref]
46. Matilde Bombardini, Francesco Trebbi. 2010. Votes or money? Theory and evidence from the US Congress. *Journal of Public Economics* . [Crossref]
47. CHRISTOPHER R. BERRY, BARRY C. BURDEN, WILLIAM G. HOWELL. 2010. The President and the Distribution of Federal Spending. *American Political Science Review* **104**:4, 783-799. [Crossref]
48. Yves Breitmoser. 2010. Parliamentary bargaining with priority recognition for committee members. *Social Choice and Welfare* . [Crossref]
49. Deniz Aksoy. 2010. Who gets what, when, and how revisited: Voting and proposal powers in the allocation of the EU budget. *European Union Politics* **11**:2, 171-194. [Crossref]
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52. Stef Proost, Vera Zaporozhets. 2010. The Political Economy of Fixed Regional Investment Shares with an Illustration for Belgian Railway Investments. *SSRN Electronic Journal* . [Crossref]
53. Brian Knight. 2008. Legislative Representation, Bargaining Power and the Distribution of Federal Funds: Evidence from the US Congress. *The Economic Journal* **118**:532, 1785-1803. [Crossref]
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56. Matilde Bombardini, Francesco Trebbi. 2008. Votes or Money? Theory and Evidence from the US Congress. *SSRN Electronic Journal* . [Crossref]
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60. Valentino Larcinese, Leonzio Rizzo, Cecilia Testa. 2006. Allocating the U.S. Federal Budget to the States: The Impact of the President. *The Journal of Politics* **68**:2, 447-456. [Crossref]
61. Michel Kostecki. 1985. The Economic Functions of Schooling. *Compare: A Journal of Comparative and International Education* **15**:1, 5-19. [Crossref]