

Giving the People What They Want? The Distribution of Earmarks in the U.S. House of Representatives

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The common wisdom in journalistic accounts of earmarking is that Congress distributes earmarks on a purely political basis, without any consideration for the demand for federal spending. Academic accounts similarly argue that factors internal to Congress are preeminent in determining where earmarks go, even more than for other types of pork-barrel spending. Using earmarks appearing in the fiscal year 2008 Appropriations bills, I search for both chamber-based and demand-side determinants of the distribution of earmarks. I find that both types of factors are significantly related to the number of earmarks that a House member receives. This result indicates that even while earmarking, members of Congress are at least minimally responsive to voter preferences and calls into question whether earmarks should be treated as an outlier within the universe of spending allocation mechanisms.

Perhaps no issue involving Congress has engendered as much controversy in recent years as the rise of earmarking. From Randy Cunningham's bribery conviction to Ted Stevens's "Bridge to Nowhere," earmarks have been at the center of a number of incidents which reflect negatively on the institution. Perhaps just as importantly, though, there is a widespread perception that earmarks themselves are fundamentally and irretrievably flawed, primarily because they are distributed without regard to the level of public demand for spending. *The Washington Post*, for example, ran a front-page story entitled "Millions in Earmarks Purchase Little of Use" (O'Harrow 2007). *The New York Times* routinely refers to earmarks as "pet projects" in news stories¹ and much more colorfully in editorials, for instance, "lucrative favors that lawmakers secretly cram into spending bills at the behest of deep-pocketed contractors" (*New York Times* 2006). Academic treatments of earmarking similarly treat factors that operate within the chambers of Congress as the driving or even sole force behind this type of spending. For instance, Evans argues that congressional leaders distribute earmarks specifically "to gain the support of rank-and-file members on issues of importance to the leaders . . ." (1994, 912). Lee argues that "the distribution of earmarked projects in the House [is] more

influenced by political factors than the overall distribution of federal grant-in-aid funds" (2003, 717). Law and Tonon argue that "there is ample evidence to indicate that [agricultural earmarks] are of marginal value . . . [Yet] we should expect the persistence of the special grants program because appropriators have the incentives and the power to ensure that it continues" (2006, 45).

In this article, I argue that these "intrachamber factors" are not the only determinants of earmark distribution. Rather, members of Congress are led by the reelection incentive to use earmarks to produce spending that their constituents can reasonably make use of. Thus, the distribution of earmarks is also influenced by district economic and geographic characteristics which influence local demand for specific types of spending. I test this theory using data on earmarks in the fiscal year 2008 House Appropriations bills. First, I find that intrachamber factors such as member ideology, seniority, committee membership, and electoral vulnerability are all significantly related to earmarking activity. On the demand side, I conduct a test in which I sort earmarks by the bureaucratic division whose budget they came out of. For each division, I search for a correlation between the number of earmarks received by each district, and measures of demand for spending in that policy area. Over 17

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An earlier version of this article was presented at a workshop at Georgia State University. I would like to thank Frances Lee, Eric Lawrence, members of the Georgia State political science department, and anonymous reviewers for helpful comments and suggestions.

¹A search of the *Times*' online archive of articles on the terms "earmarks 'pet projects'" returned 108 results, only eight of which were from the opinion section.

American Journal of Political Science, Vol. 54, No. 2, April 2010, Pp. 338–353

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ISSN 0092-5853

individual estimations, a measure of demand is significant and in the expected direction 13 times. Collectively, these 13 bureaucratic divisions were responsible for 89% of the earmarks and 90% of the total dollars spent on earmarks in the FY 2008 appropriations bills.

This article makes several contributions to the literature on pork-barrel spending. First, the finding that earmarks are distributed by some mix of intrachamber and demand-side factors indicates that even while earmarking, members of Congress are at least minimally responsive to voter preferences. Most observers of Congress consider spending via earmarks to be the least related to public demand of all the different allocation methods (e.g., Kaiser 2009; Law and Tonon 2006). Thus the search for correlation between local demand and earmarking represents a “hardest case” test for the broader notion that congressional spending is sensitive to the electoral connection. The finding of that correlation represents powerful evidence that the electoral connection significantly influences nearly everything that members of Congress do, as first posited by Mayhew (1974). Moreover, prior research on distributive spending in Congress indicates that both demand-side and intrachamber influences play a role in the distribution of nearly all government funds regardless of the method of allocation. Thus the results of this article potentially place earmarks squarely in line with these other mechanisms and raise the question of whether earmarking should be considered an outlier within the universe of these mechanisms. Somewhat more narrowly, this article adds to the small but growing academic literature on earmarks by identifying a number of hypotheses from the broader federal spending literature and testing them with earmark data. Though the practice of earmarking has a long history, it has played a prominent role in the appropriations process only recently. Thus while the literature on pork-barrel spending is extensive, very few studies specifically address earmarks, which have recently become a very important part of the budgeting process (at least politically). Finally, this article employs broad data where most extant studies on earmarks focus on a single policy area or bill (Balla et al. 2002; Evans 1994; Law and Tonon 2006; Lee 2003; though see Frisch 1998).

The article is organized as follows: The first section briefly reviews the literature on pork-barrel spending, looking at intrachamber and demand-side influences, and the following section focuses more closely on earmarks. Next, I present the initial empirical analysis—an estimation of the total number of earmarks received by each member. Following that is the analysis of each policy area individually. I conclude with a discussion of the results.

Political and Local Influences on the Pork Barrel

Studies of distributive spending show that both intrachamber factors and local demand for particular types of spending strongly influence the distribution of federal funds. However, influences which operate within the chambers of Congress have attracted the most attention in scholarly treatments of the subject. These explanations of spending are rooted in members’ ability to leverage their institutional authority to procure spending for their districts, and their willingness to do so for political gain. According to Ferejohn’s (1974) classic account, pork-barrel spending (i.e., spending which concentrates benefits on voters within a specific constituency) is popular among members of Congress for three reasons. First, these projects demonstrate the member is an effective legislator and “can do things for [voters] in Washington” (49). Second, after pork projects have made a member electorally secure, members may have more freedom of action on other issues. Third, pork spending demonstrates electoral security and thereby inhibits political opposition.

The literature on congressional spending is dominated by the search for evidence that members of Congress use their clout to manipulate spending outcomes to their own political advantage. In this vein, many specific hypotheses have been tested. Among the most prominent of these are that members of the majority party (Balla et al. 2002; Carsey and Rundquist 1999) and members with high levels of seniority (Ferejohn 1974; Lee 2003) receive a disproportionate share of federal spending and/or projects in their districts; both hypotheses are supported fairly consistently. The evidence is somewhat weaker for two other prominently tested hypotheses: that electorally vulnerable members receive more spending than other members (Bickers and Stein 1996; Frisch 1998; Lee 2003; Stein and Bickers 1994; though see Lazarus 2009), and that members of standing committees receive a disproportionate share of the spending which falls under those committees’ jurisdiction (for a review, see Frisch 1998, chap. 4). Nonetheless, it seems clear from the literature that in the aggregate, these intrachamber factors combine to significantly influence where government spending goes.

On the other hand, demand-side explanations of spending focus on the degree to which localities or the nation as a whole benefit from, or at least can put to good use, government spending. The focus in this article is on demand at the local level, specifically the U.S. House district. Districts’ demand for any given type of spending

varies depending on the districts' geographic, economic, and demographic characteristics. For instance, demand for agricultural spending should vary directly with the size of the agricultural sector of the local economy. For their part, legislators have good reason to recognize this and tailor federal spending to match demand. First, it makes good electoral sense: voters, like people in any other area of life, appreciate goods and services which are useful to them more than those which are not. Indeed, the premise that members work to provide their constituents with targeted benefits is a pillar of the highly influential "gains from exchange" theory (Weingast and Marshall 1988) and the related hypothesis that members self-select onto the committees which best allow them to deliver these benefits (Ray 1980b). Second, in addition to reelection, members also pursue the goal of good public policy, and good policy would require that locally directed spending be locally useful. Hird notes that "On the whole, legislators' preferences probably reflect both political and public interest objectives. . . . [H]aving sufficiently satisfied their constituencies, they may pursue [other] objectives, which may include efficiency or equity" (1991, 433).

Thus, whether or not federal spending is tied to local demand has both normative and positive implications for the study of Congress. Normatively, voters and observers of Congress—both academic and otherwise—expect that government should spend its finite resources on those people and areas with the strongest demand for spending. Positively, students of Congress who study how it allocates spending should test all plausible theories of allocation, and local demand is a plausible influence when the spending body is popularly elected.

In contrast with the rich literature on the political determinants of spending, relatively few studies focus on demand-side influences (Hird 1990, 1991; Stein 1981). Nonetheless, a fair amount of evidence exists that local demand is important. Primarily, this evidence comes from studies which control for demand to allow for unbiased estimates of the effect intrachamber variables have on spending outcomes (Gist and Hill 1984; Owens and Wade 1984). Many of these control variables are significantly related to spending. For example: spending on the EPA's Superfund program is higher in areas which produce high levels of industrial waste (Hird 1990); spending on health care is higher in states and districts with large numbers of hospitals and doctors (Carsey and Rundquist 1999; Gryski 1991; Reid 1980); agricultural spending is highest in districts which have the most farms or farmers (Gryski 1991; Owens and Wade 1984); more military contracts are awarded to areas with higher military industrial capacity (Rundquist, Lee, and Rhee 1996); spending by

the Department of the Interior is higher in areas where there is more federal land (Ray 1980a); and spending in a host of categories is higher where aggregate measures of socioeconomic status are low (Gist and Hill 1984; Gryski 1991; Hird 1991). While not every relationship between a measure of district demand and spending is statistically significant (Gryski 1991; Ray 1980a), enough are to indicate a pattern in which local demand influences congressional decisions on spending. Because of the highly aggregated nature of the data used in many of these studies, it is difficult to determine how many of the relationships result from government formulas, and how many result from legislators' concern with meeting local demand. However, at least one scholar concludes that "legislators are driven not only by a selfish desire for pork, but also by a regard for project attributes commonly thought to reflect the 'public interest' . . ." (Hird 1990, 449).

The Role of Earmarks

Earmarks are congressional appropriations which are placed in spending bills at the request of a single member,² usually for the benefit of the member's particular district. The process begins when an individual member submits a request to the chair of an Appropriations subcommittee. These chairs each have a fixed pool of money available to them from which they can grant members' requests and enjoy a very high level of discretion over which requests get funded. Requests which are granted are placed in the legislation, though typically *after* the subcommittee has approved the bill. Thus, earmark language is usually placed directly into committee reports rather than the legislation itself, which denies the subcommittee—and usually the full committee as well—a chance to vote on it. From there, the earmark travels through the legislative process as part of the larger spending bill. As a result, most individual earmarks never receive a direct vote at any stage of the appropriations process. (For richer descriptions of the earmarking process, see Evans 1995; Savage 1991.)

Critics argue that this process leads to overly politicized spending outcomes for several reasons (Kaiser 2009; Savage 1991). First, the projects funded by earmarks are typically parochial and rarely serve regional or national interests. Second, the dominant role of the subcommittee chairs allows them to wield disproportionate influence over which earmark requests get funded and which do not. Third, the lack of any vote on individual projects by a subcommittee, a committee, or the chamber floor

² A small percentage is requested jointly by more than one member.

reinforces both of the first two factors: it bolsters the power of the subcommittee chairs and highlights the fact that most individual projects are too narrow in scope to be approved if subjected to a vote. Finally, the entire process happens relatively obscurely; until 2007 members were not required to—and usually did not—disclose who requested each earmark. Each of these factors serves to insulate members of Congress from the possible negative political consequences of earmarking and allows them to use earmarks for their own political gain.

Scholarly studies on earmarking focus on the influence of intrachamber factors. Evans (1994, 1995) identifies earmarks as a form of currency that congressional leaders use to shore up votes for omnibus spending bills. Other studies focus their theoretical attention on how earmarks are distributed among individual members and find, much like the broader literature on pork, that powerful and well-placed members procure more earmarks than other members of Congress (Balla et al. 2002; de Figueiredo and Silverman 2006; Frisch and Kelly 2007; Lee 2003). Conversely, local demand has not played a large role in the academic study of earmarks. The issue has not yet come up in any theoretical treatment of the subject, and several studies omit controls for local demand in their empirical analysis as well (Andres 1995; Evans 1994, 1995; Law and Tonon 2006; Savage 1991).

And yet members' incentives regarding both reelection and public policy, discussed above, should lead them to match the type of earmarks they procure to their districts' demand for spending. Earmark requests are made by individual members who have incentives to request projects that help people within their district (though the benefit may be narrowly restricted within the district). Indeed, most earmarks are originally conceived when constituents or local institutions make direct requests to their member of Congress for the funding of specific projects. For their part, Appropriations subcommittee chairs likely decide which requests to grant based on intrachamber factors—they have much less intimate knowledge of their colleagues' districts than the colleagues themselves, and much less incentive to cater to local demand. However, even if earmarks are ultimately awarded independently of local influence, the pool of *requests* from which these awards are drawn is heavily conditioned by local factors. Thus, we should expect to find correlations between indicators of local demand and the awarding of earmarks.³

³One interesting question is whether one set of factors—local or internal chamber factors—is causally prior to the other, or if both factors operate simultaneously. While local factors influence the earmark requests members make to the Cardinals in the manner described in the text, members' institutional clout also influences

The few studies which control for measures of local demand in empirical treatments confirm this hypothesis. Balla et al. (2002) and De Figueiredo and Silverman (2006) each find that academic earmarks awards are related to local university research productivity. Lee (2003) finds a correlation between transportation earmarks and a measure which indicates the level of local traffic on the federal highway system. Additionally, Frisch (1998) finds a relationship between earmarks and demand in four of five policy areas he examines.

Hypotheses and Empirical Analysis

In this section, I test hypotheses about the distribution of earmarks among House members. Hypotheses relate to both members' ability to leverage their positions to secure more benefits for their district and local demand for spending in different policy areas. The data employed for these tests are the earmarks which were included in the House versions of the fiscal year 2008 Appropriations bills. Using the House versions of the bills (rather than the final bills) allows me to isolate the preferences of and relationships among House members, since senators and the president influence House earmarks most substantially in conference committee.

The FY 2008 Appropriations bills included over 7,000 earmarks that were requested by one or more specific members, which collectively spent \$13.7 billion. I take advantage of rule changes passed in 2007 which required each appropriations bill to identify the member(s) who requested each earmark within the bill.⁴ As a result of this rule, for the first time there exists not only a comprehensive list of earmarks across all spending bills, but also a verifiable indication of who requested the earmark. For eight of the 12 appropriations bills passed in 2007, a list of earmarks was compiled by the nonprofit, nonpartisan organization Taxpayers for Common Sense. The remaining four bills contained no earmarks.⁵

I divided the earmarks which appeared in each of the remaining eight bills by the bureaucratic division each is listed under. This process resulted in 17 separate

the process of local members' lobbying activity with regard to earmarks (de Figueiredo and Silverman 2006).

⁴It is very possible that 2007 will be the last year this type of information is available. A bill signed into law in September 2007 withdrew the legal requirement that requestors be identified.

⁵Two bills (Legislative Branch and State & Foreign Operations) contained no earmarks; in the other two cases (Military Construction/ Veterans Affairs and Homeland Security), conflict within the subcommittee led members to consider earmarks in a separate bill.

TABLE 1 Earmarks in FY 2008 Appropriations Bills

Agency/Department	# of Earmarks	Dollar Value (Millions)	Standing Committee with Jurisdiction
Department of Defense	1409	\$6,496	Armed Services
Department of Justice	1068	\$295	Judiciary
Department of Transportation	935	\$2,059	Transportation and Infrastructure
Department of Health and Human Services	760	\$166	Energy and Commerce
Army Corps of Engineers	567	\$2,242	Transportation and Infrastructure
Department of Housing and Urban Development	499	\$127	Financial Services
Department of Education	436	\$314	Education and Labor
Department of Agriculture	410	\$299	Agriculture
Department of Energy	263	\$246	Energy and Commerce
Department of the Treasury	168	\$983	Financial Services
Environmental Protection Agency	141	\$70	Transportation and Infrastructure
Department of the Interior	91	\$38	Natural Resources
Bureau of Reclamations	88	\$281	Natural Resources
Department of Labor	82	\$31	Education and Labor
Institute of Museum and Library Services	64	\$12	Education and Labor
Department of Commerce	42	\$23	Energy and Commerce
NASA	27	\$19	Science and Technology
Total	7050	\$13,701	

categories of earmarks. Table 1 provides the number of, and total dollar amount represented by, the earmarks of each category. The range on both measures is quite large, ranging from a low of a couple of dozen earmarks worth less than \$20 million to a high of over 1,000 earmarks worth several billion dollars. Table 1 also lists the House standing committee with primary jurisdiction over the bureaucratic agency in question.⁶

One item worth noting is that, even though there is significant variation in terms of how much spending each member got, nearly every member received at least one earmark. Of the 435 members of the House, 426 (98%) requested at least one earmark which made it into an appropriations bill. Only nine had no requests included, and some if not all of these members most likely forwent any earmarks voluntarily. One of the nine was minority leader John Boehner; another was Jeff Flake, a famous anti-earmark crusader. All nine were Republican, and as a group they are very conservative.

The initial empirical analysis includes estimations of two dependent variables. In both cases the unit of analysis is the individual House member, and data are

aggregated over all 17 bureaucratic units. The first dependent variable is the total number of earmarks received by the House member. This is distributed as an overdispersed count variable; as a result I employ negative binomial estimation. The second dependent variable is the aggregate dollar value of all of the member's earmarks. This variable is significantly skewed with a long right tail; taking the natural log produces a normally distributed variable. As a result, I log the dependent variable and employ OLS. Independent variables are identified in the discussions of the hypotheses below. This initial analysis tests nine hypotheses regarding intrachamber influences on earmark distribution, and three regarding (very broad) demand-side hypotheses. Here, I discuss these hypotheses; the intrachamber hypotheses are discussed first.

Electoral vulnerability members receive more earmarks than other members. To the extent that members seek pork individually on something akin to an open market (Shepsle and Weingast 1981), vulnerable members should be willing to pay a higher "price" for pork than others. If pork is not distributed on an open market but rather doled out by party leaders, the same expectation holds: the pursuit of majority party status gives party leaders incentives to help their party's most vulnerable members. *Prior vote* is the incumbent's share of the two-party vote in the most recent general election. Low vote shares indicate

⁶I consider only those earmarks which were requested by an identified member of the U.S. House. Earmarks requested by the president, those which are programmatic in nature, and those in which the requestor is not identified are excluded from the data.

vulnerability; therefore the coefficient on this variable should be negative.

Majority party members receive more earmarks than minority party members. The majority party holds a numerical advantage on each standing committee, including Appropriations, and members on key committees have strong incentives to act as agents of their party leaders. Thus, the majority party has the ability to secure benefits for its members at both major stages of the spending process, authorization and appropriations. *Democrat* is a dummy variable coded 1 if the member is a Democrat, 0 if the member is a Republican; this variable should be positive and significant, since Democrats were the majority party in 2007.

Ideologically liberal members receive more earmarks than conservative members. There are two reasons to expect this relationship. First, liberal members are more ideologically predisposed to spend money on their districts than conservative members. Second, studies indicate that voters are more likely to reward liberal members for pork brought home than conservative members (Sellers 1997; Sidman and Mak 2006). Thus, requesting earmarks for the district is more ideologically congruent and electorally beneficial for liberal members. I measure ideological liberalism with members' DW-NOMINATE scores (*NOMINATE*). Note that *NOMINATE* is scaled so that high values indicate conservative ideologies; thus this variable is predicted to be negatively related to earmarking activity. Also note that this hypothesis is observationally equivalent with the prior one, since in 2007 the majority party was also the more liberal one (Democrats). This may complicate interpretation of the coefficients.

Senior members receive more earmarks than junior members. Members accrue formal institutional authority, informal status within the legislature, and policy expertise as they serve in the Congress. Thus, we should expect senior members to be advantaged in the procurement of pork. *Seniority* is the number of consecutive years each House member has served in the chamber, and should be positive.

Members holding positions of institutional authority receive a disproportionate share of earmarks. Separate dummy variables indicate various positions within the House. *Appropriations* is coded 1 for members of the committee and 0 otherwise; *Cardinal* is coded 1 for Appropriations subcommittee chairs and 0 otherwise; *Committee chair* is coded 1 if the member chairs a committee and 0 otherwise; and *Party leader* is coded 1 if the member is one of his or her party caucus' top four elected leaders. Coefficients on each variable should be positive.

The procurement of earmarks is related to other forms of distributive spending. To control for the possibility that

a member's level of earmarking activity is related to an underlying proclivity toward distributive spending, I include a variable which indicates the district's level of spending from the previous (109th) Congress, taken from the Federal Assistance Awards Data System (FAADS). The variable is the logged number of new programs received (109th Congress).⁷

Economically distressed districts receive more earmarks. This demand-side hypothesis posits that poor or distressed districts have a greater need for the economic stimulus provided by government spending, so they should receive a disproportionate share of the earmarks. I operationalize economic need as a district's level of *Unemployment*. The coefficient on *Unemployment* should be positive.

Ideologically liberal districts receive more earmarks than those from ideologically conservative districts. Similar to the above hypothesis on member ideology, previous work also identifies constituent ideology as a significant influence independent of the level of distributive benefits members procure, precisely because liberal voters are more likely to reward members for procuring such spending (e.g., Sellers 1997). Thus, I include as an indicator of district ideology the vote received by the democratic presidential candidate (John Kerry) in the 2004 presidential election (*District ideology*).

Geographically large districts receive more earmarks than small ones. Many projects are well suited to large areas, such as road construction, parks projects, water use, and others (Frisch 1998). As a result, I include a variable which indicates the (logged) number of square miles encompassed by the district, *Land area*. This variable is expected to be positive.

Results

Results of the estimations are presented in Table 2. Robust standard errors are in parentheses. Column 1 presents the earmarks model and Column 2 presents a measure of the substantive impact of each significant independent variable. For continuous independent variables, Column 2 indicates the change in the dependent variable resulting from moving the independent variable from its mean value to one standard deviation above the mean. For dummy independent variables, Column 2 indicates the change in the dependent variable as the variable is moved from 0 to 1. In each case, all other variables are held

⁷This variable fails to capture the distributive spending habits of freshmen members of the 110th Congress, but even in these cases does give some indication of the district's demand for spending generally.

TABLE 2 Distribution of Earmarks in the FY 2008 Appropriations Bills

	# of Earmarks	Substantive Impact	Dollar Value	Substantive Impact (Millions of \$)
Prior vote	-.573** (.199)	-1.25	-.918** (.347)	-1.31
Democrat	-.294 (.156)		.040 (.283)	
NOMINATE	-.760*** (.184)	-5.09	-.233 (.334)	
District ideology	.042 (.030)		.007 (.006)	
Seniority	.007* (.003)	0.94	.015* (.006)	1.60
Committee chair	-.104 (.124)	—	-.261 (.253)	
Party leader	.796*** (.251)	20.68	1.55*** (.261)	42.34
Appropriations member	.820*** (.064)	20.35	1.08*** (.116)	21.77
Cardinal	.207* (.096)	8.46	.140 (.228)	
109 th Congress	.013 (.024)	—	.051 (.043)	
Unemployment (logged)	.036 (.096)	—	.008 (.170)	
Land area (logged)	.068*** (.015)	2.07	.095** (.033)	1.68
Constant	2.55*** (.331)	—	15.58*** (.469)	
N	435		435	
log-pseudolikelihood	-1494		—	
Wald χ^2	625.1***		—	
Overdispersion	-1.98***		—	
R ²	—		.277	

*p < .05; **p < .01; ***p < .001, one-tailed test; robust standard errors in parentheses. "Substantive impact" indicates change in the DV associated with moving the IV from its mean value to (mean + 1 standard deviation). For dummy IVs, the move is from 0 to 1. In each case, all other variables are held constant.

constant. These predicted values were obtained using CLARIFY (Tomz, Wittenberg, and King 2001). Similarly, Column 3 presents the dollar value model, and Column 4 presents the substantive impact of significant independent variables, calculated similarly to Column 2 and presented in millions of dollars.

Looking first at the earmarks model, results support the notion that both intrachamber and local variables influence the distribution of earmarks. Several chamber variables are significantly related to the number of earmarks received, though three clearly have the largest impact. One of these is *NOMINATE*—a one standard

deviation decrease in *NOMINATE* score is associated with the receipt of just over five additional earmarks. Over the entire range of *NOMINATE*, this produces a difference of approximately 20 earmarks between the most liberal and most conservative members. The other two variables are both indicators of institutional positions. Results indicate that party leaders and members of the Appropriations Committee receive 20 and 21 earmarks more than the average member, respectively. Moreover, Appropriations Cardinals receive approximately 8.5 more earmarks than other Appropriations members, on average.

Other intrachamber variables have a smaller substantive impact, or none at all. *Prior vote* is negative and significant, indicating that vulnerable members receive more earmarks than other members.⁸ However, a one standard deviation change is associated with receiving just over one additional earmark, meaning that the entire range of *Prior vote* (from 50% to 100%) is only associated with a change of 5.5 earmarks. Second, *Seniority* is positive and significant, indicating that senior members receive more earmarks than junior members. A one standard deviation change in *Seniority* is associated with receiving just under one additional earmark, and moving over the entire range is associated with a change of also 5.5 earmarks. *Committee chair* is not significantly related to the number of earmarks received, indicating that committee chairs receive no more earmarks than other members, on average. *109th Congress* is similarly not significant, indicating that earmarking is unrelated to other forms of distributive activity, or at least those from previous Congresses. Finally, *Democrat* is not significantly related to the number of earmarks. However, this result is due to the high degree of collinearity between *NOMINATE* and *Democrat* ($r = .95$). When *NOMINATE* is taken out of the equation, *Democrat* is positive and strongly significant.⁹

Turning to the demand-side hypotheses, one variable is significantly related to the number of earmarks received. *Land area* is positive and significant, indicating that the number of earmarks a district receives correlates with the geographic size of the district. A one standard deviation increase in logged land area is associated with a district receiving just under two additional earmarks. On the other hand, *Unemployment* is not significantly related to the number of earmarks received, which indicates that economically depressed districts do not receive a disproportionate share of earmarks. Finally, *District ideology* is not significant, but this is another case in which the cause is multicollinearity. *District ideology* and *NOMINATE* correlate highly as well ($r = 0.75$); when *NOMINATE* is removed from the analysis, *District ideology*, like *Democrat*, is also strongly significant.

Results are broadly similar for the estimation of the dollar value of each member's earmarks, but three differences bear noting. First, in this model neither *DWNOM* nor *Democrat* is significant. However, this is entirely due

to collinearity. When either is removed from the model, the other is strongly significant and in the predicted direction. Second, *Cardinal* is not significant in this model, which indicates that even though Appropriations subcommittee chairs receive more earmarks than other Appropriations members, they do not receive significantly more money than other Committee members. Third, the results of model 1 indicate that the values of a party leadership post and a seat on the Appropriations Committee are equivalent when it comes to the number of earmarks a member brings home to the district. However, the results of model 2 indicate that party leaders take home significantly more money via earmarks (approximately \$20 million more) than Appropriations members.

Analysis by Bureaucratic Division

In this section of the article, I present tests of two hypotheses which consider the distribution of earmarks by individual policy area. For the purpose of brevity, this section focuses solely on the number of earmarks each member receives, and omits discussion of the dollar values of these earmarks. The hypotheses are as follows:

Members of standing committees receive a disproportionate share of the earmarks falling under that committee's jurisdiction. This hypothesis is one of the most basic predictions of the gains from exchange literature (Weingast and Marshall 1988), but was first identified as a plausible arrangement long before (Maass 1951). Perhaps one of the most heavily tested hypotheses in the congressional organization literature, it also has one of the most anomalous set of results: roughly half of the studies which have tested this hypothesis find support for it, and half do not. For a review of this literature, see Frisch (1998, chap. 4).

The nature of earmarks received by a district will reflect the district's geographic and economic characteristics. This hypothesis goes to the heart of the search for demand-side effects. Members of Congress have incentives to request funding for those projects which would be of the highest benefit to their district (though that benefit may be broadly dispersed or narrowly concentrated on only a few residents). This incentive should lead members to tailor their earmark requests to their constituents' demands and abilities. As a result of this, the set of earmarks within a specific policy area should be most likely to go to districts which would benefit most from receiving them.

I test these final two hypotheses by dividing the earmarks from the eight spending bills into categories on the basis of which bureaucratic division the funds for the earmarks are taken out of. This process takes advantage of

⁸Although if Democrats and Republicans are examined separately, this relationship holds only among the majority Democrats. For more on this difference between the majority and minority party, see Lazarus (2009).

⁹Further tests indicate that ideology and party are not independent of each other. When *NOMINATE* is interacted with party, results indicate that *NOMINATE* is significantly related to earmarking activity among Republicans, but not Democrats.

the fact that Appropriations bills are divided into sections which follow the structure of the bureaucracy's organization. Thus, each earmark is categorized by the agency or department whose budget the spending was taken from. Moreover, the earmarks appearing in each agency's section are substantively related to the policy area which the bureaucratic agencies have responsibility for. Thus, earmarks which direct funds to military bases appear in the budget for the Department of Defense; earmarks which direct funds to farming programs appear in the budget for the Department of Agriculture, etc. In some cases this allows for whole cabinet departments to be considered together; in other cases smaller bureaucratic divisions are treated separately, either because they are independent executive agencies (and thus not under the purview of a cabinet department) or because their earmarks are listed in a separate section of the bill.

This results in the 17 separate categories listed in Table 1. For each category, I estimate either the number of earmarks received by each House member or a dummy variable indicating whether or not an individual member received at least one earmark. The separate types of estimations are necessary because of the large variation in the number of earmarks in each category. As Table 1 shows, several categories had very few earmarks, resulting in a very small amount of variation over the number received by each member. In these cases, it was appropriate to collapse the dependent variable into a dummy and conduct a probit analysis. I did this for each category for which the standard deviation on the variable "number of earmarks received" was less than one. As a result, every bureaucratic division with fewer than 200 earmarks was analyzed with a probit analysis. Robustness checks indicate that in no case did the statistical significance of a key independent variable (described below) significantly change in the switch from a count to a probit model.

Each estimation contains independent variables which test the above two hypotheses. First, a dummy variable indicates whether the representative is a member of the standing committee which oversees the bureaucratic division in question. The committee benefits hypothesis predicts that in each estimation, this variable is positive and significant. Second, each estimation contains between one and three indicators of district demand for the type of spending which comes from the type of earmarks under examination. The variables are listed in Table 3. Many of the indicators are taken from Adler (2002, chap. 3) and Frisch and Kelley (2006, chap. 6). A detailed explanation of each indicator of demand would be overly long. However, I briefly touch on two of the less intuitive measures. First, the coastline dummy for the Commerce Department earmarks results from the fact that 38 of the

42 earmarks coming out of the Commerce Department's budget came from the National Atmospheric and Oceanic Administration section of the bill. Second, the population density indicator for Institute of Museum and Library Services earmarks serves as a proxy for the number and size of museums which are in the district.

In addition to these test variables, each estimation also includes each of the indicators of intrachamber factors employed in the Table 2 analyses. Thus, the analyses consist of 17 individual estimations of one of the following two equations:

of earmarks

$$= B_1(\text{committee dummy}) + B_2(\text{demand indicators}) \\ + B_3(\text{prior vote}) + B_4(\text{NOMINATE}) \\ + B_5(\text{Democrat}) + B_6(\text{seniority}) \\ + B_7(\text{Appropriations}) + B_8(\text{party leader}) \\ + B_9(\text{committee chair}) + B_{10}(\text{Cardinal}) \\ + B_{11}(\text{district ideology}) \\ + B_{12}(109^{\text{th}} \text{ Congress spending})$$

$p(\geq 1 \text{ earmark})$

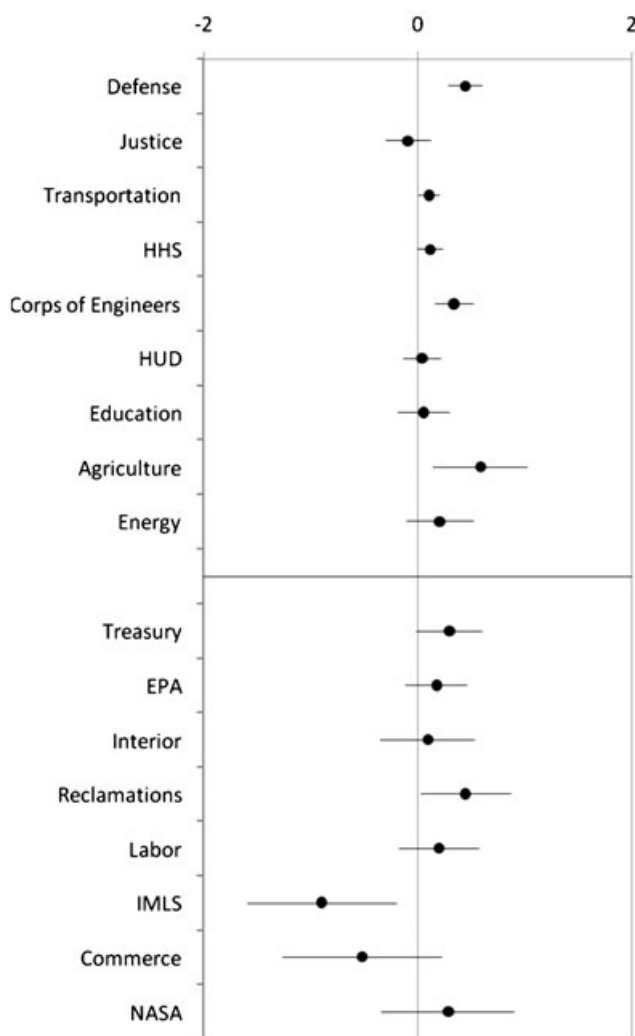
$$= B_1(\text{committee dummy}) + B_2(\text{demand indicators}) \\ + B_3(\text{prior vote}) + B_4(\text{NOMINATE}) \\ + B_5(\text{Democrat}) + B_6(\text{seniority}) \\ + B_7(\text{Appropriations}) + B_8(\text{party leader}) \\ + B_9(\text{committee chair}) + B_{10}(\text{Cardinal}) \\ + B_{11}(\text{district ideology}) \\ + B_{12}(109^{\text{th}} \text{ Congress spending})$$

Only the dependent variable, the committee indicator, and the demand indicators change over the 17 equations. Each dependent variable is estimated with robust standard errors.

Results

Results are summarized in Figure 1 and Tables 4–6. Figure 1 graphically displays the coefficients and 95% confidence intervals on the committee dummy variables in each estimation. For each estimation, the dot indicates the location of the committee dummy's coefficient, and the horizontal line represents the 95% confidence interval (one-tailed test). Lines which lie entirely on the right side of the figure (the vertical line denotes a value of 0) are positive and significant at the 95% confidence level. In these cases, the results indicate that members of the committee receive significantly more earmarks, or are significantly more likely to receive an earmark, than noncommittee members. Entries above the solid horizontal line

FIGURE 1 The Effect of Jurisdictional Committee Membership: Coefficients from 17 Estimations



Each entry represents the coefficient on the committee membership dummy variable in the estimation of the number of earmarks received by each member. In each case, the dot represents the coefficient and the line the 95% confidence interval.

represent negative binomial coefficients; those below the line represent probit coefficients.

Of the 17 committee variables tested, seven are positive and significant. Importantly, four of the five largest categories of earmarks are significantly related to jurisdictional committee membership. By themselves, these four categories represent over half of all of the earmarks in the 2008 appropriations bills. Overall, the standing committees whose members received a disproportionate share of the earmarks overseen by programs in their jurisdictions include several which are traditionally seen as “constituency committees,” which allow mem-

bers to confer benefits to constituents—Armed Services (Department of Defense), Transportation and Infrastructure (Transportation Department; Corps of Engineers), Agriculture (Department of Agriculture), and Natural Resources (Bureau of Reclamations). In addition, members of traditionally policy-oriented committees received significantly more earmarks than nonmembers in two cases: Energy and Commerce (Health and Human Services) and Financial Services (Treasury Department). There was one instance in which committee members received significantly *fewer* earmarks than other members: Education and Labor members received fewer earmarks under the Institute of Museum and Library Services.

The bureaucratic divisions representing policy areas which are studied by the classic works of the pork-barrel literature, and traditionally viewed as those most subject to political influence, each saw significant differences between committee members and noncommittee members. This includes the divisions which represent “rivers and harbors” projects—the Bureau of Reclamations and the Army Corps of Engineers (Arnold 1979; Ferejohn 1974; Maass 1951)—and the Department of Defense (Arnold 1979; Ferejohn 1974). A second interesting result is the prevalence of intracommittee differences. Transportation and Infrastructure oversees three of the divisions represented in the 17 estimations, but members received a disproportionate share of earmarks in only two. Similarly, Natural Resources oversees two divisions, but members were advantaged in only one. These intracommittee differences suggest a possible reason that tests of the committee benefit hypothesis have been so inconclusive. It may be that scholarship which asks which *committees* confer benefits on their constituents is misguided, but analyses should focus on the *bureaucratic divisions*, some of which allow representatives to confer benefits and others of which do not, even within the same committee.

Table 4 reports the substantive differences between committee members and nonmembers for those estimations which showed significant differences. Members of Armed Services were advantaged more than any other standing committee (aside from Appropriations), as committee members received 1.3 more Department of Defense earmarks than other representatives, on average. At the low end, Energy and Commerce members received about one-fifth of an earmark more than other members, on average. In the other three cases in which committee members received more earmarks than nonmembers in a count model, the average difference between members and nonmembers was approximately half an earmark. Looking at the probit estimations, membership on Financial Services increased a member’s probability of

TABLE 3 Indicators of District Demand for Government Spending

Department/Agency	#	Indicator
Department of Defense	1	# of military installations in district
	2	# of major military installations in district
	3	% of population in the military (noncivilian) workforce
Department of Justice	1	population density
	2	% of residents living in urban areas
	3	dummy: district is in one of 50 biggest cities
Department of Transportation	1	% of population employed in transportation and public utilities
	2	% of population employed in construction
	3	% of population which is unemployed
Department of HHS	1	% of population employed in health care
	2	# of hospitals in district
Army Corps of Engineers	1	dollars of damage caused by floods (10-year average, by state)
	2	dollars of flood damage prevented (10-year average, by state)
Department of HUD	1	Population density
	2	% of residents living in urban areas
	3	dummy: district is in one of 50 biggest cities
Department of Education	1	% of population who are students
	2	dummy: district has a research university
Department of Agriculture	1	% of residents employed in farming, fishing, and wildlife
	2	% of residents living in rural areas
Department of Energy	1	dummy: district has a research university
Department of the Treasury	1	size of the state's banking assets
	2	% of population employed in finance, insurance, and real estate
Environmental Protection Agency	1	dummy: district is in one of 50 biggest cities
	2	population density
Department of the Interior	1	population density
	2	# of national parks (by state)
	3	acreage managed by Bureau of Land Management (by state)
Bureau of Reclamations	1	% of residents employed in farming, fishing, and wildlife
	2	% of residents living in rural areas
Department of Labor	1	% of population employed in blue-collar professions
	2	median per capita income
	3	% of population unemployed
Institute of Museum and Library Services	1	dummy: district has a research university
	2	population density
	3	% of residents who are students
Department of Commerce	1	dummy: district has a research university
	2	dummy: district borders an ocean
NASA	1	dummy: district contains a NASA installation

receiving a Treasury Department earmark by over one-third, and membership on Natural Resources doubled a member's probability of receiving a Bureau of Reclamations earmark. The effect of the incor-

rectly signed coefficient, for IMLS earmarks, is in bold text.

Turning to the demand indicators, Table 5 indicates which measures of local demand are significantly

TABLE 4 Substantive Impact of Committee Membership on Number of Earmarks Received

Committee	Bureaucratic Division	# of Earmarks	St. Dev. of DV
Armed Services	Department of Defense	1.30	5.4
Transportation and Infrastructure	Department of Transportation	0.40	2.0
Energy and Commerce	Department of HHS	0.20	1.5
Transportation and Infrastructure	Army Corps of Engineers	0.51	1.9
Agriculture	Department of Agriculture	0.51	3.4
		Change in Probability	% of Members Receiving Earmark
Financial Services	Dept. of Treasury	36.8%	31.7%
Natural Resources	Bureau of Reclamations	101.7%	13.6%
Education and Labor	IMLS	−75.8%	13.6%

TABLE 5 Relationships between Demand Indicators and Earmarks Received

Department/Agency	Indicator #	Predicted Relationship	Result	Department/Agency	Indicator #	Predicted Relationship	Result
Department of Defense	1	+	+	Department of Energy	1	+	+
	2	+		Department of the Treasury	1	+	
	3	+			2	+	
Department of Justice	1	+	+	Environmental Protection Agency	1	−	−
	2	+			2	−	
	3	+		Department of the Interior	1	−	−
Department of Transportation	1	+			2	+	+
	2	+	+		3	−	
	3	+		Bureau of Reclamation	1	+	+
Department of HHS	1	+			2	+	−
	2	+	+	Department of Labor	1	+	
Army Corps of Engineers	1	+	+		2	−	
	2	+			3	+	
Department of HUD	1	+	+	Institute of Museum and Library Services	1	+	
	2	+	−		2	+	
	3	+			3	+	
Department of Education	1	+		Department of Commerce	1	+	+
	2	+			2	+	+
Department of Agriculture	1	+	+	NASA	1	+	+
	2	+	+				

*p < .05; **p < .01; ***p < .001, one-tailed test.

related to the distribution of earmarks for each category of earmarks. To conserve space, Table 5 does not list the name of the variables being tested; rather, it refers to the indicator number which is given in Table 3. Thus, for instance, for the Department of Health and Human Services, indicator #1 is the percent of the district's population employed in health care, and indicator #2 is the number of hospitals in the district. Of the

17 categories of earmarks, 13 of them are significantly related to at least one measure of local demand, and nearly all significant measures are in the predicted direction (16 of 18 overall). Several of the results mirror our intuition of where government funding should go. For example, districts with more military bases received more Department of Defense earmarks; districts with a large farming workforce received more Department of Agriculture

TABLE 6 Substantive Influence of Demand Indicators on Earmarks Received

		Effect of IV: # of Earmarks	St. Dev. of DV
«All Earmarks»	district size	2.07	13.0
Department of Defense	# of military installations	0.30	5.4
Department of Justice	population density	0.22	2.8
Department of Transportation	% employed in construction	0.14	3.5
Department of HHS	% employed in health care	0.09	1.9
Army Corps of Engineers	flood damage, dollars	0.14	1.8
Department of HUD	population density	0.03	1.2
	% of residents in urban areas	−0.03	1.2
Department of Agriculture	% of residents employed in farming	0.47	1.7
	% of residents in rural areas	0.35	1.7
		Change in Probability of Getting Earmark	% of Members Receiving Earmark
Department of Energy	dummy: research university	41%	49.2%
EPA	dummy: 50 biggest cities	−55%	31.3%
Department of the Interior	population density	−50%	16.8%
	# of national parks (by state)	58%	16.8%
Bureau of Reclamation	% of residents employed in farming	149%	13.6%
	% of residents in rural areas	−68%	13.6%
Department of Commerce	dummy: district has research university	139%	8.3%
	dummy: district borders an ocean	432%	8.3%
NASA	dummy: NASA installation	617%	5.7%

earmarks, and districts in states with historically high levels of flood damage received more Army Corps of Engineers earmarks.

The substantive impact of these variables is displayed in Table 6, with the effects of incorrectly signed coefficients in bold text. As in Column 3 of Table 2, the numbers represent the predicted change in the dependent variable resulting from moving the independent variable from its mean value to (mean + 1 standard deviation); dummy independent variables are moved from 0 to 1; and in each case all other variables are held constant. Note that these predicted changes are not necessarily comparable to one another, as there is substantial variation among the earmark categories in both the number of earmarks awarded and the degree to which the dependent variables vary. To partially account for this, I list the standard deviation for each dependent variable in the table; the total number of earmarks is also provided in Table 1. With that caveat, it appears that the categories which are most heavily influenced by district characteristics are the ones with the fewest earmarks. The probability of receiving an earmark from the Bureau of Reclamations, the Department of Commerce, or NASA each rises markedly with the change of applicable independent variables; most prominent are that having a coastline increases

a district's probability of receiving a Department of Commerce earmark more than fourfold, while having a NASA installation increases a district's probability of receiving a NASA earmark more than sixfold. Among the larger categories of earmarks, all changes in the independent variable are associated with relatively modest changes in the number of earmarks received by the district, in each case less than half an earmark. The largest impact is seen in the Department of Agriculture, where a one-standard-deviation increase in the percent of residents employed in farming results in an average increase of almost half an earmark.

One interesting pattern to note is how often population density is significantly correlated with the receipt of earmarks. This variable is positively related to receiving earmarks from the Departments of Justice and Housing and Urban Development and negatively related to receiving earmarks from the Environmental Protection Agency and the Department of the Interior. This highlights the important role that district size plays in influencing the distribution of earmarks, as density and size are monotonically related. However, it also points to district size's nuanced influence. Even though the relationship between district size and the number of earmarks received is positive overall (as indicated in Table 2), two categories of

earmarks which were expected to defy this trend actually do. Moreover, the earmark categories which witness this defiance of the overall trend are very large categories—the Department of Justice is the second largest category, and the Department of HUD is the sixth largest.

Conclusion

This article's empirical results strongly indicate that both intrachamber factors and local demand-side factors influence House members' levels of earmarking activity. Intrachamber factors variables such as seniority, committee membership, and member ideology are significantly related to earmarking activity. In this respect, results conform to expectations from all sides: the common wisdom on earmarks (e.g., Kaiser 2009), and academic treatments both of earmarks specifically (Law and Tonon 2006) and pork barreling more generally (Ferejohn 1973). However, the other major finding—that indicators of economic and geographic characteristics of a district are also strongly related to the number and type of earmarks districts receive—is less well anticipated. This result runs counter to the “common wisdom” hypothesis that earmarks are distributed on a purely political basis. Additionally, while this finding does not directly contradict prior academic treatments of earmarks, no prior theoretical treatment points to it either.

To a certain extent, these results place earmarks squarely in line with other mechanisms used by Congress to distribute funds across localities. Prior research demonstrates that all of these mechanisms, even those which are specifically designed to remove political influence from spending decisions, are subject to political manipulation. This is true of formula grants, which are specifically developed to tie the distribution of federal funds to local need (e.g., Alvarez and Saving 1997), as well as federal programs in which specific allocation decisions are made by bureaucrats (e.g., Arnold 1979). The result is that these other funding mechanisms, like earmarking, distribute funds among localities by some combination of intrachamber and local factors. This commonality raises the question of whether the media's (and to a lesser extent, the scholarly literature's) treatment of earmarks as an outlier within the universe of distributive spending techniques is warranted.

The finding that local factors correlate with the distribution of earmarks is a rehabilitation for earmarks, but it is a limited one for two reasons. First, it addresses only one of the arguments made against earmarking, that it pro-

duces spending outcomes which are overly politicized. For instance, this article does not address the argument that members of Congress are ill equipped to choose which of many competing projects to fund on the merits of the projects (Law and Tonon 2006; Savage 1991). This critique holds that merit evaluation is best performed by experts in the applicable technical field, among whom members of Congress can rarely count themselves. When members choose projects—even if they are well-meaning—projects of lesser merit sometimes or often receive funding over more deserving projects. The second limit on this article's rehabilitation of earmarks is that it does not determine the *relative* influence of political and local determinants of the distribution of earmarks. I claim that this study *raises the question* of whether earmarking is fundamentally different from other funding mechanisms on this score, but the question can be *addressed* only by investigating the balance between political and local factors both for earmarking and for other funding mechanisms. If the balance is similar for earmarking and other funding mechanisms that would constitute evidence that earmarking is not an outlier, but if the balance is tipped more strongly toward political factors for earmarks than for other mechanisms—as Lee (2003) suggests—this would suggest that earmarking is an outlier.

These caveats notwithstanding, there is still value in learning that the distribution of earmarks correlates with local demand for spending. First, these findings serve to highlight how members can insulate themselves from the negative political consequences of earmarking. Even though earmarking as a practice seems to be very unpopular with voters, the individual programs which they fund tend to be locally driven. Thus, even though members may be castigated at a national level for excessive earmarking, at the local level they may be celebrated for propping up the research activity of the local university or securing an upgrade to the aging housing at the local military base. Thus the targeted nature of the projects (i.e., targeted toward district demand) protects members from these kinds of critiques. This argument is very much in line with Arnold's (1990) discussion of targeted benefits and diffused costs.

Additionally, the findings represent an advance in our understanding earmarks' place in the broader political landscape. Of all spending mechanisms, earmarking has the reputation of being least responsive to voter preferences. Indeed, the expectation of most observers—including scholarly, journalistic, and lay observers—is that earmark distribution is influenced only by intrachamber factors. This expectation is fueled by the hidden nature of much of the earmarking process, which shields members of Congress from public scrutiny when

securing earmarks for their district. However, this article finds that even when shielded from public scrutiny, members of Congress are at least minimally responsive to voter preferences. This indicates that earmarks serve as a politically useful link between members and constituents. More broadly, the finding is powerful evidence of the pervasiveness of the electoral connection.

Finally, this research leaves open several questions as pertains to earmark allocation. For instance, as with all single-chamber studies of the House, the question remains as to whether similar results hold in the Senate. Additionally, several questions are still unanswered about the political effects of earmarks: do they actually help members of Congress win reelection, and if so, is the effect fundamentally different from that of other types of pork-barrel spending? Finally, the question remains open as to why a member of Congress may seek to fund certain projects through earmarks and others through different allocation mechanisms, such as a "normal" line item in a spending bill or by putting pressure on administrative agencies. Answering these questions, along with many others, will further our understanding of the role earmarks play in the broader political process.

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