

The Distributive Politics of Grants-in-Aid

Leah Rosenstiel*

November 1, 2022

Abstract

How do political institutions shape government assistance programs in the United States? I show that where the federal government provides public goods and financial assistance depends not only on who has power within Congress, but also the characteristics of their constituents. Government assistance programs allocate grants to state and local governments based on demographic characteristics. Thus, to maximize funding for their own states, legislators must also distribute funding to states with similar characteristics. Using panel data on education spending and a difference-in-differences design, I demonstrate that Senate committee chairs create programs that disproportionately benefit their states, but this benefit spills over to similar states. I then show that when chairs represent high poverty states, Congress enacts programs that better target funding to all high poverty areas. These findings suggest that scholars should consider constituent characteristics and the makeup of congressional committees when seeking to understand government assistance programs.

*Assistant Professor, Vanderbilt University. Email: leah.s.rosenstiel@vanderbilt.edu. I am grateful to Brandice Canes-Wrone, James Curry, John Dearborn, Nathan Gibson, Ben Hammond, Eunji Kim, Christina Kinane, Patricia Kirkland, Frances Lee, Naijia Liu, Asya Magazinnik, Nolan McCarty, Eleanor Neff Powell, Molly Reynolds, Molly Ritchie, and Alan Wiseman.

The federal government provides public goods, income security, and other types of assistance by allocating grants to state and local governments. These programs, also known as grants-in-aid, account for over a quarter of federal domestic spending and nearly 40% of state and local government expenditures (*Analytical Perspectives, FY2023* 2022). Many of the largest and best known government programs—including the National School Lunch Program, Medicaid, the Community Development Block Grant, and the Federal-aid Highway program—are grants-in-aid. Emergency relief packages—such as the Coronavirus Aid, Relief, and Economic Security (CARES) Act and the American Recovery and Reinvestment Act (ARRA)—also contain billions of dollars in grants for state and local governments. Thus understanding grants-in-aid is critical to understanding government assistance and public policy more broadly.

How do political institutions shape government assistance programs in the United States? Existing research highlights the importance of congressional committees (Shepsle and Weingast 1987; Weingast and Marshall 1988), majoritarian rules (Baron and Ferejohn 1989), parties (Balla et al. 2002; Cox and McCubbins 1993, 2005; Levitt and Snyder 1995), elections (Mayhew 1974; Kriner and Reeves 2015), and other political factors in shaping the distribution of resources in the United States. Yet, grants-in-aid are primarily allocated using statutory formulas based on state characteristics, which have been largely ignored by theories of distributive politics.

In this paper, I assess how allocating funding based on demographic characteristics interacts with a common prediction in the literature on Congress and distributive politics: members of key congressional committees, and particularly committee chairs, direct a disproportional share of funding to their constituents (Ferejohn 1974; Weingast and Marshall 1988). I argue that this allocation process—which reflects a substantial portion of the federal budget—changes the impact of committee influence on legislative outcomes. When a grant program is designed to benefit one state, other states with similar characteristics also benefit because funds are allocated based on state characteristics. Applying this logic to committees means that, for example, when committee chairs represent high poverty states, they design programs that allocate funding based on poverty. Thus, the

benefit to states represented by committee chairs should spill over to states with similar characteristics.

To test this theory, I bring together decades of data on federal education programs. First, I estimate the benefit to states represented by Senate committee chairs using a matched difference-in-differences design. I use variation in the timing of program reauthorizations to measure how much grant additional funding a state receives when its senator becomes chair of the committee with jurisdiction over the program. Second, I use a similar design to examine whether that benefit spills over to states with similar characteristics. Third, I examine whether programs better target poverty when committee chairs represent high poverty places.

I find that allocating funding based on demographic characteristics complicates existing theories of distributive politics. I show that states represented by committee chairs disproportionately benefit from grants-in-aid. However, other states with similar characteristics also benefit, sometimes more than the states represented by the committee chairs. These findings join a growing literature that shows that allocating funding based on state characteristics limits legislators' abilities to target funding to specific places (Martin 2018; Rosenstiel 2022). Moreover, if scholars do not account for these spillovers, they will not accurately characterize the influence of congressional committees. Because committee members cannot capture the entire budget, the benefit of committee membership is substantially less than existing theories predict. Additionally, when states not represented by committee members receive a disproportionate share of grants-in-aid, it can appear as though there is no committee benefit. This may explain why existing research on grants-in-aid often fails to find any evidence committee influence (e.g., Berry, Burden, and Howell 2010; Berry and Fowler 2016; Levitt and Snyder 1995).

These results have important implications for redistribution and economic inequality. Grants-in-aid encompass many of the largest anti-poverty programs, including Medicaid, Temporary Assistance for Needy Families (TANF), the Title I-A education program, and Section 8 Housing Choice Vouchers. If the congressional committee system allows a senator representing a state with high poverty levels to write redistributive programs,

then this would result programs that target funding to all states with high poverty. In line with this prediction, I show that grants-in-aid do a better job of targeting poverty when committee chairs represent high-poverty areas. And if the goal of a program is redistribution, then providing more funding to places with high poverty is a necessary—albeit not sufficient—condition for an effective redistributive program.

The remainder of the paper proceeds as follows. I first discuss the allocation of grants-in-aid and briefly review the related literature. I then describe my data, measurement, and estimation strategy. Next, I present my empirical results. I then examine how the congressional committee system shapes anti-poverty programs. I conclude by discussing the conditions under which the congressional committee system results in grants-in-aid that effectively allocate funding to areas with the highest need.

Congress and the Distribution of Funding

Grants-in-aid are unique from other types of federal spending because funds are primarily allocated using statutory formulas based on state characteristics, such as population and poverty. For example, grants for adult education are allocated in proportion to each state's relative share of adults who do not have a high school diploma and who are not enrolled in school. Grants for the education of the disadvantaged use a slightly more complicated formula. Grants are allocated to states in proportion to school-age poverty levels multiplied by state average per pupil expenditures. Under this formula, weights are applied to the counts of children in poverty so that places with higher poverty levels and rates receive more funding per child.¹

There are several reasons why Congress chooses to allocate grants using statutory formulas. Instead of using a formula, Congress could have federal agencies allocate grants

¹In addition to specifying a formula, Congress also determines the eligibility criteria for grants-in-aid. Most grant programs provide funding to all states provided states apply for funding and comply with requirements attached to the funding. For example, to receive funding for the education of the disadvantaged, states must administer standardized tests.

on a competitive basis. However, because grant recipients are chosen by the bureaucracy, Congress has less control over the distribution of funding (Napolio, n.d.). Additionally, certain places may be less able to compete for funds. In particular, members of Congress have expressed concern that rural areas do not have the capacity to effectively compete for grants.² Lastly, unlike formula grants, not all eligible recipients receive funding when grants are allocated using a competition. Because of this uncertainty over funding, competitive grants are not well suited for paying employee salaries, running an annual program, or other activities that need a consistent source of funding.

Existing theoretical work on grants-in-aid focuses on the consequences of allocating funding via formula for bargaining and coalition formation (Martin 2018; Rosenstiel 2022). A common theme in these models is that allocating funding via formula substantially constrains members of Congress. In particular, how members form coalitions—and thus who benefits from grants-in-aid—depends on state characteristics. For example, the same groups of states repeatedly appear in coalitions together (Martin 2018) and senators proposing amendments to formulas form coalitions with senators representing states with similar characteristics to their own state (Rosenstiel 2022). However, the insights of this work have yet to be applied to a key organizing force within Congress: congressional committees.

A long literature explores how congressional committees influence the distribution of federal funding. The underlying assumption in much of this work is that legislators are motivated by reelection (Evans 2011; Ferejohn 1974; Mayhew 1974; Shepsle and Weingast 1981; Weingast and Marshall 1988). To help their reelection chances, legislators try to bring government benefits back to their states or districts—often in the form of government funding. And, this process is facilitated by the congressional committee system. Through the committee assignment process, legislators select onto committees

²For example, the stated purpose of the Rural Education Initiative formula grants is to “address the unique needs of rural school districts that frequently... lack the personnel and resources needed to compete effectively for Federal competitive grants” (20 U.S.C. 7341a).

with jurisdiction over policy areas for which their constituents have high demand. Then, these high demanders or preference outliers use their agenda-setting power (Knight 2005; Weingast and Marshall 1988) and veto power (Shepsle and Weingast 1987) within the chamber to procure a disproportionate share of benefits for their states and districts.

The relationship between congressional committees and funding has been subject to substantial empirical testing. There is evidence that high demanders, measured using constituency characteristics, make up certain committees (Adler and Lapinski 1997; Cormack 2021; Hurwitz, Moiles, and Rohde 2001; Sprague 2008) and subcommittees (Adler 2000). There is also evidence that members of key committees and subcommittees are able to procure more transportation funding for their districts (Evans 1994; Knight 2005; Lee 2003), research funding for universities in their states (Payne 2003), and military construction funding for military bases in their states and districts (Hammond and Rosenstiel 2020). Looking across multiple policy areas, Clemens, Crespin, and Finocchiaro (2015) find that members of Appropriations subcommittees are able to procure more earmarks for their districts. Relatedly, Grimmer and Powell (2013) find that members who lose key committee seats spend more time in their districts, suggesting that committee membership provides an electoral subsidy.

However, not all committee members have equal power in the policymaking process. Committee chairs set the committee's agenda, hire and fire committee staff, and generally act as the floor managers for bills. As a result, committee chairs should procure more benefits than other committee members. In line with this expectation, committee chairs procure more funding for their constituents, are more effective legislators, receive more campaign contributions, and have more value as lobbyists when they leave Congress (Berry and Fowler 2018, 2016; Volden and Wiseman 2014).

Despite the long literature on congressional committees and the prevalence of grants-in-aid, scholars have yet to examine how demographic characteristics interact with committee influence. This paper seeks to bring together insights from the literature on congressional committees with the additional constraints that allocating funding via a formula impose. Following the literature on distributive politics, I argue that commit-

tee chairs are able to use their positions in the policy making process to procure more funding for their states. However, these benefits spill over to other, similar states. For example, a senator from New York might propose a grant program where funding is entirely allocated in proportion to population. This formula benefits New York as it is one of the most populous states and will thus receive a large share of funding. However, other populous states, such as California, also benefit from this formula. This logic yields two hypotheses:

Committee Benefits Hypothesis: States represented by committee chairs disproportionately benefit from grants-in-aid.

Committee Spillover Hypothesis: States with similar characteristics to states represented by committee chairs disproportionately benefit from grants-in-aid.

While the Committee Benefits Hypothesis follows directly from existing theories of committee influence (e.g., Weingast and Marshall 1988), the Committee Spillover Hypothesis is an important departure. Weingast and Marshall (1988) argue that members of congressional committees capture the entire budget under their jurisdiction. That is, for example, all federal agriculture funding allocated by Congress would go to states and districts represented by members of the House and Senate agriculture committees. However, the Committee Spillover Hypothesis posits that, when funding is allocated via formula, states with similar characteristics to the committee chair's state also benefit. If true, then the benefits of committee membership are substantially less than existing theories predict because committee members do not capture all of the resources within their jurisdiction.

Data and Measurement

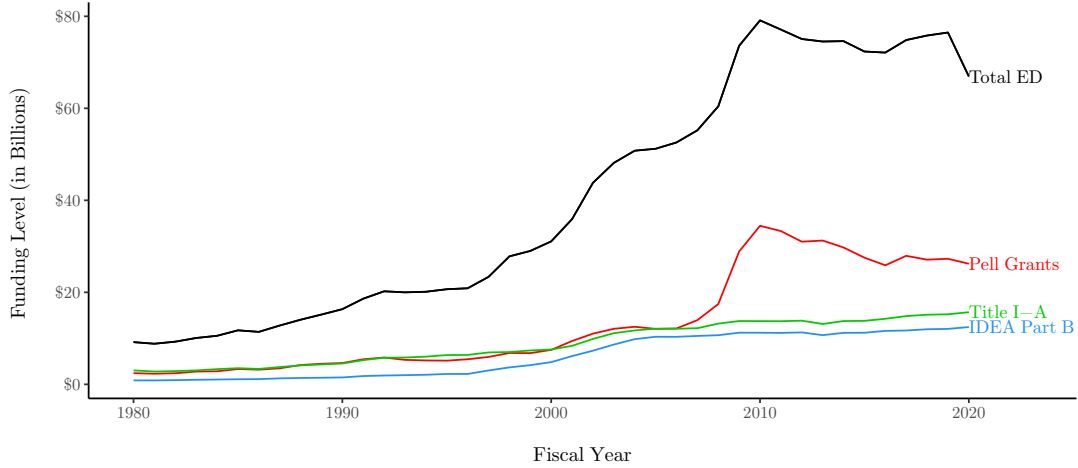
To test my hypotheses, I compile a dataset of all formula grant programs administered by the Department of Education (ED) from FY1980 to FY2020. Education is a useful test

case for my theory because there are a large number of education formula grant programs. Moreover, education programs are authorized by different bills that get reauthorized at different times. Senators have the opportunity to the amend allocation formulas when grant programs come up for reauthorization and, as I discuss in the next section, this variation in reauthorization timing allows me to make within state comparisons of similar programs to quantify the benefits of committee membership and serving as committee chair. Additionally, unlike many other federal agencies, ED provides data on state grant amounts going back to 1980 and these grant amounts are comparable over time.

From 1980 to 2020, ED administered 37 formula grant programs, the largest of which are Pell Grants, Title I-A of the Elementary and Secondary Education Act (ESEA), and Part B of the Individuals with Disabilities Education Act (IDEA).³ For every program, I have data on how much each state received each year. The total funding level for each year is shown in Figure 1 below. In general, federal funding for education increased from 1980 to 2010 and has remained relatively constant since then.

³See appendix for a list of programs included. Data on state grant amounts are available on the Department of Education's website. I exclude the Impact Aid program from this analysis because it has been reauthorized by bills reported out of the Health Education Labor and Pensions Committee and the Armed Services Committee. Thus, it is sometimes unclear what bill last reauthorized the program and who the committee members are.

Figure 1: Funding Levels for Education Grants Allocated via Formula



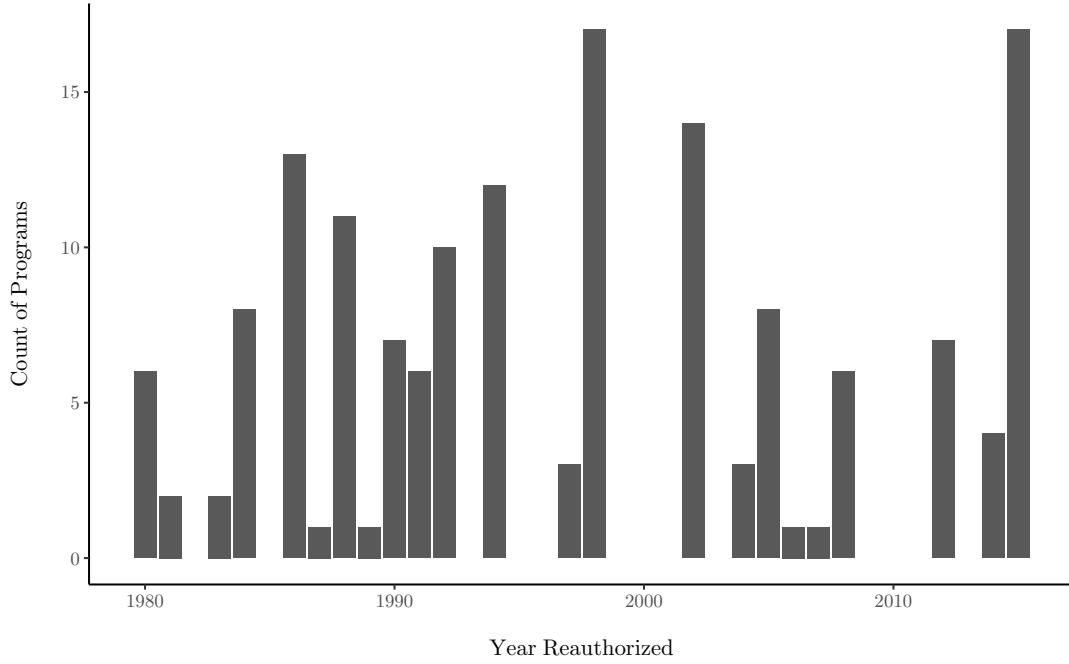
Notes: Figure shows the total funding level for all programs included in the dataset as well as the funding levels for the three largest programs: Pell Grants (Title IV of the Higher Education Act), Title I-A of the Elementary and Secondary Education Act (ESEA), and the Individuals with Disabilities Education Act (IDEA) Part B.

For each program in each year, I hand code when the program was last reauthorized. Programs typically come up for reauthorization every five years. However, if the authorization of appropriations for a given program expire, Congress will typically continue to appropriate funding for that program.⁴ Figure 2 shows the number of programs reauthorized in each year. Reauthorizations appear to happen more frequently at the beginning of the panel, but there are still some reauthorizations at the end of the panel. I match each of these reauthorizations to Stewart and Woon’s (2017) and Nelson’s (1993) congressional databases to determine authorizing committee membership. As all of the programs in the data set are education programs, they all fall under the jurisdiction of the Health Education Labor and Pensions (HELP) Committee.⁵

⁴For example, the authorization of appropriations for many of the education programs in the ESEA expired in 2008, but the bill was not reauthorized until 2015. However, Congress continued to appropriate funding for many of these programs during this period.

⁵During this time period the HELP Committee was also called the Human Resources Committee and the Labor and Human Resources Committee.

Figure 2: Number of Education Formula Grant Programs Reauthorized



To test the committee spillover hypothesis, I need a measure of a state’s similarity to the chair’s state. I do this two ways. First, I construct three binary indicators for whether a given state’s population, poverty levels, and land area are within half of one standard deviation of the chair’s state’s levels. Second, I estimate the overall similarity across all of these measures. To do this, I use a common multi-dimensional measure of distance: cosine similarity (e.g., Hager and Hilbig 2020). Cosine similarity ranges from 0 (entirely dissimilar) to 1 (exactly the same). I consider the state to be similar to the chair’s state if its cosine similarity is in 80th percentile or above.

Estimation Strategy

I assess the impact of committees on grants-in-aid in three steps. First, I estimate the impact of joining a committee on grant amounts. Second, I estimate the additional benefit of being committee chair. The overall benefit for states represented by committee chairs compared to states with no representation on committee is the sum of these two effects. Third, I estimate the additional funding states with similar characteristics to the committee chairs’ state receive.

For all of the analyses, I use a difference-in-differences design that compares grant amounts within the same state and within same year. Specifically, I exploit the fact that programs do not come up for reauthorization at the same time. That is, at the beginning of a legislator’s tenure as chair there will be some programs that she has reauthorized (and thus had the ability to change the formulas) and others she has not. Therefore, I can compare how a state does under a program that the current chair has reauthorized to a similar program that has yet to come up for reauthorization. Put differently, each treated observation has its own control set made up of grant amounts in the same year for the same state under similar programs. The assumption required for identification is that, absent program reauthorization, both treated and control units would have continued along the same pre-treatment trajectories. In the appendix I examine pre-reauthorization trends and find the trends for treated and control units are similar.

To illustrate this identification strategy, consider Senator Ted Kennedy from Massachusetts. Senator Kennedy became chair of the HELP committee in 2007. In 2008, Congress reauthorized the Higher Education Act (HEA), which is under the jurisdiction of the HELP committee. However, the Workforce Investment Act (WIA), which is also under HELP’s jurisdiction, had yet to be reauthorized while Senator Kennedy was chair. To estimate the additional formula funding Senator Kennedy was able to bring to Massachusetts, I compare the change in Massachusetts’s HEA grant amounts between 2008 and 2009 to the change in Massachusetts’s WIA grant amounts over the same time period.

As formula changes are often phased in over time, I estimate the effect of joining the committee and becoming chair immediately following a formula change and for each of the three subsequent years.⁶ Let $D_{ipt} \in \{0, 1\}$ represent the treatment status of state i for program p at time t . Thus, the vector \mathbf{D} for the treatment (T) and control (C) groups is the following:

⁶Thus, I only include observations in the treatment group in year t where the treatment status does not change prior to year $t + 4$. I also only include observations that remained untreated for at least three years prior to reauthorization.

	$t - 3$	$t - 2$	$t - 1$	t	$t + 1$	$t + 2$	$t + 3$
D_T	0	0	0	1	1	1	1
D_C	0	0	0	0	0	0	0

To estimate the treatment effect j years after reauthorization, I compare the change in each treated observation’s logged grant amount between $t - 1$ and $t + j$ to that of its matched control set. I then compute the means within each time bin from $j = 0$ to $j = 3$. To account for the fact that the same observation may be used in the control group for multiple observations in the treatment group (matching with replacement), I estimate standard errors using a weighted bootstrap (Otsu and Rai 2017). To accommodate the panel structure of the data, I cluster the standard errors by state-program (Imai, Kim, and Wang 2020).⁷

This differences-in-differences design overcomes three potential issues for identification. First, a state’s grant amount depends on its formula factors or observable attributes (Martin 2018; Rosenstiel 2022). Comparing the same state in the same year holds state attributes, such as population and poverty, constant. Second, as others have noted, a challenge in measuring the committee advantage is constructing the counterfactual as certain legislators may be more likely than others to select onto a committee (e.g., Grimmer and Powell 2013; Berry and Fowler 2016). Thus I cannot compare a committee member’s state to all other states. This design sidesteps this issue by exploiting the plausibly exogenous variation in program reauthorizations, as opposed to which state is represented by the chair, to make within-state comparisons. Third, recent work suggests that two-way fixed effects regression models may produce biased estimates in cases where observations are treated at different times and there are heterogeneous treatment effects (Goodman-Bacon 2018). Imai, Kim, and Wang (2020) demonstrate that the type of matched difference-in-differences design used here—constructing a control group for each treated unit in the same time period with the same treatment history—is robust to these issues.

⁷See Appendix for a more detailed discussion of the estimation of effect sizes and standard errors.

Results

Below I present my results. Overall, I find strong support for my hypotheses. I find consistent evidence that states represented by committee chairs receive a disproportionate amount of federal funding. Moreover, this benefit spills over to states with similar characteristics.

Table 1 presents estimates of the committee advantage and the committee chair advantage. Consistent with my first hypothesis, I find that states represented by committee members receive more formula grant funding and this benefit is not just due to committee members being high demanders.⁸ Further, there is an additional benefit of becoming the committee chair on top of committee membership.⁹

The estimated benefit of committee membership on grant funding is not only statistically significant but also substantively consequential. In the first year following a reauthorization, committee members' states receive about 15% more education funding and committee chairs' states receive an additional 7%.¹⁰ For the Title I-A program, this means that states represented by committee members receive, on average, an additional \$46 million and committee chairs' states receive, on average, another \$22 million.¹¹

⁸It could be the case that committee members' grants increase because all states' grants increase following reauthorization. In the Appendix, I present a placebo test where I examine the grants of non-committee members and find no significant increase.

⁹The control group includes programs that have yet to be reauthorized since a legislator became chair. Because committee chairs were on committee prior to being chair, the committee chair effect is primarily comparing how a state does when it was represented by a committee member to when it is represented by the committee chair.

¹⁰As grants are measured in log dollars, $100 \times (e^\beta - 1)$ reflects the percentage change in funding in a legislator's state when that legislator is on committee or is the chair.

¹¹The average state grant for Title I-A in FY2020 was \$308 million.

Table 1: Effect of Committee Position on Formula Grants, Diff-in-Diff Estimates

	<i>DV: Grant Amount (Log)</i>				N
	<i>t</i>	<i>t</i> + 1	<i>t</i> + 2	<i>t</i> + 3	
Committee Chair	0.068* (0.033)	0.183* (0.093)	0.085* (0.04)	0.115* (0.049)	145
Committee Member	0.136*** (0.037)	0.121*** (0.035)	0.181*** (0.047)	0.333*** (0.095)	1,179

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Standard errors computed based on 1,000 weighted bootstrap samples in parentheses. Count of observations refers to unique number of state-program reauthorization dyads in each analysis.

Because grants-in-aid are allocated via formula, states with similar characteristics to the committee chair’s state should also benefit. Table 2 presents estimates of the relationship between having similar characteristics to the committee chair and a state’s grant amount. Consistent with my second hypothesis, I find that states with similar population levels to the state represented by the committee chair see an increase in their grant amounts following reauthorization. Specifically, in the first year after a program is reauthorized, states with similar population levels to the committee chair’s state see a 9.9% increase in their grant amounts. Similarly, states with similar poverty levels and poverty rates to the committee chair’s state see a 8.9% increase and 4.1%, respectively, in their grant amounts in the first year after a program is reauthorized.

I do not find evidence that having a similar land area to the chair’s state results in more grant funding. This result is perhaps unsurprising given that—unlike population and poverty—land area likely has little to do with need for education funding. In other policy areas, such as transportation, there may be a relationship between similar land area and more grant funding.

Table 2: Effect of Committee Chair Similarity on Formula Grants, Diff-in-Diff Estimates

Similarity Measure	<i>DV: Grant Amount (Log)</i>				N
	<i>t</i>	<i>t + 1</i>	<i>t + 2</i>	<i>t + 3</i>	
Population	0.101*** (0.02)	0.087** (0.031)	0.171*** (0.039)	0.151*** (0.037)	577
Poverty Level	0.088*** (0.013)	0.095** (0.036)	0.156** (0.047)	0.121** (0.042)	462
Poverty Rate	0.043** (0.014)	0.053* (0.021)	0.074** (0.024)	0.063* (0.03)	423
Land Area	0.003 (0.007)	0.022 (0.011)	0.013 (0.013)	0.006 (0.015)	586
Overall Similarity	0.045*** (0.013)	-0.013 (0.149)	0.02 (0.145)	0.038 (0.153)	394

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Standard errors computed based on 1,000 weighted bootstrap samples in parentheses. Effects for each measure were estimated separately. Count of observations refers to unique number of state-program reauthorization dyads in each analysis. States are considered similar to the chair's state if their population, poverty, or land area fall within half of a standard deviation of that of the chair's state. Overall similarity measured as states where the cosine similarity between their population, poverty, and land area and those of chair is in the top 20%.

Congressional Committees and Anti-Poverty Programs

To further illustrate the interaction between congressional committees and demographic characteristics, I consider how well grants-in-aid target poverty. This is a particularly important question because many of the largest anti-poverty programs in the United States are grants-in-aid. Programs such as Medicaid and the Children's Health Insurance Program (CHIP) provide more affordable health insurance to low-income people. Similarly, Pell Grants provide funding to help low-income undergraduate students pay for college while Section 8 Housing Choice Vouchers help to provide housing for low-income families. Thus, whether grants-in-aid target poverty has important implications for how well anti-poverty programs fight poverty.

Do anti-poverty programs actually distribute funding to people who are low income?

The findings in the previous section suggest yes, but only when chairs represent high poverty areas. To more directly test this question, I look at the how well different programs target poverty depending on who the committee chair was when the program was reauthorized. I examine how well a state’s poverty level, poverty rate, and population predict its grant amount when the chair represents a high-poverty area compared to when the chair represents a low-poverty area. If my theory is correct then high-poverty committee chairs should increase the weight the formula places on poverty and decrease the weight the formula places on population.¹² Specifically, I estimate the following linear model using OLS:

$$\log(Grant_{itp}) = \beta_1 Pov_{it} \times ChairHighPov_{itp} + \beta_2 Pop_{it} \times ChairHighPov_{itp} + \beta_3 Pov_{it} + \beta_4 ChairHighPov_{itp} + \beta_5 Pop_{it} + \beta_6 \log(Funding_{tp}) + \epsilon_{itp} \quad (1)$$

where $Grant_{itp}$ reflects state i ’s grant in year t under program p and $Funding_{tp}$ reflects the funding level for program p in year t . I use two measurements of poverty—a state’s poverty levels and a state’s poverty rate.¹³ I consider the chair’s state to have high poverty if its poverty level is in the top 20% for all states. Similarly, I consider the chair state’s to have a high poverty rate if their poverty rate is in the top 20% for all states.¹⁴

I find that when committee chairs represent high poverty areas, they enact formulas that better target poverty. Table 3 shows the relationship between the chair’s state’s demographic characteristics and the distribution of grants. When the chair represents a state with a higher level of poverty, poverty is a stronger predictor of a state’s grant amount. Similarly, when the chair’s state has a higher poverty rate, poverty rate is a stronger predictor of a state’s grant amount. In addition, I find that when the chair’s state has high poverty, state population is a worse predictor of grant amounts. In other

¹²The theory predicts that $\beta_1 > 0$ and $\beta_2 < 0$.

¹³Poverty rate is calculated by dividing a state’s poverty level by its total population.

¹⁴As the committee chair varies by reauthorization, I cluster the standard errors by reauthorization.

words, when the chair represents a high poverty area, the allocation formula Congress enacts puts more weight on poverty and less weight on population.

Table 3: Chair Characteristics and Targeting Funding to High-Poverty Areas

	<i>DV: Grant Amount (Log)</i>	
	(1)	(2)
Poverty \times High Pov. Chair	1.486*** (0.154)	
Population \times High Pov. Chair	-0.241*** (0.024)	
Poverty Rate \times High Pov. Rate Chair		9.046*** (0.421)
Population \times High Pov. Rate Chair		-0.038*** (0.010)
Poverty	-0.311* (0.154)	
High Pov. Chair	-0.743*** (0.131)	
Poverty Rate		1.353** (0.421)
High Pov. Rate Chair		-1.968*** (0.110)
Population	0.191*** (0.024)	0.151*** (0.010)
Funding Level (Log)	1.060*** (0.046)	1.062*** (0.045)
Constant	-6.478*** (1.020)	-6.665*** (0.988)
Observations	37,499	37,499
Adjusted R ²	0.626	0.626

Note:

*p<0.05; **p<0.01; ***p<0.001

Note: *p<0.05; **p<0.01; ***p<0.001. Table presents OLS regression estimates with standard errors clustered by reauthorization in parentheses. Poverty and population levels measured in millions. A chair's state is considered high poverty if its poverty level/rate is in the top 20% for all states.

Discussion

Taken together, these findings have important implications for how well grants-in-aid target need. The results suggest that who benefits from grants-in-aid, be it places with high poverty or small states, depends on the characteristics of the committee chair's state. Thus, how well allocation formulas target need depends on whether the committee chair represents a state with high need. If Congress is reauthorizing a redistributive formula grant program and the committee chair's state has high poverty then the resulting allocation formula should place more weight on poverty. As a result, other high poverty states should also benefit from the program.

One implication of these findings is that the congressional committee system may actually improve how well formulas target need, which is a necessary—albeit not sufficient—condition for effective federal programs. Weingast and Marshall (1988) show how the committee system in Congress facilitates decision making because it allows for the enforcement of legislative bargains. This is due to both committees' agenda setting power and the fact that committees are made up of high demanders. That is, legislators select onto committees with jurisdiction over policy areas for which their constituents have high demand and then exert disproportionate influence over those policy areas. By a similar argument committee chairs can enact and protect formulas that most benefit their states through their agenda setting power. And, if committee chairs have high need for a program (i.e., they are high demanders) then the formulas they enact and protect are likely to be formulas that target funding toward areas with the greatest need.

However, the current congressional committee system may not lead to senators representing high poverty areas writing the allocation formulas for anti-poverty programs. The reason is that there is no congressional committee focused on poverty. Instead, anti-poverty programs fall under the jurisdiction of many different committees. For example, programs like the Title I-A education program fall under the jurisdiction of the HELP Committee while Temporary Assistance for Needy Families (TANF) falls under the jurisdiction of the Finance Committee. Thus, there is no committee for senators from high poverty areas to sort onto.

Unlike poverty, there are some policy areas aligned with the current committee system. For example, nearly all bills related to agriculture fall under the jurisdiction of the House and Senate Agriculture Committees. Thus, legislators representing states and districts with large farming industries can sort on to this committee. In line with this claim, Adler and Lapinski (1997) find that members of the House Agriculture Committee consistently have higher proportions of constituents employed in farming or living in rural-farming areas compared to non-committee members. Similarly, members of the Armed Services committee typically represent areas with large or important military installations (Adler and Lapinski 1997). The findings in this paper suggest that these committees should write formulas that target need effectively. Thus, for certain types of policies, Congress is well-designed to write programs that target need. However, many of the largest grants-in-aid are anti-poverty programs, which are misaligned with the current committee system.

Conclusion

In the United States, the federal government provides assistance to state and local governments across a wide range of policy areas, including health care, transportation, education, income security, community development, and environmental protection. These programs constitute a substantial share of the federal budget and account for a large portion of state and local government revenues. And, unlike other types of federal spending, grants are primarily allocated based on state characteristics.

The findings in this paper illustrate how the congressional committee system shapes the distribution of federal assistance. In line with existing research, I find that committee members, and particularly committee chairs, are able to direct more grant funding to their states. However, the influence of committees is complicated by the distribution of population, poverty, and other characteristics across states. In addition to benefiting committee members, I find that grants-in-aid also disproportionately benefit states with similar characteristics to committee chairs. For example, when committee chairs represent states with high poverty, Congress enacts formulas that benefits all states with higher

poverty levels.

The analyses contained in this paper produce several important contributions. First, while grants-in-aid make up a substantial portion of the federal budget and account for the majority of federal assistance, they have received much less scholarly attention than other types of federal spending. This paper joins a small literature that argues that federal grant programs are influenced by political considerations and congressional rules (Curry and Donnelly 2020; Lee 2000; Levitt and Snyder 1995; Martin 2018; Rosenstiel 2022). I add to this literature by developing and testing new predictions about how the congressional committee system shapes grants-in-aid and who benefits from these programs.

Second, this project contributes to a long line of research on the role that congressional committees play in the policymaking process. I present evidence that committee members use grants-in-aid as opportunities to procure more funding to their constituents. However, in contrast to existing work, I show that allocating funding via formula alters the impact of committees on the distribution of federal funding. Distributive theories generally argue that committee members use their influence to capture all of the benefits within their committee's jurisdiction (Weingast and Marshall 1988). However, when funds are allocated using formulas, this committee benefit spills over to similar states. As a result, allocating funding via formula substantially reduces the benefit to committee members. And, because of the prevalence of formula grants, this suggests that the value of committee seats is substantially less than previously thought.

The analyses in this paper focus exclusively on education programs. However, there is reason to suspect that the politics may be similar in other policy areas. For example, more than 90% of federal highway assistance is distributed to states via formula. Since its creation in 1916, Congress has changed this formula several times. Generally, the debates over the formula center on how much each state is receiving and members of Congress argue against changes that reduce funding for their states.¹⁵ Thus, as with education,

¹⁵See Kirk (2019) for a more detailed discussion of the history of the highway funding formula.

members of Congress seem to be designing highway assistance programs to benefit their constituents. However, transportation programs fall under the jurisdiction of a different congressional committee. Therefore, more work is needed to assess whether the politics of other Senate committees is similar to those of the HELP committee.

Another question that arises from these findings is how the distributive politics of grants-in-aid differs between the House and Senate. Existing research suggests that senators are more likely to amend formula grants than members of the House. Specifically, because formulas do not allocate grants to congressional districts it is difficult for House members to claim credit for formula changes and know how a formula change will affect funding for their district (Lee 2003, 2004). But, because most formula grants allocate funding to states, these same issues do not affect senators. Thus, the effects of Senate committee membership on grants-in-aid are likely larger than the effects of House committee membership. However, there are some grant programs that allocate funding via formula to sub-state entities, such as school districts or airports.¹⁶ Thus, it could be the case that House committee members are also altering these programs to benefit their constituents and this benefit is spilling over to similar districts.

Noticeably absent from this paper are political parties and their role in designing grants-in-aid. Legislators may be trying to do more than increase funding for their own states and districts. Future research should explore how legislators' distributive motivations interact with partisan ones. For example, it may be the case that legislators support proposals that target funding to constituents represented by electorally vulnerable copartisans. Alternatively, legislators may factor in party brand when evaluating proposals. However, as with committee influence, the use of formulas may limit how well members of Congress can target funding to specific places.

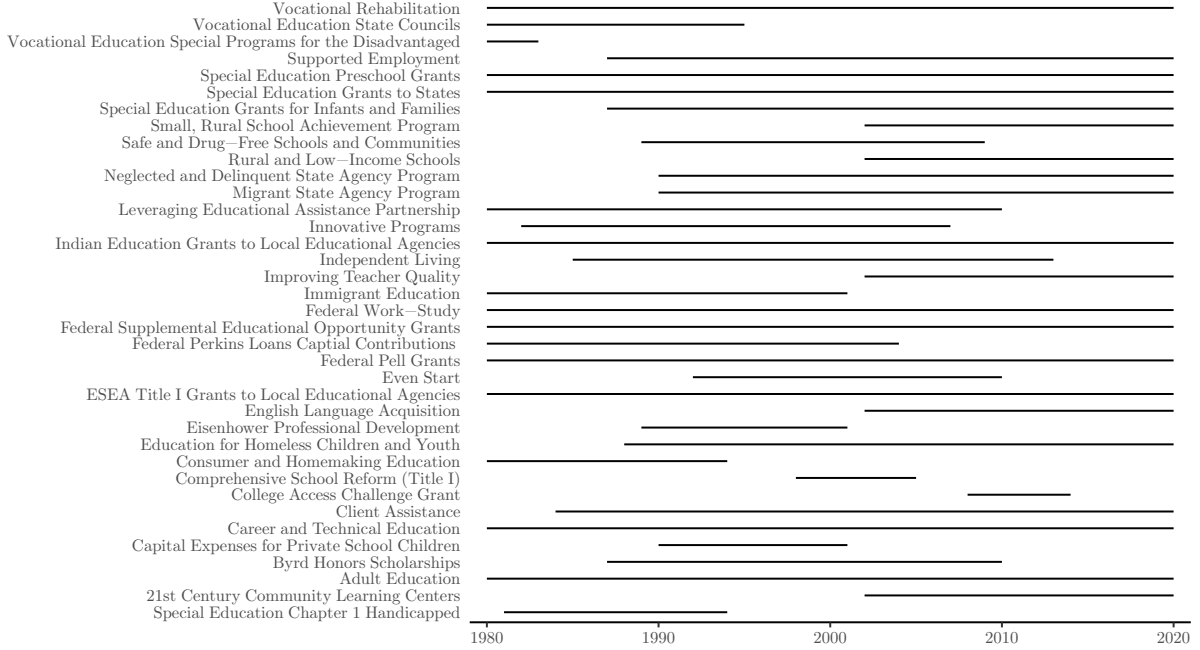
¹⁶For example, under the Impact Aid program, the Department of Education allocates funding directly to school districts.

Appendix

A Data

Figure A1 summarizes which programs are funded in each year in this dataset.

Figure A1: Formula Grants Administered by ED, FY1980 to FY2020



B Estimating the Committee Advantage

To estimate the committee advantage I use a difference-in-differences design where each treated observation is matched with control observations from the same state in the same time period. Let $D_{ipt} \in \{0, 1\}$ represent the treatment status (committee member/committee chair/similar to committee chair) of state i for program p at time t . I estimate the committee advantage j years after a reauthorization for $j \in \{0, 1, 2, 3\}$ using

$$\hat{\tau}_j = \frac{\sum_{i \in S} \sum_{t \in T} \sum_{p \in P} W_{ipt} (Y_{ipt+j} - Y_{ipt-1})}{\sum_{i \in S} \sum_{t \in T} \sum_{p \in P} D_{ipt} \times W_{ipt}} \quad (2)$$

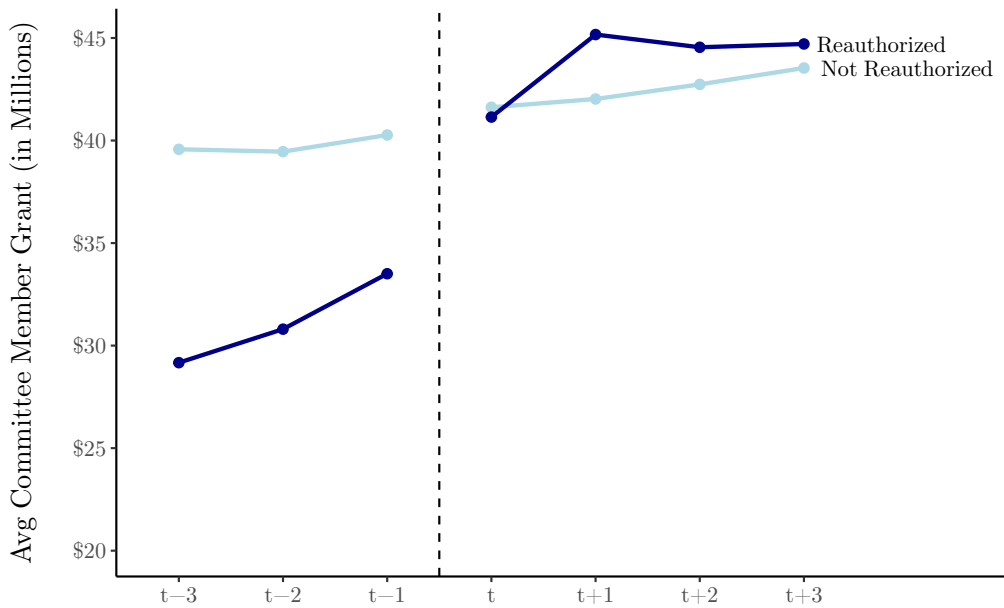
where Y_{ipt+j} is state i 's grant amount under program p at time $t + j$; and

$$W_{ipt} = \begin{cases} \frac{-\sum_{p' \in P} \prod_{j'=1}^3 (1 - D_{ip't-j'}) \prod_{j'=0}^3 D_{ip't+j'}}{\sum_{p' \in P} \prod_{j'=-3}^3 (1 - D_{ip't+j'})} & \text{if } D_{ipt+j'} = D_{ipt-j'} = 0 \forall j' \in \{0, 1, 2, 3\} \\ 1 & \text{if } \prod_{j'=0}^3 D_{ipt+j'} = \prod_{j'=1}^3 (1 - D_{ipt-j'}) = 1; \\ & \text{and } \sum_{p' \in P} \prod_{j'=-3}^3 (1 - D_{ip't+j'}) > 0 \\ 0 & \text{Otherwise} \end{cases}$$

Note that τ is the average treatment effect on the treated (ATT). The denominator reflects the number of treated observations that have at least one control observation in their matched sets. The numerator is equivalent to taking the change in a state's grant amount for treated observations that have a matched set and subtracting it from the average change in that state's grant amounts over the same time period for programs that have yet to be reauthorized. To achieve this, treated observations with a matched control set receive a weight (W_{ipt}) of 1 and control observations receive a weight based on the number of treated observations they are matched to and the number of other control observations in the matched set. To estimate standard errors, I use the weighted bootstrap procedure proposed by Otsu and Rai (2017). Specifically, I treat the weights as covariates and do not re-estimate them within each bootstrap iteration. Following Imai, Kim, and Wang (2020), I use a block bootstrap procedure to sample state-program units to accommodate the panel nature of my data.

The assumption required for identification is that, absent program reauthorization, both treated and control units would have continued along the same pre-treatment trajectories. Provided this assumption is satisfied, I can compare differences in the means of state grant amounts before and after reauthorization among treated and control units, and this estimate represents the effect solely attributable to committee membership or similarity to the committee chair. To test this assumption, Figure A2 examines the pre-reauthorization trends in state grant amounts for committee members. The trends for the reauthorized and not reauthorized grants are similar. This suggests that the parallel trends assumption may be reasonable in this case.

Figure A2: Committee Members' Grants by Reauthorization Status

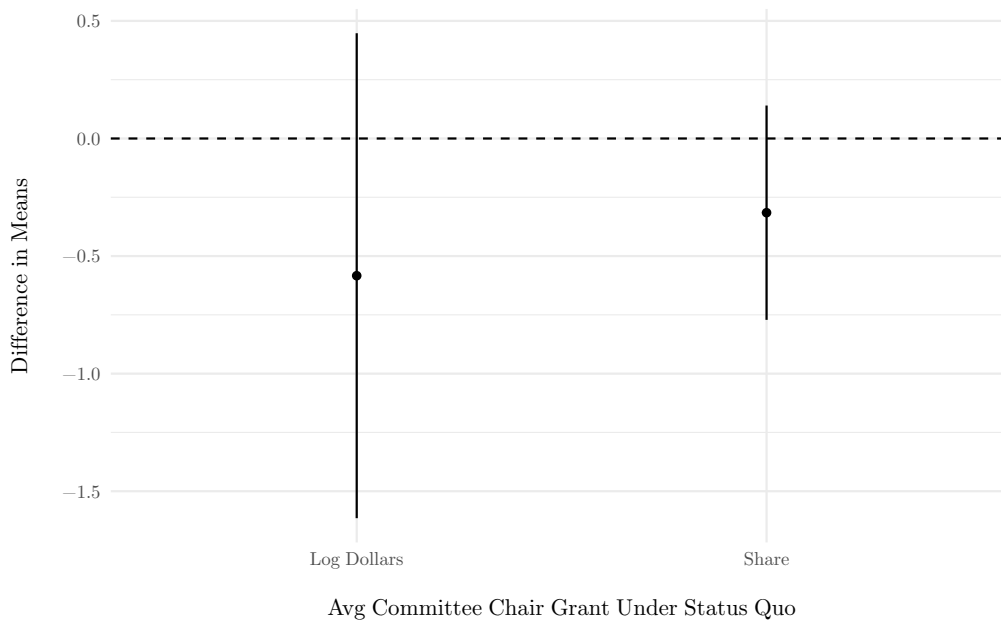


Notes: Averages are weighted so that each treated unit is matched to its control set.

One potential concern with this design is that committee chairs may be strategically selecting which programs to reauthorize. For example, if committee chairs choose to reauthorize programs where their states are doing poorly (and thus have the most room for improvement) then this analysis will overestimate the committee chair benefit. However, a single statute contains multiple formula grant programs as well as other policies. Thus, whether a program gets reauthorized depends on more than just its allocation formula. To empirically test whether committee chairs strategically select programs to reauthorize, I compare chairs' grants under the status quo under programs reauthorized and not reauthorized in a given year. Figure A3 shows the results of this analysis.¹⁷ I find no significant difference between the treatment and control groups. This suggests that chairs are not selecting bills to reauthorize based on how much grant funding their states are receiving under programs included in each bill.

¹⁷The differences in means were weighted so that each treated unit is matched to its control set.

Figure A3: Chair’s Status Quo Grant Balance Between Treatment and Control



Notes: Differences in means are weighted so that each treated unit is matched to its control set. Grant share is measured on a scale from 0 to 100.

C Placebo Test

It is possible that states represented by committee members and the committee chair see an increase in their grant amounts because all states see an increase in their grant amounts following a reauthorization. To account for this, I rerun the analysis for non-committee members and present the results in Table A1. I do not find a significant increase in these states’ grant amounts following program reauthorizations.

Table A1: Effect of Committee Position on Formula Grants Placebo Test

	<i>DV: Grant Amount (Log)</i>			
	<i>t</i>	<i>t + 1</i>	<i>t + 2</i>	<i>t + 3</i>
Not On Committee	0.004 (0.035)	0.008 (0.037)	0.037 (0.041)	0.06 (0.046)
Observations	653	653	653	653

Note: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; standard errors computed based on 1,000 weighted bootstrap samples in parentheses

References

- Adler, E. Scott. 2000. "Constituency Characteristics and the "Guardian" Model of Appropriations Subcommittees, 1959-1998." *American Journal of Political Science* 44 (1): 104–114.
- Adler, E. Scott, and John S. Lapinski. 1997. "Demand-Side Theory and Congressional Committee Composition: A Constituency Characteristics Approach." *American Journal of Political Science* 41 (3): 895–918.
- Analytical Perspectives, Budget of the United States Government, Fiscal Year 2023*. 2022. Office of Management and Budget.
- Balla, Steven J., Eric D. Lawrence, Forrest Maltzman, and Lee Sigelman. 2002. "Partisanship, Blame Avoidance, and the Distribution of Legislative Pork." *American Journal of Political Science* 46 (3): 515–525.
- Baron, David P., and John A. Ferejohn. 1989. "Bargaining in Legislatures." *American Political Science Review* 83 (4): 1181–1206.
- Berry, Christopher, Barry Burden, and William Howell. 2010. "The President and the Distribution of Federal Spending." *American Political Science Review* 104 (4): 783–799.
- Berry, Christopher R., and Anthony Fowler. 2016. "Cardinals or Clerics? Congressional Committees and the Distribution of Pork." *American Journal of Political Science* 60, no. 3 (1, 2016): 692–708.
- . 2018. "Congressional committees, legislative influence, and the hegemony of chairs." *Journal of Public Economics* 158 (1, 2018): 1–11.
- Clemens, Austin, Michael Crespin, and Charles J. Finocchiaro. 2015. "Earmarks and Subcommittee Government in the U.S. Congress." *American Politics Research* 43, no. 6 (1, 2015): 1074–1106.
- Cormack, Lindsey. 2021. "Strength in numbers: The forces of constituency size, legislator identity, and institutional position on veterans' representation." *Social Science Quarterly*, 1–14.
- Cox, Gary W., and Mathew D. McCubbins. 1993. *Legislative Leviathan: Party Government in the House*. University of California Press.
- . 2005. *Setting the Agenda: Responsible Party Government in the U.S. House of Representatives*. Cambridge University Press, September 26, 2005.
- Curry, James M., and Christopher P. Donnelly. 2020. "State Congressional Delegations and the Distribution of Federal Funds." *Political Research Quarterly* (15, 2020): 1–16.
- Evans, Diana. 1994. "Policy and Pork: The Use of Pork Barrel Projects to Build Policy Coalitions in the House of Representatives." *American Journal of Political Science* 38 (4): 894–917.

- Evans, Diana. 2011. "Pork Barrel Politics." In *The Oxford Handbook of the American Congress*, edited by George C. Edwards III, Frances E. Lee, and Eric Schickler. March.
- Ferejohn, John. 1974. *Pork Barrel Politics: Rivers and Harbors Legislation, 1947-1968*. Stanford University Press.
- Goodman-Bacon, Andrew. 2018. *Difference-in-Differences with Variation in Treatment Timing*. 25018. Cambridge, MA: National Bureau of Economic Research.
- Grimmer, Justin, and Eleanor Neff Powell. 2013. "Congressmen in Exile: The Politics and Consequences of Involuntary Committee Removal." *The Journal of Politics* 75 (4): 907–920.
- Hager, Anselm, and Hanno Hilbig. 2020. "Does Public Opinion Affect Political Speech?" *American Journal of Political Science* 64 (4): 921–937.
- Hammond, Ben, and Leah Rosenstiel. 2020. "Measuring the Influence of Political Actors on the Federal Budget." *American Political Science Review* 114 (2): 603–608.
- Hurwitz, Mark S., Roger J. Moiles, and David W. Rohde. 2001. "Distributive and Partisan Issues in Agriculture Policy in the 104th House." *American Political Science Review* 95 (4): 911–922.
- Imai, Kosuke, In Song Kim, and Erik Wang. 2020. "Matching Methods for Causal Inference with Time-Series Cross-Sectional Data." *Working Paper* (4, 2020).
- Kirk, Robert S. 2019. *The Highway Funding Formula: History and Current Status*. R45727. Congressional Research Service.
- Knight, Brian. 2005. "Estimating the Value of Proposal Power." *The American Economic Review* 95 (5): 1639–1652.
- Kriner, Douglas L., and Andrew Reeves. 2015. "Presidential Particularism and Divide-the-Dollar Politics." *American Political Science Review* 109 (1): 155–171.
- Lee, Frances E. 2000. "Senate Representation and Coalition Building in Distributive Politics." *The American Political Science Review* 94 (1): 59–72.
- . 2003. "Geographic Politics in the U.S. House of Representatives: Coalition Building and Distribution of Benefits." *American Journal of Political Science* 47, no. 4 (1, 2003): 714–728.
- . 2004. "Bicameralism and Geographic Politics: Allocating Funds in the House and Senate." *Legislative Studies Quarterly* 29, no. 2 (1, 2004): 185–213.
- Levitt, Steven D., and James M. Snyder. 1995. "Political Parties and the Distribution of Federal Outlays." *American Journal of Political Science* 39 (4): 958–980.
- Martin, Gregory J. 2018. "Dividing the Dollar with Formulas." *The Journal of Politics* 80 (2): 479–493.
- Mayhew, David R. 1974. *Congress: The Electoral Connection*. Yale University Press.
- Napolio, Nicholas G. n.d. "Implementing Presidential Particularism: Bureaucracy and the Distribution of Federal Grants." *Political Science Research and Methods*.

- Nelson, Garrison. 1993. *Committees in the U.S. Congress, 1947-1992, Senate*.
- Otsu, Taisuke, and Yoshiyasu Rai. 2017. "Bootstrap Inference of Matching Estimators for Average Treatment Effects." *Journal of the American Statistical Association* 112, no. 520 (2, 2017): 1720–1732.
- Payne, A. Abigail. 2003. "The Effects of Congressional Appropriation Committee Membership on the Distribution of Federal Research Funding to Universities." *Economic Inquiry* 41, no. 2 (1, 2003): 325–345.
- Rosenstiel, Leah. 2022. "Congressional Bargaining and the Distribution of Grants." Working Paper.
- Shepsle, Kenneth A., and Barry R. Weingast. 1981. "Political Preferences for the Pork Barrel: A Generalization." *American Journal of Political Science* 25 (1): 96–111.
- . 1987. "The Institutional Foundations of Committee Power." *The American Political Science Review* 81 (1): 85–104.
- Sprague, Mary. 2008. "The Effects of Measurement and Methods Decisions on Committee Preference Outlier Results." *Political Research Quarterly* 61 (2): 309–318.
- Stewart III, Charles, and Jonathan Woon. 2017. *Congressional Committee Assignments, 103rd to 115th Congresses, 1993–2017: Senate*.
- Volden, Craig, and Alan Wiseman. 2014. *Legislative Effectiveness in the United States Congress: The Lawmakers*. New York: Cambridge University Press.
- Weingast, Barry R., and William J. Marshall. 1988. "The Industrial Organization of Congress; or, Why Legislatures, Like Firms, Are Not Organized as Markets." *Journal of Political Economy* 96 (1): 132–163.