Conceptualizing and Measuring Strategic Behavior Within American Political Institutions

by

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Dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Political Science in the Graduate School of Duke University

2020
ABSTRACT

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Abstract

The three papers in this dissertation seek to measure more accurately critical concepts in the field of American political institutions so as to inform and enable theory-building. The first paper addresses committee prestige in the U.S. House of Representatives, arguing that the seniority of members transferring off of standing committees reveals important information about the relative prestige of those committees. In response, I import a measure called PageRank which enables me to exploit information on seniority while measuring committee prestige. I then demonstrate that the prestige of a legislator’s committee portfolio predicts the political action committee (PAC) contributions she receives for the next campaign cycle. A second paper tackles the theoretical possibility that majority parties may manipulate their control over committee assignments for partisan goals, countering a vast literature which has generally failed to find evidence of partisan manipulation across state legislatures. I argue that several theoretical and practical constraints render universal stacking impractical and introduce a new measure of partisan stacking called “seats above expectation” (SAE); I find little evidence of universal partisan (or ideological) stacking in state legislatures. I then argue that majority parties should selectively stack committees under two circumstances: (1)
when the operations of committees affect the electoral prospects of all legislators, generating so-called “uniform electoral externalities;” and (2) when committees in a polarized setting are endowed with gatekeeping rights. Leveraging SAE, evidence from the states confirms these selective stacking hypotheses. The final paper examines political polarization, offering a more behavioral conception and a network-based measure, called modularity, applicable to collegial courts and legislatures alike. After demonstrating validity, I then measure polarization at the U.S. Supreme Court and in both houses of Congress using opinion-joining and cosponsorship networks. My primary contributions here are to argue that polarization need not be equated with partisan polarization and to develop a measure which permits such a distinction and decomposition. Indeed, I find that while polarization is tantamount to partisan polarization in the present-day Congress, as recently as four decades ago partisanship accounted for just over half of measured polarization.
Dedication

To Xiaoye, with love and gratitude for the long years of steadfast support and the many, many ways that you brighten my life each and every day.

And to my parents, for a lifetime spent encouraging me to follow my intellectual curiosity—no matter where it leads me.
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Chapter 1

Introduction

…[A] first essential step in the direction of learning any subject is to find principles of numerical reckoning and methods for practicably measuring some quality connected with it. I often say that when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind: it may be the beginning of knowledge, but you have scarcely, in your thoughts, advanced to the stage of science, whatever the matter may be.

– Sir William Thomson (1889, 73–74), 1st Baron Kelvin

“What do you think of our institutions?” is the question addressed to the European traveller in the United States by every chance acquaintance. The traveller finds the question natural, for if he be an observant man his own mind is full of these institutions.

– James Bryce (1891, 1)

As Lord Kelvin intones above, measurement is foundational to scientific progress. Imprecise and atheoretic measurement, on the contrary, retards progress and serves only to postpone the resolution of key debates. The three papers in this dissertation are united in their goal of more accurately measuring critical concepts in the field of American political institutions so as to inform and enable
theory-building. In what follows, I first describe the papers themselves, taking care to outline the argument and contribution of each. In addition to previewing the dissertation itself, this exercise also serves to illustrate the diverse array of institutional settings which I examine. The second section then articulates the dual emphases—the importance of political institutions and theoretically-informed measurement—which unite these papers and my work in general. In doing so, it addresses the epigraphs of Thomson (1889) and Bryce (1891) with which this introduction begins.

1.1 Overview

The first paper takes up the concept of committee prestige in the United States House of Representatives, building upon a literature of estimable vintage (Bullock and Sprague, 1969; Munger, 1988; Groseclose and Stewart, 1998). I argue that the seniority of members transferring off of standing committees reveals important information about the relative prestige of those committees. In response, I introduce a measure from network and computer science, called PageRank (Brin and Page, 1998), enabling me to exploit information on seniority while measuring committee prestige. I then demonstrate that the prestige of a legislator’s committee portfolio predicts the political action committee (PAC) contributions she receives for the next campaign cycle.

A second paper continues the focus on standing committees, but addresses the theoretical possibility that majority parties may manipulate their control over com-
mittee assignments for partisan goals. Here, too, I contribute to a vast literature which has generally failed to find evidence of partisan manipulation across state legislatures (Aldrich and Battista, 2002; Overby, Kazee and Prince, 2004; Prince and Overby, 2005; Richman, 2008; Hamm, Hedlund and Post, 2011; cf. McGrath and Ryan, 2019). I argue that several theoretical and practical constraints render universal (across-the-board) stacking impractical and introduce a new measure of partisan stacking which I call “seats above expectation” (SAE). Deploying SAE in state legislatures, I find little evidence of universal partisan (or ideological) stacking. I then make arguments rooted in partisan theories of legislative organization that majority parties should selectively stack committees under two circumstances. First, and following Cox and McCubbins (1993), majority parties should stack those committees whose operations affect the electoral prospects of all, generating so-called “uniform electoral externalities”. Second, and consistent with both procedural cartel theory (Cox and McCubbins, 1993, 2005) as well as conditional party government (Rohde, 1991; Aldrich, 1995; Aldrich and Rohde, 2000a), majority parties in a polarized setting should stacks committees when they are endowed with gatekeeping rights. Leveraging SAE, evidence from the states confirms these selective stacking hypotheses.

The final paper examines political polarization, offering a more behavioral conception and a network-based measure, called modularity (Newman and Girvan, 2004), applicable to collegial courts and legislatures alike. After demonstrating validity through several analyses and a simulation approach, I then measure polarization at the United States Supreme Court (1791–2017) and in both houses of
Congress (1973–2017) using opinion-joining and cosponsorship networks. My primary contributions here are to argue that polarization need not be equated with partisan polarization (cf. Poole and Rosenthal, 1997) and to develop a measure which permits such a distinction and decomposition. Indeed, I find that while polarization is tantamount to partisan polarization in the present-day Congress, as recently as four decades ago partisanship accounted for just over half of measured polarization.

1.2 Common threads: measurement and institutions

“Kelvin’s dictum” (Merton, Sills and Stigler, 1984) asserts that quantification and measurement constitute a crucial and preliminary step on the path to a science of anything: “…when you can measure what you are speaking about, and express it in numbers, you know something about it…” (Thomson, 1889, 73). I first encountered this idea in the preface to Pritchett’s (1948) classic The Roosevelt Court, wherein he cites a much-condensed version of the dictum as partial inspiration for his groundbreaking quantitative study of judicial voting patterns.¹ What Kelvin meant, of course, was neither to give measurement primacy of place nor to encourage measurement for its own sake. Rather, measurement is a tool in the service of the scientific enterprise. As such, it ought to interact with theory in two distinct ways.

¹Merton, Sills and Stigler (1984) present a fascinating account of their quest to ascertain the original phrasing of Kelvin’s dictum. Like Pritchett, they were inspired by the abbreviated inscription under the bay window of the University of Chicago’s Social Science Research Building.
First, measurement strategy should be informed, to the extent possible, by existing theories. This helps to ensure that the “numbers” mean what we say they mean. While some might argue that hitching measurement to the cart of pre-existing theory lessens the probability of new and creative theorizing, I would argue quite the opposite. By hewing closer to theory in the measurement process, the scholar aids her own ability to falsify existing theory. This, in turn, frees up the creative energy of the field to pursue other avenues.

For this reason, I have sought in this dissertation to take theory as my starting point when proposing each measure. Existing work on committee prestige adopts several theoretical assumptions about intercommittee transfers, a number of which were made explicit over a half century ago (Bullock and Sprague, 1969). Yet despite widespread awareness of and agreement upon these assumptions, one in particular has never been incorporated into strategies for the measurement of committee prestige: “[m]otivation to transfer is a decreasing function of investment in a committee career” (ibid., 495). Conceptualizing intercommittee transfers as a flow of members from lower to higher prestige committees with acquired seniority serving as something of a brake, the parallels to the intuition behind PageRank are immediately apparent. One way of thinking about what PageRank does is to capture the equilibrium distribution of a flow through a weighted network.² Bringing theory to bear on measurement, I incorporate committee seniority via the weights within the transfer network. The upshot of this is a greater verisimilitude between the transfer process as modeled and

²The intuition and computation of PageRank are explained at length in the first paper.
that in reality: high-ranking members of a particular committee are less likely to seek transfers to alternative committees, but when they do, those transfers are particularly informative regarding relative committee prestige.

Seats above expectation, which I introduce in the second paper, is similarly rooted in theory. The existing scholarship on partisan stacking presents theoretical arguments as to why and how the majority party should seek overrepresentation upon standing committees. Fundamentally, padding the majority's margin lessens the probability that a defecting majority party member casts the decisive committee vote. Yet despite this clear theoretical focus on committee seats as the objects of partisan contestation, the literature, to a tee, focuses its empirical efforts on quantities other than seats. In fact, the most frequent subject of attention is seatshare, not seats (Krehbiel, 1993; Aldrich and Rohde, 2000a; McGrath and Ryan, 2019). This theoretically misplaced emphasis has important consequences for the conclusions an analyst may draw. Realized seatshares are calculated upon seats, and the smaller the committee, the rougher the approximation to true proportionality. Because of this, the analyst focused on seatshare will tend to find evidence of partisan stacking when, in fact, the majority hewed as closely to proportionality as a division of whole-numbered seats would allow.

The final paper starts from the observation that political polarization and partisan polarization are theoretically distinguishable, yet frequently conflated in popular discourse and scholarly treatises alike. In fact, the extent to which these two phenomena coincide is an empirical question worthy of further study. Whether the focus is on the Congress or the Supreme Court, the typical approach
to polarization is this: first, measure preferences via voting behavior. Next, classify actors as Democrats (or Democratic appointees) or Republicans (or Republican appointees). Finally, present some measure of central tendency within each group over time. This strategy, best exemplified by Poole and Rosenthal (1997) and Bonica et al. (2013), leaves no traction for the separation of partisan polarization from other facets of polarization.

Intent on disentangling these concepts, I turn for insights to the literatures on clustering and community detection. In these areas, an enormous body of work seeks to identify groups, clusters, or blocs from the data themselves, without the advantage (or disadvantage) of ex ante labels. One such measure, modularity, quantifies the strength of a network's community structure, defined as a partitioning of nodes. More specifically, modularity “measures the fraction of the edges in the network that connect vertices of the same type (i.e., within-community edges) minus the expected value of the same quantity in a network with the same community divisions but random connections between the vertices” (Newman and Girvan, 2004, 7). Conceptualizing polarization in terms of the behavioral patterns of groups, I construct two-mode networks linking political actors to the

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3I will be the first to admit that I have frequently pilfered parts of my approach from network science, computer science, and other domains beyond political science. But if I have learned one thing from reading in other literatures it is the value of “structural holes” (Burt, 1992, 2004) and the potential for “epistemic arbitrage” (Seabrooke, 2014) which they represent. In fact, political science as a discipline has time and again progressed through dialogue with (and outright thievery from) related disciplines. Ordeshook (1990) notes that “political science in particular has been the beneficiary as well as the victim of many intellectual currents from other disciplines, especially sociology and psychology” (9). This he writes in an essay devoted to describing “the emerging discipline of political economy,” one full of references to the canonical works of rational choice (e.g., Downs, 1957; Riker, 1962; Arrow, 1963; Olson, 1971) which are largely the work of economists. All of this is simply to say that this dissertation exploits advances in other disciplines because it is profitable to do so and because, in doing so, it joins a venerable tradition within political science.
documents they write or otherwise endorse. Under this setup, and with suitable adaptation to the bipartite network (Barber, 2007), modularity measures the fit of a particular bloc assignment of actors and documents on the basis of those actors’ endorsements. Because there is widespread agreement that polarization is highest when the number of blocs is reduced to two, I simply identify the best-fitting bipartition and measure its modularity. Polarization thus measured will only equal partisan polarization when partisan affiliations correspond to the optimal partition.

With any luck, measurement should interact with theory in one additional way. Beyond serving as the starting point for measurement, theory should also be informed and refined through its interaction with measurement. As an example, application of my committee importance measure to the U.S. House yields one very interesting result. The Committee on Rules once stood among the House’s most sought after standing committees (Galloway, 1946; Masters, 1961; Bullock and Sprague, 1969), a position it maintained by offering “the right combination of power and prestige to induce talented members to serve” (Mayhew, 1974, 150). Yet by accounting for accumulated seniority when analyzing intercommittee transfers over three separate eras, I demonstrate that the prestige of Rules has declined precipitously to 17th in the post-1994 rankings. This is not to say that Rules is unimportant in contemporary Congresses; quite the opposite—Rules has become so crucial to majority party legislative accomplishments that all prestige has been micromanaged away (Curry and Gloekler, 2009). While this finding is consistent with partisan theories of legislative organization (Rohde, 1991; Cox and McCubbins,
1993; Aldrich, 1995; Aldrich and Rohde, 2000a; Cox and McCubbins, 2005), it also calls attention to the need to theorize further the distinction between committees as vehicles for the pursuit of individuals’—as opposed to parties’—goals.

Similarly, the polarization measure which I introduce in the final paper provides analytical traction on political polarization as distinct from partisan polarization. The benefits to theory development are several. For one, the ability to measure polarization without recourse to partisan affiliations should spark efforts to explain what drives polarization in the absence of substantial partisan differences. If we are excused for conflating polarization with partisanship in the contemporary moment, this explanation falters when aimed at the political behavior of earlier decades. In addition to this general question—what motivates polarized behavioral patterns if not partisanship?—there is a follow-up question which the proposed network measure makes accessible. How does polarization operate in ostensibly nonpartisan institutions such as the federal judiciary, and how does this differ from more partisan arenas like the Congress? In principle, the bipartite network approach is also applicable to roll-call voting, with yea votes encoding links between legislator nodes and bill nodes. Application of this measure to two separate stages of the legislative process could also provoke greater theorizing about the interaction between polarization, partisanship, and legislative institutions. While here these lines of inquiry must remain mere suggestions, in future work I hope to tackle just such questions.

Finally, I turn to the second of the emphases which unify the papers of this dissertation, the importance of political institutions. The mind of “an observant man,”
according to noted historian and Member of Parliament James Bryce, should be “full of” America’s political institutions (1891, 1). “Institutions,” writes the ever-observant Douglass North (1990), “are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction. In consequence they structure incentives in human exchange, whether political, social, or economic” (3). Knight (1992) adds that “for a set of rules to be an institution, knowledge of these rules must be shared by the members of the relevant community or society” (2–3, italics omitted). Bryce took it as self-evident that America’s novel institutions represented “an experiment...the results of which everyone is concerned to watch” (Bryce, 1891, 1), and his magisterial treatise attempts to survey their bewildering array. He concerns himself not simply with the three branches of the federal government, but also the state legislatures, the party system, and various “social institutions.” I appreciate both the broad scope of Bryce’s treatment and the institutional lens he adopts; both inform the approach of this dissertation and my larger research agenda.

It is with this view in mind that I expand my search for insights beyond that well-trodden stomping ground of generations of American politics scholars, the United States House of Representatives. Instead, I supplement study of the House with excursions to investigate the U.S. Supreme Court and state legislatures. Each of these venerable institutions structures the behaviors of its members in ways which crucially impact political and legal outcomes. Within the House, a system of standing committees structures the production of legislation, the time of its members, and the financial contributions of political action committees (PACs). The committee
system's jurisdictional delineations incentivize specialization among members, while at the same time this division of legislative labor allows greater alignment between legislators' activities and their constituents' interests and more precise targeting of campaign contributions (Mayhew, 1974). In other words, committees differ in the work that they do; in their electoral relevance; and in their abilities to attract time, attention, and cash. These differences, in turn, imply a hierarchy of prestige.

Additional institutions—among them, party leadership control over committee appointments, informal “property rights” to committee seats, and the seniority system—ensure that each session's assignment of members to standing committees constitutes a “giant jigsaw puzzle” (Goodwin, 1970; Shepsle, 1978). Such a puzzle demands an orderly solution, and recognizing the institutions which shape it have implications for political behavior. Where party leaders assign committee seats, rank-and-file members exercise limited agency in determining their own assignments. Where property rights adhere to seats, a certain degree of stability will be observed from term to term. And where seniority matters, incentives to request a transfer will be diminished. Against these institutional implications, the committee system's jurisdictional boundaries and financial inequalities will generate incentives to move up the ladder to more prestigious seats. Recognizing the incentives these institutions generate and the behavioral regularities they suggest, I harness the PageRank algorithm to estimate committee prestige.

To take another example, consider the Supreme Court's agenda-setting institutions. Historically, most cases came to the Court on appeals as of right. Not
until passage of the Evarts Act of 1891, in fact, was the Court permitted any discretion over the cases it hears (Frankfurter and Landis, 1928). But by introducing the writ of certiorari, the Act granted the justices a small measure of flexibility in “deciding to decide,” as Perry (1991, 290) puts it. Yet it was only in the wake of the Judiciary Act of 1925 that the bulk of “cases were left to the judicial grace of certiorari” (Frankfurter and Landis, 1928, 211–212). One plausible effect of this marked expansion of the Court’s discretionary jurisdiction is clearly visible in the polarization time-series I present in the final paper. Starting in the early 1930s polarized opinion joining behavior increases sharply, plateauing only around 1950. That this increase in polarization is at least partly due to “judicial grace” is corroborated by the finding that, during a later period of jurisdictional stability, disagreement at the agenda-setting stage is highly predictive of polarized opinion-joining behavior at the merits stage. The upshot is that while the Court’s members could use its “almost unbounded power” (Provine, 1980, 3) to avoid the proverbial “political thicket” (Colegrove v. Green, 327 U.S. 549 at 556), they appear to prefer hearing controversial cases despite the potential ill effects that frequently polarized decisions may have upon the Court’s support (Gibson, Caldeira and Baird, 1998; Bartels and Johnston, 2013; Cho, Todd and Vanberg, 2018).

I now return to Bryce’s (1891) initial question, “What do you think of our institutions?” The papers which comprise this dissertation embody my response: I think they matter for political behavior and, eventually, legal and policy outcomes. And, with proper, theoretically-informed approaches to measurement, I think I can convince the reader that they matter, too.
Chapter 2

How Transfer Networks Reveal the Prestige of Legislative Committees

If the men presently on the Appropriations and Ways and Means Committees believed that the District of Columbia Committee was the most powerful committee in the House, they would seek membership on it.

– Richard Fenno (1973, 4)

2.1 Introduction

Not all House committees are created equal. Some are deemed more prestigious by legislators, and patterns of both intercommittee transfer requests and realized transfers reflect this fact (Matthews, 1960; Shepsle, 1978; Frisch and Kelly, 2006). Yet while scholars have long been cognizant that committees are not equal in their prestige, scholarly measures of such prestige have persisted in treating as
equal legislators’ transfers from one committee to another (Bullock and Sprague, 1969; Munger, 1988; Groseclose and Stewart, 1998; Stewart and Groseclose, 1999), despite knowledge that seniority is not transferable (Goodwin, 1959; Deering and Smith, 1997). This omission will tend to underestimate the prestige of committees at the top end, while inflating it at the lower end.

In this chapter, I introduce a new, network-based measure which exploits information about the seniority of legislators at the time of their transfers to estimate the prestige of standing committees in the U.S. House of Representatives from 1947 to 2019, demonstrating that the prestige of a legislator’s committee portfolio is highly predictive of contributions by political action committees (PACs).

Although the unequal prestige of committees has long been recognized among legislators themselves, it was only statutorily declared with passage of the Legislative Reorganization Act of 1946. Its Section 121(a) initially appeared to rewrite House Rule X in an egalitarian fashion: “Each Member shall be elected to serve on one standing committee and no more.” This apparent equality among committees was promptly abolished, however, as the text continued:

except that Members who are elected to serve on the Committee on the District of Columbia or on the Committee on Un-American Activities may be elected to serve on two standing committees and no more, and Members of the majority party who are elected to serve on the Committee on Expenditures in the Executive Departments or on the Committee on House Administration may be elected to serve on two standing committees and no more.
Shepsle (1978) notes that over the next five years the new rule was frequently yet “modestly” amended, until the one-committee-one-assignment constraint was “deleted altogether” in the 83rd Congress (1953–1955). By the time Masters (1961) published his classic study of House committee assignments, House Rules recognized three distinct tiers of committees: exclusive, semi-exclusive, and non-exclusive. A seat on one of the three exclusive committees—Appropriations, Rules, and Ways and Means—meant a representative had “arrived” (Masters, 1961, 352); it also meant that the member could not serve on another committee simultaneously. A legislator sitting on one of the ten semi-exclusive committees could serve as well on one of the seven non-exclusive committees. Finally, any member could serve on two non-exclusive committees simultaneously. These rules embodied a hierarchical arrangement, for the exclusive committees were so important that one seat would suffice. Restrictions on semi-exclusive committees implied that while one seat would no longer suffice, they were sufficiently important that no one legislator should take two seats of that particular class. Non-exclusive committees, however, were relatively unimportant and as a consequence, any representative could take two of those seats.

For approximately half a century, scholars have sought to move beyond these gross classifications in order to understand precisely how prestigious these committees are to members of Congress. It is not hard to understand why. During the era of the “Textbook Congress” (Shepsle, 1989)—roughly speaking, the two and a half decades following World War II—there was substantial truth in Woodrow Wilson’s (1885) claim that “Congress in its committee-rooms is Congress at work”
The House in particular was a place “dominated... by committees, with party hovering in the background” (Aldrich and Rohde, 1998). Committees, ruled by a chairman-cum-baron, and committee work consumed an inordinate amount of time for the average representative.

Over the ensuing decades, the Textbook Congress came in for significant revisions as political parties moved decidedly out of the “background” and into more prominent roles. Partisan theories of legislative organization, most notably the procedural cartel theory of Cox and McCubbins (1993; 2005) and the conditional party government theory of Aldrich and Rohde (2000a; 2001), hold that parties attempt to secure legislative achievements in order to burnish the collective “brand.” One key route is through leveraging control over committee assignments, for committees possess gatekeeping powers which prevent undesirable (from the majority party’s point of view) legislation from reaching the floor. But as the next chapter argues, partisan manipulation of committee assignments should not be universal:

Rather than expecting the majority party to try to extract partisan benefits from committee construction equally across committees and over time, the theory of conditional party government expects that parties will seek such advantages more often where the advantage is most desirable and when it is most necessary, and less often when these conditions do not hold. By most desirable, we mean that the majority would be more likely to try to gain partisan advantage on the committees that are most important to its agenda, and would be less likely to try it on committees that are less important (Aldrich and
But important to whom, and why? When Aldrich, Rohde, Cox, and McCubbins write of committee importance, what they have in mind are committees which party leaders deem crucial to the pursuit of legislative achievements and the maintenance of partisan brands. This differs fundamentally from the notion of committee prestige which I seek to measure here and which underlies much of the literature on committee transfers and measurement of prestige. Legislators may request committee assignments for many reasons—to aid their reelection, to pad their campaign coffers, to distribute pork, to effect policy change (Fenno, 1973)—but by and large these requests are rooted in calculations of individualistic benefit:

Rank-and-file members are motivated by a desire for ‘good’ committee assignments, where ‘good’ is determined by introspective value judgments, an assessment of the likelihood of obtaining particular assignments, and the opinions, advice, and preferences of interested others. Emerging from these interactions are the revealed preferences of members (Shepsle, 1978, 6, emphasis in original).

If transfer requests tend to reflect the preferences of individual legislators, what of granted requests? While party leadership may grant some requests and deny others on the basis of collective (i.e. partisan) goals, parties also recognize that aiding their members’ reelection efforts is thoroughly intertwined with the pursuit of those goals. I do not here pry into the collective decision-making
processes which produce committee assignments, but operate instead under the assumption that data on realized intercommittee transfers reflect, on balance, the preferences of individual legislators more so than the preferences of party leadership or the party as a collective whole. In this, I follow existing scholarship on the measurement of committee prestige. The point of this digression is merely to raise the conceptual difference between committee prestige as measured here and the notion of committee importance discussed by theorists of partisan legislative organization and analyzed in the next chapter.

To understand the legislative process—whether during the Textbook Congress or afterwards—requires an understanding of the committee system; this, in turn, demands familiarity with the assignment process and the stakes involved. A number of questions ultimately turn upon accurate measurement of committee importance. Do prestigious committee assignments yield greater electoral success (Fenno, 1966; Milyo, 1997)? Conversely, are plum assignments doled out to the already electorally safe (Fenno, 1973; Munger and Torrent, 1993)? Or are they bestowed upon the most loyal partisans (Cox and McCubbins, 1993; Leighton and Lopez, 2002)? Do seats on important committees spur greater campaign contributions (Grier and Munger, 1991, 1993)?

But which committees hold prestige, and how much of it? Because accurate measures of committee importance have the power to inform and further scholarship on American politics, there has been no shortage of creative work aimed at producing them. Much of it, as will be discussed below, has focused on the transfers of members from one committee to another. By assuming, among other
things, that “[m]otivation to transfer is an increasing function of the difference in prestige between a higher prestige alternative and the prestige of [the] current assignment,” scholars have interpreted these transfers as revealed preferences (Bullock and Sprague, 1969). Although the input has changed little since the pioneering work of Bullock and Sprague, the manner in which the data are processed to yield a measure of committee importance has improved considerably over the decades (Munger, 1988; Groseclose and Stewart, 1998).

In what follows, I build upon this line of work by introducing an algorithm, called PageRank, from the realms of network and computer science (Brin and Page, 1998). Adopting a network approach not only uses the maximal amount of information available in the transfer data, it also provides a convenient avenue for introducing additional information on seniority into the calculations. The next two sections review previous work on committee importance and sketch out the logic of PageRank. I then apply the proposed network measure to committee transfer data from the House of Representatives spanning the 80th through the 115th Congresses (1947–2019). A penultimate section estimates the dollar-value of committee assignments by investigating the relationship between committee prestige and PAC contributions. A final section concludes.

2.2 Previous measures of committee prestige

For over fifty years, scholars have sought ways to measure the relative importance of standing committees in the House. Although the earliest work noted the for-
mal delineation of classes of committees, none attempted to quantify committee importance or make finer distinctions between committees of a given class (Goodwin, 1959; Masters, 1961). Since that time, all attempts to measure committee prestige have utilized one of two data sources: committee transfer requests or realized transfers.

To take one example, Shepsle (1978) examines transfer requests from the 86th through the 94th Congresses. By considering simultaneously the identities of the committees the requesting representatives would be leaving behind, he is able to construct a matrix of “revealed transfer preferences” (56–57). While he attempts no formal ranking or quantification of committee prestige, Shepsle reorders the rows of the matrix “to minimize the entries above the diagonal in order to give some indication of relative popularity” (55). In this, there is a recognizable similarity to many rankings of committee prestige. All requests involving the exclusive committees—Appropriations, Rules, and Ways and Means—were requests to transfer onto one of those committees. Veterans’ Affairs, in contrast, was mentioned only in conjunction with requests to leave. Other frequently requested committees included Armed Services, Foreign Affairs, and Judiciary. Committees which would, on the basis of requests to leave, hemorrhage members included House Administration and District of Columbia.

While there is, then, some facial validity to such a ranking, Shepsle astutely points out that transfer requests reflect not only preferences over committees, but also expected value calculations in the face of constraints. In other words, because members cannot make unlimited requests and because only so many requests
can be granted, transfer request data are not sincere expressions of committee preference: “highly valued assignments with low success likelihoods are often avoided. On the other hand, somewhat less attractive committees accompanied by high success probabilities may show up on request lists with surprising frequency” (Shepsle, 1978, 65). Later studies, most notably Frisch and Kelly (2006), have put more comprehensive request data to productive use, but few have made serious attempts to exploit these data for the measurement of committee prestige.

The second data source, observed committee transfers, has been mined more extensively for insights into the relative prestige of House standing committees. The earliest work in this vein focused on the Senate, examining net transfers as a fraction of total, multi-term committee membership (Goodwin, 1959) and net movement between committees (Matthews, 1960). Despite his focus on the Senate, Goodwin also helpfully lists, according to his method, a ranking of House committees. Among the top five were Rules, Foreign Affairs, Ways and Means, Un-American Activities (later renamed Internal Security), and Appropriations, but only rankings—not cardinal values—were published.

The classic study of House committee transfers is Bullock and Sprague (1969), who were admirably explicit about their theoretical assumptions (495):

1. Motivation to transfer is an increasing function of the difference in prestige between a higher prestige alternative and the prestige of the current assignment.

2. Motivation to transfer is a decreasing function of investment in a committee career.

3. Opportunity to transfer is an increasing function of political resources or influence.
Table 2.1: Sample Bullock and Sprague (1969) intercommittee transfer matrix, 95th–99th Congresses. Matrix sums transfers from row committees to column committees. Adapted from Munger (1988) and containing data from Congressional Quarterly.

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4. Committee prestige, when written as a function of time, is constant.

As Bullock and Sprague readily admit, a “weaker, and more accurate, assumption would provide for variation in committee prestige as a function of time” (ibid.), yet due to a paucity of data the stricter assumption is imposed nonetheless. The authors place committee transfers into a square matrix (see Table 2.1 for an example), with departed committees on the rows and destination committees on the columns. The measure itself is calculated as the ratio between column sums.
on the one hand and combined column and row sums on the other. This ratio expresses movement onto a committee relative to total transfers involving that committee:

$$\frac{\text{transfers}_{\text{on}}}{\text{transfers}_{\text{off}} + \text{transfers}_{\text{on}}}.$$ 

While this is relatively easy to calculate once the data are in hand, it needlessly discards information about precisely which committees were left and the specifics of representatives' committee arcs. As Munger (1988) quips, “[t]he transfer ratio takes into account only who left or joined a committee, not where they came from or where they went” (326). Beyond this, it treats all committee transfers as equal when, under Bullock and Sprague’s (1969) Assumption #2, transfers of more senior members should be more informative than those of their junior peers.

The next stage in the evolution of committee prestige, the “net transfer dominance ranking,” leveraged social choice theory to exploit the pairwise comparisons inherent in the committee transfer data (Munger, 1988). Computation begins with a matrix of pairwise net transfers: entry $A_{ij}$ contains the number of transfers from committee $i$ to committee $j$ minus those transfers from $j$ to $i$. Dominance is (arbitrarily) defined as a value of two or more, and the pool of committees is then iteratively partitioned into a hierarchy of sets whose committees dominate all committees lower in the hierarchy. Having established this coarse ranking, within-set ties are broken by Bullock and Sprague’s (1969) transfer ratio method.

Net transfer dominance unequivocally represents an advance over the measures which came before it. Yet it still throws away information. The “net” in net transfer implies that a large number of transfers may potentially be discarded in
constructing the input matrix. Two unreciprocated transfers from Judiciary to Appropriations are equivalent, in this approach, to 12 transfers to Appropriations and 10 back to Judiciary. Recalling the assumptions of Bullock and Sprague (1969), the higher volume of bilateral transfers in the latter scenario could convey information about the transferees’ career stage, political resources, or influence. At the same time, the latter situation would seem to suggest far more equal levels of committee prestige than would the 2:0 ratio of the former situation. Still more information is cast aside with the arbitrary setting of a “significance” threshold for the establishment of dominance. Net transfers of one play no role in shaping the hierarchy of committees, only coming into play when within-hierarchy ties are to be broken.

The most recent work on committee prestige comes from Stewart and Groseclose. In a series of papers (Groseclose and Stewart, 1998; Stewart and Groseclose, 1999; Stewart, 2012), the authors construct and deploy a rational choice model of committee assignment preferences from which they derive cardinal estimates of “committee value.” By defining an average valuation, \( v_i \) of committee \( i \) and setting each member-specific valuation equal to \( v_i \) plus a normally-distributed \( \epsilon_k^i \) for each member \( k \), they derive the probability that member \( k \) prefers committee \( i \) over committee \( j \):

\[
\Phi \left( \frac{v_i - v_j}{\sigma \sqrt{2}} \right)
\]

They then generalize this expression to capture many-to-many transfers, derive a likelihood function, and estimate average committee valuations \( (\nu_i) \) by setting \( \sigma \) to one. The resulting estimates demonstrate strong facial validity, and boast
excellent interpretative features. Negative valuations identify so-called “burden” committees in the sense that “the average member of the House would prefer to forego service on that committee, even if the alternative is service on no committee” (Groseclose and Stewart, 1998, 464).

Despite this obvious advantage, the “Grosewart” method cannot handle committees from which or to which no member ever transfers; coefficients in such cases will explode to positive or negative infinity, as the case may be. As I explain below, the method I propose is explicitly formulated to address just such a pathology. An additional problem, and one that my method also addresses directly, is the fact that transfers are yet again treated with too broad of a brush. It is too much to say that all transfers are treated equally, because many-to-many transfers are handled in a way that ensures committee valuations reflect those asymmetries. A single seat on Ways and Means, for example, is apparently worth three seats (e.g., Energy and Commerce, Armed Services, and House Administration). Yet information intrinsic to the timing of a member’s departure is still discarded. The transfer off of Public Works by a nine-term Congressman says far more than the departure of a rising sophomore. This feature will be addressed systematically in my own measure, to which I now turn.

2.3 Committee prestige and the logic of PageRank

If you have ever used the internet, you have very likely used and profited from PageRank, perhaps without even knowing it. PageRank is the brainchild of two
then-Ph.D. candidates at Stanford University, Sergey Brin and Larry Page, who went on to found Google and dominate the search engine business. Google’s success in this field is due largely to the overwhelming effectiveness of the PageRank algorithm humming under its hood. The motivation behind PageRank was to “bring[] order to the web” by harnessing its intrinsic network structure (Brin and Page, 1998, 109).

Most webpages feature hyperlinks that enable the user to travel directly to other pages. Some of these hyperlinks are reciprocated on the destination page, but many are not. Many pages have a few hyperlinks, some have large numbers of links, and still others are dead ends devoid of hyperlinks. In other words, the internet can be characterized as a directed network whose nodes are web pages and whose links are hyperlinks. Because the number of incoming hyperlinks—in the terminology of network science, the in-degrees—are not uniformly distributed, PageRank assumes that they constitute a signal of page quality or importance. Think of each incoming hyperlink as a vote of confidence in the content of the page to which the user is being directed.

Yet some pages contains hundreds, perhaps even thousands of links. Should their votes be counted equally with those originating from a page with only two or three outgoing links? PageRank answers no. From the perspective of a single page, incoming links which hail from pages of small out-degree are far more valuable than those coming from pages with hundreds of outgoing links. The former come from discerning connoisseurs, while the latter are akin to a throw-everything-at-the-wall-and-see-what-sticks approach. This recognition—that not all links are
created equal—is what separates PageRank from previous work applying results from the academic citation literature. PageRank accounts for incoming links, but does not treat those links equally, opting instead to normalize by the number of outgoing links on each page.

### 2.3.1 Intuition

The next few paragraphs suggest two intuitive ways of thinking about what PageRank does, translate that intuition from the context of webpages and hyperlinks to the context of committees and intercommittee transfers, and then work through the math by which PageRank is calculated. The intuition begins with a common topological interpretation of a random walk along a network. Instead, however, imagine a random surfer on the web with a lot of time on her hands.\(^1\) When faced with a completely random webpage, she randomly selects an outgoing hyperlink and follows it. Once on this second page, she again chooses a link at random to follow. She repeats this, again and again, never hitting her browser’s back button. When she grows bored with the page she is on and the sequence which has taken her there, she abandons the hyperlinks in front of her and starts anew with a completely random webpage, perhaps selected from her bookmark bar.\(^2\) From here, she continues her random surfing by following a randomly selected link from each page she visits. In the limit of an infinitely long random surf, each webpage has a particular probability of being visited. This probability is a page’s PageRank.

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\(^1\)By “a lot of time on her hands,” I intend to consider an infinitely-long random walk along the network graph.

\(^2\)In terms of a random walk, this amounts to “teleportation” to another node in the graph.
Why must our random surfer have recourse to random and wholly unrelated pages when boredom strikes? Consider what would happen in the absence of such jumps in the light of the web’s nonuniform distribution of hyperlinks. Sooner or later, our surfer would inevitably encounter one of the web’s many dead ends, a page with zero outgoing hyperlinks. Here she would stay, trapped forever, destroying the neat congruence between her time of stay (equivalently, probability of visit) and the importance or quality of a given webpage. For this reason, PageRank includes a user-defined “damping” parameter which accounts for the probability that the random surfer grows bored and jumps to a new part of the web.3

Thus far, we have considered unweighted, directed networks. This makes sense, for hyperlinks are dichotomous—they are either present or absent. But PageRank adapts easily to weighted networks, and this is a move that will prove necessary if it is to be fruitfully applied to committee transfer data. A second way to intuit what PageRank does requires abstracting away from webpages and hyperlinks to a generic weighted, directed graph. Reimagine the nodes of this graph as buckets for holding liquid and the links as pipes for transporting flows between them. The weight of a link corresponds to the volume of flow it is capable of supporting. Measuring PageRank on this network is equivalent to injecting a fixed quantity of liquid, normalized to one, and noting where and in what quantities it pools. In this analogy, the damping factor might correspond to the constant evaporation of a particular proportion of the liquid, which then precipitates uniformly across the network. The liquid itself is usefully thought of as something like value, prestige,

3Starting with Brin and Page’s (1998) initial publication, the damping parameter has typically been set to 0.85, implying a probability of teleportation of 0.15.
or importance.

Translated to the realm of American politics, webpages (generally, nodes) become standing committees and hyperlinks (generally, links) become individual transfers of representatives from one committee to another. Our infinitely-lived random surfer becomes an infinitely-lived member of Congress accruing unheard-of levels of seniority. As with the web, in-degree and out-degree vary. A seat on an exclusive committee, such as Appropriations, is typically worth two lesser committee slots. A member transferring onto Appropriations may have, in the previous session, held two seats—one on a semi-exclusive committee and another on a non-exclusive committee. In the transfers network, this would be depicted as two separate links to Appropriations. Conversely, if a member gave up her seat on Appropriations, she would likely be compensated with two lesser assignments. Here the network would reveal two links from Appropriations.

This picture remains incomplete for two reasons. First, we have considered the transfer of but a single representative across two consecutive Congresses. To gauge more fully the relative prestige of House committees requires considering the transfers (or stasis) of every representative. PageRank cannot run without a network, and the network requires accounting for all nodes and all links. Thus, a basic application of PageRank takes as input the full 441x441 transfer matrix for one or more Congresses. Each full-House transfer matrix is constructed by summing over individual-level transfer matrices.

Another factor as yet unaccounted for is seniority. The longer a representative remains on a committee, the higher he climbs in rank. Ceteris paribus, this
acquired seniority serves to dissuade an experienced member from transferring off of a committee in what Shepsle (1978) terms the “opportunity cost effect.”

Transferring off of Armed Services after eight terms of service entails far steeper costs than transferring off after one’s freshman term, for the simple reason that all of the seniority acquired up to that point is forfeited by electing to serve on another committee. In other words, and yet again, not all transfers are created equal. To account for this inequality, I record each transfer not as a dichotomous variable but as a running count of the number of days invested in the outgoing committee. Tabulated this way, a transfer from Armed Services after eight terms of service is weighted eight times more than one occurring after a freshman term.

Before working through the PageRank calculations, it is worth revisiting the intuitive renderings offered above in the specific context of House committee transfers. The random surfer interpretation equated PageRank with the probability of visiting (or the cumulative time spent on) each webpage given an infinitely long time spent following random links and occasionally jumping out of boredom. In the political context, PageRank is equivalent to the time that an infinitely-lived and infinitely senior—yet otherwise completely average—representative would spend on each standing committee, were she to follow the ordinary career paths.

---

4 In a fascinating paper, Kellermann and Shepsle (2009) exploit lottery assignment to the seniority queue among first-term representatives on any particular committee to estimate the effects of committee seniority. They find that less senior members are “less likely to serve as subcommittee chairs on their initial committee, are more likely to transfer to other committees, and have fewer sponsored bills passed in the jurisdiction of their initial committee” (87, emphasis added). The authors also find scant evidence that seniority affects reelection outcomes or passage of non-committee bills passed.

5 Days, rather than terms, are used for the simple reason that committee assignments are not always coterminous with session start and end dates—and because the precise dates of service are readily available.
traced out by her peers. In other words, relative PageRank scores indicate where she would prefer to serve, all else equal.

In the flows and pools analogy, the translation is more straightforward. The liquid is prestige, and PageRank measures to which committees it flows and in what volumes. Wherever prestige accumulates, PageRank will measure it. Should a highly prestigious committee such as Appropriations fail to register any transfers off, a set proportion of its accumulated prestige will evaporate only to be redistributed across the committee system as a whole.

2.3.2 Mathematical algorithm

Consider a set of committees \( c_1, c_2, \ldots, c_n \) where \( n \) denotes the total number of committees in the House. Let \( PR(c_i) \) denote the PageRank of committee \( i \), \( M(c_i) \) the set of committees losing members due to transfers to committee \( i \), and \( S(c_j) \) the total invested days of committee service lost to transfers off of committee \( j \). Then, ignoring the damping factor for now, the PageRank of committee \( i \) is defined as

\[
PR(c_i) = \sum_{c_j \in M(c_i)} \frac{PR(c_j)}{S(c_j)}.
\]  

(2.1)

In prose, the PageRank of any given committee is simply the sum of the PageRanks of those committees yielding members divided by the total seniority those committees shed. Adding in the damping factor, \( d \), accounts for the occasional
jump to follow a different committee career trajectory:

\[
PR(c_i) = \frac{1 - d}{n} + d \sum_{c_j \in M(c_i)} \frac{PR(c_j)}{S(c_j)}
\]  

(2.2)

With probability \(d\), PageRank is defined as in Equation 2.1 as the sum of incoming committees’ PageRanks divided by those committees’ outflow of seniority; with probability \(1 - d\), PageRank is equal to 1 divided equally across the total number of committees in the House. In this formulation, the total amount of PageRank sums to unity, enabling interpretation as a stationary probability distribution.

For purposes of computation, however, it is helpful to formulate PageRank in the language of linear algebra. First define the vector of PageRanks, \(R\), as

\[
R = \begin{bmatrix}
PR(c_1) \\
PR(c_2) \\
\vdots \\
PR(c_n)
\end{bmatrix}.
\]

The ratio between seniority transferred from committee \(j\) to committee \(i\) and all seniority transferred off of committee \(j\), labeled \(\ell(c_i, c_j)\), constitutes the entries of
the stochastic matrix $\ell$

\[
\ell = \begin{bmatrix}
\ell(c_1, c_1) & \ell(c_1, c_2) & \cdots & \ell(c_1, c_n) \\
\ell(c_2, c_1) & \ddots & & \vdots \\
\vdots & & \ell(c_i, c_j) & \\
\ell(c_n, c_1) & \cdots & \ell(c_n, c_n)
\end{bmatrix}
\]  

(2.3)

whose columns each sum to 1 and whose entries are 0 if no members transfer from committee $j$ to committee $i$. PageRank, or $R$, is now the solution to the equation

\[
R = \begin{bmatrix}
(1 - d)/n \\
(1 - d)/n \\
\vdots \\
(1 - d)/n
\end{bmatrix} + d\ell R. 
\]  

(2.4)

In other words, PageRank is the dominant right eigenvector of a rescaled adjacency matrix, and the solution is given by

\[
R = (I - d\ell)^{-1} \frac{1 - d}{n} 1, 
\]  

(2.5)

where $I$ is the identity matrix. In addition to manually calculating PageRank by way of the power method, many network analysis packages for R or Python contain implementations of the algorithm which allow the user to specify the damping parameter $d$, traditionally set to 0.85.\(^6\)

---

\(^6\)This seemingly arbitrary figure comes from the original context of webpage rankings, where $(1 - d)$ corresponds to early estimates of the frequency with which the average user would navigate.
2.4 Committee prestige in the U.S. House of Representatives

PageRank calculations take as input modified adjacency matrices which summarize the flow of seniority between committees. Construction of these adjacency matrices, in turn, requires historical data on House members’ committee service. These data have been meticulously compiled by Garrison Nelson, Charles Stewart, and Jonathan Woon (Nelson and Stewart, 1992; Stewart and Woon, 2017), and Stewart has graciously shared these data on his personal webpage.\footnote{Raw committee data can be found at \url{http://web.mit.edu/17.251/www/data_page.html}.} These combined datasets cover the 80\textsuperscript{th} through the 115\textsuperscript{th} Congresses (1947–2019). The basic form of these data is one entry (row) for each member’s service on one committee in one session, with variables documenting the member’s name and ID, the committee’s name and ID, and the term-specific start and end dates, among other things. After combining several datasets and engaging in substantial cleaning and vetting of the data, my dataset contains 26,747 observations of legislator-committee service spanning the 80\textsuperscript{th} through the 115\textsuperscript{th} Congresses (1947–2019).

While Bullock and Sprague (1969), Munger (1988), Groseclose and Stewart (1998), and Stewart and Groseclose (1999) harness similar data to analyze the volume of members’ committee transfers over time, no scholar has yet leveraged these data to the fullest to account for accumulated seniority at the time of transfer.\footnote{Fowler and Law (2008), however, abandon transfer data entirely and define a measure of} Adopting a network perspective and adapting the PageRank algorithm to a new page via bookmarked URLs as opposed to following in-page hyperlinks.
permits me do so. When constructing the transfer adjacency matrix, I do not record each transfer dichotomously, but rather in terms of the number of days that a representative had invested in the committee at the time of her transfer off of it. This simple adjustment accounts for the manifest difference between a two-term Congresswoman departing the Judiciary Committee for the Energy and Commerce Committee and an eight-term Congresswoman making the same transfer. Because the latter hypothetical legislator is willing to sacrifice her accumulated seniority on Judiciary for a seat on Energy and Commerce, this transfer reveals more about the relative prestige of the two committees.

A second defect of all existing measures of committee prestige is that they fail to account for the instability of the committee system itself. Although standing committees tend—by their very definition—to persist over long periods of time, the House's committee system has not survived unaltered over the preceding seven-plus decades. Indeed, in that span of time four committees were abolished and five new ones were established. Practically speaking, this means that legislators' committee prestige as the average years of continuous service of a committee's members.

9The Committee on Science and Astronautics was established on January 3, 1959, the opening day of the 86th Congress (Committee on Science and Technology, 2008); House Resolution 418 of the 90th Congress created the Committee on Standards of Official Conduct on April 13, 1967 (Amer, 2008); the Committee on the Budget was statutorily created by the Budget and Impoundment Control Act, passed by the 93rd Congress and signed into law on July 12, 1974 (Committee on the Budget, 2006); the Committee on Small Business was granted standing status with passage of the Hansen Committee's substitute reform package in October 1974, effective with the 94th Congress (Davidson and Oleszek, 1977); the Committee on Internal Security was abolished on January 14, 1975, on day one of that same session (Schamel, 1995); in the wee hours of January 5, 1995, members of the new 104th Congress jettisoned three committees, the Committee on the District of Columbia, the Committee on Merchant Marine and Fisheries, and the Committee on the Post Office and the Civil Service (Deering and Smith, 1997); and finally on January 4, 2005, opening day of the 109th Congress, the Committee on Homeland Security was established (Committee History, available at https://homeland.house.gov/about/committee-history).
opportunities to acquire seniority vary by committee. Transfers off of committees established by the Legislative Reorganization Act of 1946 which occurred in 1980, for example, could not be meaningfully compared with 1980 transfers off of Small Business, which at the time was a mere five years old. Generally speaking, this is a problem with the PageRank algorithm itself, which has a tendency to favor older pages due to their greater likelihood of accumulating incoming links. I attempt to mitigate this shortcoming by normalizing the number of days served on a committee at the time of departure by the age (in days) of the committee itself. A final point to mention about how data were processed concerns what Groseclose and Stewart (1998) term “null transfers.” In these situations, “members give up a committee for nothing in return or acquire a new committee assignment without giving up an old one” (460). On those occasions when a member trades in one committee for two assignments, his seniority investment is distributed evenly across the latter two committees. Conversely, when a representative trades two seats for one, all of the seniority accrues to the destination committee.

Having explained how PageRank works and described the committee transfer data, I now turn to the initial results. Table 2.2 presents the PageRank estimates of committee prestige from pooled transfer matrices spanning the 80th–115th Congresses (1947–2019). The three exclusive committees—Ways and Means, Appropriations, and Rules—occupy three of the top four slots. Foreign Affairs, which may surprise some by securing a rank of two, is no anomaly, but I defer until later further exploration of that particular result. Among the nine committees deemed semi-exclusive at the beginning of this time period, the average rank is
Table 2.2: So-called “exclusive” committees and Foreign Affairs are the most prestigious committees in the House. Committee importance quantified by applying the PageRank algorithm to a tenure-weighted transfer matrix representing the 80th–115th Congresses (1947–2019).

<table>
<thead>
<tr>
<th>Rank</th>
<th>PageRank</th>
<th>Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.1886</td>
<td>Ways and Means</td>
</tr>
<tr>
<td>2</td>
<td>0.1159</td>
<td>Foreign Affairs</td>
</tr>
<tr>
<td>3</td>
<td>0.106</td>
<td>Appropriations</td>
</tr>
<tr>
<td>4</td>
<td>0.1057</td>
<td>Rules</td>
</tr>
<tr>
<td>5</td>
<td>0.0587</td>
<td>Energy and Commerce</td>
</tr>
<tr>
<td>6</td>
<td>0.0395</td>
<td>Armed Services</td>
</tr>
<tr>
<td>7</td>
<td>0.0373</td>
<td>Education and Labor</td>
</tr>
<tr>
<td>8</td>
<td>0.0333</td>
<td>Government and Oversight</td>
</tr>
<tr>
<td>9</td>
<td>0.0306</td>
<td>Agriculture</td>
</tr>
<tr>
<td>10</td>
<td>0.029</td>
<td>Budget</td>
</tr>
<tr>
<td>11</td>
<td>0.0277</td>
<td>Banking and Finance</td>
</tr>
<tr>
<td>12</td>
<td>0.0249</td>
<td>Judiciary</td>
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<tr>
<td>13</td>
<td>0.0221</td>
<td>Transportation and Infrastructure</td>
</tr>
<tr>
<td>14</td>
<td>0.0214</td>
<td>Science</td>
</tr>
<tr>
<td>15</td>
<td>0.0203</td>
<td>District of Columbia</td>
</tr>
<tr>
<td>16</td>
<td>0.0189</td>
<td>House Administration</td>
</tr>
<tr>
<td>17</td>
<td>0.0178</td>
<td>Natural Resources</td>
</tr>
<tr>
<td>18</td>
<td>0.0161</td>
<td>Post Office</td>
</tr>
<tr>
<td>19</td>
<td>0.0155</td>
<td>Standards of Conduct</td>
</tr>
<tr>
<td>20</td>
<td>0.0152</td>
<td>Homeland Security</td>
</tr>
<tr>
<td>21</td>
<td>0.0141</td>
<td>Veterans’ Affairs</td>
</tr>
<tr>
<td>22</td>
<td>0.0141</td>
<td>Internal Security</td>
</tr>
<tr>
<td>23</td>
<td>0.0139</td>
<td>Small Business</td>
</tr>
<tr>
<td>24</td>
<td>0.0135</td>
<td>Marine and Fisheries</td>
</tr>
</tbody>
</table>

9.22. Eliminating Post Office from this category, as had already been done by the time that Rohde and Shepsle (1973) conducted their study of House assignments, the average rank of semi-exclusive committees rises to 8.13. Adding Science and Budget, as was the case soon after, the average rank declines slightly to 8.9. In
other words, the approximately nine semi-exclusive committees post an average rank around 9. The natural baseline for this comparison is to calculate the average rank were the semi-exclusive committees to hold the nine of the top 12 spots (with the exclusive committees holding the top three); that value stands at precisely 8. The measure, then, exhibits excellent facial validity.

Beyond ranks, the PageRank algorithm assigns committees cardinal prestige values. Over the 70-odd years under study here, nearly 19% of committee prestige accrued to the Committee on Ways and Means. There is a substantial drop-off from Ways and Means to Foreign Affairs, Appropriations, and Rules, which each claim approximately 11–12% of committee prestige. In other words, Ways and Means was deemed nearly 73% more prestigious than the average of the next three committees. There is another large drop-off from fourth to fifth place, with Energy and Commerce claiming almost 6% of committee prestige; no other committee grabs more than 4%. Given the nature of the PageRank algorithm, a natural cutoff point exists at $1/n$, or the quantity of prestige each committee would receive in an egalitarian setting. Here that cutoff is $1/24 = 0.0417$, and only the top five committees exceed that threshold. One way to interpret this result is that prestige, in any meaningful sense of the term, attaches only to the top five committees.
Table 2.3: Committee prestige according to PageRank strongly correlated to existing measures. Table compares estimates of committee prestige and relative ranks across four procedures: the PageRank algorithm presented here, as well as the those outlined in Bullock and Sprague (1969); Munger (1988), and Groseclose and Stewart (1998). Data cover the 80\textsuperscript{th}–102\textsuperscript{nd} Congresses (1947–1993).

<table>
<thead>
<tr>
<th>Committee</th>
<th>PageRank Rank</th>
<th>PageRank Ratio</th>
<th>Bullock and Sprague Rank</th>
<th>Bullock and Sprague Ratio</th>
<th>Munger Rank</th>
<th>Munger Rank Coefficient</th>
<th>Groseclose and Stewart Rank</th>
<th>Groseclose and Stewart Rank Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>11 0.0239</td>
<td>11 0.36</td>
<td>13</td>
<td>11 0.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriations</td>
<td>4 0.1093</td>
<td>3 0.95</td>
<td>3</td>
<td>2 5.08</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Armed Services</td>
<td>5 0.0457</td>
<td>4 0.74</td>
<td>9</td>
<td>5 1.96</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Banking and Finance</td>
<td>9 0.0266</td>
<td>15 0.22</td>
<td>17</td>
<td>14 0.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Budget</td>
<td>14 0.0201</td>
<td>8 0.59</td>
<td>6</td>
<td>7 1.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District of Columbia</td>
<td>13 0.0210</td>
<td>13 0.24</td>
<td>22</td>
<td>13 0.59</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education and Labor</td>
<td>6 0.0382</td>
<td>14 0.22</td>
<td>14</td>
<td>19 0.28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy and Commerce</td>
<td>8 0.0323</td>
<td>6 0.64</td>
<td>10</td>
<td>4 2.00</td>
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<td>Foreign Affairs</td>
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<td>4</td>
<td>6 1.72</td>
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<td>Government and Oversight</td>
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<td>16 0.22</td>
<td>19</td>
<td>21 0.26</td>
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<tr>
<td>House Administration</td>
<td>15 0.0195</td>
<td>18 0.21</td>
<td>8</td>
<td>8 1.08</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Internal Security</td>
<td>19 0.0146</td>
<td>10 0.36</td>
<td>7</td>
<td>9 0.97</td>
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<td>Judiciary</td>
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<td>11</td>
<td>12 0.81</td>
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<td></td>
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<tr>
<td>Marine and Fisheries</td>
<td>23 0.0140</td>
<td>17 0.21</td>
<td>15</td>
<td>15 0.56</td>
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<td>Post Office</td>
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<td>20 0.180</td>
<td>18</td>
<td>18 0.31</td>
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<tr>
<td>Rules</td>
<td>3 0.1365</td>
<td>1 0.97</td>
<td>1</td>
<td>3 4.47</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Science</td>
<td>10 0.0244</td>
<td>21 0.15</td>
<td>20</td>
<td>17 0.34</td>
<td></td>
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</tr>
<tr>
<td>Small Business</td>
<td>21 0.0141</td>
<td>23 0.09</td>
<td>23</td>
<td>23 -0.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standards of Conduct</td>
<td>22 0.0140</td>
<td>7 0.59</td>
<td>6</td>
<td>20 0.28</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation and Infrastructure</td>
<td>18 0.0178</td>
<td>12 0.24</td>
<td>16</td>
<td>16 0.55</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Veterans' Affairs</td>
<td>20 0.0144</td>
<td>22 0.14</td>
<td>21</td>
<td>22 0.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ways and Means</td>
<td>1 0.1715</td>
<td>2 0.96</td>
<td>2</td>
<td>1 ∞</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 2.3 provides a comparison of committee rankings produced by four procedures: my PageRank approach, Bullock and Sprague’s (1969) transfer ratio, Munger’s (1988) net committee dominance, and Groseclose and Stewart’s (1998) “Grosewart” method. Committee rankings according to PageRank correlate strongly with those of existing methods. That is not to say that there are no meaningful differences. Compared to the consensus ranking of the three previous studies, PageRank rates Government and Oversight, Education and Labor, and Science as somewhat more prestigious. Conversely, PageRank rates Standards of Conduct, Internal Security, and Budget as less prestigious than do previous methods.

Groseclose and Stewart, whose method also ranks Standards of Conduct considerably lower than did earlier methods, attribute the difference to the fact that those methods “emphasize the number of transfers, while they de-emphasize the committees to which and from which the members transfer” (466). Because members of Standards of Conduct frequently have cause to “step on the toes” of their peers, they are less likely to have previously held prestigious assignments and less likely to ascend the ladder of prestigious committee assignments.

---

10 This unfortunate appellation is Groseclose and Stewart’s own choosing.

11 PageRank’s Spearman rank correlation coefficient with Bullock and Sprague’s (1969) transfer ratio is 0.61, with Munger’s (1988) net committee dominance is 0.45, and with Groseclose and Stewart’s (1998) Grosewart method is 0.61.

12 Here, as elsewhere, I adopt for each committee a single name which tries to embrace the various names that have been used over the decades. There is no “Committee on Government and Oversight”, nor has there ever been one. But the committee to which this label refers has been variously named Expenditures in the Executive Departments (80th–82nd), Government Operations (83rd–103rd), Government Reform and Oversight (104th–109th), Oversight and Government Reform (110th–115th), and Oversight and Reform (116th).
Other noteworthy points of comparison lie in the cardinal estimates. First, unlike Munger’s net committee dominance method, PageRank provides cardinal estimates in addition to ranks. Second, unlike the Grosewart method, PageRank estimates do not “explode” in the presence of committees so prestigious that representatives are never willing to leave. That is precisely what happens to the Grosewart estimate for the value of Ways and Means, which featured strong in-transfers but zero out-transfers. For a method which touts the interpretability of its cardinal estimates, the tendency for coefficients to explode toward infinity is quite problematic.

While pooling the data certainly provides more grist for the estimating mill, there are very good reasons for questioning whether committee prestige has in fact remained fixed for three-quarters of a century. The mid-1970s witnessed several institutional changes to the committee system, including the so-called Subcommittee Bill of Rights (1973), the shift of Democratic committee appointments from Ways and Means to the Steering and Policy Committee (1974), and the jurisdictional reforms of the Hansen Committee (1974) (Joint Committee on the Organization of Congress, 1993). A second slew of changes were unleashed with Republicans’ 1994 reclamation of the House and Speaker Newt Gingrich’s issuance of a “Contract with America.” Among these changes included the outright elimination of three committees, new per capita limits on the number of committee assignments, jurisdictional tinkering, and staff reductions. Perhaps the largest change, however, was a wholesale shift of power from committee chairs to majority leadership and the Speaker: committee chairs acquired term limits, lost
powerful tools such as proxy voting and rolling quora, and saw reductions in staff and their ability to work in executive session (Deering and Smith, 1997). While it is difficult to tease out from these institutional changes committee-specific predictions of changing prestige, it is clear that, as Munger (1988) notes, the “assumption that rankings are stationary should be used therefore with extreme care” (331).

With this in mind, I present in Figure 2.1 three sets of committee prestige estimates covering the “pre-reform” era of the 80th–93rd Congresses (1947–1975), the “post-reform” era of the 94th–103rd Congresses (1975–1995), and the “post-Newt”
era of the 104th–115th Congresses (1995–2019). Conveniently, this partitioning also separates the data into approximately equally-sized temporal subsets of 28, 20, and 24 years each. Committee rankings are strongly correlated between consecutive eras, but only moderately correlated from the pre-reform and post-Newt eras.

Among the more interesting aspects of these results are the exclusive committees. While Appropriations and Ways and Means exhibit relative stability across eras, never ranking outside of the top four, Rules exhibits a notable decline. From a pre-reform rank of third-most prestigious, Rules declined to fifth place in the post-reform era and to 17th in the wake of the “Republican revolution” (Aldrich and Rohde, 2000b). While most scholars still consider Rules to be a “prestige” committee, Curry and Gloekler (2009) counter that increased control over membership and operation of the Rules Committee by majority leadership and the Speaker of the House have left Rules a hollow shell of its former self. They offer a plethora of quotations from party leadership as well as rank-and-file members supporting this view, and find that comparative examination of committees’ average seniority and voluntary departures places the contemporary Rules committee on par with so-called “service” committees. These committees, including House Administration and Standards of Conduct, are viewed as undesirable assignments which fail to confer benefits in terms of policy, constituency, or prestige. In other words, the same reason which drives scholars such as Cox and McCubbins (1993, 2005) to

\[ \text{\footnotesize 13} \]

Appendix Table 5.1 presents these results in tabular format.

\[ \text{\footnotesize 14} \]

The Spearman rank correlation coefficient between the pre- and post-reform eras is 0.60, that between the post-reform and post-Newt eras is 0.48, and that between the pre-reform and post-Newt eras is only 0.39.
emphasize the importance of Rules—its power to apply special rules in order to secure partisan legislative achievements—has erased much of the prestige which once attached to the committee.

This decline in the prestige of Rules, clearly visible in the results of Table 2.1, is also reflected in Stewart’s (2012) analysis of committee values since 1994. Although Stewart suggests as an alternative explanation the Democrats’ reclassification of Rules away from exclusive status, it is unclear whether this is a cause or consequence. Other notable trends include precipitous declines in the prestige of Armed Services, Foreign Affairs, Education and Labor, and Science. Not all of these trends were contemporaneous, with the decline in Armed Services occurring in the post-1994 era and the rest transpiring during the earlier post-reform era. Energy and Commerce, conversely, exhibits a trend of increasing prestige. Because of these time trends, it is important not to place undue emphasis on the pooled results in Table 2.2. In the same way, these results should serve to further caution scholars that any assumption that committee rankings are stationary is simply that—an assumption.\textsuperscript{15}

\textsuperscript{15}The Appendix presents additional time-series results, breaking the data into five-Congress slices.
2.5 Prestigious committee portfolios and campaign contributions

Are prestigious committee assignments associated with greater campaign contributions? Existing scholarship on the determinants of campaign contributions by political action committees (PACs) has only tangentially addressed this question. The earliest work on PAC contributions examined the incumbency status, electoral competitiveness, and party affiliations of candidates (Jacobson, 1980; Herndon, 1982; Gopoian, Smith and Smith, 1984). But following Denzau and Munger’s (1986) formulation of PAC contributions as part of a market for legislative services or access, scholars have increasingly focused on representatives’ committee and subcommittee assignments, party and committee leadership positions, and seniority as determinants of PAC contributions (Munger, 1989; Grenzke, 1989; Grier and Munger, 1991, 1993; Grier, Munger and Roberts, 1994; Romer and Snyder, 1994). While a great deal of scholarship finds that PACs focus on members of more powerful committees (Grier, Munger and Roberts, 1994; Romer and Snyder, 1994; Milyo, 1997; Bonica, 2013), representatives of jurisdictionally-relevant committees (Munger, 1989; Grier and Munger, 1991, 1993; Grier, Munger and Roberts, 1994; Bonica, 2013; Powell and Grimmer, 2016), and legislators with industry-relevant policy expertise (Esterling, 2007), the impact of committee prestige has yet to be determined.

In this section I deploy PageRank estimates of committee importance in conjunction with the committee assignment data referenced earlier (Nelson and
Stewart, 1992; Stewart and Woon, 2017) and Adam Bonica’s (2016) Database on Ideology, Money in Politics, and Elections (DIME). From DIME and a related dataset (Bonica, 2018), I gather individual recipient-level figures on total PAC receipts for members of the House of Representatives for the 2008–2018 election cycles. These data are nearly complete, with only 1.5% of legislator-cycle observations missing. I further remove all observations in which a representative failed to win her primary or for whatever reason did not run in the general election. Freshman are obviously excluded by virtue of empty committee portfolios in a nonexistent prior Congress. In preparing the dataset for analysis, I match total PAC contributions for a member during a given election cycle with PageRank estimates of committee prestige for the committees in her portfolio during the preceding cycle. Furthermore, and in recognition of the dynamic aspect of prestige explored in the previous section, all figures for committee prestige during a particular Congress are estimated from the preceding five Congresses. All told, the dataset contains 2,430 legislator-cycle observations.

As a first cut, Figure 2.2 presents the per capita PAC contributions for each committee (y-axis) over the six cycles analyzed as a function of committee prestige (x-axis). Visual inspection of each Congress gives the impression that prestige may influence PAC contributions. Further evidence is provided by correlations, displayed in the lower-right corner of each panel. These correlations are uniformly positive and strong or very strong, lending further support. While this is reassuring evidence in the aggregate, what of individual representatives’ committee portfolios?
To address this question, I recast the key independent variable as the total PageRank prestige of all committees on which a legislator served, for each member in each Congress. Following Bonica (2013), I incorporate controls for the electoral competitiveness of each seat, an indicator for majority party members, and dummies for party or committee leadership positions. My measure of electoral competitiveness, \( \text{Safety} \), comes from Larry Sabato’s Crystal Ball, which rates Congressional races as “safe” (\( \text{Safety}=3 \)), “likely” (\( \text{Safety}=2 \)), or “leaning” (\( \text{Safety}=1 \)) for one party or another.\(^{16}\) The remainder of the controls come from the commit-

\(^{16}\)For the 2008–2018 cycles under analysis here, I utilize Sabato’s final race rat-
tee assignment data of Stewart and Woon (2017).

Figure 2.3 graphically presents the results of an OLS regression of total PAC contributions on committee portfolio prestige and the controls described above. To construct this figure, I estimate simulated first differences from a baseline scenario (King, Tomz and Wittenberg, 2000). Hewing closely to Bonica (2013), the baseline representative here is a minority-party incumbent in a safe seat holding no committee or party leadership posts and sporting an average committee portfolio (i.e., a total PageRank of 0.1). As the figure makes clear, all variables but one—an indicator for party leadership—are positively and significantly associated with total PAC receipts for the next election cycle.

Moving from left to right across the figure, legislators who sit as committee chairpersons or ranking members can expect an additional $250,000 in PAC contributions, a 24% increase over the median contribution total. Shifting the competitiveness of a seat from “safe” to “leaning” is associated with an additional $1,168,558, more than doubling (a 119% increase) the representative’s PAC haul. Members of the majority party net an additional $173,811 in PAC money; this constitutes a 17% increase. While not statistically significant at conventional (i.e., $p=0.05$) levels, the effect of a party leadership post is associated with an extra

Figure 2.3: Legislators' next-cycle PAC receipts strongly influenced by prestige of present committee portfolio. Figure displays estimated first differences and 95% confidence intervals from an OLS regression of total PAC receipts on committee portfolio prestige, controlling for electoral competitiveness, majority status, and party and committee leadership posts. Campaign finance data from (Bonica, 2018).

$181,054, or a 17% boost in contributions. Finally, raising the total prestige of one’s committee portfolio from the observed minimum of 0.02 to the observed maximum of 0.31 yields an additional $1,820,411, nearly tripling (a 174% increase) total PAC receipts for the coming electoral cycle.

One final way to approach the question is to look at changes in legislators’ PAC receipts as a function of changes in the prestige of their committee portfolios. Such a dynamic approach leverages the fact that the volume of contributions should
Figure 2.4: Changes in prestige of committee portfolios highly predictive of next-cycle PAC receipts. Figure displays estimated effects and 95% confidence intervals from an OLS regression of the change in total PAC receipts on the change in committee portfolio prestige, controlling for electoral competitiveness, majority status, and party and committee leadership posts. Baseline scenario is a minority-party, rank-and-file legislator in a safe district; campaign finance data from (Bonica, 2018).

change more for members who switch committees than for those who stay put. In addition, as Romer and Snyder (1994) point out, studying changes rather than levels aids in controlling for “unmeasured or poorly measured factors that affect the value of different PAC-candidate matches and are also correlated with included variables…if these factors are relatively fixed over time” (748). Figure 2.4 presents just such an analysis, again adopting the simulation approach of King, Tomz and Wittenberg (2000) with a baseline legislator who is a rank-and-file, minority-party
member from a safe district. The x-axis tracks changes in the simulated legislator’s portfolio prestige, as measured by PageRank, while the y-axis charts the predicted changes in her total PAC receipts for the following cycle (in thousands of dollars). A moderate decline in her committee portfolio of, say, 0.05, is associated with nearly $500,000 less in accumulated PAC contributions. Considerable improvement in her portfolio, on the level of 0.2 or more, is predicted to bring over $1,000,000 in additional PAC money.

Returning to the larger question which motivated this brief analysis, the results indicate that prestigious committee portfolios are indeed associated with greater contributions from political action committees. Somewhat surprisingly, the effect of moving from the in-sample minimum-prestige portfolio to the maximum-prestige portfolio is over 50% larger than the effect of moving from a safe seat to a leaning seat. The effects of committee portfolio prestige also dwarf those of majority and leadership status. In short, it appears that seats on the most prestigious committees are literally valuable. PACs contribute millions more to well-placed incumbents, presumably for access and legislative services. The advantage of the PageRank measure of committee prestige presented here is that it allows this relationship to be quantified while accounting for the full network of committee transfers and the opportunity costs of seniority forfeiture.
2.6 Discussion

For members of Congress, committee service is a fact of life. For as long as standing committees have existed, there have been recognizable differences in prestige. Some committees have been viewed as “service” or “burden” committees in which representatives must “pay their dues;” others have been variously termed “exclusive,” “prestige,” and “power” committees. Scholars have spent decades constructing and refining measures of this elusive property, committee prestige. The present chapter has sought to build upon this estimable body of work while importing useful technology from the fields of network and computer science. In the process, I have been able to incorporate into my measure more information than ever before, including Shepsle’s (1978) notion of seniority-induced opportunity costs.

The results of this exercise are revealing. First, prestige differences at the top and bottom of the committee hierarchy can be measured in orders of magnitude. In the pooled data, for example, I estimate a seat on Ways and Means to be nearly 14 times as prestigious as one on Marine and Fisheries. Another way of stating this is simply to say that the distribution of committee prestige has a long tail. While this feature is not entirely new (Groseclose and Stewart, 1998), the interpretations are. If the average member remained in Congress long enough, all the while tracing out a typical career arc through the committee system, she would spend over six times as many of her days serving on Ways and Means as she would Agriculture. This result accounts for her greater willingness to sacrifice acquired seniority on a committee like Agriculture to leave it for greener pastures, as well
as her unwillingness to make a similar jump as she climbed up the committee hierarchy.

Second, Munger (1988) was right that any assumption that committee rankings are stationary is simply that—an assumption. Dividing my sample by institutional and jurisdictional changes—the mid-1970s overhaul of the committee system and Newt Gingrich’s Republican revolution—I find that committee rankings exhibit considerable change over time. Most notably, my approach estimates that the Committee on Rules lost considerable prestige across eras, losing 60% of its value in the wake of the 1970s reforms and losing an additional 52% after the reforms of the 104th Congress. While any explanation of this trend must remain purely speculative for now, it is reasonable to attribute much of the decline to the steady increase of leadership control as conditional party government took hold (Aldrich and Rohde, 2000a, b; Curry and Gloekler, 2009).

Third, and finally, committee prestige in one term translates into campaign cash for the next cycle. This conclusion holds at the level of committees, as well as at the level of individual representatives and their committee portfolios. In the 113th Congress, for example, the correlation between a committee’s PageRank prestige and the average member’s PAC receipts is 0.78. At the individual level, the prestige of one’s committee portfolio is a strong determinant of one’s PAC haul: even a moderate increase from the first to the third quartile of portfolio prestige yields an additional $376,637, a 36% increase over the median legislator’s total PAC receipts. A more substantial increase, from the least prestigious portfolio to the most prestigious, nets nearly $2 million dollars in extra PAC money.
Clearly, then, legislators, interest groups, and scholars are in agreement over the issue of committee prestige. It exists, it is measurable, and—most important—it impacts political behavior. What remains for further work is to trace out how typical (or atypical) is the U.S. House of Representatives in this regard when compared to the Senate and state legislatures. Particularly in the statehouses, proper measurement of committee prestige would open the door to new lines of inquiry. Related to the next chapter, might the most prestigious committee assignments be doled out to the most loyal partisans? Do the financial benefits of prestigious committee portfolios accrue to representatives serving on committees with reduced gatekeeping powers? How do rules and norms which regulate committee assignment processes—relating, for example, to seniority or proportionality—impact the measure of committee prestige offered here? While answers to many of these questions must be deferred until further data can be collected, it is my hope that the measure introduced here aids in the pursuit.
Chapter 3

Constraints on Stacking in American Committees

Congress in session is Congress on public exhibition, whilst Congress in its committee-rooms is Congress at work.

– Woodrow Wilson (1885, 79)

It is as a committee man that a member does his real work. In fact the House has become not so much a legislative assembly as a huge panel from which committees are selected.

– James Bryce (1891, 155)

3.1 Introduction

In chambers across the United States, standing committees are central to the legislative process as “crucial sources of legislative proposals, repositories of specialized expertise, and controllers of the agenda” (Hedlund et al., 2009, 176). Majority
parties which, according to partisan theories of legislative organization (e.g., Cox and McCubbins, 2005), seek to perpetuate their status through legislative achievements, also tend to control the committee assignment process. The partisan manipulation of committee appointments which this logic predicts has long been noted at the federal level (Hinckley, 1986; Cox and McCubbins, 1993; Aldrich and Rohde, 2000a; Fortunato, 2013), yet existing work at the state level finds little to no evidence of majority party stacking (Aldrich and Battista, 2002; Overby, Kazee and Prince, 2004; Richman, 2008; Hamm, Hedlund and Post, 2011; cf. McGrath and Ryan, 2019).

If majority parties face opportunities to affect law and policy outcomes and their own perpetuation in power by stacking committees, why would they seemingly leave those gains on the table? I address this puzzle by identifying several theoretical and practical constraints which render universal stacking impractical, and by arguing that majority parties selectively stack committees under two circumstances: (1) when the operations of committees affect the electoral prospects of all legislators, generating so-called “uniform electoral externalities” (Cox and McCubbins, 1993); and (2) when committees in a polarized setting are endowed with gatekeeping rights (Cox and McCubbins, 1993, 2005; Aldrich and Rohde, 2000a). Deploying a new measure of partisan stacking I call “seats above expectation” (SAE) to state legislatures, I find scant evidence of universal partisan (or ideological) stacking and strong evidence in support of selective stacking hypotheses.

The importance of standing committees is widely recognized by legislators
themselves, and has been reasserted by successive generations of scholars dating back to nineteenth-century social scientists such as James Bryce and Woodrow Wilson. The reasons for the centrality of standing committees are plentiful. Through a division of labor and the specialization that such a division naturally engenders, committees tend to increase the efficiency and efficacy of legislative work (Deering and Smith, 1997; Martin and Vanberg, 2011). Both rule and practice typically make it nearly impossible to consider legislation which has not passed through one or more committees. In addition to vetting and shaping ordinary bills in areas such as education, insurance, and transportation, committees in many legislatures also have profound effects on the very practice of politics. In many legislatures, standing committees are empowered to redraw the boundaries of legislative districts, determine methods of election, allocate funding for legislative action, and even set the very terms of debate under which pending legislation may be considered. Given the panoply of crucial functions they play, committees would seem an important tool for those that could leverage them.

This becomes all the more apparent when we turn attention to the second institutional pillar of legislative politics, the party. According to partisan theories of legislative organization, the political party is a vehicle for collective action which enables legislators to establish and maintain a “brand name” (Kiewiet and McCubbins, 1991; Cox and McCubbins, 1993, 2005). Because this brand name affects the prospects for both individual reelection and collective majority status, legislators seek to burnish the brand whenever possible. This they can do by securing legislative accomplishments and avoiding legislative fiascos. While
the former route of passing bills and enacting laws may be more familiar, the latter method of heading off legislative defeats—or *rolls*—is equally important. A party roll occurs when “a majority of its members vote against the bill, but the bill nonetheless passes” (Cox and McCubbins, 2005, 12). Thus to maintain its majority and secure reelection for its members, the majority party seeks to harness both positive and negative agenda power. Positive agenda power entails enacting legislation its members (and their constituents) favor, while negative agenda power means blocking legislation its members (and their constituents) dislike.

Notably, committees are crucial to both forms of agenda power. To obtain successful passage, bills must pass through at least one committee. Disfavored bills, on the other hand, may languish indefinitely within a committee, an outcome so frequent that many committees throughout history have been derided as “the place where bills go to die.”¹ Majority parties, then, clearly possess a motive for harnessing the power of committees to their own ends: committees are important to the legislative process generally, and to the successful deployment of positive and negative agenda power more specifically. Many a mystery novel has been written on the basis of the adage, “means, motive, and opportunity,” and here is no exception. While the motives of the majority party may be traceable to agenda power, opportunity is established by the fact that, in most legislatures, the majority party controls the committee appointment process. This enables

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¹In Wilson’s (1885) dramatic language, “[a]s a rule, a bill committed is a bill doomed. When it goes from the clerk's desk to a committee-room it crosses a parliamentary bridge of sighs to dim dungeons of silence whence it will never return. The means and time of its death are unknown, but its friends never see it again” (69).
the majority party to manipulate control of committee appointments in a way that facilitates the burnishing of legislative records, brand names, and, therefore, reelection prospects. With motive and opportunity established, what of means?

Cox and McCubbins (1993, 161) lay out a number of potential strategies for manipulation, including partisan stacking, ideological stacking, and loyalty stacking. Partisan stacking is both the easiest to understand and the easiest to observe, and entails appointing additional partisans beyond what proportionality would dictate—in other words, overrepresentation. Why would overrepresentation be beneficial to the majority party? At the most basic level, there is always a danger that, when push comes to shove, members of the majority party may defect from the party line on critical votes. If the probability of defection is assumed constant across legislators, each making the decision independently, then increasing the size of the majority contingent makes defection of the pivotal member less likely. Partisan stacking simply pads the majority party’s margin for error, protecting legislative victories from the wayward defector (Riker, 1962; Koehler, 1972, 1975).

Ideological stacking occurs when a party attempts to manipulate the distribution of preferences on a committee. This can take many forms, such as skewing

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2 Several early case studies of state legislatures also examined a phenomenon which could be called “factional stacking” (Beth and Havard, 1961; Mann, 1961). Factional stacking is the functional equivalent of partisan stacking in de facto one-party states.

3 For previous analyses of partisan stacking in the federal Congress, see Hinckley (1986); Philipson (1992); Krehbiel (1993). For work on state legislatures, see Hedlund and Hamm (1996); Hedlund et al. (2009).

4 A great deal of studies have examined ideological stacking in both Congress (Weingast and Marshall, 1988; Hall and Grofman, 1990; Krehbiel, 1990; Groseclose, 1994; Adler and Lapinski, 1997; Fortunato, 2013) and the states (Overby and Kazee, 2000; Aldrich and Battista, 2002; Battista, 2004; Overby, Kazee and Prince, 2004; Prince and Overby, 2005; Richman, 2008; Sprague, 2008; Battista, 2009; Hamm, Hedlund and Post, 2011).
the committee median, skewing a party contingent median, or attempting to make the committee (contingent) more representative of the chamber (caucus). Ideological stacking is only possible when there exists within the ranks of a party some degree of preference heterogeneity. When such heterogeneity exists, the majority party must consider committee appointments more carefully, for its partisans are no longer wholly exchangeable.

A third strategy for manipulation can be called loyalty stacking. When the majority party doles out plum assignments to its most loyal partisans, those committees will tend to consist disproportionately of party loyalists. Loyalty stacking demands not only heterogeneity in the partisan fealty of individual legislators, but also inequality of committee assignments. In other words, there must be widely-recognized plums—committees of higher prestige or plentiful pork—to distribute as rewards for loyalty. Committee assignments then become a mechanism for retrospectively rewarding and prospectively buying loyalty. The previous chapter demonstrated that there is indeed variation in legislator-recognized prestige across the standing committees of the U.S. House of Representatives, and so-called “party-unity” scores are a familiar measure in the study of American legislative politics (Rohde, 1991; Cox and McCubbins, 1993).

To summarize the logic, consider four points. First, committees are important

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6Despite advancing a new measure of committee prestige in the previous chapter, I do not investigate loyalty stacking here due to data limitations. Specifically, the present chapter examines stacking not in the federal Congress, but in state legislatures, arenas for which adequate time-series data on committee assignments are currently unavailable. In future work, I intend both to remedy this data limitation and to probe state legislatures for evidence of loyalty stacking.
to the legislative process, playing fundamental roles in the passage and blockage of proposed legislation. Second, the majority party seeks to perpetuate its status through precisely those avenues—positive and negative agenda power. Third, the majority party typically controls the appointment process for these legislative committees. And fourth, there exist at least three procedures—partisan stacking, ideological stacking, and loyalty stacking—through which the majority party can leverage its control of the committee appointment process to further its own ends. In combination, these factors have a clear empirical implication: majority parties should stack legislative committees.

What of the empirical evidence? A voluminous literature, focused primarily though not exclusively on the U.S. Congress, seeks to explain the composition of legislative committees. One of the key debates in this literature concerns whether majority parties manipulate legislative committee assignments for partisan or ideological gain. The primary theoretical approaches to committee appointments may be classified as distributive (Niskanen, 1971; Shepsle and Weingast, 1987; Weingast and Marshall, 1988), informational (Gilligan and Krehbiel, 1987, 1990), and partisan (Cox and McCubbins, 1993; Maltzman, 1995). At the national level, advocates of the partisan approach have presented the most persuasive evidence. Congressional committees, it seems, are systematically stacked with additional members of the majority party in order to secure favorable legislative outcomes. Recently, however, debate has centered around state legislative committees, despite problems of data availability, due in large part to the institutional and contextual variation such a focus opens up. The emerging consensus is that most
committees are either representative of the chamber at large or consistent with a null hypothesis of random selection. Across the 99 state legislative chambers, there is little to no evidence of majority party stacking. In fact, with one recent exception (McGrath and Ryan, 2019), committees are found to be representative of the chamber at large most of the time (Aldrich and Battista, 2002; Overby, Kazee and Prince, 2004; Prince and Overby, 2005; Richman, 2008; Hamm, Hedlund and Post, 2011).

This presents a striking puzzle: Why do we not see majority parties in state chambers manipulating legislative committee assignments for partisan or ideological gain? In the present chapter, I offer an answer and, in the process, make several contributions to the ongoing debates concerning legislative organization and committee representativeness. First, I recognize a set of oft-overlooked constraints which temper the ability of majority parties to stack legislative committees: (1) committee seats, not seatshares, are the units of partisan contestation; (2) parties face a fixed and often polarized pool of legislators from whom to fill those seats; (3) chamber rules and traditions often place limits on committee service; and (4) adding additional copartisans is conceptually—and tactically—different from skewing committee medians. At the same time, I examine how these same constraints hinder the ability of social scientists to detect the stacking efforts of majority parties. I then turn to American state legislatures to demonstrate the implications of these constraints, namely, that universal stacking is difficult and rare, and that the average committee is unlikely to be stacked.

7Nebraska, with its unicameral legislature, reduces the total from 100 to 99.
Second, I incorporate these constraints into partisan theories of legislative organization to generate and test hypotheses about when and where selective stacking will occur. Not all committees were created equal, and some are widely recognized as more influential or powerful (Fenno, 1973; Mayhew, 1974). These are, unsurprisingly, more likely to be stacked. In addition, some chambers endow their committees with stronger gatekeeping rights such as the ability to deny bills a hearing or to refuse to report a bill to the floor (Anzia and Jackman, 2013). Because these rights could threaten the majority party’s control over the legislative agenda, these committees, too, are stacked. Committees are therefore likelier to be stacked when they affect the electoral prospects of noncommittee members and where they help regulate the agenda and minimize majority rolls.

### 3.2 Constraints and universal stacking

This section identifies a number of constraints on stacking faced by majority parties, analyzing their effects upon partisan and ideological stacking. In the process, I introduce a new measure of partisan stacking, seats above expectation (SAE), and an improved Monte Carlo method for detecting ideological stacking. Both of these empirical approaches share the advantage of accounting for the constraints identified. Ultimately, the results in this section highlight the difficulty majority parties face when attempting to engage in universal stacking.
3.2.1 Partisan stacking

According to the National Conference of State Legislatures (1996), over 70% of state legislatures appoint committee members using proportional representation, either by rule or tradition. Because adherence to proportionality sharply reduces the majority party’s degrees of freedom in the appointment of copartisans, this statistic in and of itself casts significant doubt on the viability of partisan stacking as a legislative strategy. It also implies that proportional representation serves as a non-strategic baseline for the examination of committee composition.

In this setting, two seemingly obvious points must be made. First, partisan stacking is, relative to ideological or loyalty stacking, far easier to observe. Defined as the appointment of additional copartisans beyond what proportionality would seem to dictate, partisan stacking is blatant. For this reason, it is likely to be noticed by the minority party and neutral observers such as the news media, and may attract opprobrium as fundamentally unfair or undemocratic. Whether such criticism transpires depends in large part on the existence and strength of existing rules or norms of proportionality.

Second, and equally obvious, committee seats must be doled out in whole numbers. That is, a Republican majority cannot assign 5.5 Republicans and 4.5 Democrats to serve on a committee of size 10. This simple constraint has several important implications. Notably, it renders partisan stacking a coarse tool. Continuing with the above example, the majority party faces a limited set of discrete options. It could appoint both parties equally, with five Republicans and five Democrats, thereby negating its majority status. Presumably, the majority Repub-
licans could appoint Democrats to a majority of the committee seats, but this is clearly undesirable. Or they could appoint six, seven, or even more Republicans, yielding an unrepresentative committee with a surfeit of majority party members.

This points to an additional implication. Because committee seats must be allotted in whole numbers, true proportionality will be rare. In other words, hypothetically speaking, even if proportionality was an explicit goal, it would often be unobtainable. Not only that, but the smaller the committee, the rougher the chamber approximation. This reflects a logic well-known among scholars of electoral systems: under proportional representation, district magnitude strongly and positively influences proportionality (Horwill, 1925; Shugart and Taagepera, 1989). Relative to legislative committees, chamber proportions exhibit finer gradations due to their larger denominators. Because of this, it is typically impossible to reflect accurately the partisan distribution in a chamber of, say, 101 representatives, within a standing committee of only 11. The easiest way to grasp the upshot of this argument is through a simple visualization.

Figure 3.1 illustrates the effects upon Democratic seatshare of a single seat gained in a 101-member chamber (top) and in an 11-member committee (bottom) within that chamber. When Democrats, depicted as blue circles, pick up one additional seat to move from a 50-member minority to a 51-member majority, this is reflected in a net gain in seatshare of 1 percentage point (from 49.5% to 50.5%). Yet because of its small size, the committee reflects this pick-up very differently. When previously Republicans held the slimmest of majorities in the chamber, they also held the slimmest of majorities in the committee: a one-seat edge. In
Figure 3.1: Discrete seat appointments render proportionality elusive. Adding an additional Democrat to the 101-member chamber amounts to a 1 percentage point increase in seatshare. Yet the same single-seat change, translated to an 11-member committee, yields a 9 percentage point boost to Democratic seatshare.

In order to reflect the new reality of a Democratic majority, that single seat must go to a Democratic appointee. This seemingly slight shift, from $\frac{5}{11}$ to $\frac{6}{11}$, translates to a net gain in seatshare of 9 percentage points (from 45.5% to 54.5%). Although adherence to proportionality would seem to dictate that the majority Democrats hold 50.5% of committee seats, they necessarily hold 54.5%. In other words, on the basis of seatshare, Democrats would appear to have stacked the committee in excess of proportionality to a tune of 4 percentage points.

Recognition of this disconnect, which stems from the inherently discrete nature of committee seat appointments, also points to a hurdle facing the social scientist keen to detect partisan stacking. If the scholar’s empirical focus is trained upon seatshares, these approximation difficulties will necessarily complicate the separation of strategic partisan stacking from purely mechanical constraints.
Instead of seatshare, the scholar’s focus should shift to match that of the majority party—seats, not seatshares. Individual legislative and committee seats are, in fact, the objects of partisan contention. As such, there are both compelling theoretical and, as demonstrated above, empirical reasons to cast aside consideration of seatshares in favor of seats. Partisan stacking as a strategic act requires that the majority party takes committee seats in excess of the total dictated by the closest small-body approximation of the chamber majority.

Recognizing the impossibility of fractional committee seats, some discrepancy between chamber seatshares and committee seatshares is inevitable. That this discrepancy will manifest as a discontinuity around the majority threshold is also unsurprising. Given this theoretical constraint, how might analysts reliably detect partisan stacking? I propose to assign an expected number of committee seats for the Democratic party on the basis of proportionality, and then contrast the observed number of seats with this expectation. For each committee-year observation, an expectation is established by multiplying the Democratic party’s chamber-level seatshare by the size of the committee, and then rounding to the nearest whole member. Thus, in the example above, $50.5\% \times 11 = 5.55$, which rounds to an expectation of six committee seats. Subtracting this expectation from the observed number of Democratic committee seats produces a clear and interpretable measure of partisan stacking—seats above expectation (SAE).8 Again

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8Krehbiel (1993) and Aldrich and Rohde (2000a) use a similar measure to analyze the 99th and 103rd–105th Congresses respectively. These scholars, however, elect not to round seat expectations and therefore do not work with the objects of partisan contestation, whole committee seats. Hinckley (1986) measures partisan stacking by contrasting chamber seatshare with *total* committee
returning to Figure 3.1, subtracting the expected number of Democratic committee seats from the observed number yields zero. This result conforms to the theoretical understanding that six seats, while representing a seatshare in excess of proportionality, is nonetheless the closest approximation available to the majority party.

The measure introduced here, SAE, accomplishes four goals. First, it accounts for the whole-number constraint and the approximation difficulties which that constraint engenders. Second, it reflects the theoretical emphasis on seats as the proper units of partisan contestation, replacing a misguided emphasis on seatshares. Third, it is clear, interpretable, and measured in terms of seats. Finally, it is easily calculated from the same member-level data generally used to measure committee seatshares.

To investigate partisan stacking at the margins with this new measure, I analyze a cross-sectional dataset of 97 state legislatures during the 1999–2000 biennium, collected by Battista, Peress and Richman (2013). In order to hew closer to conventional analyses, and because the actors who would engage in stacking

9Two lower chambers (Virginia and Washington) were dropped because they were tied at the time. Data for at least one state (Arkansas) reflect a biennium other than 1999–2000 in an attempt to match previously existing roll-call data (Wright, 2004).
Figure 3.2: No stacking in the average chamber. Visual inspection reveals a small (0.677) but statistically insignificant discontinuity in seats above expectation—where expected committee seats are determined by proportional representation—across state chambers. Figure based on data from 97 state chambers, 1999–2000 (Battista, Peress and Richman, 2013).

operate at this level, I aggregate committee-level SAE figures to the chamber-session level by averaging across committees.

Figure 3.2 illustrates the results of such an approach, with chamber seatshares on the x-axis and chamber-session-level averages of SAE on the y-axis. Visual inspection reveals a slight discontinuity at the majority status threshold, which can be quantified using a regression discontinuity treatment-effect point estimator (termed $\text{rdr}\text{obust}$; Calonico, Cattaneo and Titiunik, 2014, 2015).\textsuperscript{10} Although

\textsuperscript{10}It is worth pointing out that examining proportionality in a single committee of fixed size would yield a series of discontinuities, as approximation difficulties would generate a step function. Chamber-year averages of committee SAE smooth out the step function so that the only remaining discontinuity is the strategic creation of majority parties.
I estimate the effect at the majority party threshold to be 0.677 seats above expectation, this effect is statistically indistinguishable from zero.\textsuperscript{11} Perhaps the strongest interpretation is that, on average, a party with a tenuous majority stacks approximately one out of every three (0.677/2) committees with an extra copartisan beyond what pure proportionality would dictate.\textsuperscript{12} These results suggest that majority parties do not engage in widespread stacking of legislative committees with their copartisans. That said, the figure also reveals substantial heterogeneity across state chambers, with several exhibiting across-the-board SAE approaching (and even exceeding) one seat.

### 3.2.2 Ideological stacking

The analysis thus far has demonstrated two things. First, because large-body proportions are not well approximated in smaller bodies, the majority party’s committee seatshare is not the proper estimand. Second, once we account for theoretical expectations rooted in proportional representation, the remaining evidence for partisan stacking is mixed at best. In a certain sense, this should not be surprising.

Theoretically, partisan stacking is easily observed. As outlined earlier, this property makes partisan stacking more likely to draw the ire of the minority party and members of the voting public concerned with issues of fair play. That such

\textsuperscript{11}With a second-degree polynomial, the p-value is 0.675. The resulting confidence intervals reveal the extent of the uncertainty: [-2.486, 3.841].

\textsuperscript{12}The effect is halved because I am only concerned with the extent to which SAE exceed 0, not the full gap spanning the majority threshold.
stacking is easily observed may, therefore, constitute a relatively weak strategy for a majority party concerned with influencing legislative output. More difficult to detect is ideological stacking, in which the majority party focuses instead on moving the committee median through strategic deployment of its partisans on the basis of their preferences. Yet here, too, the majority party must confront several constraints.

Put colloquially and somewhat bluntly, the majority party must “play the hand it was dealt.” In other words, as it sets out to appoint legislators to the various committees, the majority must draw them from a fixed and finite pool. And very often, that pool demonstrates a high degree of ideological polarization (Shor and McCarty, 2011). The effect that a highly polarized legislature can have on a chamber (and committee) median is illustrated in Figure 3.3.

The figure depicts four scenarios for a hypothetical 101-member legislature, modeled with unidimensional ideal points. In the top row, Democrats (blue density curves) hold a slim (one-seat) majority; this situation is reversed in favor of Republicans (red density curves) in the bottom row. Moving from the left column to the right column entails a qualitative shift from a situation of low polarization to one of high polarization. This is encoded graphically two ways: increased spread between the two parties’ density curves and decreased spread within those density curves. Each panel also denotes the chamber median with a vertical black line.

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13 Specifically, under low polarization, simulated Democratic and Republican legislators are drawn from normal distributions of mean -1 and 1, respectively, with equally large standard deviations of 1.5. Under high polarization, Democratic and Republican legislators are drawn from normal distributions of mean -1.5 and 1.5, respectively, with equally small standard deviations of 0.25.
Figure 3.3: Polarization bakes in a large shift in the median. Figure displays a hypothetical 101-member legislature under low (left) and high (right) polarization, with a bare Democratic (top) and bare Republican majority (bottom). Blue (red) density plots represent Democratic (Republican) legislators, and vertical black lines indicate the chamber medians. Shifts in majority control entail considerably larger shifts in the median (pink shading) under high polarization than under low polarization.

As one seat flips from Democratic to Republican control (a move from the top row to the bottom row), so does majority control of the hypothetical legislature. On the left-hand side, under conditions of low polarization, this regime change is accompanied by a small rightward shift in the chamber median (denoted by pink shading). Under high polarization, however, this same change in a single seat brings about a considerably larger shift in the chamber median. Effectively, drastic movement in the chamber (or committee) median is “baked in” to the polarized distribution of legislative ideal points. Under high polarization, the identities of individual legislators matter less to the committee median than does
their partisanship.

An additional constraint upon ideological stacking is the existence of various rules which, among other things, set caps on the number of committee assignments individual legislators may hold (National Conference of State Legislatures, 1996). In some states, these rules manifest as fairly simple caps. Georgia state senators, for example, may serve on no more than four ordinary standing committees. In other settings, “[i]t is not uncommon for legislatures to categorize or bracket their committees and then limit the number of committees upon which a member may serve in each group. This process helps avoid conflicts in committee assignments and meeting schedules” (National Conference of State Legislatures, 2000, 30). In the Hawaii House of Representatives, for example, standing committees are divided into Bracket A and Bracket B, and each representative may serve on one and only one committee within each bracket. Rule 54(a)(2)(A) of the Arkansas House of Representatives takes this one step further: “[e]ach Class ‘A’ standing committee and each Class ‘B’ standing committee shall have five (5) members from each of the four (4) House district caucuses,” which are geographically defined and correspond closely to Arkansas’s four Congressional districts (Arkansas House of Representatives, 2019, 46).

A third complication results from the distinction between partisan and ideological stacking. Partisan stacking, through the appointment of additional copartisans, can have the effect of moving the committee median in the direction of the majority party. Yet ideological stacking, as a concept, stands separate from partisan stacking. Ideological stacking embraces the deliberate skewing of com-
Figure 3.4: Observed committee medians suggestive of ideological stacking. Each dot represents the chamber-session average committee median from one of 97 state chambers; each side of the majority threshold sports a separate quadratic smoothing curve. An apparent discontinuity offers suggestive evidence of ideological stacking. Figure based on data from 97 state chambers, 1999–2000 (Battista, Peress and Richman, 2013).

Committee medians through the strategic deployment of copartisans *holding fixed* committee partisan ratios. This is primarily a hurdle for social scientists who seek to detect and measure ideological stacking, as it entails devising a strategy which can separate the two stacking mechanisms.

Within a regression discontinuity framework, ideological stacking would manifest as a sizeable shift in the average committee median at the majority threshold. This is displayed graphically in Figure 3.4, which depicts chamber-session average committee medians as a function of Democratic seatshare in the cross-sectional
data. Obviously, assessing whether the observed leftward shift of 0.27\textsuperscript{14} truly reflects ideological stacking requires a clear baseline expectation: Given the chamber's observed distribution of ideal points, what would committee medians have been expected to look like in the absence of stacking, and how far do the observed medians deviate from this expectation? Retaining each chamber's observed ideal point distribution accounts for high levels of polarization, a more or less uniform characteristic of the cross-sectional data gathered by Battista, Peress and Richman (2013). To isolate the effects of ideological stacking from those of partisan stacking, the counterfactual must also hold fixed the observed partisan breakdown of each standing committee. Working with observed committee partisanship provides traction for separating the two stacking mechanisms by ensuring that the distribution of committee medians has already accounted for any partisan stacking that may have occurred (Peterson and Wrighton, 1998; Boyce and Bischak, 2002; Fortunato, 2013). To approximate the effects of rule-based assignment caps, I restrict each legislator's committee assignment total to match that in the observed data (Boyce and Bischak, 2002).\textsuperscript{15}

The most attractive avenue for examining these counterfactuals is permutation testing, also referred to as a Monte Carlo approach (Groseclose, 1994; Aldrich and

\textsuperscript{14}This estimate was produced with the same regression discontinuity estimator and specification as before.

\textsuperscript{15}A more realistic counterfactual would also abide by any chamber rule—written or otherwise—relevant to standing committee appointments, such as conditional appointment restrictions which take effect given service on particular committees, prohibitions against committee service by legislative leaders, representational quotas by congressional districts, or appointment powers reserved to the executive branch. Such an approach would require copies of each state legislature's standing rules circa 1999–2000, as well as interview evidence from legislators of the period in order to ascertain then-operative norms. Because these data requirements present currently insuperable obstacles, I leave these refinements for further research.
Battista, 2002; Richman, 2008; Fortunato, 2013). For each chamber-session in my dataset, I randomly reappoint legislators to standing committees subject to the three restrictions detailed above (i.e. observed chamber distribution, committee partisanship, and per-legislator appointment totals), repeating the appointment process 1,000 times. This procedure makes no assumptions about the distribution of legislators’ preferences, opting instead to accommodate those manifested in the observed data. With each drawn committee system, I record the ideal points of the committee medians and average over them, aggregating to the chamber-session level. I then apply the regression discontinuity estimator to each of the 1,000 aggregated datasets of permuted committee appointments. To claim that the observed discontinuity in average committee medians constitutes evidence of ideological stacking would require that it is particularly large relative to those discontinuities produced via Monte Carlo simulation, because those simulated committees represent the appropriate counterfactual accounting for all constraints.

Figure 3.5 illustrates the results of this approach as applied to the data in Figure 3.4, with observed chamber-session average committee medians (blue dots) superimposed over their Monte Carlo distributions (vertical grey point clouds),

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16Given the constraints on both committees and legislators, a chamber’s committees cannot be formed independently of one another, and a sequence of simple random draws will often lead to a failure to satisfy one or more constraints. To improve the speed and efficiency of the Monte Carlo procedure, I recast the problem as a series of sparse, bipartite adjacency matrices, one for each party in each chamber. With, say, Republican legislators on the rows and committees on the columns, a one in the \( i^{th} \) entry indicates that Republican \( i \) sat on committee \( j \). Permuting this binary matrix while restricting the row and column marginals is equivalent to a series of random draws satisfying all constraints on committees and legislators—and it is also both faster and more efficient (Miklós and Podani, 2004).
Figure 3.5: **Observed discontinuity largely reflects polarized chambers.** Superimposing observed data (blue) from 97 state chambers onto permuted committee assignments (gray) respecting appointment constraints, much of the discontinuity in chamber average committee medians is due to chamber-specific ideal point distributions. Figure based on data from 97 state chambers, 1999–2000 (Battista, Peress and Richman, 2013).

and quadratic fits to the observed data (blue curves) similarly superimposed over those derived from the Monte Carlo simulations (grey curves). Here, the observed discontinuity is not noticeably different from those discontinuities generated under the null hypothesis of constrained random selection. It is crucial to recognize that without reference to the appropriate counterfactual, which accounts for the constraints majority parties face, social scientists are likely to draw the wrong conclusions about the prevalence of ideological stacking. What had previously appeared to be a large and statistically significant effect at the discontinuity, now appears to be largely an artifact of several constraints: the chambers’ observed

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Figure 3.6: **Permuted committee systems reveal most stacking is “baked in.”**

Figure displays estimated effects of Democratic majority status on the chamber-session average committee median, with effects calculated on observed data (bold dashed line) superimposed onto those calculated from permuted data (gray histogram). Although the observed discontinuity is significantly larger than expected, decomposition reveals that 88% of the effect is attributable to polarization. Figure based on data from 97 state chambers, 1999–2000 (Battista, Peress and Richman, 2013).

polarization, their committees’ partisan ratios, and their legislators’ committee appointment caps.

In fact, Figure 3.6 illustrates this by decomposing the estimated effect of Democratic majority status on average committee medians into a constraint-based component and an ideological stacking component. The figure depicts the estimated treatment effect from the observed data as a bold dashed line over a gray histogram of treatment effects estimated from the 1,000 permuted datasets. The observed effect is estimated to be a leftward shift of 0.27, constituting nearly a full
standard deviation on the Battista-Peress-Richman scale. With a randomization inference p-value of 0.024 (Fisher, 1937), it is obvious that the estimated effect of a Democratic majority on the average committee median is significantly stronger than what would be expected given reshuffled committees. Despite the statistical significance of this effect, however, its substantive significance is less impressive upon decomposition. Nearly 88% of the shift at the threshold is “baked in” via chamber properties ignored without reference to the counterfactual. At most 12% of the estimated effect is consistent with strategic behavior on the part of majority party appointers, meaning ideological stacking.

The preceding analyses have demonstrated that several factors constrain would-be majority party stackers. They must appoint whole-numbers of legislators to committees, a seemingly obvious constraint which fundamentally restricts the ability to approximate chamber proportions in smaller bodies such as committees. They must also draw appointees from the chambers as they exist, and this typically means appointing legislators from highly polarized distributions. Would-be stackers also need to confront the particular rules of appointment each chamber maintains, and these rules ordinarily restrict the number of committees upon which any one legislator may sit. Finally, they must recognize that although partisan stacking can effectively skew committee medians, it is a mechanism distinct from—and considerably more noticeable than—ideological stacking. Many of these factors also impact the ability of analysts to detect reliably stacking of either sort.

Despite these issues, it is possible to account for all of these factors empirically.
Seats above expectation measures partisan stacking on the intuitive scale of seats while also accounting for proportionality-based expectations. An adjusted Monte Carlo approach, paired with the regression discontinuity framework introduced to committee studies by McGrath and Ryan (2019), recovers the appropriate counterfactual to detect ideological stacking. It simultaneously accounts for the key constraints outlined above while disentangling partisan from ideological stacking.

The key takeaway from this section, however, is this: there is little to no evidence for across-the-board manipulation of committee appointments in state legislatures, and this is due in large part to the aforementioned constraints on stacking. If we fail to find universal stacking, can partisan theories of legislative organization tell us where to look?

### 3.3 Constraints and selective stacking

When appointing legislators to standing committees, the majority party faces several constraints. The most restrictive of these—and yet the least remarked upon—is the requirement that committee seats be doled out in wholes rather than fractions. A more subtle constraint is the actual (and frequently polarized) distribution of ideal points within the chamber, which places real limits on where committee medians may fall. As I demonstrate above, once we account for these constraints on the appointment process, the evidence for partisan or ideological stacking is weak at best. From a theoretical perspective, this should not be all that surprising. Partisan stacking is easily observable and, for that reason, may at times
be viewed as a politically costly abuse of majority power. While less observable, ideological stacking, when measured at the chamber level, is implausible. Flexibility to move the median hinges upon the distance between the median’s ideal point and that of the next legislator. In a polarized setting of intraparty homogeneity, moving the median requires deliberate and strategic deployment of their partisans. To do this across the board—short of filling committee after committee from the same shallow pool of outliers—is almost impossible and certainly impractical. And given rules regarding appointment caps, even this strategy is unlikely to be available.

That widespread stacking is an unattractive or unavailable strategy does not eliminate the possibility of committee stacking altogether. But when and where might the majority party choose to stack? The first section turns to variation within chambers where, as the previous chapter demonstrates, committees vary in their importance and prestige. Recognizing that this is the case, “the majority [party] would be more likely to try to gain partisan advantage on the committees that are most important to its agenda, and would be less likely to try it on committees that are less important” (Aldrich and Rohde, 2000a, 41). Ideally I would test this claim by applying the PageRank measure of committee prestige developed in the preceding chapter to the state legislative committees now under consideration. Unfortunately, there are several problems with this approach. Empirically, I lack sufficient time-series data on state-level committee assignments to measure committee prestige using that measure—or any other that I know of. Theoretically, the measure advanced in the preceding chapter primarily measures committee
prestige from the revealed preferences of the rank-and-file, yet the argument here proceeds from the standpoint of the majority party with a view to its collective agenda and the maintenance of its majority.

Instead, I follow Cox and McCubbins (1993) in delineating several broad categories of committees on the basis of the “electoral externalities” they produce. The work of certain committees—such as those with broad jurisdictions, large geographic footprints, and control over purse strings, parliamentary machinery, or electoral arrangements—impacts the electoral prospects of a broad swath of the majority party’s members, while the effects of other committees are circumscribed to the members who serve on them. Where the effects are targeted and limited, majority parties need not exert strict control over appointments. Yet when a committee produces uniform electoral externalities, the fate of the majority’s brand hangs in the balance, and appointments should broadly reflect the party at large. Within chambers, the majority should be more likely to stack those committees that matter most, those with uniform electoral externalities, as a simple matter of efficiency.

Analysis in the second section is greatly aided by the considerable institutional variation which exists across America’s 99 state legislative chambers. While in some chambers committees possess strong gatekeeping powers, enabling them to “bottle up” bills and keep them from the floor, other chambers do not endow their committees with such powers. Most prominently, gatekeeping powers include the right to deny a bill a hearing and the right to refuse to report a bill to the floor. Whenever one of these rights is present, I code a chamber’s committees
as possessing gatekeeping rights. I then build upon the first section to examine partisan stacking across chambers, arguing that stacking should be more common when committees are endowed with strong gatekeeping powers, irrespective of the importance of those committees. Intuitively, when committees have the power to block bills, the majority party faces greater incentives to tighten its grip so as to ensure control of the legislative agenda. Regression analysis provides support for this argument.

3.3.1 Committee importance within chambers

In a now-classic study focused on committees in the “textbook Congress” (Shepsle, 1989), Fenno (1973) argues strenuously that scholars should strive for a “middle range of generalizations” that avoids painting all committees with the same brush without “asserting the uniqueness of each committee” (xiv). In yet another study of the U.S. Congress, Cox and McCubbins (1993) distinguish committees on the basis of their electoral externalities, arguing that the work of some committees may impact the electoral prospects of a broad swath of the majority party’s members, while the work of other committees tends to affect the reelection prospects of committee members only. The majority should ensure that committees with “uniform electoral externalities” accurately represent the range of preferences within the majority caucus, and adding a few extra partisans provides additional degrees of freedom to reflect this diversity.

What factors, then, impact the breadth of these electoral externalities? Cox and McCubbins (1993) identify three, the first of which is committee jurisdiction.
Committees vary considerably in the scope of their jurisdictions, with some, such as those concerning agriculture, fisheries, and game (AFG), operating in relatively narrow domains of the law. Others, most notably those dealing with revenue and expenditures, regularly touch on nearly every policy realm. Committees dealing with legislative logistics, including committees on rules, calendars, and committees, have similarly far-reaching jurisdictions. Because a broad jurisdiction ensures that nearly all constituents are effected, the electoral externalities should be approximately uniform. Accordingly, the majority party may feel it necessary to take extra precautions, up to and including partisan stacking.

A second, and closely related, factor which affects electoral externalities is geography. When the work of a committee “touches most districts about equally,” externalities will again be nearly uniform (Cox and McCubbins, 1993, 192). For a classic example of a committee whose effects are generally localized and geographically circumscribed, look no further than AFG committees. These committees disproportionately affect rural and coastal districts, leaving urban and suburban districts relatively untouched. Contrast these committees with the money and logistics committees, whose handiwork routinely impacts constituents across a state.

A final factor, committee importance, while more subjectively gauged, is no less indicative of externalities. While committees boasting broad jurisdiction and geographic impact may touch most districts equally, that says nothing about how much they touch them. Ceteris paribus, the more “important” the work of a committee, the larger the electoral externalities it may generate. To some
constituents, of course, the work of AFG committees is of immense importance, determining livelihoods as well as leisure. For most, however, the handiwork of the logistics and, perhaps more so, the money committees is undeniably more important. Legislators recognize this, too, and often seek out positions on these more salient committees (Bullock and Sprague, 1969; Munger, 1988; Groseclose and Stewart, 1998).

Fortunately, as the running examples illustrate, there are several generic committee types for which all of these factors point in the same direction, easing the process of hypothesis testing. AFG committees possess narrow jurisdictions, affect regions differentially, entail targeted electoral externalities for committee members only, and are widely viewed as being of secondary importance at best. In light of these characteristics, AFG committees should prove relatively unattractive targets for partisan stacking. On the opposite end of the spectrum lie the money and logistics committees. The former includes committees on appropriations, ways and means, finance, taxation, and budget; the latter category encompasses committees concerned with rules, calendars, committees, etc. Committees of this sort have considerably broader jurisdictions and wider impacts, be they policy, electoral, or otherwise. Because of this, they are almost universally recognized as the most important committees. All told, the majority party which aims to control the agenda and secure policy victories would do well to stack the money and logistics committees with extra partisans.

H1: AFG committees - Committees concerned with agriculture, fisheries, and game, which generate targeted electoral externalities, will exhibit evidence of partisan stacking at lower rates than generic committees.
Figure 3.7: Parties stack money and logistics committees. Multivariate OLS reveals that majority parties are more likely to pad their committee contingents when those committees handle revenue, expenditures, or logistics. Effect bounds derived from over 10,000 coefficient draws; figure based on data from 97 state chambers, 1999–2000 (Battista, Peress and Richman, 2013) and the Virginia House of Delegates, 1919–2018.

H2: Logistical committees - Committees concerned with rules, committees, and calendars, which generate uniform electoral externalities, will exhibit evidence of partisan stacking at higher rates than generic committees.

H3: Money committees - Committees concerned with taxing, appropriations, and budgets, which generate uniform electoral externalities, will exhibit evidence of partisan stacking at higher rates than generic committees.

To examine these hypotheses, I not only return to the familiar cross-sectional data, but also introduce an original, century-long time series. This second dataset, covering 79 legislative sessions of the Virginia House of Delegates from 1919 to 2018, derives from research by the Virginia House of Delegates Clerk’s Office.17

17The Clerk’s Office researched and published a searchable online database of burgesses and representatives to celebrate the 400th anniversary of “the First and Oldest Continuous English-Speaking Representative Legislative Assembly in the Western Hemisphere.” Member biographies
As Figure 3.7 indicates, the theoretical expectations outlined above are largely borne out in the data. Each panel employs multivariate OLS, with majority-party SAE regressed on indicator variables for the three committee types and effect bounds derived from 10,000 draws from a multivariate normal distribution centered around the model coefficients (King, Tomz and Wittenberg, 2000).

Estimated committee-type effects are substantively similar across datasets, albeit slightly stronger in the Virginia House. Across 97 state chambers, logistics and money committees are associated with an additional 0.12–0.13 SAE, equivalent to an increase of approximately 70% from the in-sample baseline. In Virginia’s lower chamber, these committees produce an additional 0.2–0.3 SAE, or an increase of 87–116% over the baseline. AFG committees, on the other hand, entail a moderate-to-strong reduction in majority-party SAE. These results, which corroborate previous findings by Morris (1982) and Hedlund and Hamm (1996), provide strong evidence that partisan stacking is not typically an across-the-board strategy, but rather something more akin to an ace-in-the-hole, reserved for committees entrusted with broad jurisdictions, high importance, and universal electoral externalities.

3.3.2 Committee gatekeeping across chambers

“Undoubtedly,” writes Maltzman (1998), “the most important tool possessed by committees is their gatekeeping power. Since bills are routinely referred to stand-

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ing committees, committee members can defeat legislation by refusing to report" (28). The importance of gatekeeping power is amplified by the need to generate legislative accomplishments and, perhaps crucially, avoid legislative defeats. By minimizing the likelihood that the majority party gets rolled, committees with gatekeeping rights help to maintain and burnish the party’s collective brand (Cox and McCubbins, 2005).

While these gatekeeping powers are firmly entrenched in the U.S. Congress, they are more variable across the states. One additional benefit to using cross-sectional data is the ability to test the effects of relevant institutional features. If partisan theories such as the cartel agenda model of Cox and McCubbins are to hold any water within state chambers, then majority-party members in these legislatures must be able to block bills from the floor via their grip on standing committees. According to this logic, committees possessing the right to block bills from reaching a floor vote will be far more valuable to a majority party seeking to dictate the legislative agenda, and it is therefore in these chambers where majority parties should more frequently engage in the strategy of partisan stacking.

Anzia and Jackman (2013) highlight two separate routes by which committees may exercise such gatekeeping powers. First, not all committees are required to hear every bill referred to them; many, in fact, possess the formal right to deny a hearing to a bill. Across the 97 non-tied state legislatures in the cross-sectional data, fully 70 feature committees which may decline to hold hearings on a bill. An additional form of gatekeeping power is located in a committee’s discretion to report (or sit on) a bill. In chambers where committees hold the right to decline to
report a bill, committees are potentially vital tools for a majority party interested in structuring the legislative agenda. In the present sample, 72 chambers give their committees discretion over the reporting of bills.

Applying the logic of partisan theories, I anticipate that the likelihood of partisan stacking is higher in those chambers which endow their committees with the right to deny hearings or the right not to report bills to the floor. Theoretically, these individual gatekeeping rights should serve as substitutes for one another. Where a bill may rightfully languish without a hearing, a non-reporting right is superfluous. Conversely, when legislators can withhold a bill from the floor, hearings matters naught. Therefore, I construct an indicator which takes the value of one whenever either gatekeeping right is present. At the same time, and building upon the analyses of the previous section, gatekeeping rights should matter even more for those committees crucial to the majority party’s agenda. In other words, the effect of gatekeeping rights should be magnified on logistical and money committees, as defined above.

**H4: Gatekeeping rights** - Committees endowed with the power to deny a bill a hearing or to refuse to report a bill to the floor will exhibit evidence of partisan stacking at higher rates than those committees devoid of such gatekeeping rights.

**H5: Interaction effect** - The effect of gatekeeping powers will increase where committees are important in the sense of producing uniform electoral externalities.

To analyze these claims, I turn once again to the cross-sectional data in Battista, Peress and Richman (2013). In an OLS regression, I interact an indicator for important (i.e., logistics or money) committees with an indicator for gatekeeping rights,
Figure 3.8: **Majority parties stack committees with gatekeeping rights.** Figure examines the effects of gatekeeping rights—the ability to refuse to hold hearings or report bills to the floor—upon majority-party SAE among important and unimportant committees. Important committees, such as those concerned with legislative logistics or finance, generate uniform electoral externalities. Among important committees, gatekeeping rights are associated with an additional seat above expectation on approximately every other committee; among unimportant committees, this figure is approximately one out of every five committees. Figure based on data from 97 state chambers, 1999–2000 (Battista, Peress and Richman, 2013).

meaning the ability to refuse to hold hearings or report bills to the floor. Figure 3.8 displays simulated first differences for the gatekeeping rights in important (left) and unimportant (right) committees following the approach outlined by King, Tomz and Wittenberg (2000). Among the logistics and money committees, the effect of gatekeeping rights is a statistically significant 0.41 SAE. My preferred
interpretation is that, among the committees most important to the majority party’s agenda, gatekeeping rights are associated with an additional seat above expectation on nearly every other committee. This can be contrasted with the statistically significant yet substantively smaller effect of gatekeeping rights among the less important committees: 0.20 SAE. This effect, in turn, translates to an extra seat above expectation in one out of every five committees. Consistent with the results in the previous sections, the majority party does not engage in universal stacking. Rather, the majority party selectively stacks committees—when they generate uniform electoral externalities and when they possess the gatekeeping rights so crucial to negative agenda power. Importantly, this means that selective stacking is explainable on the basis of partisan theories of legislative organization.

To summarize the results thus far, I find that partisan stacking—defined as the appointment of additional majority-party legislators beyond what proportionality would dictate—varies at two separate levels. At the chamber level, partisan stacking is more prevalent where committees possess solid gatekeeping rights. Facing committees made powerful through the power to deny bills a hearing or report them to the floor, a majority party faces strong incentives to ensure that such power is wielded in the service of its legislative agenda, rather than in opposition to it. Within chambers, not all committees are created equal. Differences in jurisdiction, importance, and, ultimately, electoral externalities determine the relative allure of partisan stacking. Committees entrusted with power over matters of revenue, expenditures, and legislative procedures and logistics are considerably more likely to be the subject of partisan stacking, for the actions of these
committees are more consequential for policy and electoral success.

3.4 Discussion

The central importance of standing committees to the conduct of legislative business has long been recognized by politicians. Well over a century ago, Speaker of the Michigan House of Representatives William D. Gordon described the legislative committee as “the eye, the ear, the hand, and very often the brain of the assembly” (Miller, 1897, 18).\textsuperscript{18} Scholarly appreciation of the importance of committees has a similarly long history, dating back to the nineteenth-century treatises of Wilson (1885), Bryce (1891), and McConachie (1898).\textsuperscript{19} Yet despite the subsequently voluminous literature devoted to theorizing committee selection processes—and the increasingly prominent role of majority parties in this literature—legislative scholars have still struggled to unearth convincing evidence of majority party manipulation of state-level committee assignments. According to the scholarly consensus, and despite possessing the motive, means, and opportunity, majority parties appear not to engage in manipulation of committee appointment processes.

This puzzle is all the more perplexing given that the business of standing committees strongly impacts law and policy outcomes and, through these, prospects

\textsuperscript{18}Highlighting the parallels between state and federal legislatures which implicitly or explicitly drive much of the literature on state legislative politics, Speaker Gordon was actually paraphrasing Thomas Reed, Speaker of the United States House of Representatives (Alexander, 1916, 228).

\textsuperscript{19}This emphasis on committees extended to the state legislatures as well, although with a delay of several decades (Winslow, 1931).
for legislators’ reelection bids, parties’ maintenance of their majority, and citizens’ welfare. This paper has sought to address this puzzle through the recognition of several theoretical and practical constraints on stacking faced by majority parties. Committee seats must be doled out in whole numbers, as seats—not seatshare—are the objects of partisan contestation. The pool of available legislators is fixed, and often polarized. A wide variety of rules restrict committee service, most frequently due to individual membership ceilings, but also through aspects such as brackets and even congressional districts. Partisan stacking skews committee medians, but remains a conceptually distinct mechanism from that of ideological stacking. Because of these constraints, universal stacking is theoretically unlikely and empirically rare.

Importantly, I demonstrate that it is possible to design an empirical approach which accounts for all of these constraints and that, when I do, I nonetheless detect evidence that majority parties do manipulate legislative committee assignments for partisan gain. But stacking does not occur across the board; rather partisan stacking occurs precisely where partisan theories of legislative organization say it should. Parties stack committees endowed with gatekeeping rights and which produce uniform electoral externalities. These findings are important because they highlight the fact that majority parties are strategic, stacking committees when and where they can have the broadest and largest impact.

Given that parties do strategically engage in selective stacking, research should continue down several avenues. First, the conclusions drawn here would be best replicated on larger and more comprehensive datasets. Cross-sectional data from
other biennia and time-series data from other states could both prove useful to this scholarly enterprise. While cross-sectional data embody vital institutional differences across state chambers, time-series data permit the examination of institutional changes holding fixed the many particulars of a given state. Time-series data also enable the estimation of committee importance through revealed preferences as legislators transfer from less to more desirable committees over their tenure. This leads to a second avenue, the quantification of committee importance. With a viable measure of committee importance in hand, scholars could analyze the prevalence (or not) of loyalty stacking across state legislatures.

Finally, if majority parties stack committees for partisan or ideological gain, then it behooves the scholarly community to investigate the downstream effects of this strategic behavior. Future work should stipulate and test the implications of committee stacking for committee behavior, floor voting, and policy outcomes in order to tease out what is gained, and how.
Chapter 4

Measuring Polarization in Courts and Legislatures via Networks

It is only when opinions and attitudes find expression in conduct that they yield to exact analysis. The first task in creating a science of politics, therefore, is a search for behavioristic materials representative of the intangible subjective elements of political activity. The second task is to devise quantitative methods for measuring these materials.

– Stuart A. Rice (1925, 60)

All agree that the sets of judges who comprise the bench of relatively large appellate courts characteristically partition themselves into dissenting blocs that reflect the polarization of these courts into liberal, moderate, and conservative subsets.

– Glendon A. Schubert (1963, 5)
4.1 Introduction

Polarization in American politics is widely acknowledged to have reached unprecedented levels. But polarization itself is neither a new phenomenon nor a new focus for scholarly attention, as early bloc analyses of American courts and legislatures can attest (Rice, 1925; Thurstone, 1932; Thurstone and Degan, 1951; Schubert, 1963). Unfortunately, precisely what is meant by polarization often goes unstated and, as a result, political polarization is frequently conflated with partisan polarization (Fiorina and Abrams, 2008; Abrams and Fiorina, 2015). Here I offer a more behavioral conception and a network-based measure, called modularity (Newman and Girvan, 2004), applicable to collegial bodies in which members endorse politically-relevant documents. Applying this measure to the U.S. Supreme Court and both houses of Congress using opinion-joining and cosponsorship networks, I demonstrate that while polarization has not sharply increased in recent decades, the degree to which polarization corresponds to partisan polarization has in fact increased.

For several years now, polarization has been ubiquitous in both popular discourse and in the scholarly literature (Mason, 2018; Svolik, 2019; Klein, 2020). In the American context, it is common to read headlines proclaiming in alarming tones that “[p]olitical polarization [is] at its worst since the Civil War” (Paisley, 2016). The news media also frequently trot out disconcerting statistics, such as survey results claiming that nearly half of Republicans and one third of Democrats would feel “somewhat or very unhappy at the prospect of inter-party marriage” for their offspring (Iyengar, Sood and Lelkes, 2012). The Pew Research Center
frames recent polling under the banner, “Most Democrats who are looking for a relationship would not consider dating a Trump voter” (Brown, 2020).

Among scholars, research finds evidence of increased polarization not simply among elected elites (Poole and Rosenthal, 1997; Bond and Fleisher, 2000; Stonecash, Brewer and Mariani, 2002; Theriault, 2008),¹ but also among party activists (Saunders and Abramowitz, 2004; Fiorina, Abrams and Pope, 2005; Layman et al., 2010), the mass electorate (Abramowitz and Saunders, 1998; Hetherington, 2001; Layman and Carsey, 2002; Carsey and Layman, 2006; Abramowitz and Saunders, 2008), and society at large (DiMaggio, Evans and Bryson, 1996; Brewer and Stonecash, 2007; Hetherington and Weiler, 2018). Although less frequently, polarization among unelected judges has also been considered (Ditslear and Baum, 2001; Clark, 2009; Bartels, 2015; Devins and Baum, 2016; Cho, Todd and Vanberg, 2018). There now exist cottage industries concerned with explaining polarization’s rise and intensity (McCarty, Poole and Rosenthal, 2016; Mason, 2018; Rogowski and Sutherland, 2016), identifying its manifestations (Baldassarri and Bearman, 2007), and tracing out its implications for specific political systems (Iyengar et al., 2019) and regime longevity in general (McCoy, Rahman and Somer, 2018; Svolik, 2019).

Yet despite all of the breathless coverage and frequent hand-wringing which polarization has engendered, careful attempts to measure it have lagged behind. In the pages that follow, I first survey past attempts to measure polarization and then outline the concept of polarization that serves as the focus here. Next, I propose a

¹To quote a well-cited review piece, “there is general agreement among informed observers that American political elites have polarized” (Fiorina and Abrams, 2008, 565).
new network-based approach to quantifying polarization which exhibits several advantages over past measures, including its applicability in both collegial courts and legislative bodies as well as its ability to separate non-partisan polarization from partisan polarization. The remaining sections apply this new measure to the United States Supreme Court and the United States Congress, before concluding.

4.2 Existing measures of polarization

Over the last several decades, polarization has been measured in a variety of settings and a variety of ways. Scholars of American politics have tended to base their measurements upon the foundation of individual-level ideal points constructed from an array of sources, including legislative voting behavior (Poole and Rosenthal, 1997; McCarty, Poole and Rosenthal, 2016) and Twitter data (Barberá, 2014; Morales et al., 2015). These ideal points, real numbers said to represent actors’ policy preferences along a unidimensional scale, have then been manipulated in any number of ways. One basic approach has been to group actors by party affiliation in order to examine interparty differences and intraparty variances (Aldrich, 2011; Jacobson, 2000); differences have been calculated as the distances in party means and medians, while standard deviations are sometimes substituted for variances. Aldrich, Berger and Rohde (2002), in their work on conditional party government, measure polarization using principal-components analysis on four aspects: (1) the difference between party medians, reflecting interparty heterogeneity; (2) “the ratio of the standard deviation of ideal points in the majority party to that of the
full House,” indicating intraparty homogeneity; (3) the $R^2$ produced by regressing members’ ideal points on party affiliations, measuring the partisan aspect of polarization; and (4) the “proportion of overlap between the two parties’ distribution of ideal points” (21). Others have computed the average absolute value of ideal points for each party, and taken the mean of that (Theriault, 2008).

Comparative work has also produced measures of “party system polarization” which not only leverage party-level ideal points in similar ways, but also use the maximum range between parties (Golder, 2006) and deviations within a system from some “ideological centre of gravity” (Gross and Sigelman, 1984). More sophisticated—and axiomatic—uses of ideal points include Esteban and Ray (1994); Duclos, Esteban and Ray (2004); and Maoz and Somer-Topcu (2010). In the work of Esteban and Ray, the three axioms are easily stated: polarization increases with intragroup homogeneity, intergroup heterogeneity, and as the number of groups decreases. Morales et al. (2015) liken polarization to the electric dipole moment and therefore measure polarization as proportional to the distance between two “gravity centers” and the normalized difference in their population sizes.

Still others have eschewed ideal points altogether. Here polarization has been quantified as the percentage of party votes (Bond and Fleisher, 2000; Stonecash, Brewer and Mariani, 2002), party unity scores (Sinclair, 2002), and the average of the range of interagreement relationships (Pritchett, 1948). At the U.S. Supreme Court, one alternative measure of polarization is the term-level incidence of 5-4 splits, which occur when a narrow majority of five justices reaches a decision over the dissent(s) of four others. A related line of work, primarily focused on the Court,
has sought to identify distinct “blocs” on the basis of voting behavior. Schubert (1959, 1963) defined blocs via three quantitative indices—cohesion, adhesion, and interagreement—but also experimented with “hierarchical syndrome analysis” (McQuitty, 1960) to construct dendograms of bloc strength. Others have applied factor analytic techniques (Thurstone and Degan, 1951; Ulmer, 1960), singular value decomposition (SVD) (Sirovich, 2003), and hidden Markov models (Crane, 2017; Crane and Dempsey, 2018) to derivatives of vote matrices. Finally, in work that is more closely related to my own, network scientists have experimented with polarization measures rooted in the community structure of political networks (Zhang et al., 2008; Waugh et al., 2009; Guimerà and Sales-Pardo, 2011; Moody and Mucha, 2013).

To summarize, polarization has tended to be conceptualized in terms of distributions of preferences, and its measurement has therefore often necessitated a measure of preferences as a precondition. The consensus depiction of polarization consists of a bimodal distribution of preferences whose two “clumps” are well-defined (i.e., of small variance) and widely spaced. Preference estimates are typically constructed on the basis of actors’ political behaviors, whether these be votes on final passage within a legislature, decisions to affirm or reverse lower courts within a judiciary, or decisions regarding whom to follow within social media networks.

Within legislative studies, and most prominently among scholars of Congress, the “clumps” have been readily defined by party labels. Perhaps the most prominent portrait of polarization in American politics is that of the ever-widening
gap between the average Democrat’s DW-Nominate score and that of the average Republican. Yet, outside of the legislature, party labels feature far less prominently. Perhaps for this reason, students of judicial politics have devoted more effort to the inductive identification of blocs than to the quantification of polarization per se. But even in an environment in which party affiliation is salient, there is great utility in measuring polarization without reference to party labels. In fact, without such a measure, there is no possibility of analyzing the extent to which polarization corresponds to partisan polarization—or how this has changed over time.

Consider, for a moment, the Civil Rights Act of 1964. Traditionally, of course, the Democrats are “seen as the party that passed” the Act because “[t]hey held the majority in both chambers and the presidency” (Klein, 2020, 30). And yet “eighty percent of House Republicans supported the bill, as opposed to sixty percent of House Democrats. . . As with the House vote, a greater proportion of Senate Republicans than Democrats voted for cloture and passage of the bill: more than four-fifths of the Republicans but only some two-thirds of the Democrats” (Kabaservice, 2012, 100–101). As Klein (2020) puts it, “[i]t is remarkable, from our current vantage point where everything cuts red from blue, to see a debate that polarizes the country without splitting the parties” (29, emphasis added). Indeed, while Republicans largely supported the Act, their presidential nominee, Barry Goldwater, vehemently opposed the measure. But it is a mistake to assume that, simply because the behavioral patterns of the 1960s Congresses did not align with our current red-versus-blue notions of partisanship, the era represented one of
“depolarization” (Klein, 2020).

By introducing a measure of polarization that is not a priori tethered to partisan affiliations, I also offer leverage on the debate over polarization and sorting (Abramowitz and Saunders, 2008; Fiorina and Abrams, 2008; Levendusky, 2009; Abrams and Fiorina, 2015). I find that polarization at the Supreme Court has essentially plateaued since the Vinson Court (1946–1953) and has increased only mildly in both chambers of Congress. What has increased is the extent to which partisanship aligns with polarization in the behavioral patterns of these political elites. Overall, these findings are consistent with a sorting story: political behavior has not grown more extreme or bimodal, it has rather come to be more reliably associated with internally homogenous parties (Aldrich, 2011; Abrams and Fiorina, 2015).

In the next sections, I offer a new, more behavioral way of thinking about polarization. I then propose an alternative measure which detects these behavioral blocs from the data themselves.

4.3 Conceptualizing polarization

I begin with the consensus, made most explicit in the axioms of Esteban and Ray (1994). Polarization increases with intragroup homogeneity, intergroup heterogeneity, and as the number of groups decreases. Yet I do not wish explicitly to conceive of polarization in terms of preference distributions, for preferences are notoriously difficult to measure. Most estimates are of so-called “revealed
preferences;” in other words, scholars observe the behavior of political actors and attempt to infer preferences from these behaviors. My conceptualization of polarization works just fine if we consider political behavior directly.

Within the political arena, actors do things. They vote for bills, or they vote against them. They author judicial opinions. They join those opinions, or they write separately. They sponsor legislation, or they withhold their endorsement. The power of groups, at least within the majoritarian settings of the democratic institutions under consideration, lies in the strength of numbers and their application to concerted actions. Groups are defined here as nothing more than collectivities of individual actors who behave in a similar manner within the political arena. Polarization, then, is tantamount to the coalescing of actors into ever more distinctive groups on the basis of their behaviors.

Polarization increases with intragroup homogeneity, or as the actors within a group behave more similarly. These behavioral similarities may be rooted in shared preferences or in institutional constraints. Existing work on polarization tends to be couched in terms of preferences, but here I focus on behavior. Ultimately, behavior is all that is observable, and conceptualizing polarization in explicitly behavioral terms circumnavigates the difficulties inherent in claims regarding behavior and revealed preferences. In other words, whether behavior is “strategic” or not is immaterial; what matters is whether behavior is polarized in the sense of intragroup homogeneity and regularized patterns. Polarization also increases in intergroup heterogeneity, meaning that the behaviors of one group are systematically distinguishable from those of another. Here again, intergroup
differences in behavioral patterns need not be attributed to distinctive sets of preferences. Instead, polarization in this conception makes no claims to the divining of preferences.

Finally, polarization increases as the number of groups declines to two, and it is here that more explanation is warranted. It will be helpful for the discussion to introduce the theoretical underpinnings of Esteban and Ray’s axioms, identification and alienation. Identification is essentially the positive feelings of belonging that an actor feels toward her group, which is composed of those actors who behave in a similar manner. Alienation is the idea that an actor feels alienated from those in other groups on the basis of their differences in behavior. Obviously, increased intragroup homogeneity will tend to magnify identification, and increased intergroup heterogeneity will accentuate alienation. But how does the number of groups factor in?

Imagine a setting of 100 actors. When there is but a single group, there can be no intergroup heterogeneity, for all behave in a similar manner. Identification is high, but alienation is nonexistent. When there are one hundred groups, one for each individual, there will be no intragroup homogeneity for no groups truly exist. There is alienation, but no identification. When there are fifty pairs of actors, something different happens. Although we have reduced the number and variety of groups, we have also rendered these groups more noticeable and effective as groups. Thus while increasing in-group identification, we are also increasing between-group alienation by enhancing the salience of each. This trend continues as the number of groups are whittled down, until with two groups identification
and alienation are all but maximized. Deutsch (1971) neatly summarizes this Marxian logic:

As the struggle proceeds, “the whole society breaks up more and more into two hostile camps, two great, directly antagonistic classes: bourgeoisie and proletariat.” The classes polarize, so that they become internally more homogeneous and more and more sharply distinguished from one another in wealth and power” (44).

International relations theory recognizes this logic as well, noting that polarization is maximized under “strict bipolarity,” or a system divided into two discrete, internally cohesive, non-overlapping groups of equal size (Maoz and Somer-Topcu, 2010).

So polarization is a function of political behavior. Furthermore, it necessitates that actors behave in ways similar to some peers, but which differ from others. These differing behavioral patterns delineate groups. As behavioral patterns within groups grow similar, polarization rises. At the same time, as behavioral patterns between groups diverge, polarization increases. If the actors cannot be meaningfully assigned to different groups on the basis of their behavioral patterns, polarization cannot be said to exist in any tangible sense. Yet more groups does not imply more polarization. Instead, polarization rises as the number of groups is reduced to two.

All three of these factors may be fruitfully associated with a common political behavior. Political actors frequently have the opportunity to associate their names
with textual documents expressing political preferences and advocating particular policies. Translated into practical terms, legislators sponsor and cosponsor bills, while judges author, coauthor, and join judicial opinions. In each case, the behavior is weighted with political significance, for these constitute the lifeblood of law and policy in a democracy. These acts permit but do not require collaborative action. A judge may join an opinion if she agrees with the rationale; if she does not, she may write a concurrence or dissent. A legislator may sponsor a piece of legislation on his own, or he may seek additional cosponsors. It is worth considering each variety of action on its own terms.

In the judicial context, opinions are considerably less studied than votes on the merits. While many quantitative scholars of the Court have focused on these merits votes, such votes merely dispose of the case at hand by deciding in favor of the petitioning or responding party. Far more consequential for the law are the written opinions, which do much more than merely announce a disposition. In addition, a judicial opinion rationalizes the decision through reference to statutes, constitutional law, and judicial precedent, and often generalizes the dispute by erecting or modifying a legal rule meant to decide the outcome of future cases. It is through its written opinions that the Court guides lower court judges, and it is the crafting of these same opinions which provokes the sharpest disagreements among justices (Woodward and Armstrong, 1979; Maltzman, Spriggs and Wahlbeck, 2000). Evidence for the primacy of opinions over dispositions can also be gleaned from the prevalence of concurring opinions. Concurrences are written by justices who agree with the majority’s disposition of the case but disagree over
the emphasis, phrasing, or rationale of the majority's opinion. According to seventy years of annual statistics from the *Harvard Law Review*, approximately one in nine cases sparks a concurrence. Clearly, the justices consider the rationale as well as the disposition.

Turning to the parliamentary setting, sponsorship of legislation has also merited far less attention than has roll-call voting. While votes on final passage certainly have more proximate effects upon law and policy than do pieces of newly sponsored legislation, these votes are also more constrained by institutional considerations such as committee structures (Aldrich, Berger and Rohde, 2002). Sponsorship activities, occurring earlier in the legislative process represent less constrained behavior. While some scholars disregard sponsorship activities as “cheap talk” (Wilson and Young, 1997), legislators sponsor bills very selectively and expend great energy recruiting cosponsors (Campbell, 1982; Fowler, 2006a,b).

Each of these forms of political behavior, opinion-joining and cosponsorship, is a frequent and integral part of the political process within its respective domain. Importantly for measurement, discussed in the next section, each form of behavior also lends itself nicely to a network perspective.

### 4.4 Introducing a network-based measure

In the previous section, I outlined a way of thinking about polarization in terms of the behavioral patterns of groups and identified a behavior with analogs in both courts and legislatures. Within courts, judges write and join opinions; within
representative assemblies, legislators sponsor and cosponsor bills. Polarization in a collegial court corresponds to a clear partitioning of judges into blocs who disproportionately sign onto one another’s opinions and who tend not to join the opinions of other blocs. In a legislature, polarization implies discrete blocs of legislators who disproportionately cosponsor legislation and who tend not to cosponsor the bills of other blocs. Polarization increases as (1) the number of blocs decreases to two, (2) these blocs exhibit greater uniformity in opinion-joining or cosponsorship behavior, and (3) the behavioral differences between these blocs grow more pronounced.

Shifting attention to actors and their espousal of politicized texts makes it easy to reconceptualize the data as a bipartite network. A bipartite network consists of two disjoint sets of nodes, with links running only between two nodes of differing types. In the present setting, there are actor nodes and document nodes and links can only connect an actor to a document—and even then, if and only if the actor espouses the document in question. These connections are represented with an unweighted adjacency matrix $A$, where $A_{ij} = 1$ when justice $i$ joins opinion $j$ (or when legislator $i$ cosponsors bill $j$) and equals zero otherwise.

Given this setup, blocs of actors who disproportionately espouse one another’s documents are equivalent, in network terminology, to communities comprised of actor nodes. Communities are defined somewhat loosely as groups of nodes such that “[w]ithin these groups there are many edges between vertices, but between groups there are fewer edges” (Newman, 2004, 321). Even for small networks, combinatorics dictate that an enormous number of community structures are...
possible. To evaluate the relative “fit” of these possible community structures, network scientists often rely upon a measure known as *modularity*, which “measures the fraction of the edges in the network that connect vertices of the same type (i.e., within-community edges) minus the expected value of the same quantity in a network with the same community divisions but random connections between the vertices” (Newman and Girvan, 2004).²

The conventional formula for modularity, $Q$, is written as

$$Q = \frac{1}{2m} \sum_{ij} [A_{ij} - P_{ij}] \delta(g_i, g_j),$$

where $m$ denotes the number of edges, $g_i$ ($g_j$) is the bloc assignment of actor $i$ (document $j$), and $\delta(g_i, g_j) = 1$ if and only if $g_i = g_j$. Values of $P$ define the probability that actor $i$ espouses document $j$ under the null model. The typical null model chosen is a rewiring model in which all edges are snipped and reconnected at random, an approach whose primary advantage beyond tractability is that it holds the network’s degree distribution fixed. In expectation, actor $i$ espouses document $j$ with probability $P_{ij} = \frac{k_i k_j}{m}$, where $k_i$ ($k_j$) is the degree of actor $i$ (document $j$).

Figure 4.1 illustrates this approach in the judicial context for the opinions in *Bush v. Gore* (531 U.S. 98), with each of the figure’s six panels comprised of the same nine justices (on the left) and six opinions (on the right). Each row

²While Zhang et al. (2008); Waugh et al. (2009); and Moody and Mucha (2013) have also considered the linkage between modularity and polarization, they work with different behavioral data (roll-call votes), fail to leverage the bipartite nature of their data, or neglect the third aspect of polarization (number of groups).
presents an alternative partition of the network, depicted by black and white shading. Edges in the left column depict the observed justice-opinion joining behavior, edges in the middle column have been clipped, and edges in the right column have been randomly rewired. It is important to recognize that such rewiring, by simply reconnecting snipped edges at random, ensures that each actor continues to endorse the same fixed number of documents; likewise, each document maintains the same fixed number of endorsements.

Effectively, the modularity approach takes the observed join behavior and an arbitrarily imposed partition, randomly rewires the edges a large number of times, and thereby generates an expected number of edges for every justice-opinion pair. From this baseline, it is straightforward to determine whether each observed edge is surprising in a statistical sense. If the particular partition imposed upon the network is such that there exists within each community a “statistically surprising arrangement of edges” (Newman, 2006, 8578), then the resulting modularity score will be high. Although $Q$ may theoretically take on any value in $[-1, 1]$, with higher values indicating a stronger community structure, Newman and Girvan (2004) report that in practice highly modular networks typically present values ranging from 0.3 to 0.7 (and rarely higher).

If the actor-document network can be partitioned into blocs in a large number of ways, and the strength of each partition can be assessed via modularity, then to measure polarization requires identifying the partition with optimal modularity. Fortunately, the optimal bipartition is easily determined from singular value decomposition of the so-called modularity matrix, $B$, defined as $B = A - P$ (Barber,
Figure 4.1: The rewiring logic of the modularity null model. Each row depicts a different bipartition, with the observed edges (left column) snipped (middle column) and rewired (right column). Modularity is higher when the proportion of within-community edges is higher than expected under a large number of rewirings, holding fixed the network’s observed degree distribution and the imposed partition. The upper-left network presents the optimal bipartition of the justice-opinion network in Bush v. Gore (531 U.S. 98).

2007).\(^3\) Inspecting the left-singular vector (right-singular vector) associated with the largest singular value, each actor (document) is optimally classified into one of the two blocs according to its corresponding sign.\(^4\) With the optimal biparti-

\(^3\)One alternative method for identifying communities within the network is the stochastic block model (see, e.g., Guimerà and Sales-Pardo, 2011). Although extensions to bipartite networks exist (Larremore, Clauset and Jacobs, 2014; Kim and Kunisky, 2019), they introduce assumptions unnecessary for the measurement of a two-community structure’s fit.

\(^4\)These singular vectors may be of interest for more than their sign, as the cardinal values they contain also represent a measure of political preferences. Although I do not make use of these ideal points here, they are a happy by-product of the network approach and worthy of future
tion in hand, calculating the associated modularity score—here, polarization—is computationally straightforward.

Before moving on, a note is in order regarding the Supreme Court context. Due to the small number of justice nodes under consideration, the theoretical maximum modularity value, $Q_{\text{max}}$, of these networks is sensitive to the size of the Court. Specifically, $Q_{\text{max}}$ is increasing in the size of the Court. I normalize each empirical measurement of polarization by its corresponding $Q_{\text{max}}$. After normalization, polarization can take a value in [0, 1].

### 4.5 Simulation study

As described above, much of the literature on polarization has conceptualized it in terms of ideal point distributions; intuitively, polarization is associated with a growing chasm between two sets of ideal points. Examples of this approach include the well-known plots of DW-NOMINATE scores by Poole and Rosenthal (Poole and Rosenthal, 1997; McCarty, Poole and Rosenthal, 2016), as well as Shor-McCarty scores in state legislatures (Shor, 2015) and NOMINATE-scaled Perceptions Scores for Supreme Court nominees (Cameron, Kastellec and Park, 2013; Cho, Todd and Vanberg, 2018). Although I eschew the ideal point-based conceptualization here in favor of one rooted in behavioral regularities, it is worth asking whether and how well a measure so derived confirms our ideal point-based intuitions. To that end, this section simulates the data-generating process within investigation.
the judicial context. I simulate ideal point distributions and cases, identify opinion authors and joiners according to a theoretical model of opinion writing, and measure the polarization of these scenarios in the manner outlined above. To preview the results of the simulation, polarization increases, as expected, in the distance between two sets of ideal points.

To begin the simulation, I generate a bloc of four judges and a bloc of five judges, with each bloc’s judges evenly dispersed across a region of width 0.5. In the first scenario, both blocs are centered around 0; in each of 125 succeeding scenarios, one bloc is uniformly shifted to the left by 0.01 and the other is uniformly shifted to the right by 0.01. These scenarios are illustrated in the left panel of Figure 4.2, with the initial distribution at the bottom. Working within the case-space framework (Lax, 2011), one of these ideal points represents the location of a judge’s ideal legal rule in a unidimensional case space. Cases falling to the left of a judge’s ideal point would be adjudicated one way (say, legal), while cases falling on the other side would be adjudicated the other way (say, illegal). Here I take the case space to exist on $[-2, 2]$ with cases uniformly distributed throughout.

Given a case, modeled as a point in the case space, and a distribution of ideal points representing a collegial court, how is a bipartite network of opinion coalitions generated? Although many approaches are possible, I opt to adapt and approximate the concurrence model put forth in Carrubba et al. (2012) and elaborated in Ainsley, Carrubba and Vanberg (2016). The version used here assumes that the (uniform) distribution of future cases is common knowledge, that writing a separate opinion is a costly act, and that this cost does not vary across judges. The
cost of writing separately is calculated in terms of a proposed majority opinion's impact in expectation. In other words, when faced with an opinion announcing a legal rule at a particular point in the case space, a judge calculates the expected proportion of cases falling between that rule and her own ideal rule; each case in this region would be wrongly adjudicated by her own lights. If this proportion exceeds one quarter of all cases, she is willing to pay the cost to write separately at her own ideal point.

Given the distribution of cases and cost of writing assumed here, each judge is...
willing to join any majority opinion written within 1 unit of her ideal rule. These “join regions” appear in the left panel of Figure 4.2 as overlapping, semitransparent blue and red bands. The simulated distributions range from total overlap of the two blocs’ ideal points (bottom) to the cusp of complete separation of the two blocs’ join regions (top). As the distance between these two blocs increases, the probability that a case will fall between them also increases. Under the concurrence model’s assumption of lexicographic preferences for dispositions, such cases will always result in one or more dissents from the smaller left bloc.

The middle panel of Figure 4.2 displays the resulting justice-opinion networks at three different interbloc distances (from bottom to top: -0.26, 0.74, 1.74), depicting each bipartite network via a one-mode (justice-justice) projection. Lighter edges denote relatively fewer shared opinions, while darker edges between two justices indicate that they frequently join one another’s opinions. In the bottom graph, when the ideal points of the two blocs contain significant overlap, each justice joins the same opinions as every other justice frequently enough that no blocs are discernible. A dissenting minority bloc begins to take shape in the middle graph, as the blocs’ ideal points begin to separate. In the top graph, almost every opinion is joined solely by the members of one bloc or the other. The gap between the two blocs has widened to a gulf—into which most cases will fall—and there are very few locations in the case space (indicated by a shade of purple in the left panel) in which an opinion could attract the support of a cross-bloc coalition.

The network-based measure of polarization outlined in the previous section is applied to these simulated justice-opinion networks (not the justice-justice
projections), with the results presented in the final panel of Figure 4.2. While the fit is not perfect, it is clear that normalized bipartite modularity responds in line with ideal point-rooted intuitions. When the ideal points of the two blocs are all but indistinguishable, polarization is low; as the two blocs' ideal points move apart, polarization increases. Finally, under the assumptions of the concurrence model, polarization plateaus at extreme levels of separation because cross-bloc opinions are no longer viable. Having offered some reassurance that a network-based measure of polarization conforms to intuitive understandings of polarization rooted in an altogether different paradigm, I turn in the next section to discussion of the data and presentation of initial results.

4.6 Polarization at the United States Supreme Court

Before applying a new network-based measure of polarization to America's highest tribunal, it is worth stepping back to ask whether it makes sense to do so. After all, the literature on polarization at the Court pales in comparison to that concerning the U.S. Congress. Yet despite the meager literature on judicial polarization, it is relatively easy to imagine how polarization in the larger polity could infect the Court. First, recall that under the American system of checks and balances, every justice is nominated by the president and confirmed with the advice and consent of the Senate. Few would dispute that polarization has altered the operations of—and actors behind—these institutions; indeed, the application to Congress below confirms this claim. Most recently, the abolition of the filibuster for Supreme
Court nominees has empowered even the slimmest Senate majority to confirm a justice on a party-line vote. A basic spatial-model logic predicts that these changes should lead to fewer moderate nominees and, accordingly, more at the extremes. Accepting for the sake of argument that polarization has risen and there exists a clear mechanism by which it could alter the Court, what effects might polarization have on the Court, and do they warrant academic scrutiny? First, polarization may have repercussions for the Court’s primary output, the law. As discussed below, a more polarized Court may become a more predictable Court as coalitions solidify and unusual line-ups grow ever more unusual. In the short run, this may increase stability and predictability in the law. In the long run, however, such doctrinal stability hinges crucially upon the continuing service of the Court's members, as the replacement of any one justice could dramatically alter the predominant patterns of decision and opinion-joining.

Whether through the heightened stakes of judicial confirmations or through its impact on the law, polarization may also negatively impact the Supreme Court’s legitimacy. Previous work has shown that substantive evaluations of judicial opinions affect public support for the Court as an institution (Gibson, Caldeira and Baird, 1998; Bartels and Johnston, 2013). The danger, of course, is that polarization reduces the variance in the public's ideological perceptions of the Court, thereby strengthening the correlation between its legitimacy and one's ideological or partisan predilections and cementing its status as a political institution.

Thus, because polarization poses a threat to the law and to the Court itself, accurate measurement is crucial. Happily, readily available Supreme Court data
come in the form of votes on the merits (SCDB; Spaeth et al., 2016). Yet the approach outlined above demands data on the opinion-joining behaviors of the justices. However, the SCDB contains enough information in its supplementary variables to provide a jumping off point for data collection. As a first pass, much of the SCDB can be relatively easily reshaped from a justice-case vote matrix to a justice-opinion join matrix using a few heuristics. It is safe to assume a unanimous opinion when, for example, the vote entry for all participating justices is the same and the opinion entries indicate the issuance of a single opinion. Likewise, consider a case in which the only vote entries are voting with the majority and dissenting and in which the opinion entries indicate that only two justices wrote opinions. Here the only option is a group of justices joining the majority opinion and a smaller group of dissenters who have all coalesced around a single opinion.

Applying these and other heuristics produced an initial justice-opinion dataset in a largely automated fashion, but certain incongruities raised red flags necessitating manual review. One type of red flag occurred when firstAgreement indicated that a justice joined a separate opinion, but the vote variable for the joiner did not match that of the author. Another flag was thrown whenever secondAgreement was non-null; because there are no further (i.e. third-) agreement variables, any instance in which a justice joined three or more separate opinions would go unnoticed unless all of these cases were carefully inspected. After reshaping, double-checking, and cleaning the data, which span the Court’s 1791 through 2017 terms, they consist of 42,696 judicial opinions and 237,463 justice-opinion joins.
Figure 4.3: Polarization at the Supreme Court increased dramatically, 1925–1950. Figure displays term-level polarization calculated from a series of justice-opinion matrices. Estimates with wider bounds result from elevated non-participation rates, mid-term personnel changes, and shorthanded Courts.
Figure 4.4: Polarization at the Supreme Court increased dramatically during the Hughes, Stone, and Vinson Courts. Figure displays natural court-level polarization calculated from a series of justice-opinion matrices. Estimates with wider bounds result from elevated non-participation rates, mid-term personnel changes, and shorthanded Courts. Trend emphasized by opinion-weighted lowess smoother with 25% span.
The only additional wrinkle in calculating polarization from these networks is that of missing data. Particularly in the Court’s earlier decades, when circuit riding was the norm and Washington was still a mosquito-ridden backwater, non-participations were frequent. A number of justices in the late-19th century refused to resign despite incapacitation, while others took extended leave from the Court without stepping down. Recusals, in which a justice excuses herself from a case due to a perceived conflict of interest, constitute another source of missing data. Because determining the optimal bipartition entails singular value decomposition of the modularity matrix, which is in turn constructed from the adjacency matrix, missing data are highly problematic. The solution adopted here is to complete the adjacency matrix with a series of binomial draws, where the probability that a justice joins an opinion is always 0.5. Completing 1,000 adjacency matrices and calculating polarization from each, the result is a measure of polarization with uncertainty while remaining agnostic as to how a justice would have behaved in the counterfactual.

Figures 4.3 and 4.4 presents polarization at the Court (1791–2017), with the overall trend emphasized by a weighted lowess smoother. Measuring polarization at two different levels—by term or by natural court—does not substantially change the inferences drawn. In Figure 4.3, where a separate adjacency matrix is created

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5 As one example, President Truman appointed Justice Robert Jackson to be the Chief United States Prosecutor at the International Military Tribunal in Nuremberg, 1945–1946.

6 Bounds are asymmetrical because modularity estimates derived from completed matrices are not always symmetrically distributed about their medians.

7 Observations are weighted by the number of opinions on which they are based, with a span of 25% selected to reflect better temporal variation.
for each term (year), polarization was consistently minimal from the Court’s early days through the tenure of Chief Justice William H. Taft (1921–1930). Most of the observations associated with lowest uncertainty register at less than 0.1, while the observations in which polarization measures between 0.2 and 0.3 tend to be highly uncertain. From the time of Chief Justice Taft through that of Chief Justice Fred M. Vinson (1946–1953), polarization sharply and steadily increased, peaking around 0.5. Over the ensuing decades, polarization has oscillated in the range of 0.35–0.5 with no clear trend.

Much the same story is told when adjacency matrices are constructed anew for each natural court (Figure 4.4). A natural court is typically defined as a period during which the Court’s membership is held constant. In the present data, this definition often proved inadequate due to the extended absences and frequent non-participations discussed above. I have instead defined a natural court as a period during which the same set of justices continuously heard cases and joined opinions. This entails a separate natural court when, for example, a justice is incapacitated by a stroke, yet fails to resign as his colleagues continue to hear and decide cases. This explicit aim of this more expansive definition of natural courts is to reduce the amount of missing data within natural courts. Under this definition, the overall trend in polarization largely matches that derived from term-level data—low through the 1920s, rapidly increasing until the early 1950s, and finally oscillating at a moderate level up to the present.

Why did polarization at the Court increase so dramatically in the early 1930s? Two intertwining explanations—one emphasizing norms, the other rooted in
institutions—present themselves. Seeking to explain the “mysterious demise of consensual norms” at the Court, Walker, Epstein and Dixon (1988) follow five leads:

1. Congressional enactment of the Judiciary Act of 1925;
2. Changes in the Court’s caseload;
3. The promotion of a sitting associate justice [Harlan Fiske Stone] to be chief justice;
4. Changes in the Court’s composition; and
5. The leadership of the chief justice (364).

In this framework, norms may be influenced by both institutional and personal factors. A quarter century later, Corley, Steigerwalt and Ward (2013) more explicitly intertwine institutional and norm-based arguments by asserting that while the Court worked “under a norm of consensus” up through the early 1900s, “various institutional changes instituted during the Roosevelt Court [roughly 1937–1947] affected the Court’s decision making processes and brought about and entrenched a ‘dissensus revolution’ in which individual expression went from virtual nonexistence to the norm” (11). The internal and external changes they identify correspond very closely to Walker, Epstein and Dixon’s (1988) list, but the authors go farther by specifying the changes in operating procedures that Chief Justice Stone enacted:

1. Expanded conference discussion;
2. Circulation delays: breakdown of twenty-four-hour return of circulated opinions;
3. Reargument of cases; and
4. Academic atmosphere (15).

While it is beyond the scope of this article to test rigorously these competing explanations, I note here that several factors are highly plausible. The Judiciary Act of 1925, commonly referred to as the “Judge’s Bill” due to the drafting and lobbying roles played by four justices, restructured the Judicial Code in a number of ways. The largest impact, however, came from the elimination of many appeals “as of right” and their replacement by petitions for certiorari (Halpern and Vines, 1977). When a litigant files a petition for a writ of certiorari, the Court may choose to grant or deny the petition at its discretion. Although the writ of certiorari predated the 1925 Act, its scope was dramatically expanded. Essentially, the Judge’s Bill permitted the Court to begin picking and choosing the cases it wanted to hear, rather than being forced to hear every appeal that came its way. Speculatively, it may be that the Court exercised its newfound discretion by selecting cases over which its members tended to disagree.

Second, to the extent that consensus was a norm in the opening decades of the twentieth century, the high volume of appointments made by President Franklin D. Roosevelt must be noted. Norms are perpetuated through socialization into them, and rapid turnover in any organization may threaten the survival of norms (Polsby, 1968; Hinckley, 1983; Choate, 2003). At the same time, Chief Justice Stone averred that “[t]he right of dissent is an important one and has proved to be such in the history of the Supreme Court. I do not think it is the appropriate function of a Chief Justice to attempt to dissuade members of the Court from dissenting”
Whatever its causes, the rise in the volume of concurring and dissenting periods that occurred during these decades render it possible to measure polarization. One final point to emphasize is that the presence of dissensus does not automatically imply polarization. Whether or not the Court is polarized in its opinion-joining behavior depends upon the stability in the overall patterns of writing and joining opinions. Theoretically, every case before the Court could prompt a concurrence and a dissent, and yet shifting responsibilities for authorship and shifting coalitions of opinion joiners could nonetheless yield minimal polarization. Viewed from this angle, the contemporaneous rises in dissensus and polarization are more striking.

4.6.1 Assessing validity

Treating the Court’s output as a series of bipartite networks between justices and opinions and applying a measure of community strength developed in network science to the optimal bipartition of each network, the preceding section measured polarization at the Supreme Court over most of its existence. I find that polarization, long measured at low levels, sharply increased throughout the 1930s and 1940s only to plateau at a moderate level around which it has oscillated up to the present. The claim that polarization has not notably increased over the last several decades—at the same time that polarization has purportedly surged in the larger American polity—cuts against conventional wisdom. To assess the validity of the network-based measure, the following paragraphs first tease out
Table 4.1: Polarization measure closely tracks behavioral implications of polarization. Columns 1 and 3 constructed from *Harvard Law Review* statistics, Column 2 constructed from the SCDB, and Column 4 adapted from Katz, Bommarito and Blackman (2017). All analyses at term level. *p<0.1; **p<0.05; ***p<0.01.

<table>
<thead>
<tr>
<th>% Nonunanimous cases</th>
<th>Herfindahl index of coalitions</th>
<th>Ratio of dissenting votes</th>
<th>Mean prediction error (RF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polarization</td>
<td>0.742***</td>
<td>−0.351***</td>
<td>−0.071***</td>
</tr>
<tr>
<td>(0.118)</td>
<td>(0.040)</td>
<td>(0.130)</td>
<td>(0.021)</td>
</tr>
<tr>
<td>Chief Justice FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>N</td>
<td>70</td>
<td>71</td>
<td>70</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>0.578</td>
<td>0.397</td>
<td>0.136</td>
</tr>
<tr>
<td>RSE</td>
<td>0.051</td>
<td>0.018</td>
<td>0.057</td>
</tr>
</tbody>
</table>

some behavioral implications of polarization and then examine the predictive validity of the measure.

One obvious correlate of polarization is the term-level proportion of nonunanimous cases. As polarization increases, the data should reveal a more marked tendency for justices to disagree via written opinions. Column 1 of Table 4.1 regresses the proportion of nonunanimous cases, gathered from the *Harvard Law Review*'s annual statistics (1948–2017), on polarization. The result is strongly significant, substantively meaningful, and in the expected direction. Within the postwar subset of the data examined here, an increase in polarization of 0.1 is substantively large, and is associated with a seven percentage point increase in the proportion of nonunanimous cases.

Another behavioral implication of polarization as defined in this paper is the tendency to observe increasingly fewer subsets of the possible voting coalitions.

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All specifications in Table 4.1 include Chief Justice fixed effects, following Clark (2009).
As polarization increases, so does intrabloc cohesion. This implies that the probability that two randomly selected coalitions are the same should increase as well. To test this prediction, the Herfindahl index is applied to a term-by-term census of voting coalitions, as tallied from the SCDB (1946–2016). The Herfindahl index, originally designed to measure competition and market share and closely related to Laakso and Taagepera’s (1979) effective number of parties, captures the number of voting coalitions with each weighted by its share of the Court’s docket. As the index rises, so, too, does the preponderance of a few increasingly common voting coalitions. Column 2 reveals that increased polarization is, in fact, correlated with fewer and more dominant voting coalitions.

When more than one justice dissents in a particular case, several things can happen. One possibility is that a single justice can volunteer to write a dissent on which all can agree; another is that the dissenters may disagree amongst themselves, each authoring a separate dissent. Other arrangements are also possible, as illustrated in the case of Bush v. Gore in Figure 4.1. With increased polarization and intrabloc cohesion, dissenting justices should tend to coalesce around fewer dissenting opinions. Once again using data from the Harvard Law Review (1948–2017), the tendency of dissenters to splinter is measured as the term-level ratio of dissenting opinions to dissenting votes. Reassuringly, Column 3 indicates that as polarization rises, the ratio of dissents to dissenting votes decreases.

A final, and arguably stronger, test of validity is presented in Column 4. If polarization manifests as more rigid patterns of opinion-joining behavior and—as
Column 2 would indicate—as fewer and more persistent voting coalitions, then the disposition of any given case should be more predictable, ceteris paribus. Although testing this assertion on the basis of predictive accuracy in humans presents considerable hurdles, the logic effortlessly extends to the predictive accuracy of machine learning models. Fortunately, Katz, Bommarito and Blackman (2017) in a recent paper leverage pre-decision features derived from the SCDB to train a time-evolving random forest classifier to predict the merits votes and case dispositions of all cases, 1816–2015. If polarization in fact increases the predictability of voting and opinion coalitions, then the term-level average error in justice-vote predictions should decrease in polarization. As Column 4 attests, this prediction is borne out in the data.

To recap the findings of this section, increased polarization is significantly associated with (1) a higher rate of nonunanimous decisions, (2) a more concentrated distribution over voting coalitions, (3) a lower ratio of dissents to dissenters, and (4) more accurate prediction of votes on the merits according to a machine learning classifier constructed by outside researchers.

4.6.2 Application: case selection

An admittedly speculative explanation, offered above, for the early twentieth-century rise in polarization concerns the Court’s case selection process. When the Court’s mandatory jurisdiction was reduced in favor of a vastly expanded discretionary jurisdiction, the opinion-joining behaviors of the justices began to diverge into two increasingly discernible patterns. If, as the measure of polariza-
Table 4.2: Nonunanimous certiorari voting strongly predicts polarization on the merits. Certiorari voting data cover the Vinson, Warren, and Burger Courts (1946–1985). Adding fixed effects for chief justices and a time trend only increases the effect. *p<0.1; **p<0.05; ***p<0.01.

<table>
<thead>
<tr>
<th>Polarization</th>
<th>Nonunanim. Cert. Votes</th>
<th>Nonunanim. Cert. Votes (0.117)</th>
<th>Nonunanim. Cert. Votes (0.159)</th>
<th>Nonunanim. Cert. Votes (0.181)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Nonunan. Cert. Votes</td>
<td>0.283**</td>
<td>0.336**</td>
<td>0.446**</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>40</td>
<td>0.111</td>
<td>0.055</td>
<td>5.859**</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>40</td>
<td>0.179</td>
<td>0.053</td>
<td>3.836**</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>40</td>
<td>0.190</td>
<td>0.052</td>
<td>3.293**</td>
</tr>
<tr>
<td>Term</td>
<td>Yes</td>
<td>40</td>
<td>0.190</td>
<td>0.052</td>
<td>3.293**</td>
</tr>
</tbody>
</table>

Strategic justices who anticipate dissension on the merits may also disagree over whether or not to hear a particular case.
polarization on the term-level proportion of discussed cases whose agenda-setting votes were nonunanimous. Increasing nonunanimity by 25 percentage points (the within-sample range) is significantly associated with a non-negligible increase in polarization of 0.07. Adding fixed effects for chief justices (Column 2) and a time trend (Column 3) only strengthen the association. The point estimate in Column 3 implies that a 25 percentage point increase in cert-stage nonunanimity entails a 0.11 increase in polarization at the opinion-joining stage—nearly equivalent to the postwar range in polarization.

It is worth pointing out that this relationship is based not upon the sharp rise in polarization, which predates the Vinson Court, but only upon the postwar oscillations. Disagreement at the agenda-setting stage therefore offers some explanation for that span of time which otherwise appeared to vary at random between 0.35 and 0.5. The results here, when combined with the coincidental timing of jurisdictional reforms and the sharp rise in polarization described earlier, highlight a strong linkage between the normally unobserved case selection process and the Court’s observed output. At the macrolevel, when the Court gained greater control over its agenda, polarization rose dramatically; at the yearly level, when the Court disagrees more often over the cases it should hear, polarization similarly increases.

9Discussed cases represent only a subset of all cases brought to the Court. A case is discussed if any of two conditions are met: (1) at least one justice requests that it be discussed or (2) it is a capital case. All other petitions and appeals are summarily denied without any collective consideration.
4.7 Polarization in the U.S. Congress

Fortunately, the network-based measure of polarization presented here is applicable not only to collegial courts, but to many legislatures as well. All that is required are data of a similar bipartite structure, namely information on who sponsored (and cosponsored) what legislation. To illustrate the utility of this measure in parliamentary realms, I focus on the United States Congress. First, Congress is a primary focus of both American politics and legislative studies. Second, alternative measures of Congressional polarization exist, thereby providing something of a ground truth for comparison purposes. Third, the cosponsorship data required to apply the network-based measure are available online, thanks to the work of James Fowler and others.

Senate rules have permitted cosponsorship for nearly a century, and those of the House of Representatives have sanctioned such behavior since 1967. The cosponsorship data I analyze cover all bills, resolutions, joint resolutions, concurrent resolutions, and amendments submitted from the 93rd Congress through the 114th (1973–2017).10 From Fowler’s list-formatted data,11 I construct for each chamber and each Congress the required bipartite network. Along the way, I create a crosswalk in order to link the cosponsorship data with members’ bio-

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10 Here I note that inclusion of all bills and resolutions should be considered a first cut at the data which follows existing studies (Fowler, 2006a), and that it is worth thinking about ways of reducing this corpus to more relevant subsets. Relatedly, given my reliance upon judicial opinions and bill sponsorships, I note that agenda-setting may play an important role, although that is a far more important consideration for the judicial data since any legislator may sponsor a bill.

11 Available at http://jhfowler.ucsd.edu/cosponsorship.htm.
Figure 4.5: **Polarization in Congress gradually rose over the last 30 years.** Polarization calculated by chamber and Congress from a series of legislator-bill matrices.

graphical data compiled by the @unitedstates project.\(^\text{12}\) As will be seen below, this is primarily to associate legislators with their party affiliations. The resultant data set contains 3,406,966 endorsements, whether as primary sponsor or cosponsor, linking 2,659 legislators to 294,546 bills and resolutions.

Figure 4.5 presents polarization separately for each chamber and for each Congress.\(^\text{13}\) The most obvious result worth mentioning is that polarization in the

\(^{12}\)https://theunitedstates.io/.

\(^{13}\)This and successive figures lack indicators of uncertainty because (1) the calculation of modularity itself yields no uncertainty and, unlike Supreme Court opinion-joining behavior, (2) Congressional cosponsorship activities lack any mechanism for absence, abstention, or recusal.
House and Senate have closely tracked each other throughout the decades under consideration. That said, polarization in the House has tended to be somewhat higher, and the gap may even be widening. The overall trends in the data are not incredibly strong. In the 1970s, polarization in both chambers was approximately half as large as it could possibly be. From here, polarization declined to around 0.4 for much of the 1980s, before beginning a rather gradual rise over the last thirty years or so. Getting into the weeds a bit more, it is plainly interesting to see the rising polarization which preceded—and climaxed with—the Republican takeover in the 104th Congress. Polarization arguably remained steady for the rest of the 1990s and 2000s, spiking appreciably only when Republicans reclaimed the House in the 112th Congress with vows of obstructionism.

4.7.1 Assessing validity and further exploration

While the foregoing narrative interpretation is fascinating, how does this network-based measure of polarization compare to the canonical figures of Poole and Rosenthal? As Figure 4.6 illustrates, the answer depends crucially upon how the blocs are defined.

Figure 4.6 compares the just-described polarization estimates of Figure 4.5 to those calculated according to DW-NOMINATE. Specifically, I average first dimension DW-NOMINATE scores by party and Congress, and then calculate the difference between the average Republican and the average Democrat every two

Any member of Congress can add her name to a proposed bill, so I have no missing data to fill in via binomial draws.
Figure 4.6: Network-based polarization measure weakly correlated to DW-NOMINATE-based polarization. Each panel compares polarization as measured by cosponsorship data to the distance between the average Democrat and the average Republican on DW-NOMINATE’s first dimension.

For both chambers, the trend in polarization is one of almost monotonic increase. This contrasts fairly sharply with the reduced polarization of the 1980s visible in the network-based data. In fact, the correlations between these two series are 0.75 in the House and a more modest 0.57 in the Senate.

But recall precisely what it is that we are comparing here. Poole and Rosenthal’s measure, in a perfectly reasonable move, is expressly intended to capture polarization between the two parties. This much is obvious, as knowledge of party affiliation is required for its construction. The network-based polarization

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Sample code and data available at Voteview.
Figure 4.7: Partisan affiliation increasingly explains the structure of cosponsorship networks. Each line depicts polarization as measured from cosponsorship networks. Thicker solid lines denote polarization from inductively-determined bloc assignments; thinner dashed lines indicate that partisan affiliation determine bloc assignments.

measure developed here, however, does not require the analyst to specify bloc assignments ex-ante. Rather, bloc membership is determined inductively from the cosponsorship ties themselves in a way that maximizes modularity. In other words, the aim here is to find the blocs which maximize within-bloc endorsements and minimize cross-bloc endorsements. Whether and to what extent these optimal blocs correspond to partisan affiliation depends entirely on the sponsorship behavior of the legislators themselves.

Figure 4.7 directly addresses this very question. Looking at the House and Sen-
ate separately, each panel presents network-based polarization figures measured two ways. The thicker solid lines denote the estimates produced when bloc assignments are permitted to maximize modularity. These optimal blocs are entirely determined by the cosponsorship behaviors of legislators. The thinner dashed lines denote polarization estimates derived from ex ante assignment of legislators to blocs on the basis of partisan affiliation. Recall from the earlier discussion of Figure 4.1 that modularity is calculated from observed links (endorsements) and an arbitrarily imposed partition (bloc assignment). Rather than identifying (and running with) whichever partition maximizes modularity, here we impose partisanship and accept whatever modularity score results. Unless cosponsorship behavior is most accurately explained by partisanship, the resulting modularity score will be suboptimal.

The upshot of Figure 4.7 is that while in the earlier decades of the sample partisanship was far from optimal as a basis for explaining cosponsorship behavior, it has rapidly and consistently grown more important. In fact, at present, the optimal cosponsorship blocs are nearly isomorphic with party labels. This indicates that patterns of cosponsorship behavior have changed over the last half-century to resemble more closely traditionally partisan behaviors such as roll-call voting. Bipartisan cosponsors are increasingly rare, and partisan legislation—from introduction to final passage—is the order of the day.

Returning to the comparison with Poole and Rosenthal, the differences between partisan and optimal blocs in the earlier decades suggest that a second comparison may be worthy of investigation. Figure 4.8 presents the results, con-
Leveraging party labels, network-based polarization strongly tracks DW-NOMINATE-based polarization. Each panel compares partisan polarization as measured by cosponsorship data to the distance between the average Democrat and the average Republican on DW-NOMINATE’s first dimension. Indeed, the correlations here are considerably stronger, clocking in at 0.95 in the House and 0.91 in the Senate. This reassures us that the network-based measure of polarization is capable of tapping into the same concept, here partisan polarization.

Yet at the same time, this series of illustrations also points to an important advantage of the network-based measure of polarization: it is more versatile than most existing measures. While the network approach can be adapted to measure partisan polarization—when that is the theoretically-relevant quantity—it is not
restricted to such a measurement. Indeed, I consider it an unalloyed advantage that the analyst may elect to specify bloc memberships when they are known or derive the optimal memberships directly from the behavioral data themselves. In the present case, there is a clearly evident decline in polarization from the 1970s to the 1980s which is apparently unexplainable on partisan terms. That is to say, during this span, patterns of cosponsorship grew less structured in ways that had nothing whatsoever to do with partisanship (or bipartisanship).

One notable institutional change which occurred at roughly the same time is the House’s 1978 vote to remove the 25-legislator cap on the number of cosponsors allowable for any single piece of legislation (Thomas and Grofman, 1993). Around the same time, in 1981, complete data on amendments became available from the Library of Congress. Yet neither of these factors can satisfactorily explain the observed decline in polarization. The cap on cosponsors only affected behavior in the House, yet a parallel trend is clearly visible in the Senate over the same span. The addition of comprehensive data on amendments comes too late in the decline to be a causal factor. Thus, the depolarization observed in both chambers from the mid-1970s through the mid-1980s marks a feature for future study.

4.8 Discussion

Observers of American politics, both in and out of the academy, have highlighted a rise in polarization. Our political elites and party activists are polarized. Traditional and social media are polarized. And we are polarized, in our policy
preferences, our beliefs, and even our purchases. Although few would dispute
these assertions, even fewer recognize that unless we are more precise in our
claims—and in our measurement—such claims are all but irrefutable.

First, we have to nail down what we mean by polarization. Although the
most appropriate definition will likely vary by context, such a definition should
nonetheless precede and inform measurement. Questioning whether we are
“polarized” entails answering other questions as well. Polarized relative to what?
Are we more polarized than we have been in the recent or distant past? Are we as
polarized as we could be? Such questions speak to trends and levels.

This chapter presents an initial attempt to clarify and answer these questions,
in the process developing a new network-based measure of polarization rooted in
endorsement behavior. I define polarization as the crystallization of fewer and
more discernible behavioral patterns. These behavioral patterns delineate groups.
Within groups, members behave similarly; across groups, members behave dif-
ferently. As the number of groups declines toward two, polarization increases.
Ultimately, a state of high polarization consists of two sharply distinct sets of
behavioral patterns.

I suggest endorsement as one relevant behavior in which to observe (and
measure) polarization. The written word is ultimately the stuff of politics.\footnote{That and, arguably, money.} Bills,
laws, policies, judicial opinions, and the like are what political elites fight to shape,
and what voters elect them to craft. The documents routinely embody political
positions, and endorsing such texts is an inherently political act. Because our
democratic political system encourages and often requires political actors to collaborate and jointly endorse these documents, the patterns linking actors to documents are a prime source of data for the measurement of polarization.

Conceived in such terms, polarization is readily measured by bringing a network approach to bear. I first construct bipartite networks connecting political actors to the documents they endorse, leverage results from physics to identify the optimal bipartitions, and measure each partition's fit via modularity. I operationalize polarization as the modularity score associated with the optimal bipartition because this corresponds exactly with my definition of polarization as two distinct yet internally similar behavioral patterns.

Doing so, I find that polarization at the U.S. Supreme Court has indeed increased dramatically over the lifespan of the Republic. The timing of this increase, however, suggests that institutional changes—initiated by the justices themselves—to the Court's agenda-setting process may ultimately be responsible for much of the increase. For most of the eight decades that followed, polarization has fluctuated around a moderate level. This finding contradicts the conventional wisdom that polarization at the Court has increased markedly since the mid-twentieth century. I also show that polarization in precedent is preceded by disagreement at the Court's agenda-setting stage.

Turning attention to the U.S. Congress, I demonstrate that polarization has indeed increased since the 1980s. Yet the increase is moderate, and is decidedly not the most interesting finding. From the 95th Congress in 1977 through four consecutive Congresses, polarization in cosponsorship behavior exhibited a secular
decline. It does not appear to be explained either by contemporaneous changes to the rules governing cosponsorship in the House or by the sudden availability of comprehensive data on amendments.

Of even greater interest is the ability to separate partisan polarization from other behavioral patterns. At the outset of the time-series, partisan polarization constituted approximately 60–65% of the actual observed polarization in both the House and Senate; by the most recent Congresses, partisan polarization accounted for all but 1–2% of observed polarization across chambers. So while the overall increase in polarization from 1973 to 2015 may be unremarkable, partisan polarization has clearly and markedly increased. This finding is only possible with this network-based measure, and opens the door to future work seeking to understand the roots of polarization in earlier—and potentially less partisan—eras.

Going forward, there are other avenues worth exploring. In common discourse, certain actors are often termed “polarizing figures.” Yet polarization is an “emergent property of the system... a function of the characteristics of the individual elements of the system... and the relationships that exist between them” (Maoz and Somer-Topcu, 2010, 807–808). It would be worthwhile to explore new uses of the polarization measure developed in this chapter to quantify individual contributions to chamber-level polarization. For example, how would polarization change if a particular legislator and all of her accompanying endorsements were removed from the network? Assuming variance exists in the positive or negative contributions of individual legislators to chamber-level polarization, how does it covary with legislative effectiveness? Do quantifiably polarizing figures secure
more or fewer legislative achievements? Questions such as these would be fasci-
nating to explore not only within the federal Congress, but across state legislatures, which boast considerable institutional variation.
Chapter 5

Conclusions

The first effort of the student of government to-day must be to discover the facts, in the faith that any light thrown upon political conditions can not fail to help toward a wise solution of the problems they involve.

– Abbott Lawrence Lowell (1901, 350)

What is obviously needed is a method in which the analysis is kept from shooting off into the void by being moored to a statistical and factual base, and in which fact gathering is kept from becoming meaningless by being related to significant analysis.

– Max Lerner (1939, 16)

But any science of politics must seek to find simple structures that organize this apparent complexity.

– Keith T. Poole and Howard Rosenthal (1997, 3)
As a student of government concerned with the science of politics, I seek to measure more accurately several concepts critical to the field of American political institutions. Mindful of the need to keep my analyses from “shooting off into the void” (Lerner, 1939), the three papers of this dissertation are rooted in existing theory and aim to inform and enable further theory-building.

The first paper develops and deploys a seniority-based measure of committee prestige in the United States House of Representatives, 1947–2019. Like much of the work that precedes it (Bullock and Sprague, 1969; Munger, 1988; Groseclose and Stewart, 1998), this measure exploits the preferences over standing committees which are revealed in the over-time networks of intercommittee transfers. Where it differs from and improves upon existing measures is in embodying the theoretical argument that the seniority of members transferring off of standing committees reveals important information about the relative prestige of those committees. Furthermore, it is the only measure which brings network science, in the form of PageRank (Brin and Page, 1998), to bear upon what are intrinsically network data. Applying this measure to recent Congresses, I show that the prestige of a legislator’s committee portfolio is highly predictive of the contributions she receives from political action committees (PACs) for the next campaign cycle.

Retaining a focus on legislative standing committees, in the second paper I shift the theoretical spotlight from the preferences of individual legislators to the strategic intentions of majority parties. Specifically, I address the possibility that majority parties may manipulate their control over committee appointments for partisan goals. I also shift the empirical lens from Congress to the 99 state
legislative chambers, for a number of reasons. First, stacking in Congress is widely known and long studied (Hinckley, 1986; Cox and McCubbins, 1993; Aldrich and Rohde, 2000a; Fortunato, 2013), while a series of studies at the state level has generally failed to find evidence of partisan manipulation (Aldrich and Battista, 2002; Overby, Kazee and Prince, 2004; Prince and Overby, 2005; Richman, 2008; Hamm, Hedlund and Post, 2011).\(^1\) Second, state legislatures, unlike the federal Congress, exhibit considerable institutional variation which, it turns out, is very important for explaining the incidence of partisan committee stacking.

I then make two complementary theoretical arguments. First, I identify a number of constraints upon the majority’s ability to stack, and assert that these constraints make universal stacking unlikely. Second, and building upon partisan theories of legislative organization (Rohde, 1991; Cox and McCubbins, 1993; Aldrich, 1995; Aldrich and Rohde, 2000a; Cox and McCubbins, 2005), I argue that majority parties should selectively stack committees when their work affects the electoral prospects of off-committee members and when those committees are endowed with gatekeeping rights. Finally, I introduce and deploy a new measure of partisan stacking called “seats above expectation,” finding support for my contentions regarding universal and selective stacking.

The final paper turns to polarization, proposing a more behavioral conception that recognizes the distinction between political polarization and partisan polarization. Polarization is, in this view, equivalent to the coalescing of actors

\(^{1}\)In a recent paper, McGrath and Ryan (2019) claim evidence of universal stacking in state legislatures. However, 89% of their partisan stacking effect is due to the mechanical effects of approximation—one of the constraints I outline.
into fewer and ever more distinctive groups on the basis of their behaviors. If and only if these groups fall along partisan lines may polarization be accurately described as partisan. Recognizing this distinction, I introduce a network-based measure of the strength of community structure, called modularity (Newman and Girvan, 2004), which does not assign bloc labels to actors ex ante. Instead, I use modularity to identify the group labels which optimally classify political actors according to their patterns of document endorsements.

Applying this approach to patterns of judicial opinion-joining at the United States Supreme Court (1791–2017) and to patterns of bill cosponsorship in both houses of Congress (1973–2017) reveals several things. First, polarization has not risen appreciably at the Court since the tenure of Chief Justice Fred Vinson (1946–1953), and correlates strongly with disagreement at the agenda-setting stage. Second, although polarization has risen in both chambers of Congress since the 1970s, the more remarkable shift is the rapidity with which political polarization has become equated with partisan polarization.

Moving forward, there are two obvious avenues to pursue. The first, alluded to above, is to put the measures developed in these papers into the service of theory-building. Why do some candidates for reelection rake in such prodigious hauls of campaign cash, while others receive paltry sums? One potential (and partial) explanation lies in the variation across committee assignments, and the disparities in practical effects that committee work may produce. With a more accurate measure of committee prestige, it may be possible to evaluate the importance of committee work in the eyes of campaign contributors, as well as assess how these
views have changed over time.

How do the institutions and prevailing norms of a legislature constrain the ability of majority parties to stack standing committees? Mandated proportionality in party ratios, the strength of seniority systems and property rights, restrictions and complicated rules regarding assignment procedures, and even the authority of the majority party to appoint committee members vary from chamber to chamber. Existing work has not dealt adequately with these factors because they are relatively unchanging at the federal level and because adequate state-level time-series data do not currently exist. With additional efforts at data collection, however, the application of SAE to state legislatures offers the opportunity to test new hypotheses about partisan manipulation.

What explains polarization in the years before partisanship clearly took over? How do we account for the shifts over time? Without a measure which permits the distinction between political and partisan polarization, these questions are not only impossible to answer—they are impossible to pose. The preliminary findings from Congress point to the need for serious theorizing about the sources and manifestations of polarization, as well as the rising tide of partisanship.

In addition to spurring efforts at theory-building, the second avenue worth pursuing is to look at downstream outcomes of the policy process. Presumably, political actors have preferences over committee service and committee composition because the operations of standing committees have important effects upon legislative outputs. Similarly, political actors likely choose to support and endorse bills and judicial opinions because these documents shape law and policy. Rec-
ognizing these motivations, it is therefore worthwhile to investigate empirically the effects of, say, committee stacking, upon these downstream outcomes which matter so vitally for citizens and the polity at large. Sharper and more theoretically-informed tools for measurement, such as those presented in the three papers of this dissertation, better position scholars for investigations of this sort.
## Appendix


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Biography

Jason Douglas Todd graduated from the North Carolina School of Science and Mathematics in 2005 and completed Mandarin coursework at Xiamen University in 2007. He earned his B.A. in international studies from University of North Carolina at Chapel Hill in 2009 and his M.A. (degree waived) in political science from Duke in 2017. His work spans the fields of American and comparative politics to examine how political institutions shape law and policy. This work has been published or is forthcoming in edited volumes by Routledge (with Moohyung Cho and Georg Vanberg) and Cambridge University Press (with Georg Vanberg), as well as The Journal of Politics (with Edmund Malesky, Anh Le, and Anh Tran). His competitive fellowships include The Tobin Project’s History of American Democracy Graduate Student Fellowship and the Duke-DKU Global Fellows Predoctoral Fellowship. His work has also been funded by The Abdul Latif Jameel Poverty Action Lab (J-PAL). He has taught courses on democratic erosion and comparative public policy, both at Duke University and at Duke Kunshan University (DKU) in China. Effective May 2020, he joined the faculty at DKU as an Assistant Professor of Political Science and Public Policy.