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Matching Politicians to Committees

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ABSTRACT. I analyze the assignment mechanisms used by the political parties in the US Senate to match their members to legislative committees from a matching theory perspective: one-sided, many-to-many matching with existing tenants. Understanding the data-generating process through detailed analysis of committee assignment procedures is crucial, but under-appreciated in the literature. I find that Republicans and Democrats use two distinct matching mechanisms creating very different strategic incentives, and analyze the theoretical and empirical implications of these organizational procedures. First, foundational theories of committee assignments must be re-evaluated in light of the constraints and induced strategic considerations of the two mechanisms. Second, my findings inform how to parse data for well-grounded empirical analysis by exploiting marked differences in strategyproofness which these mechanisms induce, both across parties and across seniorities within party. Lastly, I derive testable predictions from matching theory and present suggestive empirical tests highlighting the strategic intricacies of the assignment process.

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1. Introduction.

Legislative organization gives insights into what motivates different politicians, what the effect of committee membership is on policy outcomes, to what extent parties exert influence or discipline on their members, and how special interests groups and lobbyists might influence and target politicians. The most prominent example in the US Congress is the committee system which lies at the heart of the policy-making process. Theories of committee assignments and empirical analyses of the effect of committee assignments on policy-making, interest group behavior, and lobbying are important literatures in the study of Congress, political parties, and political influence. However, detailed understanding of the underlying data generating process which determines committee assignments has been mostly overlooked by the extant literature. Membership onto committees is determined by particular mechanisms and these mechanisms take forms familiar to the economics of matching. Applying and adapting tools from matching theory, this paper attempts to carry out a more careful analysis of the different mechanisms used by the two political parties to assign their members to committees, and how politicians and political parties might strategically respond to the incentives and constraints these assignment processes generate. By understanding the data generating process from a matching theory perspective, I can i) highlight some limitations of existing theories of committee assignments, ii) identify how to parse the data for well-grounded empirical analysis by exploiting the difference in properties induced by the mechanisms, and iii) provide testable predictions which I bring to the data to better understand the party system and legislative organization as a whole.

Matching theory was developed as a counterpart to standard economic theory where prices and willingness to pay determine allocations. In canonical applications of matching theory, prices are either non-existent (e.g., school choice) or illegal (e.g., kidney exchange). Hence assignment mechanisms must be designed to incorporate market participants' preferences, social planner's constraints, and desired properties to determine allocations in such markets. This paper highlights an example of how matching theory can be applied to political economy. In standard political economy theories, usually some underlying voting determines the collective group choice. However, matching theory can be useful in political economy when there are assignments being made and there is no voting, or even when voting is embedded within a larger assignment process, as I demonstrate in this paper.

The United States Congress has a two-party system with a bicameral legislature composed of the Senate and the House of Representatives. Every two years, after each election, the Republican and Democratic parties have to match their members to committees in each of the two chambers.¹ Each committee is composed of many politicians and most politicians are assigned to multiple committees, hence this is a *many-to-many matching* problem. Furthermore, since seniority is a deeply rooted norm in Congress and since after every election there are both incumbents who have previous committee assignments and first-term politicians who have no previous assignments, there is an *existing tenants problem*. Finally, committees don't have preferences (or at least they aren't explicitly considered in the assignment mechanism), hence this is a *one-sided market*.

Committees are “fact-finding, consensus-building, policy-recommending panels” (www.senate.gov) given exclusive rights over a legislative jurisdiction. They are crucial to the operation of

¹Third party candidates join either Democrats or Republicans for committee assignment purposes.

Congress because they allow politicians to specialize amongst particular policy domains and effectively divide the work. Table 2 lists the various committees in the Senate. Committees differ (Fenno 1973) in their central tendencies: their policy domains, their targeted policy recipients, and the politicians they are likely to attract are. Committees like Agriculture and Natural Resources, involve constituency-driven policy-making to attract subsidies and favorable policies for constituents who are employed in those industries. Committees like Education and Labor and Foreign Affairs, involve deciding on policies which affect the entire US more broadly. Although these are powerful committees for policy-making, rarely do these committees produce direct transfers to voters of the politician's constituency. Committees like Appropriations and Budget are powerful, prestige committees which hold a lot of power because they oversee and control budget allocation and operation of all other committees. Membership on these committees yields a lot of political capital within the legislative body, and is an apt post from which political parties could enforce party discipline through exchanging favors and rewarding party loyalty. Finally, Committees like District of Columbia and Post Office handle administrative responsibilities of government operation. Such committee positions don't seem to yield constituency benefits, policy responsibilities, or political favors, and hence seem to be less powerful. Given this diverse set of committees, it is not surprising that, although there may be significant correlation across preferences for certain committees, there are also many idiosyncratic factors on the state, congress, and politician level, which might shape politicians' preferences for committee positions and political party's preferences for which politician gets matched where. Studying the politics of committee assignments is thus informative as to different politicians' motivations, political parties' organizational capabilities and disciplinary power, and political influence of special interest groups.

This paper studies the underlying assignment mechanisms used to assign politicians to committees from a matching theory perspective. I find that the two parties use two distinct mechanisms to assign their members to committees. The Senate Republicans mechanism can be approximated by a Top Trading Cycles or Serial Dictatorship with order determined by seniority, while the Senate Democrats mechanism can be approximated by a Boston mechanism where ties are voted on by the Committee on Committees. The Boston mechanism first tries to assign each Democrat to their top preference (if there is over-demand relative to the vacancies on a committee, the Committee on Committees votes to break ties), and then goes through remaining unassigned Democrats' second-highest preferences, third-highest preferences, and so on. I highlight how these two mechanisms differ in terms of the strategic behavior and properties they induce: the most stark difference being that the Republican system is strategyproof (i.e., it is in each person's interest to truthfully reveal their preferences and to not try to game the system) while Democratic system is not. I underscore that the extent to which seniority and property rights norms are adhered to plays a crucial role in determining the properties induced by these mechanisms.

The matching theory characterization of the committee assignment problem has three implications. First, in light of the two distinct mechanisms, the constraints they impose, and the strategic incentives they generate, I characterize some limitations of the foundational theories of committee assignments—Distributional Theory of Shepsle, Weingast, and Marshall, Informational Theory of Gilligan and Krehbiel, and Cartel Agenda Theory of Cox and McCubbins—in explaining both the Republican and Democrat systems. Empirical evidence of high demanders self-selecting onto committees through a bidding mechanism, as proposed in the Distributional Theory, has under-appreciated the party-specific mechanisms and the

importance of strategyproofness of the mechanisms. Sorting based on expertise and low cost for information acquisition and specialization advocated for by the Informational Theory provides a potential tie-breaking rule used by the Democrat Committee on Committees, but is a less convincing characterization of the Republican process. Party discipline via committee assignments, as suggested in the Cartel Agenda Theory, seems possible only under the Senate Democrat assignment mechanism due to Committee on Committees tie-breaking power, but not the Republican process.

Second, by exploiting the differences in strategyproofness across parties and across seniorities within a party, the findings inform how to best subset and parse the data for micro-foundational empirical analysis. The Republican mechanism is strategyproof and hence Republican committee assignments requests are in line with their true preferences, whereas the Democrat mechanism incentivizes manipulation of reported committee preferences, which in turn don't reflect true underlying preferences. However, I show how non-freshman Democrats are more truthful in requesting committees than freshmen Democrats due to the assignment process incorporating seniority and property rights norms.

Finally, I am able to extract testable predictions from matching theory, take them to the data, and provide suggestive empirical tests. This suggestive evidence provides a better understanding of how the two parties' distinct choice of committee assignment procedure affects who gets what and if/how the party can intervene to affect allocations.

After summarizing the related literature (Section 2), the different mechanisms used by the two parties are laid out and the various properties they induce are discussed in Section 3. I then derive testable empirical predictions from matching theory foundations (Section 4). Section 5 summarizes the findings from suggestive empirical tests in support of the predictions (Appendix A) and structural estimations that illustrate how knowledge of the underlying mechanisms can be combined with reduced form assumptions on utility functions to gain empirical traction in understanding relative value of committees (Appendix B). Section 6 revisits the various theories on committee assignments in light of the matching theory analysis and Section 7 concludes.

2. Related Literature.

The politics of committees has been a widely studied topic in the political science literature. I survey the theoretical and empirical literature by classifying it into addressing two fundamental questions. First, how are committee positions assigned? And second, what motivates politicians?

Regarding how committee positions are assigned, the theoretical literature suggests many possible driving forces at play. The Distributional Theory (Denzau and MacKay 1983; Shepsle and Weingast 1987; Weingast and Marshall 1987) posits that by dividing work across orthogonal jurisdictions and giving monopoly gate-keeping and ex-post veto power to committees, a structure-induced equilibrium is able to solve the enforcement problem of legislative bargaining and vote trading. Thus, politicians who are re-election motivated and politically responsive to the interests of their constituency, self-select into relevant committees, and the seniority system establishes the politician's 'property right,' giving monopoly control over that jurisdiction in exchange for control over other jurisdictions. On the other hand, the Informational Theory (Gilligan and Krehbiel 1987; Krehbiel 1990, 1992) advocates that politicians in committees engage in costly information acquisition to assess and shape policy within their jurisdiction. Thus, committees consist of those members who have

a lower cost of specialization to develop expertise in that particular domain. Finally, the Cartel-Agenda Theory (Cox and McCubbins 2005) proposes that the committee system is used by political parties as a mechanism to enforce party discipline. The assignment process is used by the parties to reward party loyalty and punish deviators, and party leaders and senior members are named chairs and given important posts on the major committees to enforce the party platform via gate-keeping power. Although many of these theories were initially posed for studying the House of Representatives, they have since been considered foundational theories for understanding committee assignments more broadly. In Section 6, I will re-evaluate their underlying assumptions, modeling choices, and resulting predictions given the committee assignment procedures in the Senate, and caution more generally, that careful attention must be given to the various choices in the matching procedure design before assessing the applicability of these organizational theories.

The politics of how committee positions are assigned has been empirically a black-box. Much of the within-party negotiations, bargaining, and politics is done behind closed doors and details of the process have not been well-known or well-studied. Empirics has largely focused on the House Democrat assignment process because of the foundational study² by Shepsle (1978) who collected committee request data from House Democrats in the 86th to 94th Congresses (1958 to 1978). More recently, Frisch and Kelly (2007) have supplemented that data set by including committee request data from both House Democrats and Republicans from 80th to 103rd Congresses (1947 to 1995). On the other hand, Bullock (1985) collected Senate Democrat requests from the 83rd to 91st Congresses (1953 to 1971) and concluded that seniority is the primary variable strongly associated with assignment success. Frisch and Kelly (2006) have supplemented the data set to 103rd Congress (1953 to 1994) for Senate Democrats and find that the importance of seniority is overstated and that Senate leadership has had influence in the assignment process. However, empirical work has largely overlooked matching theory.³

As per the question of what motivates politicians and how academicians should think of politicians' utility functions, the set of theories is rich. Mayhew (1974) postulates that politicians have a single motivation: getting re-elected. From this ambition, Mayhew derives that politicians engage in advertising, position taking, and credit claiming. Thus, working on committees allows politicians to make speeches to advertise their brand, craft policy changes, stake out popular positions, and take credit for successfully carrying out or blocking particular policies to gain popularity. Fenno (1978) suggests that politicians are motivated

²Predecessors to Shepsle's foundational study include those who have documented committee assignment procedures (Masters 1961; Clapp 1963, p. 207-240; Goodwin 1970) and analyzed committee membership patterns (Gathrop 1966; Bullock 1971, 1972), committee transfers (Bullock and Sprague 1969; Bullock 1973), and committee assignment requests (Rohde and Shepsle 1973).

³Rohde and Shepsle (1973) suggest a social choice heuristic framework for House Democrat Committee assignment process and use committee request and committee assignment data to empirically analyze heterogeneity in preferences and Committee on Committees tie-breaking criteria. Although they highlight some instances of potentially strategic preference reporting based on availability of seats, competition over seats, and differences in preference rankings amongst freshmen and non-freshmen, their heuristic framework abstracts away from some strategic intricacies generated by the underlying matching mechanism and their empirical analysis of committee preferences often assumes some degree of truthful revelation of politician's preferences.

by re-election à la Mayhew, along with gaining power in Congress and making good public policy. All policy-making is advanced through the committee system and having power in Congress is often associated with being a party leader or chair on powerful committees such as Appropriations, Rules, Ways and Means, and Budget. Finally, as Ferejohn (1974) argues, motivations of personal monetary gain and a desire to obtain pork-barrel projects can be achieved through the legislative negotiations, vote trading, and gate-keeping power in committees.

Attempts to empirically distinguish what motivates politicians have often exploited committee assignments, however, without a careful analysis of the underlying matching mechanisms at work. Weingast and Marshall (1988) show that politicians tend to get their first or second choice committee requests and compare voting patterns of committee members with those who aren't on the committee to conclude that committee members are preference outliers. However, this approach naively assumes that the assignment mechanism is strategyproof. Namely, by remaining silent on the mechanism and its analytic properties and simply labeling it "self-selection," taken at face value, their analysis might be hastily interpreted as showing everyone gets their top choices in a fairly unconstrained manner. However, that everyone's stated top choices are actually their true top choices relies on the mechanism's properties. Hence, what might look like self-selection could be the gaming of a non-strategyproof mechanism. Note that simply regressing committee assignments on constituency and politician-specific characteristics would ignore the assignment mechanism all together, hence committee request data must be used to make progress. Frisch and Kelly (2004, 2006) regress committee rank preferences on constituency and politician characteristics, but this also relies crucially on strategyproofness of the assignment mechanism. Bullock (1969, 1973), Shepsle (1978), Munger (1988), Groseclose and Stewart (1998, 1999), and Endersby and McCurdy (1996) attempt to consider ratios of committee transfers to and from committees to evaluate the relative importance or power of committees; however, this approach ignores the underlying assignment mechanism and takes for granted that the mechanism perfectly resolves the existing tenants problem of incumbents in an individually rational way (otherwise, for example, a swap can make a politician worse off). Shepsle (1975, 1978) acknowledges that the assignment mechanism could be non-strategyproof, and tries to structurally estimate the value for each committee by estimating a model where the preference rank orders are submitted according to the utility of getting the committee position multiplied by the likelihood of getting the position. However, this structural approach doesn't include details of the assignment mechanism and hence doesn't guarantee reliable estimates. Moreover as this paper shows, although somewhat capturing the spirit of the Senate Democrat mechanism, his model does not apply to the Senate Republican mechanism.

Finally, there is also a growing empirical literature that uses committee assignments to understand who has power within a committee to attract pork (Berry and Fowler 2016), how political money flows and which positions/members interest groups target on committees (Hall and Wayman 1990; Barber et al. 2016; Fournaies and Hall 2017; Bertrand et al. 2018), and how politicians' voting behavior and legislative focus is affected by committee membership (Hall and Grofman 1990; Stratmann 2000; Grimmer and Powell 2012). These analyses do not consider the underlying committee assignment mechanisms, and hence in trying to isolate the impact of committee membership, can potentially be at risk of picking up effects from covariates that affect committee assignments via the matching mechanisms.

3. Assignment Mechanisms.

After each election⁴, party leaders negotiate over the division of seats on each committee. The split in most committees closely mirrors the overall party split in the legislative body; however, there is still some negotiation that goes on as to the exact number of seats each party is allocated in each committee. It is not clear whether before cross-party negotiations, party leaders have collected the rank order preferences of their members or not, but it is safe to assume that the party leaders have at least some sense of what positions their members (particularly the incumbents) want and the bargaining is probably influenced by this information. Then a Committee on Committees is selected internally within each party. It often comprises of party leaders, senior ranking members, and some other members to keep geographic balance across the many US states. The Committee on Committees requests rank preference orders from its members (see Appendix C, Archival Exhibit #1). Freshmen are greatly encouraged to take part in this process so that they can get matched according to their preferences (see Appendix C, Archival Exhibit #2). Incumbents have one of three choices: 1) remain with their current committee assignments (informal property right), 2) request a transfer to another, presumably more preferable, committee if possible, or 3) retain previous assignments and request an additional assignment (see Appendix C, Archival Exhibit #3). Prior to submitting preferences, freshmen are encouraged to talk with senior members on the Committee of Committees or other ranking members to find out which assignments might be feasible. Moreover, after submitting preferences, politicians also actively lobby and try to convince Committee on Committees members to advocate for them. Then, each Committee on Committees uses its own assignment mechanism process to assign its members to available committee slots. Following Committee on Committees assignments, each party has an internal vote to approve the assignments, followed by a vote by the entire floor. There is a strong *pro forma* norm to agree unanimously without debate or disagreement on both of these votes. The basic steps of the process are outlined in Table 3.

There are several constraints, some established by Senate official Rules and others self-imposed by the Parties on themselves, as to which allocations are feasible. These rules are listed in Appendix E, are well-known to the politicians, and create a well-defined structure for committee assignment problem. Collectively, the rules establish feasibility constraints as to how many committees members can be matched to, what the term limits are on each committee, and what the set of feasible requests is.

Finally, it is important to underscore perhaps the most important norm in Congress: *seniority norm*. Higher seniority in the legislative body, within the party, and within the committee is associated with several perks. For example, the existing tenants problem as it's known in matching theory, or the *property rights norm*, that senior incumbent politicians are given priority over maintaining their current committee positions, is a well-established norm. Furthermore, within the committee, as a politician gains seniority, his say over the policy-making process is generally increased, and often, he gets the chair or ranking member position which have been shown empirically to attract more pork and lobbying money (Berry and Fowler 2016). This system produces what is known as the *queue* of seniority on the committee in which members are ordered by seniority and rise in the queue towards the

⁴The description of the committee assignment process, rules of assignment, and self-imposed party constraints have been pieced together from Schneider (2003, 2014) and Shepsle (1978). Judy Schneider is a Congress Specialist in the Congressional Research Service and served as a staff member on the Senate Select Committee to Study the Senate Committee System.

more powerful positions within the committee. This phenomenon makes committee composition increasingly sticky. Hence, after each election, the assignment process involves a few incumbents (or *existing tenants*) who might want to switch committees or be on additional committees, but mostly consists of making freshmen assignments. In matching theory terms, there are many existing tenants who rank their existing rooms very highly and would not want to change committees, especially as they gain seniority.

3.1. Senate Republican Assignment Mechanism.

The Senate Republican Assignment Mechanism is headed by the Republican Committee on Committees. The size and composition of the Committee on Committees fluctuates from Congress to Congress, however, it consists of senior party leaders. The Committee on Committees is “relatively small in part because it relies on a seniority formula in assigning both returning and newly elected Republican Senators” (Schneider 2006). As Judy Schneider further comments, “the formula makes the assignment process somewhat automatic; the absence of significant debate and voting thus requires comparatively few members” (Schneider 2006). The Republicans define seniority order based on previous service and length of service as 1) Senator, 2) House of Representative, 3) state governor, and all ties in seniority are broken randomly. In this order⁵, each incumbent chooses between retaining their current committee seat, attempting to bid for an additional committee assignment, or choose among existing vacancies.

This process can be approximated by a Serial Dictatorship mechanism where the order is determined by the seniority order. The Boston mechanism (see Appendix H for description) first tries to assign each Democrat to their top preference (if there is over-demand relative to the vacancies on a committee, the Committee on Committees votes to break ties), and then goes through remaining unassigned Democrats’ second-highest preferences, third-highest preferences, and so on. What is not completely clear is exactly how the existing tenants problem is dealt with in practice. It is known from matching theory that if there are existing tenants, it is not optimal to have a mechanism that potentially punishes existing tenants from entering the system by allowing them to be worse off than with their pre-existing assignment. Such a mechanism is not individually rational and is also pareto inefficient. However, I believe this is not the case in practice. Firstly, senator preferences indicate a willingness to change committee only if they cannot be made worse off: Senator John C. Danforth clarifies to Republican Secretary for the Minority Howard O. Greene Jr. when conveying his preferences, on December 17, 1992, “My willingness to move off the Intelligence Committee is contingent on my ability to obtain a seat on the Committee on Environment and Public Works” (Robert J. Dole Republican Leadership Collection, 1985-1996, Series: Personal/Political 1980-1996, Box 471, Folder 20, Dole Archives). Secondly, the seniority and property rights norms are very closely followed in Congress and senior members submit preferences clarifying whether they want to switch committees or add committee assignments. Hence, they must not face the risk of being worse off, and should be allowed to keep their current committee assignment in case they cannot do better. However, Schneider (2006) writes that “incumbents may decide to retain current committee seats or choose among existing vacancies” which suggests that senior members can only fill vacancies and not try to get a seat held by an incumbent. This would lead to a sub-optimal allocation

⁵The only exception to the seniority formula arises if an incumbent loses a seat due to change in the party ratio, then he or she is given the highest priority, however, this is a rare occurrence.

because there may be swaps and chains of exchanges which would be pareto improving. I believe, that at least to some degree (especially due to communication with Committee on Committees, seniority norm, property rights norm, and stickiness in committee assignments arising from queuing benefits), these few cases are efficiently addressed by the Committee on Committees and such ‘surplus’ is not left on the table.

Correctly addressing this existing tenants problem is what allows Top Trading Cycles (TTC) algorithm to be implemented sequentially (as a variant of Serial Dictatorship) with the “you request my house - I get your turn” (YRMH-IGYT) mechanism logic from the house allocation with existing tenants literature (see Appendix H for mechanism descriptions).⁶ Thus, the Republican Senate mechanism can be equivalently approximated as a TTC mechanism where politicians point to their top choice from what’s available and committees first point to their existing members (break ties by seniority) and then point to the senior-most, amongst remaining politicians, if no incumbents currently on the committee are left. In fact, there is evidence that the mechanism is implemented dynamically in order of seniority, akin to the TTC-equivalent YRMH-IGYT mechanism (see Appendix C, Archival Exhibit #4).

This mechanism is *strategyproof*, i.e., it is a dominant strategy to truthfully report one’s true preference rank order (see Appendix C, Archival Exhibit #5). Schneider (2006) comments that in comparison, Republicans’ “personal efforts to compete for committee seats appear to be minimal as compared with Democrats” (see Appendix C, Archival Exhibit #6). Furthermore, the Republican Committee on Committees is a comparatively small group and not much politics has been played over who should serve on this committee, compared to the Democrats, who have a non-strategyproof mechanism as described below.

3.2. Senate Democrat Assignment Mechanism.

The Senate Democrat Assignment Mechanism is headed by the Democratic Committee on Committees, called the Steering and Outreach Committee. The Steering and Outreach Committee is a large group (e.g., 16 members in 2016) which often includes the Democratic leader, the Democratic whip, the chief Democratic whip, deputy Democratic whip, and many committee ranking members. Senate Democrats make nominations on a “seat-by-seat basis” where ties are resolved by vote of the Steering and Outreach Committee (Schneider 2006). The Steering and Outreach Committee considers many factors in assigning its members including, “senators’ preferences, state demographics, length of time since the state was last represented on the committee, perceived willingness to support the party, policy views, and personal and occupational backgrounds” (Schneider 2006).

This process can be approximated by a Boston mechanism (see Appendix H for description) with tie-breaking/priorities according to Steering and Outreach Committee vote. This mechanism first tries to assign each Democrat to their top preference (if there is over-demand relative to the vacancies on a committee, the Committee on Committees votes⁷ to break ties), and then goes through remaining unassigned Democrats’ second-highest preferences, third-highest preferences, and so on. Because the Steering and Outreach Committee has so much discretion over assignments, there has historically been a lot of political debate and changes

⁶Abdulkadiroglu and Sonmez (1999) characterize the equivalence of TTC and the sequential YRMH-IGYT mechanism, henceforth jointly referred to as *TTC/YRMH-IGYT mechanism*.

⁷“Steering and Outreach members usually make nominations by consensus. However, if significant competition exists for a particular seat, then secret balloting usually is conducted and the majority-vote winner is granted the nomination.” (Schneider 2006)

in the composition of this committee which has been documented by Shepsle (1978) and more recently by Frisch and Kelly (2006). Naturally, senators want a Steering and Outreach Committee with allies who would advocate for their assignment. As Schneider (2006) puts it, “it appears to be important for senators-elect, in formulating their preferences, to consult with party leaders, and the chairs (or ranking members) of preferred committees. This consultation acts both to notify senior senators of a freshman’s substantive interests and to inform the freshman senator of the likelihood that he or she will be assigned to preferred committees.” Because ties in case of significant competition for a particular seat are determined by secret balloting with majority rule by the Steering and Outreach Committee, a lot of political capital seems to be spent strategizing over to what preferences to report⁸ and attempting to influence the supporters and tie-breakers sitting on the Steering and Outreach Committee. “Personal intervention by a requesting senator or another senator, is sometimes helpful” (Schneider 2006).

Hence, as the matching literature would suggest, it appears that the use of the *non-strategyproof* Boston mechanism by the Democratic party has severely comprised truthful revelation of Senate Democrats’ preference rank orders and seems to be systematically gamed by strategic behavior on the part of the politicians.

A redeeming quality of the Boston mechanism is that each committee admits all the candidates who rank it higher before admitting anyone who ranks it lower.⁹ This is an intuitive welfare criterion and enables politicians to express the strength of their preference (i.e., cardinal utility) by ranking it higher in their preference rank order. However, this very property allows manipulation.

3.3. Incumbents and Existing Tenants Problem.

Every two years when the committee assignment process takes place, there are newly elected freshman Senators along with incumbents, or existing tenants, who are reelected or who were not up for election in that year. Existing tenants may want to i) switch committees, ii) take on an additional committee, iii) leave a committee, or iv) stay with the committee assignments they currently have. How the party designs its matching mechanisms can be consequential for incentivizing existing tenants to take part in the process and also for the pareto optimality of the final assignment outcome. I do not know how the Democrat Boston mechanism gets around the existing tenants problem.¹⁰ There are many possible variants of

⁸Since Boston mechanism goes through candidate’s preferences on a seat-by-seat basis, it is risky to truthfully report at the top of one’s rank order, a popular position, because if you don’t get this highly competitive seat, then your latter choices may already have been filled to capacity. Hence, strategically replacing highly competitive positions at the top of the preference list with safer positions is a standard way to game the system.

⁹This is the sense in which Shepsle (1975, 1978) correctly assumes the committee assignment linear programming model as “chiefly interested in accommodating member requests,” by “maximizing the correlation between expressed preferences and actual assignments” (Shepsle 1975, p. 59, 61).

¹⁰Shepsle (1975) in his programming model, which shares a similar spirit with the Boston mechanism, assumed that for existing tenants “an informal property right is operative: non-freshmen, whenever feasible, may retain committee assignments held in the previous Congress if they wish. If a change is desired, however, a returning member may request a transfer to another (presumably more preferable) committee, in which case he voluntarily yields his property claim on his previously held committee slot” (p. 57). This is a weak version of property rights, called squatting right, defined in Section 3.3.1

the Republican seniority-based mechanisms—Serial Dictatorship, Serial Dictatorship with squatting rights, Serial Dictatorship with waiting list, and TTC/YRMH-IGYT—which can be interpreted as arising from stronger versions of the seniority and property rights norms (Section 3.3.1). I analyze the static (Section 3.3.2) and dynamic (Section 3.3.3) properties of these various mechanisms to assess to what extent they address the existing tenants problem.

3.3.1. *Seniority and Property Rights Norms.*

The variants of the Republican seniority-based mechanisms can be interpreted as mechanisms implementing varying degrees of the seniority and property rights norms.

The seniority norm confers numerous rights and benefits to senior members of the Senate: greater power within the caucuses, increased power within the committee (Committee Chair and ranking minority member are the most senior members of the committee from the majority and minority parties), etc. Within the Republican committee assignment process, seniority carries two benefits: more seniority implies a higher rank within the pecking order of choosing committees and seniority (or incumbency privilege) also results in the property rights norm.

The norm of property rights allows incumbents who already hold committee assignments a preferential consideration in keeping their current committee assignment. Without a property rights norm, the Republican system would simply be a seniority-based Serial Dictatorship, where regardless of whether a Senator is an incumbent or a freshman and regardless of what current committee assignment a Senator holds, all Senators are pooled together and, in order of seniority, choose amongst the entire pool of vacancies (which are available when it is their turn). A *weak* version of the property rights norm allows an incumbent to choose whether to keep his/her current committee assignment or forsake the current assignment, vacate his current seat, and enter the Serial Dictatorship mechanism. This results in the Serial Dictatorship with squatting rights mechanism (see Appendix H for description). An *intermediate* version of the property rights norm involves an incumbent's seat being vacated only when it is his turn in the order of seniority and he wishes to leave his current assigned committee; this variant is called the Serial Dictatorship with waiting list mechanism (see Appendix H for description). Finally, under a *strong* version of the property rights norm, an incumbent can keep his own seat if wants, hence is guaranteed to never be made worse off, and any swaps promise committees he prefers over his current assignment.¹¹ This is implemented via the TTC/YRMH-IGYT mechanism.

3.3.2. *From a Static, One-shot Matching Perspective.*

In the absence of existing tenants, Serial Dictatorship in order of seniority is strategyproof and pareto optimal (Svensson 1994). However with existing tenants (i.e., incumbents and those not up for re-election) who have might preferential property rights over their existing committee assignments, Serial Dictatorship needs to be amended to retain these properties.

Serial Dictatorship with squatting rights, which gives every incumbent the option to keep their current assignment, else vacate the seat and enter the seniority-based Serial Dictatorship is not individually rational (though strategyproof conditional on choosing to participate in the mechanism) and not pareto optimal. This mechanism is not individually rational for

¹¹Studies such as Shepsle (1978), Munger (1988), Groseclose and Stewart (1998, 1999), and Endersby and McCurdy (1996), which analyze relative ratios of transfers from one committee to another to measure desirability of committees, rely on such a strong version of the property rights norm. With any weaker version, transfers can potentially make politicians worse off.

existing tenants because by vacating their position and entering the mechanism, it is possible that both their more preferred committees and the committee they vacated are taken by more senior politicians, and they are left worse off with a committee they rank lower than their old assignment. Furthermore, discouraging existing tenants to participate in the mechanism can lead to pareto losses.

On the other hand, Serial Dictatorship with waiting list—going down the order of seniority, all seats occupied by less senior existing tenants are not considered vacancies until after it is their turn and they have chosen not to keep their old assignment, but instead take another committee—is pareto inefficient. Although this is strategyproof and individually rational as existing tenants are able to keep their current assignment and hence cannot be made worse off, by not opening up seats which are going to be vacancies further down the order of seniority, this mechanism admits pareto losses (see Abdulkadiroglu and Sonmez 1999, p. 242-3 for an example). For example, a less senior politician i may be sitting on a seat that a more senior politician j wants, even though i vacates this committee seat only when it is his turn further down in the line of seniority.

Abdulkadiroglu and Sonmez (1999)'s TTC/YRMH-IGYT mechanism, allows a senior politician to request a junior incumbent's committee, if the junior incumbent can take the turn of the senior politician and get a better committee for himself. Hence, by admitting such swaps and cycles, the allocation is individually rational, strategyproof, and pareto efficient.

3.3.3. *From a Dynamic, Repeated Matching Perspective.*

How do these static properties generalize to their dynamic versions? Since the committee assignment process occurs repeatedly every two years, with incumbents (existing tenants) who remain/vanish at different times due to re-election, resignation, or demise, a more fitting formulation of the assignment process would use an Overlapping Generations Model. Kurino (2014) theoretically analyzes the dynamic properties of Serial Dictatorship and TTC in an OLG setting, which I summarize in this context here.

Four useful concepts are defined to understand the dynamic properties of the mechanisms.¹² First, define a *time separable preference relation* for each politician over entire sequences of committee assignments throughout his career. Second, consider the notion of a *dynamically Pareto efficient* sequence of committee assignments, where there is no other sequence of committee assignments for which some agent is strictly better off while everyone else is just as well off. Third, a sequence of committee assignments S is called *acceptable* if all incumbents find their current assigned committee at least as good as their previous committee assignment. Finally, a sequence of period-by-period orderings (such as order of seniority in the Republican case) is said to be *constant* if the relative ranking of agents is the same across periods. The seniority system provides an (almost) constant ordering because seniority ranking is more or less preserved across time. The rare exceptions to seniority being constant are i) if a politician serves in non-contiguous terms, ii) if the final lexicographic seniority tie-breaker of randomization occurs more than once (e.g., once every Congressional session), and iii) if an incumbent loses his or her seat due to a change in the party composition of the Senate and that incumbent's seat is assigned to the other party, then this politician is put on top of the pecking order regardless of his seniority.

¹²See Appendix N for formal definitions.

Kurino (2014) first establishes an impossibility result, that for a general preference domain, with at least two freshmen arriving in each period, no spot rule¹³ is dynamically Pareto efficient and acceptable. Thus, constant Serial Dictatorship in order of seniority (i.e., always favoring existing tenants over freshmen) which is dynamically Pareto efficient, is not acceptable under general preferences. And TTC/YRMH-IGYT which is acceptable (i.e., existing tenants cannot be made worse off), is not dynamically Pareto efficient under general preferences.

This negative result implies that in order to get both dynamic Pareto efficiency and acceptability, either the mechanism must take the path of future preferences into account or restrictions must be imposed over the nature of preferences. Since politicians only give their preference over committee assignments for the current Congressional session, thinking of mechanisms determining assignments based on committee preference requests over future Congresses is not practical. However, under time-invariant preferences, these normatively attractive properties can be achieved.

Kurino (2014) shows that in the time-invariant preference domain, constant Serial Dictatorship favoring existing tenants (i.e., in order of seniority) is both dynamically Pareto efficient and acceptable, and TTC favoring existing tenants (i.e., in order of seniority) is dynamically pareto efficient, acceptable, and incentive compatible.¹⁴ In reality, the preferences of politicians are probably not perfectly time-invariant. Major national shocks, such as the 2008 Financial Crisis, can expand jurisdiction of certain committees to take on more responsibilities in legislation and regulation. Changes in the politician's constituency or electoral environment can also influence a politician's preferences over time. A politician's early-career focus may be on re-election, but as they become a senior entrenched incumbent, they may change their goals to focusing on legacy or running for presidency. Moreover, for the Democratic Boston mechanism, Committee on Committees tie-breaking criteria may change, leading to a new attainability calculus for various committees. Nevertheless, theoretically, this benchmark provides insight into whether these mechanisms guarantee a path of increasing satisfaction of committee assignments over time or lead to pareto losses.

Interestingly enough, both the seniority and property rights norms prove to be quite valuable in achieving these normative properties. The seniority norm gives a (almost) constant ordering which dynamically disciplines the Serial Dictatorship and TTC/YRMH-IGYT mechanisms. Moreover, a strong form of the property rights norm, which prioritizes existing tenants (i.e., incumbents), leads to mechanisms being acceptable. As Kurino (2014) shows, instead, if the period orderings favored freshman, Serial Dictatorship is not dynamically efficient even with time-invariant preferences, and TTC/YRMH-IGYT is neither strategyproof nor dynamically Pareto efficient.

3.3.4. Democrat and Republican Mechanisms.

It seems that at least to some extent, given the high stakes of the committee assignment process, swaps and small cycles as in TTC/YRMH-IGYT are likely to be implemented in practice by Republicans. However, it is not clear in either the Republican or the Democratic mechanism, exactly how this existing tenants problem is dealt with.

¹³In a spot rule, each politician reports her entire sequence of period-by-period (i.e., Congressional session-by-session) preferences over committees, and a sequence of committee assignments is formed based on the reported preferences which in period t can only condition on history up till time t .

¹⁴Incentive compatibility means truth telling in each period is a subgame perfect equilibrium.

On a related note, empirically there is a lot of stickiness in committee assignments. This phenomenon is generally explained as politicians developing specializations and/or because there are queuing benefits from being more senior within a committee. This discussion emphasizes that poor mechanism design, which puts existing tenants at a risk of swapping to a worse committee, could also explain this empirical regularity. However, I do not wish to overstate this possibility. See Appendix F for a cross-party comparison of stickiness of committee assignments.

3.4. Strategyproofness.

I want to emphasize that when saying that the Republican TTC/YRMH-IGYT mechanism in order of seniority is strategyproof and the Democratic Boston mechanism is not strategyproof, it is with regards to a politician's simple rank order preference defined only over his own assignments (for example, 1st choice Agriculture, 2nd Finance, ...). In reality, a politician's preference for a committee might depend on who else is on the committee, who the other party assigns to the committee, etc.¹⁵ With regards to such interdependent preferences, neither of these mechanisms is strategyproof (or group-strategyproof).

Although strategyproofness is a binary concept, effectively strategizing to exploit a non-strategyproof mechanism may impose a heavy burden of information: knowing everybody's true preferences, higher-order beliefs, etc. Theoretically, the notion of strategyproofness is posited assuming all agents have complete information, which is often an unreasonable assumption in practice. However, in this setting, the Democrat's Boston mechanism is somewhat intuitive and simple to try to strategize against. Simply knowing trends as to which committees are popular and highly sought-after, can lead to effective strategic behavior: instead of ranking a popular committee at the top, ranking a slightly less preferred but less popular committee at the top or as a safe second choice. Such strategizing has been documented in other settings where the Boston mechanism has been implemented¹⁶ and is consistent with the information gathering attempts encouraged of Senators prior to submitting their preference rank order, documented by Schneider (2006).

3.4.1. Committee on Committees Power.

The Democrat Boston mechanism gives the Committee on Committees a lot of power over assignments via tie-breaking votes. This allows the potential for enforcement of party discipline via Committee on Committees manipulations of the tie-breaking rules. If the Committee on Committees can *credibly commit* to certain tie-breaking rules, they can incentivize politicians to request committees differently and change the overall committee assignments in equilibrium. For example, suppose there are 3 politicians $\{A, B, C\}$, 3 committees $\{1, 2, 3\}$ each with one vacancy, and each politician must be assigned only one committee. Suppose all three politicians' preferences are identical: $1 \succ 2 \succ 3$. If the Committee on Committees values only the chamber seniority for tie-breaking purposes—by which say any tie is broken $A \succ B \succ C$ —then each politician may report their preference to be $1 \succ 2 \succ 3$ and the equilibrium allocation will be $A - 1$, $B - 2$, and $C - 3$. However, suppose the Committee on Committees commits to breaking a tie in committee 2 in the order $A \succ C \succ B$, then

¹⁵Gailmard and Hammond (2011) analyze committee composition incentives strategically arising from committee assignments being made in *both* chambers, where intercameral interactions affects intracameral committee composition.

¹⁶Pathak and Sonmez (2008, 2013) empirically analyze strategic behavior under the Boston mechanism in school choice settings. See Chen and Sonmez (2006) for experimental work.

knowing this, C would rank committee 2 at the top, A still ranks 1 at the top, and regardless of how B ranks his preference, the equilibrium allocation will be $A - 1$, $B - 3$, and $C - 2$. In this way, commitment to a certain tie-breaking rule allows the Committee on Committees to alter the final allocation, in this case, selectively benefiting politician C while punishing politician B .

Another natural possibility is for the Democratic Committee on Committees to consider *committee composition* when breaking ties. Such considerations are equivalent to Committee of Committee choice exhibiting menu effects from behavioral decision theory, which constitutes a violation of the Independence of Irrelevant Alternatives property. Such tie-breaking schemes can allow groups or cartels of politicians to collectively improve by strategically exploiting the assignment process. For example, suppose there are 6 politicians $\{A, B, C, D, E, F\}$, 3 committees $\{1, 2, 3\}$ each with two vacancies, and each politician is assigned to only one committee. Suppose politicians' preferences over committees are $A : 1 \succ 2 \succ 3$, $B : 1 \succ 3 \succ 2$, $C : 2 \succ 1 \succ 3$, $D : 3 \succ 1 \succ 2$, $E : 2 \succ 3 \succ 1$, and $F : 3 \succ 2 \succ 1$. And suppose tie breaking rules are $2 : A \succ B \succ D \succ E \succ C \succ F$, $3 : A \succ B \succ C \succ F \succ D \succ E$, and committee 1 tie-breaking rules depend on committee composition so that the Committee on Committees prefers $C \& D \succ A \& B \succ$ any other pair. Hence 1 tie-breaks are $A \succ B \succ C$ if tie between $\{A, B, C\}$, $A \succ B \succ D$ if tie between $\{A, B, D\}$, and $C \succ D \succ A \succ B$ if ties between $\{A, B, C, D\}$, $\{B, C, D\}$, or $\{A, C, D\}$. Then in equilibrium, E and F rank 2 and 3 at the top, A and B rank 1 at the top, and C and D can do no better than getting committees 3 and 2. Note that, both C and D ranking 1 at the top isn't an equilibrium, because C and D each have an incentive to deviate to ranking 2 and 3 and being strictly better off. Hence, because they cannot coordinate, they get their least preferred committees. However, if C and D could *collude* to form a coalition and commit to both rank 1 as their top choice, then the Committee on Committees would accept C and D both into committee 1, A and B would be forced to take committees 2 and 3 along with E and F , respectively. Hence, such committee composition based tie-breaking considerations fail to be group-strategyproof.

Hence, this tie-breaking power vested in the Democrat Committee on Committees might allow the party to impose discipline on its members through rewarding/punishing committee assignments, or can also allow members of the Committee on Committees to extract favors from politicians in exchange for better committee assignments. How the Committee on Committees breaks ties can affect how politicians strategically rank their preferences and can affect final committee allocations. However, such manipulations require some commitment power, effective communication channels, and sufficient coordination on behalf of the Committee on Committees members.

3.4.2. *Seniority and More Truthful Behavior: the Existing Tenant's Guarantee.*

Restricting attention to the Democrat Boston mechanism and assuming that the property rights and seniority norms address the existing tenants problem, I show that non-freshmen existing tenants are *more truthful* in their preference rank orders than freshmen. Since the existing tenant has a current endowment of a committee allocation, and because the property rights and seniority norms guarantee that the existing tenant cannot be allotted a committee which he deems to be worse than his existing endowment, he is better hedged against downside risk compared to a freshman because of the guaranteed lowerbound on his payoff. Moreover, the better the guarantee, the more truthful the existing tenant is in reporting preferences. To capture this more formally, I posit a model of how optimally strategizing against

a Boston mechanism depends on the minimum payoff guarantee (i.e., incumbent's guarantee of his existing committee). The intuition of the model is that as the minimum payoff guarantee is increased, an agent is incentivized to take on more risk by ranking committees he prefers more (i.e., more truthful), but are harder to get into. Such committees would be avoided by a freshman with no existing committee allocation (i.e., no minimum payoff guarantee), because he wants to hedge against failure, which would lead to a committee he ranks much lower on his true preference rank order. Hence by providing a minimum payoff guarantee, existing tenants seek more risk, implying more truthful preference reporting.

I provide a 2-committee preference rank order version of the model here to illustrate the structure of the model. In Appendix D, these results are generalized to n -committee preference rank orders.

Suppose the politician wants to choose the optimal 2-committee rank order preference $(x_1, x_2) \in X$, where X is a discrete and finite set of committees. Let $u(x) : X \rightarrow \mathbb{R}$ be the utility the agent gets from being assigned committee x . For all $x > x'$, $u(x) > u(x')$. Let $p_i(x_i)$ denote the probability of being allotted committee x_i ranked in the i th place. The most interesting case when for all $x_i > x'_i$, $p_i(x_i) < p_i(x'_i)$ is assumed. Hence, the more you like the committee, the harder it is to get into. For example, prestige committees like Appropriations, might be valued highly by everyone and hence face tough competition. An existing tenant has a guaranteed committee \underline{x} which guarantees him a minimum payoff $u(\underline{x}) > 0$. Notice here that the true ordinal preference is higher for larger x since u is increasing. However, given that the Boston mechanism is not strategyproof, the agent must rank the committee that gives him the highest payoff conditional on being allotted that committee. Hence the agent's problem is

$$\max_{(x_1, x_2)} p_1(x_1)u(x_1) + (1 - p_1(x_1))p_2(x_2)u(x_2) + (1 - p_1(x_1))(1 - p_2(x_2))u(\underline{x})$$

To simplify notation, let us denote W for $u(\underline{x})$, u_x for $u(x)$, p_{x_i} for $p_i(x_i)$, and p_{y_i} for $p_i(y_i)$. Notice that writing p_{x_i} involves a slight abuse of notation in that x_i 's subscript i denotes the function p_i .

$$\max_{(x_1, x_2)} p_{x_1}u_{x_1} + (1 - p_{x_1})p_{x_2}u_{x_2} + (1 - p_{x_1})(1 - p_{x_2})W$$

This model simplifies the actual environment to a single agent's game against a stochastic environment. Hence, it does not characterize an equilibrium of the non-strategyproof Boston mechanism because such a model is computationally hard and would require an inordinate number of assumptions on information, higher order beliefs, etc. Instead, it is assumed that information and behavior of all other agents translate into beliefs of the likelihood of success (i.e., p_i function giving the likelihood of being allotted i th reported preference x_i). This reduced form structure approximates a politicians' representation of the game and I believe reasonably captures how agents strategize in a Boston mechanism, by forming beliefs about their likelihoods of success of ranking various choices in different ranks, and optimizing.

Without loss of generality, assume ranking preferences (x_1, x_2) are optimal for $W = 0$ and (y_1, y_2) is optimal for some $W > 0$. Firstly, it is proven that $y_1 \geq x_1$ and $y_2 \geq x_2$ (see Appendix D.1 for proof). Namely, an existing tenant with a guarantee of committee at least as good as his current assignment \underline{x} , is more truthful as he ranks weakly higher x_i which are more in line with his true ordinal preference which is increase in x . Secondly, comparing $W > 0$ with $W = 0$ was without loss of generality, and the result holds for any affine transformation of utility, hence, for any $u(y) > u(\underline{x})$ where $y > \underline{x}$, it is optimal for

$y_i \geq x_i$ for all i . Thus, this gives the additional result that an existing tenant is more truthful the better his guaranteed current assignment.

More generally, for n -preference rank order, the model shows:

Proposition 1. *For any minimum payoff guarantees $u(\underline{y}) > u(\underline{x})$ where $\underline{y} > \underline{x}$, suppose (x_1, \dots, x_n) is optimal for $u(\underline{x})$ and (y_1, \dots, y_n) is optimal for $u(\underline{y})$, then $y_i \geq x_i$ for all i .*

See Appendix D.2 for proof and Prediction 1 (b) and (c) (Section 4) for application of this result.

3.5. Fairness Criterion: Justified Envy.

Both the Democrat Boston mechanism and Republican TTC/YRMH-IGYT mechanism admit justified envy: in the final allocation, politician i prefers politician j 's committee over his own and is envious because i has higher priority (given the tie-breaking criteria of the Committee on Committees) on j 's committee than j , hence this committee was achievable. The upshot of this property is that the politician who preferred another committee over his actual assignment and, moreover, had a higher priority for that committee than the person who it was assigned to, will feel that the allocation is unfair. The Democrat Boston mechanism admits justified envy arising from the possibility of getting a much less preferred committee in case a failure in a higher ranked choice causes intermediate committees to fill up. The Republican TTC/YRMH-IGYT mechanism admits justified envy due to the manner in which cycles are implemented. For example, if a cycle includes the senior-most and the third most senior politician, it is possible that the second-most senior politician (having higher priority by seniority) prefers committee assigned to third most senior politician over his assignment. Hence, in prioritizing cycles, intermediate seniority politicians can be made worse off. However, TTC/YRMH-IGYT pays this cost in order to achieve pareto efficiency via the cycles.

4. Testable Predictions.

As a consequence of the mapping of Senate Republican and Democrat assignment mechanisms to well-known mechanisms from matching theory, I now derive a few testable predictions.

Along the way, I will rely to varying degrees on the following assumptions:

Assumption 1. *On average, Republican and Democrat politicians have similar political motivations.*

This assumption is used primarily when making comparisons across parties, for example, exploiting differences in strategyproofness of the two mechanisms. Although such a stringent assumption can be empirically relaxed by matching politicians or controlling for covariates, it allows the formulation of clean predictions from theory.

Assumption 2. *A politician's preferences for committee assignments are relatively stable across years.*

Given increasingly long tenure rates of politicians, the political climate in the constituency and economic conditions can change drastically, causing a re-alignment of politicians' preferences for committee assignments. However, across many constituencies over time, the political atmosphere is often stable and lobbied interests are stationary, hence time-invariant preferences could be a reasonable assumption at times. This assumption is relied upon

TABLE 1. Summary of the properties of the various mechanisms: Democratic Boston mechanism and Republican seniority-wise mechanisms based on different treatment of existing tenants: Serial Dictatorship, Serial Dictatorship with squatting rights, Serial Dictatorship with waiting list, and TTC/YRMH-IGYT. The static properties are a) strategyproofness, b) pareto efficiency, c) no justified envy, d) individually rationality, and e) favoring higher ranks. The dynamic properties are a) dynamic Pareto efficiency and b) acceptability. Note: i) *Strategyproof* means whether reported preferences are truthful conditional on choosing to participate in the mechanism and report preferences; whereas, ii) *Individual Rationality* alludes to whether or not a politician can be worse off by participating in the mechanism.

	Strategyproof	Pareto Efficient	No Justified Envy	Individually Rational	Favoring Higher Ranks	Dynamic Pareto Efficiency	Acceptable
Democrat Boston mechanism	X	X	X	?	✓	X	?
Republican							
- SD w/ seniority	✓	✓	X	X	X	✓	X (✓ time-invariant pref)
- SD w/ squatting rights	✓	X	X	X	X	X	X
- SD w/ waiting list	✓	X	X	✓	X	X	✓
- TTC/YRMH-IGYT	✓	✓	X	✓	X	X (✓ time-invariant pref)	X

when the difference in truthfulness across freshmen and non-freshmen Senate Democrats is exploited.

Prediction 1. (a) *Senate Republicans request their committee preferences truthfully while Senate Democrats requests are an outcome of strategic behavior.* (b) *Freshmen Senate Democrats are more strategic by requesting fewer popular and highly sought-after committees relative to non-freshmen.* (c) *Non-freshman Democrat requests committee preferences more truthfully, the more he prefers his current assignment.*

Prediction 1(a) follows directly from the Senate Republican TTC/YRMH-IGYT (Roth 1982; Abdulkadiroglu and Sonmez 1999) being strategyproof, and the lack thereof in the

Democrat Boston mechanism (Abdulkadiroglu and Sonmez 2003). As shown in Section 3.4.2 and Appendix D, Predictions 1(b) and 1(c) follow from Proposition 1, i.e., the effect of the guaranteed minimum payoff to existing tenants in the Democrat Boston mechanism arising from seniority and property rights norms.

Prediction 2. *Committees where the average seniority at time of request is higher for Republicans than Democrats suggests either*

- (1) *tie-breaking criteria used by the Committee on Committees is negatively correlated with seniority and/or*
- (2) *a belief amongst Democrats that personal qualities allow individuals to make a stronger case for appointment (e.g., personal influence on Committee on Committees)*

This prediction takes the seniority-based Republican TTC/YRMH-IGYT mechanism as a benchmark, and considers assignment requests by Democrats strategically responding to Committee on Committees tie-breaking rules under the Democrat Boston mechanism.

Prediction 3. *Committees where Democrats' chamber seniority at time of assignment are significantly different from Republicans' chamber seniority are committees where seniority is not the primary criterion used for selection or strategic anticipation of selection criteria produces different seniority patterns.*

- *Earlier Democratic assignments suggest that the tie-breaking considerations for assignment used by the Democratic Committee on Committees are inversely correlated with seniority, while later assignments suggest that the tie-breaking considerations for assignment used by the Committee are positively correlated with seniority.*
- *Significant deviations from seniority could also suggest existence of Democratic party discipline, which is not possible in the Republican Senate mechanism.*

Prediction 4. *Committees where Democrats' chamber seniority at time of assignment have systematically higher variance than its Republican counterparts suggest party discipline or different considerations used for tie-breaking purposes by the Democratic Committee on Committee.*

Both Predictions 3 and 4 use the chamber seniorities at time of assignment produced by the formulaic, seniority-based Republican TTC/YRMH-IGYT mechanism as a benchmark for comparison with their Democrat counterparts. Deviations from the Republican benchmark suggest the Democrat Committee on Committees using tie-breaking criteria that is not solely seniority-based. Such differences can potentially entail the Democrat party disciplining or rewarding members via Committee on Committees tie-breaking votes, as suggested by the Cartel Agenda Theory of Cox and McCubbins (2005). Although empirically distinguishing between these possibilities is challenging without additional information, signing the correlation of tie-breaking considerations as compared to seniority is insightful in and of itself.

Prediction 5. *Committees with higher relative average chamber seniority for Republican members are (by revealed preference) valued more. However, this measure of committee value is confounded by the higher queuing benefit of seniority within the committee. Nevertheless, since the queuing benefit is higher for more senior members, if the effect persists amongst less senior members (i.e., not chair and ranking members) then it suggests more valued committee.*

For Senate Republicans, since the TTC/YRMH-IGYT mechanism fundamentally relies on the strong version of the property rights norm to address the existing tenants problem and because higher seniority implies higher priority in committee selection, high chamber seniority on a committee suggests that members choose to stay despite the mechanism increasing their priority to selection onto other committees. The queuing benefit (i.e., higher relative seniority within a committee comes with greater perks, influence, and power) is a major confounding factor in this identification strategy. The decision to remain on the existing committee implies that the 1:1 exchange of being in this committee at current relative seniority rank is better than being at the low end of the queue on other new committee. Nevertheless, if chamber seniority is higher on a committee even after removing members with highest seniority within the committee, this suggests by revealed preference, that this committee is valued more.

A similar prediction would not hold for Senate Democrats. Bullock (1985) and Frisch and Kelly (2006) suggest that seniority is one of the primary dimensions on which the Committee on Committees resolves ties and assigns committees. However to get any traction, it would have to be assumed that seniority is the only tie-breaking characteristic, which seems unlikely.

Next, I adapt more general findings and properties of the Democratic Boston mechanism to this particular application. These predictions involve deeper strategic incentives on the part of politicians and parties, making them hard to test empirically. However, they are highlighted here to put the political economy discussion into perspective.

Prediction 6. *As politicians' preferences over committees become more correlated, the Boston mechanism used by Senate Democrats becomes more susceptible to strategic behavior.*

Increased correlation in preference implies more competition for popular committees, hence there are increased gains from strategically ranking 'safer,' less popular committees ahead of popular committees. This highlights the crucial assumption in the Weingast and Marshall (1988): namely, that preferences over committees are sufficiently heterogeneous, and hence a mutually beneficial system of jurisdiction allocation and property rights protects from envy and over-demand for certain committees. This also carries implications for the party discipline through committee assignment literature, as under this mechanism, party discipline can be imposed only if there is over-demand relative to supply. Tie-breaking by Committee on Committees occurs only if the number of requests were to outnumber the vacancies. The more preferences are correlated, the more scope there is for party discipline through the assignment process. Finally, perhaps this also speaks to the literature on increasing cross-party polarization and within-party cohesion in recent times.¹⁷

Prediction 7. *Tie-breaking rules can be used to increase social welfare by the Senate Democrats if ties are broken taking the cardinal utilities of the politicians into account (Abdulkadiroglu et al. (2011)). On the other hand, arbitrary tie-breaking rules can also be used to impose party discipline.*

Discretion at the hands of the Committee on Committees can be used to optimize overall cardinal welfare of the party by assigning those who value the committee assignment more when creating appropriate tie-breaking votes. Thus, the same tie-breaking rules which can be used to impose party discipline, can also be used to accommodate and break ties based on welfare improving covariates or intensity of preference. Giving preference to seniority as

¹⁷See Appendix G for more on party discipline and within-party ideological heterogeneity.

in the Republican algorithm, might not match the committee to the most ‘worthy’ individual, e.g., based on what the committee needs, what the constituency needs, how much the politician would benefit, etc.

Prediction 8. *In the Democrat Boston mechanism, the extent to which sophisticated politicians can exploit naive politicians depends on the informativeness of the sophisticated politician.¹⁸ If there’s complete information (of priorities and all politicians’ preferences), then the sophisticated politician can guarantee higher priority on all committees which aren’t the naive politician’s most preferred committee (Pathak and Sonmez 2008). However, if there isn’t complete information, the presence of sophisticated politicians who might try to strategize and game the system, can help naive politicians (Abdulkadiroglu et al. 2011).*

If competition, vacancies, and priorities generated by the tie-breaking rules of the Committee on Committees are perfectly known, then naive players are weakly worse from sophisticated players’ exploitation through strategic reporting. However, such an informational burden seems implausible to assume. More realistically, under incomplete and/or imperfect information, strategic play can in fact help naive players. For example, if strategic players shy away from requesting a highly popular committee, a naive politician’s chance of getting it could increase when naively ranking it truthfully as a top choice.

5. Summary of Suggestive Empirical Evidence & Structural Estimations.

I summarize the findings from Appendices A and B, that take the predictions to data and also illustrate how to combine knowledge of the mechanism with structural assumptions to gain empirical leverage.

5.1. Empirical Tests of Predictions.

Consistent with Prediction 1, I find evidence of freshmen Senate Democrats requesting fewer Prestige committees relative to non-freshmen, consistent with the mechanism’s induced incentives to strategically hedge and request safer options of Policy and Constituency committees. Average chamber seniority at time of request also shows behavior consistent with freshmen Senate Democrats being strategic in reporting their preferences away from Prestige committees, to Policy and Constituency committees.

Comparing cross-party differences in the distribution of chamber seniority at time of appointment, I find evidence of possible party disciplining or non-seniority tie-breaking criterion used by Democrat Committee on Committees for Prestige committees (Budget and Rules) and some Policy committees (Environment, Commerce, and Governmental Affairs), but not Constituency committees.

Even after trying to adjust for the queuing benefit, I find that Rules, Finance, Governmental Affairs, and Appropriations are robustly amongst the most sought-after committees.

Finally, comparing success rates at which Senate Democrats are assigned their requests, I find that non-freshmen are more successful in their requests compared to freshmen, suggesting that the Democratic Committee on Committees values seniority in tie-breaking and protects the Property Rights norm. However, similar acceptance ratios for Prestige committees like Appropriations and Budget, suggest that personal lobbying and advertising could be effective in influencing Democratic Committee on Committees tie-breaking.

¹⁸“Naive politicians” are assumed to report preferences truthfully because of a lack of sophistication or lack of information, whereas, “strategic politicians” are assumed to strategically report preferences based on information they possess.

5.2. Empirical Analysis with Structural Assumptions.

Combining the knowledge of the Republican seniority-wise TTC/YRMH-IGYT mechanism with reduced-form structural assumptions enables empirically distinguishing the common and idiosyncratic components of politicians' utility over different committee assignments. I find that i) powerful Policy and Prestige committees like Finance and Appropriations have large common values and relatively small idiosyncratic differences, 2) Constituency committees such as Small Business and Armed Services depend on particulars of the politician's constituency characteristics and hence have lower common value, and 3) Policy committees such as Environment and Labor have relatively large idiosyncratic values, depending on the politician's own views and beliefs and that of his/her constituency, which dominate the common value component.

6. Revisiting Theories of Committee Assignments

Three theories of committee assignment and committee politics have dominated the American politics literature: 1) Distributional Theory developed by Shepsle, Weingast, and Marshall, 2) Informational Theory developed by Gilligan and Krehbiel, and 3) Cartel Agenda Theory of Cox and McCubbins. Although these works initially focused on only the House committee system, these theories have since collectively formed the foundation of American politics understanding of committee politics more broadly. In this section, I assess their assumptions, logic, and empirical predictions in light of the Senate matching mechanisms.

Gilligan and Krehbiel (1987) posit that when information acquisition and specialization is costly, it is efficient for committees to be stacked with members who have lower costs of specialization. As Krehbiel (1992, p. 76) states, "Informational committee power ... refers to behavior that results in gains to committee and non-committee members alike." While Gilligan and Krehbiel (1987) can be viewed as an informational efficiency story as to possible criteria for committee assignments, Krehbiel (1992) derives empirical predictions of committees having heterogeneous non-outliers, except exceptional cases with low cost of specialization (p. 95-96). In light of the matching mechanisms described above, this empirical claim would rely on a) Democratic Committee on Committees using such selection criteria based on lower costs of information acquisition and specialization, and b) Republicans' informational benefit and expertise increasing with seniority in whichever committee they seek. While Democrat Committee on Committees might incorporate informational advantages in their tie-breaking voting calculus, it may not be the only consideration. Moreover, it is dubious to believe that Republican politicians care only about the informational benefit they bring to a committee, and while expertise and knowledge does increase with seniority, it is not clear whether such relative expertise is always present in all the committees a politician might seek assignment for. Hence, for the Senate, the Informational Theory might explain potential criteria used by the Democrat Committee on Committees to break ties, but has a hard time explaining the Republican committee assignment mechanism.

Cox and McCubbins (2005) suggest in their Cartel Agenda Theory that committee assignments and the committee assignment mechanism might be exploited by political parties to establish party discipline. As Cox and McCubbins (2005, p. 24) state, "The cartel ensures a near-monopoly on agenda-setting offices to the extent that it can control the relevant votes on the floor (on election of the speaker and appointment of committees). To aid in controlling these floor votes, the cartel establishes an intra-cartel procedure to decide on the nominee for speaker and on a slate of committee appointments." In light of the assignment mechanisms,

Senate Republican party leaders appear to have virtually no discretion over committee assignments to establish party discipline via this channel, while Senate Democrats have a lot of leeway through their Committee on Committees tie-breaking votes. The historical reason for this cross-party difference and its potential impact on ability to exert party discipline would be interesting to explore in future work.

The Distributive Theory suggests that politicians self select onto committees which they value the most, and the committee system accommodates the mutually beneficial equilibrium where politician i gives up power over the jurisdiction of j 's committee, in exchange of j giving up power over the jurisdiction of i 's committee.¹⁹ Weingast and Marshall (1988, p. 160) state, "First, committees are composed of high demanders, that is, individuals with greater than average interest in the committee's policy jurisdiction. Second, the committee assignment mechanism operates as a bidding mechanism that assigns individuals to those committees they value most highly." It is not clear from Republican TTC/YRMH-IGYT mechanism in order of seniority, how the highest demanders will necessarily get on their committee, unless highest demanders for any committee are in order of seniority. Moreover, their "bidding mechanism" notion somewhat matches the Senate Democrat Boston mechanism, however, for this mechanism to have highest demanders to self-select to the committees they value most highly, either the Committee on Committees must only break ties with regards to which politicians values the committee the most or the equilibrium imposed by the non-strategyproof mechanism causes such self-selection. Equilibria under non-strategyproof mechanisms are very hard to work out because the information structures can be very complex and hard for the theorist/empiricist to find. In justifying their empirical analysis, Weingast and Marshall (1998, p. 149) state, "While he —Shepsle (1975, 1978)— did not discuss the preference revelation aspects of the assignment process, it is clear that the process must rely on some means of inducing truthful requests." This goes against the notion of non-strategyproofness, where a non-strategyproof mechanism incentivizes strategic, non-truthful reporting of preferences. On the other hand, Weingast and Marshall (1998, p. 145)'s notion of the bidding mechanism correctly anticipates strategic responses to non-strategyproof Boston mechanism used by Senate Democrats, "...because some committees are valued by all (e.g., the spending or taxing committees). However, here too the bidding mechanism determines assignment. The more competition for seats, the less likely the bid will be successful. Suppose each potential bidder for a highly valued committee (e.g., one concerning taxes) also values some specific policy committee with much less competition (e.g., housing, agriculture, or public works). The increased competition for seats on the tax committees implies that only those with the greatest differential value between the tax committee and their next-best alternative will pay the opportunity cost of bidding (i.e., giving up a higher probability of getting their policy committee)." However, their equilibrium calculations oversimplify the calculus of strategizing in a non-strategyproof mechanism like that of Senate Democrats. And (p. 150) "...considerable evidence that freshman requests take into account competition for seats. Competition of this sort appears necessary—though not sufficient—to ensure that bids reflect underlying preferences" misinterprets the notion

¹⁹The discussion of how both Democrat and Republican mechanisms admit justified envy (Section 3.5) suggests that final allocations can have say politician i who would prefer committee politician j is on and that committee would also prefer politician i over j . Such a property undermines the stability of the mutually beneficial trade of jurisdictions as the Distributive Theory suggests.

of strategyproofness. Hence, the Distributional theory correctly anticipates that the Senate Democrat assignment mechanism is non-strategyproof and hence allows for strategically ranking preferences, however, it treats equilibrium calculations too naively, treats potentially strategic preferences as truthful, and fails to account for the very different mechanism used by Senate Republican, which is strategyproof.

7. Conclusions

This novel approach of applying matching theory tools to assignment problems in legislative organization, such as the committee assignment in Congress, is key in developing both a better theoretical and empirical understanding of legislative organization, party power, politician's motivations and preferences, and its broader impact on policy-making, interest group behavior, and lobbying. This paper shows that 1) how parties choose to organize their committee assignment procedures matters, 2) precisely defining terms such as seniority norms and property right norms and understanding exactly how they are implemented in the mechanism design affects the induced strategic intricacies and properties of these mechanisms, 3) the properties induced by the mechanism design (i.e., strategyproofness, pareto optimality, and fairness) affects the extent to which politicians' preferences, policy motivations, and political career agendas are satisfied and the extent to which parties can impose discipline on their members, 4) the properties induced by the procedural choice also carry consequences for how empiricists should understand and parse/subset data for econometric analyses using committee request and committee assignment data, 5) a theoretical understanding of the mechanisms delivers testable empirical predictions which can be taken to the data, and 6) understanding the details of the data-generating process can help evaluate the foundational theories of legislative organization.

Approaching such assignment problems in legislative organization from a matching theory framework can be a productive enterprise. Applying this methodological approach to study committee and subcommittee assignments in the House and in state legislatures, and comparing the difference in assignment procedures under single-party governments (e.g., some eras in Russia), two party governments (e.g., US), and multi-party or parliamentary systems (e.g., UK, India and Brazil), might be interesting avenues for future research.

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Tables and Figures

TABLE 2. List by categories of Committees in the Senate.

A Committees	B Committees	C Committees
Agriculture	Budget	Select Ethics
Appropriations	Rules & Administration	Indian Affairs
Armed Services	Small Business & Entrp.	Joint Taxation
Banking, Housing, & Urban Affairs	Veterans' Affairs	Joint Library
Commerce, Sci, & Transportation	Special Aging	Joint Printing
Energy & Natural Resources	Joint Econ Committee	
Environment & Public Works		
Finance		
Foreign Relations		
Education & Labor		
Homeland Security & Govt Aff		
Judiciary		
Select Intelligence		

TABLE 3. Timeline of Committee Assignments Procedure.

- | |
|--|
| 1. Election: incumbents re-elected (existing tenants) & freshmen elected |
| 2. Party leaders negotiate number of seats for party |
| 3. Committee on Committee asks for preference orders |
| 4. Incumbents encouraged to talk with seniors, gain support, and find out what is feasible |
| 5. Assignment is many-to-many matching with existing tenants |
| 6. Vote by the party internally (norm to agree unanimously) |
| 7. Vote by the floor (norm to agree unanimously) |

TABLE 4. Categories of Committees in the Senate.

Constituency	Policy	Prestige	Admin
Small Business	Banking, Housing, & Urban Aff	Appropriations	District of Columbia
Veterans' Affairs	Commerce, Sci, and Transp	Budget	Post Office
Agriculture	Environment & Pub Wks	Rules	
Armed Services	Finance		
Energy & Nat Res	Foreign Relations Government Affairs Judiciary Labor & Human Resources		

APPENDIX A. SOME SUGGESTIVE EMPIRICAL EVIDENCE

A.1. Available Data & Data Limitations.

I use three data sets to begin empirically testing some of the predictions for the Senate. First, the Frisch and Kelly (2006) dataset which contains Senate Democrat Committee Requests from the 80th to 103rd Congresses (1947-1995). Second, the Stewart and Woon dataset which contains Senate Committee Assignments from the 103rd to 114th Congresses (1993-2017). Finally, I collected a novel data set of Senate Republican Committee Requests for 91st and 103rd Congresses from the Robert and Elizabeth Dole Archive and Special Collections (University of Kansas).²⁰

The key empirical limitation faced is that of not having extensive and systematic Senate Republican committee request data, which has the nice property of being truthful revelation of politicians' preference. Despite the data limitations, I attempt to give some suggestive evidence using the available data.

A.2. Empirical Tests.

As is standard in this literature, committees are often grouped based on what types of policy-making takes place in each committee: Constituency, Policy, Prestige, and Admin (Table 4).

A.2.1. *Testing Prediction 1:*

I compare assignment requests sent by incumbent Senate Democrats (non-strategic given property rights and seniority norms alleviate the existing tenants problem) with those by freshmen Senate Democrats, who are predicted to behave strategically and request fewer popular, highly sought-after committees to game the Boston mechanism.

As shown in Figure 1, freshmen Senate Democrats consistently request fewer Prestige committees relative to non-freshmen: 1st request 27% instead of 35% (p-value of difference 0.15), 2nd request 10% instead of 13% (p-value of difference 0.58), and 3rd request 2% instead of 15% (p-value of difference 0.004) significant at 1% level. Instead, there is a substitution towards requesting Policy and Constituency committees. Appendix J shows the break up by number of requests for each individual committee.

Using novel data for Republican committee assignment requests for 91st and 103rd Congresses, I find that such a substitution away from Prestige committees is not present in their 1st choice, with 21% freshmen and 24% non-freshmen ranking prestige committees (p-value of difference 0.80). Since this is based on very small N data, I treat this as extremely suggestive evidence which should be interpreted with caution in light of data limitations.

Furthermore, Table 5 shows how the average chamber seniority at which Democrats request popular committees, such as Appropriations, Budget, Foreign Relations, Finance, and Armed Services, are all higher than other committees. Averaging over all the committees by type, the average seniority by request are Prestige (3.88 years), Policy (2.89 years), Constituency (2.58 years), and Admin (2.92 years). Hence prestige committees are often requested later on in politicians' tenures.

This suggests that there is some strategizing by freshmen Senate Democrats and suggests that the Prestige committees are in fact highly coveted.

²⁰This is the only systematic data available for the Senate Republican committee requests, nevertheless, I report small N results which should be interpreted suggestively and with caution. See Appendix L.

A.2.2. *Testing Predictions 3 and 4:*

Next, the predictions which exploit the differences in seniority at time of assignment across parties are tested. Table 6 reports the average chamber seniority at time of appointment for each committee by party and compares the difference in means and difference in standard deviation.

The difference in average seniority at appointment across parties is significantly different from zero on four committees. For the Environment and Governmental Affairs Committees, seniority at appointment is 2.80 and 4.93 years higher amongst Republicans than Democrats respectively, suggesting that Democrat Committee on Committees uses a tie-breaking criteria with negative correlation with seniority. On the other hand, the Commerce, Science, and Transportation Committee is allocated by Democrats much later than Republicans, which suggests the criteria used for tie-breaking by Democrats has positive correlation with seniority. Such differences could also be indications of party discipline through the committee allocation mechanism as suggested in Prediction 3.

Next, consider the difference in standard deviations column from Table 6 to test Prediction 4. Seniority at appointment is much more variable with Democrats than with Republicans for appointments to Budget and Rules Committees. This, suggests party discipline or different considerations used for tie-breaking purposes by Democrats for these Prestige Committees.

Overall, when considering both the differences in means and in standard deviations from Table 6, cross-party differences seem to be present only for Prestige and Policy committee assignments, and not Constituency committee assignments. This sheds an interesting light on selective focus of party discipline or non-seniority considerations used for tie-breaking purposes by the Democratic Committee on Committees.

A.2.3. *Testing Prediction 5:*

The committees are arranged by average chamber seniority of the members for Republicans given that their mechanism gives prominence to seniority. Then, comparing average seniority across committees gives a sense of which committees are highly sought-after by politicians. The higher a politician's chamber seniority, the higher is his/her priority when switching committees by the Republican matching algorithm. Thus, higher seniority in certain committees, suggests that serving on this committee is preferred relative to starting at the bottom of the queue on another committee. This effect is confounded by the fact that greater seniority within a committee leads to more power: the “queuing benefit”. In an attempt to crudely control for the queuing benefit, Table 7 ranks average committee seniorities in while excluding 1, 2, or 3 members with the highest on-committee seniority. For example, excluding the most senior member will exclude the chair of the committee and the ranking minority member, both of whom carry a lot of power on the committee. Rules, Finance, Governmental Affairs, and Appropriations have the highest chamber seniority average (even after excluding the most senior members) suggesting that they are the most sought-after given the intuition derived from the matching algorithm.

A.2.4. *Comments on Testing on Prediction 8:*

Table 8 reports the success rates at which Senate Democrats are assigned their requests split by freshmen and non-freshmen. Notice that for almost all committees, non-freshmen are more successful in their requests compared to freshmen. This suggests the value placed on seniority by the Democrat Committee on Committees and highlights the Property Rights

norm. However, for some committees like Appropriations and Budget, the similarity of acceptance ratios could suggest that 1) personal lobbying and advertising could help, or 2) some naive players could benefit from strategic players substituting away. For example, although fewer freshmen Senate Democrats request Prestige committees, the similarity between being assigned Prestige committee requests for freshmen (0.31) and non-freshmen (0.32) might suggest externalities of strategic agents on naive agents. However, since this is by no means clear proof for the prediction, I do not wish to overstate this result, and merely highlight the possibility.

Furthermore, Table 9 shows that the success rate at each preference rank of request for freshmen and non-freshmen. It is possible that the low success ratio for freshmen at request #1 but higher ratios for lower requests may suggest non-strategic behavior, though this is highly speculative and hard to empirically establish.

FIGURE 1. This figure shows the fraction of committees in each of the four categories (Constituency, Policy, Prestige, and Admin) which freshmen Senate Democrats (left column) and non-freshmen Senate Democrats (right column) from 81st to 103rd Congresses ranked as their 1st, 2nd, and 3rd choice. (Data: Frisch and Kelly (2006))

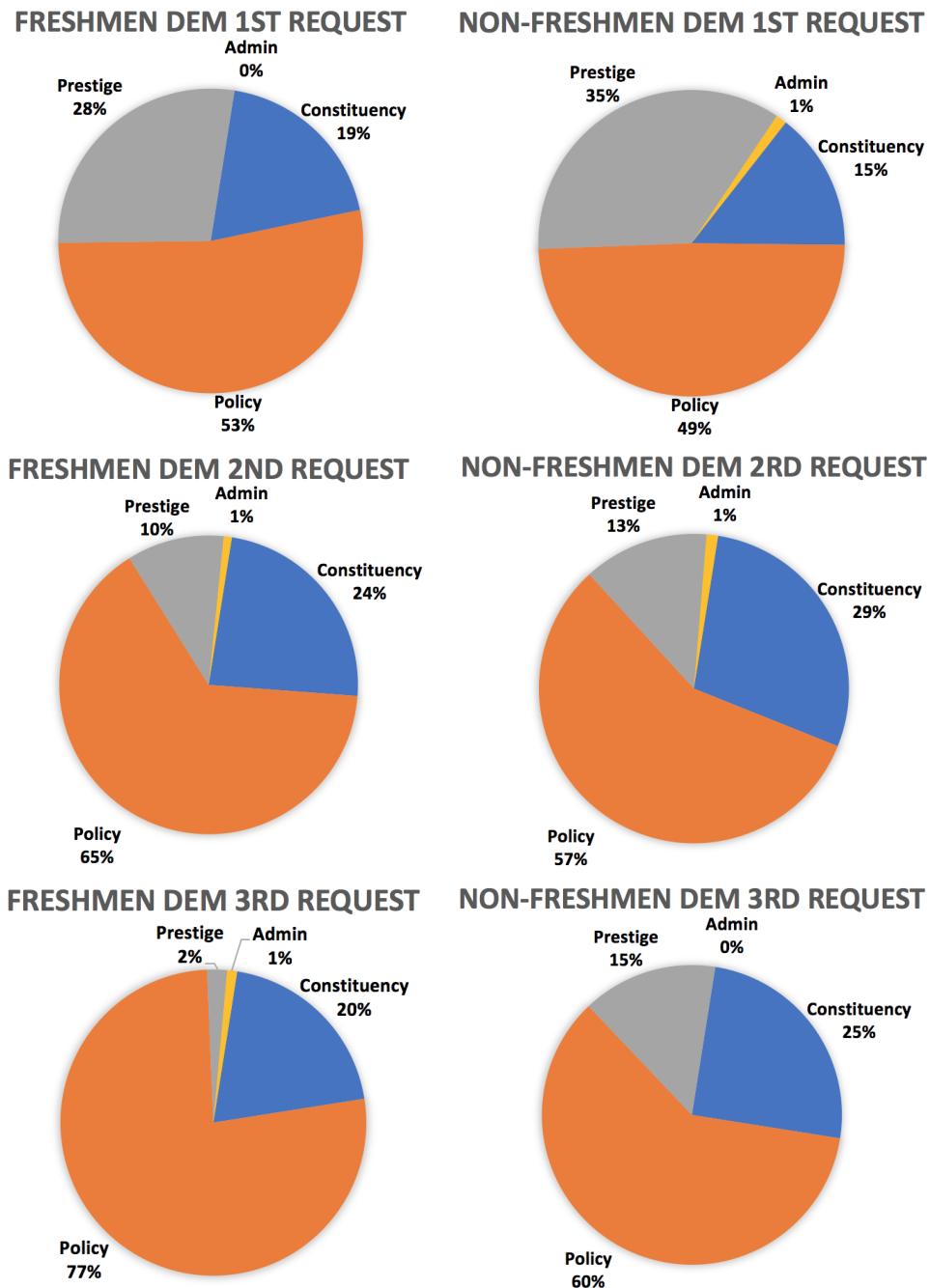


TABLE 5. Average Chamber Seniority at Request for Senate Democrats (81st to 103rd Congress) Data: Frisch and Kelly (2006)

Committee Type	Committee Name	Avg Chamb Sen when Request
Constituency	Small Business	3.21
Constituency	Veterans' Affairs	1.50
Constituency	Agriculture, Nutrition, & Forestry	2.06
Constituency	Armed Services	3.78
Constituency	Energy & Natural Resources	2.35
		Constituency Avg: 2.58
Policy	Banking, Housing, & Urban Affairs	2.05
Policy	Commerce, Science, & Transport	2.68
Policy	Environment & Public Works	2.08
Policy	Finance	3.25
Policy	Foreign Relations	5.29
Policy	Government Affairs	2.35
Policy	Judiciary	3.14
Policy	Labor & Human Resources	2.26
		Policy Avg: 2.89
Prestige	Appropriations	4.3
Prestige	Budget	4.31
Prestige	Rules & Admin	3.04
		Prestige Avg: 3.88
Admin	District of Columbia	2.33
Admin	Post Office	3.50
		Admin Avg: 2.91

FIGURE 2. This figure shows the fraction of committees in each of the four categories (Constituency, Policy, Prestige, and Admin) which freshmen Senate Republicans (left) and non-freshmen Senate Republicans (right) for 91st and 103rd Congresses ranked as their 1st choice. I only compare 1st choice due to limited data (76% Republican non-freshmen rank only 1 choice in data sample), see Appendix L. (Data: Dole Archives)

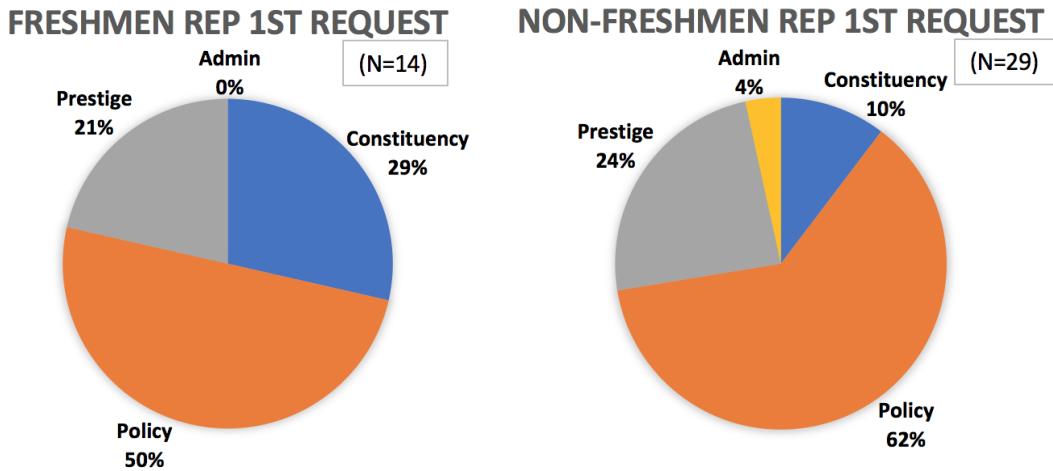


TABLE 6. Average Chamber Seniority (in years) when appointment is made to committee by party, difference by party, and difference in standard deviations for 104th to 114th Congress (Data: Stewart and Woon)

	Republicans		Democrats		Diff in Means	t-stat	Diff in Std Dev
	Seniority	N	Seniority	N			
Small Business	2.03 (3.05)	31	1.56 (1.34)	18	0.48	0.75	1.71
Veterans Aff	2.27 (2.43)	22	2.14 (1.51)	14	0.13	0.20	0.92
Agriculture	3.24 (3.80)	25	1.84 (2.43)	19	1.40	1.48	1.37
Armed Services	1.83 (1.11)	36	2.56 (2.85)	27	-0.72	-1.25	-1.74
Energy, Nat Res	3.34 (4.74)	35	3.04 (3.83)	27	0.31	0.28	0.91
Banking	3.31 (4.58)	32	2.57 (4.18)	23	0.75	0.63	0.40
Comm,Sci,Trans	1.71 (1.29)	34	3.44 (4.16)	27	-1.74**	-2.09	-2.87
Environ	3.80 (5.03)	30	1.00 (0.00)	14	2.80***	3.05	5.03
Finance	8.21 (3.90)	33	7.39 (4.31)	23	0.82	0.73	-0.41
For Relations	2.94 (4.57)	36	3.40 (4.43)	20	-0.46	-0.36	0.14
Govt Affairs	7.93 (7.59)	15	3.00 (6.00)	9	4.93*	1.76	1.59
Home Sec	5.13 (7.19)	15	3.15 (4.04)	13	1.98	0.91	3.15
Judiciary	3.80 (4.87)	20	2.13 (2.85)	15	1.67	1.27	2.02
Labor	5.57 (5.26)	7	-	-	-	-	-
Health	7.00 (7.69)	24	7.09 (9.49)	23	-0.09	-0.03	-1.80
Appropriations	4.45 (3.20)	29	4.37 (1.50)	19	0.08	0.12	1.70
Budget	3.72 (3.31)	25	4.05 (9.74)	19	-0.33	-0.14	-6.43
Rules	7.11 (5.80)	18	8.73 (9.85)	15	-1.62	-0.56	-4.05

TABLE 7. Average Chamber Seniority (in years) of Senate Republicans on each Committee given all members, excluding most senior, excluding 2 most senior, and excluding three most senior by rank on committee. (Data: Stewart and Woon)

	All Members	Excl. most senior	Excl. 2 most senior	Excl. 3 most senior
Small Business	6.32	Small Business	5.67	Small Business
For Relations	7.57	For Relations	5.61	For Relations
Labor	7.58	Banking	6.42	Banking
Banking	7.59	Labor	6.99	Armed Services
Comm,Sci,Trans	8.77	Armed Services	7.37	Comm,Sci,Trans
Armed Services	8.91	Comm,Sci,Trans	8.06	Energy, Nat Res
Energy, Nat Res	9.09	Energy, Nat Res	8.10	Labor
Environ	9.28	Environ	8.74	Environ
Health	9.89	Budget	9.62	Budget
Budget	10.47	Health	9.86	Judiciary
Veterans Aff	11.04	Veterans Aff	10.69	Veterans Aff
Home Sec	11.45	Home Sec	11.77	Health
Agriculture	13.27	Judiciary	12.55	Home Sec
Judiciary	13.88	Agriculture	12.91	Agriculture
Govt Affairs	14.43	Appropriations	13.66	Appropriations
Appropriations	14.72	Finance	14.04	Finance
Finance	14.94	Govt Affairs	15.09	Govt Affairs
Rules	16.56	Rules	16.73	Rules

TABLE 8. Request Success Ratios for Senate Democrats by Committee across 81st to 103rd Congresses (Data: Frisch and Kelly (2006))

Type	CommName	#Accept	#Request	Freshmen Ratio	#Accept	#Request	Non-Freshmen Ratio
Const	Small Business	0	16	0.00	1	18	0.06
Const	Veterans' Affairs	2	4	0.50	1	2	0.50
Const	Agriculture	15	26	0.58	6	10	0.60
Const	Armed Services	12	34	0.35	13	36	0.36
Const	Energy & Nat Res	19	32	0.59	10	16	0.63
				Avg: 0.40			Avg: 0.43
Pol	Banking	17	34	0.50	4	10	0.40
Pol	Comm, Sci, & Trans	27	71	0.38	17	36	0.47
Pol	Environ & Pub Wks	16	40	0.40	7	22	0.32
Pol	Finance	8	37	0.22	17	43	0.40
Pol	Foreign Relations	6	36	0.17	31	74	0.42
Pol	Government Affairs	7	20	0.35	1	6	0.17
Pol	Judiciary	12	31	0.39	11	25	0.44
Pol	Labor & Hum Res	15	30	0.50	3	13	0.23
				Avg: 0.36			Avg: 0.36
Pres	Appropriations	10	47	0.21	27	91	0.30
Pres	Budget	3	7	0.43	4	9	0.44
Pres	Rules & Admin	3	10	0.30	3	14	0.21
				Avg: 0.31			Avg: 0.32
Admin	District of Columbia	0	2	0.00	0	1	0.00
Admin	Post Office	1	5	0.20	3	3	1.00
				Avg: 0.10			Avg: 0.50

TABLE 9. Request Success Ratios for Senate Democrats by Requested Rank across 81st to 103rd Congresses (Data: Frisch and Kelly (2006))

	Freshmen			Non-Freshmen		
	#Accepted	# Requested	Ratio	#Accepted	#Requested	Ratio
Request #1	46	130	0.35	113	260	0.43
Request #2	52	117	0.44	24	86	0.28
Request #3	34	96	0.35	8	49	0.16
Request #4	28	68	0.41	7	20	0.35

APPENDIX B. Empirical Analysis with Structural Assumptions

Combining the knowledge of the matching mechanisms with reduced form structural assumptions enables first order approximations of politicians' utility values over different committee assignments. Consider the Republican seniority-wise TTC/YRMH-IGYT mechanism, and let the utility of politician i for committee c be given by $u_{ic} = \delta_c + \epsilon_i$, with ϵ_i distributed with mean 0 and variance σ_ϵ^2 . Hence, under this reduced form model of utility, there is a common value δ_c which all politicians agree upon, based on legislation, pork, oversight, gate-keeping power, and campaign donations and which can be reaped as a result of being assigned to committee c . Moreover, each politician i has an idiosyncratic shock ϵ_i , which could be due to his own personal characteristics or the characteristics of his constituency or the electoral competition he faces.

Assuming this simple functional form, implies that the mean μ and variance σ of chamber seniority at appointment (or minimum chamber seniority at appointment μ_{min}, σ_{min}) to the committee identifies δ_c and σ_ϵ^2 , in units of chamber seniority in years, for Senate Republicans. As seen from Tables 10 and 11, Prestige committees such as Rules and Appropriations and Policy committees such as Finance and Labor have a high μ and μ_{min} , suggesting relatively high common value components. On the other hand, Constituency committees such as Small Business and Armed Services along with Policy committees such as Commerce, Science, and Technology, Banking, and Foreign Relations have relatively low common value as reflected by low μ and μ_{min} .

Moreover, Policy committees such as Labor, Environment, and Judiciary seem to have higher relative idiosyncratic values on an individual level given the high σ and σ_{min} . On the other hand, a mix of Policy and Constituency committees like Foreign Relations, Commerce, Science, and Transportation, Banking, Small Business, and Armed Services exhibit small σ and σ_{min} suggesting that the idiosyncratic components are relatively small.

Considering the ratios of the mean to standard deviation $\frac{\mu}{\sigma}$ and $\frac{\mu_{min}}{\sigma_{min}}$, Policy and Prestige committees such as Finance and Appropriations have small idiosyncratic values (standard deviations) relative to common value (mean), whereas, Policy committees like Environment and Constituency committees such as Energy and Natural Resources have large idiosyncratic values relative to common values.

This illustrates how knowledge of the particular mechanism used, along with reduced form structural assumptions, can go a long way in quantifying certain parameters. This very exercise cannot be applied to the Democratic Boston mechanism with tie-breaking by the Committee on Committees, and crucially relies on the seniority-wise TTC/YRMH-IGYT Republican mechanism. Moreover, these results align with reasonable priors regarding politicians' values across committees: 1) powerful Policy and Prestige committees like Finance and Appropriations have large common values all politicians agree upon and relatively small idiosyncratic differences, 2) Constituency committees such as Small Business and Armed Services depend on particulars of the politician's constituency characteristics and hence have lower common value, and 3) Policy committees such as Environment and Labor have relatively large idiosyncratic values, depending on the politician's own views and beliefs and that of his/her constituency, which dominate the common value component.

TABLE 10. Republican μ , σ , and $\frac{\mu}{\sigma}$ of yearly chamber seniority at time of appointment.

Committee Name	μ	Committee Name	σ	Committee Name	$\frac{\mu}{\sigma}$
Comm, Sci & Trans	1.71	Armed Services	1.11	Foreign Relations	0.64
Armed Services	1.83	Comm, Sci & Trans	1.29	Small Business	0.67
Small Business	2.03	Veterans' Affairs	2.43	Energy & Nat Res	0.71
Veterans' Affairs	2.27	Small Business	3.05	Banking	0.72
Foreign Relations	2.94	Appropriations	3.20	Environment & Pub Wks	0.76
Agriculture	3.24	Budget	3.31	Judiciary	0.78
Banking	3.31	Agriculture	3.80	Agriculture	0.85
Energy & Nat Res	3.34	Finance	3.90	Govt Affairs	0.88
Budget	3.72	Foreign Relations	4.57	Veterans' Affairs	0.93
Environment & Pub Wks	3.8	Banking	4.57	Labor & Human Res	0.93
Judiciary	3.80	Energy & Nat Res	4.74	Budget	1.12
Appropriations	4.45	Judiciary	4.87	Rules	1.23
Govt Affairs	6.53	Environment & Pub Wks	5.03	Comm, Sci & Trans	1.32
Labor & Human Res	6.68	Rules	5.80	Appropriations	1.39
Rules	7.11	Labor & Human Res	7.14	Armed Services	1.65
Finance	8.21	Govt Affairs	7.39	Finance	2.10

TABLE 11. Republican μ_{min} , σ_{min} , and $\frac{\mu_{min}}{\sigma_{min}}$ of yearly minimum seniority at appointment.

Committee Name	μ_{min}	Committee Name	σ_{min}	Committee Name	$\frac{\mu_{min}}{\sigma_{min}}$
Foreign Relations	1.00	Foreign Relations	0.00	Environment & Pub Wks	0.713
Small Business	1.00	Small Business	0.00	Labor & Human Res	0.74
Banking	1.20	Banking	0.63	Judiciary	0.84
Comm, Sci & Trans	1.22	Comm, Sci & Trans	0.67	Rules	1.06
Armed Services	1.40	Armed Services	0.84	Energy & Nat Res	1.11
Energy & Nat Res	1.40	Agriculture	0.93	Veterans' Affairs	1.18
Agriculture	1.50	Energy & Nat Res	1.26	Budget	1.28
Veterans' Affairs	1.75	Govt Affairs	1.45	Govt Affairs	1.45
Environment & Pub Wks	1.89	Veterans' Affairs	1.49	Agriculture	1.62
Govt Affairs	2.11	Finance	1.70	Armed Services	1.66
Budget	2.43	Budget	1.90	Comm, Sci & Trans	1.83
Judiciary	2.75	Appropriations	2.63	Banking	1.90
Rules	4.25	Environment & Pub Wks	2.67	Appropriations	2.05
Labor & Human Res	5.00	Judiciary	3.28	Finance	3.53
Appropriations	5.40	Rules	3.99	Foreign Relations	∞
Finance	6.00	Labor & Human Res	6.73	Small Business	∞

APPENDIX C. ARCHIVAL DATA CORROBORATION.

This appendix provides novel archival data corroboration using quotes from correspondence between senators and party leaders involving the committee assignment procedures. This archival correspondence comes from the Robert and Elizabeth Dole Archive and Special Collections (University of Kansas).

Archival Exhibit #1: *Committee on Committees elicits preferences*

Republican Committee of Committee Chairman writes letter to Senator Bob Dole (September 12, 1969) requesting his rank order lists (if any), "The Republican Committee on Committees is once again faced with the task of recommending Minority Committee appointments to existing vacancies on Senate standing committees to the Republican Conference. ... Your Committee would like to meet on Monday next to resolve these appointments. Therefore, if your present assignments are not satisfactory will you please inform Mark Trice by 10:00 A.M. next Monday, September 15. If word is not received by that time your Committee will assume that your present committee assignments are satisfactory."

(Robert J. Dole Senate Papers-Personal/Political Files, 1969-1996, Box 376, Folder 11, Dole Archives).

Archival Exhibit #2: *example of freshman Senator reporting preferences*

As an example of freshman preference rank order request: Senator-elect Hank Brown writes to the Republican Secretary for the Minority, Howard O. Greene Jr., on November 6, 1990, "Dear Mr. Greene: If I am elected to the Senate as anticipated, this is to request consideration by the Committee on Committees of my assignment to the following standing committees, in order of preference: 1) Committee on Appropriations, 2) Committee on Energy and Natural Resources. If I am unable to get assigned to either or both of the above committees, I would ask consideration by the Committee on Committees of my assignment, in order of preference, to the following committees: 1) Committee on the Judiciary, 2) Committee on Armed Services."

(Robert J. Dole Republican Leadership Collection, 1985-1996, Series: Personal/Political 1980-1996, Box 467, Folder 10, Dole Archives)

Archival Exhibit #3: *example of an incumbent's request*

For example of incumbent committee request: Senator John C. Danforth writes to Republican Secretary for the Minority Howard O. Greene Jr., on December 17, 1992, "I want to express my willingness to give up my seat on the Intelligence Committee in exchange for a seat on the Committee on Environment and Public Works. I have no desire to be transferred from my first two committee assignments, the Committee on Finance and the Committee on Commerce, Science, and Transportation."

(Robert J. Dole Republican Leadership Collection, 1985-1996, Series: Personal/Political 1980-1996, Box 471, Folder 20, Dole Archives)

Archival Exhibit #4: *dynamic Republican mechanism & preferences elicitation*

Republican senators often communicate the wish to be consulted during the time of their seniority, instead of (or along with) providing a complete preference rank order: Senator Pete V. Domenici writes to Republican Leader Robert Dole, on November 14, 1990, "I would like to be consulted when the Committee on Committees begins to assign third A Committees to senators with my seniority. At that time I would like to be advised of the various options so that I can consider them all. In particular, I am interested in the Commerce Committee, the Banking Committee, and the Judiciary Committee."

(Robert J. Dole Republican Leadership Collection, 1985-1996, Series: Personal/Political 1980-1996, Box 467, Folder 10, Dole Archives)

Archival Exhibit #5: *understanding strategyproofness of Republican mechanism*

Comments made by Senators when requesting preferences also anecdotally suggests strategyproofness of the Republican mechanism: Senator-elect Judd Gregg writes to Senate Minority Leader Robert Dole, on November 12, 1992, "1. My first preference would be for the Finance Committee. I recognize that it is not available but I thought it appropriate to note it anyway. 2. My second preference is the Appropriations Committee. Obviously, I recognize that other members are also interested in this Committee; however, should an opening by available, I would appreciate it. 3. The third preference is for the Budget Committee."

(Robert J. Dole Republican Leadership Collection, 1985-1996, Series: Personal/Political 1980-1996, Box 471, Folder 20, Dole Archives)

Archival Exhibit #6: *party leader's lack of influence in assignment process*

For an example of lacking personal influence in the assignment process, in response to Senator Paul Coverdell requests for Senate Republican Leader Robert Dole to advance his committee preferences, Dole responds, "As we discussed prior to the November 3, elections, I want to do everything possible to assist in your efforts to become a Member of the Senate Agriculture Committee. ... As you know, all committee assignments are based on seniority, and are the responsibility of the Committee on Committees. While I obviously can make no firm commitments, I am optimistic... In any event, you do have my firm commitment that I will communicate your wishes to the Chairman and Members of the Committee on Committees."

(Robert J. Dole Republican Leadership Collection, 1985-1996, Series: Personal/Political 1980-1996, Box 471, Folder 20, Dole Archives)

APPENDIX D. DISCRETE MODEL FOR 2- AND n -PREFERENCE RANK ORDERS WITH PROOFS.

D.1. 2-Preference Rank Order Model.

Continuing from where we left off with the 2-Preference rank order model in the text, Section 3.4.2. Consider the following maximization problem:

$$\max_{(x_1, x_2)} p_{x_1} u_{x_1} + (1 - p_{x_1}) p_{x_2} u_{x_2} + (1 - p_{x_1})(1 - p_{x_2})W$$

Assume (x_1, x_2) is optimal for $W = 0$, without loss of generality. This gives condition $(1)_{(z_1, z_2)}$:

$$p_{x_1} u_{x_1} + (1 - p_{x_1}) p_{x_2} u_{x_2} \geq p_{z_1} u_{z_1} + (1 - p_{z_1}) p_{z_2} u_{z_2}$$

Then condition $(1)_{(x_1, z_2)}$:

$$p_{x_1} u_{x_1} + (1 - p_{x_1}) p_{x_2} u_{x_2} \geq p_{x_1} u_{x_1} + (1 - p_{x_1}) p_{z_2} u_{z_2}$$

simplifies to condition $(2)_{z_2}$

$$p_{x_2} u_{x_2} \geq p_{z_2} u_{z_2}$$

Assume (y_1, y_2) is optimal for $W > 0$. This gives condition $(3)_{(z_1, z_2)}$:

$$p_{y_1} u_{y_1} + (1 - p_{y_1}) p_{y_2} u_{y_2} + (1 - p_{y_1})(1 - p_{y_2})W \geq p_{z_1} u_{z_1} + (1 - p_{z_1}) p_{z_2} u_{z_2} + (1 - p_{z_1})(1 - p_{z_2})W$$

I want to prove that $y_i \geq x_i$ for all i . As a technical note, the objective function is not supermodular so standard comparative static results using Topkis Theorem cannot be used. Moreover, the set up is more general than simultaneous search model of Chade and Smith (2006) because the probability of success p_i of a choice, depends on the rank i of the choice. This highlights the key difference between considering Boston mechanism, as opposed to Gale-Shapley Deferred Acceptance. Not possible in their setup, my model captures the essence of strategic behavior under the Boston mechanism, which entails a possible incentive to hedge against ranking popular committees or committees with lower chances of getting in, by instead ranking committees which might be slightly less preferred but have a higher likelihood of being assigned.

First, I prove that $y_2 \geq x_2$.

Dividing condition $(3)_{(y_1, x_2)}$ by $(1 - p_{y_1})$:

$$p_{y_2} u_{y_2} + (1 - p_{y_2})W \geq p_{x_2} u_{x_2} + (1 - p_{x_2})W$$

which is equivalent to

$$(p_{y_2} - p_{x_2})W \leq p_{y_2} u_{y_2} - p_{x_2} u_{x_2} \leq_{(2)_{y_2}} 0$$

where the second inequality follows from condition $(2)_{y_2}$. However, this implies that $p_{y_2} \leq p_{x_2}$ as $W > 0$, which implies that $y_2 \geq x_2$ as p_2 is decreasing by assumption. \blacksquare .

Next, I prove that $y_1 \geq x_1$.

Condition $(3)_{(x_1, y_2)}$ gives

$$p_{y_1} u_{y_1} - p_{x_1} u_{x_1} \geq (1 - p_{x_1}) p_{y_2} u_{y_2} - (1 - p_{y_1}) p_{y_2} u_{y_2} + (1 - p_{x_1})(1 - p_{y_2})W - (1 - p_{y_1})(1 - p_{y_2})W$$

which simplifies to

$$p_{y_1} u_{y_1} - p_{x_1} u_{x_1} \geq (p_{y_1} - p_{x_1}) \left(p_{y_2} u_{y_2} + (1 - p_{y_2})W \right)$$

Since $(1)_{(y_1, x_2)}$

$$p_{x_1}u_{x_1} + (1 - p_{x_1})p_{x_2}u_{x_2} \geq p_{y_1}u_{y_1} + (1 - p_{y_1})p_{x_2}u_{x_2}$$

simplifies to condition $(1)_{(y_1, x_2)}$

$$(p_{y_1} - p_{x_1})p_{x_2}u_{x_2} \geq p_{y_1}u_{y_1} - p_{x_1}u_{x_1}$$

Thus, combining condition $(1)_{(y_1, x_2)}$ and condition $(3)_{(x_1, y_2)}$ gives

$$(p_{y_1} - p_{x_1})p_{x_2}u_{x_2} \geq p_{y_1}u_{y_1} - p_{x_1}u_{x_1} \geq (p_{y_1} - p_{x_1})\left(p_{y_2}u_{y_2} + (1 - p_{y_2})W\right)$$

Now suppose for contradiction that $y_1 < x_1$. Then by assumption $p_{y_1} > p_{x_1}$. Thus dividing by $(p_{y_1} - p_{x_1})$ gives condition (4)

$$p_{x_2}u_{x_2} \geq p_{y_2}u_{y_2} + (1 - p_{y_2})W$$

Then dividing condition $(3)_{(y_1, x_2)}$ by $(1 - p_{y_1})$:

$$p_{y_2}u_{y_2} + (1 - p_{y_2})W \geq p_{x_2}u_{x_2} + (1 - p_{x_2})W \geq_{(4)} p_{y_2}u_{y_2} + (1 - p_{y_2})W + (1 - p_{x_2})W$$

where the second inequality follows from applying condition (4) to the first term. Now canceling terms gives

$$0 \geq (1 - p_{x_2})W$$

which is a contradiction since $p_{x_2} < 1$ and $W > 0$. ■

Notice this proof gives two results. First, an existing tenant with a guarantee of committee at least as good as his current assignment \underline{x} , is more truthful as he ranks weakly higher x_i which are more in line with his true ordinal preference which is increase in x . Second, comparing $W > 0$ with $W = 0$ was without loss of generality, and the result holds for any affine transformation of utility, hence, for any $u(y) > u(\underline{x})$ where $y > \underline{x}$, it is optimal for $y_i \geq x_i$ for all i . Thus, this gives the additional result that an existing tenant is more truthful the better his guaranteed current assignment.

D.2. n -Preference Rank Order Model.

In this section, I generalize the 2-preference model from Section 4 to n -preference rank orders, to justify Prediction 1.

Suppose the politician chooses the optimal n -committee rank order preference $(x_1, \dots, x_n) \in X$, where X is a discrete and finite set of committees. Let $u(x) : X \rightarrow \mathbb{R}$ be the utility the agent gets from being assigned committee x . For all $x > x'$, $u(x) > u(x')$. Let $p_i(x_i)$ denote the probability of being allotted committee x_i ranked in the i th place. The most interesting case when for all $x_i > x'_i$, $p_i(x_i) < p_i(x'_i)$ is assumed. Hence, the more you like the committee, the harder it is to get into. For example, prestige committees like Appropriations which might be valued highly by everyone would face always tough competition. An existing tenant has a guaranteed committee \underline{x} which guarantees him a minimum payoff $u(\underline{x}) > 0$. Notice here that the true ordinal preference is higher for larger x since u is increasing. However, given that the Boston mechanism is not strategyproof, the agent must rank the committee that gives him the highest payoff conditional on being allotted that committee.

To simplify notation, let us denote W for $u(\underline{x})$, u_x for $u(x)$, p_{x_i} for $p_i(x_i)$, and p_{y_i} for $p_i(y_i)$. Notice that writing p_{x_i} involves a slight abuse of notation in that x_i 's subscript i denotes the function p_i .

The agent's optimization problem is

$$(1) \quad \max_{(x_1, \dots, x_n)} \sum_{i=1}^n \left(\rho_i p_{x_i} u_{x_i} \right) + \prod_{i=1}^n (1 - p_{x_i}) W$$

where $\rho_i = \prod_{j=1}^{i-1} (1 - p_{x_j})$. The usual convention that empty products are 1 and empty sums are 0 is used.

Assume (x_1, \dots, x_n) is optimal for $W = 0$ and (y_1, \dots, y_n) is optimal for $W > 0$.

First, I show that $y_n \geq x_n$.

Consider **condition (3)** $_{(y_1, \dots, y_{n-1}, x_n)}$, cancel the first $n - 1$ terms, and divide by the factor $(1 - p_{y_1}) \dots (1 - p_{y_{n-1}})$ which gives

$$p_{y_n} u_{y_n} + (1 - p_{y_n}) W \geq p_{x_n} u_{x_n} + (1 - p_{x_n}) W$$

which is equivalent to

$$(p_{y_n} - p_{x_n}) W \leq p_{y_n} u_{y_n} - p_{x_n} u_{x_n} \leq_{(2)y_n} 0$$

where the second inequality comes from simplifying **condition (1)** $_{(x_1, \dots, x_{n-1}, z_n)}$ which gives **condition (2) $_{z_n}$** : $p_{x_n} u_{x_n} \geq p_{z_n} u_{z_n}$.

However, this implies $p_{y_n} \leq p_{x_n}$ as $W > 0$ which implies $y_n \geq x_n$ as p_n is decreasing by assumption. ■.

Next, I show that $y_k \geq x_k$ for all $k < n$.

Condition (3) $_{(y_1, \dots, y_{k-1}, x_k, y_{k+1}, \dots, y_n)}$, since the first $k - 1$ terms cancel, and then dividing by factor $(1 - p_{y_1}) \dots (1 - p_{k-1})$ gives

$$\begin{aligned} & p_{y_k} u_{y_k} - p_{x_k} u_{x_k} \\ & \geq (p_{y_k} - p_{x_k}) \left(p_{y_{k+1}} u_{y_{k+1}} + \dots + (1 - p_{y_{k+1}}) \dots (1 - p_{y_{n-1}}) p_{y_n} u_{y_n} + (1 - p_{y_{k+1}}) \dots (1 - p_{y_n}) W \right) \end{aligned}$$

Consider **condition (1)** $_{(x_1, \dots, x_{k-1}, y_k, x_{k+1}, \dots, x_n)}$, since first $k - 1$ terms cancel and then dividing by factor $(1 - p_{x_1}) \dots (1 - p_{x_{k-1}})$ gives

$$p_{y_k} u_{y_k} - p_{x_k} u_{x_k} \leq (p_{y_k} - p_{x_k}) \left(p_{x_{k+1}} u_{x_{k+1}} + \dots + (1 - p_{x_{k+1}}) \dots (1 - p_{x_{n-1}}) p_{x_n} u_{x_n} \right)$$

Thus, combining the two gives

$$\begin{aligned} & (p_{y_k} - p_{x_k}) \left(p_{x_{k+1}} u_{x_{k+1}} + \dots + (1 - p_{x_{k+1}}) \dots (1 - p_{x_{n-1}}) p_{x_n} u_{x_n} \right) \\ & \geq (p_{y_k} - p_{x_k}) \left(p_{y_{k+1}} u_{y_{k+1}} + \dots + (1 - p_{y_{k+1}}) \dots (1 - p_{y_{n-1}}) p_{y_n} u_{y_n} + (1 - p_{y_{k+1}}) \dots (1 - p_{y_n}) W \right) \end{aligned}$$

Now suppose for contradiction that $y_k < x_k$. Then by assumption $p_{y_k} > p_{x_k}$. Thus dividing by $(p_{y_k} - p_{x_k})$ gives **condition (4)**

$$\begin{aligned} & p_{x_{k+1}} u_{x_{k+1}} + \dots + (1 - p_{x_{k+1}}) \dots (1 - p_{x_{n-1}}) p_{x_n} u_{x_n} \\ & \geq p_{y_{k+1}} u_{y_{k+1}} + \dots + (1 - p_{y_{k+1}}) \dots (1 - p_{y_{n-1}}) p_{y_n} u_{y_n} + (1 - p_{y_{k+1}}) \dots (1 - p_{y_n}) W \end{aligned}$$

Now **condition (3)** $_{(y_1, \dots, y_{k-1}, y_k, x_{k+1}, \dots, x_n)}$, since the first k terms cancel, and then dividing by factor $(1 - p_{y_1}) \dots (1 - p_{y_k})$ gives

$$\begin{aligned} & p_{y_{k+1}} u_{y_{k+1}} + \dots + (1 - p_{y_{k+1}}) \dots (1 - p_{y_{n-1}}) p_{y_n} u_{y_n} + (1 - p_{y_{k+1}}) \dots (1 - p_{y_n}) W \\ & \geq p_{x_{k+1}} u_{x_{k+1}} + \dots + (1 - p_{x_{k+1}}) \dots (1 - p_{x_{n-1}}) p_{x_n} u_{x_n} + (1 - p_{x_{k+1}}) \dots (1 - p_{x_n}) W \end{aligned}$$

Applying **condition (4)** to all but the last term, gives

$$\begin{aligned}
 & p_{y_{k+1}} u_{y_{k+1}} + \dots + (1 - p_{y_{k+1}}) \dots (1 - p_{y_{n-1}}) p_{y_n} u_{y_n} + (1 - p_{y_{k+1}}) \dots (1 - p_{y_n}) W \\
 & \geq p_{x_{k+1}} u_{x_{k+1}} + \dots + (1 - p_{x_{k+1}}) \dots (1 - p_{x_{n-1}}) p_{x_n} u_{x_n} + (1 - p_{x_{k+1}}) \dots (1 - p_{x_n}) W \\
 & \stackrel{(4)}{\geq} p_{y_{k+1}} u_{y_{k+1}} + \dots + (1 - p_{y_{k+1}}) \dots (1 - p_{y_{n-1}}) p_{y_n} u_{y_n} \\
 & \quad + (1 - p_{y_{k+1}}) \dots (1 - p_{y_n}) W + (1 - p_{x_{k+1}}) \dots (1 - p_{x_n}) W
 \end{aligned}$$

Now canceling terms gives

$$0 \geq (1 - p_{x_{k+1}}) \dots (1 - p_{x_n}) W$$

which is a contradiction since $p_{x_{k+1}}, \dots, p_{x_n} < 1$ and $W > 0$. ■

Notice this proof derived two results. First, an existing tenant with a guarantee of committee at least as good as his current assignment \underline{x} , is more truthful as he ranks weakly higher x_i which are more in line with his true ordinal preference which is increase in x (Prediction 1(b)). Second, comparing $W > 0$ with $W = 0$ was without loss of generality, and the result holds for any affine transformation of utility, hence, for any $u(\underline{y}) > u(\underline{x})$ where $\underline{y} > \underline{x}$, $y_i \geq x_i$ for all i . Thus, an existing tenant is more truthful the better his guaranteed current assignment (Prediction 1(c)).

APPENDIX E. Official Rules & Self-Imposed Party Constraints

The detailed information of the rules and party-imposed constraints has been gathered from Schneider (2003, 2014)

Rules and constraints on assignments in Senate

Rule XXV:	
	Each senator shall serve on two, and no more than two class A committees.
	Each senator may serve on at most one class B committee.
	Each senator may serve on one or more class C committees.
Party Rules:	
	Democrats prohibited from serving on more than one committees amongst Appropriations, Armed Services, and Finance.
	Republicans prohibited from serving on more than one committees amongst Appropriations, Armed Services, Finance, and Foreign Relations.
	Republicans from same state are prohibited from serving on the same committee (by Republican Conference Rule)
	Democrats from same state are prohibited from serving on the same committee (by tradition)
	Intelligence Committee should include two members from Appropriations, Armed Services, Judiciary, and Foreign Relations.
	Exceptions to the rules ("waivers" or "grandfathers") are recommended by pertinent party conference and must be officially authorized through Senate approval

APPENDIX F. Stickiness in Committee Assignments Across Parties

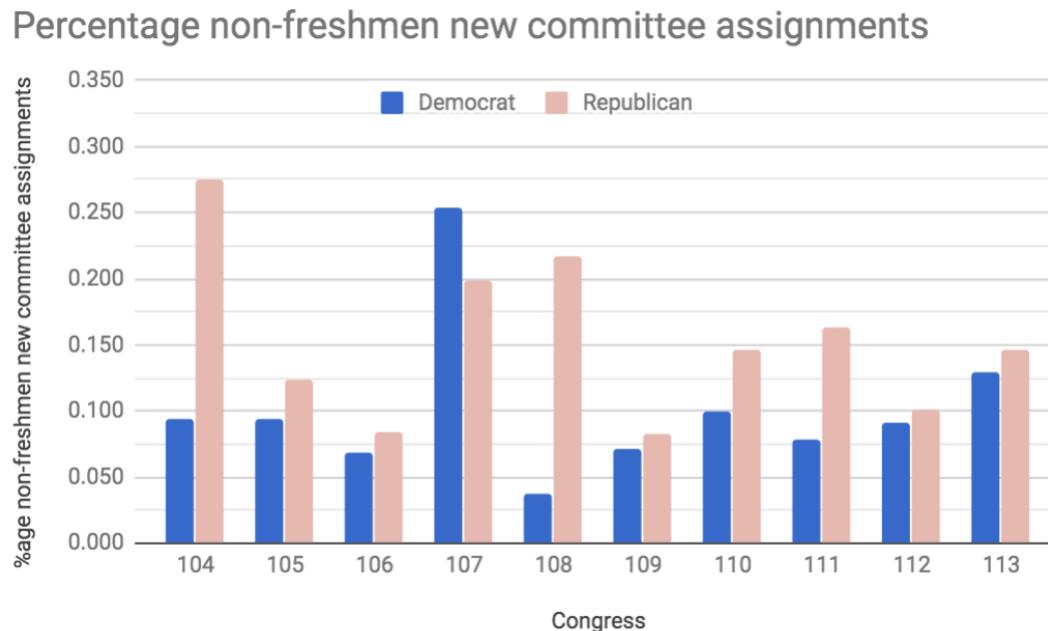
Restricting attention to non-freshmen (i.e., existing tenants), Republicans change committees 5.2% (t-statistic of 1.92) more often than Democrats on average. This analysis in Table 12 and Figure 3 uses committee assignment data from 104th-113th Congress and compares the number of new committee assignments in each Congress relative to the number of committee assignments for non-freshmen.

However, it is hard to empirically distinguish amongst many potential explanations: i) property rights norm stronger for Republicans than Democrats, ii) if both parties have squatting rights (weak version of property rights norm), then chances of getting in with seniority for Republicans are more than Democrats, iii) Democrats are more efficient in making match via tie-breaking so that more people get more preferred choices (Boston mechanism does favor higher ranks), iv) difference in queuing benefits across party (e.g., formal rules by Republicans limiting the terms a member can serve in leadership positions such as committee chair/ranking member (Schneider 2014)), and v) Republican preferences are more volatile over time than Democrats.

TABLE 12. Number of new committee assignments for non-freshmen for each Congress across parties (Data: Stewart and Woon)

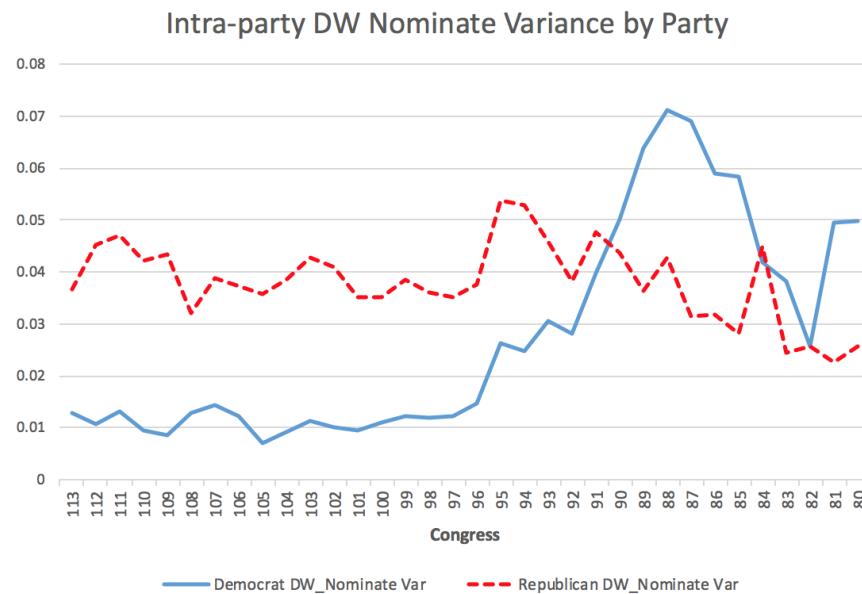
Congress	# new comm assignments non freshmen		# total comm assignments non freshmen	
	Democrat	Republican	Democrat	Republican
104	16	53	170	193
105	14	23	150	187
106	11	17	159	202
107	46	39	181	197
108	7	41	189	189
109	12	16	168	194
110	17	29	171	198
111	13	27	165	166
112	19	14	210	138
113	26	24	201	164

FIGURE 3. Percentage of committee assignments for non-freshmen which are new. (Data: Stewart and Woon)



APPENDIX G. Party Discipline & Differences in Intra-party Ideological Heterogeneity

FIGURE 4. Variance in with-in party DW Nominate scores by party
 (Data: <https://legacy.voteview.com/dwnomin.htm>)



Consistent with the lack of party disciplining ability in the formulaic committee assignment procedure used by the Republicans, as compared to the Boston mechanism with the party-leadership-dominated Committee on Committees tie-breaking procedure which allows for the possibility of party discipline, from the 90th Congress onwards, Republican within party ideological dispersion is higher than that of the Democrats. Marked differences in the party's ability to impose party discipline via committee assignments can explain this difference, however, other differences when comparing across parties can not be ruled out: different constituencies' ideological preferences and policy weights, and differing electoral conditions across Republican and Democratic states.

Note that the period from 1948 (80th Congress) when President Truman enacted desegregation policies, to a few Congresses after the 1964 Civil Rights Act (88th Congress), marks high within-Democrat ideological heterogeneity, due to the senior incumbent Southern Democrats who grew estranged from the rest of the Democratic party by the late 80s and early 90s Congresses over civil rights issues.²¹ However, after the early 90s Congresses, as Southern Democrats left the party, Republican intra-party ideological heterogeneity is consistently higher than that of the Democrats.

²¹The Southern Democrats grew so estranged to Democrat civil rights platform and agenda that in 1948, they tried to run for President under a new party—the States Rights Democratic Party—but after losing the presidential election, effectively all members of the “Dixiecrats” returned to the Democratic party.

APPENDIX H. Summary of All Matching Mechanisms

- **Boston mechanism**

- (1) Try to allot all politicians to their 1st reported preference.
 - If a committee has a sufficient number of vacancies compared to demand, assign all candidates to the committee.
 - If a committee has an insufficient number of vacancies compared to demand, break ties by Committee on Committees vote
- (2) Repeat process with 2nd, 3rd,... preferences until everyone is assigned
- (3) *Note: how existing tenants are dealt with in this mechanism is not clear.*

- **Serial Dictatorship**

- In order of seniority, assign politicians to their most preferred committee that is available.
- *Note: this includes existing tenants who give up their previous assignment, which is in turn considered a vacancy. A politician can maintain previous assignment if his/her committee is not at capacity by the time it is his turn in the order of seniority.*

- **Serial Dictatorship with squatting rights**

- (1) Ask all politicians whether they would like to enter the mechanism.
 - If a politician doesn't enter, he retains his previous assignment.
 - If a politician enters the mechanism, his previous assignment is considered a vacancy.
- (2) Then run Serial Dictatorship in order of seniority, amongst all existing tenants who chose to participate and all freshmen.
- (3) *Note: a politician can maintain previous assignment if his/her committee is not at capacity by the time it is his turn in the order of seniority.*

- **Serial Dictatorship with waiting list**

- In order of seniority, assign politicians to their most preferred committee that is available. Existing tenants' previous assignments are only considered vacancies after their turn in seniority if the politician chose a different assignment.
- *Note: a politician can always maintain previous assignment if he chooses to remain with his assignment when it is his turn in the order of seniority.*

- **TTC (Top Trading Cycles)**

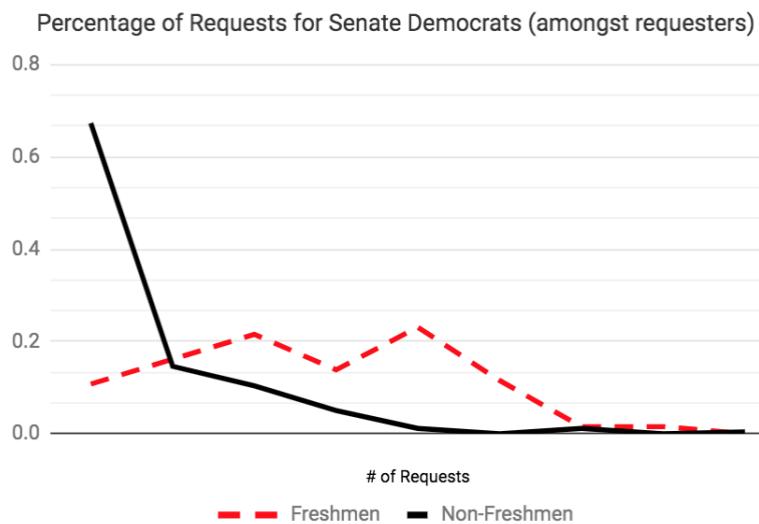
- All committees point to their existing tenants who are in the mechanism (if any), else to others in order of seniority.
- All politicians point to their most preferred committee that is available.
- If a cycle exists (including committee pointing to politician who points back), make assignments and delete assigned vacancies and politicians from the mechanism.
- At each iteration there will be at least one cycle, and this algorithm will eventually terminate. (See Abdulkadiroglu and Sonmez (1999) for more details.)

- **YRMH-IGYT (“You Request My House- I Get Your Turn”)**

- In order of seniority, assign politicians to their most preferred committee.
 - * If the committee has a vacancy, then assign the politician to that committee.
 - * If the committee has an existing tenant, see if he is able to change to a more preferred committee by giving him your turn.
 - If this chain of moves terminates, then allocate all chain of assignments.
 - If this chain is not possible (i.e., at some point an existing tenant does not want to move), then go to the politician's next preference.

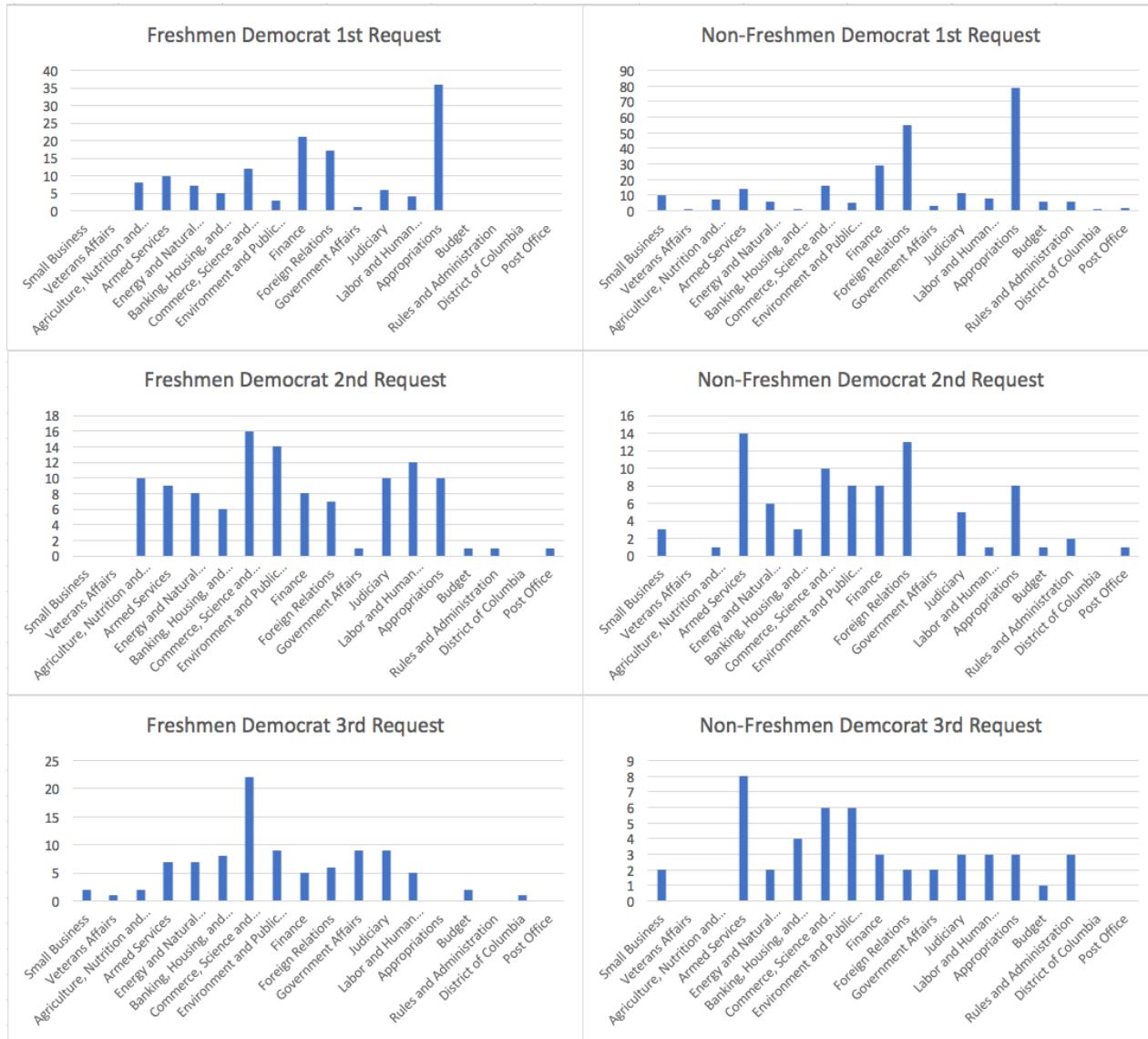
APPENDIX I. Number of Requests for Senate Democrats Freshmen vs. Non-Freshmen

(Data: Frisch and Kelly (2006))



APPENDIX J. Committee Requests for Senate Democrat Freshmen vs. Non-Freshmen

(Data: Frisch and Kelly (2006))



APPENDIX K. Difference in Seniority by Committee Across Parties

TABLE 13. Average Chamber Seniority (in years) by Party for 103rd to 113th Congresses (Data: Stewart and Woon)

Congressional Session	Republicans	Democrats
103	11.74	12.16
104	10.80	14.11
105	10.00	13.02
106	11.05	13.02
107	11.67	12.34
108	11.04	14.73
109	11.40	15.47
110	12.69	15.15
111	11.00	11.78
112	8.96	12.02
113	9.31	10.09
Average	10.88	13.08
Std Dev	1.04	1.56

TABLE 14. Average Chamber Seniority (in years, scaled to Republican party seniority average by year) for each Committee by Party and difference over 103rd to 113th Congresses (Data: Stewart and Woon)

	All members			Excl. seniormost			Excl. 2 mostsenior			Excl. 3 mostsenior		
	R	D	R-D	R	D	R-D	R	D	R-D	R	D	R-D
Small Business	6.3	9.5	-3.2***	5.7	9.0	-3.3***	4.5	7.4	-2.9***	4.1	5.9	-1.8***
Veterans Aff	11.0	7.7	3.3**	10.7	6.9	3.8**	9.6	5.0	4.6**	7.3	3.8	3.6**
Agriculture	13.3	10.1	3.2***	12.9	9.7	3.2***	10.9	8.1	2.9***	9.1	7.1	2.0***
Armed Services	8.9	11.8	-2.9***	7.4	11.0	-3.6***	5.7	9.4	-3.7***	4.7	7.8	-3.0**
Energy,Nat Res	9.1	7.6	1.5	8.1	6.6	1.5	6.9	5.8	1.2	6.2	5.0	1.2
Banking	7.6	7.0	0.6	6.4	5.8	0.6	5.6	4.7	0.9	5.2	4.0	1.3*
Com,Sci,Trans	8.8	11.5	-2.7***	8.1	10.3	-2.3**	6.4	8.3	-1.9***	5.6	7.3	-1.7**
Environ	9.3	8.9	0.3	8.7	8.3	0.4	7.4	6.6	0.8	7.1	5.9	1.2
Finance	14.9	11.9	3.0***	14.0	11.1	2.9***	12.7	10.4	2.3**	11.8	9.7	2.2**
For Relations	7.6	10.3	-2.8***	5.6	8.7	-3.1***	4.7	7.2	-2.6***	4.4	6.1	-1.8**
Govt Affairs	14.4	8.3	6.2***	15.1	7.3	7.7***	12.8	5.4	7.4***	11.8	4.3	7.5***
Homeland Sec	11.5	8.4	3.0**	11.8	8.4	3.3**	10.1	6.1	4.0***	10.4	4.8	5.6***
Judiciary	13.9	12.0	1.9**	12.5	10.5	2.0*	9.3	8.2	1.1	7.6	6.2	1.4
Labor	7.6	12.2	-4.7***	7.0	10.0	-3.0**	7.1	8.1	-0.9	7.6	7.2	0.5
Health	9.9	12.0	-2.1**	9.9	9.9	-0.1	9.6	8.6	1.0	10.0	7.4	2.6***
Appropriations	14.7	14.8	0.0	13.7	13.4	0.2	12.5	11.9	0.6	11.7	10.7	1.0
Budget	10.5	9.9	0.6	9.6	9.5	0.2	8.0	8.1	-0.1	6.7	7.4	-0.6
Rules	16.6	15.2	1.4 *	16.7	15.2	1.5 *	15.0	12.8	2.1 **	12.9	10.0	2.9 **

APPENDIX L. Senate Republican Request Data (91st & 103rd Congress)

I am grateful to Sara D'Antonio Gard of the Robert and Elizabeth Dole Archive and Special Collections (University of Kansas) for making this novel data set of Senate Republican requests for committee assignments available. Despite covering only two Congresses, this data is systematic as it contains both the worksheet lists used for assignment purposes by the Committee on Committees which aggregate all of the committee assignment requests by letters and the original letters which corroborate the aggregated list. 20/ 44 (23/43) Republicans requested at least one committee in 103rd (91st) Congresses totaling 37 (59) individual preference ranks.

FIGURE 5. Number of Requests for Senate Republican Freshmen vs. Non-Freshmen (Data: Dole Archives)

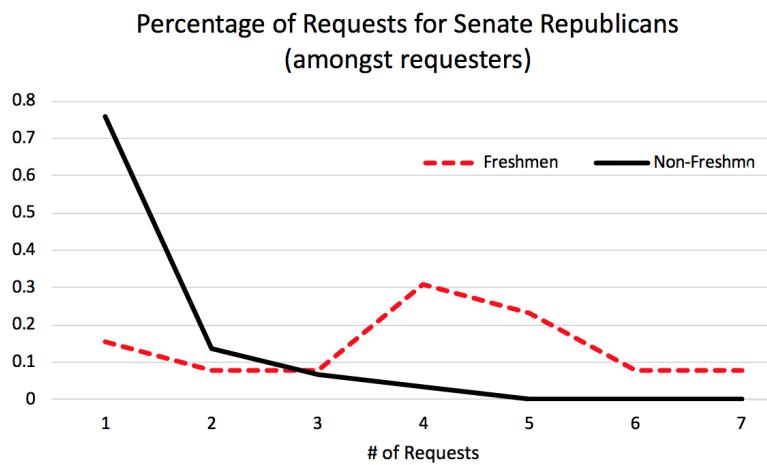


FIGURE 6. This figure shows the fraction of committees in each of the four categories (Constituency, Policy, Prestige, and Admin) which freshmen Senate Republicans (left column) and non-freshmen Senate Republicans (right column) for 91st and 103rd Congresses ranked as their 1st, 2nd, and 3rd choice. (Data: Dole Archives)

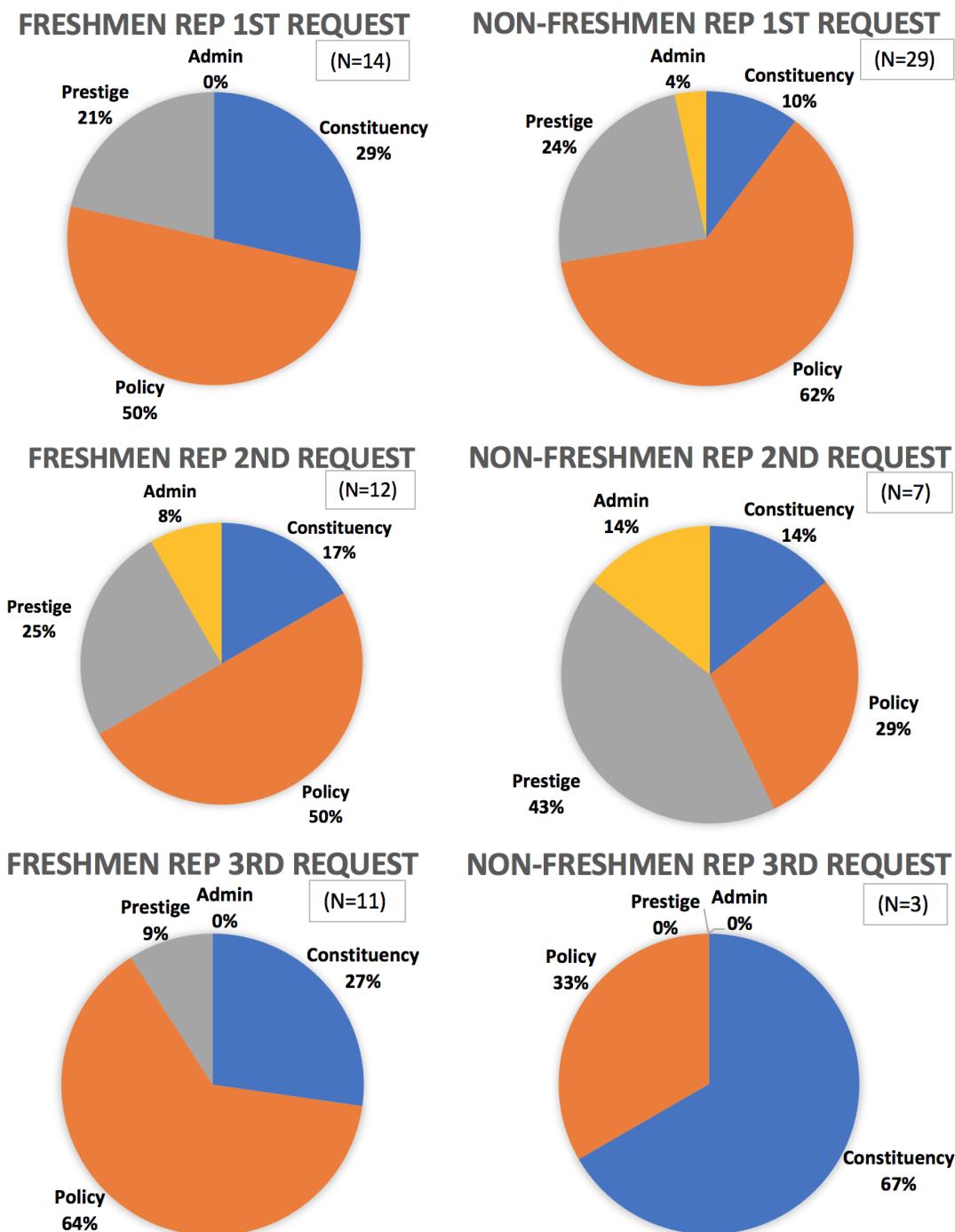
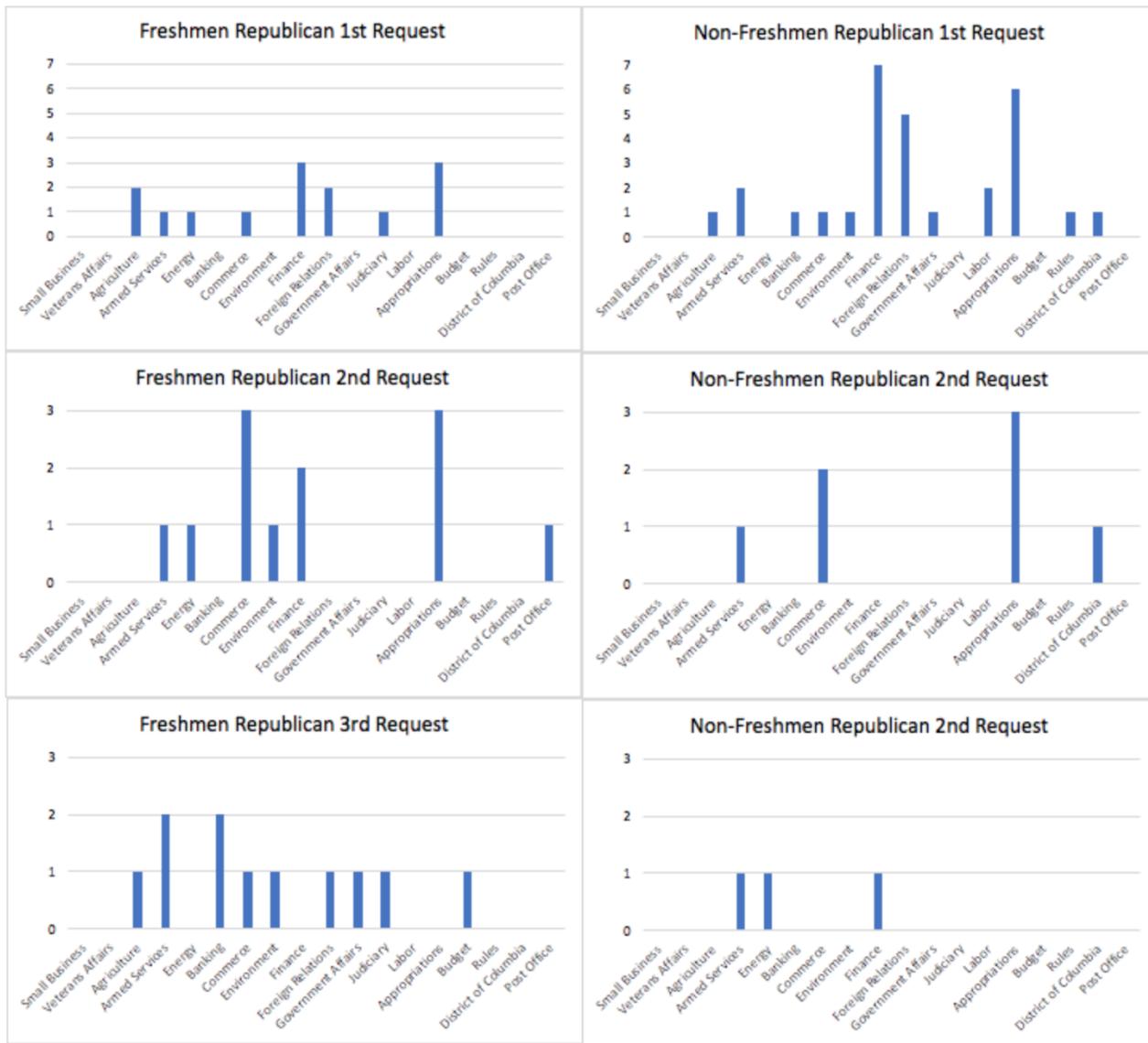


FIGURE 7. Counts of committee requests for Senate Republican Freshmen vs. Non-Freshmen (Data: Dole Archives)



APPENDIX M. Term Limits Self-Imposed by Republican Party

As Schneider (2014) notes, “Democratic Conference rules may also address these limitations; however, their rules are not publicly available.”

In this section, I reproduce verbatim from Schneider (2014) in describing the self-imposed constraints which Republicans have placed on chair and ranking member positions:

- “A chair/ranking Member of an A committee may not serve as chair or ranking Member of any other committee, except the chair/ranking Member of the Finance Committee may chair the Joint Committee on Taxation.
- A chair/ranking Member of an A committee may not serve as chair/ranking Member of any subcommittees. Appropriations subcommittee chairmanships are exempt.
- A chair/ranking Member of a non-A committee may not serve as chair/ranking Member of any other committee, except the chair/ranking Member of the Rules and Administration Committee may chair the Joint Printing or Joint Library Committee.
- A chair/ranking Member of a non-A committee, excluding the Ethics Committee, may not serve as chair/ranking Member of more than one subcommittee. Appropriations subcommittee chairmanships are not exempt.
- The chair/vice chair of the Ethics Committee may serve on no more than two standing subcommittees.
- A Senator may not serve as chair/ranking Member of more than two subcommittees. Democrats interpret this as a two gavel rule, one full committee chair/ranking Member and one subcommittee, or two subcommittees.
- A Senator shall not serve more than six years as chair of any standing committee, effective January 1997, plus six years as ranking Member of a committee. Once a Senator served six years chairing a committee, the term would be over. However, if a Senator served six years as a ranking minority Member, the Senator could serve as chair if the party controls the chamber. ”

APPENDIX N. Some formal definitions omitted in main text

In Section 3.3.3, I defined the following terms informally, which I formally define here.

- **“Time Separable Preference Relation”**

A politician i has a preference relation R_i which is time separable when there are preferences R_i^t, R_i^{t+1} such that for each of the possible committee assignments C^t, C^{t+1}, \dots , and $\bar{C}^t, \bar{C}^{t+1}, \dots$, if $C^t R_i^t \bar{C}^t, C^{t+1} R_i^{t+1} \bar{C}^{t+1}, \dots$, then the sequence of committee assignments $(C^t, C^{t+1}, \dots) R_i (\bar{C}^t, \bar{C}^{t+1}, \dots)$. And if at least one holds strictly, then $(C^t, C^{t+1}, \dots) P_i (\bar{C}^t, \bar{C}^{t+1}, \dots)$.

- **“Dynamic Pareto Efficiency”**

A sequence of committee assignments S dynamically pareto dominates another sequence \bar{S} , if for each politician i , $S R_i \bar{S}$ and for some i , $S P_i \bar{S}$.

- **“Acceptability”**

A sequence of committee assignments S is acceptable if for each existing tenant i in each period $t \geq 2$, $S^t R_i^t S^{t+1}$.