Minority Party Influence
in Competitive Partisan Legislatures*

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Abstract

We define and formally characterize competitive partisan legislatures in terms of the distribution of procedural rights or transferable resources to a minority party and a majority party leader. Procedural rights determine (among other things) which party or parties may propose legislation or amendments to it. Transferable resources enable party leaders to attempt to influence the voting behavior of specific targeted legislators. Two competitive-partisan models are compared to a widely-endorsed baseline model in which the majority party monopolizes both agenda-setting rights and transferable resources. Comparisons of equilibria highlight the strategic behavior that accounts for counteractive minority party influence. A small increment in the minority party leader's rights or resources result in equilibrium policies that are significantly more moderate than they would be without these minimal strategic assets.

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The most commonly cited and applied formal theories of parties in the U.S. Congress and in two-party legislatures more generally are deafeningly silent about the rights, resources, and influence of the minority party. The spectrum of imaginable theories of parties in legislatures is bound by two extreme and densely populated endpoints.

One popular family of theories is lopsidedly partisan. Its models postulate that legislators in the majority party, and *only* the majority party, collude to form a "procedural cartel" (Cox and McCubbins 1993, 2002, 2005). The primary mechanisms in the exercise of concentrated power are agenda-setting and favor-trading. Positive agenda-setting occurs when the majority party, acting through a party-stacked and procedure-dictating Rules Committee, guarantees that only leadership-proposed changes to the status quo are considered under a closed rule. Negative agenda-setting takes the form of designated leaders of the majority party exercising gatekeeping, that is, blocking all proposals whose consideration under an open rule would lead to undesirable chamber-median outcomes.[1] Theories that treat the majority party with such deference—and the minority party with such insouciance—are aptly labeled *monopartisan,* because, at best, their proponents give only conditional lip service to the minority party.

> Provided that the majority party has ... more powers and resources to employ than the minority party, then legislation should reveal this fact. In particular, the greater the degree of satisfaction of the condition of conditional party government, the farther policy outcomes should be skewed from the center of the whole Congress toward the center of opinion in the majority party (Aldrich and Rohde 2000, p.34).

In other words, minority party legislators may *try* to imitate the majority party by endowing their leaders with resources to influence legislative policymaking. In all likelihood, however, the minority party's natural supply of allocable resources and its ability to generate them endogenously are dwarfed by the resources of the majority party. Policies, therefore, diverge not only from the preferences of most minority party legislators but also from the most-preferred position of the House's median voter.

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[1]See also Rohde (1991), Sinclair (1995), and Smith (2007).

Consistent with the monopartisan theory, then, the minority party is effectively neither seen nor heard. Rather, the big winner is the majority party.

A contrasting set of theories is radically nonpartisan. These theories postulate that legislators are self-interested and individualistic and, as such, behave in accordance with their primitive preferences irrespective of their party affiliations. Neither party plays a formal-analytical role, and, indeed, their omission seems to be proudly conspicuous. Weingast and Marshall, for instance, emphasize the party exclusion by stating as an assumption that *"parties place no constraints on the behavior of individual representatives"* (1988, p.137, italics in original). Mayhew, likewise, minces no words: "The fact is that no theoretical treatment of the United States Congress that posits parties as analytic units will go very far" (1974, p.27).[2] More recently, the pivotal politics theory, too, is brashly nonpartisan (Krehbiel 1996, 1998; Brady and Volden 1998). Conceding the theory's silence about parties, an advocate offers this defense:

> The point is not that majority party organizations and their deployment of resources are inconsequential. Rather, it is to suggest that competing party organizations bidding for pivotal voters roughly counterbalance one another, so final outcomes are not much different from what a simpler but completely specified nonpartisan theory predicts (Krehbiel 1998, p.171).

In other words, the conjecture is that as long as both parties are endowed with rights and resources in approximate parity (whatever that might be), the parties' *counteractive* influence may result in lawmaking outcomes that reside comfortably within the neighborhood of the chamber median.

Although most theories of lawmaking lie squarely on one of these two endpoints on the party-in-legislatures spectrum, portrayals of parties in most empirical research is much more likely to be situated between the extremes of nonpartiship and monopartisanship. A distinguishing feature of this middle ground is that the otherwise silent minority party is given *some* voice. Examples include empirical studies of bipartisanship as a form of cooperation and measured by cosponsorship activity and roll-call voting behavior (e.g., Harbridge 2010, 2011), and bipartisanship in the form of acquiescence to the executive in the making of foreign policy (e.g., Kendall 1984-85, McCormick and

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[2] In the preface to the second edition of his seminal book, Mayhew notes that if "I were writing *The Electoral Connection* today I would back off from claiming that 'no theoretical treatment of the United States Congress that posits parties as analytic units will go very far," Yet, he adds that he still has not "seen any evidence that today's congressional party leaders 'whip' or 'pressure' their members more frequently or effectively than did their predecessors thirty years ago" (2004, xvii).

Wittkopf 1990, Meernik 1993, and Nelson 1987). These works do not directly address relative majority- and minority-party influence, however, so the net consequence of two-party competition remains uncertain.

A few works address the issue of minority party influence more directly, however. In a path-breaking article, Jones (1968) builds on a notion of "counteractive" party influence and presents a typology for minority party influence, suggesting conditions under which the minority party is likely to be influential. Krehbiel and Wiseman (2005) advance a concept of "legislative bipartisanship" that is compatible with Jones's counteractive minority party and suggest that the minority party is influential commensurate with its relative electoral strength vis-à-vis the majority party.[3] Binder (1996) presents similar arguments in her exploration of minority parliamentary rights,[4] while Lebo, McGlynn and Koger (2007) introduce a theory of "strategic party government" wherein the majority and minority parties are assumed to choose a level of party cohesion that has consequences for policy outcomes, which presumably serve their electoral fortunes.

While these perspectives all acknowledge some role for the minority party in lawmaking and thereby provide needed balance to the literature, they also share a common shortcoming: none offers an explicit theory of majority- and minority party strategic interaction in lawmaking. As a result, the connections between exogenous variables of interest (e.g., committee seats, parliamentary rights, side-payments, voting cohesion) and the endogenous variables (behavior and the lawmaking outcomes) are murky. This theoretical gap, in turn, inhibits our understanding of the roles of *both parties* in legislatures, and makes it impossible to resolve potentially contradictory claims regarding the policy impact of the minority party in competitive partisan legislatures.

To begin to fill the gap between radical nonpartisanship and lopsided monopartisanship, this paper introduces a framework for assessing theoretical possibilities of minority party influence in a partisan legislature.[5] In seeking a theoretical *juste-milieu*, we hope not only to acquire a deeper understanding of nonpartisan and monopartisan theories but also to gain new insights from two new models that—in two distinct and independent ways—reserve for the minority party a figurative seat at the lawmaking table.

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[3]Dixit, Grossman, and Gul (2000) develop a more rigorous theory of partisan competition over common resources, which is similar to the argument advanced by Krehbiel and Wiseman (2005).

[4]Schickler (2000) engages a similar question to Binder (1996) by studying the determinants of rules changes that seem to (ex ante) benefit the majority party, but he fails to provide a clear mapping between choice of rules and policy outcomes. Rather, it is assumed that rules that benefit the majority or minority parties lead to outcomes that are favored by the majority or minority party, respectively.

[5]Other recent work that can be interpreted as studying minority party influence—though not as a main objective–includes Den Hartog and Monroe (2011), Diermeier and Vlaicu (2011) and Volden and Bergman (2006).

Our analysis begins by revisiting and building on Snyder's (1991) seminal model of vote-buying.[6] We consider a closed-rule legislature with an endogenous proposal put forth by a majority party leader who can allocate sidepayments to acquire the crucial votes of otherwise status-quo-preferring legislators. This first model provides a preliminary insight into the relative strategic benefits of restrictive procedures versus side-payments in a monopartisan legislature, and lays the foundation for our original contributions: two new models that take the minority party more seriously than has been the custom. We call these models of *competitive partisanship* because, in them, party leaders have conflicting interests and hence compete for the votes of moderate, pivotal voters.

The first competitive-partisanship model is a seemingly minor procedural variation on the monopartisan model. It gives the minority party leader one and only one strategic avenue to explore—the ability to counter the majority party's bill with a single amendment—while leaving intact the majority party leader's monopoly supply of transferrable resources. We find that this small change from the closed rule to a modified-closed rule has a significant, counteractive, moderating effect on the baseline monopartisan equilibrium.

The second competitive-partisanship model is also incremental. Instead of spreading out agenda rights, however, the model of resource-based competition allows both parties rather than just the majority to engage in vote-buying. Here we find that the ability for even a highly resource-handicapped minority party to make side-payments acutely constrains the ability of the majority to pull the outcome away from the legislative median, as happens in the monopartisan model. That is, even when the majority party monopolizes the agenda and is well-endowed relative to the minority, the minority party leader's ability to counteract the majority party leader's promises of side-payments gives the minority party a big policy bang for a small resource buck.

1   Assumptions

We confine our attention to a one-dimensional policy space over which a set of N legislators is distributed over the interval $[-X, X]$. To simplify the math, the legislature's median voter m has ideal point $x_m = 0$. Legislators' preferences are defined over the policies over which they vote and the side-payments that they may receive from party

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[6]We use the terms vote-buying, favor-trading, side-payments, resource transfers, and bribes synonymously. In no such instances do we have illegal transactions (e.g., involving cash transfers) in mind.

leaders. Specifically, the utility of voter i is defined as:

$$U_i = -(x_i - p)^2 + t_i$$

where i indexes voters from low to high, x_i is the value of voter i's ideal point, p is a generic policy in $\Re^1$ (either a bill b, an amendment a, or an exogenous status quo q), and $t_i \geq 0$ is the transfer or side-payment that a leader offers legislator $i \in N$ in exchange for a vote. Legislators are position-taking oriented insofar as they receive promised payments for the act of voting a specified way—not for the realization of the collective choice. This is standard in vote-buying models (Snyder 1991, Groseclose 1996, Snyder and Groseclose 1996).[7]

In each of three models, there is at least one party leader who also has policy preferences. We assume the majority party leader R has an ideal point $x_R > 0$ on the right side of the policy space, and the minority party leader L has an ideal point $x_L < 0$ on the left. Leaders differ from other legislators in two respects. First, their preferences are outcome based rather than action based; that is, leaders' payoffs are a function of what the legislature as a whole chooses—not on leaders' voting actions.[8] Second, they may have at their disposal a finite nonnegative endowment of transferable resources $E^j, j \in \{L, R\}$ that they may distribute to legislators in exchange for votes. Formally, leaders' preferences are defined by the utility function:

$$U_j = -(x_j - p)^2 - \sum_{i=1}^{N} t_i^j, \text{ such that } \sum_{i=1}^{N} t_i^j = T^j \text{ and } T^j \leq E^j, j \in \{L, R\}.$$

Note that we assume that rank-and-file legislators' preferences are not influenced by their party affiliations, per se. Indeed, we treat all rank-and-file legislators identically in regard to party labels and focus instead on the preference heterogeneity. As such, we assume that all legislators place the same per unit value on transfers that might be offered by a party leader (either majority, or minority).[9]

Given these assumptions, the blueprint for analysis is straightforward. We are interested in two independent facets of potential counteractive minority party influence. While assessing the analytic possibilities, we are careful not to presume any kind of

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[7]Extensions to these canonical vote-buying models have since been advanced by Console-Battila and Shepsle (2009), Dal Bo (2007), and Snyder and Ting (2005).

[8]Leaders may be assumed to vote or not to vote, as long as the median voter is defined accordingly.

[9]This is a strong assumption which we revisit in the Discussion. For an informal treatment of party-specific valuations of resource transfers going by the name of "party loyalty inducement" theory, see Lawrence, Maltzman and Smith (2006).

leadership influence or policy bias in any given model. Rather, if such influence exists, we wish only to specify conditions under which it arises endogenously. In other words, is minority party influence a property of equilibrium play of a well-specified game? We invistigate two such games that reflect different dimensions of party competition. *Agenda-based* competition is defined in terms of whether rights to propose policies are shared by party leaders or are monopolized by the majority party leader.[10] *Resource-based* competition is defined in terms of whether leaders' endowments for side-payments are two-sided (but not necessarily equal) or whether they, too, are monopolized by the majority party. This simple three-model scheme allows transparent comparisons of the two different forms of minority-majority interaction with a fixed, monopartisan, baseline model.

2   A monopartisan legislature

First we summarize the case in which the majority party monopolizes both procedural rights and transferrable resources. This game is a close analytic approximation of Cox and McCubbins's (2005) verbal discussion of a "procedural cartel"[11] and gives rise to a proposition that is almost identical to Snyder's one-sided vote-buying model with an endogenous proposal (1991, Proposition 2).[12] An empirical manifestation of the procedure is the U.S. House of Representatives' closed rule, that is, a single up or down vote on a proposal that was generated by a centralized majority party leadership.[13] An example of this process is the July-August 2011 passage of debt limit extension legislation.[14]

The formal *monopartisan game* has three stages:

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[10]Although a presenting a comprehensive catalogue is beyond the scope of this paper, we think of agenda access as being a proper subset of *procedural rights*. The latter, larger set includes, but is not limited to, recognition, speech-making, bill-introduction, and co-sponsorship rights—all of which the minority party is granted in most two-party legislatures.

[11]In *Setting the Agenda*, the formal model is an *open* rule with gatekeeping, identical to that in Denzau and Mackay (1983) but relabeled the "cartel agenda model" and interpreted as "negative agenda power." Much of the verbal discussion of agenda setting, however, is more compatible with the closed rule of Romer and Rosenthal (1978), also known as the "setter model."

[12]Snyder (1991) analyzed a continuum of voters; we analyze a finite number of voters.

[13]More specifically, the model approximates the House's closed rule when the rule also denies the minority party its once-traditional right to offer one motion to recommit. In recent years, this additional contraction of bipartisan procedural rights is more common (Wolfensburger 2003; see also Krehbiel and Meirowitz 2002 and Roberts 2005).

[14]It is a good example of a closed rule process, but—in light of divided government—not such a good example of *mono*-partisan agenda setting, unless one focuses myopically on the House of Representatives.

1. The majority party leader R proposes a bill b and offers a schedule of transfers $T^R = \{\ldots, t_i^R, \ldots\}$ to selected legislators.[15]

2. Legislators cast their votes v_i for or against the bill b implicitly comparing b to an exogenous status quo q and taking into account transfers $t_i \in T$.

3. The winning policy $p \in \{b, q\}$ is realized, transfers T occur, and players receive payoffs.

In the case of indifference, we assume that a legislator votes for the bill over the status quo. The solution concept throughout the paper is subgame perfect Nash. The equilibrium to the monopartisan game is, therefore, a set of strategies b^*, T^*, v^* that meets the usual best-response criteria. Transfers might be interpreted as non-ideological pork that is attached to the legislation, policy concessions on other unrelated bills, and/or forms of campaign support that is deemed valuable to legislators.

To facilitate the statement of the equilibria, it is useful to define a strategically critical voter, called *legislator k*. To identify legislator k, we index the N legislators by ordering their ideal points x_i from low to high, so that the left-most voter has index $-(N-1)/2$ and the right-most voter has index $(N-1)/2$. Note that this implies that 0 is the index of the median voter.[16] Then define k as the index of the legislator who, absent a transfer, both (a) weakly prefers the status quo to the bill and (b) does so by the least utility amount. Formally, this is expressible as the k such that

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\begin{aligned}
-(x_i - b)^2 &> -(x_i - q)^2 \quad \forall i > k, \text{ and} \\
-(x_i - b)^2 &\leq -(x_i - q)^2 \quad \forall i \leq k.
\end{aligned}
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Alternatively stated, voter k is the legislator who, in the absence of side-payments, favors the status quo over the bill and is closest to indifference. Notice that when $b \geq q$ (as it will be in equilibrium), all legislators left of the voter k are more strongly opposed to the bill than voter k is, while all legislators to his right necessarily prefer the bill to the status quo by increasing amounts. Finally, to facilitate intuition and a more substantive discussion, we state propositions somewhat qualitatively and informally in the main

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[15]We henceforth conserve on notation by suppressing the superscipt R unless and until the minority party leader L, too possesses resources (Proposition 3).

[16]Although legislators' ideal points are indexed in a way that may make it seem as if ideal points are distributed uniformly, the actual values of ideal points are real numbers without a specified or constrained distribution.

body. Formal expressions of quantities not defined in the propositions themselves (e.g., δ), or stated only qualitatively (e.g., "a bill $b^* > q$," "extreme status quo points," "high resource endowment"), are quantified precisely in the Appendix, to which proofs of equilibrium properties are also relegated.

Proposition 1 *In the unique subgame perfect Nash equilibrium to the monopartisan game, optimal behavior depends on the location of the status quo as follows:*

(a) *For extreme status quo points, the majority party leader proposes a bill at her ideal point, offers no transfers to legislators, and $b^* = x_R$ is the outcome.*

(b) *For intermediate status quo points, the majority party leader proposes a bill equal to the status quo (for $q \geq 0$), or equal to the reflection of the status quo across the median voter's ideal point, 0 (i.e., $-q$, for $q < 0$), offers no transfers, and $b^* = q$ (or $b^* = -q$) is the outcome.*

(c) *For centrist status quo points, the majority party leader proposes a bill that is strictly to the right of the status quo (for $q \geq 0$), or to the right of the reflection of the status quo (for $q < 0$), and offers positive transfers to all legislators between the median voter and legislator k to make them indifferent between voting for b^* and the status quo q. Finally, b^* passes with a minimum-majority.*

Proof. *See Appendix.*

Given that the majority leader R has monopoly access to the agenda, and that the median voter has an ideal point normalized at $x_m = 0$, the leader can always guarantee an outcome of at least q (or the reflection of q) without expending any transferrable resources. This is because the median voter is pivotal, and so any policy proposal that makes her indifferent to the status quo passes with the support of the median and all voters to his right. The focal issue is whether the leader can obtain a more right-leaning policy than q (or $-q$) via resource transfers. The proposition states that she can and specifies when and why.

The ever-present strategic tension for the majority leader in this and subsequent games lies between capturing excess policy benefits while necessarily incurring their corresponding resource costs—or, paying for incremental policy shifts, in other words. Considering bills b beginning on the extreme left and moving right all the way to the majority leader's ideal point, the leader's policy benefits for b are increasing. So, too are cutpoints $(b+q)/2$. In turn, this implies utility losses for moderate, pivot-proximal

8

voters who, with large enough b, experience a tip in their preferences from favoring the bill to favoring the status quo. Once any such moderate legislator's preference tips, he must be compensated if he is to vote for the bill. Sometimes it is net-beneficial for the leader to exercise majority party power to preclude such tipping, but often it is not. It depends (unfortunately, in a sometimes-clunky way) jointly on the distance between the leader and the median, and on the density of ideal points, hence the aggregate purchase price of required votes, in the critical pivotal region immediately to the right of the median voter.

Cases (a) and (b) are similar to the canonical setter model without vote-buying. For the most extreme status quo points ($q < -x_R$ and $q > x_R$), the majority party leader optimizes by proposing a bill b equal to her ideal point and offering no transfers. That proposal passes because the median strictly prefers it to the status quo. For more intermediate status quo points, however, the agenda setter optimizes either by proposing the status quo, or by negating it—i.e., reflecting the status quo around the median voter who is located at 0. This standard pivot-constrained agenda-setting strategy makes the median voter indifferent between the bill and status quo, in which case he votes for the bill. Although effective vote-buying is possible, is not optimal for the agenda setter, because any further rightward movement of the policy beyond the status quo (or beyond the reflection of the status quo if $q < 0$) costs the leader more in side-payments than she would benefit from an only slightly more desirable policy.

Case (c), which covers centrist status quo points, is the more interesting part of the proposition, because it alone deviates from the logic of the canonical setter model. The optimizing agenda setter, in effect, goes through the following thought process. She contemplates an array of possible bills ($b > q$ for $q > 0$, $b > -q$ otherwise), and their associated vote-determining cutpoints $(b + q)/2$. She then ascertains how those cutpoints determine the identity of k (the legislator who is closest to indifferent but who still prefers the status quo to the bill). After calculating the implications of all of these policies and associated transfers on her own utility, she selects the utility-maximizing b^* and T^* combination. The proposition reveals that at the majority leader's (R's) maximum, she proposes a bill strictly greater than in the setter model and makes side-payments to pivotal voters 0 (the median) up to and possibly including voter k.[17]

The behavioral intuition of the monopartisanship game, as well as some of the an-

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[17]The two cases–inclusion or exclusion of k among recipients–are different in a technical way that has no practical significance. Specifically, because of the game has a discrete number of legislators, the distinguishing characteristic between these cases is whether the equilibrium cutpoint $(b*+q)/2$ is to the right of voter k (case (a)) , or at voter k's ideal point (case (b)).

alytics involved within the framework, can be clarified further via a concrete example.

Example 1

Consider a 41 member legislature whose members' ideal points are uniformly distributed between [-20, 20], and designate the right-most legislator as the majority party agenda setter, so $x_R = 20$ and $x_m = 0$. (We will also use these assumptions in additional examples below.) For this specific illustration, assume that the status quo is just slightly left of center, $q = -1$.

Suppose an optimizing majority party leader observes that the status quo is out of equilibrium, and she wishes enact a new policy that gains as much rightward movement as possible, subject to the constraints that her bill receives a simple majority of yes votes and that she expends as little of her resource endowment E^R as possible. She knows, of course, that typically there will be a trade-off between desirable policy shifts and conservation of her resources.

For the scenario under consideration, the leader's first step is transparent. She can obtain two units of policy gain – a change from $q = -1$ to $b = 1$ for free. But can she do better, and, if so, how much better and at what cost? That is, at what point $b^* > -q = 1$ do the net benefits of the transfers-for-votes cease to be positive? The proposition answers these questions but, unfortunately, the mechanics involved in deriving the answers are somewhat cumbersome, because there are no straightforward closed-form solutions for b^* and T^* (as they depend on the location of the optimal legislator k). For this specific case, the farthest to the right that the majority leader is willing to propose a bill is $b^* = 5.75$, which involves making payments of approximately 32, 19, and 5 to the median voter, and legislators 1 and 2, respectively. Any further rightward movement would involve paying a greater number of legislators *and* paying greater amounts to those who are already receiving payments. These incremental expenses are not worth the small policy benefit.

Table 1 illustrates the implications of Proposition 1 more generally by considering a wide range of exogenous status quo points $q \in \{-10, -9, ..., 10\}$. For each such scenario, it summarizes the equilibrium bill b^* and transfer schedule that were derived from calculations such as those in the $q = -1$ example. The table also identifies the crucial voter k for any given status quo in the event that vote-buying takes place.

One somewhat counterintuitive comparative static is evident.[18] As status quo poli-

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[18]This property clearly holds for the special case of evenly distributed ideal points, and for other (but not all) voter distributions, as well.

cies (for $q > 0$) or the reflection of the status quo (for $q < 0$) become more and more favorable to the majority party, the greater is the number of recipients of side-payments when vote-buying occurs. The reason is that, as q (or $-q$) moves rightward, the majority party must pay (at least) all voters located between, and including, 0 (i.e., the median voter) and q (or $-q$) to secure further policy movement. Hence, any rightward movement in q (or $-q$) necessarily implies an increase in the number of voters that require a side payment to vote contrary to their purely spatial preferences.

In the example, vote-buying has positive net benefits up until the point q (or $-q$) $= 5$. At that point the agenda setter is sufficiently happy with the status quo (or $-q$)—and opponents are increasingly numerous, costly, and unhappy with any further rightward movement—that the leader ceases to get enough policy bang for her bucks.

Figure 1 provides a parsimonious summary of Proposition 1 by graphing equilibrium policy outcomes as a function of the status quo for both the simple closed rule (i.e., the traditional setter model without side-payments) and the monopartisan model (closed rule with side-payments). The similarities between these two models are perhaps more striking than their differences. For all status quo points outside a central interval $[-10, 5]$, the ability of the majority party to exercise power over outcomes via transfers provides no marginal advantage over the pure closed rule. In the central interval, however, the majority party's monopoly on transferrable resources has a marked effect on its ability to capture rents above and beyond those already substantial rents that are obtainable from the closed rule alone. These resource-specific rents are represented in Figure 1 by the area below the dashed line and above the V-trough. In total, this monopartisan analysis provides a useful baseline against which the following two competitive-partisan models can be compared and contrasted.

3 Agenda-based competition

What are the consequences of giving the *minority* party more voice than it gets in current theories of lawmaking? Specifically, what happens when the following procedural adjustment is made to the monopartisan model: namely, give the minority party leader, L, the right to craft and offer a single counterproposal—call it an amendment, denoted a—to the majority party leader's bill, b? Such an arrangement approximates a modified-closed rule in the U.S. House of Representatives or, likewise, the motion to recommit with instructions in many legislatures, including the U.S. House. A potentially critical difference between our formulations of monopartisanship and agenda-based competitive

11

partisanship, however, is that we retain from the monopartisan model its lopsided embellishment that the majority party monopolizes side-payments. Formally, the stages of the *agenda-based competitive-partisan game* are:

1. The majority party leader proposes a bill b and offers a schedule of transfers $t_i \geq 0$ to legislators.

2. The minority party leader proposes an amendment a to the bill.

3. Legislators vote first on whether to amend the bill (i.e., whether a or b faces the status quo q in the final vote), and second on whether to pass the (possibly-amended) bill or to accept the status quo.

4. The winning policy $p \in \{a, b, q\}$ is realized, transfers T occur, and players receive payoffs.

In the case of indifference, we assume that a legislator votes for the minority amendment over the majority bill, unless the minority amendment is located at her ideal point, in which case she votes for the majority bill.[19] Furthermore, we assume that a legislator will vote for a new policy (meaning either a or b) over the status quo, in cases of indifference. Finally, we assume that if the minority party leader doesn't have a strict preference for proposing any one amendment over others, he proposes an amendment located at the median voter's ideal point.[20] Similar to our statement of the equilibrium in the monopartisan game, it is useful to define a strategically critical voter, denoted legislator z, as the rightmost legislator who receives a transfer from the majority party vote-buyer.

Proposition 2 *In the unique subgame perfect Nash equilibrium to the agenda-based competitive partisan game, for any status quo q:*

(a) *The majority party leader proposes a bill $b^*(q) > m$ and offers positive transfers $t_i^*(q) > 0$, to the median voter through legislator z such that each such voter is indifferent between her bill-and-transfer pair (b^*, t_i^*) and a hypothetical policy located at her ideal point x_i.*

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[19]The tie-breaking assumption is cumbersome but necessary to avoide still more cumbersome open-set problems and/or epsilon equilibria. It is ultimately behaviorally inconsequential.

[20]The claim that the minority party will propose an amendment located at the median voter's ideal point is an arbitrary assumption that we make to describe the behavior of the minority party leader when he is indifferent across all potential amendments, which (as we describe below) will occur in equilibrium. Any other assumption about amendment behavior–including not proposing an amendment at all–could be invoked without changing the qualitative properties of the equilibrium.

(b) *The minority party leader offers an amendment* $a^*(b,T) = \underset{i \in \{0,...,\frac{N-1}{2}\}}{\arg\min} (\hat{x}(x_i,t_i))$,

where $\hat{x}(x_i,t_i)$ is the policy that is utility-equivalent to a pivotal voter $i \geq 0$, such that a is chosen by the legislature over b. If no such voter exists, $a^*(b,T) = 0$. Neither such amendment passes in equilibrium.

(c) *The amendment a^* fails, the bill b^* passes, and positive transfers $T^* > 0$ are made.*

Proof. *See Appendix.*

The core intuition in the proposition is evident in the special case of the game *without* transfers, or $E^R = 0$. (Suppose, for concreteness, the majority party exhausted her endowment on previous legislative battles.) When the minority party leader L has the right to offer an amendment, R as first mover cannot simply optimize with respect to the exogenous status quo but must also anticipate and optimize with respect to the forthcoming endogenous amendment. This feature of the game gives rise to an implicitly dynamic form of counteractive convergence. Specifically, if the majority leader were to attempt to extract the same-sized rightward policy shift that she successfully obtains in the canonical closed-rule agenda-setting model, the minority leader, as second mover, can counteract with an amendment that is slightly closer (on the left) to the median voter than is the majority leader's contemplated bill (on the right). Anticipating this, the majority leader will moderate her power-grabbing ambitions. But then the minority party leader will undercut the majority leader again. This reasoning iterates and creates a figurative race to the center, the limit of which is a median-voter outcome.

Now consider the game with E^R sufficiently large that there can be outcome-consequential side-payments $t_i^* > 0$. Proposition 2 reveals how the median gravitational pull of the simpler model is asymmetrically attenuated by the majority party's monopoly over re-sources. Sizing up the game ex ante, the majority party leader R sees that, in the absence of side-payments, the minority party leader L can achieve a median-voter out-come as in the race-to-the-center special case. Therefore, to get anything better than that, R must compensate moderate voters for any hypothetical bill to the right of the median. Consider first an incremental majority party power grab, $b = x_m + \varepsilon$. Such a strategy is intuitive, because it makes the majority party leader and most of her party members better off. It is inexpensive, because only the median voter requires compensation—and only a small amount. And it is impervious to counteraction by the minority party, because the minority party has no resources with which to com-pete. Rather, it has only a counteractive proposal a, whose effectiveness R has easily

pre-empted with a small side-payment. Therefore, a non-median, majority party-leaning outcome occurs.

This behavior by the majority leader is not optimal, however, unless and until the her marginal cost of side-payments catches up with her marginal benefit from the rightward policy shift. R therefore considers bills farther and farther to the right until the cost and benefit margins are equal. En route to this optimally placed bill, transfer costs mount very quickly, because not only is the size of the compensated coalition increasing—so too are the per capita costs. We show in the appendix that when the equilibrium proposal b^* is reached, it will be at or slightly to the right of legislator z as defined above, and the equilibrium transfers T^* have the property that each side-payment recipient receives an amount equal to what she would get if policy were at her ideal point.

The equilibrium bears an important similarity with, and an important difference from, the optimal "bribe function" in Snyder's (1991) model. The similarity is that the greatest side-payment goes to the median voter because she is most harmed by the optimal rightward shift of b^* and must therefore be compensated most for her vote. Moving right, then, as the pivotal block of legislators become increasingly hospitable towards the bill, they require less and less compensation. In other words, as in Snyder's model, side-payments are monotonically decreasing in distance from the median (moving towards the vote buyer).

The difference between this equilibrium and Snyder's is somewhat subtler yet more significant. In Snyder's model, bribes are required only up to the cutpoint midway between the status quo and the optimal bill. With the addition of the possibility of a counteractive proposal, however, the majority leader must compensate voters beyond the cutpoint, and all the way up to the right-most voter at, or just left of, the optimal bill. Otherwise, any such member is poachable by an amendment that lies slightly to the left of her ideal point. Therefore, power grabs by the majority party are much more expensive in the presence of the mere possibility of minority party counteractive proposal behavior. A final pricing feature of the equilibrium worth emphasizing is that with each rightward shift of the proposed bill, the majority leader not only must offer side payments to more and more pivotal voters, but also the price she must pay *to each* such legislator rises with each increment in coalition size. In other words, moving the bill to right to find its optimal location causes prices to increase at an increasing rate.

Example 2

Figure 2 revisits the same parametric setup as Example 1: a 41-member legislature whose ideal points are uniformly distributed in [-20,20] with $q = -1$, $x_m = 0$, $x_R = 20$,

and $x_L = -20$. For this case, equilibrium transfers t_i^* to legislators $i = 0, ..., 4$ are $T^* = \{25, 16, 9, 4, 1\}$. A shrunken but proportionally accurate set of vertical bars represent these side-payments on the figure.

To better understand the intuition underlying minority party influence in the equilibrium, it is instructive first to consider in greater deail what happens *out* of equilibrium. Suppose the majority party leader miscalculates and, say, offers legislator 3 a transfer $t_3 = 3.5$ units instead of the equilibrium value of 4. This presents an opportunity for minority party exploitation. The resourceless minority leader L cannot outbid his adversary R with side payments, but he can acquire a more favorable policy than $b^* = 5$, which is the outcome on the equilibrium path. All L must do to fare better is to poach the underpaid legislator 3 by proposing an amendment a that is legislator 3's utility-equivalent to the proposed bill plus her promised side-payment, i.e., the policy that generates $u_3(b) + 3.5$. This best-response amendment, shown by the diamond in Figure 2, is necessarily a point just left of the stiffed legislator's ideal point x_3 (in this case, $a^* \approx 2.29$), and it is crafted to defeat R's erroneously crafted (b, T) pair by a minimal majority..

More generally, the optimal amendment strategy of the minority party leader is to look for such an error and exploit the left-most instance in the manner described for legislator 3. If no such error occurs (which it won't, in equilibrium), L proposes amendment $a^* = 0$, which, in equilibrium, is inconsequential because b^* always wins.

Figure 2 also summarizes the bigger picture by comparing equilibria of the monopartisanship model with agenda-based competition model. Notice that the rents the majority leader can reliably extract from its resource monopoly—quantified by the area below the flat dotted line at 5—are invariant to the status quo q. This, metaphorically, is the half-full part of the majority party's glass of power: that is, the majority party *always* benefits from its resource monopoly. This is represented by the area under the dotted line in Figure 2 In contrast, however, the area below the dashed line and above the dotted line represents how much the majority party loses when moving from monopartisanship (Proposition 1) to agenda-based competition (Proposition 2). This figurative glass is half-empty. There are a few reasons, however, for believing that the appropriate fractions in the glass metaphor are not one-half. For all but a very small interval of status quo points (at/near 5), the majority party in the agenda-competition game is constrained to offer a more centrist policy than what she would propose in the monopartisan model. Furthermore, for those status quo points that correspond to more right-leaning policies than what would emerge in the monopartisan game, such

movement is much more costly for the majority party to obtain, given the number of legislators who require compensation for their votes and the higher prices that their votes command. Finally, for a wide range of status quo points, the possibility of a minority party amendment actually *compels* the majority party leader to make a proposal other than the status quo, and hence to spend resources on transfers. Not to do so would invite the minority party leader to propose a more unappealing, left-leaning policy outcome.

All things considered, while it cannot be disputed that holding a resource monopoly is better for the majority party than having no resources, neither can it be denied that the introduction of agenda-competition seriously devalues that monopoly asset by indirectly driving up market prices for pivotal votes.

4   Resource-based competition

Having demonstrated how the sharing of procedural rights with the minority party constrains the proposals of the majority party leader, we now reinstate the pure closed-rule feature of the monopartisan model (Proposition 1) as a frame of reference for exploring a second form of competition—one based on resources rather than agenda accesss. To analyze resource-based party competition, this section introduces and solves a form of Snyder and Groseclose's (1996) two-sided vote-buying game. In addition to a few technical differences between their game and ours,[21] a substantively significant deviation in our approach is to consider a game in which the bill proposal is endogenous. This modification adds an element of realism inasmuch as descriptive accounts of majority party leadership in the U.S. Congress typically emphasize the delicate interplay of shaping legislation and building of coalitions. Endogenizing bill formation also complicates matters significantly, however, because, as Snyder and Groseclose show, counteractive vote-buying strategies come in diverse forms. Proposition 1 illustrated how the first-moving, resource-advantaged vote-buyer (the majority party leader) must carefully balance two endogenous variables rather than one: the bill and her schedule of side-payments. In the resource-based competitive-parties model, she must additionally anticipate possible counteractive side-payments from the minority leader. Similar to the monopartisan game, counteractive side-payments might be interpreted as promises of pork, campaign support, or credible promises to not mount a challenge in future electoral competition

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[21]We assume that there is a finite number of legislators distributed across a closed interval, whereas Snyder and Groseclose assume that there is a continuum of voters distributed across a closed interval.

(in cases where the minority party is offering transfers to majority party members). Formally, the stages of the *resource-based competitive-partisanship game* are:

1. The majority party leader R with finite endowment E^R proposes a bill b and offers a schedule of transfers $t_i^R \geq 0$ to legislators.

2. The minority party leader L with finite endowment E^L offers a schedule of transfers $t_i^L \geq 0$ to legislators.

3. Legislators cast their votes for or against the bill (implicilty versus the status quo).

4. The winning policy $p \in \{b, q\}$ is realized, transfers T occur, and players receive payoffs.

In analyzing this game, we make some additional assumptions that channel attention to cases that are relatively realistic, hence substantively interesting. First, we consider only those cases in which the majority party leader is endowed with sufficient resources to win in the presence of counteractive vote-buying by the minority party leader. Second, similar to Groseclose and Snyder (1996), we assume that legislators who are indifferent between the proposal and the status quo vote for the bill, unless they receive a positive side-payment from the minority party, in which case an exactly indifferent legislator will vote for the status quo.[22] Third, the statement of the equilibrium under resource-based competition requires us to identify several critical voters who are counterparts to *legislator k* in Proposition 1. Specifically, with legislators ranked and indexed as earlier (0 = median voter, negative indices are increasing to the left, and positive indices are increasing to the right), k is the index of the closest-to-indifferent bill opponent who weakly prefers the status quo and receives a side-payment offer from the majority party leader R. We likewise define *legislator* $-j$ as the member of the majority party's coalition who is located j ideal points to the left of the median voter and who, absent a transfer from the majority party, both (a) weakly prefers the status quo to the bill and (b) does so by the greatest utility amount compared to all other legislators in the majority party's coalition. That is, legislator $-j$ is the member of the majority party leader's positive-transfer coalition who, absent side-payments, is *most* predisposed to favor the status quo over the bill. Finally, we define legislator $(k + l)$ as the legislator who is located l legislators to the right of legislator k, such that legislator $(k+l)$ strictly prefers

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[22]As in Proposition 1, this is a common technical assumption to avoid open-set complications. Furthermore, the precipitating event does not occur in equilibrium.

b to q, given the respective bribe offers of the majority and minority party leaders.[23] (The majority party leader may still offer her a side-payment in order to preempt the minority leader's offer of an effective bill-defeating side-payment.)

The characterization of the equilibrium is notation-heavy and case-intensive, but the discussion that follow clarifies the strategies and outcomes.

Proposition 3 *The unique subgame perfect Nash equilibrium in the resource-based competitive partisanship game depends on the minority party's resource endowment E^L as follows.*

Case I: When the minority party is well-endowed (high E^L):

(a) *For status quo points at or left of the minority party leader's ideal point, R proposes $b^* = 2x_L - q$ and offers no transfers.*

(b) *For status quo points at the minority party leader's ideal point, as well as those in between the minority party leader's and majority party leader's ideal points, R proposes $b^* = q$ and offers no transfers.*

(b) *For status quo points at or right of the majority party leader's ideal point, R proposes $b^* = x_R$ and offers no transfers.*

Case II: When the minority party is not well-endowed (low E^L):

(a) *For left-of-median status quo points, R proposes $b^* = -q + \delta$ and offers transfers to all legislators located between $-j$ and $(k+l)$ so that they weakly prefer b^* to q, and so that L cannot afford to form a blocking coalition to defeat the bill.*

(b) *For central right-of-median status quo points, R proposes $b^* = q + \delta$ and offers transfers to all legislators located between $-j$ and $(k+l)$ so that they weakly prefer b to q, and so that L cannot afford to form a blocking coalition to defeat the bill.*

(c) *For intermediate right-of-median status quo points, R proposes $b = q$ and offers no transfers.*

(d) *For extreme right-of-median status quo points, R proposes $b^* = x_R$ and offers no transfers.*

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[23]More formally, for any b and q, legislator k is the right-most legislator for whom $-(x_i - q)^2 \geq -(x_i - b)^2$ and legislator $(k+l)$ is the right-most legislator for whom $-(x_i - b)^2 + t_i^R > -(x_i - q)^2 + t_i^L$ for all possible t_i^L that could ensure the retention of q by defeat of b

Regardless of the minority party leader's resource endowment, L never offers transfers, and the bill-transfer pair (b^*, T^*) always passes.

Proof. *See Appendix.*

The intuition in Proposition 3 bears some similarities to that in Propositions 1 and 2. As in the monopartisan game (Proposition 1), the majority party leader proposes a bill as close to her ideal point as possible while offering the minimum transfers necessary to secure its adoption by at least a majority. And, as in the agenda-competition game (Proposition 2), it becomes necessary for the majority party leader also to anticipate and adjust to the next move of the minority party leader. The mechanisms of minority counteraction, however, are distinctly different in the two competitive-partisan games. The mechanism in agenda-based competition is a *counter-proposal*, while the mechanism under resource-based competition is a *counter-offer of side-payments*. To win in the competitive-resource game, the majority party leader must make it impossible for her minority counterpart to buy back enough members to maintain the status quo. As such—and similar to the results established by Banks (2000), Dippel (2011), and Groseclose and Snyder (1996)—the optimal transfer schedule involves the majority party leader adopting a leveling strategy in which the leadership makes all side-payment receiving members equally expensive for the minority party to buy back. The optimal leveling strategy has the property that a minority buy-back, were it to occur, would entirely exhaust minority party resources. This means transferring more resources to pivotal voters than is needed to make them indifferent between the bill and the status quo, because if they were left strictly indifferent, the minority buy-back price is effectively zero.

The majority party leader's optimal bill-and-transfer strategy is therefore fundamentally sensitive to relative resource endowments across the parties. Assuming that the majority party is sufficiently well-endowed to make vote-buying beneficial sometimes, the proposition identifies two qualitatively different cases of minority party endowments.

4.1 Well-endowed minority (case I)

When the minority party leader has a large resource endowment E^L, the majority party leader's strategy depends upon the location of the status quo in comparison to the party leaders' ideal points, and the equilibrium shares many substantive similarities with existing models of agenda setting (i.e., Romer and Rosenthal (1978)). For status quo points left of the minority party leader's ideal point (subcase I.a), the leader's optimal

behavior is to propose the reflection of the status quo around the minority party leader's ideal point (i.e., $b^* = 2x_L - q$), which he can obtain for free, rather than expending the necessary resources to ensure the passage of some $b > 2x_L - q$. For those status quo points that are bound between the majority and minority leader's ideal points (subcase I.a), the leader's optimal behavior is simply to keep the status quo rather than to propose a new policy $b > q$ and expend the resources necessary to ensure its passage.[24] That is, even though the majority party leader could make a right-moving, winning proposal, she chooses not to do so, because the cumulative cost of side-payments required to fend off the anticipated counteractive side-payment of the minority leader is too high relative to the majority leader's marginal utility gain from a slightly more desirable policy. Finally, Subcase I.c of the proposition states that for those status quo policies that are right of the majority party leader's ideal point ($q \geq x_R$) elicit the optimal proposal $b^* = x_R$, which, even in the absence of transfers, defeats the status quo.

Not unlike an arms race, when both parties are well-endowed, their resources are not used in equilibrium. Policy stability is also likely, because, except for the case of $q \geq x_R$, a form of gridlock occurs. The status quo is the outcome of the game because, in the presence of a credible minority party counter-offer, it is too costly for the majority party to attempt to buy a better policy outcome. We will see below that this is true even in spite of the majority's significantly *disproportionate* wealth.

4.2 Not-well-endowed minority (case II)

Intuitively, when the minority party leader has a low resource endowment, successful use of sweeteners by the majority leader is more common. The precise location of the bill and the distribution of side-payments are somewhat complicated to identify, because they depend on the location of the status quo and legislators' relative preferences over the status quo and potential bills. Here we simply describe the characteristics of the equilibrium for each segment of the partitioned policy space, focusing on the qualitative properties of outcomes under this form of party competition.

First, consider status quo points that tend to be unfavorable to the majority party, namely policies left of the median (case II.a: $q < 0 = m$). Empirically, such policies may be remnants of recent Congresses in which the left party was in the majority, followed by an election in which the right party gained seats, moved the legislature's median to

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[24]This is akin to gatekeeping as the term is sometimes used in open-rule models. A subtle feature of this model is that the majority-party can, in effect, choose whether to trigger vote-buying or to unilaterally suppress it and maintain the status quo.

the right, and obtained majority status. In this case, the majority party leader proposes $b^* = -q + \delta$ and makes side-payments to a set of moderate voters. Recall that in the monopartisanship model (Proposition 1), the majority party leader in many of these cases simply proposes her ideal point (i.e., $b^* = x_R$) or the reflection point of q (i.e., $-q$), which passes without the need for side-payments. This strategy does not work under resource-based competition, however, even though the majority party has a significant resource advantage. Because the minority party leader has the option to use his endowment to make counteractive side-payments—and the majority leader knows this—the optimal deviation δ from the hypothetical bill $\hat{b}$ placed at the reflection point $-q$ may be positive *or negative*, because the latent threat of counteractive vote-buying can induce a leftward movement from $-q$. Therefore, although one may think that, even in the presence of parties competing with endowments of resources, the majority nevertheless gains a policy-making advantage if such resources are distributed asymmetrically, this is not necessarily the case. Indeed, under conditions identified in the proposition, the majority party is better off in a hypothetical world with no resources for either party.

Second, for status quo policies that are somewhat more favorable to the majority party ($0 < q < x_R$, called centrist and intermediate status quos), the results are similar to the monopartisan model (Prop. 1), although the majority leader's strategy differs across two sub-intervals. Given a positive status quo near the median (subcase II.b), the majority party leader proposes a bill to the right of the status quo, and compensates a set of legislators to secure votes for the bill's passage. For status quo points that are closer to the leader's ideal point (case II.c), the majority party leader essentially capitulates to gridlock by proposing $b^* = q$, because any additional rightward policy movement is more costly in the required side-payments than it is beneficial in policy utility. This boundary point at which it ceases to be cost-effective for the majority leader to obtain additional shifts is lower, relative to its counterpart in the baseline model. This is due to the subtle yet potent possibility—which need not be exercised in equilibrium—of a minority party counter-offer that sharply drives up the majority leader's price of building a winning coalition.

Finally, for status quo points greater than the majority party leader's ideal point (subcase I.d), the majority party leader proposes her ideal point and, in equilibrium, secures this outcome for free.

4.3 Observations

When the majority party leader's optimal bill b^* is paired with an optimal transfer schedule T^*, the side-payments sometimes induce a minimal winning majority. In many cases, however, building a supermajority coalition is the equilibrium strategy. Whether they are supermajority or minimal-winning, however, optimally constructed coalitions always have the property that it is impossible for the minority party leader to counter-bribe enough legislators to form a blocking coalition that maintains the status quo. Hence, if the majority party leader forms a minimal-winning coalition, no individual legislator will be susceptible to a counter-bribe, even if the minority leader offered his entire endowment. Likewise, if the majority leader bribes enough legislators to form a coalition of size $\frac{N+1}{2} + S$, where S is a measure of surplus above minimum-winning size, it will be the case that the sum of the counter-offers necessary to buy back the least expensive $S + 1$ legislators to form a blocking coalition will be greater than (or equal to) the minority party's endowment.

Similar to the results in Propositions 1 and 2, identifying the precise location of the optimal bill and the size of the optimal coalition is somewhat cumbersome for any particular preference configuration and endowment level. However, building on our earlier numerical example further highlights some interesting properties of the competitive-resources equilibrium.

Example 3

In Table 2, we investigate the effect of minority party resources on the optimal bill and optimal transfers when the status quo lies at the median voter's ideal point $q = 0$, and we identify the equilibrium for specified hypothetical minority party endowments E^L, beginning at 1 unit and rising to 50. For the purposes of illustration, we assume that the majority party leader has $E^R = 150$ units with which to build a winning coalition.

When minority resources are miniscule (e.g., $E^L = 2$), the majority leader simultaneously exploits her agenda monopoly and her 75:1 resource advantage by crafting a significantly right-shifting bill (5.65) and inducing otherwise status-quo-supporting legislators at 0, 1, and 2 to vote for the bill. The price of the majority leader's success in passing this non-moderate bill, is quite high, however: 67.7 units, to be exact.

When minority resources are higher (e.g., $E^L = 30$), the majority leader again exploits her agenda monopoly, but the gain, $b^* = 4.17$, is not as great as in the previous case. Moreover, this reduced policy benefit comes at a much greater cost; 120.1 units are required to assemble the supermajority coalition.

The last column of Table 2 shows a crude measure of the efficiency of the minority

party's counteractive threat. For a pittance of resources—say 2 units—the minority leader can effectively raise the equilibrium price to the majority leader to 67.7 units: a ratio of 33.9 to 1. This ratio decreases sharply in E^L, but, even so, when the majority leader has a 5:1 endowment advantage in the row where $E^L = 30$, the minority can extract an expenditure of 120 units from the majority—four times the minority's endowment and 80 percent of the majority's total endowment. And in doing so, the minority does not spend a dime. Finally, when the minority has an endowment of 50, the majority's optimal proposal is to simply retain the status quo (i.e., $b^* = q$). That is, even though the majority has a 3:1 endowment advantage over the minority, any attempt by the majority party to bring about a rightward policy shift is simply not worth the price in the presence of minority party counteractive resources.

Figure 3 graphs these and other data as a function of the minority party endowment and, in effect, illustrates some comparative statics. The top (green dotted) line shows the monotonic positive increase in the sum of majority party side-payments associated with minority resources. The next line down (black solid)—to which the vertical axis on the right pertains—shows how increases in minority resources result in moderation of majority agenda-setting behavior. (Recall that all bills pass in equilibrium.) And the bottom two lines show how these outcomes (increased payments and/or policy moderation) contribute to the monotonically decreasing and monotonically increasing effects of minority resources on the utilities of the majority and minority leaders, respectively. More specifically, as the minority party's resources increase, the majority suffers in two ways. First, it must expand the size of its coalition and/or dole out larger payments to coalition members to ensure that a viable blocking coalition cannot be created by the minority. Second, in an effort to curtail the costs associated with maintaining a impenetrable coalition, the majority party must propose a bill at least if not more moderate. Taken together, these trade-offs ensure that the majority party is generally worse off as the minority party's resources increase. Likewise, the majority's propensity to propose more moderate bills in response to increases in the minority party's resources ensures that the minority party is generally better off with larger resource endowments–despite lacking any agenda rights.

All said, the proposition suggests that a relatively small quantity of minority resources can be effective in extracting policy concessions from, and in breaking the bank of, a monopoly-agenda-setting and resource-advantaged majority party leader.

5 Discussion

Our analysis was motivated by two polar tendencies in existing literature on parties in legislatures. *Nonpartisan* and *monopartisan* perspectives are dramatically different from one another in their portrayals of the minority party. One view embraces the possibility that outcomes in a environment with strong parties may be observationally indistinguishable from outcomes in a nonpartisan model, because parties are competitive, not massively imbalanced in resources and capabilities, and counteractive. The other view suggests that parties' resource endowments are highly asymmetric, so there is little or no minority party counteractive influence on, and substantial majority party skewness of, outcomes. In spite of their differences, the perspectives have one common feature that is also characteristic of the empirical literature on the minority party. With only a few exceptions, neither empirical nor the theoretical literature is grounded in an explicit theory in which *both* parties are strategic actors in a well-specified game of lawmaking. Consequently, extant theories cannot explain policy outcomes of lawmaking when majority and minority parties are competitive.

The purpose of this paper is not to adjudicate between the two polar positions. Rather, it is to introduce and to illustrate the utility of a framework for analysis of party competition in which the minority party has an explicit opportunity to influence lawmaking. The framework focuses on two dimensions of competitive partisanship: *procedural competitiveness*, operationalized as minority party access to the agenda, and *resource competitiveness*, characterized as the ability of party *leaders* (emphasis on the plural) to use transferable resources strategically in their attempts to build winning or blocking coalitions. We find that giving some voice to the minority party in either one of these ways alone results in outcomes that, on the whole, are more moderate than those predicted by a widely-endorsed, monopartisan model. Although our analysis does not address the readily imaginable case of joint procedural- *and* resource-competitiveness, it seems inconceivable that this more minority-party-friendly model would contradict the substantive central tendency of our piecewise introduction of components of competitiveness. Therefore, our concluding, overarching suggestion is that minority party influence may be greater than is usually implied and believed.

Because this is primarily a theoretical exercise, however, we refrain from making strong empirical claims about the veracity of the competitive-partisan models' predictions. The most we can do is to suggest that the assumptions of these models have sufficient empirical plausibility—particularly relative to extant theories—that their implications are viable candidates for future empirical scrutiny. Of course, empirically

plausible assumptions can and should be questioned and, in some cases, modified. We conclude by mentioning some corresponding possibilities and discussing some related concerns.

Several of our findings can be constructively connected to existing literature. For example, the quoted excerpt from Aldrich and Rohde in the Introduction alludes to a hypothesis of interest to producers and consumers within the cottage industry of polarization studies.[25] The authors suggest that as the condition for "conditional party government" (Rohde 1991) is increasingly met, outcomes will become more extreme and consistent with majority party preferences. This hypothesis can easily be derived as a comparative static of our Proposition 3 analysis. In our framework, the Aldrich-Rohde party-government condition is actually two conditions: divergence of the majority party median from the chamber median, and thinning of the density of ideal points in the center of the spectrum where the pivotal voters reside. Under these conditions and those of Proposition 3 (resource-competition), the majority leader is more willing to pay for non-median policies because, being farther from the median, her utility gradient is steeper than it is in a less polarized world. Furthermore, because there are fewer moderates in a polarized legislature, not as many votes need to be bought as when a majority party leader must persuade a denser pack of moderates to support extreme policies.

The rights-resources framework is motivated by research mostly on congressional politics and US government, but it can nearly as easily be applied and interpreted in parliamentary, non-presidential, or multi-party settings. Granted, modeling a comparable three-or-more-party vote-buying game would be much more complicated, but this is not really necessary for illustrating what we take to be our primary analytical insight. For the passage of more moderate policies, it is sufficient to give only a *small* endowment of resources—or only *one* proposal—to only *one* party on the non-majority-party side of the policy spectrum.

Among the assumptions more vulnerable to criticism is the strictly sequential nature of our notion of competitive partisanship. In the case of resource transfers, such a structure is indeed an analytic convenience, but one that is reasonably well-defended elsewhere (see Groseclose 1996, for example).[26] Multi-round sequential bidding or more

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[25]See, for example, Bartels (2008), Fiorina, Abrams and Pope (2006), Hetherington (2009), and McCarty, Poole, and Rosenthal (2006).

[26]If we deviated from a sequential offers assumption, the model would effectively become a version of the well-studied "Colonel Blotto" game, for which pure strategy equilibria do not exist. While mixed strategy equilibria can be characterized in these types of games (i.e., Barelli, Govindan, and Wilson 2012), extracting the empirical implications from such equilibria characterizations are difficult

literal market-like mechanisms for vote-trading are nevertheles other possibilities that could, in principle, be embedded into the framework.[27]   In the case of amendment activity, it is not difficult to reverse the order of offering proposals, as in, for instance Weingast's (1989) "fighting fire with fire" argument.[28] This alteration does not seem to be very informative or defensible, however. For one thing, the analytical consequences are not much different if the minority moves first and the majority moves last, because this model, too, has the median-gravitational, race-to-the-center property discussed in Section 3. For another thing, designating the majority-party as last mover in agenda setting seems not to comport with the procedural facts in the legislative body in which we are most interested at this stage of the research agenda.[29]

Another avenue to explore in future work is how our results change if we were to analyze competitive vote buying with party-specific pricing rather than with our purely preference-based compensation algorithms. It should be noted, however, it is not abundantly clear what assumptions should be made in this regard. On first pass, it seems intuitive to think that votes of majority party moderates are cheaper to the majority party leader than are votes of minority party moderates, and vice versa from the minority party leader's perspective.   On second pass, if, as is commonly assumed, the majority party wants to remain in the majority, then its leaders are uniquely sensitive to the electoral fates of its legislators from swing districts which tend to elect moderates. Moderates, therefore, may be high on leaders' lists for getting a pass on voting for the party's position, in which case a leader'scrossing the aisle while shopping for votes may be cost effective. Ultimately, which is the better assumption seems to be an empirical question.[30]

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for various substantive applications (and the study of legislative politics, in particular).

[27]See, for example, Baron (2006), and Dekel, Jackson and Wolinsky (2009).

[28]The modeling in the article is two-dimensional and thus seemingly more general than our framework. However the paper does not include derivation and proofs of equilibira, so generality is in question. Propositions are stated and proved for a similar model in Krehbiel and Meirowitz (2002) that also disputes analytically some of Aldrich and Rohde's "conditional party government" claims.

[29]Alluded to earlier are two possibly noteworthy qualifications. First, the argument that the House's motion to recommit—while it exists—is rarely used (e.g., Roberts 2005) does not hold water in the present context, because in both of our models of competitive partisanship, the minority party does not have to use its designated weapon for it to be influential in equilibrium.   Indeed, the minority party's amendment is not accepted in the agenda-competition game and it expends no resources in the resource-competiton game. A more serious qualification is that, although the US House's motion to recommit is, by long-standing precedent, a right reserved for the minority party leader or his designee, as we noted above (footnote 13) it can be and sometime is taken away (Wolfensburger 2003). Doing this, however, requires a special order and is subject to a majority vote.

[30]A similar possibility is to explore how our results change if side-payments offered by the majority party were generally more valuable to all legislators than those offered by the minority. Here, too, there is no guarantee that the intuitive expectation will be fulfilled. Analytically, this may simply be

To us, the more promising direction is to begin to endogenize some of the exogenous components in our framework as a way of analyzing competitive-partisanship models from the perspective of organizational design or institutional choice. Why, how, and from whom do party leaders acquire procedural rights and transferable resources? Are the processes of determining the delegation of procedural authority actually *partisan* processes, or do they simply appear to be partisan after the fact because delegators are well-sorted into preference types? Are procedures such as the House's motion to recommit durable institutions because they protect the minority *party* or because they protect minority *viewpoints* or preferences, which are highly correlated with partisanshp on the issues of the day? These are challenging questions, but questions that are likely to be addressed more effectively by considering theoretical possibilities in conjunction with empirical analysis.[31] The framework of competitive partisanship provides a parsimonious and potentially useful way of conceptualizing ongoing research on legislative parties, preferences, behavior, and institutions.

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another way of saying the majority party leader has more resources than her minority counterpart—not resources that, per unit, are more valuable. The present framework already allows for this possibility, and, indeed, our examples adopted it as an assumption.

[31]For elements of, or findings bearing on, institutional choice similar to what we have in mind, see Anzia and Cohn (2011), Dewan and Spirling (2011), Diermeier and Vlaicu (2011), Jenkins and Monroe (2010).

Appendix (To be revised)

Proof of Proposition 1: Monopartisanship

The equilibrium to the Monopartisanship game is derived via backwards induction. In the final stage, legislator i will choose to vote for the majority-proposed bill (b) over the status quo (q) if the following holds: $-(x_i - b^*)^2 + t_i \geq -(x_i - q)^2$ for $t_i \geq 0$. First, realize that for $q \leq -x_R$ and $q \geq x_R$ the solution to the majority party leader's problem is $b^* = x_R$ and $t_i = 0 \forall i \in N$, which will pass when compared against the status quo. That said, $\forall q \in (-x_R, x_R)$, in stage 1 the majority party leader chooses b^* and T^* to maximize his utility subject to the constraint that a majority of voters prefer b^* (with corresponding T^*) to q. More formally, the majority party leader's problem is the following:

$$\max_b U = -(x_R - b)^2 - T$$
$$\text{where} \quad T = \sum_{i=0}^{k} \left[(x_i - b)^2 + (x_i - q)^2 \right].$$

That is, the majority party leader seeks to choose the optimal b^* subject to the constraint that legislators x_i with ideal points $i \in [0, k]$ will receive transfers such that they are indifferent between the new policy (b) and the status quo. Given the quasi-concavity of (1), we know that there is a unique b^* for each q. Furthermore, $b^* = q + \delta$ for $q \geq 0$, and $b^* = -q + \delta$ for $q < 0$. Hence the above expression is equivalent to:

$$\max_\delta U = -(x_R - q - \delta)^2 - \sum_{i=0}^{k} \left[(x_i - q - \delta)^2 + (x_i - q)^2 \right] \quad \text{for} \quad q \geq 0, \quad \text{and}$$

$$\max_\delta U = -(x_R + q - \delta)^2 - \sum_{i=0}^{k} \left[(x_i - q - \delta)^2 + (x_i - q)^2 \right] \quad \text{for} \quad q < 0. \tag{1}$$

Taking the first derivative of (1) with respect to δ, yields the following:

$$2(x_R - q - \delta) + 2\sum_{i=0}^{k}(x_i - q - \delta) = 0$$

$$\Rightarrow \delta^* = \frac{x_R - (k^* + 2)q + \sum_{i=0}^{k^*} x_i}{(k^* + 2)}.$$

Hence, for any given q, the optimal b^* involves proposing $q + \delta^*$ and paying transfers $t_i = (x_i - q - \delta)^2 - (x_i - q)^2 \forall i \in [0, k]$, such that $(x_i - q - \delta)^2 - (x_i - q)^2 = 0, \forall i \in [0, k]$. If $(x_i - q - \delta)^2 - (x_i - q)^2 < 0$ for x_k, the majority party leader proposes a bill $b^* = 2x_k - q$, and offers transfers $t_i = (x_i - 2x_k + q)^2 - (x_i - q)^2, \forall i \in [0, k-1]$ Setting δ^* equal to

0 and solving for q identifies the status quo such that the majority party leader would choose not to propose a policy other than the status quo. More formally:

$$\delta^* = \frac{x_R - (k^* + 2)\, q + \sum_{i=0}^{k^*} x_i}{(k^* + 2)} = 0 \Rightarrow q = \frac{x_i + \sum_{i=0}^{k^*} x_i}{(k^* + 2)}.$$

Hence, $b^* = q$ for $q \geq \frac{x_i + \sum_{i=0}^{k^*} x_i}{(k^*+2)}$ Similar analysis yields the optimal b^* and T^* for $q < 0$. Taken together, this analysis yields the optimal bill and transfer proposal as a function of the status quo:

Case 1 (extreme sq): $q \leq -x_R*, b^* = x_R, t_i^* = 0, \forall i \in N$

Case 2 (intermediate sq): $-x_R < q \leq q^- = \frac{-\left(x_R + \sum_{i=0}^{k^*} x_i\right)}{(k^*+2)}, b^* = -q, t_i^* = 0, \forall i \in N$

Case 3 (centrist sq): $q^- \leq q < 0,$ Either

$\quad\quad b^* = -q + \delta, t_i^* = (x_i + q - \delta)^2 - (x_i - q)^2, \forall i \in [0, k^*],$ or

$\quad\quad b^* = 2x_{k^*} - q, t_i^* = (x_i + 2x_{k^*} - q)^2 - (x_i - q)^2, \forall i \in [0, k^* - 1]$

Case 4 (centrist sq): $0 \leq q < q^+ = \frac{\left(x_R + \sum_{i=0}^{k^*} x_i\right)}{(k^*+2)}$ Either

$\quad\quad b^* = q + \delta, t_i^* = (x_i - q - \delta)^2 - (x_i - q)^2, \forall i \in [0, k^*],$ or

$\quad\quad b^* = 2x_k - q, t_i^* = (x_i - 2x_{k^*} + q)^2 - (x_i - q)^2, \forall i \in [0, k^* - 1]$

Case 5 (intermediate sq): $q^+ < q \leq x_R, b^* = q, t_i^* = 0, \forall i \in N$

Case 6 (extreme sq): $x_R < q, b^* = x_R, t_i^* = 0, \forall i \in N$

where $\delta = \frac{x_R + \sum_{i=0}^{k^*} x_i + (k^*+2)q}{(k^*+2)}$ and $k^* \in \arg\max\limits_{k} - (x_R - b^*)^2 - T^{R^*}$.

In all cases, voting is side-payment sincere: that is, $\forall i \in N$, $v_i^* = \text{Yes}$ if $(x_i - b)^2 + t_i \geq -(x_i - q)^2$ and No otherwise.

Proof of Proposition 2 - Agenda Competition

The equilibrium of the Agenda Competition game is derived via backwards induction. In stage 4, voter i will vote for a new policy over the status quo if one of the following inequalities hold:

$$-(x_i - b)^2 + t_i \geq -(x_i - q)^2 \tag{2}$$

$$-(x_i - a)^2 \geq -(x_i - q)^2 \tag{3}$$

with expression (2) being the relevant constraint if b is chosen by the legislature over a in stage 3, and (3) being the relevant constraint otherwise.

In stage 3, then, voter i will vote for the majority party bill, b, over the minority party amendment, a, if the following holds:

$$-(x_i - b)^2 + t_i \geq -(x_i - a)^2. \tag{4}$$

Working back to stage 2, the minority leader L would have already observed b and T as proposed by the majority leader R, and must now choose the optimal amendment a^* that maximizes its utility subject to the constraint that it can beat the majority party leader's bill (taking into account the observed transfers from R to selected legislators), and can also beat the status quo. Define a voter i as *pivotal* if a minimal winning majority votes for a over b when she votes for a over b. Given this definition, the minority party leader's problem can be represented as the following:

$$\max_a - (x_L - a)^2 \text{ such that:}$$
$$\alpha) - (x_i - a)^2 \geq -(x_i - b)^2 + t_i \quad \text{for} \quad a \quad \text{pivotal} \quad \text{voter} \quad i \in \{0, ..., \tfrac{N-1}{2}\}$$
$$\beta) - (x_m - a)^2 \geq -(x_m - q)^2,$$

where constraint (α), represents the relative utility of a pivotal voter who has received a (weakly) positive transfer from the majority party leader for voting for the minority amendment over the majority bill, and constraint (β) represents the median voter's utility of voting for the minority amendment over the status quo. For all voters $i \geq 0$, define $\hat{x}(x_i, t_i) \equiv x_i + \sqrt{x_i^2 - 2x_i b + b^2 - t_i}$, which implies that $\hat{x}(x_i, t_i)$ is the policy location such that voter i is indifferent between voting for $\hat{x}(x_i, t_i)$ and voting for the majority-proposed bill (and transfer). (Note that if $t_i = 0 \quad \forall i \geq 0$, then $\hat{x}(x_i, t_i)$ is just the reflection point of the majority proposed bill around voter i's ideal point.) Given that the minority party leader effectively seeks to propose an amendment that is as close to her ideal point as possible, but is sufficiently attractive to at least one member of the majority party coalition such that it defeats the majority proposed bill (and subsequently beats the status quo), constraint (α) must be binding in equilibrium. This

implies that $\forall$ pivotal voters $i \in \{0, ..., \frac{N-1}{2}\}$, the minority party will seek to propose $a^*(b, T) = \underset{i \in \{0,...,\frac{N-1}{2}\}}{\arg\min} (\hat{x}(x_i, t_i))$. If there is no amendment that satisfies this property (that is, $\hat{x}(x_i, t_i) = x_i$ $\forall$ pivotal voters $i \in \{0, ..., \frac{N-1}{2}\}$), then the minority party leader will propose an amendment that is located at the ideal point of the median voter (i.e., $a^*(b, T) = 0$).

Finally, moving back to stage 1, the majority party leader will seek to choose b^* and T^* to maximize his/her utility, subject to the constraints that b^* and T^* will be preferred by the legislature to the minority amendment $a^*(b, T)$, as well as being preferred to the status quo, q. Given that the minority party leader's equilibrium strategy, the best proposal that the majority party leader can make is to propose a bill and requisite transfers that beats any hypothetical amendment that were located at the ideal point of any legislator in his bribed coalition. Hence the majority party leader will chose b and T to maximize:

$$U = -(x_R - b)^2 - T$$
$$\text{where} \quad T = \sum_{i=0}^{z}(x_i - b)^2.$$

Taking the first derivative of this function with respect to b reveals that $b^* = \frac{x_R + \sum_{i=0}^{z^*} x_i}{(z^* + 2)}$. and he will pay out transfers $t_i = (x_i - b)^2$, $\forall i \in \{0, ..., z^*\}$. It is straightforward to demonstrate that b^* beats q $\forall q \in \Re$.

Drawing on this analysis, we characterize the unique subgame perfect Nash equilibrium to the agenda-based competition as:

$$b^* = \frac{x_R + \sum\limits_{i=0}^{z^*} x_i}{z^* + 2} \quad \text{and} \quad t_i = \begin{cases} (x_i - b)^2, & \forall i \in \{0, ..., z^*\} \\ 0, & \forall i \notin \{0, ..., z^*\} \end{cases},$$

where $z^* \in \underset{z}{\arg\max} - (x_R - b^*)^2 - T^{R^*}$

$$a^*(b, T) = \underset{i \in \{0,...,\frac{N-1}{2}\}}{\arg\min} (\hat{x}(x_i, t_i)) \quad \text{if}$$
$$\exists \quad \text{a pivotal voter} \quad i \in \{0, ..., \frac{N-1}{2}\} \quad \text{s.t.} \quad x_i^2 - 2x_i b + b^2 - t_i > 0,$$
$$a^*(b, T) = 0 \quad \text{otherwise.}$$

v^* voting is sincere and the outcome $x^* = b^*$ is constant.

Proof of Proposition 3 - Resource Competition The equilibrium of the Resource Competition game can be derived via backwards induction. In stage 3, voter i

will vote for a new policy over the status quo if the following holds:

$$-(x_i - b)^2 + t_i^R \geq -(x_i - q)^2 + t_i^L, \tag{5}$$

where b is the bill that is offered by the majority party, $t_i^R \geq 0$ is the transfer that the majority party (Party R) offers to voter i to vote for the new bill, and $t_i^L \geq 0$ is the transfer that the minority party (Party L) offers to voter i to vote for the status quo.

Working back to Stage 2, the minority party would have already observed b and T^R as proposed by the majority party, and must now choose the optimal T^L that maximizes its utility by buying back enough voters to maintain the status quo over b. In the case that it is not possible for the minority party to buy back enough voters to maintain the status quo, it will offer $t_i^L = 0, \forall i \in N$ (rather than spend costly resources without influencing the policy outcome). More formally, if a majority of the size $\frac{N+1}{2} + S$ favors the bill (and respective transfers) over the status quo (where $S > 0$ represents the number of legislators that favor the bill and transfers in addition to a minimal winning majority), the minority party leader will identify the cheapest $S+1$ legislators (i.e., those legislators for whom $-(x_i - b)^2 + t_i^R + (x_i - q)^2$ is smallest), and offer all legislators in this blocking coalition, which we denote B, $t_i^L = t_i^R$. Given our tie-breaking assumptions, such counter-bribes will induce these members of the blocking coalition to vote for the status quo. In the event, however, that $\sum_{i \in B} t_i^R \geq E^L$ (i.e., the minority party doesn't have enough resources to buy back the least-expensive blocking coalition), $t_i^L = 0, \forall i \in N$.

Working back to Stage 1, the majority party leader will seek to choose b^* and T^{R*} to maximize his/her utility, subject to the constraints that b^* and T^{R*} will be preferred by the legislature to the status quo, and that the minority party cannot bribe back a blocking coalition. First, realize that $\forall q \geq x_R$, the majority party leader can propose $b^* = x_R$ and offer transfers $t_i^R = 0, \forall i \in N$ and that proposal will be accepted by the legislature (without any counter-bribes from the minority party, who will prefer $b = x_R$ to the status quo). That said, for any generic $q < x_R$, the majority party leader will seek to identify $b^* = q + \delta^*$ (if $q \geq 0$), or $b^* = -q + \delta^*$ (if $q < 0$) such that (at least) a majority of the legislature prefers b^* to q (given t_i^R), and for the least-expensive potential blocking coalition (B), $\sum_{i \in B} t_i^R \geq E^L$. It has been well-established in other works (e.g., Banks 2000, Groseclose and Snyder 1996) that in sequential vote-buying models the optimal transfer schedule by the first mover will involve making all bribed members equally expensive to "buy back". (This strategy is referred to as a "leveling strategy" in the literature.) In the context of our model, the majority party leader will propose

a bill-transfer schedule package so that every member who receives positive transfers $(t_i^R > 0)$ is equally expensive for the minority party to bribe back. Given that the optimal bill-transfer schedule package will satisfy the constraint $\sum_{i \in B} t_i^R \geq E^L$, there are three options that the majority party leader might employ to achieve his objective.

Option I: For relatively small levels of E^L, the majority party leader can propose b^* and pay transfers equal to $-(x_i - q)^2 + (x_i - b^*)^2 + E^L, \forall i \in [0, k]$, where (similar to the results above), voter k is the right-most voter for whom $-(x_i - q)^2 \geq -(x_i - b^*)^2$ (i.e., the right-most voter who weakly prefers the status quo over the bill, absent any transfers).

Option II: For relatively larger levels of E^L, the majority party leader might choose to propose a certain b^* and pay transfers equal to $-(x_i - q)^2 + (x_i - b^*)^2 + w_L, \forall i \in [0, k+l]$, where voter k is the right-most voter for whom $-(x_i - q)^2 \geq -(x_i - b^*)^2$ and voter $(k+l)$ is the right-most voter for whom $-(x_i - q)^2 + E^L \geq -(x_i - b^*)^2$. The difference between Option I and Option II is entirely a function of E^L, as when E^L is relatively small there are no voters to the right of voter k for whom $-(x_i - q)^2 + E^L \geq -(x_i - b^*)^2$. It is important to note that for both of these options, the majority party leader only secures the approval of a minimal winning majority, and pays all bribe recipients the utility difference between the bill and the status quo (plus E^L) to ensure that no legislator can be bought back by the minority party to retain the status quo.

Option III: Finally, the majority party vote-buyer might choose to buy an oversized coalition. That is, she might choose to propose a bill and pay all legislators from $-j(j > 0)$ to $(k + l)$ to vote for the bill over the status quo. As we know from the work of Groseclose and Snyder (1996), if the majority party leader bribes one legislator more than a minimal winning majority, he has to pay each bribed legislator only $E^L/2$ rather than E^L to ensure that the minority party can't form a blocking coalition. More generally, if the majority party bribes all legislators between $[-j, 0]$, he will have to pay each bribe recipient in his oversized coalition bribes equal to $E^L/(1 + j)$.

Given these considerations, the majority party leader will choose δ to maximize:

$$\max_{\delta} U_{v_R} = -(x_R - q - \delta)^2 - \sum_{i=-j}^{(k+l)} [(x_i - q - \delta)^2 + (x_i - q)^2 + \frac{E^L}{1 + j}] \quad \text{for} \quad q \geq 0, \quad (6)$$

and

$$\max_{\delta} U_{v_R} = -(x_R + q - \delta)^2 - \sum_{i=-j}^{k+l} [(x_i + q - \delta)^2 + (x_i - q)^2 + \frac{E^L}{1+j}] \quad \text{for} \quad q < 0. \quad (7)$$

Taking the first derivative of (6) with respect to δ, yields the following:

$$2(x_R - q - \delta) + 2\sum_{i=-j^*}^{(k^*+l^*)} (x_i - q - \delta) = 0$$

$$\Rightarrow \delta^* = \frac{x_R + \sum_{i=-j^*}^{(k^*+l^*)} x_i - (j^* + k^* + l^* + 2)q}{(j^* + k^* + l^* + 2)}.$$

Likewise, similar analysis reveals that $\delta^* = \frac{x_R + \sum_{i=-j^*}^{(k^*+l^*)} x_i + (j^* + k^* + l^* + 2)q}{(j^* + k^* + l^* + 2)}$ for $q < 0$.

Finally, there are two considerations that need to be addressed. First, for certain $q \in [-X, x_R)$, the majority party might prefer to retain the status quo rather than to make a proposal (and engage in the necessary vote-buying to secure the passage of the proposal). Likewise, for certain levels of E^L the majority party leader might prefer to retain the status quo because it is too expensive to pay whatever bribes would be necessary to induce policy change will ensuring that $\sum_{i \in B} t_i^R \geq E^L$.

To identify the status quo locations for which the majority party would prefer to retain the status quo, rather than propose a bill (and corresponding transfers), first realize that $\forall q < 0$ (unlike Model I), the majority party leader cannot simply propose $-q$ without offering any transfers, because the minority party could offer the median voter a trivial counter-bribe to retain the status quo. Hence, $\forall q < 0$, the majority party leader will propose $b^* = -q + \delta^*$ defined above, so long as E^L is sufficiently small such that $\sum_{i \in B} t_i^R \geq E^L$. For $q > 0$, however, we can find the $\bar{q}$ such that the majority party leader would prefer to propose $b^* = q$, rather than $b^* = q + \delta^*$ for $q \geq \bar{q}$ by setting δ^* equal to zero and solving for q. That is:

$$\delta^* = \frac{x_R + \sum_{i=-j^*}^{(k^*+l^*)} x_i - (j^* + k^* + l^* + 2)q}{(j^* + k^* + l^* + 2)} = 0 \Rightarrow q = \frac{\left(x_R + \sum_{i=-j^*}^{(k^*+l^*)} x_i\right)}{(j^* + k^* + l^* + 2)}.$$

Hence, when $q \in [\bar{q} = \frac{(x_R + \sum_{i=-j^*}^{(k^*+l^*)} x_i)}{(j^* + k^* + l^* + 2)}, x_R)$, which we denote intermediate right-of-median status quos, $b^* = q$.

To identify the bound on E^L such that the majority party leader would prefer to retain the status quo rather than propose a bill (and requisite transfers) that deviated from the status quo, we simply compare the majority party leader's utility under the status quo to what he receives by proposing the optimal bill and transfer schedule (which is a function of E^L) and solve for the E^L that makes him indifferent between making a proposal and retaining the status quo. More formally, for $q \in [0, x_R)$, the majority party leader will choose to retain the status quo whenever:

$$-(x_R - q)^2 \geq -(x_R - q - \delta^*) - \sum_{i=-j^*}^{(k^*+l^*)} t_i^R$$

$$\Rightarrow \overline{E^L} = \frac{(2\delta^*(x_R + \sum_{i=-j^*}^{(k^*+l^*)} x_i) - (2q\delta^* + \delta^{*2})(j^* + k^* + l^* + 2))(j^* + 1)}{(j^* + k^* + l^* + 1)}.$$

Likewise, when $q < 0$, $\overline{E^L} = \frac{((2-\delta^*)(2x_R + \sum_{i=-j^*}^{(k^*+l^*)} x_i) - (2q\delta^* - \delta^{*2})(j^* + k^* + l^* + 2))(j^* + 1)}{(j^* + k^* + l^* + 1)}$. Drawing on this analysis, we can characterize the equilibrium to the resource competition game as a function of status quo locations and minority party endowments as follows:

Case 1: If $E^L \leq \overline{E^L}$ (the minority party is not well endowed) then

a) For $q \leq 0$, $b^* = -q + \delta$, $t_i^{*R} = (x_i + q - \delta)^2 - (x_i - q)^2 + \frac{E^L}{1+j^*}, \forall i \in [-j^*, (k^* + l^*)]$
   where
   $$\delta = \frac{x_R + \sum_{i=-j^*}^{(k^*+l^*)} x_i + (j^* + k^* + l^* + 2)q}{(j^* + k^* + l^* + 2)}$$

b) For $0 \leq q < \left(x_R + \sum_{i=-j^*}^{(k^*+l^*)} x_i\right) / (j^* + k^* + l^* + 2)$

   $$b^* = q + \delta, \qquad t_i^{*R} = (x_i - q - \delta)^2 - (x_i - q)^2 + \frac{E^L}{1+j^*}, \forall i \in [-j^*, (k^* + l^*)]$$
   where
   $$\delta = \frac{x_R + \sum_{i=-j^*}^{(k^*+l^*)} x_i - (j^* + k^* + l^* + 2)q}{(j^* + k^* + l^* + 2)}$$

c) For $\left(x_R + \sum_{i=-j^*}^{(k^*+l^*)} x_i\right) / (j^* + k^* + l^* + 2) \leq q < x_R$, $b^* = q, t_i^{*R} = 0, \forall i \in N$

d) For $x_R \leq q$, $b^* = x_R, \quad t_i^{*R} = 0, \forall i \in N$

Case 2: If $E^L > \overline{E^L}$ (the minority party is well endowed), then

35

a) For $q < x_R$, $\quad b^* = q$, $\quad t_i^{*R} = 0, \forall i \in N$

b) For $q \geq x_R$, $\quad b^* = x_R$, $\quad t_i^{*R} = 0, \forall i \in N$

where $j^*, k^*, l^* \in \arg\max\limits_{j,k,l} -(x_R - b^*)^2 - T^{R*}$

In both cases, $t_i^{*L} = 0$ and v_i^* is side-payment sincere $\forall i \in N$.

The threshold $\overline{E}^L$ is

$$\frac{(2 - \delta^*)(2x_R + 2\sum\limits_{i=-j^*}^{(k^*+l^*)} x_i) - (2q\delta^* - \delta^{*2})(j^* + k^* + l^* + 2))(j^* + 1)}{(j^* + k^* + l^* + 1)} \quad \text{if} \quad q < 0,$$

and

$$\frac{(2\delta^*(x_R + \sum\limits_{i=-j^*}^{(k^*+l^*)} x_i) - (2q\delta^* + \delta^{*2})(j^* + k^* + l^* + 2))(j^* + 1)}{(j^* + k^* + l^* + 1)} \quad \text{otherwise.}$$

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Table 1. Equilibria in the monopartisan model over a range of status quo policies*

| Status quo | Bill | Side-payments | | | | | Total Transfers | Majority Leader's Utility | Leg.*k* |
		Median	Leg.1	Leg. 2	Leg. 3	Leg. 4			
-10	10	0.0	0.0	0.0	0.0	0.0	0.0	-100.0	-
-9	10	19.0	0.0	0.0	0.0	0.0	19.0	-119.0	0
-8	10	36.0	0.0	0.0	0.0	0.0	36.0	-136.0	0
-7	9	32.0	0.0	0.0	0.0	0.0	32.0	-153.0	0
-6	8	28.0	0.0	0.0	0.0	0.0	28.0	-172.0	0
-5	7	24.0	0.0	0.0	0.0	0.0	24.0	-193.0	0
-4	7	33.0	11.0	0.0	0.0	0.0	44.0	-213.0	1
-3	7	40.0	20.0	0.0	0.0	0.0	60.0	-229.0	1
-2	6	32.0	16.0	0.0	0.0	0.0	48.0	-244.0	1
-1	**5.75**	**32.1**	**18.6**	**5.1**	**0.0**	**0.0**	**55.7**	**-258.8**	**2**
0	5.75	33.1	21.6	10.1	0.0	0.0	64.7	-267.8	2
1	5.2	26.0	17.6	9.2	0.8	0.0	52.9	-272.0	3
2	5.2	23.0	16.6	10.2	3.8	0.0	49.9	-269.0	3
3	5	16.0	12.0	8.0	4.0	0.0	36.0	-261.0	3
4	5	9.0	7.0	5.0	3.0	1.0	21.0	-246.0	4
5	5	0.0	0.0	0.0	0.0	0.0	0.0	-225.0	-
6	6	0.0	0.0	0.0	0.0	0.0	0.0	-196.0	-
7	7	0.0	0.0	0.0	0.0	0.0	0.0	-169.0	-
8	8	0.0	0.0	0.0	0.0	0.0	0.0	-144.0	-
9	9	0.0	0.0	0.0	0.0	0.0	0.0	-121.0	-
10	10	0.0	0.0	0.0	0.0	0.0	0.0	-100.0	-

***41 legislators are uniformly distributed over interval [-20, 20] with $R = 10$; shading denotes positive transfers in equilibrium; boldface denotes Example 1 in text.

Table 2. Consequences of minority-party endowment in resource-based competition*

E^L Minority Endowment	Optimal Bill	Side-payments, T^R						Total transfers	Ratio of total transfers to minority endowment
		Leg. -1	Leg.0 Median	Leg. 1	Leg. 2	Leg. 3	Leg. 4		
1	5.75	0.0	34.1	22.6	11.1	0.0	0.0	67.7	67.7
2	**5.65**	**0.0**	**33.9**	**22.6**	**11.3**	**0.0**	**0.0**	**67.7**	**33.9**
5	5.20	0.0	32.0	21.6	11.2	0.8	0.0	65.8	13.2
10	5.20	0.0	37.0	26.6	16.2	5.8	0.0	85.8	8.6
20	4.40	38.2	29.4	20.6	11.8	0.0	0.0	99.8	5.0
25	4.17	38.2	29.9	21.5	13.2	4.9	0.0	107.6	4.3
30	**4.17**	**40.7**	**32.4**	**24.0**	**15.7**	**7.4**	**0.0**	**120.1**	**4.0**
40	4.14	45.4	37.2	28.9	20.6	12.3	4.0	148.4	3.7
50	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Status quo = 0, majority party endowment $E^R = 150$, 41 legislators are evenly distributed over interval [-20, 20] with $L = -20$, and $R = 20$, boldface denotes case discussed in text.

Figure 1. Outcomes and majority-party gains under closed rule with and without side-payments
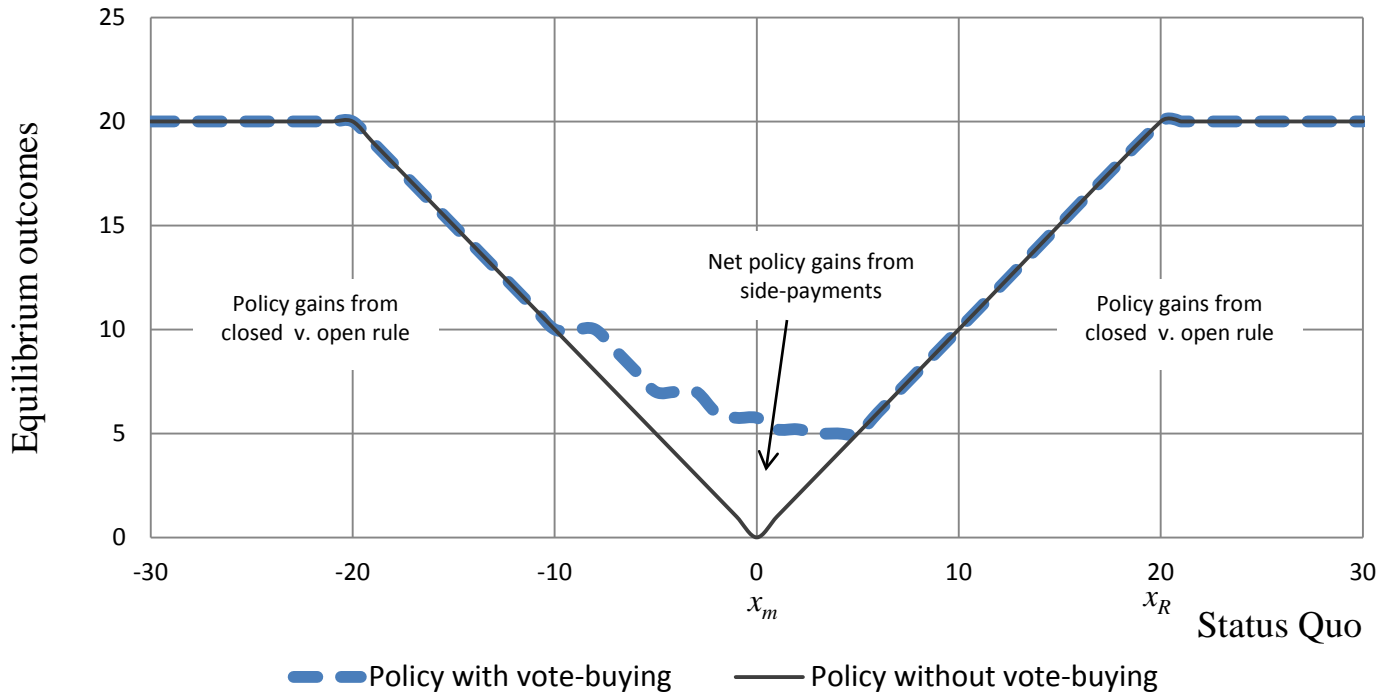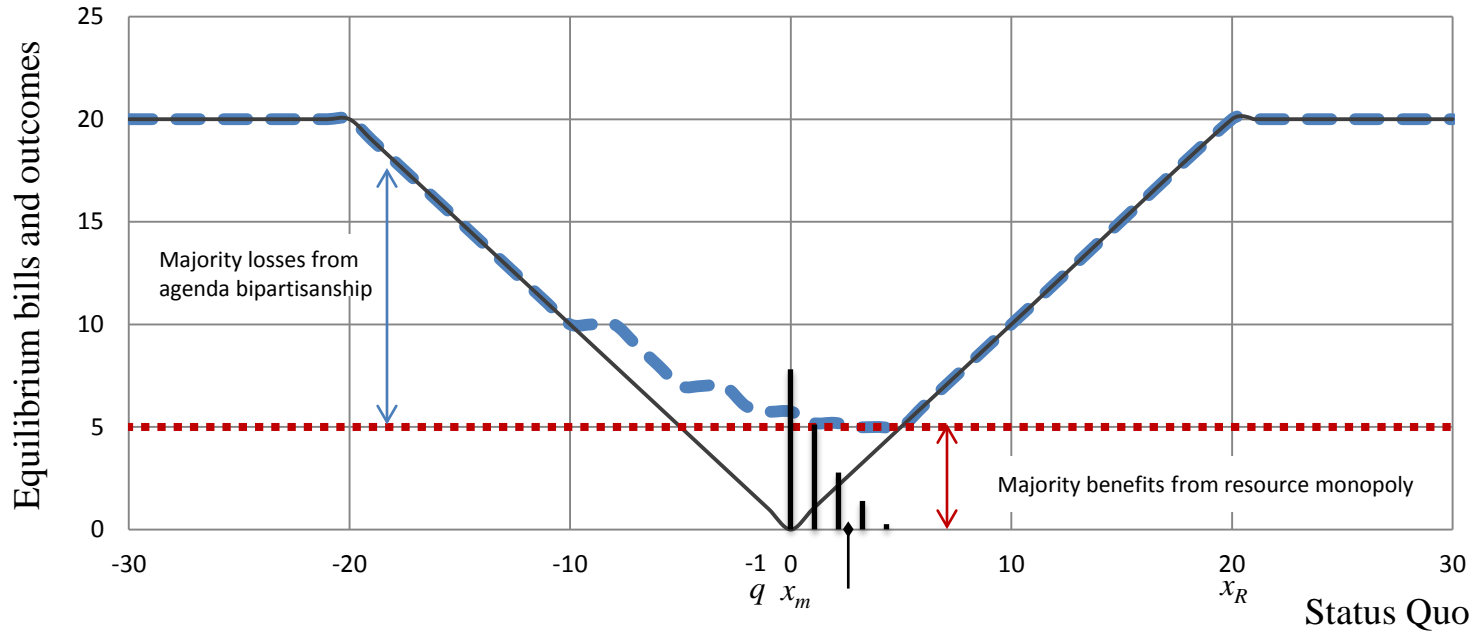
Figure 2. Agenda-based competition and majority-party power

Vertical bars represent optimal side-payments for of $q = -1$, where $b^* = 5$ and $T^* = \{25, 16, 9, 4, 1, 0\}$ for voters $0, \ldots, 4$
➤ denotes out-of-equilibrium best-response (Example 2)

Figure 3. Influence of minority-party resources on resource-based competition equilibrium