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Spatial Models of Legislative Effectiveness

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Abstract: *Spatial models of policymaking have evolved from the median voter theorem to the inclusion of institutional considerations such as committees, political parties, and various voting and amendment rules. Such models, however, implicitly assume that no policy is better than another at solving public policy problems and that all policy makers are equally effective at advancing proposals. We relax these assumptions, allowing some legislators to be more effective than others at creating high-quality proposals. The resulting Legislative Effectiveness Model (LEM) offers three main benefits. First, it can better account for policy changes based on the quality of the status quo, changing our understanding of how to overcome gridlock in polarized legislatures. Second, it generalizes canonical models of legislative politics, such as median voter, setter, and pivotal politics models, all of which emerge as special cases within the LEM. Third, the LEM offers significant new empirical predictions, some of which we test (and find support for) within the U.S. Congress.*

Replication Materials: The data, code, and any additional materials required to replicate all analyses in this article are available on the *American Journal of Political Science* Dataverse within the Harvard Dataverse Network, at: doi:10.7910/DVN/BXXWWW.

For decades, the workhorse theory of policymaking within political institutions has been the spatial model. Building on Black (1948) and Downs (1957), scholars of legislative politics have long noted how proposals near the median along a left-right ideological spectrum gain the support of a majority. Variants of such models have accounted for proposal power (Romer and Rosenthal 1978), committees as gatekeepers (Denzau and Mackay 1983), bicameralism and supermajority rules (Brady and Volden 1998; Krehbiel 1998), and agenda-setting parties (Cox and McCubbins 2005). Spatial models have also served as the basis for the estimation of the ideological ideal points of members of Congress (Clinton, Jackman, and Rivers 2004; Poole and Rosenthal 1997), as well as of political actors in courts (Martin and Quinn 2002), parliaments (Hix, Noury, and Roland 2006), and state legislatures (Shor and McCarty 2011).

However, such models tend to make two implicit and related assumptions that have limited their applicability to an even broader array of political phenomena. First, spatial models tend to characterize policy proposals by their spatial locations alone, setting aside the possibility that some policies might be more appealing than others. Yet the entire field of policy analysis focuses not on the ideological positions of policies but instead on their costs and benefits across an array of societally valued criteria (e.g., Bardach and Patashnik 2015). Even if policy makers might disagree ideologically, they all tend to prefer greater benefits (e.g., better-educated children, less crime) at lower costs (thus allowing for tax cuts, spending increases elsewhere, or a lower debt).

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A wide range of prominent policy debates involve cases where policy makers found common ground on contentious ideological issues due to a broad understanding that the current policy was too costly or unable to achieve its supposed benefits. For example, the growing perception of the failure of the U.S. welfare system at reducing poverty was enough to bridge the ideological divide between House Speaker Newt Gingrich and President Bill Clinton and secure major reforms in the mid-1990s. The terrorist attacks of 9/11 showed the deep flaws of existing policies and brought about support for major bipartisan policy changes, including the PATRIOT Act and the establishment of the Department of Homeland Security. The Great Recession beginning in 2008 left a status quo policy so untenable as to foster major policy adoptions and regulatory reforms.

In a conventional one-dimensional spatial model, scholars often engage such major policy changes by suggesting that the status quo policy received a substantial "shock" in a liberal or conservative direction, thus allowing a dramatic policy change. However, such a left-or-right shock would do little to explain why *both* conservative-moving and liberal-moving proposals were plausibly advocated during the Great Recession, for example. In contrast, as we argue below, such policy changes can be more naturally understood by accounting for the underlying perceived benefit-cost considerations, which we refer to as the *quality*, of the status quo.

Second, besides focusing solely on the spatial location of policies, all proposers in standard spatial models are treated as equally capable of developing proposals that could achieve legislative success. That is, if recognized, any policy maker can offer a proposal anywhere in the policy space, with potential coalition partners only concerned about its spatial location. Yet a growing empirical literature has recognized that policy makers are differentially effective at navigating the legislative process (e.g., Frantzich 1979; Volden, Wiseman, and Wittmer 2013; Weissert 1991); and standard spatial models do not account for such variance.[1]

To address and overcome these limitations, we build upon recent theoretical advancements with a Legislative Effectiveness Model (LEM), with two main features that differ from canonical spatial models—namely, we capture what we denote as *policy quality*, as well as the relative *legislative effectiveness* of individual lawmakers.[2] As alluded to above, we argue that a natural interpretation of a proposal's quality is the expected (or perceived) benefit-to-cost ratio of the policy. For instance, a health care policy that saves and extends more lives at a lower cost would be thought of as a higher-quality policy than one with fewer health benefits or greater budgetary impacts. Indeed, even during the contentious debates in 2009 and 2010 surrounding the passage of the Affordable Care Act, the program's projected costs played an important role, with both liberal proposers and pivotal moderates preferring lower budgetary impacts (e.g., Wayne and Armstrong 2009). Hence, we argue that policies vary not only in their left-right positions but also in their perceived quality, and that both of these considerations are salient to legislators when they weigh competing policy proposals.[3]

That said, not every policy maker is able to conceive of, and build a coalition around, high-quality policies. Extensive policy expertise and political acumen are needed to generate high-quality policy proposals that gain the broad support of other policy makers. In our conception, *effective lawmakers* are those who can generate such high-quality policies at a low cost. In combination, additions of lawmaker effectiveness and proposal quality to standard spatial models offer important new insights regarding legislative politics and policy choices.

The Legislative Effectiveness Model

Across the next several sections, we advance and solve a series of four legislative effectiveness models before conducting tests of key propositions. We begin with a closed-rule model in which a single lawmaker makes a take-it-or-leave-it offer to the legislative median, relative to a status quo. The second model presents an open-rule

[1] Denzau and Munger (1986) and Ashworth (2005) present models in which legislators vary in their abilities and competence, yet neither analyzes how variations in competence map into policy proposals and outcomes.

[2] Policy quality is included here in the modeling tradition of a "valence" dimension, which has been employed extensively in the studies of elections (e.g., Calvert 1985; Groseclose 2001; Londregan and Romer 1993) and, to a lesser degree, other political environments such as judicial decisions (e.g., Lax and Cameron 2007). Our approach differs from these earlier models not only in the institutional settings we explore (but see Hirsch and Shotts 2012 and Londregan 2000 for examples of valence in legislative settings), but also in how we link policy quality to legislator effectiveness, with an endogenous choice of quality generated by the effort costs that the proposer must pay. Other prominent models of endogenous valence provision include Hirsch and Shotts (2015), Meirowitz (2008), Serra (2010), and Wiseman (2006).

[3] One might also interpret the quality dimension to be a proposal's public popularity, or the reduction in the uncertainty between the spatial locations of the proposed policy and the final policy outcome (i.e., Gilligan and Krehbiel 1987; Lax and Cameron 2007). In its most abstract sense, one might characterize as quality any factors on which decision makers agree that more is better, and as ideology anything on which their preferences diverge (i.e., Hirsch and Shotts 2015).

setting in which all legislators (and most crucially, the median) can themselves offer policy proposals, but only the effective lawmaker can enhance the quality of proposals. The third model introduces a second effective lawmaker who could also offer a high-quality counterproposal. The fourth and final model features a second pivotal actor who (along with the median) must support the policy change over the status quo in order for it to be adopted.

Across these model variants, we retain the same structure and utility functions as much as possible. Specifically, each model features the first move by a Lawmaker (L), who can offer a bill (b) to change the status quo (q), containing both a quality (g_b) and a spatial element ($x_b \in X \subset \mathbb{R}^1$). The preferences of a pivotal voter, such as the Median legislator (M), can be represented by the following utility function:

$$U_M(y, g) = -(x_M - y)^2 + g_y,$$

where x_M is the Median's spatial ideal point, $y \in \{x_b, x_q\}$ is the location of the policy outcome in the unidimensional space, and g_y is the quality of the final policy (either the bill or the status quo). We model quality through a simple linear additive term; and for simplicity, we assume that each legislator values proposal quality equally. That said, the results below are substantively robust to alternative valuations of proposal quality, as long as legislators do not view more distant proposals as higher in quality than proximate proposals. Therefore, the results here hold in highly polarized legislatures in which one party's legislators disregard (or actively dislike) quality proposals advocated by the opposing party.

Without loss of generality, we assume that $x_M = 0$, so the Median's utility function can be simplified to the following expression:

$$U_M(y, g) = -y^2 + g_y.$$

Similar to the legislative Median, we assume that the Lawmaker cares about a policy's spatial location and quality, valuing the quality of the final policy in a manner similar to all other legislators.[4] Moreover, we assume that it is costless to introduce a policy that has a basic quality level that we normalize to zero for ease of explication. However, the Lawmaker incurs a cost for any effort she exerts to raise the policy's quality above that normalized zero value.[5] Note that, in referring to a zero-quality policy, we do not mean to imply that a policy (whether it be a new policy or the status quo) has a benefit-to-cost ratio that is equal to zero. Formally, L's preferences can be represented as

$$U_L(y, g, e) = -(x_L - y)^2 + g_y - \alpha e,$$

where x_L is the Lawmaker's spatial ideal point ($x_L > x_M = 0$), $\alpha \geq 1$ captures the marginal cost that L must incur to add positive quality to a new bill, and $e \geq 0$ represents the level of effort that L devotes to producing such bill quality. We assume that there is a simple linear mapping between the effort exerted by the Lawmaker and the quality that results (i.e., $g_b = f(e) = e$). Hence, we can express L's preferences as

$$U_L(y, g) = -(x_L - y)^2 + g_y - \alpha g_b.$$

To streamline notation, in the analysis that follows, we characterize the Lawmaker's choice of a level of quality, g_b, rather than the effort level that is needed to produce said quality. Given this specification, α captures the *relative effectiveness* of the Lawmaker at producing high-quality bills.[6] If α is high, the Lawmaker is relatively ineffective at lawmaking, whereas if α is low, the Lawmaker is relatively effective, able to produce high-quality bills at low cost. Finally, as noted above, we assume that $\alpha \geq 1$, which implies that the marginal costs from producing attractive legislation are at least as high as the marginal benefits that the Lawmaker receives from said bills.

LEM-Closed Rule

The first variant of the LEM involves a "closed rule," with the following sequence of play. In Stage 1, the Lawmaker decides what bill to propose, with both a spatial location and a level of quality. Then the Median votes for or against the proposal in Stage 2. A vote against the proposal maintains the status quo (with spatial position x_q and quality g_q). Payoffs are received at the conclusion of Stage 2. The closed rule means that no amendments to the Lawmaker's proposal are permitted.

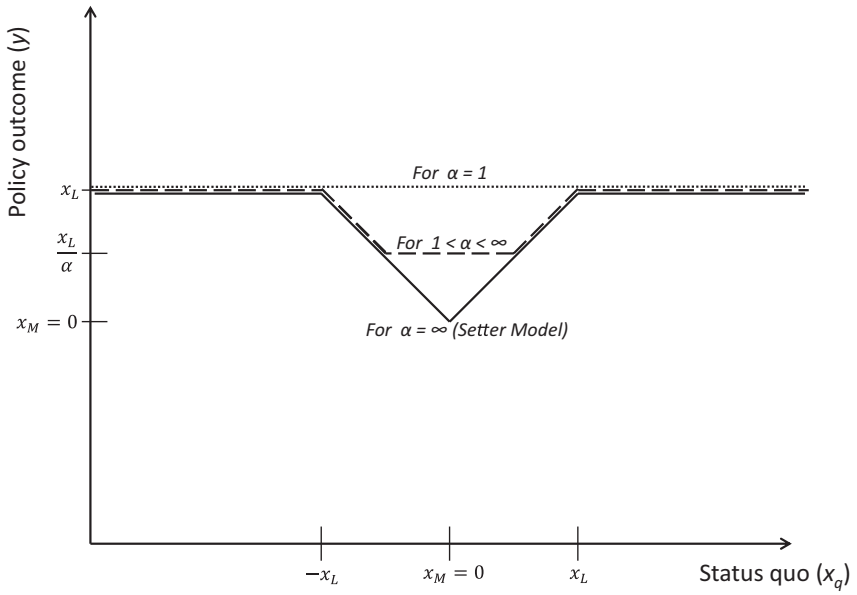
Because the LEM is a sequential game of complete and perfect information, we derive the subgame-perfect Nash equilibrium via backward induction. The equilibrium is therefore derived by (1) identifying what spatial

[4] Altering the value that L places on quality has little effect on the equilibrium results below, but makes the explication more cumbersome.

[5] Such costs might be related to the time and effort that a lawmaker must devote to engaging in research that is then publicized to emphasize the positive aspects of the bill. Future work may explore pathways through which such costs might be altered, such as via a legislative subsidy by interest groups (Hall and Deardorff 2006) or from legislative staff or political parties.

[6] A natural extension to this model would be one in which the Lawmaker could exert effort to make the status quo (or competing proposals) have *less* quality, as perceived by other legislators. As long as the relative costs of adding (positive) quality are identical to the costs of subtracting quality, then the results of that model would be substantively identical to the results presented here.

FIGURE 1 LEM- Closed Rule with Zero Status Quo Quality



policy locations (and corresponding quality levels) the Median requires in order to induce him to vote for the new bill over the status quo, and then (2) identifying the optimal spatial location and bill quality choices for the Lawmaker, given the constraints imposed by the Median's preferences, compared to what she receives from retaining the status quo. Where the status quo is preferred over the most attractive proposal that the Lawmaker is willing to offer to the Median, multiple (rejected) proposals are in equilibrium. We therefore assume that in such circumstances, across all variants of the LEM, the Lawmaker offers a proposal that is spatially located at her ideal point, and exerts no effort to add quality to the proposal.[7] Likewise, when $\alpha = 1$, multiple equilibrium proposals will be accepted over the status quo, and thus we assume that the Lawmaker will then select the acceptable proposal with the minimum necessary quality.

Special Case of Zero Status Quo Quality

To aid readers in understanding the logic of the LEM and its equilibrium, we begin with the special case in which the quality level of the status quo policy is normalized to zero ($g_q = 0$). The equilibrium in this case is characterized as follows.

[7] Although not modeled here, such a proposal is consistent with the idea that legislative proposals may also be offered for their symbolic value.

Proposition 1 (Equilibrium Policies in the LEM-Closed Rule Game with $g_q = 0$). *The unique subgame-perfect equilibrium of the LEM-closed rule game with $g_q = 0$ yields the following spatial policy outcomes:*

$$y^* = \begin{cases} x_L & \text{if } x_q \leq -x_L \text{ or } x_q \geq x_L \\ |x_q| & \text{if } -x_L < x_q < -x_L/\alpha \text{ or } x_L/\alpha < x_q < x_L \\ \frac{x_L}{\alpha} & \text{if } -x_L/\alpha \leq x_q \leq x_L/\alpha \end{cases}$$

Proof. Proofs and full characterizations of the equilibria for all propositions are given in the online supporting information.

As Proposition 1 details, the spatial location of the equilibrium policy outcome is a function of the spatial location of the status quo relative to the ideal points of the Median and the Lawmaker, as illustrated in Figure 1. Two special cases of the general equilibrium are also highlighted in the figure. Specifically, as shown by the solid line, in the case where $\alpha = \infty$, the cost of adding quality to the Lawmaker's proposal is prohibitively high. Hence, the model reduces to a special case: Romer and Rosenthal's (1978) "setter" model, where the Lawmaker operates as a setter.

At the other extreme in terms of legislative effectiveness, the dotted line in Figure 1 illustrates the equilibrium where $\alpha = 1$. This is the case where the Lawmaker is so effective that she can add quality to a policy at a very low cost, such that she gains as much in utility from the quality she produces as she loses in utility from the effort required to produce it. Hence, no matter what status quo

policy she faces, the Lawmaker can propose a policy that is spatially located at her ideal point and generate sufficient quality to induce acceptance by the Median.

In between these extremes are the more typical equilibrium proposals for a Lawmaker, as illustrated with the long dashes. For spatially extreme status quo locations, the Lawmaker can propose a policy that is spatially located at her ideal point, which is preferred by the Median over the status quo. As with the setter model, for status quo locations just to the left of the Lawmaker's ideal point, any movement to the right would be opposed by the Median unless the proposal were of sufficiently high quality. Yet, here, the status quo is spatially located close enough to the Lawmaker that she does not wish to exert the effort needed to generate an acceptable high-quality alternative proposal. A similar region exists just to the right of $-x_L$, where the reflection of the status quo location across the Median is close enough to the Lawmaker's ideal point that she does not wish to add quality to bring about something even closer to her spatial ideal point. For status quos located very close to the Median, however, the Lawmaker prefers a more substantial move toward her ideal point, and she is willing to exert enough effort to generate the proposal quality needed to make the Median indifferent between her proposal and the status quo.

In this region, the equilibrium proposal is spatially located at x_L/α, indicating that the amount of movement away from the Median, and toward the Lawmaker, depends on the Lawmaker's effectiveness (the cost of effort). The more effective the Lawmaker, the larger this region and the farther policy is pulled (spatially) toward her ideal point. Essentially, the spatial location of the proposal is a weighted average of the spatial ideal points of the two main actors (the Median at $x_M = 0$ and the Lawmaker at x_L). The weight depends on the costs of formulating a high-quality proposal, with lower costs shifting the spatial policy location toward the Lawmaker, and higher costs shifting the outcome toward the Median.

LEM-Closed Rule, General Results

We now generalize the above to allow status quo policies to exhibit positive or negative quality. High-quality status quos could be thought of as those that have been demonstrated to have a relatively high benefit-to-cost ratio, whereas low-quality status quos are those that are particularly costly or inefficient. The spatial policy equilibrium of this game is described as follows.

Proposition 2 (Equilibrium Policies in the LEM-Closed Rule Game). *The unique subgame-perfect equilibrium of the LEM-closed rule game yields the following spatial policy outcomes:*[8]

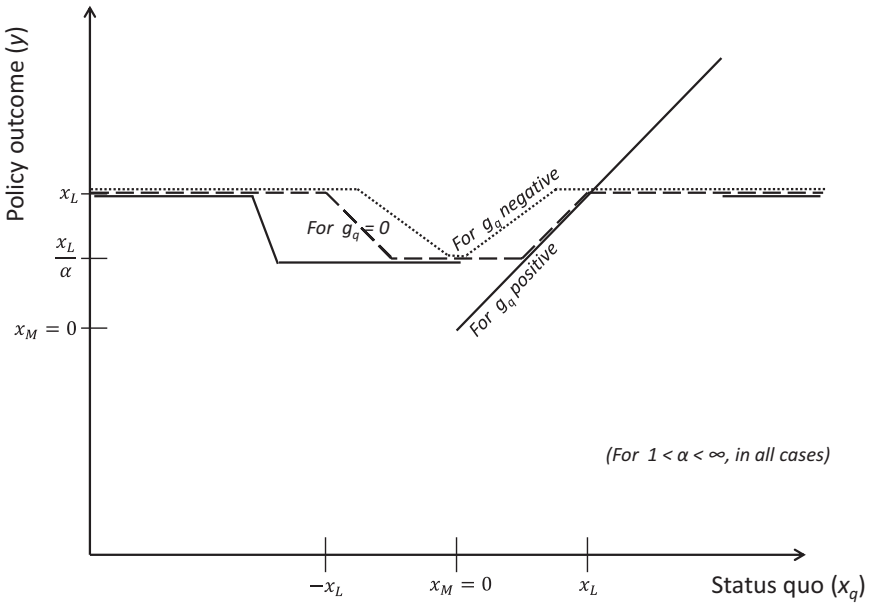
$$y^* = \begin{cases} x_L & \text{if } x_q \le -\sqrt{{x_L}^2 + g_q} \text{ or } \left(g_q < 0 \text{ and } x_q \ge \sqrt{{x_L}^2 + g_q}\right) \\ & \quad \text{or } \left(g_q \ge 0 \text{ and } x_q \ge x_L + \sqrt{g_q}\right) \\ \sqrt{{x_q}^2 - g_q} & \text{if } -\sqrt{{x_L}^2 + g_q} < x_q < -\sqrt{{x_L}^2 + g_q\alpha^2}/\alpha \\ & \quad \text{or } \left(g_q < 0 \text{ and } \sqrt{{x_L}^2 + g_q\alpha^2}/\alpha < x_q < \sqrt{{x_L}^2 + g_q}\right) \\ \dfrac{x_L}{\alpha} & \text{if } \left(g_q < 0 \text{ and } -\sqrt{{x_L}^2 + g_q\alpha^2}/\alpha \le x_q \le \sqrt{{x_L}^2 + g_q\alpha^2}/\alpha\right) \\ & \quad \text{or } \left(g_q \ge 0 \text{ and } -\sqrt{{x_L}^2 + g_q\alpha^2}/\alpha \le x_q \le {x_L}/\alpha - \sqrt{g_q}\right) \\ x_q & \text{if } g_q \ge 0 \text{ and } {x_L}/\alpha - \sqrt{g_q} < x_q < x_L + \sqrt{g_q} \end{cases}$$

Although this equilibrium appears more complex than the baseline result in Proposition 1, it largely takes the same form as in the special case above. Indeed, for comparison, we illustrate that restricted version with $g_q = 0$, along with examples of positive and negative status quo quality in Figure 2. The zero-quality case for the status quo is shown along the dashed lines, identical to those from Figure 1.

Outcomes when the status quo is quite attractive are illustrated in solid line segments in the figure. Once again, despite the high quality of the status quo, any extreme right or left spatial location allows the Lawmaker to obtain a new policy that is spatially located at her ideal point. Now, however, the gridlocked region, in which the status quo is retained, extends to the right of the Lawmaker's ideal point, and even to the left of the Median when the status quo's quality is sufficiently high. Because of the high quality of the status quo, the Lawmaker would need

[8] For ease of exposition, this proposition is offered for the case of $g_q \ge -x_L^2/\alpha^2$, wherein all four regions of the stated equilibrium exist. More generally, for $-x_L^2 < g_q < -x_L^2/\alpha^2$, the region with $y^* = x_L/\alpha$ no longer exists, and for $g_q \le -x_L^2$, the equilibrium policy location is $y^* = x_L$ regardless of the spatial location of the status quo.

FIGURE 2 LEM-Closed Rule



to exert a great deal of effort to make any new policy (including one that is spatially closer to her ideal point) sufficiently attractive to the Median such that he would be willing to vote for the new policy. Unwilling to pay this price, the Lawmaker chooses to retain the status quo.

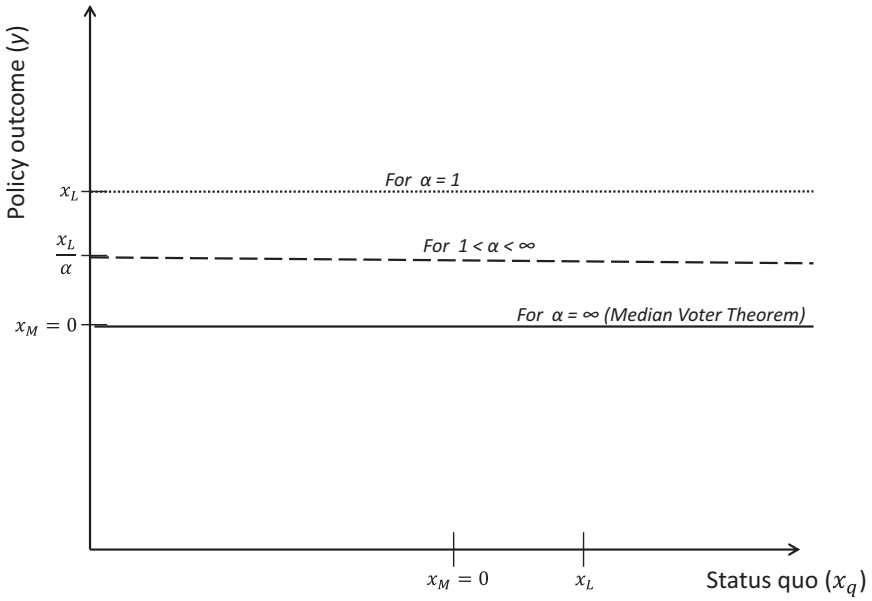
Just to the left of that gridlock region, the spatial location of the policy outcome is, again, the weighted average of the ideal points of the Median and the Lawmaker. Although the same spatial policy is obtained in this region for all status quo locations, the amount of effort exerted, and thus the proposal's quality, is greater in order to offset the high quality of the status quo. (Otherwise, the Median would not agree to the proposal.) Farther left still is the region that previously involved the reflection of the status quo's spatial location across the Median's ideal point. This reflection still exists, yet here it is distorted to account for the enhanced quality of the status quo. Specifically, the decline in policy outcome from x_L to x_L/α along the solid curve is steeper than that along the dashed line because the policy location must be shifted more toward the Median to offset the loss in quality.

The case where status quos have very undesirable (negative) quality levels is shown along the dotted path in the figure. Here, there are larger regions where the final policy location corresponds to the one most preferred by the Lawmaker, without the need for her to add any quality to the proposal, simply due to how unattractive the status quo is. Moreover, centrist status quo locations now correspond to policies that are spatially located closer to the Lawmaker, who can take advantage of the lower-quality status quo in bringing about a greater policy change.

This model therefore offers three important and novel findings for our understanding of policy gridlock. First, the ability of lawmakers to exert effort to generate high-quality policies can reduce the size of the gridlock region that commonly extends from the spatial ideal points of the median to the proposer in standard models of spatial policymaking under closed rules. Second, however, the equilibrium region for which status quos are obtained is extended, even beyond the ideal points of these two pivotal actors, when the current status quo is of sufficiently high quality. Third, when the status quo is of negative quality, policy change is relatively easy to obtain. Indeed, for extremely low-quality status quos, the proposer can secure a policy that is spatially located at her ideal point, regardless of the status quo location.

We argue that this third implication of the model helps explain the significant changes in U.S. welfare policy in the mid-1990s, as well as reforms following the 2001 terrorist attacks and the 2008 financial crisis and recession (among countless other major policy reforms in the United States and beyond). This model also helps make sense of some common parlance at the time of such reforms, such as when Rahm Emanuel, who was serving as President Obama's chief of staff in 2008, quipped: "You never want a serious crisis to go to waste. And what I mean by that, it's an opportunity to do things you think you could not do before."

FIGURE 3 LEM-Open Rule



LEM-Open Rule

We now consider a second version of the Legislative Effectiveness Model, returning to the baseline model with a normalized zero-quality status quo. Unlike the LEM-closed rule model, however, we allow for a simple open rule, such that the Median can amend the Lawmaker's proposal. However, we restrict such amended proposals to have a value of zero on the quality dimension, similar to that of the status quo. In other words, the effort exerted by the Lawmaker is not transferable to other proposals.[9] One way to think of this difference between the Lawmaker and the Median is that the Lawmaker possesses important expertise that might allow her to formulate a more attractive proposal.[10] Given this game structure, the Lawmaker must now consider not just the status quo location, but also the threat of the amendment by the Median to a policy that is spatially located at his ideal point (with quality equal to zero). The choice of the Lawmaker is now characterized as follows.

Proposition 3 (Equilibrium Policies in the LEM-Open Rule Game). *The unique subgame-perfect equilibrium of the LEM-open rule game yields the following spatial policy outcome:* $y^* = \frac{x_L}{\alpha}$.

[9]For an exploration of this assumption in a related context, see Hirsch and Shotts (2012).

[10]In the supporting information online, we relax this assumption, characterizing Propositions 3, 4, and 5, when the Median can add positive quality to his bill proposal.

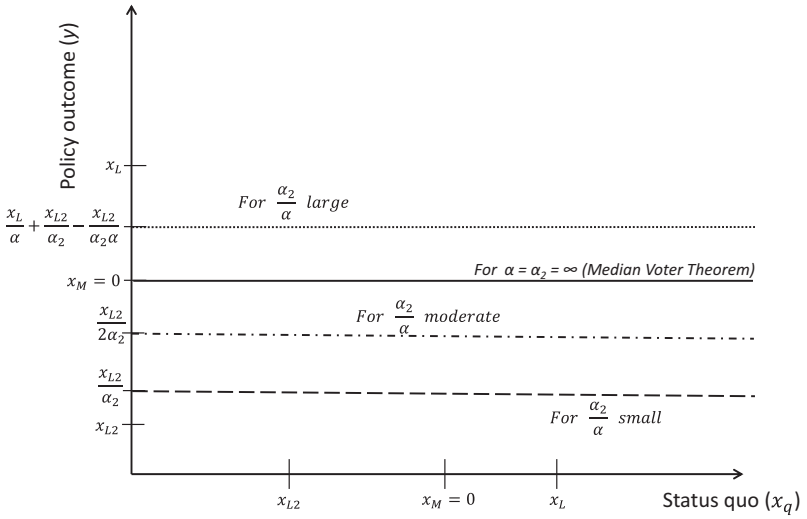
No matter what status quo location she faces, the largest threat to the Lawmaker's proposal is that of being modified to the ideal point of the Median. However, that alternative is easily counteracted. As was found in the LEM-closed rule with the status quo spatially located at the Median's ideal point, the Lawmaker here proposes a policy spatially located at x_L/α, exerting sufficient effort to enhance the quality of the proposal so as to win the support of the Median, as illustrated in Figure 3. For a highly effective Lawmaker with low cost of effort (α), equilibrium policies are spatially located closer toward her own ideal point, as along the dotted line. In contrast, where increasing bill quality is very costly, equilibrium policies are spatially located closer to the Median. The solid line shows the extreme case in which the effort required to produce high-quality bills is prohibitively costly, yielding the classic Median Voter result (e.g., Black 1948).

The LEM-open rule highlights one benefit that lawmakers may receive from building up policy expertise. By being able to increase the quality of their proposals at a relatively low cost, such lawmakers can obtain policies that are spatially located closer to their ideal points, even absent institutional benefits from closed rules or committee gatekeeping powers.

LEM-Multiple Proposers

The LEM-multiple proposers model builds on the LEM-open rule above by adding a second lawmaker, located at

FIGURE 4 LEM- Multiple Proposers (Open Rule)



x_{L2}, with $x_{L2} < x_M < x_L$. Similar to the first Lawmaker, this lawmaker's utility function is

$$U_{L2}(y, g) = -(x_{L2} - y)^2 + g_y - \alpha_2 g_{b2}.$$

The order of play now involves the original Lawmaker making the first proposal in Stage 1. In Stage 2, the Second Lawmaker offers a counterproposal. In Stage 3, the Median selects one of those two proposals or modifies the status quo himself (without adding any quality to his bill).[11] Given the sequential nature of this game, only one of the lawmakers will exert effort in equilibrium to bring about a policy change. Which lawmaker chooses to exert effort (and the related spatial location of the final policy) depends on the relative effectiveness (costs of effort) of the two lawmakers, as follows.

Proposition 4 (Equilibrium Policies in the LEM-Multiple Proposers Game). *The unique subgame-perfect equilibrium of the LEM-multiple proposers game yields the following spatial policy outcomes:*

$$y^* = \begin{cases} \dfrac{x_L}{\alpha} + \dfrac{x_{L2}}{\alpha_2} - \dfrac{x_{L2}}{\alpha_2 \alpha} & \text{if } \alpha_2 \geq max\left\{\left(\dfrac{2-\alpha}{2}\right)\dfrac{x_{L2}}{x_L}, \left(1-\sqrt{\alpha}\right)\dfrac{x_{L2}}{x_L}\right\} \\ \dfrac{x_{L2}}{2\alpha_2} & \text{if } \left(\dfrac{-\alpha}{4}\right)\dfrac{x_{L2}}{x_L} \leq \alpha_2 < \left(\dfrac{2-\alpha}{2}\right)\dfrac{x_{L2}}{x_L} \\ \dfrac{x_{L2}}{\alpha_2} & \text{otherwise} \end{cases}$$

[11]This extension shares several features of the models of Wiseman (2006) and of Lax and Cameron (2007).

Similar to the LEM-open rule, the Median will only accept a proposal made by a lawmaker if it exceeds his utility from having a policy at his own ideal point with zero quality. The Second Lawmaker will only offer a proposal of nonzero quality if it will be chosen by the Median and will yield greater utility to himself than allowing the initial proposal to move forward unchallenged. The first Lawmaker will therefore wish to offer a proposal with a spatial location and quality sufficient to keep the Second Lawmaker from offering a counterproposal, while also gaining the Median's support. If generating such a high-quality proposal is too costly, a relatively ineffective first Lawmaker will not exert any effort, instead ceding proposal power to the Second Lawmaker.

The dashed line in Figure 4 shows the case where the Second Lawmaker is much more effective than the first Lawmaker. With much lower costs (a_2/α small), the Second Lawmaker is at such an advantage that the first Lawmaker does not wish to exert any effort on generating a proposal that is easily countered. Without any meaningful competition, the Second Lawmaker acts just like the sole Lawmaker did in LEM-open rule, here offering a spatial policy that is the weighted average (x_{L2}/α_2) of the Median's ideal point ($x_M = 0$) and his own. The weight is now based on the Second Lawmaker's costs, and the policy is spatially biased to the left, rather than the right.

In contrast, where the initial Lawmaker is not at such a cost disadvantage, she uses both her lawmaking effectiveness and her first-mover advantage to offer a proposal that keeps the Second Lawmaker from making a meaningful counterproposal. Here, there are two cases, depending

on whether the constraint of the Median supporting the first Lawmaker's proposal is binding or not. When the first Lawmaker is much more effective than the Second Lawmaker (α_2/α large), the Lawmaker's proposal maximizes her own utility while inducing the Second Lawmaker to exert no effort. As shown by the dotted line in the figure, the resulting spatial policy is located between the ideal points of the two lawmakers, weighted by their relative costs of effort. In this case, the proposal is sufficiently attractive that the Median receives greater utility than he would gain from having a zero-quality policy spatially located at his own ideal point.

Between these two cases (where α_2/α is moderate), the first Lawmaker proposes a policy that is spatially located halfway between the ideal point of the Median and the spatial policy location that the Second Lawmaker would offer absent an initial proposal. This equilibrium spatial policy location is illustrated by the dashed-and-dotted line in the figure. The first Lawmaker's proposal is just high enough in quality to make the Second Lawmaker indifferent between accepting it and offering his standard counterproposal. Simultaneously, this proposal makes the Median indifferent between accepting it and having a zero-quality policy that is spatially located at his own ideal point. The first Lawmaker prefers this proposal over the proposal that the Second Lawmaker would offer on his own because the spatial component of the policy is closer to her ideal point. However, as her costs of generating a quality proposal increase further, she would prefer the Second Lawmaker's preferred proposal instead, as discussed above. Finally, as shown once again with the solid line in the figure, a Median Voter result arises for the special case when both lawmakers' costs are prohibitively large.

The LEM-multiple proposers highlights two important features of lawmaking. First, inducing competing proposals from lawmakers with diverse preferences can be beneficial to the Median, and thus to the majority in a legislature.[12] The spatial location of the first Lawmaker's proposal shifted toward the Median, relative to what she would have offered without such competition. Second, more effective lawmakers are more likely to offer successful proposals. Therefore, attempts to measure the effectiveness of various lawmakers might rightly focus on whose proposals move furthest through the lawmaking process (e.g., Volden and Wiseman 2014).

[12]Substantively similar results are obtained by Hirsch and Shotts (2015), who model policymaking competition in a simultaneous move game.

LEM-Pivotal Politics

Our final extension of the Legislative Effectiveness Model, the LEM-pivotal politics, returns to the assumptions of LEM-open rule but introduces an additional pivotal actor, located at x_P, with $x_P < x_M < x_L$,[13] whose support is required in addition to that of the Median for policy change. Similar to the Median, this pivotal actor's utility function is

$$U_P(y, g) = -(x_P - y)^2 + g_y.$$

In this version of the model, the Lawmaker offers a proposal in Stage 1. If this proposal is accepted by both the Pivot and the Median in Stage 2, it becomes the final policy outcome. If not, the Median can offer an alternative proposal in Stage 3, with a quality level of zero. Finally, in Stage 4, the Pivot can support the Median's proposal or oppose it (in which case the status quo is retained). Equilibrium spatial policy locations are established as follows.

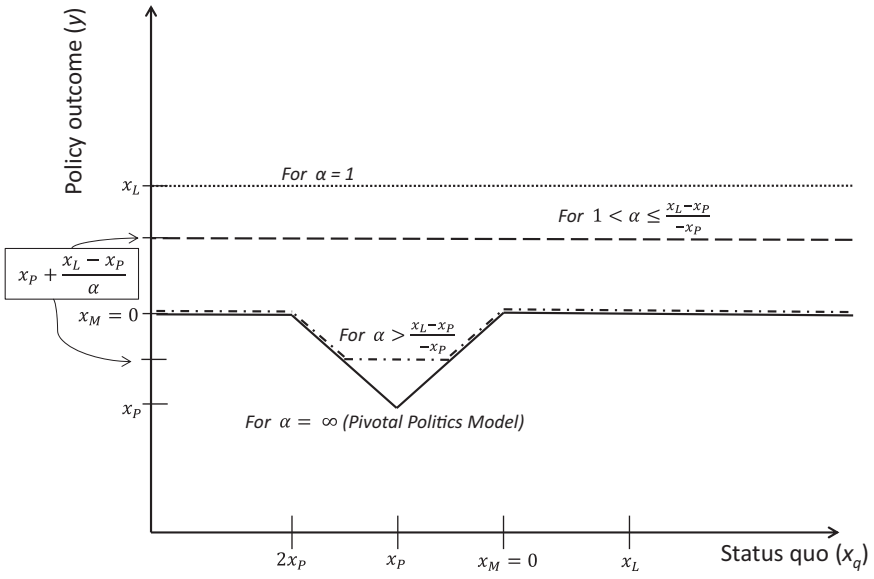
Proposition 5 (Equilibrium Policies in the LEM-Pivotal Politics Game). *The unique subgame-perfect equilibrium of the LEM-pivotal politics game yields the following spatial policy outcomes:*

$$y^* = \begin{cases} x_P + \dfrac{x_L - x_P}{\alpha} & \text{if } \alpha \leq \dfrac{x_L - x_P}{-x_P} \\ & \quad \text{or } x_P - \dfrac{x_L - x_P}{\alpha} \leq x_q \\ & \quad \leq x_P + \dfrac{x_L - x_P}{\alpha} \\ 0 & \text{if } \alpha > \dfrac{x_L - x_P}{-x_P} \text{ and } (x_q \leq 2x_P \\ & \quad \text{or } x_q \geq 0) \\ 2x_P - x_q & \text{if } \alpha > \dfrac{x_L - x_P}{-x_P} \text{ and } 2x_P < x_q \\ & \quad < x_P - \dfrac{x_L - x_P}{\alpha} \\ x_q & \text{if } \alpha > \dfrac{x_L - x_P}{-x_P} \text{ and} \\ & \quad x_P + \dfrac{x_L - x_P}{\alpha} < x_q < 0 \end{cases}$$

The logic of this equilibrium is most easily discerned in contrast to the case in which adding quality is prohibitively expensive for the Lawmaker ($\alpha = \infty$), yielding the logic found in Brady and Volden (1998) and Krehbiel (1998). Here, as illustrated along the solid lines in Figure 5, extreme status quo locations correspond to

[13]We limit the model to a single pivot for ease of illustration. Extending to multiple pivots adds some complexity, but it reveals that the pivotal politics model from Krehbiel (1998) emerges as a special case. See Hirsch and Shotts (2011) for a similar model of legislative policymaking with pivots, along with numerous modeling permutations.

FIGURE 5 LEM-Pivotal Politics



proposals by the Median that move spatial policies to his ideal point, whereas status quos located between the Pivot and the Median are stuck in gridlock. Status quos just to the left of the Pivot's ideal point correspond to new policies that are the spatial reflections of the status quos across the Pivot, toward the Median, leaving the Pivot indifferent between the status quo and the proposal.

As in all versions of the LEM, when the Lawmaker's costs of enhancing bill quality are very low ($\alpha = 1$), that effective Lawmaker can obtain a new policy that is spatially located at her own ideal point (illustrated by the dotted line in the figure). As the costs of quality provision increase, however, the spatial location of the Lawmaker's proposal drifts toward the ideal point of the Pivot (as shown along the dashed line). Now, the spatial location of the policy outcome corresponds to the weighted average of her own ideal point and that of the Pivot ($y = x_P + \frac{x_L - x_P}{\alpha}$). In this scenario, the Lawmaker adds just enough quality to this policy proposal to make the Pivot indifferent between the Lawmaker's proposal and the outcome that would follow from rejecting this proposal (the traditional pivotal politics outcome).

When the cost of adding quality becomes still higher (i.e., when $\alpha > \frac{x_L - x_P}{-x_P}$), the weighted average of the Lawmaker's and Pivot's ideal points takes a value below zero, and thus (for some status quo locations) below what the Median could obtain on his own, absent a proposal by the Lawmaker. In such circumstances, the Lawmaker proposes a policy that is spatially located at her own ideal point, without adding any quality. This proposal is mainly symbolic, as it is rejected, allowing the Median to make his own proposal. However, for status quos located close to the Pivot, where the Median can only facilitate a small spatial policy change, if any, the Lawmaker can do better, both for herself and for the Median. Here, as shown along the dashed-and-dotted line in the figure, she once again proposes a policy that is spatially located at the weighted average between her ideal point and that of the Pivot. Because this policy is spatially farther from the Pivot's ideal point than he would receive upon rejecting the proposal, a small investment in bill quality is needed to make the Pivot indifferent.

In sum, adding an effective lawmaker to the pivotal politics model in this way leads to a series of new predictions. First, in the canonical pivotal politics model, status quos located between the Pivot and the Median are mired in gridlock. While this is still the case for an ineffective Lawmaker and status quos located near the Median, those near the Pivot will here correspond to new policies. Second, when the cost of adding quality to the proposal is quite low, the Lawmaker is always able to bring about a policy change over a zero-quality status quo, regardless of its spatial location. But, third, whether the Lawmaker is occasionally or frequently successful depends critically on her effectiveness and on her spatial location relative to the pivotal actors, with more effective and more spatially distant lawmakers exerting sufficient effort to make a successful proposal. Therefore, as in all versions of the LEM explored here, knowing the location and the effectiveness (or costs of adding quality) of lawmakers is fundamental to understanding whether gridlock is overcome and where final outcomes will be located spatially.

Empirical Implications and Initial Tests

As shown above, the Legislative Effectiveness Model allows scholars to adapt and expand many spatial models of legislative politics to include bill quality and to account for varying effectiveness across lawmakers. As a result, these model variants offer numerous novel and important implications for lawmaking activities within legislatures, as well as for the resulting public policies. Here, we highlight several empirical implications and conduct some initial hypothesis tests.

First, across many parameter values in the LEM variants, the spatial location of the policy outcome is at the weighted average of the ideal points of the proposing lawmaker and the key pivotal actors (often the floor median). The notable implication is that policy proposals are biased toward the ideological positions of the proposers, a finding that is surprisingly uncommon in prior spatial models. For example, canonical models of policymaking with an open rule tend to result in policy outcomes that are spatially located at the median's ideal point, regardless of who makes the proposal. In contrast, the LEM features policy that is pulled away from the median toward the ideological position of the proposer, increasingly so for more effective proposers.

Second, many scholars (e.g., Chiou and Rothenberg 2003) have tested the gridlock predictions arising from various partisan and pivot-based spatial models. Such tests have been based on the size of equilibrium gridlock regions in such models, and the LEM offers notably different predictions for legislative gridlock. For instance, in Figure 2, we illustrate that gridlock expands significantly for high-quality status quos. Therefore, the efficacy of the current policy (or some proxy measure thereof) should be incorporated in any such tests of gridlock or policy change. Construed broadly, status quo quality might also be perceived in the popularity of the current policy or in the presence, or absence, of crises or disasters in that policy area. Likewise, the gridlock regions in Figure 5 are functions not only of pivotal actors common in earlier models, but also of the location and effectiveness of the lawmaker who makes the proposal. More effective lawmakers can help overcome gridlock in many legislative settings.

Third, the quality of the proposals needed to pass through the legislature is a function of the locations of pivotal actors, the lawmaking effectiveness of the proposer, and the quality of the status quo. To the extent that each of these is measurable, the LEM predicts proposal quality that should in turn lead to expectations about the cost-effectiveness of particular laws and therefore their likely longevity after being adopted (e.g., Maltzman and Shipan 2008).

Fourth, greater legislative success is expected to accompany proposers who can formulate high-quality bills at a lower cost. In the real world, one might expect that a legislator's marginal cost of quality production (α) is related to her institutional position and personal experiences. For example, one would expect that staff resources would allow committee chairs and subcommittee chairs to produce high-quality legislation at relatively lower costs. Likewise, senior lawmakers might produce high-quality legislation at lower costs than junior lawmakers, due to the expertise accumulated across their longer careers. Taken together, the LEM leads directly to the hypothesis that chairs of committees and subcommittees, as well as more senior legislators, experience greater legislative success than those without these advantages.

To test this hypothesis, we build on Volden and Wiseman's (2014) analysis of U.S. House of Representatives members' *Legislative Effectiveness Scores* (LES), which (as they describe) are summary metrics capturing how successful each individual member is at moving her sponsored bills through various legislative stages, adjusted for bill significance. While Volden and Wiseman's analysis draws on data from the 93rd–110th Congresses, we extend their data set to include three more Congresses (111th–113th), therefore spanning 1973–2014. With these data, we explore whether a House member's seniority and committee or subcommittee chair position are positively related to her legislative effectiveness.

Table 1 presents the results from ordinary least squares analysis where the dependent variable is Representative *i*'s LES in Congress *t*. As illustrated in Model 1.1, more senior members, as well as those who hold committee chairs, are notably more effective than less senior or rank-and-file members of the House. As shown in Model 1.2, these findings hold for both committee and subcommittee chairs when we control for the wide range of covariates from Volden and Wiseman (2014, chap. 2).[14]

While many of the above testable implications are fairly intuitive, and the results in Table 1 comport well with conventional wisdom regarding the legislative process, other predictions arising from the LEM are much more counterintuitive. For example, consider the set of implications that arises from the LEM-pivotal politics game if we suppose that the pivot in that model were a committee on the majority party's side of the floor median

[14]Further analysis shows that, among such chairs, both their seniority and their length of previous service as chair are positively related to their effectiveness, consistent with the model.

TABLE 1 Determinants of Legislative Effectiveness

	Model 1.1	Model 1.2
Seniority	0.043**	0.010
	(0.006)	(0.006)
Committee Chair	3.414**	2.205**
	(0.252)	(0.182)
Subcommittee Chair	1.083**	0.539**
	(0.070)	(0.057)
Lagged Effectiveness Score		0.438**
		(0.032)
State Legislative Experience		–0.062
		(0.054)
State Legislative Experience		0.366*
× Legislative Prof.		(0.167)
Majority Party		0.334**
		(0.042)
Majority-Party Leadership		0.334**
		(0.113)
Minority-Party Leadership		–0.048
		(0.049)
Speaker		–0.497**
		(0.139)
Power Committee		–0.107**
		(0.035)
Distance from Median		–0.086
		(0.076)
Female		0.062
		(0.036)
African American		–0.232**
		(0.063)
Latino		–0.016
		(0.070)
Size of Congressional		–0.001
Delegation		(0.001)
Vote Share		0.029**
		(0.010)
Vote Share^2		–0.0002*
		(0.0001)
Constant	0.334**	–0.871*
	(0.024)	(0.378)
N	9,258	7,235
Adjusted-R^2	0.40	0.54

Note: Dependent variable is Legislator *i*'s Legislative Effectiveness Score in Congress *t*. Ordinary least squares estimation, robust standard errors in parentheses, observations clustered by member. The models demonstrate higher Legislative Effectiveness Scores for those hypothesized to have lower α values in the LEM, specifically senior members and chairs of committees and subcommittees. *$p < .05$, **$p < .01$ (two-tailed).

in a two-party legislature. Hence, the lawmaker offering proposals in the model illustrated in Figure 5 would tend to be a minority-party member, located on the far side of the median from the committee. In the model, if the proposing lawmaker is close to the median, her proposals tend to be rejected in favor of those supported by the median in the standard logic of the pivotal politics theory. However, perhaps unexpectedly, more extreme minority-party members are more successful in this model. Not content to leave policies spatially close to the floor median in equilibrium, such extreme lawmakers will invest more heavily in quality and will be rewarded with a successful policy change.[15]

The logic resulting from this model leads to two surprising testable hypotheses. First, the proposals of extreme minority-party members should be more successful in committees than those of moderate minority-party lawmakers. And, second, upon attaining success in committee, minority-party lawmakers' proposals should be more likely to pass out of the legislature than are those of majority-party members.[16] This latter hypothesis comes from comparing the results arising here to those from a modification of the LEM-pivotal politics in which the proposer is on the same side of the median as the committee.[17] For most minority-party members, any bill they offer that is attractive in committee is also attractive on the floor, as the floor median tends to be more closely aligned with the proposer than is the committee median. In contrast, most members of the majority party are more closely aligned with the committee than with the floor. There are therefore significant ranges of status quo locations wherein a majority-party member will offer a proposal that is spatially located at her ideal point, but is not of high quality. Such a proposal would not appeal to the floor median, but the closely proximate committee approves this proposal over the status quo, only to fail on the floor.

[15]This is not to claim that all extreme minority-party members offer thoughtful and high-quality proposals. Many engage in position taking or attempts to score partisan points for electoral purposes. And, as noted below, more than 90% of their proposals die in committee.

[16]This probabilistic language arises from reasonable additional assumptions about the distribution of minority- and majority-party members relative to pivotal legislators and the status quo. Most of the minority party is located on the far side of the floor median from the committee's ideal point. Therefore, although some minority-party members are sufficiently close to the committee that their proposals (at their ideal points but with no added quality) may still pass through committee (but fail on the floor), such a situation is more likely to be true in the majority party.

[17]This case of both *P* and *L* on the same side of the Median is solved and characterized in the supporting information online.

Both of these empirical implications, though counterintuitive, receive support in data drawn from the U.S. House of Representatives across 40 years of legislative proposals. Specifically, we examine all 158,244 public House bills (H.R.s) from the 93rd–113th Congresses (1973–2014). We code a minority-party legislator as an *extremist* if she is ideologically in the half of the minority party farthest from the majority party, based on her DW-NOMINATE score (Poole and Rosenthal 1997). Otherwise, she is considered a moderate.

Consistent with the theory, the average success rate for bills being passed out of committee for extremist minority-party sponsors is 5.1%, compared to a 4.4% success rate for more moderate minority-party sponsors, a statistically significant difference ($p < .001$).[18] This finding is consistent with the argument that the more ideologically extreme minority-party sponsors are willing to undertake costly investments in quality to ensure that their bills pass, whereas moderate minority-party sponsors have lower incentives to invest in bill quality. Moreover, upon reaching the floor, minority-party members' sponsored bills achieve greater success than those sponsored by lawmakers in the majority party. Specifically, the average success rate for having bills pass the House (conditional on reaching the floor) for minority-party lawmakers is 85.1%, compared to 79.7% for majority-party lawmakers.[19] This difference in percentages is statistically significant ($p < .001$), and the result is consistent with the argument that minority-party members, in exerting sufficient effort to generate high-quality proposals in order to survive the committee process, nearly guarantee passage of their bills on the floor. Finally, perhaps because of the quality of minority-party lawmakers' bills needed for success in committee, their bills perform very well beyond the House. Having survived the committee process, 47.1% of bills sponsored by minority-party members ultimately become law, compared to only 38.8% for majority-party lawmakers, a difference also significant at $p < .001$

To explore whether these hypothesized relationships hold when we control for other potential determinants of bill success, we conduct logit analyses where we analyze legislative success at the bill level. More specifically, Table 2 presents logit analyses where the dependent variable takes on a value of 1 if minority-party member *i*'s bill is reported from committee, and 0 otherwise. Consistent with the theory, we focus only on minority-party members who are spatially located on the minority-party side of the chamber median. We hypothesize that bills sponsored by minority-party members located farther away from the chamber median will be more likely to be reported from committee; this is precisely what we find. In Model 2.1,

TABLE 2 Determinants of Minority-Party-Sponsored Bills Being Reported from Committee

	Model 2.1	Model 2.2
Distance from Median	0.511**	0.408*
	(0.154)	(0.165)
Seniority		0.009
		(0.011)
State Legislative Experience		0.239
		(0.150)
State Legislative Experience		–0.328
× Legislative Prof.		(0.425)
Minority-Party Leadership		–0.081
		(0.191)
Power Committee		–0.302**
		(0.094)
Female		–0.089
		(0.114)
African American		0.318*
		(0.150)
Latino		0.632**
		(0.131)
Size of Congressional		0.0003
Delegation		(0.003)
Vote Share		0.001
		(0.023)
Vote Share^2		–0.00002
		(0.0002)
Constant	–3.345**	–3.385**
	(0.094)	(0.847)
N	57,483	56,807
χ^2	11.0**	63.2**

Note: Dependent variable takes on a value of 1 if Minority-Party Legislator *i*'s bill was reported out of committee. Logit estimation, robust standard errors in parentheses, observations clustered by member. The models demonstrate greater success in committee by more extreme minority-party members than by moderate minority-party members, consistent with the counterintuitive prediction of the LEM-pivotal politics.
*$p < .05$, **$p < .01$ (two-tailed).

[18]Specifically, minority-party extremists introduced 25,815 bills over our time period, of which 1,314 passed through committee. In contrast, minority-party moderates sponsored 34,078 bills, of which 1,505 passed through committee. A difference-in-proportions t-test yields $p < .001$.

[19]Specifically, minority-party members' bills reached the floor on 2,819 occasions, passing the House 2,399 times. In contrast, 13,647 proposals of majority-party members reached the floor, with 10,878 passing the House. A difference-in-proportions t-test yields $p < .001$. The substantially lower number of minority-party bills reaching the floor is consistent with majority-party gatekeeping in committee (Cox and McCubbins 2005; Volden and Wiseman 2014).

TABLE 3 Determinants of Bill Success Conditional on Being Reported from Committee

	Model 3.1 Passing House	Model 3.2 Passing House	Model 3.3 Becoming Law	Model 3.4 Becoming Law
Majority Party	–0.423**	–0.497**	–0.320**	–0.591**
	(0.072)	(0.103)	(0.052)	(0.081)
Distance from Median		–0.410*		–0.582*
		(0.187)		(0.141)
Seniority		0.007		0.003
		(0.009)		(0.007)
Committee Chair		–0.245**		0.080
		(0.093)		(0.081)
Subcommittee Chair		–0.028		0.054
		(0.067)		(0.050)
State Legislative Experience		0.000		–0.120
		(0.102)		(0.086)
State Legislative Experience		–0.002		0.334
× Legislative Prof.		(0.304)		(0.252)
Speaker		—		1.586**
				(0.490)
Majority-Party Leadership		0.396**		0.282
		(0.149)		(0.149)
Minority-Party Leadership		0.420		0.183
		(0.325)		(0.178)
Power Committee		0.199*		0.462**
		(0.079)		(0.063)
Female		–0.133		–0.157
		(0.102)		(0.108)
African American		0.065		0.066
		(0.129)		(0.102)
Latino		0.018		0.030
		(0.151)		(0.127)
Size of Congressional		0.002		–0.001
Delegation		(0.002)		(0.002)
Vote Share		–0.018		0.015
		(0.018)		(0.015)
Vote Share^2		0.0001		–0.0001
		(0.0001)		(0.0001)
Constant	1.791**	2.433**	–0.134**	–0.554
	(0.064)	(0.662)	(0.046)	(0.561)
N	16,202	15,827	16,202	15,840
χ^2	34.1**	74.8**	37.2**	172.5**

Note: Dependent variable takes on a value of 1 if Legislator *i*'s bill succeeded, conditional on it being reported from committee. Logit estimation, robust standard errors in parentheses, observations clustered by member. Independent variable *Speaker* is removed from Model 3.2 due to perfectly predicting success. The models demonstrate greater success on the floor of the House and becoming law, conditional on success in committee, by minority-party members than by majority-party members, consistent with the counterintuitive prediction of the LEM-pivotal politics.

*$p < .05$, **$p < .01$ (two-tailed).

we see that spatial distance from the chamber median is positively and significantly related to the probability of having a bill reported from committee. Likewise, in Model 2.2, this relationship still holds when we control for the wide range of factors used in Model 1.2.

Finally, Models 3.1 and 3.2 in Table 3 present the results from logit analyses where the dependent variable is equal to 1 if a representative's bill passes the House, and 0 otherwise. The sample consists of all bills sponsored by majority- and minority-party members that were reported from committee. Consistent with the surprising LEM-pivotal politics predictions, Model 3.1 shows that members of the majority party are significantly *less likely* to see their bills pass the House, conditional on them being reported from committee, in comparison to members of the minority party. Model 3.2 illustrates that this relationship holds even upon controlling for the wide range of covariates from Model 1.2. Likewise, the results presented in Models 3.3 and 3.4 demonstrate that minority-party members are also more likely to see their bills signed into law, conditional on being reported out of committee, in comparison to majority-party members. Put simply, the biggest hurdle that minority-party members face is in committee, and high-quality proposals needed to survive the committee process are then more attractive throughout the remainder of the lawmaking process.

Conclusions and Future Directions

Some existing public policies are quite poor at addressing public policy needs, and some policy proposals are of higher quality than others. Likewise, some legislators are more effective than others at lawmaking. Although these claims are uncontroversial, they have been largely neglected in theoretical work on legislative politics. We argue that these claims are important, that they can be easily added to spatial models, and that doing so sheds significant new light on chosen policies and on the policymaking process itself.

Allowing policy makers to enhance the overall quality of their proposals, we develop a series of legislative effectiveness models. We show that many existing and highly influential spatial models of legislative politics emerge as special cases of the LEM. Thus, little is lost from our more general approach. Moreover, we illustrate that these models are fairly easy to alter and solve, thus offering promise for their adaptability to further legislative settings. Doing so may yield major new understandings regarding legislative politics and policymaking. For example, extensions to the LEM could explore the conditions under which legislatures design committees, assign staff members, and build relations with interest groups to cultivate lawmaking expertise. Further extensions could show when the legislative median would prefer to help cultivate such expertise among both majority- and minority-party lawmakers (or to rely on supermajority voting rules) to produce more high-quality centrist policies, or how other proposers of legislation (from the president to interest groups to lawmakers in another chamber) can use their own expertise to affect policy outcomes.

Notably, the current models presented here demonstrate how significant policy changes arise when existing policies are of low quality. We also illustrate how a lawmaker's relative effectiveness places her in a privileged position, producing policies that can deviate substantially from the median voter's most preferred policies and still achieve legislative success. In contrast, we characterize circumstances under which gridlock ensues not because of conflicting ideological views but because lawmakers are unable to improve on the relative efficacy of the existing policy without bearing enormous costs.

Our models yield several reasonably intuitive implications regarding the impact of legislative experiences on lawmaking success, as well as counterintuitive implications for the lawmaking success of minority-party legislators; we also find support for these theoretical findings in data across recent decades in the U.S. Congress. The theory that we advance, along with the supportive empirical findings, can serve as the foundation for a vibrant theoretical and empirical engagement of the causes and consequences of legislative effectiveness in politics and policymaking.

References

Ashworth, Scott. 2005. "Reputational Dynamics and Political Careers." *Journal of Law, Economics, and Organization* 21(2): 441–66.

Bardach, Eugene, and Eric M. Patashnik. 2015. *Practical Guide for Policy Analysis: The Eight-Fold Path to More Effective Problem Solving.* Washington, DC: CQ Press.

Black, Duncan. 1948. "On the Rationale of Group Decision-Making." *Journal of Political Economy* 56(1): 23–34.

Brady, David W., and Craig Volden. 1998. *Revolving Gridlock: Politics and Policy from Carter to Clinton.* Boulder, CO: Westview Press.

Calvert, Randall L. 1985. "Robustness of the Multidimensional Voting Model: Candidate Motivations, Uncertainty and Convergence." *American Journal of Political Science* 29(1): 69–95.

Chiou, Fang-Yi, and Lawrence S. Rothenberg. 2003. "When Pivotal Politics Meets Partisan Politics." *American Journal of Political Science* 47(3): 503–22.

Clinton, Joshua, Simon Jackman, and Douglas Rivers. 2004. "The Statistical Analysis of Roll Call Data." *American Political Science Review* 98(2): 355–70.

Cox, Gary W., and Mathew D. McCubbins. 2005. *Setting the Agenda: Responsible Party Government in the U.S. House of Representatives.* New York: Cambridge University Press.

Denzau, Arthur T., and Robert J. Mackay. 1983. "Gate-Keeping and Monopoly Power of Committees: An Analysis of Sincere and Sophisticated Behavior." *American Journal of Political Science* 27(4): 740–61.

Denzau, Arthur T., and Michael C. Munger. 1986. "Lawmakers and Interest Groups: How Unorganized Interests Get Represented." *American Political Science Review* 80(1): 89–106.

Downs, Anthony. 1957. *An Economic Theory of Democracy.* New York: HarperCollins.

Frantzich, Stephen. 1979. "Who Makes Our Laws? The Legislative Effectiveness of Members of the U.S. Congress." *Legislative Studies Quarterly* 4(3): 409–28.

Gilligan, Thomas W., and Keith Krehbiel. 1987. "Collective Decision-Making and Standing Committees: An Informational Rationale for Restrictive Amendment Procedures." *Journal of Law, Economics, and Organization* 3(2): 145–93.

Groseclose, Tim. 2001. "A Model of Candidate Location When One Candidate Has a Valence Advantage." *American Journal of Political Science* 45(4): 862–86.

Hall, Richard L., and Alan V. Deardorff. 2006. "Lobbying as Legislative Subsidy." *American Political Science Review* 100(1): 69–84.

Hirsch, Alexander V., and Kenneth W. Shotts. 2011. "Competitive Policy Entrepreneurship in Legislatures." Paper presented at the annual meeting of the American Political Science Association.

Hirsch, Alexander V., and Kenneth W. Shotts. 2012. "Policy-Specific Information and Informal Agenda Power." *American Journal of Political Science* 56(1): 67–83.

Hirsch, Alexander V., and Kenneth W. Shotts. 2015. "Competitive Policy Entrepreneurship." *American Economic Review* 105(4): 1646–64.

Hix, Simon, Abdul Noury, and Gérard Roland. 2006. "Dimensions of Politics in the European Parliament." *American Journal of Political Science* 50(2): 494–520.

Krehbiel, Keith. 1998. *Pivotal Politics: A Theory of U.S. Lawmaking.* Chicago: University of Chicago Press.

Lax, Jeffrey R., and Charles M. Cameron. 2007. "Bargaining and Opinion Assignment on the U.S. Supreme Court." *Journal of Law, Economics, and Organization* 23(2): 276–302.

Londregan, John. 2000. *Legislative Institutions and Ideology in Chile.* New York: Cambridge University Press.

Londregan, John, and Thomas Romer. 1993. "Polarization, Incumbency and the Personal Vote." In *Political Economy: Institutions, Competition, and Representation*, ed. William A. Barnett, Melvin J. Hinich, and Norman J. Schofield. Cambridge: Cambridge University Press, 355–77.

Maltzman, Forrest, and Charles R. Shipan. 2008. "Change, Continuity, and the Evolution of the Law." *American Journal of Political Science* 52(2): 252–67.

Martin, Andrew D., and Kevin M. Quinn. 2002. "Dynamic Ideal Point Estimation via Markov Chain Monte Carlo for the U.S. Supreme Court, 1953–1999." *Political Analysis* 10(2): 134–53.

Meirowitz, Adam. 2008. "Electoral Contests, Incumbency Advantages, and Campaign Finance." *Journal of Politics* 70(3): 681–99.

Poole, Keith T., and Howard Rosenthal. 1997. *Congress: A Political-Economic History of Roll Call Voting.* Oxford: Oxford University Press.

Romer, Thomas, and Howard Rosenthal. 1978. "Political Resource Allocation, Controlled Agendas, and the Status Quo." *Public Choice* 33(4): 27–43.

Serra, Gilles. 2010. "Polarization of What? A Model of Elections with Endogenous Valence." *Journal of Politics* 72(2): 426–37.

Shor, Boris, and Nolan McCarty. 2011. "The Ideological Mapping of American Legislatures." *American Political Science Review* 105(3): 530–51.

Volden, Craig, and Alan E. Wiseman. 2014. *Legislative Effectiveness in the United States Congress: The Lawmakers.* New York: Cambridge University Press.

Volden, Craig, Alan E. Wiseman, and Dana E. Wittmer. 2013. "When Are Women More Effective Lawmakers Than Men?" *American Journal of Political Science* 57(2): 326–41.

Wayne, Alex, and Drew Armstrong. 2009. "Despite a Deal, More Roadblocks Ahead for Health Bill." *Congressional Quarterly Weekly Report*, December 14: 2884.

Weissert, Carol S. 1991. "Issue Salience and State Legislative Effectiveness." *Legislative Studies Quarterly* 16(4): 509–20.

Wiseman, Alan E. 2006. "A Theory of Partisan Support and Entry Deterrence in Electoral Competition." *Journal of Theoretical Politics* 18(2): 123–58.

Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's website:

- **Proof of Proposition 1**
- **Proof of Proposition 2**
- **Proof of Proposition 3**
- **Proof of Proposition 4**
- **Proof of Proposition 5**
- **Supplemental Analysis: Equilibrium of LEM-Pivotal Politics Model when the Pivot and the Lawmaker are on the Same Side of the Median**