Taking the Law to Court: Citizen Suits and the Legislative Process

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Abstract

Citizen suits are a decentralized and relatively inclusive form of public contestation that allows individual citizens to influence the reach of public laws in courts. To many, citizens' access to justice in policy-making is normatively appealing. The practice is vibrant in the U.S. and is gaining ground in a large number of old and new democracies alike. Yet, little is known about the consequences for the policy process of this dispersed form of authority. In this paper, I analyze how the institution of citizen suits influences decision-making in the legislature when citizens and their representatives are sharply divided regarding the value of a public good. I model legislators simultaneously bargaining over the budget and over its allocation between distributive and public good spending. Individual citizens on either side of the dispute can seek to modify, within bounds, the reach of the public good in court. This leads to a multitude of court disputes that cumulatively shapes a compromise regarding the effective reach of the policy in society. I find that in most scenarios, citizen suits induce legislators to craft more ambitious policies and help increase collective welfare. My results rest on the distinctions I draw between the two institutions: between a representative legislature that logrolls, and courts, staffed by unrepresentative but diverse judges, who are blind to distributive agreements, and where the agenda is set by citizens.

1   Introduction

Citizen participation in policy-making comes in many guises. On June 30th, 2014, the Aransas Project – a diverse coalition of citizens and towns – came before three judges of the Fifth Circuit's Court of Appeals in New Orleans, Louisiana. Twenty-three of the world's only wild

flock of whooping cranes – that most majestic of birds – had died because, they alleged, the government of Texas had issued permits for excessive water withdrawal. Their action constituted a "taking" of crane's habitat, in violation of the Endangered Species Act. The group lost as judges deemed the cause and effect relationship too tenuous[1]. A few days earlier, a district court of Colorado had ordered the cessation of all coal mining exploration on a particular swath of wild public land at the bequest of High Country Conservation Advocates. The permits had not evaluated potential harm to the climate from the mines' release of methane[2].

So it is that multiple times a week, in the U.S., citizens of all stripes, be they firms, individuals, advocacy groups or local officials, dispute public policy matters in court via the institution of citizen suits. Judges rule, and their decisions, from broad matters of rulemaking to specific issues of enforcement, affect the reach of a myriad public goods and their associated funds. Unlike in contract law or tort law, parties are adjudicating for their conception of the public interest, without necessary regard to personal interest or injury.

Sometimes called public law litigation, what I call citizen suits includes any form of contestation of public policy by citizens in courts. In fact, the details may vary: litigation may be justified by an appeal to constitutional rights, it may arise because a statute explicitly empowers citizens to enforce its terms (as is the case in many environmental statutes) or it may arise because administrative law guarantees fair consideration of all relevant interests in agencies' decisions. In U.S. environmental law, this broad category would sum to about 1500 decisions a year, including over a hundred written opinions. In either one or all of these forms, the practice is taking hold in new democracies such as India and Brazil (Brinks and Gauri 2010), as well as in the European Union (Kelemen 2006), along with the global rise of judicial power (Tate and Vallinder 1997; Ferejohn 2002). Citizens' access to justice in policy-making also seems normatively appealing: it constitutes, for example, one of the three clauses of the Aarhus Convention, which focuses on the public's rights in matters of environmental governance (Rose-Ackerman and Halpaap 2004). Qualitative studies ranging from environmental policy, to welfare, to constitutional rights depict citizen suits as a vibrant activity, which feeds into the rest of the political process (e.g. Melnick 1983; Feeley and Rubin 2000; Barnes 2004). Yet, we know little about how citizen suits affect the policy process. The present theoretical study seeks to spell out some of the mechanisms by which this institution may affect the law-making process.

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[1] Aransas Project v. Shaw, 2014 WL 2932514 (5th Cir. 2014)
[2] High Country Conservation Advocates v. United States Forest Service, 2014 WL 2922751 (D. Colo. 2014)

The present paper proposes a theoretical model to analyze the influence that citizen suits have on decision-making in legislatures, in contexts where actors are in conflict over the reach of public goods that also require public investments. First, I argue that the institution of citizen suits aggregates the preferences of the public. Conforming to Dahl's notion of pluralism, they offer a forum of inclusive contestation, from which a compromise emerges (Dahl 1978). Second, I show that citizen suits aggregate preferences differently than does the legislature, when confronted with the same public policy conflict and distribution of preferences. The legislature, being simultaneously responsible for determining the budget, public good spending and distributive spending, becomes embroiled in other conflicts. Because of its majority voting rule, it is also often pulled by the extreme of one party, despite logrolling. Third, in a world where citizen suits naturally follow legislation and are thus anticipated by legislators, I show that citizen suits modify the bargains struck in the legislature, lessening the pull of distributive conflicts and balancing the power of the majority relative to that of minority legislators. My analysis thus lends credence and precision to the claim that active courts contribute to the search for compromise (Barnes 2004; Sunstein 1995).

Although popular amongst activists and proponents of civic participation, citizen suits are contentious because they seem to give inordinate power to judges. The clash here is well known: many would accuse the courts of undue activism, responsible for unravelling the carefully woven compromises of the legislature (Friedman 2002). After all, legislators are supposedly the true representative of constituencies. Being in control of the budget, they should also have more capacity to forge agreements than do judges, who are unaware of the trades that took place between legislators and that enabled the legislation (Rodriguez and Weingast 2007). Yet, what compromises are legislators able to forge between opposing groups, absent the institution of citizen suits? To answer this, I develop a model of legislative bargaining, building on previous ones (Baron and Ferejohn 1989; Volden and Wiseman 2007). At the center lies a conflict over the reach and funding of a public good. Legislators also bargain over the budget and the distribution of particularistic goods. They can thus forge agreements from a rich menu, since a proposer can offer a mixture of the public good and of transfers to secure the agreement of a diverse coalition.

To explore how citizen suits react to the public policy thus created by legislators, I develop a model of this institution. I consider a process in which throughout the nation, people holding diverse opinion, advance claims in courts regarding the public policy's proper interpretation[3].

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[3]As pointed out by Zemans (1983), the legal system gives individidual citizens access to government authority,

Laws being forever incomplete, judges resolve ambiguities in a myriad different ways (Sunstein 1995). Indeed, as the examples of the cranes and of the coal mine demonstrate, both proponents and opponents of greater state support for a particular public good may win or lose in court, depending on the merits of their claim and the values of the judges. The many individual decisions of this decentralized litigation of public law cumulate to form the concrete reach of policies on the ground. The model thus allows me to characterize the compromise gradually struck between the law as originally legislated, and the distribution of citizens' and judges' preferences.

In countries where public law litigation has become an expected part of the policy process, the legislative and the litigation stages must be coupled as one sequential game. In doing this, I find that litigation has both a direct and indirect effect on legislative outcomes. Recall that citizen suits are assumed inclusive and litigation outcomes diverse and cumulative. The compromise they build is consequentially moderate, with a pull towards an average of the preferences of citizens. As a result, extreme legislation does not survive civil society's downstream response: extreme legislation (including legislative inaction) is by force moderated by the diversity of citizens who seek reform in courts. Absent citizen suits, the legislature tends to produce extreme proposals, featuring either very low levels or very high levels of the public good. The direct effect of citizen suits is that they shift very ambitious or very unambitious policy towards the center, bringing effective policy outcomes closer to a compromise, which in most cases increases welfare relative to the choices of an independent legislature.

The indirect effect of litigation is to undermine the bargaining position of legislators who benefit from making extreme proposals – proposals that exclude the public good altogether or that enact its most ambitious level. As a result, the bargaining position of the minority improves in several scenarios. Indeed, absent citizen suits, the capacity of the majority group to impose extreme positions greatly constrains the minority in its attempt to negotiate when it has a chance. By introducing constraints on the set of feasible policies, citizen suits partially relieve legislative constraints on the minority. Another result is that citizen suits lessen the proposer advantage that arises when proposers prefer particularistic goods to the public good. In a divided legislature, the proposer's advantage is great because the threat wielded by the opposition lessens the future prospects of non-proposers in the proposer's coalition. The addition

without the need for them to organize as a pressure group. Because it does not require collective action, this type of public power is widely dispersed in the population.

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of citizen suits downstream greatly mitigates this proposer advantage by moderating the threat of the opposition. Consequently, citizen suits also reduce particularistic spending, which is another mechanism by which the institution often increases welfare in the model.

Far from pitching the legislative and the judiciary branches against each other, to gauge their relative merits as fora of policy-making, my analysis considers them as a system. The analysis thus contributes to a growing literature that seeks to discover the properties of systems of diverse institutions (e.g. Vermeule 2009; Bednar 2008), and more specifically how the legislature functions in a larger institutional context. Examples include Matsusaka's (2005) analysis of citizen initiatives, McCarty's (2000) analysis of the presidential veto, or Ting's (2012) model of bureaucratic allocation of the legislature's distributional spending.

In my model, the courts and legislature have overlapping (although not equivalent) jurisdictions. This reflects both constitutional design in the U.S. and the nature of the policy process – indeed, policy implementation can never neatly be divorced from policy formulation. In this regard, the analysis keeps with the assumption that judges are policy actors, a common assumption in positive analyses of inter-branch relations. Yet my approach differs in several important ways from prevalent models. These models usually consider zero-sum policy games (e.g. Ferejohn and Weingast 1992; Shipan 2000). Each branch is endowed with the same institutional characterstics. Specifically, each contributes a different veto player to the policy game. In these models, judges are nothing but politicians in robes and none of the players are considered representative of a particular public. Instead, I capture important differences between the legislature and the courts in a non zero-sum context. The legislature is made of representatives and bargains over multiple dimensions. In contrast, the courts are made of unrepresentative judges but who must respond to agendas set by citizens. Their decisions are uni-dimensional – focusing on public policy only, oblivious to the distributional concerns of the legislature. My analysis shows that these differences lead to very different policy decisions.

My model is closest to Rogers and Vanberg's (2007) who show that judicial review by a diverse court can improve the efficiency of a majority group's decision. Unlike them, however, I portray the legislature and the courts as representative of the same public, but representing it in different ways. Both are imperfect representatives, yet diversely imperfect, and I ask how well they work together. In this regard, I depart from the traditional concern over "unguided" judicial review, in which an unelected Supreme Court irrevocably modifies policy. The courts here are guided, since citizens set the agenda.

This paper also contributes to the literature on advocacy groups and the effect of their strategies on the political process. Public interest litigation, or citizen suits, is an institution that channels advocacy groups' divergent viewpoints. Thus, legal action is an advocacy strategy. A key question in this literature concerns the relative effectiveness of different advocacy strategies. For example, is the private politics approach, explored first by **?**, more effective than political lobbying? More generally, do strategies that seek to modify implementation decisions on the ground counteract or bolster political attempts at policy reform? Some analyses, such as Kim and Urpelainen (2013), find that they can be counterproductive, discouraging government action when it is warranted. My analysis highlights the capacity of downstream legal action to constructively restructure the political conflict between proponents and opponents, in many cases bolstering public good investment when it is warranted and tempering it when the majority would otherwise impose an uncompromisingly ambitious policy.

The article divides into four parts. The first describes the model. The second establishes the baseline results of the legislative game, while the third couples the two institutions. Finally, the fourth part explores welfare implications and organizes a critical discussion of the more original assumptions of the model. All proofs are provided in the Appendix.

2 The model

The model combines legislative bargaining over public and private goods in an ideologically divided legislature with a model of citizen suits, which affect the public good component of the legislation. I will analyze two institutional environments. In the baseline environment, the legislature's decision is implemented as decided by the legislature. In the environment with litigation, the legislature decides and at the stage of implementation, citizens can make claims in courts that may modify the public good. I first present the legislative component of the model and then the citizen suits component.

2.1 Divided Legislature and Public Good Provision

A legislature $\mathcal{L}$ of size $n > 5$ (odd) must legislate over the provision of a public good. Because legislators typically log-roll across both distributive and public funding, I consider here a legislative game in which funding must be allocated across the n districts and the public good y. There are two groups of legislators who are in disagreement about the value of the public good.

Type **1** legislators are proponents of the public good and have a marginal valuation for it of $q_1 > 0$, while type **0** legislators are opponents to the good, with marginal valuation $q_0 < 0$. The legislature is composed of a majority n_M of legislators and a minority of size $n - n_M$. I will both consider the case where type **1** legislators form a majority (the *majority case* denoted MAJ), and the case where they form a minority (the *minority case* denoted MIN). In the first case $q_M = q_1 > 0$ and $q_m = q_0 < 0$, and vice versa for the minority case. The valuation of legislators can arise from ideology, or can reflect the economic repercussion of the public good on the legislator's district.

Bargaining happens via a closed rule process and majority rule voting. The horizon of play is indefinite, the legislature moving on to a new round until a proposal is accepted by a majority of legislators. In each period, a legislator is recognized at random to make a proposal. Any given legislator is thus chosen with probability $\frac{1}{n}$, but with probability $p_M = \frac{n_M}{n}$ he is part of the majority and with probability $p_m = 1 - p_M$, he is part of the minority. Legislator i recognized as proposer makes a proposal consisting of a level of public good provision y_i, non-negative transfers $\{x_j\}_{j \in \mathcal{L}}$ to all legislators. The tuple $(y_i, \{x_j\}_{j \in \mathcal{L}})$ determines the overall budget raised by legislator i: $B_i = y_i + \sum_{j \in \mathcal{L}} x_j$. The status quo payoffs for all legislators is 0.

In the baseline model, I assume that what is legislated is implemented perfectly, so if the proposal is passed, it fully determines payoffs. In the coupled model with litigation, once the proposal is passed, y_i is subject to legal appeals by citizens, with repercussions for B_i as well. Denote $\tilde{y}_i$ and $\tilde{B}_i$ the *effective* values of y_i and B_i after litigation in the implementation phase. In the baseline case, we have $\tilde{y}_i = y_i$. In the coupled model, we have $\tilde{y}_i = l(y_i)$, where $l(\cdot)$ is the mapping between the legislated public good and the effective public good level arising as a result of the citizen suits, which I will describe subsequently. $\tilde{B}_i$ is the effective budget, reflecting the difference between the legislated and effective public good level.

The payoff function of a legislator of type j from a legislation proposed by a type i legislator is:

$$u_j = q_j \tilde{y}_i + x_j - k \tilde{B}_i^2$$

k is a coefficient reflecting the marginal rate of increase of the cost of raising public funds. If the whole budget were spent on the public good, the ideal public policy for a legislator with valuation $q_1 > 0$ is $y_1^* = \frac{q}{2k}$. For a legislator with valuation $q_0 \leq 0$, the ideal policy is $y_0^* = 0$.

The payoff function makes the implicit assumption that the amount of spending y on the

public good maps one-to-one into the scope of the policy entering the policy returns term qy in the payoff function of legislators. This assumption may not be adequate in the case of regulatory decisions, since more ambitious regulation does not necessarily lead to higher government spending. The assumption works quite naturally for the case of sustaining an industry that can help promote a public good, such as global warming mitigation, or in the case of welfare policy.

The specification of the legislative model is inspired from Volden and Wiseman (2007). However, there are three crucial differences. The first is that the budget is endogenous. We will see that this has the effect of attenuating the power of proposers, since everybody bears the costs of raising funds. The second difference is key: in this model, legislators are divided in their valuation of y. Third, legislated and implemented policies may differ because of downstream societal contestation.

2.2 Decentralized Citizen Suits

In the legislature, statutes are crafted as complex bundles of many narrower policies, and negotiated jointly with other issues. In other words, y represents an overall ambition level for achieving a public goal, and encompasses a large number of specific policies. In contrast, each litigation resolves one narrow policy point within the broader legislation, in isolation from other issues. In my conceptualization of this appeals process, citizens present a claim to a judge as to the proper reach of the law in their specific case, and this claim is accepted if the judge finds it preferable to a literal application of the statute. A large number of such litigations happen in the society, each with a different result. The effective scope of the public policy arising in aggregate from this flow of dispute, denoted $\tilde{y}$, is modeled as the average of all these individiual results. In addition, I make the key assumption that litigation over the statute does not bear on the distributive decisions $\{x_j\}_{j\in\mathcal{L}}$. These distributive items are not part of the statute, but rather part of the spending bill, or other appropriations' bills.

To formalize this process, I consider that in judges' and citizens' minds, the public good could feasibly take on any value between 0 and $y_{\mathbf{1}}^* = \frac{q_1}{2k}$, which is the ideal level of the good for proponents of the public good (type $\mathbf{1}$ actors). Any claim in $[0, y_{\mathbf{1}}^*]$ can be brought to court at any time. Judges know the level y of the public good specified in the legislation. However, litigants can argue to judges that in their specific case, their claim c is more sensible. Litigants present their claims as alternatives to the status quo one at a time, rather than present opposing

claims simultaneously. The judge must then decide between y and c^4.

It is important to note that the claims are evaluated relative to the text of the statute and independently of each other. I am thus ignoring the fact that higher courts can set far-reaching precedents affecting a large number of cases in lower courts, and thereby effectively shift the status quo[5]. The formal letter of the law is thus fixed, and the concrete case-by-case implementation varies.

I assume that judges have idiosyncratic preferences about the public good but also care about respecting statutory law (Bailey and Maltzman 2011). Thus, in each decision a judge i maximizes $u_i^J(l_i) = -(l_i - \frac{y+y_i^*}{2})^2$, where y is the legislation, l_i is the scope of the public good in a given decision judge i makes ($l_i \in \{c, y\}$ since the judge adjudicates between the petitioner's claim and the status quo y), and y_i^* is the *a priori* policy preference of the judge. Let $y_i^* \sim U(a, b)$ with $[a, b]$ included in $[0, y_1^*]$. Then the ideal points l_i^* of judges (decisions about l_i that maximize $u_i^J(l_i)$) are uniformly distributed on $[\frac{a+y}{2}, \frac{b+y}{2}]$.

In the above, the assumption is that ideal points represent an equal weighing of judges' *a priori* preferences y_i^* and the legislation y. Intuitively, the judiciary is composed of a possibly very diverse set of judges, distributed similarly across all districts[6]. Yet all judges' preferences are pulled toward what the statute stipulates, so that the final distribution of judicial preferences is partially exogenous and partially influenced by y. This assumption is strongly supported by recent and careful work on the preferences of judges (Bailey and Maltzman 2011; Epstein and Knight 2013).

Consider two types of petitioners: type **1** who want to maximize y and type **0** who want to minimize it[7]. Let r be the proportion of type **0** litigants in the nation. In most of the analysis, I will assume that legislators truly represent their constituencies. In that case, districts represented by legislators of type **0** are also populated with petitioners of type **0** and $r =$

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[4]The assumption that any claim can be entertained, however distant from the letter of the statute, and that judges know what the statute requires, may seem inappropriate. Instead, suits usually arise because there are windows of ambiguity, opened by policy drift for example. A more sophisticated model where litigation happens withing such windows of discretion lead to the same qualitative results in Section 4.

[5]Or, alternatively, I am considering only independent precedents.

[6]Federal judges are appointed federally, so it makes sense that judges should hold more diverse opinions than the local population. They were also appointed at different times, by different coalitions of politicians. In addition, each judge might be confronted with multiple different claims and may hold different preferences about those individual narrow policy points. These considerations justify that there is a distribution of judicial preferences within a district and across the country.

[7]None of the results hinge on having these extreme types of petitioners: the analysis remains qualitatively the same if I assume instead that districts of type **0** and **1** are characterized by petitioners with prefered values of y distributed over different intervals.

$\frac{n_m}{n}$. However, the model readily allows us to decouple the distribution of citizen and legislator preferences, which I will do in discussing the effect of citizen suits when legislators do not adequately reflect the distribution of citizen preferences.

The petitioners are assumed able to ascertain the judge's preference ahead of making their claim. In so far as most disputes are negotiated with a judge and settled, it seems plausible to assume that petitioners will try to estimate the judge's preference and tailor their claim accordingly rather than maximize the expected gain from presenting a claim to a completely random judge.

The effective reach of the policy y arising from a multitude of petitioner claims and judicial decisions is the additive effect of all the disputes. Assuming a continuum of judicial preferences and a very large number of disputes, $\tilde{y}$ can be modeled as the integral over the range of citizen and judicial preferences, as derived in Section 3.2. This integral creates a mapping $l : y \mapsto \tilde{y}$. The appeals process also modifies B. The effective budget is $\tilde{B} = B - y + \tilde{y}$, such that the budget is increased if litigation expands the scope of the public good, and decreased if litigation contracts it.

2.3   Extensive Form of the Full Game

I now give the full sequence of the game. All moves in the legislation stages of the game are prefectly observable. Moves in the litigation stages of the game are assumed to happen in parallel.

1. *Legislation - Recognition Stage:* In a given round, a legislator is recognized to make a proposal. The recognition probability is $\frac{1}{n}$ for all legislators across all rounds.

2. *Legislation - Proposal Stage:* The recognized proposer makes a proposal $(y, \{x_j\}_{j \in \mathcal{L}})$.

3. *Legislation - Voting Stage:* Each legislator casts a vote for or against the proposal. If a majority is in favor, the proposal passes and bargaining ends. If a majority opposes the proposal, the game returns to Step 1.

4. *Litigation:* Litigants throughout the population, independently and in parallel, file claims in different court. Each judge chooses whether to accept the claim he received. These decisions are reached independently of other judges and independently of other suits. The aggregation of all these decisions yields an effective public policy $\tilde{y} = l(y)$ and effective budget $\tilde{B}$.

Strategies in the litigation stage consists of: 1) the judges' decision to accept or reject a claim given the legislated value of y and his own *a priori* policy preference, and 2) type **1** and type **0** litigants' choice of claim given the legislated value of y and a given judge's *a priori* policy preference.

The aggregation of these individual decisions affect the outcomes of Steps 1-3 in the sequence above and we seek to characterize the stationary symmetric sub-game perfect equilibrium of the legislative game with and without the litigation stage. We will assume that legislators do not discount future rounds of bargaining (i.e. $\delta = 1$) since this is a budgeting game: the time elapsed between rounds is too short to discount. Because we consider stationary equilibria, strategies do not depend on the history of legislative play. The equilibria we consider are symmetric in the sense that legislators of the same type adopt identical strategies and are treated identically. I will thus index the strategies of legislators and their continuation values by their group membership $\in (M, m)$. Strategies are defined by a proposal strategy that is a best response to the proposal strategy of the other group and a mapping from proposal to voting choice. Although the strategies are symmetric, eventual transfers are not: not all legislators of a given type receive the same transfers in any particular proposal (although in expectation they do). Denote $\mathcal{C}$ the coalition of legislators who vote in favor of the proposer's proposal. It will be convenient to denote as x_{ij} the transfers by a proposer of type $i \in (M, m)$ to legislators of type j whom he chooses to include in his coalition $\mathcal{C}$, and x_i^p the transfers to the proposer's own district. Not all legislators of type j receive this transfer since they are not necessarily in the coalition. Thus, in what follows: $x_j = \begin{cases} 0 & \text{if } j \notin \mathcal{C} \\ x_{ij} & \text{if } j \neq i \ \& \ j \in \mathcal{C} \\ x_i^p & \text{if } j = i \end{cases}$

3 The Legislature Acts Alone

The legislative model allows us to analyze multiple bargaining environments: what bills can emerge when the proponents of the public good form a majority? Is their behavior modified by the presence of a minority group opposed to the public good? When the proponents are a minority, can they obtain funding for their desired public policy by compensating some majority members? How is the feasibility of such trades affected by the size of the majority group? There is a common structure to the decision problems faced by the majority and minority proposers across these environments, as well as some differences. I start by highlighting these before analyzing the specific cases.

To better characterize the effect that an antagonistic group has on the bargaining dynamics, it is useful to first present equilibrium outcomes occurring in the absence of type **0** legislators.

3.1 Homogeneous Legislature

In a homogeneous legislature, legislators have a common value $q > 0$. When $q \geq 1$, the proposer values the public good more highly than private spending for his own constituency. He thus invests all funds in the public good. Following Volden and Wiseman (2007), I call this the "collective" strategy. For $q < 1$, the proposer seeks instead to maximize his share of constituency spending. Thus, the proposer builds a proposal in which he retains a share of the budget while ensuring support of at least a majority of the legislature. Support can be obtained with either private transfers or public investments. Because the payoff function is linear in the public good and in particularistic goods, one of the two coalition-building instruments dominates (see Remark 2 below for a general formal statement). I define as the "public" strategy (P) the strategy that consists in using public good investments to rally support for the proposer's bill. For this strategy, $x_i = B - y$ where i is the proposer, $x_{j \neq i} = 0$, and y just satisfies the participation constraint of other members. I define as the "distributive" strategy (D) the strategy that consists in relying purely on tranfers. For this strategy, $y = 0$ and transfers are given to $\frac{n-1}{2}$ other members picked at random. M dominates for $\bar{q} < q < 1$, while D dominates for $q < \bar{q}$, where $\bar{q} = \frac{n+1}{2n}$ is the threshold value of q determining the switch from a distributive to a mixed strategy.

Let H index the equilibrium values for the homogenous case. The equilibrium collective proposal is very easy to characterize. Since $y_H^C = B_H$ and $x_i = 0$ for all i, the only choice variable is B_H, chosen to maximize $qB_H - kB_H^2$, and therefore taking the value $B_H^* = \frac{q}{2k}$. All legislators would propose the same bill, so it is approved unanimously after the first proposal. This equilibrium is unique.

In the case of the public equilibrium, $x_i = 0$ for all $j \neq i$ (where i is the proposer), the proposer chooses y_H and x_H^p (proposer rent) to maximize $qy_H + x_H^p - k(y_H + x_H^p)^2$ subject to $qy_H - k(y_H + x_H^p)^2 = \delta v_H$, where v_H is the continuation value of other legislators and is defined by $v_H = qy_H - k(y_H + x_H^p)^2 + \frac{1}{n}x_H^p$.

Remark 1. *When $\bar{q} < q < 1$, the equilibrium budget is $B_H^* = \frac{q}{2k}$, and $y_H \leq B_H^*$. Furthermore, $\frac{d(B_H^* - y_H)}{d\,\delta} < 0$ and when $\delta = 1$, $y_H = B_H^*$.*

We see from v_H that when $\delta = 1$, x_H^p, the proposer rent, must equal 0 in order to satisfy the participation constraint. In other words, if there is no cost to small delays in bargaining, there is no proposer surplus under the "public" strategy. The proposer must allocate all funds to the public good. If delay is costly to legislators, then the equilibrium proposal features $x_H^p > 0$ and $y_H < B_H$, as in Volden and Wiseman (2007). Unlike in a purely distributive policy space, the proposer advantage in this public policy environment stems only from the impatience of legislators. The reason is that the public good confers the same benefits on all legislators. All legislators are therefore part of the winning coalition and, in the absence of delay costs, there is no drawback to rejecting a proposal that fails to maximize the public good. In the rest of the analysis, I will assume $\delta = 1$. This will allow us to focus solely on the role of internal divisions without getting distracted by the proposer advantages arising from legislators' impatience.

3.2 Strategies in a Divided Legislature

For the legislature divided into two antagonistic groups, I distinguish two cases: 1) the majority case (MAJ) in which the proponents of the public good form a majority, and 2) the minority case (MIN) in which the proponents of the public good form a minority.

In this divided legislature, a majority proposer always builds a coalition with other majority members[8]. The majority proposer thus has at most one participation constraint to satisfy. The majority proposer's problem is thus similar to that of the homogeneous baseline. We can make the same distinction between the C, P and D strategies, the use of which depends on q_M. Recall that in the collective strategy C, the proposer invests all raised funds in the public good. In the public strategy P, the proposer invests funds in the public good to secure the participation of other majority members, but seeks to raise additional funds for his own constituency. In the distributive strategy, used when $q_M < \bar{q}_M^D$, there are no public investments, only transfers to $\frac{n-1}{2}$ districts. When $q_M < 0$, majority members enact proposals containing only distributional spending since they object to the public good.

The problem faced by the minority is quite different because the minority must either build a coalition with majority members or a mixture of minority and majority members. Consequently, the proposer must always satisfy the participation constraint of majority members, and some-

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[8]This assertion is not obvious. The majority proposer could choose to cater to the public policy wishes of the minority to reduce the number of majority members whose support it needs. However, this a more costly strategy because the minority's interest are contrary to that of the majority. The claim is formally verified for all relevant cases in the Appendix.

times must also satisfy that of other minority members. The following expressions represent the continuation values of the two types of legislators:

$$v_M = p_M(q_M y_M - kB_M^2) + p_m(q_M y_m - kB_m^2 + p_c x_{mM}) + \frac{1}{n}(B_M - y_M) \tag{1}$$

$$v_m = p_M(q_m y_M - kB_M^2) + p_m(q_m y_m - kB_m^2) + \frac{1}{n}(B_m - y_m - n_M p_c x_{mM}) \tag{2}$$

where x_{mM} denotes transfers from a minority legislator to a majority legislator. p_M and p_m are respectively the recognition probabilities of majority and minority members, while $p_c = 1 - \frac{n-1}{2n_M}$ is the probability that a majority member is chosen to be part of a minority coalition given that a minority member was recognized as proposer. The majority participation constraint is $q_M y_m + x_{mM} - kB_m^2 = v_M$. We see that y_m and x_{mM} play the role of substitutes: if $q_M y_m$ increases, then x_{mM} is allowed to be lower. Thus, one strategy to obtain the support of the majority is to manipulate y_m in the direction favored by the majority (up if $q_M > 0$ and down if $q_M < 0$), thus minimizing the transfers x_{mM}. I call this the "acquiescence strategy" (A) because it consists in acquiescing to the policy preference of the majority. Alternatively, the minority proposer can increase the transfers x_{mM}, thus allowing him to choose a value of y_m that is less favorable to the majority but yields higher value to the minority. I call this the "opposition strategy" (O) because the minority proposer attempts to push policy in the direction opposite to the wishes of the majority and closer to the wishes of the minority.

Remark 2 below clarifies why I am justified to define strategies that either minimize transfers or promote public policy returns. It states that there are no situations where the returns from modifying transfers depends on the choice of public policy, or vice versa. In other words, there is no complementarity between the two coalition-building tools: one dominates the other for a given set of exogenous parameters. In seeking the support of another legislator, a minority proposer of group i either minimizes transfers to this legislator by yielding to his public policy wishes or, on the contrary, uses transfers as his coalition-building tool to get more flexibility in setting the public policy. Which is preferred depends on the exogenous parameters of the model.

Remark 2. *For all parameters, $\frac{D^2 u_i}{Dy_i Dx_{ij}} = 0$. This implies that $\frac{Du_i}{Dx_{ij}}$ is a constant uniquely defined by the set of parameters (q_M, q_m, k, n, n_M). If $\frac{Du_i}{Dx_{ij}}$ is negative, then the proposer minimizes x_{ij}.*

The total derivative is applied to all variables that affect the payoff function, including the

variation running through changes in the participation constraints (see Appendix), thus capturing the full costs and benefits for the proposer of using transfers versus the public good to build a coalition. I have already noted that for the majority, satisfying the majority's participation yields the P and D strategies (the C being used when $q_M > 1$ and non-proposers' participation constraint is non-binding because the group is united in purpose). Remark 2 thus confirms that these majority strategies are mutually exclusive.

Turning to the minority's choice, we must still specify exactly what the A and O strategies imply in the MAJ and MIN cases respectively. In the MAJ case, the A strategy implies minimizing transfers to the majority by yielding to their policy wishes. There are no transfers to the majority and y_m is set to secure their participation. The support of the minority is not needed and the only type of particularistic spending might be to the proposer himself, if the participation constraint allows. The O strategy implies minimizing y_m. This builds support from the minority. In addition, the proposer provides transfers to $\frac{n-1}{2} - n_m$ other majority members to complement $\mathcal{C}$. The proposer can in many cases retain some particularistic spending for his constituency. The only transfers are thus x_{mM} to the majority legislators in $\mathcal{C}$ and x_m^p, transfers to the proposer himself. Unless the majority is extremely large, the O strategy is more attractive to minority members because it both minimizes y and permits minority proposer rents.

In the MIN case, the O strategy implies maximizing y_m. Again, this ensures support from the minority, but requires transfers to $\frac{n-1}{2} - n_m$ to complement the coalition. In this O strategy, all funds raised by the minority proposer are invested in building the coalition and increasing y_m, so the proposer does not retain any benefits for his own constituency. In the MIN case, the A strategy means minimizing transfers to the majority by minimizing y_m. However, y_m cannot be set to 0 because minority's members' support is also required to pass the proposal. y_m is thus set so that $q_m y_m - k B_m^2 = v_m$ and transfers x_{mM} are made to the majority to satisfy $q_M y_m + x_{mM} - k B_m^2 = v_M$. The minority proposer retains $x_m^p = B_m - y_m - (\frac{n-1}{2} - n_m)x_{mM}$.

We have thus defined three distinct strategies for each type of player: C, P and D for the majority members and O, A and D for the minority members. Table 1 recapitulates those strategies. Figure 1 defines and plots the different equilibrium regions that emerge from the combination of these strategies. Since I have shown that one of these strategies dominates for a given set of parameters, the equilibria are unique.

Majority Proposer		Minority Proposer	
Strat.	Description	Strat.	Description
C	Maj. proposer invests fully in the PG: $y = B$ and $x_i = 0$ for all i.	O	The min. proposer maximizes $q_m y_m$, requiring transfers x_{mM} to some Maj. members.
P	Maj. proposer uses the PG to get Maj. members' support.	A	The min. proposer minimizes x_{mM}, using the PG to satisfy Maj. members.
D	The Maj. proposer uses transfers to obtain support of $\frac{n-1}{2}$ members and $y = 0$.	D	The min. proposer uses transfers to obtain support of $\frac{n-1}{2}$ members and $y = 0$.

Table 1: A recapitulation of the strategies defined in the main text for both types of players

3.3 Equilibria

Figure 1 shows that in the MAJ case, the main two equilibria are PO and CA (in addition to the DD equilibrium, of little interest to us here). The first combines the P strategy of the majority with the O strategy of the minority, while the second combines the C strategy of the majority with the A strategy of the minority. The upper panel of Figure 2 shows the equilibrium values of B_M, y_M, B_m and y_m for these two MAJ equilibria.

Note that there are two other equilibria that could conceivably occur from combination of the majority and minority strategies: PA, the combination of P, and A and CO, the combination of C and O. The Appendix shows that given the assumption that $\delta = 1$, PA is equivalent to the homogeneous baseline and that as long as $q_m < 0$, PO dominates for the minority. Again given the assumption that $\delta = 1$, CO collapses into the CA equilibrium. Adding a cost to delays would loosen the bargaining constraints and allow PA and CO to exist as distinct equilibria, but these would only be dominant for small and fringe portions of the parameter space and distract us from the essential difference between the PO and CA equilibria and the way in which they will be modified by citizen suits. In both equilibria, the majority proposer chooses the same budget $B_M^* = \frac{q_M}{2k}$. The key difference is the share attributed to y. In the PO equilibria, $y_M^{PO} < B_M^*$, and the proposer keeps $x_M^p = B_M^* - y_M^{PO}$ for his constituency. Thus, the presence of an opposition minority gives the majority proposer an advantage over other members of his group, which he wouldn't have otherwise. The reason is that the opposition strategy of the minority creates an important shift in power dynamics within the majority. Figure 2 shows that in the PO equilibrium, the minority proposer successfully enacts $y_m^{PO} = 0$, making the
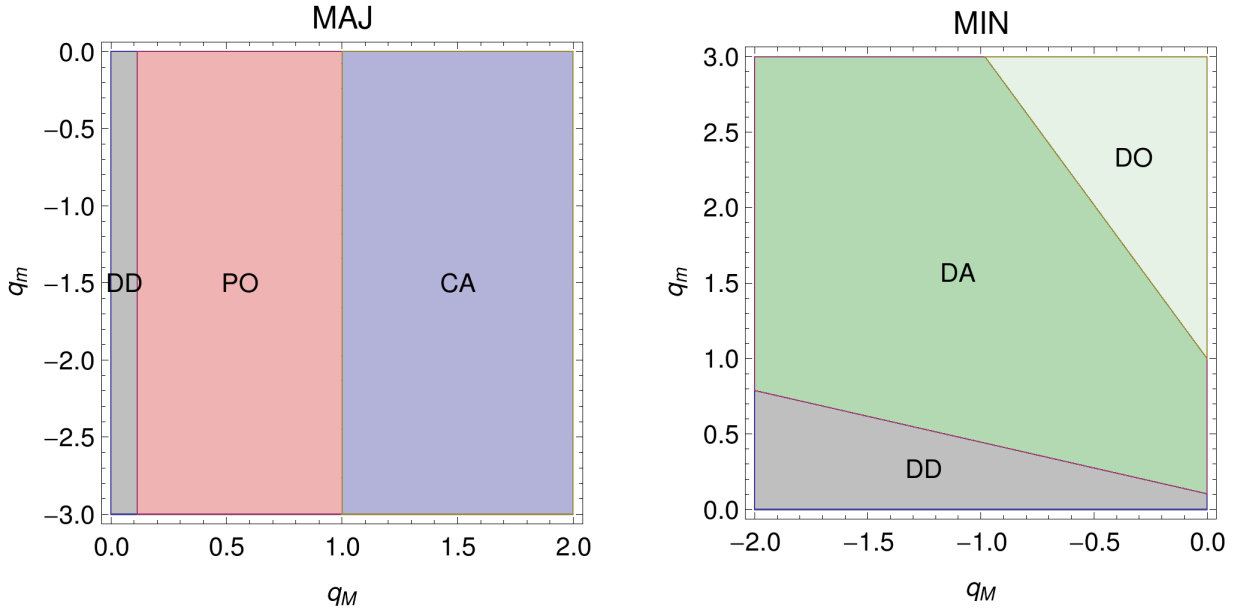
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Figure 1: Plot showing the equilibria that emerge from the combination of the strategies defined in Table 1 in the (q_M, q_m) parameter space. The regions are shown for $n = 21$, $n_M = 13$, and $p = 0.1$ for both the MAJ and MIN cases. An increase in n_M would cause would cause the threshold line between DA and DO to shift up and to the right, toward higher values of q_m. An increase in n while keeping the proportion of the majority constant causes the DD regions to shrink.

appropriate side payments to $\frac{n-1}{2} - n_m$ majority members[9]. However, since only a fraction of majority members are included in $\mathcal{C}_m$, the probability that a given majority member will benefit from the minority's compensatory transfers in a future PO minority proposal is low. Specifically, it is lower than the probability of benefitting from future compensation in the form of the public good (which, by definition of the non-exclusivity of the public good, is equal to 1), as would occur in the homogeneous case or if the minority used the public good to build its coalition. The continuation values and thus the bargaining power of the majority members are consequentially strongly reduced by the minority's opposition. This allows the minority proposer to set a low value for y_m and, in turn, allows the majority proposer to reduce y_M and extract particularistic spending for his own constituency. In Figure 2, this is reflected by the wedge between B_M^* and y_M^{PO} in the PO graph.

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[9]Note that for very large majorities, $y_m^{PO} = 0$ may not be affordable, in the sense that there may not exist a budget equal to the sum of the side payments needed to pass this budget and $y_m = 0$. In that case, $y_m = 0$ is replaced by a small value $y_m > 0$ that reduces the side payments and ensures the existence of a feasible proposal. See appendix for characterization of the exact conditions under which the corner solution $y_m^{PO} = 0$ prevails.
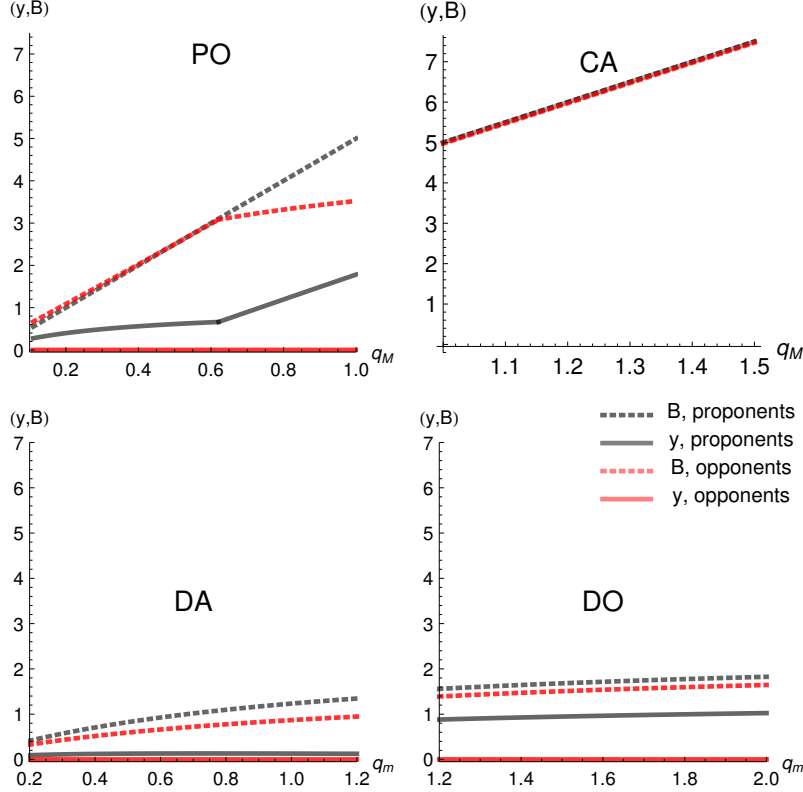
Figure 2: **Top Panel**: Equilibrium values of B_M and y_M (black, with B_M dotted), as well as B_m and y_m (red, with B_m dotted) in the PO and CA equilibria. **Bottom Panel**: Equilibrium values of B_m and y_m (black, with B_m dotted), as well as B_M and y_M (red, with B_M dotted). In both panels, $n = 21$, $n_M = 13$, $p = 0.1$.

In the CA equilibrium, $y_M^{CA} = B_M^*$ and the minority is forced to do the same. The proposer cannot limit the scope of the public policy and of the budget, because majority members would be assured of a better outcome by voting down such a proposal. Thus, the presence of the minority has no impact on the equilibrium when $q_M > 1$. In this case, the majority is united. There are no internal divisions from which the minority can benefit, as is the case in the PO equilibrium when $q_M < 1$.

Turning to the MIN case (lower panel of Figure 2), the two equilibria with public good provision are DA and DO. In either case the majority invests nothing in the public good ($y_M = 0$). B_m^* is equal across both equilibria, and is a function of the exogenous parameters. We also see that $B_m^{*,\text{MIN}} < B_M^{*,\text{MAJ}}$: the type **1** minority proposer does not raise as much fund as the majority proposer does in the MAJ case, because of the additional compensation costs that the minority proposer must pay to the majority members. In the DA equilibrium,

$y_m^{DA} + n_M p_c x_{mM}^{DA} < B_m^*$ such that the minority proposer obtains particularistic spending and y_m^{DA} is consequently quite low. In the DO equilibrium, no fund is retained for the proposer's district and thus $y_m^{DO} + n_M p_c x_{mM}^{DO} = B_m^*$. In either equilibria, y_m increases with q_m and decreases with $|q_M|$ and n_M, while transfers x_{mM} increase with $|q_M|$ and n_M.

Figure 1 shows an important difference between the MIN and MAJ cases. In the MIN case, q_m must be very large relative to $|q_M|$ for the type **1** proposer to invest all funds towards pursuing the policy that is in his group's interest rather than settle with particularistic spending for his constituency. In the MAJ case, the type **1** proposer does so as long as he values the public good more than monetary transfers ($q_M > 1$). In the MIN case, however, q_m must always be strictly greater than 1. Majority sizes supporting the opposition strategy decrease as $|q_M|$ increase and for many values of q_m, there exist no majority size sustaining the opposition strategy in the MIN case. It thus takes very special circumstances for the type **1** proposer to mobilize resources towards the provision of y in the MIN case, contrary to the position of the type **1** proposer in the MAJ case.

3.4   Public Good Provision Varies with Size of the Opposition

We have just seen that the presence of a group that battles the public good can reinforce the bargaining position of the proposer vis-a-vis proponents of the public good whom he needs as part of his coalition. Indeed, whether proponents of the public good form a minority or a majority, if the proposer's group does not choose to maximize the public policy returns of his group, then the opposition enhances the power of the type **1** proposer relative to the other members of the type **1** group. The result is a decrease in the scope of the public policy and an increase in particularistic spending, which goes to the proposer. The following result shows that this effect is mediated by the size of the opposition.

Result 1. *In the PO and DA equilibria, $y_\mathbf{1}$, the public good level chosen by the type **1** proposer, decreases relative to $B_\mathbf{1}$ as the size of the opposition increases. Thus, $\frac{d(B_\mathbf{1} - y_\mathbf{1})}{dn_\mathbf{0}} > 0$.*

Recall that in the PO (majority case) and the DA (minority case) equilibria, the opposition chooses minimal levels of the public good ($y_\mathbf{0} = 0$ in most cases) and the type **1** proposer seeks to maximize his constituency benefits. The results establishes that the proposer's ability to do so increases as the opposition grows, since the opposition reduces the bargaining power of other type **1** legislators whose support is needed to pass the proposal. A corollary of the result is

that y_M and y_m decrease in absolute terms with the size of the opposition, not just relative to the chosen budgets. Result 3 will show how the citizen suits give voice to the constituencies that favor the public good, thereby re-balancing their power relative to the proposer and the opposition.

In the majority case, the effect of the minority opposition is not only conditional on $q_M > 1$ (the majority being unified in purpose), but also on the size of the majority. Indeed, for a large enough majority, the minority proposer is induced to use the acquiescence strategy. This yields the PA equilibrium, which is exactly the same as the homogeneous baseline, where $y_m = y_M = B_{M,MAJ}$. The following remark states that in the majority case, the influence of the opposition on the majority proposer is thus limited to the parametric conditions under which the PO equilibrium prevails. Letting $\bar{n}_M$ denote the threshold value of n above which the minority switches to the acquiescence strategy:

Remark 3. *In the majority case:*

- *when $q_M < 1$ and $n_M < \bar{n}_M$:*

  $y_M < y_H$ *and* $\frac{dy_M}{dn_m} < 0$

- *when $q_M \geq 1$ or $n_M > \bar{n}_M$:*

  $y_M = y_H$ *and* $\frac{dy_M}{dn_m} = 0$

Notice that once $q_M \geq 1$, no matter how negative q_m might be, the minority cannot influence the majority's choice nor budge from the majority's preferred proposal when they themselves have an opportunity to make a proposal. As we will see, by tempering the level of ambition of the majority's legislation, citizen suits will here again affect the balance of power, shifting it partially back to the minority.

The next result establishes that when the minority values the public good, the minority's public good investments are always lower than those a majority group would have been able to enact when the majority values the public good, given the same set of parameters. This results from the fundamental dissymetry between the minority and majority cases. We have seen that the majority proposer is never induced to invest in the public good if it doesn't value it. As a result, the majority members' bargaining positions are strong enough that the minority proposer must always offer transfers to majority members. This limits the returns that the minority proposer gets from raising revenue and limits how much he can spend on the public good.

Result 2. *Given any $q_0 \leq 0$ and $q_1 \geq 0$, any n, and any $n_M > \frac{n}{2}$, we have $y_1^{MIN} < y_1^{MAJ}$. In all cases, y_1^{MIN} decreases with the size n_0 of the majority (the opposition): $\frac{dy_1^{MIN}}{dn_0} < 0$.*

This result indicates that whether q_m is large or not, it is always very much constrained by the requirements of the majority.Section 4 shows how civil society's ability to shape bills through citizen suits changes legislators' prospects and their relative power. We will see that in the minority case, citizen suits affect the balance of power between minority and majority, improving the minority's legislative prospects.

4   Legislating with Citizen Suits

In this section, I show how legislative outcomes are affected by the institution of citizen suits. I start by deriving the results of the litigation stage, and then work backwards to analyze how it changes legislators' choices.

4.1   The Reshaping of Legislation by Citizen Suits

Recall that at the litigation stage, many citizens independently bring suits in various regional courts. Petitioners can present claims c to judges to locally shift the implementation of y to c. Judges have a priori intrinsic preference y_i^*, while their ideal point $l_i^* = \frac{y_i^* + y}{2}$ reflects their respect for the law as written and their preference. Petitioners will obtain their claim c from a judge i if $|c - l_i^*| < |y - l_i^*|$. If $y_i^* > y$, then c will obtain for any $y < c < y_i^*$. Conversely, if $y_i^* < y$, c will be successful if $y_i^* < c < y$. In other words, any claim that lies between the legislation and the judge's *a priori* policy preference will be successful, because it strikes a better balance between the legislation and the judge's preference than the original legislation does.

I assumed that litigants can anticipate the decision of the judge. The best optimal action for type **1** litigants who want to expand the legislation is to present a claim $c = y_i^*$ to any judge i with $y_i^* > y$ and no claim to judges whose preference is $y_i^* < y$. Similarly, type **0** litigants who want to expand the legislation should present claim $c = y_i^*$ to any judge with $y_i^* < y$ and none to judges whose preference is $y_i^* > y$.

To obtain $l : y \mapsto \tilde{y}$, the mapping from the legislated public good to the effective public good at the national scale arising from the decentralized litigation process, I integrate over the preferences of judges and citizens:
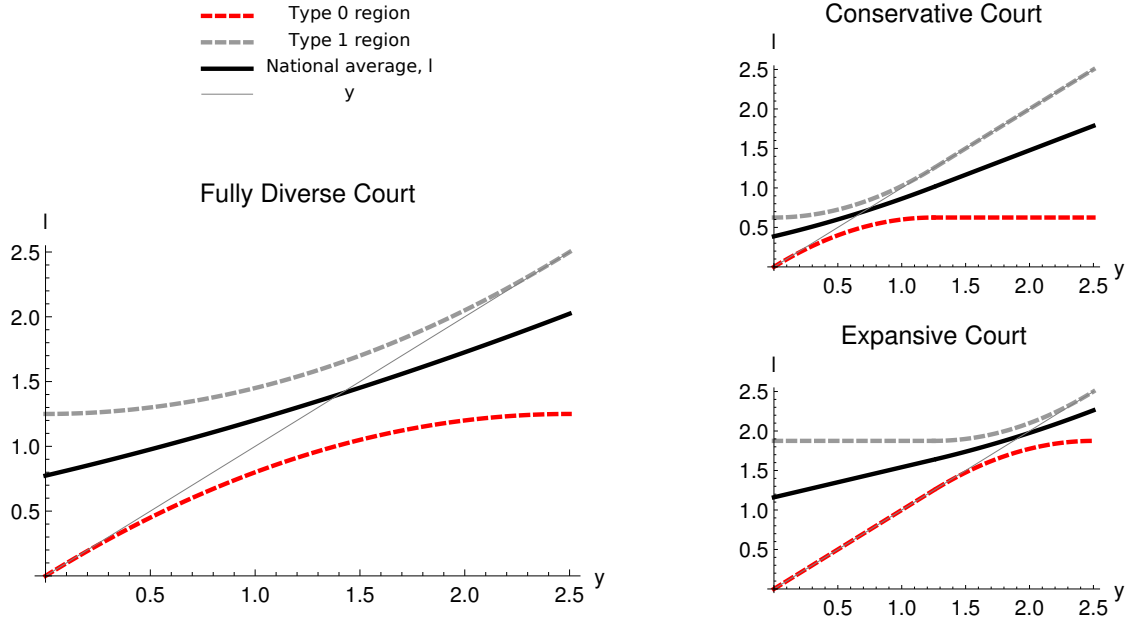
Figure 3: **Left**: Fully diverse judiciary, with $\frac{n_0}{n} = .4$, $q_1 = 0.5$. **Right top:** Conservative judiciary ($y_i^* \sim U(0, y_1^*/2)$). **Right bottom:** Expansionist judiciary ($y_i^* \sim U(y_1^*/2, y_1^*)$)

$$l(y) = \frac{1}{b-a} \left(r \int_a^b (y_i^* \, \mathbb{1}_{\{y_i^* < y\}} + y \, \mathbb{1}_{\{y_i^* \geq y\}}) \, dy_i^* \right.$$

$$\left. + (1-r) \int_a^b (y \, \mathbb{1}_{\{y_i^* \leq y\}} + y_i^* \, \mathbb{1}_{\{y_i^* > y\}}) \, dy_i^* \quad (3)$$

$l(y)$ is thus the result of the aggregation of all the many local disputes, which modify y. The exact functional form of Eq. 3 is derived in the Appendix, and is represented in Figure 3 for several distribution of citizen and judge preferences. If the nation were fully inhabited by litigants of type **1**, the policy would be inflated (gray line), the more so the lower the initial legislation. Vice versa, if the nation were fully inhabited by litigants of type **0**, the policy would be deflated (red line), with again a larger departure the farther the initial legislation from the wishes of the population. The central line represents the outcome in a mixed nation (here with 60% proponents of the public good). We see that the decentralized litigation process tends to level policy, bringing it away from extremes towards middling levels. The reason is that citizen suits give citizens access to decision-makers without the difficulties and corresponding limits of collective action. This form of public power is widely dispersed, promoting the independent con-

sideration of diverse viewpoints. Because a public good results from many local implementation actions, the overall reach of the public good reflects the aggregation of these diverse viewpoints.

In the second panel, we see the effect of an ideologically tilted judiciary branch. If $a > 0$, the judiciary on average has a tendency to expand legislation. while if $b < y_1^*$, it has a tendency to curb it. This affects the claims litigants can bring to court. For example, if $a \geq y$, then type **0** litigants will never be able to present a successful claim that goes in the direction they wish. As a result, they abstain to litigate. In reverse, type **1** litigants will be very encouraged to bring suit since many judges will be sympathetic to those claims, and the overall policy will be inflated.

4.2 Citizen Suits Lead to Shifts in Power in the Legislature

Section 3 spelled out the public policy consequences of conflict in the legislature and of factors affecting the bargaining power of the majority and minority groups. I now ask whether the anticipation by legislators of the reshaping of policy downstream by citizen suits changes those balances of power in the legislature, thereby changing public policy. I find indeed that they do. They do by virtue of the fact that unlike bargaining in the legislature, litigation as conceptualized in this paper averages the diverse preferences of the citizenry. As a result, extremely ambitious or unambitious policies get pulled to the center. This undermines the bargaining power of legislators who benefit from extreme positions (minimal or maximal values of y).

The same types of equilibria defined in Section 3 arise when legislators anticipate downstream litigation. The difference is that legislators bargain over the anticipated $\tilde{y} = l(y)$ and $\tilde{B}$ rather than over y and B, even though the official decision inscribed in legislation are expressed as y and B. Since the litigation process has a deterministic effect on policy, legislators can adjust y and B to recover the payoffs they seek. In fact, the Appendix shows that the different equilibrium values of $\tilde{B}$ are equal to the equilibrium values of B that obtain in the absence of citizen suits. The key feature of citizen suits, from the point of view of legislative bargaining, is that civil society does not allow any outcome to occur: the range of $l(y)$ is smaller than the range of y, as shown in Figure 3. Because both groups have access to courts, because the judiciary is diverse and because individual decisions add up to determine the overall reach of policy, the public policy gets drawn toward an average of the preferences of constituents[10], ruling out policy

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[10]Note that the process is responsive to the relative frequency of appearance in court of the two different groups, so the pull is toward a weighted average.

outcomes close to either of the groups' ideal policy. Thus, policies cannot be minimal as wished by the opposition and they cannot be maximally ambitious as desired by proponents of the public good. What emerges from the suits is a compromise.

Legislators who, in the absence of litigation, would have been able to enact a policy close to their ideal, have to accept the compromise citizens will craft in courts. This, of course, changes the effective value of any legislation enacted, but it also changes the equilibrium continuation values of legislators. For type **1** legislators, their future worst case scenario is now no lower than $l(0)$, in contrast to the previous institutional environment where it frequently was $y = 0$, or a very low value of y. Thus, in many cases, type **1** legislators now have a higher continuation value, and consequently, a higher bargaining power, than they had in the absence of litigation.

Similarly, the united majority that unyieldingly sought to bring the public policy to its maximal value in the CA equilibrium, leaving no space for compromise with the opposing minority, must accept a less extreme policy with citizen suits. In that case, some of the bargaining power is tilted toward type **0** legislators.

The two results below show that in most equilibria, citizen suits boost the provision of public goods. In the absence of litigation, the bargaining power of public good proponents is typically weak, as indicated by Results 1 and 2. Litigation can give voice to those proponents, so their ability to bargain for the public good is heightened. I present the results separately for the majority and minority case, as the parametric conditions and mechanisms vary.

Result 3. *In the majority case, when $q_M < 1$, citizen suits increase public good provision by both types of legislators: $\tilde{y}_M^{PO} > y_M^{PO}$ and $\tilde{y}_m^{PO} > y_m^{PO}$.*

With citizen suits, both types of proposer are forced to take into account the fact that the litigation stage will ensure that at least $\tilde{y}^{\min} = l(0)$ of funds will be invested in the public good. Beyond the fact that this clearly forces a higher level of public spending by the minority, when it is recognized, it also changes the bargaining dynamics in the PO equilibrium. Recall that in the PO equilibrium without litigation, the minority was able to enact $y_m = 0$, which considerably reduced majority members' bargaining power relative to the majority proposer. The minority was able to play off the internal divisions of the majority. In the presence of citizen suits, majority non-proposers are in a much better position relative to the proposer's attempt to extract benefits for his own constituency because they are assured a minimum level of public good investment. As a result, citizen suits increase the proportion of funds spent on

the public good as well as its absolute level. In turn, the overall amount of funds spent on distributive spending is reduced.

The Appendix shows in addition that, in all equilibria, $E[\tilde{y}]$ is closer to the efficient level for most of the parameter space. A general mechanism is that the legislature is forced to internalize the partial compromise that is bound to arise from citizen suits. In the PO equilibrium, a second mechanism is at play: the anticipation of citizen suits mitigates the "race to the bottom" created by the synergistic attempts of both proposers to minimize public spending in the PO equilibrium. The next results shows that citizen suits also increase compromise in the CA equilibrium, albeit this time by reducing the scope of the public good.

Result 4. *In the majority case, when $q_M > 1$, citizen suits decrease public good provision by both types of legislators: $\tilde{y}_M^{CA} < y_M^{CA}$ and $\tilde{y}_m^{CA} < y_m^{CA}$.*

In Section 3, the CA equilibrium lead to all legislators proposing the maximal level of the public good. In this new institutional environment, such a high level of investment is not feasible because of the resistance of some citizens. The minority gets a voice in the courts, a voice it absolutely lacked in the legislature.

The effect of citizen suits is very flagrant in the MIN case. Recall from Result 2 that the type **1** minority was able to invest in the public goods despite opposition by the majority, but could do so only to a modest degree because of the high costs of obtaining the acquiescence of majority members. In addition, in the DA equilibrium, the minority proposer does not energetically seek to promote public good investment since he is interested in bringing benefits home instead. The position of minority members who value the public good is thus very weak. Citizen suits strengthen it by giving proponents a minimum guaranteed level. In the DA equilibrium, this guaranteed level strengthens minority members relative to the minority proposer, while in the DO equilibrium, it strengthens the whole minority relative to the majority.

Result 5. *In the minority case, for all parameters, $\tilde{y}_m > y_m$ and $\tilde{y}_M > y_M$.*

In the majority case, citizen suits boost public good provision only when the majority lacks cohesion. In contrast, in the minority case, this institution causes an increase in public good provision in all cases. In the DA equilibrium, it enhances minority non-proposers' voice relative to the minority proposer, via the same mechanism just described for the majority case. Critical for the DO equilibrium, citizen suits also decrease the bargaining power of majority members who oppose the public good. As a result, majority members require less particularistic spending

to support a bill, which allows the minority to be more ambitious.

The Appendix shows that $E[\tilde{y}]$ is closer to the efficient level when q_m is large relative to $|q_M|$. This reflects the fact that the legislature is excessively pulled toward majority preferences when the latter are weakly negative relative to the minority's strong positive preference. However, citizen suits can be overly responsive to the minority relative to the efficient benchmark, since the minority obtains a minimal guarantee even if it values the good less strongly than the majority opposes it.

In all these cases, downstream litigation severely reduces particularistic spending. The reason is that the activism of citizens and judges pre-commits a certain amount of spending toward the public good. Because the cost of raising public funds increases convexly, legislators face steeper costs in their attempt to secure particularistic goods. The next Section shows that this reduction in particularistic spending and the associated positive shift in public funding leads to higher welfare overall since public spending, even if contentious, always benefits more people than the same amount of particularistic spending.

4.3 Effects of Citizen and Judge Preferences

Results 3, 4, and 5 are modulated by the size of the group of litigants in favor of the public goood and the distribution of judicial preferences. To illustrate this, let us focus on the equilibria where litigation boosts public good investment (PO equilibrium of MAJ case and DA and DO equilibria of MIN case). Let $E(\tilde{y}) = p_M \tilde{y}_M + p_m \tilde{y}_m$ stand for the expected outcome under litigation and $E(y) = p_M y_M + p_m y_m$ stand for the expected outcomes in the absence of litigation. As before, n_1 stand for the size of the population that is in favor of the public good, a and b are the lower and upper bounds of the distribution of judicial preferences.

Remark 4. *The difference in expected outcomes between the two institutional environments varies with the distribution of preferences amongst the judiciary and the citizenry:*

1. $\dfrac{d(E(\tilde{y}) - E(y))}{dn_1} > 0$

2. $\dfrac{d(E(\tilde{y}) - E(y))}{db} > 0$

3. $\dfrac{d(E(\tilde{y}) - E(y))}{da} > 0$

Judicial preferences and the support of a mobilized citizenry influence the outcome of the legislative process in a way that matches our intuition. A distribution of judicial preferences that is skewed toward high levels of the public policy generates higher equilibrium values of the policy, while a greater number of supporters in the citizenry similarly generates a more ambitious policy. Even though it matches our intuition, this finding is not obvious. Indeed, the litigation process is assumed to be perfectly anticipated by legislators, so legislators could theoretically shift their choices exactly opposite to the shifts anticipated to happen in courts to obtain the same final outcome. Judges and citizens can influence public policy outcomes in this system because they change the relative bargaining power of the minority and the majority, as well as proposers versus non-proposers.

5 Discussion

5.1 Welfare implications

With the knowledge of how legislators' choice of y changes, combined with its ex-post modification in courts, we can now examine the overall welfare implications. To do so, I consider the average expected payoff for all constituencies. Thus, we consider $\overline{E(u)} = \frac{n_M}{n} E(u_M) + \frac{n_m}{n} E(u_m)$ in the baseline case without citizen suits and in the coupled institutional system. Figure 4 compares these two cases for both the majority and minority cases. In either case, the opposition's valuation is $q_0 = -.5$ and the majority is of a moderate size ($n_M = 12$ for $n = 21$). Figure 4 shows $\overline{E(u)}$ for $q_1 \in (0, 2)$.

For low values of q_1 citizen suits decrease collective welfare since citizen suits force a minimum positive level of public good investment even though the preference of the opposition is more intense than that of proponents. Efficiency demands that y be positive for $q_1 > -\frac{n_0 q_0}{n_1}$. Both the legislature alone, and the legislature coupled with citizen suits invest positively below that threshold. However, this is the case to a larger degree for citizen suits (Result 3 and 5). However, quickly above that threshold, welfare from the coupled institution rises and starts to clearly outperform the welfare from the legislature alone, in both the minority and majority cases. The reasons differ however. In the region of the PO equilibrium (majority case), the improvement afforded by citizen suits is due to Result 3, where we saw that citizen suits buttress the bargaining power of majority members relative to the majority proposer and thus forces him to invest more. The Appendix shows that in fact, this investment is too high relative to the efficient level of
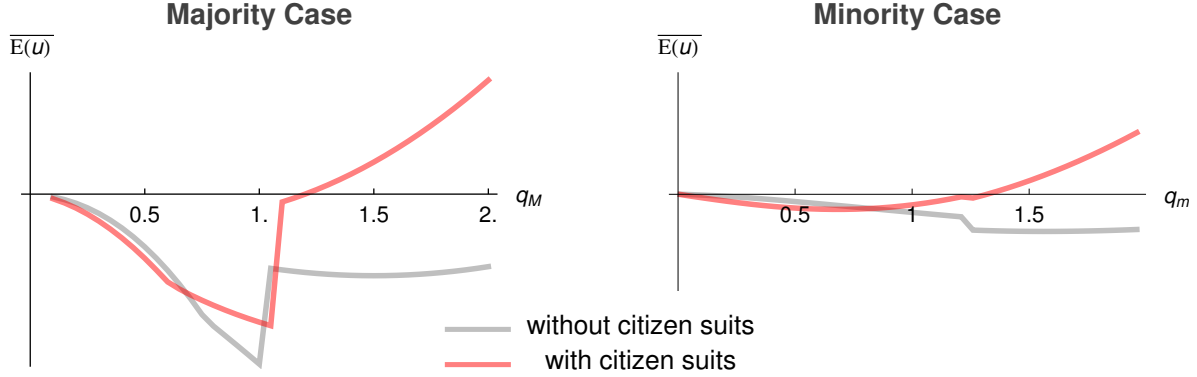
Figure 4: The difference in $\overline{E(u)} = \frac{n_M}{n}E(u_M) + \frac{n_m}{n}E(u_m)$ between the two institutional environments, for the majority and minority cases. The parameter values are $n_M = 21$, $n_m = 12$, $q_0 = -0.5$, and $p = 0.1$. The judiciary is assumed fully diverse, and legislators' preferences exactly mirror the distribution of preferences amongst citizens.

y, but at least it displaces distributive spending toward the proposer constituency, channeling more of the budget toward the public good and thus averting high losses on non-proposers. The reason why the payoffs are negative is that a high budget is raised and channeled in large part toward distributive spending. Citizen suits, by forcing some funds to be channeled in the public good, minimize the extent of this loss.

On the contrary, in the region of the CA equilibrium (still majority case), the coupled institution fares better because y is not as extreme as in the legislature alone, thus representing a degree of compromise with the minority. In the legislature alone, there is no compromise whatsoever since the majority is united in its objective and can therefore impose its preference. However, with citizen suits, the extreme choices of the majority are tempered by downstream litigation and this lets the minority make more moderate proposals as well.

In the minority case, for low values of q_m, citizen suits force too high an investment in y, given that type 1 citizens or legislators are only a minority. However, the coupled system quickly outperforms the legislature alone for $q_m > -\frac{n_M q_M}{n_m}$ because it reflects much better than the legislature would on its own the high valuation of the minority for the public good. By giving some voice to the minority when the latter values the public good - but not full powers - the coupled system leads to legislation that creates more value for the legislature as a whole.

Note that neither institution is very sensitive to the differences in valuation of the two groups. This is why neither institution dominates the other over the whole parameter range. Because the legislature generally tends to underinvest in the public good when either the minority values it,

or the type **1** proposer prefers particularistic spending, thus creating a division within the type **1** group, as soon as some public investment is efficient for the legislature as a whole, the coupled systems tends to fare better. Conversely, because citizen suits allow some mobilization by proponents even when they value the good moderately and aren't very numerous, the legislature alone outperforms the coupled system when efficiency requires that there be no or limited public good investment.

The welfare improvements offered by the coupled system come along with more divergent payoffs for each group in the PO equilibrium and the MIN case. The type **1** group is much better off and the type **0** is much worse off in those cases. Thus, the difference in the ex-post payoffs of both groups is higher. It is thus only in an ex-ante sense that the coupled system is better able to forge a degree of compromise. Only in the CA equilibrium do we see ex-post payoffs of both groups in fact come closer to each other.

5.2 Discussion of assumptions

This paper has proposed a model of legislature and court interaction in which the courts are the forum of a highly decentralized process of citizen participation in the shaping of policy. In doing so, it departs from most models, which focus on the Supreme Court. Being at the apex of the judicial system and responsible of handing down decisions that bind the lower courts, the Supreme Court is usually seen as the real source of policy innovation in the court system. Instead, this paper ignores judicial hierarchy and assumes that the court system generates a very large number of diverse decisions. This assumption was justified by reference to 1) the very large number of courts handing down decisions, 2) the geographical distribution of litigants, 3) the temporal distribution of judicial appointments yielding diverse ideologies amongst judges, and 4) the plurality of legality issues actually included in a statute and in the implementation of a public policy. Nonetheless, given that the results of Section 4 and of the welfare analysis are fully driven by the assumption that the judicial branch is a pluralist institution, the specific assumptions built in the litigation model need critical examination.

Three of the simplifications made may specifically pose a question to the reader. First, one may object to the assumed independence between judicial decisions reflecting my neglect of judicial hierarchy. Higher courts can make far-reaching judgments that influence large classes of subsequent cases. One answer is that the production of any public policy raises many more specific policy issues and court cases address much more narrow issues than the legislative

decision. As a result, even if many cases are related, there still are a large number of unrelated cases (or lines of precedent). In addition, the assumption of a large number of independent decisions justified treating the process as deterministic: with enough citizen mobilization, it is reasonable for any legislator to expect that the final policy will be the expectation taken over the distribution of citizen and judicial preferences (shaped by the text of the statute). However, if a higher court can stir the litigation process in a particular direction and there is *ex ante* uncertainty about the higher court's future judgment, then the process is perhaps better viewed as uncertain from the viewpoint of legislators, with some probability of highly conservative or highly expansive court rulings. To reflect this, the model can be modified by adding uncertainty as to the range of judicial preferences. I explore this possibility in the Appendix and find that much of the same logic holds in this more complicated case. In particular, citizen suits still undermine the proposer's advantage unless the chance of a highly conservative court ruling is high. Citizen suits also still contribute to a better reflection of the minority's interest. Thus, the qualitative aspect of the analysis are preserved once the assumption of deterministic independence is relaxed, as long as some degree of pluralism is conserved.

A second objection is that there are no restrictions on citizens' claims and judges' decisions. This is merely a simplification to make the analysis more transparent. Consider instead that the opportunities for litigation arise within the scope of ambiguity opened up by policy drift. Specifically, let policy be shifted up or down periodically by exogenous events and let citizens have the option of bringing a case to defend a more literal reading of the law, bringing policy back to y. Thus, the only change here is in the range of claims citizens can bring forth, assuming that policy drift introduces uncertainty. Judges' preferences and decision problem remain identical. The Appendix shows that in this alternative "gatekeeping" model, a similar pulling of policy towards moderate values happens, and Results 3 and 4 are consequentially robust to this alternative specification.

Finally, I will relax the assumption that litigation is costless and that consequently, all potential litigants – whether holding large or small grievances and large or small wallets – bring suit. What happens when we add a cost to accessing the courts? An equal cost for all could let citizen suits better reflect the intensity of preferences. Indeed, in the present formulation, citizen suits do not at all reflect the intensity of the preferences of type $\mathbf{0}$ litigants (but it does reflect that of type $\mathbf{1}$ litigants since $q_{\mathbf{1}}$ gives the upper bound of claims and of judges' preferences). With a cost, however, litigants would only go to court if the claim they expect to obtain in

court yields a sufficiently large policy payoff relative to the cost. Specifically, the condition is that $q(c - y) > K$, where $|q|$ is the absolute valuation of the litigant, c the claim, y the status quo policy and K the cost of access. If the cost is large enough relative to $|q|$, a litigant only goes to court when y is very far from his own preference and he has access to a judge with very similar preference to his own. In such a context, citizen suits can yield additional welfare increases, relative to what was shown in the previous section, by virtue of being more sensitive to differences in the intensity of preferences of the two groups. However, these improvements are highly sensitive on the cost being in a "productive" range. A low cost offers no improvement over the costless version, while a cost that is too high relative to the valuations and the scope of the disputed policy entirely crowds out litigation. Of course, high costs can also have perverse effects if they apply differentially across the two groups.

6   Conclusion

This paper has presented a model of legislative bargaining in a situation of conflict over the provision of a public good, in an institutional context in which citizens can subsequently influence the policy in courts of law. I made a number of assumptions about decision-making in courts that lead to the conclusion that citizen suits strike a compromise between the formal legislation and the diverse preferences of citizens. I showed that in some circumstances, when the majority stands to benefit from the public good, the proposers of the majority and the minority groups in the legislature synergistically undermine the representation of the majority's interest, diverting a large proportion of funds towards particularistic spending. Citizen suits were shown to alleviate this problem by enabling some minimum degree of public policy investments, thereby strengthening the majority's voice. In other circumstances, the legislative process is found to be very weakly responsive to the minority's interests. Citizen suits can, though imperfectly, help temper this charateristic of majority institutions. They do so by forcing all legislators to take some account of the full spectrum of citizen preferences rather than singly reflect that of their own constituency.

Court action following legislation is often criticized for not faithfully representing legislative intent, and the internal bargains struck by legislators. The diversity in court rulings is taunted as evidence that judges are policy-motivated and not disciplined by the law, and are therefore usurping legislative powers. Others consider it natural that the courts take on legislative roles, if

a certain policy question calls for a deliberative justification other than a majority justification, such as a moral justification (Ferejohn 2002). The analysis I provide here suggests instead that courts may be able to productively tackle the same policy disputes as the legislature, and in doing so help the legislative process. This paper conceptualizes the legislature and the courts as part and parcel of a policy system in which citizens have formal means of prodding the legislature into enacting reforms, and shows some mechanisms by which this sharing of authority is productive. The assumptions about decision-making in courts that drive these results are that courts are decentralized, that citizens set the agenda, and that judges hold diverse preferences, which are partially disciplined by the legislative text. Also important is the fact that courts are called upon to rule on narrower issues of implementation that additively determine the true impact of legislation on the ground. This allows the expression of the diversity of citizen and judge preferences, without crushing the influence of the general prospective rules negotiated within the legislature.

Appendix

The Legislature Acts Alone

Homogeneous Legislature

Remark 1 : For $\bar{q} < q < 1$, y_H is chosen so as to obtain other legislators' support and is thus a function of B_H. The proposer maximizes $qy_H + B_H - y_H - kB_H^2$, so in equilibrium $qy'_H + 1 - y'_H = 2kB_H$. The proposer seeks to maximize his surplus $B_H - y_H$, so $y'_H = 1$. We thus get that $B_H^* = \frac{q}{2k}$.

Solving the participation constraint for $B_H = \frac{q}{2k}$ and $x = 0$, we get $y_H = \frac{q((\delta-1)nq-2\delta)}{4p((\delta-1)nq-\delta)}$. When $\delta = 1$, we thus get $y_H = \frac{q}{2k}$, while $y_H < B_H^*$ for $\delta < 1$. When $\delta = 1$, $\bar{q} = \frac{n+1}{2n}$

Strategies in a Divided Legislature

Note: Throughout the derivations below, I re-express the benefits x_i^p of the proposer as $B_i - y_i - \sum_{j \in \mathcal{C}_i} x_j$, i.e. what remains of the budget once the public good and the transfers are accounted for. This allows me to express the choice problem in terms of the budget, which is algebraically easier given that the budget enters as a quadratic term in the payoff function.

Majority proposers seek to maximize $u_M = q_M y_M + B_M - y_M - kB_M^2$ if they invest in the public good, and $u_M = B_M - \frac{n-1}{2}x_{MM} - kB_M^2$. The choice of the majority proposer is constrained by the participation constraint of the majority

$$q_M y_M + x_{MM} - kB_M^2 \geq v_M \tag{4}$$

Additional constraints are the requirement that transfers and the public good investment be non-negative and the proposer's own benefits also non-negative, so $B_M \geq y_M + \frac{n-1}{2}x_{MM}$.

Minority proposers will seek to maximize $u_m = q_m y_m + B_m - y_m - n_M p_c x_{mM} - kB_m^2$ subject to the participation constraint of the majority:

$$q_M y_m + x_{mM} - kB_m^2 = v_M \tag{5}$$

where v_M is given by 1. Additionally, the participation constraint of the minority is $q_m y_m + -kB_m^2 \geq v_m$ (not always binding), where v_m is given by 2 and again the constraints that transfers and public good investments are non-negative, in particular $B_m \geq y_m + n_M p_c x_{mM}$.

Remark 2 We proceed by studying the total derivative of u_m with respect to one of the two types of investments, here y_m:

$$\frac{Du_m}{Dx_{mM}} = \frac{\partial u_m}{\partial x_{mM}} + \frac{\partial u_m}{\partial y_m}\frac{dy_m}{dx_{mM}} + \frac{\partial u_m}{\partial B_m}\frac{dB_m}{dx_{mM}}$$

When the budget constraint given by Eq. 5 does not bind, we can consider B_m a free variable and thus, the last term of $\frac{Du_m}{Dy_m}$ can be dropped. Thus: $\frac{Du_m}{Dx_{mM}} = -n_M p_c + (q_m - 1)\frac{dy_m}{dx_{mM}}$. To obtain $\frac{dy_m}{dx_{mM}}$, we proceed by implicit differentiation of Eq. 4 and Eq. 5. First note that $q_M\frac{\partial y_m}{\partial x_{mM}} + 1 = \frac{Dv_M}{Dx_{mM}}$ and that when y_M is set by the participation constraint Eq. 4, then $q_M\frac{\partial y_M}{\partial x_{mM}} = q_M\frac{\partial dy_m}{\partial x_{mM}} + 1$ (case 1). If y_M is invariant, then of course $\frac{\partial y_M}{\partial x_{mM}} = 0$ (case 2).

Case 1: $q_M\dfrac{\partial y_m}{\partial x_{mM}} + 1 = p_M(q_M\dfrac{\partial y_m}{\partial x_{mM}} + 1) - \dfrac{1}{n}(q_M\dfrac{\partial y_m}{\partial x_{mM}} + 1) + p_m(q_M\dfrac{\partial y_m}{\partial x_{mM}} + p_c)$

Case 2: $q_M\dfrac{\partial y_m}{\partial x_{mM}} + 1 = p_m(q_M\dfrac{\partial y_m}{\partial x_{mM}} + p_c)$

In both cases, we see that $\frac{\partial y_m}{\partial x_{mM}}$ is a constant. Thus, all terms in $\frac{Du_m}{Dx_{mM}}$ are constants. u_m is a monotonic function of x_{mM}, either increasing or decreasing depending on q_M, q_m, δ, p and (n, n_M). Since an increase in x_{mM} allows a decrease in y_m, u_m is reciprocally monotonically increasing or decreasing in y_m.

When $B_m \geq y_m + n_M p_c x_{mM}$ does bind, x_{mM} enters the budget term. We must consider the variation of B_m with respect to x_{mM} to ascertain montonicity of u_m. In this situation we have that $y_m + x_{mM} - k(n_M p_c x_{mM} + y_m)^2 = p_M(q_M y_M - kB_M^2) + \frac{1}{n}(B_M - y_M) + p_m(q_M y_m - j(n_M p_c x_{mM} + y_m)^2 + p_c x_{mM})$. This is a quadratic function of y_m and x_{mM} so y_m can be expressed as a non-linear function of x_{mM}. We thus obtain a formulation for u_m that is entirely a function of x_{mM}, the derivative with respect to x_{mM} of which is thus a constant at $x_{mM} = 0$ that depends on the exogenous parameters.

The same analysis applied to $\frac{Du_M}{Dx_{MM}}$ proceeds exactly in the same way, to show that $\frac{Du_M}{Dx_{MM}}|_{x_{MM}=0} =$ constant, allowing us to define strategies in terms of whether they minimize transfers to specific members or not, as explained in the main text.

Equilibria: Majority Case

Threshold functions separating equilibria

- The DD equilibrium prevails for $q_M \leq \frac{2n^2 - 2n(2n_M+1) + 4n_M(n_M+1)}{n^3 - n^2 n_M - n + n_M(4n_M+1)}$

- The PO equilibrium prevails for $q_M \leq 1$ and $q_m < q_m^O = 1 - \frac{n_M q_M (n - 2n_M - 1)((\delta - 1)n q_M - \delta)}{\delta n^2 q_M - n q_M (\delta + (3\delta - 2)n_M) + \delta n_M (q_M + 2)}$

- The CA equilibrium prevails for $q_M \geq 1$.

Majority Budget Denote $\bar{y}_M$ the public good investments needed to satisfy the majority's participation constraint. When the majority proposer seeks to maximize his constituency benefits, then we simultaneously have $q_M \frac{\bar{y}_M}{dB_M} + 1 - \frac{\bar{y}_M}{dB_M} - 2kB_M = 0$ (optimality condition) and $1 = \frac{\bar{y}_M^*}{dB_M}$ (benefits are maximized). Hence $B_M^* = \frac{q_M}{2k}$, as in the collective strategy and the homogeneous baseline.

PO $y_m = 0$ is feasible for the minority as long as $n_M \leq \frac{\sqrt{2n^2 q_M^2 - 2n q_M^2 + 1} + 1}{2q_M}$. Feasible means that there exists a budget such that the transfers needed for $\frac{n-1}{2} - n_m$ majority members to acquiesce are affordable.

The equilibrium values of PO are obtained by simultaneously solving Eq. 4 and 5. Under the PO equilibrium these become: $p_m(q_M y_M - kB_M^{*2}) = \frac{1}{n}(B_M^* - y_M) + p_m(-kB_m^2 + p_c x_{mM})$ and $x_{mM}(1 - p_m p_c) = kp_M B_m^2 + p_M(q_M y_M - kB_M^{*2}) + \frac{1}{n}(B_M^* - y_M)$. We obtain:

$$y_M^{PO} = \frac{\frac{q_M(n_M(-nq_M + q_M + 4) + (n-1)nq_M)}{4k} - B_m^2(n-1)k(n - n_M)}{n_M(-nq_M + q_M + 2) + (n-1)nq_M}.$$

B_m is the minimum of $(B_m^{\max}, B^{\mathrm{interior}})$, where $B^{\max}$ solves $-kp_M B_m^2 = p_M(q_m y_M - B_M^*) + \frac{1}{n}(B_m - y_M - n_M p_c x_{mM})$ (which guarantees the participation of the minority members), and B_m^{interior} solves $1 - n_M p_c \frac{dx_{mM}}{dB_m} = 2kB_m$.

PA Under PA, $q_m y_m - kB_m^2 = v_M$ and $q_M y_M - \frac{q_M^2}{4k} = v_M$. Under PA, we have $v_M = p_M v_M + \frac{1}{n}B_M^* - y_M) + p_m v_M$, indicating that $y_M = y_m = \frac{q_M}{2k}$

CA Under CA, $(q_m y_m - kB_m^2)(1 - p_m) = p_M(q_M B_M^* - kB_M^{*2}) \Rightarrow q_m y_m - kB_m^2 = q_M B_M^* - kB_M^{*2}$. The minority must offer the same payoff to the majority as the majority can obtain on its own terms, so $y_m = B_m = B_M^*$.

Equilibria: Minority Case

Threshold functions separating equilibria

- The DD equilibrium prevails for $q_m \leq \bar{q}_m^D = \frac{n_M \left(n^2(n_M q_M + 1) - n\left(2n_M^2 q_M + n_M q_M + n_M + 1\right) + n_M(2n_M + 1)\right)}{\left(nn_M + n - n_M^2\right)(n^2 - n(n_M + 1) + n_M(2n_M + 1))}$.

- The DO equilibrium prevails for $q_m \geq \bar{q}_m^O = \frac{n_M^2 q_M(n - 2n_M - 1)}{n^2 - n(n_M + 1) + n_M(2n_M + 1)} + 1$

- The DA equilibrium prevails for $\bar{q}_m^D < q_m < \bar{q}_m^O$.

Characterization of B_m

1. $B_m^{DO} = B_m^{DA}$: Consider the general transfer function $x_{mM}(B_m, y_m)$ obtained from the participation constraint of the majority. Then, consider $y_m^{DA}(B_m)$ obtained from the participation constraint of the minority simultaneously, which then yields $x_{mM}^{DA}(B_m)$ by substituting into the general transfer function mentioned just previously. At equilibrium, the proposer maximizes surplus, so $y_m^{DA\prime} + n_M p_c x_{mM}' = 1$. In the DO equilibrium, we have $y_m^{DO} = B_m - n_M p_c x_{mM}(y_m^{DO}, B_m)$. At equilibrium, we thus again have $y_m'^{DO} = 1 - n_M p_c x_{mM}'$. In addition, in either case at equilibrium we have $q_m y_m' = 2k B_m$. We have just seen that y_m' satisfies the same relationship in both equilibria, thus the preferred B_m is the same in either case. The only difference lies in the way it is allocated between public good and particularistic good for the proposer.

2. $B_1^{MIN} < B_1^{MAJ}$: We are contrasting the budget chosen by the type $\mathbf{1}$ (minority) proposer in the MIN case to that of the type $\mathbf{1}$ (majority) proposer in the MAJ case, when they have comparable valuation $q_{\mathbf{1}}$.

   In the MAJ case, $\mathbf{1} = M$ and at equilibrium the following holds: $q_M \frac{dy_M}{dB_M} = 2k B_M$. In the MIN case, $\mathbf{1} = m$ and the following holds: $q_m \frac{y_m}{dB_m} = 2k B_m$. In the majority case, we additionally have $\frac{dy_M}{dB_M} = 1$, while in the minority case, we have $\frac{dy_m}{dB_m} = 1 - n_M p_c \frac{x_{mM}}{dB_m}$. Since $\frac{x_{mM}}{dB_m} > 0 \Rightarrow \frac{dy_m}{dB_m} < \frac{dy_M}{dB_M} \Rightarrow B_1^{MIN} < B_1^{MAJ}$.

The expression for $B_1^{MIN} = B_m^{DA} = B_m^{DO}$ is $B_1^{MIN} = -\frac{q_m\left(n^2 - n(n_M + 1) + n_M(2n_M + 1)\right)}{2k\left(-n^2 + n\left(n_M^2(q_m - q_M) + n_M + 1\right) + n_M(2n_M + 1)(n_M(q_M - q_m) - 1)\right)}$.

DA Simultaneously solving $q_m y_m - k B_m^2 = v_m$ and $q_M y_m + x_{mM} - k B_m^2 = v_M$, we get:

$$
y_m^{DA} = \frac{1}{n^2(-(n_M q_m + 1)) + n\left(n_M^2(q_m - q_M) + n_M(q_m + 1) + 1\right) + n_M(2n_M + 1)(n_M(q_M - q_m) - 1)} \times
$$

$$
\Bigg(B_M n_M(B_M(n-1)np - n + 2n_M + 1) +
$$

$$
\frac{n q_m^2 (n_M - n n_M)\left(n^2 - n(n_M + 1) + n_M(2n_M + 1)\right)^2}{4k\left(-n^2 + n\left(n_M^2(q_m - q_M) + n_M + 1\right) + n_M(2n_M + 1)(n_M(q_M - q_m) - 1)\right)^2}
$$

$$
+ \frac{q_m\left(n^2 - n(n_M + 1) + n_M(2n_M + 1)\right)^2}{2k\left(-n^2 + n\left(n_M^2(q_m - q_M) + n_M + 1\right) + n_M(2n_M + 1)(n_M(q_M - q_m) - 1)\right)} \Bigg)
$$

B_M is the maximum of $(B_M^{\min}, B_M^{\text{interior}})$, where $B_M^{\min}$ solves $x_{MM}(B_M) = 0$ (when B_M falls under that level, majority members support the bill with 0 transfers), and B_M^{interior} solves $1 - \frac{n-1}{2}\frac{dx_{MM}}{dB_M} = 2kB_M$.

DO Simultaneously solving $y_m = B_m - n_M p_c x_{mM}$ and $q_M y_m + x_{mM} - kB_m^2 = v_M$, we get:

$$y_m^{DO} = \frac{1}{-n^2 + n\left(n_M^2(-q_M) + n_M + 1\right) + n_M(2n_M + 1)(n_M q_M - 1)} \times \Bigg(B_M n_M (n - 2n_M - 1)(B_M n_M p - 1) -$$

$$\frac{n_M^2 q_m^2 (n - 2n_M - 1)\left(n^2 - n(n_M + 1) + n_M(2n_M + 1)\right)^2}{4k\left(-n^2 + n\left(n_M^2(q_m - q_M) + n_M + 1\right) + n_M(2n_M + 1)(n_M(q_M - q_m) - 1)\right)^2}$$

$$+ \frac{q_m\left(n^2 - n(n_M + 1) + n_M(2n_M + 1)\right)^2}{2k\left(-n^2 + n\left(n_M^2(q_m - q_M) + n_M + 1\right) + n_M(2n_M + 1)(n_M(q_M - q_m) - 1)\right)}\Bigg)$$

Here again, B_M is the maximum of $(B_M^{\min}, B_M^{\text{interior}})$, where $B_M^{\min}$ solves $x_{MM}(B_M) = 0$ (when B_M falls under that level, majority members support the bill with 0 transfers), and B_M^{interior} solves $1 - \frac{n-1}{2}\frac{dx_{MM}}{dB_M} = 2kB_M$.

Public Good Provision Varies with Size of the Opposition

Result 1: We seek to show that $B_M^* - y_M^{PO}$ decreases with the size of the opposition, n_m, indicating that the proposer gains in bargaining power when faced with an opposing minority.

In equilibrium, under the O strategy of the minority, we can write:

$$v_M^{PO} = p_M v_M^{PO} + \frac{1}{n}(B_M^* - y_M^{PO}) + p_m(v_M^{PO} - (1 - p_c)x_{mM}^{PO})$$

$$\Rightarrow \frac{1}{n}(B_M^* - y_M^{PO}) = p_m(1 - p_c)x_{mM}^{PO} \tag{6}$$

We see from this that the surplus $x_M^p = B_M^* - y_M^{PO}$ arises because of the minority's strategy to transfer funds to some majority members in exchange for lowering y. To show that an increase in n_m increases this surplus, we rearrange the participation constraint of the majority: $x_{mM}^{PO}(1 - p_m p_c) = p_M(q_M(B_M^* - x_M^p) - kB_M^{*2} + kB_m^2) + \frac{1}{n}x_M^p$. Inserting this into Eq. 6, we get $x_M^p = \frac{p_m(1 - p_c)}{\frac{1}{n} + q_M p_m(1 - p_c)}(q_M B_M - kB_M^2 + kB_m^2)$. We know that $q_M B_M^* - kB_M^{*2} > 0$ since B_M^* is the value that maximizes $q_M B - kB^2$. Hence the second term is positive. The pre-factor increases with p_m, which is why $x_M^p = B_M^* - y_M^{PO}$ increases with p_m.

Result 2: Show that $y_\mathbf{1}^{MIN}$ is always smaller than $y_\mathbf{1}^{MAJ}$ for a given set of parameters. In words, we want to show that, given a fixed set of parameters $(n, n_M, p, q_\mathbf{1}, q_\mathbf{0})$, the value chosen by the minority proposer in the minority case (where $q_m = q_\mathbf{1}$ and $q_M = q_\mathbf{0}$) is less than the value chosen by the majority proposer in the majority case (where $q_M = q_\mathbf{1}$ and $q_m = q_\mathbf{0}$).

Since $\bar{q}_m^O > \bar{q}_M^C = 1$, we know that y_m^{DA} should be compared either to y_M^{CA} or to y_M^{PO}, depending on the parameters. Since y_M^{PO} is the harder test of the claim, we compare y_m^{DA} and y_M^{PO}. In what follows, I substitute $\mathbf{1}$ in place of M and m to remind ourselves that we are comparing the choices of type $\mathbf{1}$ legislators under the DA and PO equilibria.

I will show that $\frac{dy_\mathbf{1}^{PO}}{dB_\mathbf{1}} > \frac{dy_\mathbf{1}^{DA}}{dB_\mathbf{1}}$. We already know that $B_\mathbf{1}^{PO} > B_\mathbf{1}^{DA}$ (since more generally $B_\mathbf{1}^{MAJ} > B_\mathbf{1}^{MIN}$). Together, these two relationships imply that $y_\mathbf{1}^{PO} > y_\mathbf{0}^{DA}$.

$$\frac{dy_\mathbf{1}^{PO}}{dB_\mathbf{1}} = \frac{1}{q_\mathbf{1} + \frac{1}{n_m}} \left(2kB_\mathbf{1} + \frac{1}{n_m} + p_c \frac{dx_{mM}^{PO}}{dB_\mathbf{1}} \right)$$

$$\frac{dy_\mathbf{1}^{DA}}{dB_\mathbf{1}} = \frac{1}{q_\mathbf{1} + \frac{1}{n_M}} \left(2kB_\mathbf{1} + \frac{1}{n_M} - np_c \frac{dx_{mM}^{DA}}{dB_\mathbf{1}} \right)$$

The last term is the key difference between these two equations. In $\frac{dy_\mathbf{1}^{PO}}{dB_\mathbf{1}}$, the term $p_c \frac{dx_{mM}^{PO}}{dB_\mathbf{1}}$ is positive (the coalition-building transfers from the minority to the majority decrease as the budget of the majority increases). In $\frac{dy_\mathbf{1}^{DA}}{dB_\mathbf{1}}$, the term $-np_c \frac{dx_{mM}^{DA}}{dB_\mathbf{1}}$ is negative because the coalition-building transfers of the minority to the majority must instead increase as the budget of the minority increases. Thus, in the MIN case, the marginal increase in public good compensation to type $\mathbf{1}$ legislators in response to an increase in funds raised is less than in the MAJ case because of the associated increase in distributive demands from the type $\mathbf{0}$ majority. This explains why $\frac{dy_\mathbf{1}^{PO}}{dB_\mathbf{1}} > \frac{dy_\mathbf{1}^{DA}}{dB_\mathbf{1}}$, which results in $B_\mathbf{1}^{PO} > B_\mathbf{1}^{DA}$ and in turn, $y_\mathbf{1}^{PO} > y_\mathbf{0}^{DA}$.

Legislating with Citizen Suits

The Reshaping of Legislation by Citizen Suits

To obtain $l : y \mapsto \tilde{y}$, suffice to analyze Eq. 3 from the main text. We obtain the following expression:

$$\tilde{y} = \begin{cases} \frac{1}{b-a} \left(r(\int_a^y y_i^* \, dy_i^* + \int_y^b y \, dy_i^*) + (1-r)(\int_a^y y \, dy_i^* + \int_y^b \, dy_i^*) \right) & \text{if } a < y \text{ and } b > y \\ ry + \left((1-r)\frac{1}{b-a} \int_a^b y_i^* \, dy_i^* \right) & \text{if } a > y \text{ and } b > y \\ \left(r\frac{1}{b-a} \int_a^b y_i^* \, dy_i^* \right) + (1-r)l & \text{if } a < y \text{ and } b < y \end{cases}$$

The last two cases reflect the fact that when the legislation lies outside of the range of judicial preferences, one of the two types of litigants will not propose claims. This may occur if the judiciary is not fully diversified. When $a > 0$, the judiciary on average has a tendency to expand legislation, whereas $b < y_1^*$ captures a conservative tendency (the courts tend to curb legislation). The relationship I obtain between the legislation y and the effective policy $\tilde{y}$:

$$\tilde{y} = \begin{cases} \frac{a^2r - 2ay(r-1) + b^2(r-1) - 2byr + y^2(2r-1)}{2(a-b)} & \text{if } a < y \text{ and } b > y \\ ry + (1-r)\frac{b^2 - a^2}{2(b-a)} & \text{if } a > y \text{ and } b > y \\ r\frac{b^2 - a^2}{2(b-a)} + (1-r)y & \text{if } a < y \text{ and } b < y \end{cases}$$

In the analysis, the mapping of the extreme values plays an important role. $y = 0$ maps into $l(0) = \frac{n_1 q_1}{2k}$, while y_1^* maps into $l(y_1^*) = \frac{(n+n_1)q_1}{4nk}$.

Citizen Suits Lead to Shifts in Power in the Legislature

In this section, I compare the litigation model (L) with the baseline model (B). For the purpose of following the proofs, variables in the litigation model are indexed by l, while the baseline is not indexed.

In all four equilibria we consider, we will show that the effective budget $\tilde{B}$ for a given player type and equilibrium stays the same under litigation as in the baseline, when the solution is an interior solution. To show that, note that proposers maximize $q\tilde{y} + B - y - n_c x_j - k\tilde{B}^2$. Here n_c is the number of coalition members that receive transfers x_j. Under litigation $\tilde{y} = l(y)$ and $\tilde{B} = B + \tilde{y} - y$, and under the baseline $\tilde{y} = y$ and $\tilde{B} = B$. At the equilibrium, for both institutional environments, we have $(q-1)\frac{d\tilde{y}}{d\tilde{B}} + 1 - n_c\frac{dx_j}{d\tilde{B}} = 2k\tilde{B}$. To conclude that the effective budgets stay the same, all we need is to check that $\frac{d\tilde{y}}{d\tilde{B}}$ and $\frac{dx_j}{d\tilde{B}}$ follow the same functional form under both institutions. We will do so in each of the four equilibria examined below.

Result 3: We seek to show that $\tilde{y}_M^{PO} > y_M^{PO}$. Result 3 also states that $\tilde{y}_m^{PO} > y_m^{PO}$, which requires no proof since it arises directly from the way I conceptualized the institution of citizen suits. Indeed, $y_m^{PO} = 0$, while $\tilde{y}_m^{PO} = l(0) > 0$.

As before, in equilibrium, the proposer maximizes surplus. Since the surplus is $x_M^p = \tilde{B}_{M,l} - \tilde{y}_{M,l}$, we have that $\frac{d\tilde{y}_{M,l}}{d\tilde{B}_{M,l}} = 1$. In the baseline case, we had $\frac{dy_M}{dB_M} = 1$. We have verified the condition needed for the effective budgets to be equivalent, and thus $\tilde{B}_{M,l}^* = B_M^* = \frac{q_M}{2k}$.

We now want to show that $x_{M,l}^p < x_M^p$ and thus that $\tilde{y}_{M,l} > y_M$. In equilibrium, the

participation constraint of the majority requires that:

$$\text{B: } \frac{1}{n}x_M^p = p_m(1-p_c)x_{mM}$$

$$\text{L: } \frac{1}{n}x_{M,l}^p = p_m(1-p_c)x_{mM,l}$$

As we see, x_M^p and $x_{M,l}^p$ are positively related to x_{mM} and x_{mM}^l respsectively (which makes sense because higher transfers indicate a larger departure of the minority from the majority's wishes, and a consequent lowering of majority members' continuation value). If we show that $x_{mM,l} \leq x_{mM}$, then we'll know that $x_{M,l}^p < x_M^p$ and thus that $\tilde{y}_{M,l} > y_M$. We must thus examine the decision of the minority.

In the opposition strategy, the minority seeks to minimize $\tilde{y}_m$. Since the minimum level of $\tilde{y}$ is $l(0)$, we consider the equilibrium that arises given $\tilde{y}_m = l(0)$. The minority proposer maximizes $q_m l(0) + B_{m,l} - n_M p_c x_{mM,l} - k(B_{m,l} + l(0))^2$, such that

$$q_M l(0) + x_{mM,l} - k(B_{m,l} + l(0))^2 = p_M(q_M(\tilde{B}_{M,l} - x_{M,l}^p) - k\tilde{B}_{m,l}^2) +$$
$$\frac{1}{n}x_{M,l}^p + p_m(q_M l(0) - k(B_{m,l} - l(0))^2 + p_c x_{mM,l}) \quad (7)$$

From Eq.7 and using the fact that $x_{M,l}^p = n_m(1-p_c)x_{mM,l}$, we can re-express $x_{mM,l}$ as:

$$\text{B: } x_{mM}(1 + (p_M q_M - \frac{1}{n})n_m(1-p_c) - p_m p_c) = (1-p_m)kB_m^{*2} + p_M(q_M B_M^* - kB_M^{*2}) \quad (8)$$

$$\text{L: } x_{mM,l}(1 + (p_M q_M - \frac{1}{n})n_m(1-p_c) - p_m p_c) = (1-p_m)(-q_M l(0) + k\tilde{B}_{m,l}^{*2}) + p_M(q_M \tilde{B}_{M,l}^* - k\tilde{B}_{M,l}^{*2})$$
$$(9)$$

First, this allows us to check that $\frac{dx_{mM,l}}{d\tilde{B}_{m,l}} = \frac{dx_{mM}}{dB_m}$, the condition that guarantees that $\tilde{B}_{m,l}^* = B_m^*$. Indeed, in either the L and B case, this derivative is $\frac{-2k\tilde{B}_M}{1+(p_M q_M - \frac{1}{n})n_m(1-p_c)-p_m p_c} = 2k\tilde{B}_m$. Knowing that $\tilde{B}_{m,l}^* = B_m^*$, we see that Eq. 8 and 9 imply $x_{mM,l} < x_{mM}$. Indeed, $x_{mM} - x_{mM,l} = (1-p_m)q_M l(0) > 0$.

The positive public good provision $l(0)$ guaranteed under any bill, even a very minimal one, guarantees that any bill will be at least as good as the status quo. This reduces the degree to which the minority can play upon the divisions of the majority to lower y (reflected in the lower equilibrium value of $x_{mM,l}$) and in turn reduces the majority proposer's advantage relative to other majority members.

Result 4: In the CA equilibrium, we have $B_{M,l} = y_{M,l} = \frac{q_M}{2k}$ and consequently $\tilde{B}_M = \tilde{y}_{M,l} = l(\frac{q_M}{2k})$. The minority sets $\tilde{y}_{m,l}$ and $\tilde{B}_{m,l}$ to satisfy:

$$q_M \tilde{y}_{m,l} - k\tilde{B}_{m,l}^2 = p_M(q_M l(\frac{q_M}{2k}) - kl(\frac{q_M}{2k})^2) + p_m(q_M \tilde{y}_{m,l} - k\tilde{B}_{m,l}^2)$$

$$\Rightarrow (1 - p_m)(q_M \tilde{y}_{m,l} - k\tilde{B}_{m,l}^2) = p_M(q_M l(\frac{q_M}{2k}) - kl(\frac{q_M}{2k})^2)$$

$$\Rightarrow \tilde{y}_{m,l} = l(\frac{q_M}{2k}) = \tilde{B}_{m,l}$$

Similarly to when the legislature acted alone, the minority is constrained to set the public policy to the same level as the majority and invest all funds into it. However the maximum value of the policy is now $l(\frac{q_M}{2k}) < \frac{q_M}{2k}$.

Result 5: We first seek to show that $\tilde{y}_{m,l}^{DA} > y_m^{DA}$ and then we will show $\tilde{y}_{m,l}^{DO} > y_m^{DO}$.

Result 5 also states that $\tilde{y}_{M,l} > y_M$ (for both the DA and DO equilibria), but this requires no proof since $y_M^{DA} = y_M^{DO} = 0$ while $\tilde{y}_M^{DO} = \tilde{y}_M^{DA} = l(0) > 0$.

Consider the participation constraint of the minority in the litigation and baseline cases:

$$\text{L: } (q_m \tilde{y}_{m,l} - k\tilde{B}_{m,l}^2)(1 - p_m) = p_M(q_m l(0) - k\tilde{B}_{M,l}^2) + \frac{1}{n}x_{m,l}^p \tag{10}$$

$$\text{B: } (q_m y_m - kB_m^2)(1 - p_m) = p_M(-kB_M^2) + \frac{1}{n}x_m^p \tag{11}$$

Suppose we had already shown that the effective budgets are unchanged: $\tilde{B}_{m,l}^* = B_m^*$ and $\tilde{B}_{M,l}^* = B_M^*$, then subtracting Eq. 10 and 11:

$$q_m(\tilde{y}_{m,l} - y_m) = p_M q_m l(0) + \frac{1}{n}(x_{m,l}^p - x_m^p)$$

Suppose now that $\tilde{y}_{m,l} < y_m$, then we would have that $0 < p_M q_m l(0) < \frac{1}{n}(x_m^p - x_{m,l}^p)$. However, let us now consider the participation condition of the majority:

$$\text{L: } x_{mM,l} = (-q_M \tilde{y}_{m,l} + k\tilde{B}_{m,l}^2)(1 - p_m) + \frac{1}{n}B_{M,l} + p_M(q_M l(0) - k\tilde{B}_{M,l}^2)$$

$$\text{B: } x_{mM} = (-q_M y_m + kB_m^2)(1 - p_m) + \frac{1}{n}B_M + p_M(-kB_M^2)$$

$$\Rightarrow x_{mM,l} - x_{mM} = (1 - p_m)(q_M(y_m - \tilde{y}_{m,l})) + \frac{1}{n}(B_{M,l} - B_M) + p_M(q_M l(0))$$

If the budgets are constant, and if we suppose $\tilde{y}_{m,l} < y_m$, then the last line is negative: the transfers to the majority under litigation have to be smaller than in the baseline. We concluded earlier that $\tilde{y}_{m,l} < y_m$ implies that $x_m^p > x_{m,l}^p$. However, it is impossible that while $B_m = \tilde{B}_{m,l}$, all three inequalities hold: $x_m^p > x_{m,l}^p$, $y_m > \tilde{y}_{m,l}$ and $x_{mM} > x_{mM,l}$. This shows that it is impossible that $\tilde{y}_{m,l} < y_m$.

We now check that, indeed, the effective budgets stay the same. Since the minority proposer maximizes surplus, we have $1 - \frac{d\tilde{y}_{m,l}}{d\tilde{B}_{m,l}} - n_M p_c \frac{dx_{mM,l}}{d\tilde{B}_{m,l}} = 0$. This means that $\frac{2k}{q_m} \tilde{B}_{m,l} = \frac{d\tilde{y}_{m,l}}{d\tilde{B}_{m,l}} = 1 - n_M p_c \frac{dx_{mM,l}}{d\tilde{B}_{m,l}}$. So all we need to check is that $\frac{dx_{mM,l}}{d\tilde{B}_{m,l}}$ is equivalent under both institutions.

The following checks the needed equality:

$$x_{mM,l}(1 - p_m p_c) = (-q_M \tilde{y}_{m,l} + k\tilde{B}_{m,l}^2)(1 - p_m) + (p_M(l(0) - k\tilde{B}_{M,l}^2) + \frac{1}{n} B_M$$

$$\Rightarrow \frac{dx_{mM}^l}{d\tilde{B}_m}(1 - p_m p_c) = -q_M \frac{d\tilde{y}_m}{d\tilde{B}_m} + 2k\tilde{B}_{m,l} = -q_M \frac{2k\tilde{B}_{m,l}}{q_m} + 2k\tilde{B}_{m,l}$$

In the absence of litigation:

$$x_{mM}(1 - p_m p_c) = (-q_M y_m + kB_m^2)(1 - p_m) + p_M(-kB_M^2) + \frac{1}{n} B_M$$

$$\Rightarrow \frac{dx_{mM}}{dB_m}(1 - p_m p_c) = -q_M \frac{dy_m}{dB_m} + 2kB_m = -q_M \frac{2kB_m}{q_m} + 2kB_m$$

Turning to the majority's budget, we must check how $\frac{dx_{MM,l}}{d\tilde{B}_{M,l}}$ is affected by litigation. The transfers are set according to: $x_{MM,l} = (-q_M l(0) + k\tilde{B}_{M,l}^2)(1 - p_M) + \frac{1}{n} B_{M,l} + p_m(q_M \tilde{y}_{m,l} - k\tilde{B}_{m,l}^2)$. Thus, $\frac{dx_{MM,l}}{d\tilde{B}_{M,l}} = 2k\tilde{B}_{M,l}(1 - p_M) + \frac{1}{n}$. Here we have made use of the fact that $\tilde{B}_{M,l} = B_{M,l} + l(0)$, so $\frac{dB_{M,l}}{d\tilde{B}_{M,l}} = 1$. In the absence of litiation, we similarly obtain $\frac{dx_{MM}}{d\tilde{B}_M} = 2kB_{M,l}(1 - p_M) + \frac{1}{n}$, so $\tilde{B}_{M,l}^* = B_M^*$.

We now turn to showing that $\tilde{y}_{m,l}^{DO} > y_m^{DO}$: In the DO equilibrium, $\tilde{B}_{m,l} = \tilde{y}_{m,l} + n_M p_c x_{mM,l}$. So $\tilde{y}_{m,l}^{DO} > y_m^{DO} \Leftrightarrow x_{mM,l}^{DO} < x_{mM}^{DO}$.

$$\text{L: } x_{mM,l} = (-q_M \tilde{y}_{m,l} + k\tilde{B}_{m,l}^2)(1 - p_m) + \frac{1}{n} B_{M,l} + p_M(q_M l(0) - k\tilde{B}_{M,l}^2)$$

$$\text{B: } x_{mM} = (-q_M y_m + kB_m^2)(1 - p_m) + \frac{1}{n} B_M + p_M(-kB_M^2)$$

$$\Rightarrow (x_{mM,l} - x_{mM})(1 - q_M p_M n_m p_c) = -\frac{1}{n} l(0) + p_M q_M l(0) < 0$$

Where we have made use of the fact that $\tilde{y}_{m,l} - y_m = n_M p_c(x_{mM} - x_{mM,l})$ and that $B_{M,l} - B_M = -l(0)$. Since $1 - q_M p_M n_m p_c > 0$, we get that $x_{mM,l} < x_{mM}$ and therefore that $\tilde{y}_{m,l} > y_m$.

Remark 4: These comparative statics come out quite immediately from the comparisons done above. Indeed, in the PO, DA and DO equilibria, the difference between $\tilde{y}_1$ (with litigation) and y_1 (without litigation) is driven by the wedge created by $l(0)$. The same is true for the difference between $\tilde{y}_0$ and $y_0 = 0$. Since $l(0) = (1 - r)\frac{b^2 - a^2}{2(b-a)}$, and considering that $r = \frac{n - n_1}{n}$, we have that $\frac{dl(0)}{dn_1} > 0$, $\frac{dl(0)}{da} > 0$ and $\frac{dl(0)}{db} > 0$, the relationships of Remark 4 follow.

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