

Legislative Priorities and the Structure of Government or The Case for Divided Government (and the Filibuster)

Preliminary: Do not circulate

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Abstract

We propose a model in which two parties repeatedly legislate on two policy dimensions that differ in the degree of preference disagreement between the parties and the voter (e.g., consensual infrastructure and divisive taxation). A reform on either dimension can be socially more desirable depending on the circumstances. The parties face agenda constraint in that they legislate on at most one issue every period. Every period, the voter observes the policies implemented in the previous period and decides what government to elect. She can elect a unified government, in which one party legislates unilaterally, or a divided government, in which the power is shared.

We show that in each period, the voter elects a divided government in which the proposer power is held by the party more inclined to legislate on the divisive issue in that period. Divided governments constraint parties from excessive divisive reforms, which frees up the agenda constraint and allows the government to focus on consensual reforms. The allocation of the proposer power, however, assures that divisive reforms are more likely to occur whenever the voter benefits from them more than from a consensual reform. Interestingly, the electoral incentives provided by the voter's choice lead parties to moderate on the divisive dimension, further benefiting the voter.

Elizabeth Warren:

We've seen filibusters to block judicial nominations, jobs bills, political transparency, ending Big Oil subsidies - you name it, there's been a filibuster.

Mitch McConnell:

The Senate was created on purpose [...] to slow things down, to kill bad ideas, to force bipartisanship.

James C. Wright, 48th Speaker of the U.S. House of Representatives (1987 to 1989)

My two biggest competitors are the clock and the calendar. There are so many things I would like to do... The trouble is you have only so many weeks in the legislative year, and so many days in the legislative week, so many hours in the legislative day.

1 Introduction

The U.S. political system makes it possible for the voter to elect divided governments. Whenever the Senate is controlled by a different party than the House or the Presidency, both parties need to agree to implement major reforms. In addition, the institution of the filibuster all but assures that such an agreement is needed even if the same party controls all points of power. The virtues and vices of such a system have been debated since its inception. Recent debates centered mainly on the institution of the filibuster. Its proponents argue that the checks and balances built into the system foster bipartisanship even in times of heightened polarization. Certain reforms will not happen but only because, the argument goes, they are divisive. The virtue of power sharing is to prevent reforms that favor disproportionately one side of the political spectrum. Instead, power sharing induce parties to use their limited legislative time and resources on issues on which common interest exist (see McConnell's quote above). The opponents argue that in highly polarized times divided governments and power sharing lead to inefficient gridlock (see Warren's quote above).

These debates raise a number of issues. Do divided governments prioritize bipartisan over partisan reforms? Or do they lead to excessive gridlock? And if the latter is true, then why do voters frequently elect divided governments? And finally, would the voters benefit from an institutional change under which the party winning the majority of the votes unilaterally controls policy making?

We study those questions in a dynamic model of policy making. Overall, we find that the arguments of the proponents and the opponents of checks and balances both have merit: divided

governments lead to excessive gridlock on divisive issues, but this frees up their time to focus on more consensual reforms. However, the arguments of the proponents win: Voters elect divided governments if the political system allows them to do so and benefit from their ability to do so. This is because divided governments lead to ideological moderation (relative to institutions under which all governments must be unified) and induce parties to focus on consensual reforms.

We derive our results in a model in which two parties repeatedly decide on what policies to implement on two dimensions. The first dimension is consensual in that both parties and the voter always agree on its merits. This dimension stands for real-world issues on which partisan disagreement is likely to be small such as improving efficiency of administration, infrastructure, simplification of the tax code, responding to an external threat or a healthcare crisis.¹ The second dimension is divisive. Whether parties agree or disagree on the divisive dimension varies over time. This dimension stands for ideologically charged issues such as social or military spending, tax levels and progressively, redistribution, or immigration. Parties ideal policies on these issues depend on the economic and geopolitical circumstances, but one party is consistently to the left (we call it *left-wing*) of the other party (we call it *right-wing*) on these issues. For example, Republicans typically favor lower taxes than Democrats, but during a fiscal crisis even the former may realize the urgent need for increased taxation to avert a default.

A crucial albeit grounded in reality assumption about the policy making process is that parties face *an agenda constraint*: In each period, they can reform at most one dimension. This assumption reflects the fact that it takes time for the party to consult policy experts, gather all the stakeholders and figure out how to get their approval, draft a bill, clear the legal hurdles, and explain the reform to the electorate in different media. Hence, the government in power can focus only on a subset of issues (Cox 2006, Cox and McCubbins 2007, Fong and Krehbiel 2018).

The game proceeds as follows. In each period, a government is formed. A government consists of an agenda setter and a veto player. Both responsibilities can be allocated to either party. When they are held by the same party, we say that the government is unified, in which case the party in power can unilaterally implement whatever reform it desires subject to the agenda constraint. When the agenda power and veto power are allocated to different parties, we say that the government is divided, in which case an agreement of both parties is needed to implement any reform.

We start our analysis by considering the case in which the type of the government in each period is chosen in an exogenous and random fashion. This case serves as a useful building block before we consider elections, but can be also a study of an independent interest if elections are decided by factors orthogonal to the ones analyzed in this paper. In this setting, we show that the agenda constraint makes parties become more ideological in their policy making. This means that they prioritize the implementation of policies that are in line with their typical ideology on the divisive dimension. Using a real-world reference, Democrats prioritize tax and spending increases and Republicans prioritize tax and spending decreases even when such policy positions

¹The authors are aware that the last example seems strange at the moment of writing this draft, but we believe (or hope) that the heightened partisan disagreement over Covid response that occurred in the U.S. was an idiosyncratic occurrence related to the idiosyncratic nature of Trump's presidency.

are not justified by the current economic circumstances or consensual reforms on infrastructure and health emergency response are more pressing. The reason for such partisan behavior is as follows. When consensual reform is sufficiently more pressing than the divisive reform, any government focuses their attention on the former, necessarily neglecting the latter. In those circumstances, the agenda constraint implies that the status quo policy on the divisive dimension remains in place. Importantly, this inertia is on average less costly for a given party if the status quo on the divisive dimension matches the policy it prefers on average. Therefore, the expectations of such circumstances in future periods increases the incentives of the party currently in power to prioritize a divisive reform when the policy in place is not aligned with its typical ideology, sometimes at the expense of a more pressing consensual reform.

We show that the ideologization of policy making increases in the probability that future governments are divided. This is because when governments are divided, then even if the consensual reform is not pressing, parties may disagree on the divisive reform, and in such circumstances no divisive reform occurs. The expectation of such gridlock further increases parties' incentives to assure that the policy on this dimension matches what they typically prefer.

We next analyze the game in which the governments are elected by the voter. To build the intuition for the main result, we first consider the case in which elections operate under an institution in which the party receiving the voter's vote has a complete control over policy making. That is, the voter can elect only unified governments. In that case, we show that the voter appoints the party that is ideologically aligned with the current policy on the divisive dimension. Using the real-world analogy again, the voter elects a right-wing government when taxes (or social spending) are low and a left-wing government when taxes (or social spending) are high. The reason for this is as follows. The parties' tendency to align the policy on the divisive dimension with their typical ideology has an asymmetric effect on their policy making decisions depending on what policy is in place on that dimension. The party ideologically aligned with this policy is unlikely to implement a divisive reform, which sometimes conflicts with the voter's preferences on that policy dimension, but it leaves this party free to tend to the consensual reform if the latter is beneficial. In contrast, the party ideologically misaligned with this policy is eager to implement a divisive reform, which not only sometimes conflicts with the voter's preferences on that policy dimension, but also exacerbates the agenda constraint: this party is unlikely to focus on the consensual reform even if the latter is pressing. Thus, by electing the party ideologically aligned with the status quo on the divisive dimension, the voter protects herself from the latter inefficiency.

Interestingly, the voter's behavior has an additionally polarizing effect on the behavior of the parties. Since a leftist status quo on the divisive dimension assures that the left-wing party wins the next election, the left-wing party has an increased incentive to assure that a leftist policy is in place at the end of its tenure. Hence, the voter faces a dynamic commitment problem. By trying to avoid electing a party that will be focused on inefficient divisive reforms at the expense of more pressing consensual reform, she voter ends up with governments unwilling to pass such reforms when needed.

Finally, we analyze the game in which the voter can elect any type of the government. That is, the government can be unified with either party in charge or divided with either party as the agenda setter. We show that in each period, the voter elects a divided government and gives the agenda power to the party more likely to reform the divisive issue. Such a choice serves a double purpose. By choosing a divided government, the voter protects herself from the danger that the party in power inefficiently focus its legislative activity on divisive reform at the expense of more pressing consensual reforms. By giving the proposer power to the party more inclined to reform the divisive dimension, the voter assures herself that such reform will occur if it is quite pressing.

Interestingly, in contrast to the case of exogenous governments, the voter's choice leads to parties behaving in a less ideological way than they would if the voter were restricted to unified governments. Since both parties are always in the government, they compete only for the agenda power. Since the voter gives it to the party more likely to reform the divisive dimension, each party has an incentive to ensure that the status quo on this dimension is not the policy the party typically prefers. Recalling the real-world analogy, Republicans have less incentive to defend lower taxes as voters will give them the proposer power only when taxes are high.

No governments are perfect when parties do not share voter's preferences, and our model shows that agenda constraints, power sharing, and elections further worsen political representation. And perhaps this may explain the general dissatisfaction with the current policy making in the U.S. Our model shows, however, that by choosing divided governments, the voters may be ensuring the least polarized policy making they can. Hence, institutions that allow voters to elect divided governments, despite still leading to frustrating outcomes, may benefit the voters.

2 Literature review

A number of papers have investigated the impact of a divided government on policy making. Most of them uses a static model in the spirit of the pivotal politics framework and model a divided government as an additional veto power (see, e.g., Krehbiel 1998, Tsebelis 2002, Brady and Volden 2006). In those papers, the main implications of a divided government is that the gridlock interval (i.e., the set of policies that are not changed because no Pareto improvement exists for the veto players) increases. Thus, they typically predict that a divided government leads to fewer important reforms. Our model extends their analysis by considering a multidimensional policy space with an agenda constraint, so a divided government affect not only whether a reform is implemented but also which kind of reform is implemented. Alesina and Rosenthal (1996) consider a one-dimensional spatial model in which voters vote for the presidency and the legislature, and assume that a divided government leads to more moderate policies. By considering a model with only two policies on each dimension, we assume away this moderating channel and provide an alternative rationale for the popular demand for divided government.

Our model can be viewed as providing a rationale for split-ticket voting, where citizens split their ballots between candidates of the two parties when voting for president and Congress. This

electoral phenomenon has been documented and discussed by numerous political scientists in the U.S. (see, e.g., Jacobson 1990 or Fiorina 1991). The theory of split-ticket voting proposed in this paper departs from existing theories (see, e.g., Alesina and Rosenthal 1996 or Chari et. al. 1997) in that it models explicitly the impact of a divided government on the policy-making process, and it focuses on the impact of the government structure on legislative priorities: in our model, given that parties are symmetrically located around the voter, in the absence of an agenda setting constraint, the voter is indifferent between all types of governments.

A central assumption of our paper is that in any given period, the government, even if unified, cannot reform all the policy dimensions it would like to. A number of papers in political science have argued that in modern democracies, plenary time in the legislature is a very scarce resource, and as a consequence, only so many bills can be proposed for a final passage vote. Cox (2006) goes so far as to claim that the most important features of modern legislatures (specialized agenda-setting offices such as committees, speakership, parties) “arise as a response to the scarcity of plenary time”. Most of this literature investigates how the scheduling power is allocated and constrained in the U.S. or in European parliamentary democracies (see, e.g., Martin 2004 or Cox and McCubbins 2007). Giannetti et. al. (2016) find empirical evidence that when setting parliamentary calendars, parties treat differently divisive and more consensual issues. A few papers try and model formally how the scheduling power is exercised within a given term, either by a unitary actor (Cox and McCubbins 2007, Chapter 9 and Appendix 2) or through voting (Patty and Penn 2008). These papers do not consider the impact of the current legislative agenda on future elections and legislative decisions, and do not allow for veto players.

Most closely related to this paper, Chen and Eraslan (2017) consider a two period model of policy making in which, as in this paper, only one policy can be changed in a given period. They assume an exogenous government that can randomly change between the first and the second period. Chen and Eraslan (2017) analyze the strategic implications of the dynamic linkage implied by agenda constraint. Their focus is different in that the degree of polarization is assumed to be the same across policy dimensions—in other words, all policies are equally divisive—and preferences are assumed to be constant across policy periods. Because of the latter assumption (and the assumption that a policy change implemented in the first period cannot be revised in the second), parties behave strategically only when the government is divided. Moreover, by assuming an exogenous government, they do not take into account the impact of the policy decision in a given period on the elections in the next period.

Farther afield, this paper is related to the political economy papers that assume that policy change is costly (see, e.g., Loeper and Dziuda 2021 and the references therein). By looking at a two dimensional model with agenda constraint, the present paper can be viewed as providing a theoretical foundation for the cost of policy change. Formally, the game studied in this paper is strategically similar to a model with only one policy dimension—the divisive policy—with a random cost of policy change which, in the language of the present model, is simply the opportunity cost of not being able to implement $y_t = A$. The two games are strategically equivalent when the

government is always united. When the government is divided, the two games are not strategically equivalent because by proposing a divisive reform, the agenda setter can sink the cost of policy change: if the other party vetoes it, the agenda setter cannot then implement $y_t = A$.

3 The Model

Players

There are three players: a representative/median voter m (she) and two parties l and r (it). We use $i \in \{l, m, r\}$ to denote a generic player and $p \in \{l, r\}$ to denote a generic party. The players interact in discrete time over infinitely many periods.

Policy space and policy change

There are two policy issues that may need attention every period. We call the first issue *divisive* and the second issue *consensual*. This choice of terminology will be come clear when we define the payoffs below, but the divisive issue can be thought of as an ideologically-charged/hot-button policy on which parties may have different preferences. Possible examples of divisive issues include tax policy, social spending, certain aspects of immigration policy, and regulation of business. The consensual issue can be thought of as a policy dimension that is less ideologically-charged. For example, it could be an investment in infrastructure, a technical reform such as modernization of the administrative state, a simplification of the legal code, or a reaction to a foreign military threat or a public health crisis.

So the legislative landscape in period t is described by a policy tuple (x_t, y_t) , where x_t denote the policy in the divisive and y_t the policy in the consensual dimension. For tractability and simplicity, a policy in each dimension can take only two values: $\{L, R\}$ for the divisive dimension and $\{N, A\}$ for the consensual dimension. Formally, the policy space is $X = \{(x, y) : x \in \{L, R\}, y \in \{N, A\}\}$. We discuss the benefits and limitations of the restriction to binary policies later.

Consistent with most of policy making, we model a divisive policy as continuing in the sense that policy x_t implemented in a given period t becomes the status quo q_{t+1} for the following period $t+1$. In contrast, the status quo policy on the consensual dimension is always N . As we discuss below, all our qualitative findings hold if the consensual policy is continuing as well, though additional (and somewhat contrived) equilibria may arise. Hence this assumption simplifies the exposition of the results. This assumption, however, can also be thought as reflecting the one-off nature of some political actions on consensual dimensions where the reform resolves the current issue (e.g., dealing with a state of emergency), or that non-ideological reforms are rarely repealed, but the need for new non-ideological reform might arise stochastically in every period. So one can think of there being a series of independent consensual reforms, one for each period.

Timing, election, and policy-making

Each period t starts with a status quo $q_t \in \{L, R\}$ on the divisive policy dimension. At the beginning of each period, an election is held in which the government g_t is chosen, where g_t determines the allocation of the agenda power and the veto power among the two parties. For

any $a, v \in \{l, r\}$, $g_t = av$ refers to the government in which party a has the agenda power and party v has the veto power. If $a = v$ ($a \neq v$), we say that the government is unified (divided). In the basic version of the game, which is denoted by Γ^{ExGvt} , g_t is drawn exogenously from an i.i.d. distribution which is independent of the status quo. For any government $av \in \{ll, lr, rl, rr\}$, let $\Pr(av)$ denote the probability that $g_t = av$. We restrict attention to symmetric distributions. That is, let $\Pr(DG) \in [0, 1]$ be the probability that the government is divided, that is, $a \neq v$, and assume that $\Pr(ll) = \Pr(rr) = \frac{1-\Pr(DG)}{2}$ and $\Pr(lr) = \Pr(rl) = \frac{\Pr(DG)}{2}$. In the game Γ^{EnGvt} , both the proposer and the veto player are chosen by the voter instead.

After the government is formed, the state of nature $(\theta_t, \zeta_t) \in \mathbb{R}^2$ is realized and observed by the parties. The state of nature determines players' period preferences over the policy vectors. The party with the agenda power proposes a policy vector (x_t, y_t) , and the party with the veto power either approves the proposal or vetoes it. If the party with veto power approves the proposal, the proposal is implemented, otherwise the policy (q_t, N) is implemented. The policy implemented on the divisive dimension x_t becomes the status quo q_{t+1} for the next period.

Consistent with reality, we assume that the government is subject to the agenda constraint. That is, in each period, the government can change a policy on at most one issue. Formally, this means that in each period, the proposer has only three options: propose no reform—i.e., $(x_t, y_t) = (q_t, N)$ —propose a divisive reform—i.e., $(x_t, y_t) = (\neg q_t, N)$ —or propose a consensual reform—i.e., $(x_t, y_t) = (q_t, A)$.

Payoffs

Players maximize the expected discounted sum of their period payoffs, where $\delta \in (0, 1)$ denotes the common discount factor. In every period t , the period payoff of player i depends on the policy vector $(x, y) \in \{L, R\} \times \{A, N\}$ and the realization $(\theta, \zeta) \in \mathbb{R}^2$ of the payoff state (θ_t, ζ_t) . It is given by

$$U_i(\theta, \zeta, x, y) = (\theta + b_i) 1_{x=R} + \zeta 1_{y=A}. \quad (1)$$

So the payoffs from policies L and N are normalized to 0, and θ_t affects the period t payoff that players derive from policy $x_t = R$, whereas ζ_t affects the period t payoff that players derive from policy $y_t = A$. The two additively separable terms on the R.H.S. of (1) corresponds to the payoff from policy x and y respectively. W.l.o.g., the payoffs from policies L and N are normalized to 0, and the realization of θ_t affects the relative payoff that players derive from policy $x_t = R$, whereas the realization of ζ_t affects the relative payoff that players derive from policy $y_t = A$. We further assume that $b_r = -b_l \equiv b > 0$ and $b_m = 0$. The payoff function in (1) implies that players' period preferences are aligned over y but not over x . Party r is more rightist than the voter, and the latter is more rightist than party l in the following sense: whenever r 's and m 's preferences disagree, r prefers R and m prefers L , and when l 's and m 's preferences disagree, l prefers L and m prefers R . We say that party r is *ideologically aligned (misaligned)* with policy R (policy L) and vice-versa for party l .

The payoffs from various policies are assumed to vary over time to capture the stochastic nature of the challenges that a government may face, such as changing economic or social conditions,

external threats, new information or simply vagaries of public opinion. The payoff function (1) assumes that players always agree on which policy is better on the consensual issue, and they may also agree on the divisive issue. For example, both parties and the voter may agree that higher taxes are needed to avert a default during a fiscal crisis or that higher spending is warranted during a recession or public health crisis, although they may prefer different policies in normal times.

The information structure

Let F be the c.d.f. of the state variables and let f be the corresponding p.d.f. We assume that the distribution of θ is symmetric around 0 so that parties are symmetric vis-a-vis the voter. In addition, we assume that ex ante, under either status quo, each reform is equally likely to be preferred by the voter. Hence, we assume that for all $\zeta \geq 0$, $f(\theta, \zeta) = f(-\theta, \zeta) = f(\zeta, \theta)$. These assumptions allow for existence of symmetric equilibria which we focus our attention on for tractability.

The equilibrium concept

As is standard in the dynamic voting literature, we restrict attention to subgame perfect equilibria in which players use Markov strategies. Henceforth, we refer to a Markov strategy (profile) simply as a strategy (profile), and to a Markov subgame perfect equilibrium simply as equilibrium.

The strategy of a player is Markov if in every period t , the strategy of each player depends on the history only via the payoff relevant variables. When the voter chooses g_t , the payoff relevant variables are the current status quo q_t . When the agenda setter chooses its proposal, the payoff relevant variables are the current status quo q_t and the state of nature (θ_t, ζ_t) . When the veto player decides whether to veto a divisive reform, it has the power to choose between implementing (L, N) or (R, N) so its decision depends only on θ_t . When the veto player decides whether to veto a consensual reform, it has the power to choose between implementing (q_t, N) or (q_t, A) , so its decision depends only on ζ_t .

Discussion of assumptions

Perhaps the starker assumption in our model is the restriction to two policy choices in each dimension. This assumption is completely without loss of generality on the consensual dimension: since all parties agree on that dimension, if they choose to reform this dimension, they will always select the optimal policy in this dimension. Hence, A simply denotes the optimal choice on the consensual issue at hand, and all other alternatives can be safely ignored. The restriction to two alternatives on the divisive dimension warrants a bit more explanation. We make this assumption mainly for tractability's sake: dynamic stochastic models with continuum of alternatives are notoriously hard to solve and even the existence of an equilibrium is hard to establish.² One may worry about the robustness of our results to this assumption though, but we can offer the following assurances. First, by not allowing the parties to compromise on the divisive dimension in the form of choosing a policy in between L and R we stack the deck against the divided government. In particular, our assumption rules out the assumption that divided governments lead to policy moderation (Alesina and Rosenthal 1996), so our finding about the virtues of this type of government

²Even solving a two-period model presents serious technical difficulties.

are orthogonal to this channel and thus novel and arguably more surprising. Second, our results rely on the fact that the institutions and constraints of the policy making procedure affect the parties' behavior on the divisive policy dimension. Specifically, the opportunity cost of changing the divisive policy implied by the agenda constraint, and the veto threat on the divisive reform under a divided government both make parties behave in a more polarized manner. In technically related papers (Dziuda and Loeper 2016 and Loeper and Dziuda 2021), we study dynamic models with a single (divisive) policy dimension but with each of these two features separately—a divided government without agenda constraint in Dziuda and Loeper (2016), and a unified government with a fixed cost of policy change in Loeper and Dziuda (2021)—and show that the effects of veto threats and reform costs on policy makers' behavior are qualitatively similar even if compromise alternatives are available.

4 Parties' Equilibrium behavior

4.1 Preliminaries

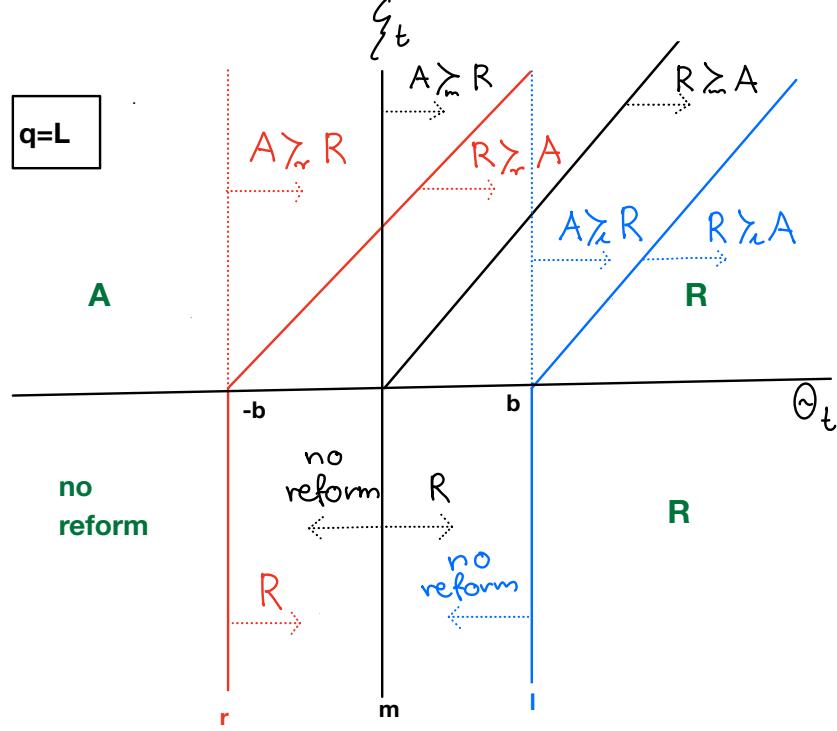
Let us start by illustrating players' sincere preferences, as the proof of most of the results that follow can be easily described using a visual representation of the preferences. Suppose that in some period the status quo on the divisive dimension is L . Players do not benefit from a consensual reform when $\zeta < 0$. In that case, player i benefits from a reform on the divisive issue only if this player's payoff from R is positive, which happens when $\theta_i + b_i > 0$. When $\zeta > 0$ but $\theta_i + b_i < 0$, then player i benefits only from the consensual reform. When $\zeta > 0$ and $\theta_i + b_i > 0$, player i benefits from either reform, but she benefits more from the consensual reform when $\zeta > \theta_i + b_i > 0$, while she benefits more from the divisive reform when $\theta_i + b_i > \zeta > 0$.

Figure 1 below illustrates the sincere preferences of the players over policies as a function of the state. The red lines delineate the state space into various regions in which the ranking of party r over different reforms changes. The vertical (partly solid partly dashed) line divides the state space into θ 's for which r prefers to leave L in place (to the left of this line) and θ 's for which r prefers to change the divisive policy to R (to the right of this line). The sloping solid red line divides the states in which the consensual reform is beneficial into states for which party r prefers the consensual reform to the divisive one (to the left) and states in which it prefers the divisive reform to the consensual one (to the right). In the former sets of states we say that the consensual reform *is more pressing* for party l . The Black lines divide the state space in the same way for the voter and the blue lines for party l .

One can easily map those preferences into policy choices that would arise for different governments if parties chose reforms based on their sincere preferences. These are the choices that would obtain if there were no dynamic considerations.

Figure 1 demonstrates that when the consensual reform is not desirable, there is a range of θ for which parties disagree on whether reforming the divisive dimension is desirable. One can see that for half of those states, the voter agrees with party l and half with party r . When the consensual

reform is desirable the parties and the voter may disagree on which reform to favor. For the states to the left of the black sloping line, the voter favors the consensual reform and hence agrees with party l , while to the right of the black sloping line, the voter favors the divisive reform and hence agrees with party r .



Finally, it is worth pointing out that our assumption on f implies that the distribution of the states is symmetric with respect to the ζ -axis as well as with respect to the 45 degree line, which also corresponds to the line delineating voter's ranking over the divisive and the consensual reform.

4.2 Dynamic preferences

To determine the equilibrium behavior of Γ , the first step is to derive parties' continuation payoff from implementing the different policy vectors, given equilibrium continuation play. To that end, we introduce the following notation.

Notation 1 For each game, Γ^{ExGvt} and Γ^{EnGvt} , any $q \in \{L, R\}$, $(\theta, \zeta) \in \mathbb{R}^2$, $(x, y) \in \{L, R\} \times \{N, A\}$, and any stationary strategy profile σ :

- $W_i^\sigma(q)$ denotes the expected continuation payoff of player i from period t onwards conditional on $q_t = q$ and continuation play σ .
- $V_i^\sigma(\theta, \zeta, x, y)$ denotes the expected continuation payoff for player i from a period t onwards from implementing policy $(x_t, y_t) = (x, y)$, conditional on $(\theta_t, \zeta_t) = (\theta, \zeta)$ and continuation play σ .

That is, $W_i^\sigma(q)$ describes the continuation payoff of player i that it expects at the beginning of a period, before the payoff state is realized and the election takes place. At that stage in the game, the only payoff relevant variable is the status quo q on the divisive dimension. Hence, $W_i^\sigma(q)$ is a scalar. When party i decides which policy to implement in a given period, it evaluates its current payoff from various policy reforms plus the continuation payoff it expects from the resulting policy on the divisive dimension if players follow σ thereafter. This logic allows us to formulate the following lemma.

Lemma 1 *In each game, Γ^{ExGvt} and Γ^{EnGvt} , for any stationary strategy profile σ , $(\theta, \zeta) \in \mathbb{R}^2$, $(x, y) \in \{L, R\} \times \{N, A\}$, the continuation payoff satisfies*

$$V_i^\sigma(\theta, \zeta, x, y) = (\theta + b_i + d_i^\sigma) \times 1_{x_t=R} + \zeta \times 1_{y_t=A} + C, \quad (2)$$

where the constant C does not depend on (θ, ζ, x, y) , and

$$d_i^\sigma \equiv \beta (W_i^\sigma(R) - W_i^\sigma(L)). \quad (3)$$

If σ is an equilibrium of either game, then

$$b_l + d_l^\sigma < b_m + d_m^\sigma < b_r + d_r^\sigma, \quad (4)$$

and parties behave as if they were myopic but with the preferences described by (2) instead of (1).

Lemma 1 shows that for any stationary continuation play σ , the continuation payoff function V_i^σ has the same form as the period payoff function U_i as defined in (1), but the bias b_i in U_i is replaced by $b_i + d_i^\sigma$ in V_i^σ . Note that d_i^σ can be viewed as an ideological bias shifter, and (3) implies that d_i^σ reflects i 's preferences for having status quo R relative to L for the next election cycle. \mathbb{R}

Lemma 1 implies that in any equilibrium parties behave as if they were myopic but their ideological bias b_i was shifted by d_i^σ . Inequalities (4) imply that in equilibrium the ideological ordering of the players is preserved. To characterize an equilibrium therefore it suffices to characterize the triple $(d_l^\sigma, d_m^\sigma, d_r^\sigma)$. Note that in any symmetric equilibrium, $d_l^\sigma = -d_r^\sigma$. So if $d_r^\sigma = -d_l^\sigma > 0$, then parties become more ideological on the divisive dimension, which would be reflected by the red and blue lines in Figure 1 moving away from each other and from the voter's correspond lines. If $d_r^\sigma = -d_l^\sigma < 0$, then parties become less ideological on the divisive dimension, which would be reflected by the red and blue lines in Figure 1 moving towards each other and towards the voter's correspond lines.

Note that in equilibrium, each party's ranking in period t over the different reforms as reflected by (3) does not depend on the structure of the government in t . Parameter d_p^σ depends only on the expectations of how the current status quo on the divisive dimension affects future outcomes, which may depend on the structure of the future governments, but does not depend on what government is in place in t .

5 Exogenous governments

We start by analyzing the game Γ^{ExGvt} , that is, the game in which the identity of the proposer and the veto player is determined exogenously. This analysis serves as a useful building block for the analysis of Γ^{EnGvt} , but is interesting in its own right. In reality, elections are likely to be affected by other factors (e.g., valence of the candidates, ideological swings of the electorate) than the desire to select the government that is more likely to prioritize the correct reform.

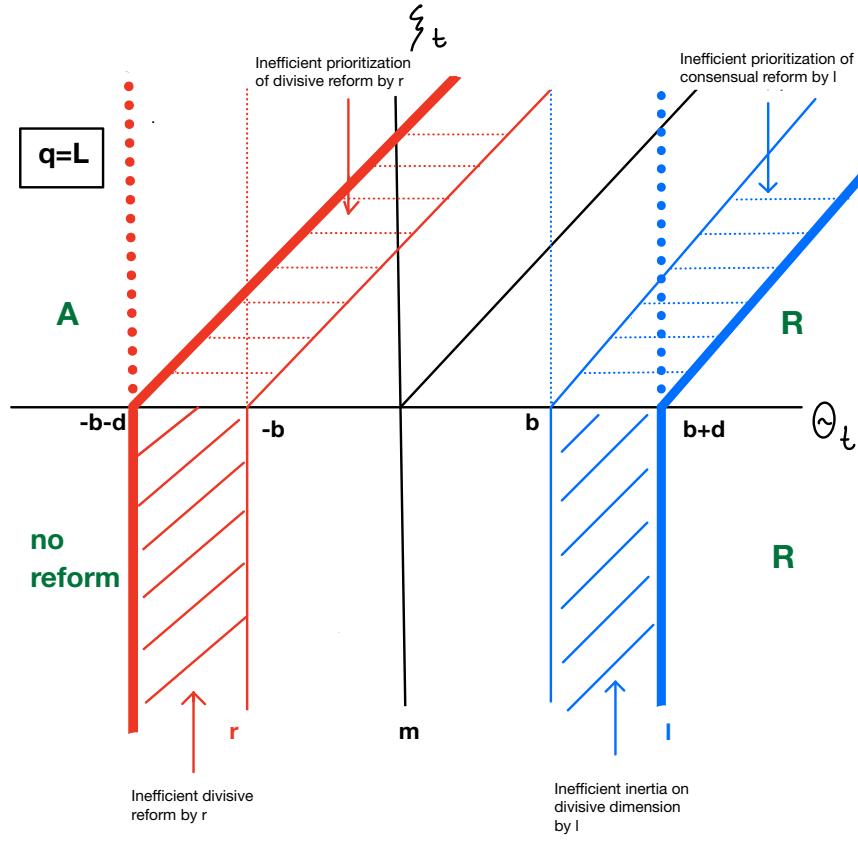
Proposition 1 below states that in equilibrium, parties behave as if they were more ideologically distant than what they actually are. That is, when choosing policies, the bias of l in favor of L and the bias of r in favor of R are larger than b_l and b_r .

Proposition 1 *In any symmetric equilibrium σ of Γ^{ExGvt} ,*

$$d_l^\sigma < 0 < d_r^\sigma.$$

Moreover, d_r^σ increases and d_l^σ decreases in $\Pr(DG)$, i.e., in the probability that the government is divided.

The first part of Proposition 1 has immediate implications for policy making and prioritization. Consider a period in which the status quo on the divisive dimension is L . In that case, Proposition 1 implies that party l is less willing to reform the divisive dimension than it would be if it followed its sincere preferences. As a result, it prioritizes the consensual reform if the latter is beneficial or implements no reforms if the latter is not. That is, there are states in which party l finds a divisive reform most pressing in a sense than if it followed its static preferences, it would propose or approve a policy change to R , but in equilibrium, it does not. Party r , on the other hand, is more eager to reform the divisive policy than it would be if it followed its static preferences. This means that there are states in which its static preference would be to leave the divisive policy unchanged at L —either because L gives l 's higher payoff or because the consensual reform is more pressing—but party r instead pursues the divisive reform. Figure 2 illustrates the equilibrium and the associated inefficiencies.



To build the intuition for Proposition 1 let us start with the case of $\Pr(DG) = 0$, that is, with the case in which governments are always unified. In that case, the status quo on the divisive dimension does not restrict any government's ability to reform this dimension. However, each party recognizes that if the consensual reform is pressing in the future, then either government will be busy tending to this reform, and hence will need to leave the status quo on the divisive dimension unchanged. In those cases, each party prefers the policy in that dimension to reflect its most likely preference, which is L for l and R for r . The expectation of such circumstances increases the incentives of each party to secure the divisive policy it is most likely to prefer in the future. Note that this effect is completely driven by the agenda constraint: if both policy dimensions could be legislated on in each period, the status quo on the divisive dimension would not affect what policy is in place on this dimension in the future.

When $\Pr(DG) > 0$, that is, when governments are divided with positive probability, there is an additional effect pushing the parties to behave in a more ideological way. When the government is divided, then even if the consensual reform is not pressing, parties may disagree on what policy is better on the divisive dimension. In that case, the status quo on that dimension remains unchanged. The expectation of such future gridlock further increases each party's desire to secure the divisive policy that it prefers in case parties disagree. This explains the second part of Proposition 1.

In this game the voter does not affect what government she faces, but we can still ask whether

she prefers frequent or infrequent divided governments (i.e., what $\Pr(DG)$ she prefers). It turns out that there are two competing effects that make this question difficult to answer. On the one hand, fixing parties behavior as characterized by (3), the voter in t prefers a divided government in the sense that for a given agenda setter, she is weakly better off if the veto power is given to the other party. To understand this preference, note that when the consensual reform is not beneficial, the voter agrees half of the time with one party that the divisive reform should be implemented and half of the time with the other party that the divisive status quo should be left unchanged. By symmetry, this makes her indifferent between which party controls policy making or whether the government is divided (in which case the status quo on the divisive dimension stays in place). But when the consensual reform is beneficial, the voter would like to avoid the unnecessary divisive reforms as due to the agenda constraint, such reforms prevent the government from acting on the consensual dimension. Divided governments make such reforms not feasible.

On the other hand, the second part of Proposition 1 implies then that the expectation that future governments could be divided is detrimental to the voter's welfare in the current period, as policy making in the current period is more ideological and less responsive to which policies are pressing. Depending on which effect dominates, the voter may be better off or worse off when the frequency of divided government increases. As we will see in the next section, this is no longer true when the voter elects governments in each period.

6 Endogenous governments

In this section, we analyze the game in which at the beginning of each period the voter elects the agenda setter and the veto player. We start by analyzing the game in which the voter is restricted to elect a unified government, but can decide which party holds power. Such a game corresponds to political systems with two parties in which the party receiving the majority of the votes controls policy making. The results from this game also facilitate the exposition of the results of the game when the voter is unrestricted in the type of government she can choose.

6.1 Unified governments only

The proposition below states that the current policy on the divisive dimension affects voter's choice of the government: the voter elects the party whose ideology is typically in line with the current policy on the divisive dimension, that is, the party that is less likely to reform the divisive dimension.

Proposition 2 *Consider Γ^{EnGvt} but assume that the voter can pick only (a_t, v_t) in $\{(l, l), (r, r)\}$. In any symmetric equilibrium,*

1. *Voter elects the less reformist party: elects*

$$(a_t, v_t) = (l, l) \text{ when } q_t = L,$$

$$(a_t, v_t) = (r, r) \text{ when } q_t = R;$$

2. *Parties' behavior is more ideological than in Γ^{ExGvt} : Let σ^{EnGvt} be the best (worst) symmetric equilibrium of Γ^{EnGvt} and σ^{ExGvt} be the best (worst) symmetric equilibrium of Γ^{ExGvt} . Then*

$$d_l^{\sigma^{EnGvt}} < d_l^{\sigma^{ExGvt}} < 0 < d_r^{\sigma^{ExGvt}} < d_r^{\sigma^{EnGvt}}.$$

To understand the voter's behavior, note that from Lemma 1, we know that parties will be on the opposite sides of voter's preferences, and in any symmetric equilibrium, symmetrically so. So consider first what happens in the absence of an agenda constraint. In that case, each government can freely reform the divisive dimension irrespective of whether it decides to reform the consensual one. The party ideologically aligned with the status quo on this dimension leaves the status quo unchanged in some states θ_t in which the voter prefers a reform. The party ideologically misaligned with the status quo on this dimension, on the other hand, reforms the divisive dimension in some states θ_t in which the voter prefers to leave the status quo unchanged. Those two inefficiencies from the voter's perspective occur because she delegates policy making to polarized parties, but in any symmetric equilibrium, each of these inefficiencies is equally likely and equally costly. Once we take into account the agenda constraint, however, the latter inefficiency is more costly because it makes the agenda constraint binding: the desire of the party misaligned with the status quo to reform the divisive dimension makes it more likely to ignore a valuable consensual reform, which hurts the voter. Hence, to avoid worsening the agenda constraint, the voter elects the party that is ideologically aligned with the status quo.

The voter's calculus is simple. No party represents her preferences perfectly, in fact, no party represents her preferences well on the divisive dimension. So either party is equally inefficient from the point of view of the voter on that dimension, and all she can hope is that the government she elects will legislate on the consensual dimension. The party less inclined to legislate on the divisive dimensions for purely ideological reasons is the one that is more likely to tend to consensual reforms. Using a real-world analogy, the voter elects Democrats when taxes are high because democrats are less likely to occupy themselves with a tax reform during their tenure and hence more likely to pursue the needed infrastructure reform.

Interestingly, though, part 2 of Proposition 2 states that the anticipation of voter's electoral calculus causes parties to behave in an even more polarized way than they did in Γ^{ExGvt} when governments were chosen at random. Each party is more eager to assure herself her ideological status quo on the divisive dimension not only in anticipation of a binding agenda constraint but also due to the desire to remain in power.

Proposition 2 implies that the voter has a dynamic commitment problem. Her desire to ease the agenda constraint for the next government induces parties to behave in a more ideological way, and hence less in line, with voter's preference. Hence, the inefficiencies that the voter incurs in equilibrium do not only stem from the fact that no party shares her ideological preferences, but also from the fact that parties respond to expected agenda constraints and electoral pressures.

6.2 All governments allowed

We consider now the game in which the voter is allowed to freely and independently assign the agenda and veto power among the two parties. This game corresponds to political systems with checks and balances like in the U.S., where the voter can easily elect a divided government by giving control of the Senate to one party and the control of either the House or the Presidency to the other party. Moreover, the institution of the Filibuster in the U.S. Senate all but assures that even if one party controls all three points of power, it needs an approval of the other party to pass major reforms.

The proposition below states that the voter elects a divided government in each period.

Proposition 3 *Consider Γ^{EnGvt} . In any symmetric equilibrium:*

1. *Voter elects a divided government with the party misaligned with the status quo as the proposer: She elects*

$$(a_t, v_t) = (r, l) \text{ when } q_t = L, \\ (a_t, v_t) = (l, r) \text{ when } q_t = R;$$

2. *Parties behave in a more moderate fashion than when the voter is restricted to unified governments: Let σ be the best (worst) symmetric equilibrium and σ^{UG} be the best (worst) symmetric equilibrium when the voter is restricted to unified governments. Then*

$$d_l^{\sigma^{UG}} < d_l^{\sigma} \text{ and } d_r^{\sigma} < d_r^{\sigma^{UG}}.$$

The intuition for Proposition 3 is as follows. Voter's choice in period t does not affect parties' subsequent behavior, hence when deciding which government to elect, the voter considers only how parties' behavior maps into reforms under each government. From Proposition 2, we know that the voter dislikes unnecessary divisive reforms as those distract governments from working on consensual reforms. Both, the unified government of the party aligned with the status quo on the divisive dimension and the divided government, prevent such reforms from occurring. Those two governments differ, however, in situations in which both parties are willing to reform on either dimension. In those cases, the aligned party prefers the consensual reform and the misaligned party prefers to divisive reform. The voter can prefer either, but the divisive reform must be quite pressing when even the aligned party is willing to implement it, which makes it likely that the voter prefers the divisive reform as well. Hence, to assure that the divisive reform passes in those circumstances, the voter gives the proposer power to the misaligned party. In other words, a conservative party is more likely to be given a proposer power when divisive issues have liberal solutions as voters want to ensure that when a conservative shift on those dimensions is warranted, it is more likely to be delivered.

Interestingly, contrary to what we have seen so far, the anticipation of voter's behavior has a moderating effect on the parties (part 2 of Proposition 3). Since each party benefits from having the

agenda power, and a party is certain to be the agenda setter when it is misaligned ideologically with the divisive policy, each party is less inclined to implement the policy aligned with its ideology on this dimension. Hence, their policy making becomes less ideological. Part 2 of Proposition 3 does not state whether $d_l^\sigma < 0 < d_r^\sigma$, that is, whether in equilibrium parties still polarize relative to their sincere preferences. One can show, however, that under reasonable conditions on the distribution of the state, they do.³ Hence, divided governments moderate parties' behavior relative to what would occur without voter's ability to elect divided governments, but they are still polarized relative to their true ideologies. Hence the finding of our paper is not that divided governments lead to policy moderation, but instead that they deliver smaller polarization than what parties would exhibit if divided governments were not allowed by political institutions.

Proposition 3 states that the voter elects divided governments, but the question remains whether the voter benefits from her ability to do so. The finding that her choice induces moderation suggests that this may be the case, and the corollary below confirms this intuition.

Corollary 1 *In the game Γ^{EnGvt} , the voter is strictly better off if she can choose divided governments than if she can choose only unified governments.*

7 The role of agenda constraint

The quite novel aspect of the real world policy-making that this model contains relative to the literature is that the government cannot change all policy dimensions at the same time. To isolate the impact of this feature, it is helpful to compare the equilibria of our game to the equilibria of a game in which in each period, the government can act on both policy dimensions at the same time. To abstract away from the orthogonal issue of policy bundling—which is absent from our games by assumption—we assume now that the government sets the policy in each dimension separately. That is, in each period, the agenda setter can propose any policy $(x, y) \in \{L, R\} \times \{A, N\}$ irrespective of the status quo, and the veto player decides whether to veto the policy change in each dimension separately.

Since parties legislate dimension by dimension, each party agrees on the consensual reform if and only if this reform is beneficial, that is, if $\zeta_t > 0$. To characterize the rest of the equilibrium, it suffices then to consider a game with the divisive dimension only. In such a game with the same divided government in every period, Dziuda and Loeper (2016) have shown that parties polarize their behavior leading to excessive gridlock. Since there are two alternatives only, the agenda power is irrelevant, so adding election of the agenda setter to Dziuda and Loeper (2016) would not change anything, and in particular, would not lead parties to moderate their behavior. It is also easy to see then that in a game in which the voter can choose between all governments, the voter is indifferent between any of them. Given that she is indifferent, she can use any election rule leading to various equilibria, but in all equilibria, divided governments do not benefit the voter nor do they favor consensual reform more than other governments. And in the perhaps focal equilibrium in which

³The authors are working on providing conditions for this claim.

the voter chooses a government at random, the fact that she chooses divided governments leads parties to polarize their behavior for the same reasons as in Dziuda and Loeper (2016). Hence, without the agenda constraint, the voter could benefit from an institution that forces governments to be unified. Thus, in our model, the voter's preferences over the different governments and the dominance of divided governments are driven entirely by the policy change constraint.

8 Conclusions

Divided governments, and in particular the institution of the filibuster, have received a lot of attention in scholarly as well as popular press. Some argue that they are beneficial in that they foster bipartisanship. No reform is passed unless both parties agree to it, so the society avoids an unnecessary policy churn or partisan reforms. Others counter that in recent years consensus is hard to find and divided governments lead to gridlock. Our results speak to these issues. Consistent with the latter claim, divided governments lead to excessive gridlock on divisive policy dimensions. But if voters were constrained to elect only unified governments, they would elect parties happy with the status quo on the divisive dimension, and voters would experience even more policy inaction on this dimension. Consistent with the former claim, divided governments prioritize consensual reforms but not excessively so: by allocating the proposer power to the party more eager to act on the divisive reform, the voter can prevent unnecessary divisive reforms, but at the same time maximize their probability of passing when they are pressing.

The model does not establish that divided governments lead to policy making that fully satisfies the voter. To the contrary, parties may still polarize and pay more attention to whether the divisive policies reflect their ideologies and less to which reforms are more pressing. We show, however, that when multiple issues compete for parties' attention and parties face agenda constraints, divided governments may be the best choice for the voter.

Our model lends itself to further extensions. In particular, it would be interesting to further study the role of the agenda constraint. Since it is the agenda constraint that drives our results, a question arises what happens when this constraint becomes more binding. To investigate this issue one needs to assume more than two policy dimensions and analyze what happens as we decease how many dimensions parties may legislate on. We conjecture that worsening the agenda constraint would only exacerbate the ideologization of policy making, which may explain the increase in polarization in the U.S. Congress if it is true that policy making has become increasingly complicated and time consuming (Cox 2006). Another interesting extension could be to assume that parties vary in their ability to pass multiple reforms. That is, a more competent party is more likely to reform both issues. In such a setting, we conjecture that when parties become less competent they become more polarized in their policy making on the divisive dimension. Finally, a natural extension would be to allow certain policy dimensions to require more legislative time than others, a characteristics which could possibly be related to their divisiveness (Giannetti et. al. 2016). One might think that parties would be deterred from implementing more time consuming reforms, but

in a dynamic framework, this is not obvious because a time consuming reforms is unlikely to be repealed in the future, which increases the benefit from implementing it in the first place.

9 Appendix

To be added. The proof for Lemma 1 follows easily from Loeper and Dziuda (2021). The remaining proofs rely heavily on graphical argument using different variations of Figure 1.

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