Legislative Priorities and the Structure of Government or The Case for Divided Government (and the Filibuster)
Very preliminary, please do not circulate

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Abstract

We propose a dynamic model of elections and policy making in which in every period, a representative voter decides whether to elect a unified government—in which a single party controls policy making—or a divided government—in which the agenda and veto powers are held by different parties. The elected government then observes a common shock to the players' preferences, and decides which of two policy dimensions to reform, if any. On the consensual policy dimension, both parties and the voter have congruent preferences (e.g., infrastructure), whereas on the divisive dimension (e.g., taxation), they disagree with positive probability: party l (r) has more leftist (rightist) preferences than the voter. Crucially, the government faces an agenda constraint in that it can change only one dimension of the status quo, which is inherited from the previous government. Which reform is socially optimal in a given period depends on the current status quo and the current realization of the shock.

We show that in each period, the voter elects a divided government. She gives the veto power to the party ideologically ideologically aligned with the status quo on the divisive policy dimensions. She does so to avoid undesirable divisive reforms and thus force the government to implement a consensual reform when it is the only reform the voter approves. The downside of that electoral decision is that in some state, the divisive reform is optimal for the voter but vetoed by the government. To mitigate that inefficiency, the voter gives the agenda power to the other party, which prioritizes the divisive reform when both reforms are approved by the veto party.

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 even if one party controls the presidency and a majority in both chambers, it further needs 60% of the Senate seats to dispense with the votes for the opposition party. 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 form 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 legislative 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 policies on which partisan disagreement is likely to be small such as improving administrative efficiency, investing in infrastructure, simplifying 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 policy dimension. This assumption reflects the fact that it takes time for the party to consult policy experts, gather all the stake holders to figure out how to get their approval, draft a bill, clear the legal hurdles, explain the reform to the electorate in different media. Perhaps most importantly, the passage of any bill requires plenary time in the legislature. As Cox (2006) puts it, "All bills must go through the plenary bottleneck in order to be enacted but only a subset can do so", and as a result, "the management of plenary time has been the crucial battleground of most of the biggest fights over legislative procedure across the democratic world" (see also Cox and McCubbins 2007, or 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, but it is the agenda setter who can choose which reform is up for a vote.

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 parties 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

[1] The authors are aware that the last example seems strange at the moment of writing this draft, but be 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 a government that is unwilling to pass divisive a reform even in states in which all players would benefit from such a reform.

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 he 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 focuses its legislative activity on a divisive reform at the expense of a more pressing consensual reform. By giving the agenda power to the party more inclined to reform the divisive dimension, the voter assures herself that the divisive reform is implemented if it is sufficiently 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 agenda 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 the cost of political delegation. This truism 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, Tsebellis 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

There are two policy issues on which parties may legislate in every period. We call the first issue *divisive* and the second issue *consensual*. The reason for the choice of this terminology will become clear when we define the payoffs below, but one can think of the divisive issue as an ideologically-charged/hot-button policy on which parties typically have different preferences. Possible examples of divisive issues include tax policy, social welfare spending, immigration policy, or business regulation. The consensual issue can be thought of as a policy dimension that is less ideologically-charged. Possible examples of such policies include investment in infrastructure, technical reforms 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.

The outcome of the policy making process in period t can be represented by a pair (x_t, y_t), where x_t denote the policy implemented in the divisive dimension and y_t the policy implemented in the consensual dimension. For tractability and simplicity, we assume that the 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 role and limitations of the restriction to binary policies at the end of this section.

Policy change

A key ingredient of our model is that the government is subject to an agenda constraint. To capture that constraint in a simple way, we assume that the government cannot legislate on both issues at the same time. Formally, in each period, the government can change the policy vector from its status quo value in at most one policy dimension. Consistent with most of the examples of divisive policies mentioned earlier, we model policy making on the divisive dimensions as a continuing choice, which means that in any period $t > 0$, the status quo q_t on the divisive dimension is the policy x_{t-1} that was implemented in the previous period $t - 1$. The initial status quo q_0 is exogenous. In contrast, we model the policy making on the consensual dimension as a one-off decision. Formally, we assume that in every period, the status quo policy on the consensual dimension is N. Thus, in every period t, the government can implement either no reform—i.e., $(x_t, y_t) = (q_t, N)$—a divisive reform—i.e., $(x_t, y_t) = (\neg q_t, N)$—or a consensual reform—i.e., $(x_t, y_t) = (q_t, A)$.

Our assumption that the divisive policy is continuing reflects the fact that most social welfare spending takes the form of entitlements that continue unchanged until further legislative action. Likewise, most provisions of the tax code are permanent by default, and immigration policy typically takes the form of permanent statutes. As we discuss below, all our qualitative findings hold if the consensual policy is continuing as well, with the possible qualification that additional (though arguably contrived) equilibria may arise. Hence, the assumption of a fixed status quo on the consensual dimension is only to clarify the exposition of the results. However, it 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), an exogenous status quo (by default, there is no spending in new infrastructure), or that non-ideological reforms are rarely repealed, but the need for new non-ideological reform might arise on different policy areas 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 and 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). To get a better sense of the role of the choice of the government, we analyze two versions of the game. In one version, 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 other version of the game, denoted by Γ^{EnGvt}, both the agenda setter and the veto player are chosen by the voter instead.

After the government is formed, the state of nature $(\theta_t, \zeta_t) \in \mathbb{R}$ 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) (taking into account the aforementioned agenda constraint) and the party with the veto power either approves the proposal or vetoes it. If the proposal is approved, it is implemented, otherwise the vector of status quo policies (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.

Payoffs

Players maximize the expected discounted sum of their period payoffs with a common discount factor $\delta \in (0, 1)$. In every period t, the period payoff of player i depends on the implemented 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

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

The two additively separable terms on the R.H.S. of (1) corresponds to the payoff from policies 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 $y_t = A$. The payoff function in (1) implies that players' period preferences are aligned over y but not over x. We further assume that parties are symmetrically located around the voter on the ideological spectrum: $b_r = -b_l \equiv b > 0$ and $b_m = 0$. Thus, 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 period preferences disagree, r prefers R and m prefers L, and when l's and m's period 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 fact that the payoffs states (θ_t, ξ_t) varies over time capture the stochastic nature of the challenges that a government may face, such as changing economic or social conditions, external threats, the arrival of new information or simply the 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, but in normal times, they prefer different policies and the direction of their disagreement is predictable.

The information structure

Let F be the joint c.d.f. of the state variables (θ_t, ξ_t) and let f be the corresponding p.d.f. We assume that the distribution of θ is symmetric around 0 so that the voter is ex-ante indifferent between L and R. Thus, a divisive reform is equally likely to be desirable for the voter under status quo L or R. In addition, we assume that ex-ante, under either status quo, the divisive and the consensual reforms are equally likely to be preferred by the voter. Formally, we assume that for all $\theta \in \mathbb{R}$ and $\zeta \geq 0$, $f(\theta, \zeta) = f(-\theta, \zeta) = f(\zeta, \theta)$. 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 effectively chooses 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 effectively chooses between implementing (q_t, N) or (q_t, A), so its decision depends only on ζ_t.

Discussion of assumptions

Perhaps the starkest 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 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 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' period preferences, as the proof of most of the results that follow can be easily described using a visual representation of these preferences. Suppose that in some period the status quo on the divisive dimension is L. When $\zeta < 0$, the consensual reform is not desirable, so the agenda constraint is not binding, and player i prefers implementing the divisive reform if and only if this player's period payoff from R is positive, which happens when $\theta_i + b_i > 0$. Likewise, when $\theta_i + b_i < 0$, the divisive reform is not desirable for player i, so player i would prefers implementing the consensual reform if and only if this player's period payoff from A is positive, which happens when $\zeta > 0$. Finally, when $\zeta > 0$ and $\theta_i + b_i > 0$, both reforms are desirable for player i. Given the agenda constraint, the question is which reform is more desirable. In this case, player i benefits more from the consensual reform when $\zeta > \theta_i + b_i > 0$, whereas she benefits more

[2] Even in a two-period model, the equilibrium characterization with a continuum of divisive policies is tedious to the point of not being particulary insightful.

from the divisive reform when $\theta_i + b_i > \zeta > 0$. In the former (latter) sets of states we say that the consensual (divisive) reform *is more pressing* for player i.

Figure 1 below illustrates the period 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) red 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 in which the consensual reform is more pressing for r (to the left) and states the divisive reform is more pressing for r (to the right). 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 period preferences. These choices would be equilibrium choices 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 agrees with party l that the consensual reform is more pressing whereas to the right of that line, the voter agrees with party r that the divisive reform is more pressing.

Figure 1 about here

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

4.2 Dynamic preferences

To determine the equilibrium behavior of Γ, the first step is to derive parties' continuation payoff before and after implementing a given policy vector, 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:*

a. *$W_i^\sigma(q)$ denotes the expected continuation payoff for player i in period t conditional on $q_t = q$ and continuation play σ from period t onwards.*

b. *$V_i^\sigma(\theta, \zeta, x, y)$ denotes the expected continuation payoff for player i in period t conditional on policy $(x_t, y_t) = (x, y)$ being implemented, on $(\theta_t, \zeta_t) = (\theta, \zeta)$ and on continuation play σ from period $t+1$ onwards.*

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 defined in Notation 1 satisfies*

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

where $C\in\mathbb{R}$ does not depend on (θ,ζ,x,y), and

$$d_i^\sigma\equiv\beta\left(W_i^\sigma(R)-W_i^\sigma(L)\right). \tag{3}$$

If σ is an equilibrium of either game, then

$$b_l+d_l^\sigma<b_m+d_m^\sigma<b_r+d_r^\sigma, \tag{4}$$

and parties behave as if they were myopic but with the payoff function defined 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.

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. Therefore, to characterize an equilibrium, 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

In this section, we consider the game Γ^{ExGvt}, that is, the game in which the identity of the proposer and the veto player is redrawn in every period in an i.i.d. and exogenous fashion. This game serves as a useful building block for the analysis of Γ^{EnGvt}, but is interesting in its own right for in reality, elections are likely to be affected by other factors (e.g., valence of the candidates, ideological swings of the electorate independent of past policies and governments) than the desire of the voter to select the government whose policy priorities are closer to hers.

Proposition 1 below states that in equilibrium, parties behave as if they were more ideologically distant from each other 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 that 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 in equilibrium, party l behaves as if it is less willing to reform the divisive dimension than it would be if it followed its period preferences. As a result, it tends to inefficiently prioritize the consensual reform or implement no reform at all. Formally, there are states in which the divisive reform is the only beneficial, or the more pressing reform according to l's period preferences, but in equilibrium, the divisive reform is not implemented, either because party l with agenda power prioritizes the consensual reform/proposes no reform, or because party l with veto power vetoes the divisive reform. Conversely, party r behaves as if it is more eager to reform the divisive policy than it would be if it followed its period preferences. Formally, there are states in which the divisive reform is not beneficial, or the less pressing reform according to party r's period preferences, but in equilibrium, party r with agenda power prioritizes the divisive reform. Figure 2 illustrates the equilibrium and the associated inefficiencies.

Figure 2 about here

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.[3]

In this game the voter does not affect what government she faces, but we can still ask whether she prefers the government to be more or less often divided (i.e., what $\Pr(DG)$ she prefers). It turns out that there are two competing effects, and either can dominate depending on the parameters of the model. On the one hand, fixing parties' behavior as characterized by (3), in a given period, the voter 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, by symmetry, 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. Thus, when the consensual reform is not needed—and thus when the agenda constraint does not bind—the voter is indifferent about which party controls policy making. But when the consensual reform is beneficial—and thus when the agenda constraint binds—electing a government that implements an undesirable divisive reform is more costly for the voter than electing a government that fails to implement a desirable one because the bias of the former government prevents it from legislating on the consensual dimension whereas the bias of the latter government does not. Because parties disagree with each other whenever one disagrees with the voter, a divided governments is always of the latter kind, that is, it never implements an undesirable reform at the expense of a desirable consensual one. Thus, fixing continuation play, the voter is always better off in a given period when the government is divided.

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 policy is more pressing. As we will see in the next section, the second effect disappear when the voter elects the government, and in particular which party has the agenda power in each period.

[3] The latter effect is what drives the polarizing effect of the endogfenous status quo in Dziuda and Loeper 2016 and 2018.

6 Endogenous governments

In this section, we consider the game Γ^{EnGvt}, that is, the game in which at the beginning of each period the voter elects the agenda setter and the veto player. We start by analyzing a restricted version of Γ^{EnGvt} in which the voter can only elect a unified government, but can decide which party holds power. Such can be viewed as model of a majoritarian political system with two dominant parties in which the party that receives the majority of the votes controls policy making. The analysis of this game also helps build the intuition for the unrestricted version of Γ^{EnGvt} in which the voter can also elect a divided government.

6.1 Majoritarian systems

The proposition below states that the policy in place on the divisive dimension affects voter's choice of the government: the voter elects the party ideology aligned with the status quo on the divisive dimension. In other words, the voter elects the party least likely to implement a divisive reform.

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. *The voter elects the less reformist party: she elects*

   $(a_t, v_t) = (l,l)$ *when* $q_t = L$,

   $(a_t, v_t) = (r,r)$ *when* $q_t = R$;

2. *The 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 intuition for the voter's equilibrium behavior, note first that voter's electoral choice in period t does not affect parties' preferences over which policy to implement in t, which are determined by the continuation play. Moreover, in any symmetric equilibrium, $d_m^\sigma = 0$, so the voter's preferences over which policy to implement in t coincide with her period preferences. Therefore, when deciding which government to elect in t, the voter considers only which policy each party will implement in t if elected, and whether this policy is likely to match her period preferences in t. To understand why this leads her to delegate policy making to the party ideologically aligned with the status quo, recall the intuition for the beneficial effect of a divided government we provided at the end of Section 5. In the absence of agenda constraints, in any symmetric equilibrium, parties differ in the type of inefficiency they generate but not in how costly they are to the voter. On the consensual dimension, they always agree with the voter, and on the divisive dimension, one party reforms too often whereas the other reforms too rarely, but by symmetry, either party is equally likely to disagree with the voter. Once we take into the agenda constraint, policy making in the two

policy dimensions cannot be treated independently anymore. The desire of the party misaligned with the status quo to implement divisive reforms makes it more likely not to implement a desirable consensual reform, which further hurts the voter. In contrast, the reluctance of the other party to implement a divisive reform leaves it free to implement a consensual reform whenever it is desirable. In other words, the agenda constraint induces the voter to elect the party less likely to legislate on the policy issue on which there is more disagreement in order to increase the probability that it tends to the issue on which it is more likely to agree with the voter.

We would like to point out that the voter's calculus behind Proposition 2 does not require a lot of strategic sophistication and is arguably realistic. No party represents her preferences perfectly 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 does its job on the consensual dimension. The party more likely to tend to consensual reforms is the party less inclined to spend its legislative time on the divisive dimensions for purely ideological reasons. 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, Part 2 of Proposition 2 states that the anticipation of voter's equilibrium behavior 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 implement the policy aligned with its ideology on the divisive dimension not only in anticipation of a binding agenda constraint but also due to its desire to remain in power.

Proposition 2 implies that the voter has a dynamic commitment problem. Her desire to elect the party less likely to be distracted by divisive reforms generate electoral incentives for the parties which lead them to behave in a more ideological way once in power, and hence less in line with the voter's preference.

6.2 Systems with checks and balances

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 voters can elect a divided government by giving control of one chamber to one party and the control of either the other chamber 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 in equilibrium, in each period, the voter elects a divided government and gives the agenda power to the party misaligned with the status quo on the divisive dimension.

Proposition 3 *Consider Γ^{EnGvt} in which the voter can allocate the agenda and veto power independently to either party. In any symmetric equilibrium:*

1. *The voter elects a divided government and gives the agenda power to the party misaligned with the status quo: She elects*

   $(a_t, v_t) = (r, l)$ *when* $q_t = L$,

   $(a_t, v_t) = (l, r)$ *when* $q_t = R$;

2. *Parties behave in a more moderate fashion than when the voter can elect only unified governments: Let* σ *be the best (worst) symmetric equilibrium of* Γ^{EnGvt} *and* σ^{UG} *be the best (worst) symmetric equilibrium of the game* Γ^{EnGvt} *in which the voter can only elect a unified government. 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. From Proposition 2, we know that the voter dislikes undesirable divisive reforms as they distract the government from implementing beneficial consensual reforms. The voter can prevent an undesirable divisive reforms by electing a unified government of the party aligned with the status quo, as in Proposition 2, or by electing either divided government—since the voter only needs to give the agenda or veto power to the aligned party to avoid the undesirable reform. Note however that if these three governments avoid undesirable divisive reforms, they do not always implement the same policy vector. Specifically, they lead to different policy priorities when both reforms are desirable for both parties. In this case, the agenda setter determines which reform is prioritized: the party (mis)aligned with the status quo implements the consensual (divisive) reform. Ex-ante, the voter can agree with either party, but she is more likely to agree with the party misaligned with the status quo. To see why, note that both reforms are desirable for both parties if and only if both reforms are desirable for the party aligned with the status quo, and since the voter agrees with that party on the consensual dimension but is more reformist on the divisive dimension, conditional on both reform being desirable for that party, the voter is more likely to prefer the divisive reform, and thus to agree with the other party. To sum up, to avoid undesirable divisive reforms to exacerbates the agenda constraint, the voter must give the veto or agenda power to the party aligned with the status quo, and to avoid the bias of that party to prioritize the consensual reform, the voter must give the agenda power to the other party. The only government that achieves both objectives is the divided government in which the party misaligned with the status quo holds the agenda power. In other words, a conservative party is more likely to be given agenda 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 the voter's behavior has a moderating effect on the parties (Part 2 of Proposition 3). To see why, note that both parties prefer the agenda power to the veto power, so the voter's strategy implies that each party is electorally rewarded when the policy misaligned with its ideology is implemented. As a result, the voter's strategy induce parties to be less ideological in their policy making. 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.[4] 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 less 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 most novel aspect of this model 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, it is straightforward to see that each party agrees on the consensual reform if and only if this reform is beneficial, that is, if and only 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, we show in Dziuda and Loeper (2016) 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 by symmetry, in a game in which the voter can choose between all governments, the voter is indifferent between any of them.[5] 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 relative to other government forms. Given that the voter is indifferent, the perhaps more natural

[4] The authors are working on providing conditions for this claim.

[5] This is true because in any equilibrium, parties are equally polarized relative to the voter's preferences, i.e., $|b_m + d_m^\sigma - b_l - d_l^\sigma| = |b_m + d_m^\sigma - b_r - d_r^\sigma|$. To see why, note that if $|b_m + d_m^\sigma - b_l - d_l^\sigma| \neq |b_m + d_m^\sigma - b_r - d_r^\sigma|$, then the most preferred party of the voter is the unified government of the party whose $\left|b_m + d_m^\sigma - b_p - d_p^\sigma\right|$ is smaller—or any government that leads to the same outcome, depending on the status quo—and conditional on such a voter's strategy, $d_l^\sigma = d_r^\sigma = 0$, which implies that $|b_m + d_m^\sigma - b_l - d_l^\sigma| = |b_m + d_m^\sigma - b_r - d_r^\sigma|$.

equilibrium is the one in which the voter chooses the government at random, and if she chooses a divided government with positive probability, parties 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 agenda constraint.

8 Conclusions

Checks and balances such as bicameralism, semi-presidential regimes, or the filibuster, allow the voters to elect divided governments, and under such governments, no reform is passed unless both parties in power agree to it. Some argue that they are beneficial in that they foster bipartisanship and avoid unnecessary policy churns. Others counter that in recent years consensus is hard to find and divided governments only lead to gridlock. Our results speak to these issues. Consistent with the latter claim, divided governments lead to excessive gridlock on policy dimensions in which there is more ideological disagreement. But if voters are constrained to elect only unified governments, they tend to elect parties happy with the status quo on the divisive dimension, and voters 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 agenda 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 them when they are pressing.

The model does not establish that the possibility to elect divided governments leads 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 attention to which reforms are more pressing. We show, however, that when legislative time is scarce and the government has to decide which reform to prioritize, 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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