Veto Institutions, Hostage-taking, and Tacit Cooperation

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Abstract

We analyze the effects of veto institutions in a dynamic model where control of the legislative and executive branches fluctuates between two parties. In our setting, there are *universal projects* (that benefit both parties) and *partisan projects* (that benefit one party at the expense of the other).

When government is divided, the legislature can leverage the universal project to achieve a lopsided and dynamically-inefficient distribution of partisan projects under the absolute veto. While the line-item veto eliminates this type of hostage-taking, it also prevents beneficial log-rolls. A novel institution, the alternating line-item veto, can eliminate both hostage-taking and preserve beneficial inter-party log-rolls.

No veto institution prevents dynamically-inefficient lopsided outcomes under unified government; this can only be done through norms, and we show that a no-veto regime, or a regime with a line-item veto, best facilitates such a cooperative norm.

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1 Introduction

In September of 2013, Congressional Republicans threatened to withhold raising the debt ceiling unless increases were accompanied by entitlement reform. In response, President Obama accused Congressional Republicans of holding Congress and the whole country hostage (Epstein 2013). Earlier that year, Obama stated that he would not negotiate "with a gun at the head of the American people—the threat that unless we get our way [on entitlement reform]. . . we're going to threaten to wreck the entire economy [by not raising the debt ceiling]" (Curtis 2013). Accusations of hostage-taking have featured regularly in partisan rhetoric ever since.

Naturally, those accused of hostage-taking see their actions as justified protection of their core positions. It is therefore helpful to cut through this rhetoric and analyze how various veto institutions affect the incidence of hostage-taking and the overall efficiency of the political system.

We focus on three particular veto institutions: the absolute veto (AV), the line-item veto (LIV), and a novel institution we call the alternating line-item veto (ALIV). In the spirit of extant work, we consider the effectiveness of these veto institutions in limiting the opportunistic behavior of the legislature. Moving beyond extant work, we also consider how veto institutions affect the ability of parties to sustain a *norm of cooperation* whereby those who control the legislature refrain from opportunistic behavior.

We analyze an infinitely-repeated model of policymaking where, in any given period, there are both *universal projects* (that benefit both parties) and *partisan projects* (that benefit one party at the expense of the other). These projects must be re-authorized in every period. Further, control over both branches of government (the legislative and the executive branch) fluctuates stochastically between two political parties. Importantly, unified and divided government are both possibilities.[1]

A key feature of the different veto institutions in our model is the degree to which the legislature can bundle disparate projects into a single bill. Combining partisan projects and universal projects into a single legislative proposal provides the legislature substantial political power relative to an executive with an AV. As the executive's choice under AV is between accepting and rejecting the legislature's proposal "as is," the legislature can leverage the universal project to hold the executive hostage: To get the universal project that everyone likes, the executive is saddled with a bunch of partisan projects she doesn't.

In contrast, if the executive has a LIV, combining different projects into one bill is pointless because the executive can anyway veto those projects that she does not like. The LIV therefore eliminates the legislature's power to thwart the veto by combining different projects into a single piece of legislation. However, this is a two-edged sword because it also eliminates beneficial log-rolls, such as passing a combination of two good partisan projects (that is, one project that substantially benefits the left party at a small cost to the right party, and another one where costs and benefits are reversed). Our modified version of the LIV, the ALIV, also eliminates hostage-taking; however, unlike the LIV, it leaves log-rolls intact.

After characterizing the stage-game equilibrium under each institution, we examine how different institutions affect the parties' ability to sustain a norm in which power is never exploited. Employing standard repeated-game techniques, where non-cooperation is punished through Nash reversion, we find that either LIV or a no-veto regime outperform AV and ALIV in terms of facilitating such a norm.

Intuitively, regimes in which the punishment for deviating from cooperative play is

[1]Our model applies best to U.S. states where, generally, the legislative majority party can pass new legislation by simple majority, but enactment requires that the executive does not veto the legislation.

more severe (i.e., institutions with lower static equilibrium payoffs) provide stronger incentives to maintain cooperation, even in those periods where a party is in complete control of the government. And the regimes with the lowest static equilibrium payoff are either LIV (as it eliminates all forms of inter-party log-rolling) or a regime with no-veto (as there are no checks on the ability of the party controlling the legislature to impose costs on the other party).

Finally, we connect our analysis to the larger empirical literature on the effects of veto regimes on aggregate spending. Contrary to institutional reformers' expectations, a large body of empirical work finds that the LIV has little effect on spending levels in U.S. states. In the one-shot version of our model, LIV reduces expected government spending relative to AV (as no partisan projects survive under LIV). However, when we consider the repeated version of our model, and allow for the possibility of tacit cooperation, LIV can lead to higher spending than AV. This possibility arises when stage-game payoffs are lower under LIV than AV, and so LIV does a better job at facilitating inter-party collusion on high-spending policy paths.

2 Relations to Literature

Our model speaks to several different strands in the existing literature. First, a number of scholars have analyzed the effects of AV and LIV on a range of outcomes—from aggregate spending (e.g., Carter and Schap 1987) to budget volatility (e.g., Jo and Rothenberg 2020) to the allocation of resources between private and public goods (e.g., Indridason 2011, Palanza and Sin 2014).[2] Much of this work employs standard two-dimensional spatial models (e.g., Brown 2012, Carter and Schap 1987, Jo and Rothenberg 2020). In contrast, we consider a setting in which there are a number of

[2]See Palanza and Sin (2020) for a review of this literature.

discrete projects, and the task for policymakers is to decide which ones to implement. Our setup facilitates the analysis of log-rolling, bundling, and hostage-taking.[3]

Second, our work builds upon scholarship addressing log-rolling in a legislative setting, which identifies conditions under which legislators' ex-ante utility benefits from a norm of universalism (e.g., Weingast 1979).[4] We build on these insights, but in a setting where parties, as opposed to individual legislators, are the unit of analysis. Our work addresses how alternative veto regimes affect the ability to achieve inter-party universalism in settings with and without repeat play.

Third, our paper contributes to a line of work in which the agenda-setter can combine a valence issue with a conflictual issue to achieve policy gains on the latter. For instance, Cho (2017) illustrates how an agenda-setter can leverage cost-free pork to achieve desired policy change on an ideological dimension. Callander and Martin (2016) consider a dynamic model of veto-bargaining in which policy degrades between periods, which the agenda-setter can leverage to achieve her ideal policy on the ideological dimension. Lee (2021) illustrates how policymakers may refrain from addressing valence issues today in the hope of bundling them with a divisive issue tomorrow. In each of these settings, as well as our own, bundling can result in inefficiencies. We differ in that our primary focus is on how different veto institutions can mitigate such harm.

Finally, our work is related to models of how institutions affect tacit cooperation among rival factions. Whereas earlier work has shown how check-and-balance institutions can impede tacit cooperation (e.g., De Figueiredo 2002, Dixit, Grossman and Gul 2000, Invernizzi and Ting 2020), we show how a particular check-and-balance

[3]Further, while some have analyzed veto institutions in settings of incomplete information (e.g., Groseclose and McCarty 2001), our focus on complete information facilitates comparisons with more traditional scholarship.

[4]See Casella and Mace (2021) for a review of the literature on log-rolling.

institution, namely, LIV, can facilitate tacit cooperation.[5]

3 The Model

Political power in our model is vested in a legislature and an executive, and the control of these institutions fluctuates stochastically between two internally homogeneous factions, labeled Left (L) and Right (R).[6] Each faction's probability of controlling the legislature is one-half in every period. Further, the faction that controls the legislature controls the executive with probability ρ. Thus, higher values of ρ correspond to a higher probability of unified government. Because of the symmetric setting, parties have the same ex-ante preference ranking over any pair of institutional arrangements.[7]

The polity can enact five types of projects. A *good L-project* provides for a payoff of B for group L, and a payoff of $-(1-B)$ for group R, where $B \in (1/2, 1)$. A *good R-project* is defined symmetrically.[8]

A *bad L-project* provides for a payoff of b for group L, and a payoff of $-(1-b)$ for group R, where $b \in (0, 1/2)$. A *bad R-project* is defined symmetrically.

Finally, the *universal project* gives a payoff $u > 0$ to each group. The universal project models policies that benefit everyone in society—e.g., those that address current or future crises, provide public goods, or fix policy decay. All other projects (e.g., good L-project, bad L-project, etc.) are referred to as *partisan projects* so as to emphasize that they only help a part of the polity.

Payoffs accrue in the every period in which the respective projects are in force,

[5]Our analysis is thus part of a larger literature examining how political institutions affects tacit cooperation (e.g., Acharya and Lee 2018, Carrubba and Volden 2000, Stephenson 2003).

[6]These designations should be understood purely as labels. Also, we use the terms "factions" and "parties" interchangeably.

[7]See Fox and Polborn (2021) for a related analysis with asymmetrical political power.

[8]We call these projects "good" because they give a higher benefit for the favored group, relative to the cost of the other group.

and are additive. For example, in a period in which the good L-project, the good R-project, and the universal project are all in force, each faction receives a payoff of $B - (1 - B) + u = 2B - 1 + u$. In contrast, if instead both the good and the bad L-projects are in force, then L receives a payoff of $B+b$, while R gets $-(1-B)-(1-b) = B + b - 2$. Finally, if no projects are in force, then both factions' payoffs are zero. Both factions discount future payoffs by $\delta \in [0, 1)$ per period.

Importantly, all projects are non-continuing: For a project to be in force in period t, the period-t legislature must pass it (either as a stand-alone bill, or as part of a bundle of projects) and it cannot be vetoed.

Three observations are immediate: First, both factions are better off when both good projects are implemented than when neither is. Second, both factions are better off when neither bad project is implemented than when both of them are. Third, both factions are better off when the universal project is implemented.

We analyze the effects of the following institutions.

- **No-veto (NV).** Whatever bill the legislature passes, becomes law.

- **Absolute Veto (AV).** If the legislature passes a bundle consisting of several projects, the executive can either veto or accept the entire bundle; she cannot single out parts and veto only those she disapproves.[9]

  For example, suppose an L-controlled legislature proposes a bill that combines the universal project and the good L-project, but none of the other projects, to an R-executive. She can then choose whether to sign this package or veto it, but cannot only let the universal project pass.[10]

[9] We refer to this form of veto authority as "absolute" as we are not allowing for the possibility of overrides. Nevertheless, one could adapt our model to allow for super-majority overrides by reinterpreting ρ as the sum of two probabilities: that of controlling the executive given control of the legislature and that of having a veto-proof super-majority in the absence of controlling the executive.

[10] Observe that the legislature could *choose* to propose the universal project and the good L-

- **Line-item Veto (LIV).** The executive can veto the entire bundle, veto parts of the bundle, or sign it. In the previous example, the executive would be able to veto the good L-project and only let the universal project pass.

- **Alternating Line-item Veto (ALIV).** As under LIV, the executive here can either veto the entire bundle, veto parts of it, or sign it. However, if she vetoes parts of it, so some projects remains, then the legislature has the opportunity to pick and choose which of the remaining projects to eliminate. This back and forth process continues until no projects remain, or one side chooses not to eliminate any of the remaining projects when it's their turn.

  For instance, suppose an L-controlled legislature proposes the good R-project together with the good L-project to an R-executive. If the executive accepts both project, then both projects are implemented. If she vetoes both projects, then none are implemented. However, if she were to veto just the L-project, then the legislature has the option of canceling the remaining R-project.

In each period of our model, the following sequence of events transpires:

S0. Nature determines the control of the legislature and executive.

S1. The faction that controls the legislature proposes a *bill*. A bill is a subset of the following set: $\{\text{good } L\text{-project}, \text{bad } L\text{-project}, \text{good } R\text{-project}, \text{bad } R\text{-project}, \text{universal project}\}$.

S2. Any player with veto power decides whether to use it.

project as separate bills. More generally, the legislature could pass a number of projects in a set of different bills, some of which are vetoed and some of which are implemented. However, in our setting, any final combination of projects that are implemented along the equilibrium path can be implemented by combining exactly those projects that are eventually implemented into one bill that is not vetoed, and not proposing any other bills. Therefore, our restriction that the legislature is restricted to offering a single bill is without loss of generality. This is also true for LIV and ALIV.

S3. The resulting *implementation set*, Z, is the set of projects included in the proposed bill that are not vetoed. The parties' payoffs depend exclusively on Z.

The above sequence of events constitutes the *stage-game* of our repeated game. Our solution concept is pure-strategy subgame-perfect equilibrium (SPE). Because control over government is stochastic, a pure strategy profile can induce a non-degenerate lottery over implementation sets. When we refer to the *outcome of a strategy profile*, we mean the lottery over implementation sets generated by that strategy profile. We define a player's *payoff from a given strategy profile* to be that player's expected payoff, where this expectation is taken with respect to the outcome of that strategy profile. Finally, when ranking institutions in terms of welfare, we do so from an ex-ante perspective—i.e., we compare each institution's expected equilibrium payoff, where the expectation is taken with respect to the lottery over implementation sets generated by a given institution's equilibrium strategy profile.

4 Preliminaries

As we will see, across all the institutions considered, one of seven bills is implemented. To begin, define the *neutral bill* as the bill that includes both good projects and the universal project. Further, define an *L-bill* as a bill that has more L projects than R projects. There are three specific L-bills of interest:

1. The *maximal L-bill* consists of the universal project, the good L-project, and the bad L-project.

2. The *narrow L-bill* consists of the universal project and the good L-project.

3. The *broad L-bill* consists of the universal project, both good projects, and the bad L-project.

	L's Payoff	R's Payoff
Neutral Bill	$2B - 1 + u$	$2B - 1 + u$
Maximal L-Bill	$B + b + u$	$B + b - 2 + u$
Maximal R-Bill	$B + b - 2 + u$	$B + b + u$
Narrow L-Bill	$B + u$	$B - 1 + u$
Narrow R-Bill	$B - 1 + u$	$B + u$
Broad L-Bill	$2B + b - 1 + u$	$2B + b - 2 + u$
Broad R-Bill	$2B + b - 2 + u$	$2B + b - 1 + u$

Table 1: Payoffs from each of the specified bills.

The corresponding *maximal R-bill*, *narrow R-bill*, and *broad R-bill* are all defined analogously. The payoffs from the implementation of these bills are specified in Table 1.

Three observations, formally proved in Section A.1 of the Appendix, will be useful when comparing welfare across institutions. First, the neutral bill is preferred to an equal-probability lottery over the narrow L-bill and the narrow R-bill; it's also preferred to a fifty-fifty lottery over both broad bills and a fifty-fifty lottery over both maximal bills. To see why, notice that, relative to the neutral bill, all three L-bills increase L's payoff, and decrease R's payoff. However, L's gain is smaller than R's loss, since moving from the neutral bill to one of the L-bills involves either dropping the good R-project or adding the bad L-project. By a similar logic, as we move from the neutral bill to one of the R-bills, R's gain is less than L's loss. Due to these asymmetries in gains and losses, the neutral bill results in a higher payoff than each of the equal-probability lotteries considered; thus, the neutral bill is a form of insurance against such lotteries.

Second, for similar reasons, an equal-probability lottery over both maximal bills yields a lower expected payoff than an equal-probability lottery over both narrow bills or over both broad bills.

Third, the ranking between an equal-probability lottery over both maximal bills and the universal project depends on parameters. When $B + b > 1$, the former is preferred, and when $B + b < 1$, the latter is preferred.

5 Analysis of the Stage-Game

For each institution, we analyze the SPE of the corresponding stage-game, with the tie-breaking assumption that the veto-player accepts whenever she is indifferent between accepting and rejecting.

5.1 No-Veto (NV)

For comparison purposes, we start with the case in which no actor has veto authority. In this case, the legislature passes all their preferred projects.

Proposition 1. *When the executive lacks a veto, the legislative majority faction passes the universal project, as well as the good and bad projects favoring themselves, and none of the other projects.*

Thus, the ex-ante outcome under NV is an equal-probability lottery over both maximal bills, and each faction's expected equilibrium stage-game payoff is

$$W_{NV} \equiv \frac{1}{2}(B + b + u) + \frac{1}{2}(B + b - 2 + u) = B + b - 1 + u. \tag{1}$$

5.2 Veto Regimes

Under unified government, legislature and executive are aligned, so the set of projects implemented is the same as under NV. Equilibrium behavior may differ from that of NV only in the case of divided government. Thus, a sufficient condition for a given veto regime to outperform NV in terms of welfare is that, when government is divided, the ex-ante outcome under the veto regime is either the neutral bill or an equal-probability lottery over both narrow bills or over both broad bills (see discussion in Section 4).

5.2.1 Absolute Veto (AV)

Without loss of generality, suppose L controls the legislature (L is the *agenda-setter*) and R controls the executive (R is the *veto-player*).

If the veto-player exercises their AV so that no projects are implemented, then each player receives a payoff of zero. Thus, in an equilibrium, the veto-player accepts any bill with a nonnegative payoff for her, and vetoes otherwise. This immediately implies that any equilibrium proposal must include the universal project.

Now, consider the *neutral bill.* Each faction's payoff from this bill is

$$B - (1 - B) + u = 2B - 1 + u. \tag{2}$$

As $B > \frac{1}{2}$ and $u > 0$, (2) is positive: The neutral bill is accepted if proposed, and so $2B - 1 + u$ is a lower bound on the agenda-setter's equilibrium payoff.

Lemma 2 in the Appendix shows that, under divided government with L in control of the legislature, L either proposes the maximal L-bill, the narrow L-bill, the broad L-bill, or the neutral bill. Each of the first three bills result in a higher payoff for the agenda-setter (and a lower payoff for the veto-player) than the neutral bill.[11] Since the maximal L-bill is the best from L's point of view, L proposes that bill whenever

[11] The only other bill that might result in a higher payoff for L than the neutral bill is one that consists of the universal project and the bad L-project; however, it's never proposed, as both L and R are better off under the narrow L-bill.

it's acceptable to R ($u \geq 2 - B - b$).

In contrast, when $u < 2 - B - b$, L proposes either the narrow L-bill, the broad L-bill, or the neutral bill. Lemma 3 in the Appendix shows that L and R prefer the broad to the narrow L-bill if and only if $B > 1 - b$. Consequently, when $u < 2 - B - b$, if $B + b > 1$, L proposes the broad L-bill when it's acceptable to R ($u \geq 2 - 2B - b$) and the neutral bill otherwise, and if $B + b < 1$, L proposes the narrow L-bill when it's acceptable to R ($u \geq 1 - B$) and the neutral bill otherwise.

Proposition 2 summarize the above discussion.

Proposition 2. *When L controls the legislature and R the executive, in any equilibrium of the stage-game under AV, we have: (a) If $u \geq 2 - B - b$, the outcome is the maximal L-bill. (b) If $u < 2 - B - b$ and $B + b < 1$, the outcome is the narrow L-bill if $u \geq 1 - B$ and the neutral bill otherwise. (c) If $u < 2 - B - b$ and $B + b > 1$, the outcome is the broad L-bill if $u \geq 2 - 2B - b$ and the neutral bill otherwise.*

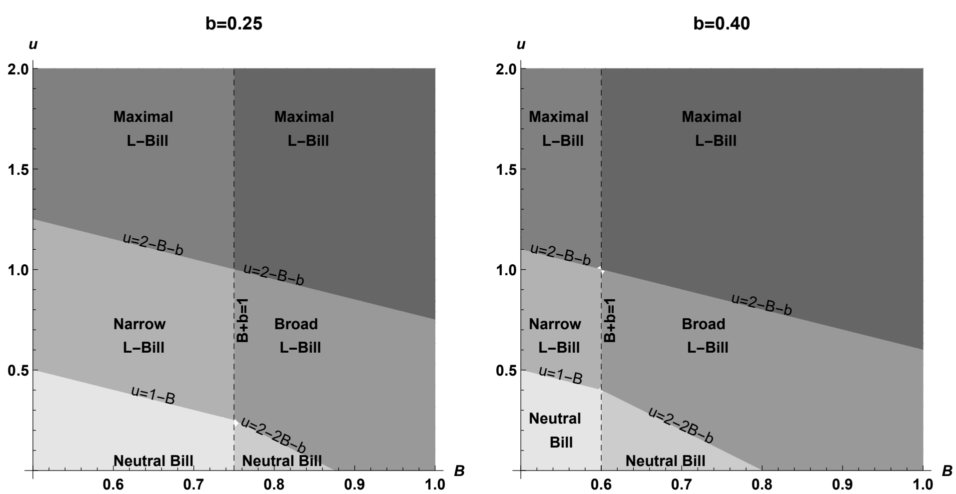

Figure 1: AV equilibrium outcomes under divided government (legislature L, executive R). In each panel, we fix b, and vary B and u.

Figure 1 graphically illustrates Proposition 2 in (B, u)-space. Notice that for a fixed value of B, increasing u (weakly) increases the extent to which the outcome favors the agenda-setter over the veto-player.

Further, notice that whenever the agenda-setter proposes either the narrow L-bill or the maximal L-bill, to get something both sides want, the universal project, the veto-player is forced to accept one more partisan projects they don't want. In such situations, it is natural for the veto-player to feel that the agenda-setter is engaging in hostage-taking, because the veto-player would never accept any stand-alone L-project.

For the remainder of this section, we analyze equilibrium behavior from an ex-ante perspective, where each party has an equal probability of being the agenda-setter, and ρ is the probability of unified government. Proposition 3 characterizes each party's expected stage-game payoff under AV. This is a piecewise linear function of u that is increasing in u in each segment, but, at the boundary points, decreases discretely.

Proposition 3. *(a) If $B + b < 1$, each faction's expected stage-game payoff under AV is*

$$W_{AV} \equiv \begin{cases} \rho(B+b-1) + (1-\rho)(2B-1) + u & \text{if } u < 1-B \\ \rho(B+b-1) + (1-\rho)\frac{2B-1}{2} + u & \text{if } 1-B \leq u < 2-B-b \\ B+b-1+u & \text{if } u \geq 2-B-b \end{cases}, \tag{3}$$

whereas, when $B + b > 1$, we have that

$$
W_{AV} \equiv \begin{cases} \rho(B+b-1)+(1-\rho)(2B-1)+u & \textit{if } u < 2-2B-b \\ \rho(B+b-1)+(1-\rho)\left(2B-1+\frac{2b-1}{2}\right)+u & \textit{if } 2-2B-b \leq u < 2-B-b \\ B+b-1+u & \textit{if } u \geq 2-B-b \end{cases} \cdot \tag{4}
$$

(b) Expected stage-game payoffs are non-monotone in the value of the universal project, u. Specifically, while the expected stage-game payoff is almost everywhere increasing in u, there are particular values of u where this payoff drops discretely as u increases.

Inspection of W_{AV} indicates that it has two points of discontinuity unless $B+b > 1$ and $2-2B-b \leq 0$, in which case it has one. Figure 2 provides a graphical illustration of Proposition 3, showing equilibrium welfare under AV as a function of u. The left-hand panel applies to the case $B + b < 1$, whereas the right-hand panel illustrates the case in which $B + b > 1$ and $2 - 2B - b \leq 0$. For both panels, welfare falls at the relevant boundary points, and so a slightly higher value of the universal project, something that would seemingly make both sides better off, can in fact have the opposite consequence.

Intuitively, as u increases, the veto-player's payoff from a package that includes the universal project also increases, and will eventually become positive. Consequently, for each lopsided bill favoring the agenda-setter, there is a critical value of u such that, once u exceeds this value, the bill becomes acceptable to the veto-player. Thus, as u passes through these critical values, the agenda-setter can offer the veto-player a more lopsided package of projects. Consequently, at these critical values, a marginal increase in u results in a discrete increase of the agenda-setter's payoff, and a discrete

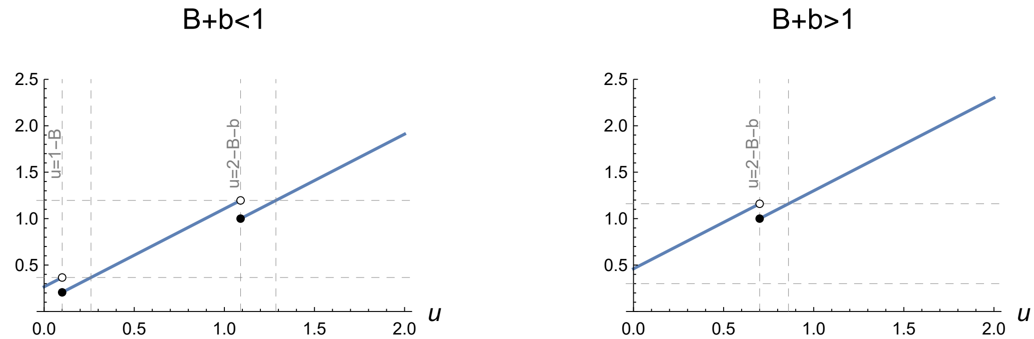

Figure 2: Expected stage-game payoffs under AV for $\rho = 0.6$. Left panel: $B = .9$ and $b = .01$ (so, $B + b < 1$). Right panel: $B = .9$ and $b = .4$ (so, $B + b > 1$).

drop of the veto-player's payoff. However, the former's gain is less than the latter's loss because all changes consist of either adding a bad project or dropping a good project. Together with the fact that each faction has an equal probability of being the agenda-setter, this implies that ex-ante stage-game payoffs decrease as u passes through these critical points.

Importantly, welfare under AV is at least as high as under NV. To see why, notice that, given divided government, the AV outcome (taking into account the uncertainty over who controls the legislature) is either an equal-probability lottery over a given class of bills (i.e., narrow, broad, or maximal), or the neutral bill. If it's an equal-probability lottery over both maximal bills, then behavior and welfare under AV equals that from NV. However, if one of the other cases pertains, then welfare under AV is higher. Put differently, so long as *the AV constrains the agenda-setter* when government is divided, AV outperforms NV.

5.2.2 Line-Item Veto (LIV)

Under LIV, for any given bill, the executive can keep those projects she likes and veto those she does not. The LIV thus completely eliminates the agenda-setter's leverage over the veto-player; however, it also undermines mutually beneficial log-rolls, such as that embodied in the neutral bill, where each side gets a good project. To elaborate, an agenda-setter L under AV may include R-projects in a bill (e.g., through the neutral bill) in order to induce veto-player R to sign-off on the entire package. However, under LIV, R would veto each included L-project and sign-off on each included R-project. Knowing this, L only proposes the universal project.

Proposition 4. *Under divided government, in any equilibrium of the LIV stage-game, the outcome is the universal project. Under unified government, the outcome is the same as without veto. Thus, each faction's expected stage-game payoff is*

$$W_{LIV} \equiv \rho(B + b - 1) + (1 - \rho)0 + u = \rho(B + b - 1) + u. \tag{5}$$

Inspection of (1) and (5) shows $W_{LIV} \gtreqless W_{NV}$ if and only if $B+b \lesseqgtr 1$: Equilibrium behavior across LIV and NV differs only when government is divided. In this case, under LIV, only the universal project is implemented, whereas NV results in an equal-probability lottery over both maximal bills. Whether $B + b \lesseqgtr 1$ determines whether the universal project is preferred to such a lottery, and thus whether LIV is preferred to NV.

We now compare welfare under LIV and AV: Given that expected stage-game payoffs under AV are bounded below by W_{NV}, $B+b > 1$ ensures that AV outperforms LIV. When $B + b < 1$, matters hinge upon the degree of leverage under AV. When this leverage is maximal ($u \geq 2 - B - b$), so there is no difference in expected payoffs under AV and NV, then AV under-performs LIV. In contrast, when such leverage is more limited ($u < 2 - B - b$), AV outperforms LIV.[12,13]

5.2.3 Alternating Line-Item Veto (ALIV)

The advantage of AV relative to LIV is that it allows for mutually beneficial log-rolls. The advantage of LIV over AV is that it prevents the agenda-setter from unduly exploiting the existence of the universal project to force a lopsided distribution of benefits. Interestingly, it is possible to devise a new veto institution that combines the different strengths of AV and LIV without suffering from their weaknesses.

Our new institution—the ALIV—employs the following protocol: In the first stage, the legislature passes a bill consisting of a subset of projects. If the executive accepts each project, the bill is implemented. If she vetoes each project, no projects are implemented. Finally, if the executive vetoes some but not all projects, then the remaining projects go back to the legislature, which then can decide whether to accept the executive's changes or to delete additional projects. This back and forth process continues until either no projects remain, or until a player refrains from eliminating any of the remaining projects when it's their turn.

As the outcome under unified government is the same as under the other institutions, we focus on the case of divided government. Our main result, Proposition 5, establishes that, under ALIV, the universal project and both good projects are implemented. The intuition is as follows:

First, consider a subgame in which only the universal project remains. No player has an incentive to remove this project, and consequently, the game ends with its

[12] To further elaborate, since equilibrium behavior across regimes is identical when government is unified, we need only focus on differences when government is divided: When $B + b < 1$ and $u < 2 - B - b$, the divided-government outcome under AV is either the neutral bill or an equal-probability lottery over narrow bills. Both outcomes are preferred to the universal project, the divided-government outcome under LIV.

[13] See Lee (2021) for a related discussion of how the LIV undermines agenda-setter leverage, and how this reduced leverage can have ambiguous welfare consequences vis-a-vis the AV.

implementation.

Second, consider a subgame in which the remaining projects consist of the universal project and partisan project(s) that harm the current player. These partisan projects would therefore be removed by the current player, and we would end up with only the universal project being implemented.

Third, consider a subgame in which the remaining projects are those of the neutral bill. Clearly, the only project that is tempting to remove for (say) R is the good L-project. However, removing this project would lead to the subgame covered in the previous paragraph, and would thus result in implementation of just the universal project. Since the neutral bill is preferred to the universal project, it's better for R to not remove any project. Thus, if we ever enter a subgame where the remaining projects are those of the neutral bill, those will be implemented.

Fourth, consider a subgame that starts with the broad L-bill. If it's L's turn, the optimal move is clearly to end the game, and if it's R's turn, then removing the bad L-project results in the implementation of the projects of the neutral bill and is optimal for R.

To complete our argument, suppose L controls the legislature. If L proposes the neutral bill, we enter a subgame that ends with its implementation. Moreover, any attempt to pass a law that is better for L than the neutral bill will either be pared down to the neutral bill (i.e., starting from the broad L-bill) or will lead to a worse outcome for L (i.e., the narrow L-bill and the maximal L-bill lead to an outcome that implements only the universal project). Proposition 5 summarizes our discussion.

Proposition 5. *Under divided government, in any equilibrium of the ALIV stage-game, the set of projects implemented is equal to those included in the neutral bill, and if government is unified, the outcome is the same as under NV. Thus, each faction's* *expected stage-game payoff is*

$$W_{ALV} \equiv \rho(B + b - 1) + (1 - \rho)(2B - 1) + u. \tag{6}$$

First, note that, in the divided-government equilibrium under ALIV, the legislature may propose the neutral bill straight away, or may propose its broad bill, and accept that the executive pares it down to the neutral bill. However, if we modified our model such that there was a small cost associated with delay, then the neutral bill would be the unique equilibrium proposal.[14]

Second, since the divided-government outcome under ALIV results in the implementation of the universal project and both good projects, none of the other institutions delivers a higher welfare. Only if the divided-government outcome under AV is the neutral bill (i.e., if $u < \min\{2 - 2B - b, 1 - B\}$), then can AV match it.

5.2.4 ALIV Implementation

No Partial Enactment. While we are unaware of any explicit usage of the ALIV as a veto institution, it is somewhat similar in outcome and spirit to the No Partial Enactment (NPE) veto protocol discussed in Tsebelis and Aleman (2005, pp. 418), of which they classify Columbia, Panama, and Paraguay as employing. NPE specifies that, if the executive exercises their line-item veto, the non-vetoed portion is implemented only if the legislature approves of that portion in a separate vote.[15]

[14] Such "no-delay" results are common in the bargaining literature (Banks and Duggan 2000). Further, that our desired outcome under ALIV can be achieved in just two steps (proposal and immediate acceptance) is reminiscent of dynamics under "Moore-Repullo mechanisms" employed in the subgame-perfect implementation literature. Despite such mechanisms having multiple stages, in a "truth-telling" equilibrium, play terminates after two stages (Aghion et al. 2018). Importantly, in both settings, the "unused" stages play an important role in incentivizing desired behavior.

[15] For example, if the neutral bill is proposed and the executive deletes the good L-project, the legislature can take no action (and no projects are implemented) or they can sign-off on the remaining

Like LIV and ALIV, NPE prevents the legislature from leveraging the universal project to achieve a lopsided distribution of partisan projects (as the executive can eliminate unwanted projects). However, unlike LIV, NPE can facilitate efficient logrolls, albeit in a slightly different way than ALIV.

To see this, observe that the executive under NPE is in a position of an ultimatum proposer, but one who can only choose among the projects initially passed by the legislature.

For instance, suppose that the L-legislature initially passes the neutral bill. If $u < 1 - B$, then, if the R-executive were to delete the good L-project, L's optimal action would be to not sign off on the remaining package, resulting in payoffs of zero to both parties. Knowing this, the executive refrains from vetoing any projects in the neutral bill.

In contrast, if $u > 1 - B$, an R-executive confronted with the neutral bill can veto the good L-project, and because the universal project is too valuable, the legislature would have to sanction this hold-up in the final round. Thus, in this case, it's not an equilibrium for the legislature to propose the neutral bill (as L would be better off just proposing the universal project).

While proposing multiple bills may enable to the legislature to circumvent the above hold-up in the event that $u > 1 - B$ (i.e., propose the universal project as a first stand-alone bill, and propose both good projects as a second stand-alone bill), such an approach may be less efficacious in settings with a large number of projects.[16]

Sequential Voting by Veto. Another protocol that has similarities to ALIV is *sequential voting by veto* (SVV) (e.g., Felsenthal and Machover 1992). Under SVV,

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bundle of projects in their entirety (in which case the good R-project and the universal project are implemented).

[16]See Section C of the Appendix for a formal analysis of NPE in the context of our baseline model.

given a fixed set of alternatives, two or more players take turns vetoing alternatives until some fixed number $k > 0$ remains.[17]

As applied our setting, one in which two parties must decide which projects to implement, a key difference between SVV and ALIV is the following: Under ALIV, the number of projects to be selected is endogenous. It is this feature of ALIV that limits hostage-taking and facilitates log-rolling. Further, this endogeneity may make ALIV more suitable than SVV in political settings as the former protocol affords greater flexibility to adapt to changing circumstances.

Challenges of ALIV Implementation. Given the advantages of ALIV outlined above, it's somewhat curious that we do not observe usage of this institution more often, the NPE regime described above notwithstanding. One possibility is, of course, that ALIV's advantages over other veto institutions have not yet been recognized.

A philosophical difficulty in introducing ALIV is that it structurally conflicts with the philosophical justification often given for veto institutions. When the Roman Republic endowed the plebeian tribune with an absolute veto, the tribune, who was directly elected by the people of Rome, was meant to balance the power of the unelected patrician Senate (Spitzer 1988, pp. 1–2). Even proponents of the LIV today emphasize that "special interests" may dominate legislative bodies, making it necessary to endow the representative of the people (the directly-elected governor or president) with the power to defeat these special interests.

In contrast, our model of ALIV treats the legislature and executive as co-equal power-centers, neither of which has a more fundamental claim to "representing the whole people," and they engage in horse-trading with each other. While we think

[17]SVV is part of a larger literature exploring protocols by which two individuals can choose a single alternative from an exogenously given set of alternatives. Much of this literature takes a mechanism design approach (e.g., Laslier, Nunez and Sanver 2021, De Clippel, Eliaz and Kight 2014). See Barbera and Coelho (2022), pages 105–107, for a review of prominent protocols.

that this is a realistic view of today's political system, it may not have been the view of constitutional designers in earlier times.

5.3 Ranking the Institutions' Overall Efficiency

This section summarizes the welfare ranking of institutions, and establishes that each institution's equilibrium is Pareto inefficient.

Proposition 6. *Consider the welfare level under each institution's stage-game equilibrium:* W_{NV}*,* W_{AV}*,* W_{LIV}*, and* W_{ALIV}*.*

(a) ALIV is welfare optimal among the four institutions. Specifically, if $u \geq \min\{2-2B-b, 1-B\}$*, ALIV is strictly optimal; otherwise,* $W_{ALIV} = W_{AV} > \max\{W_{LIV}, W_{NV}\}$*.*

(b) LIV results in a higher welfare level than AV if $u \geq 2 - B - b$ *and* $B + b < 1$*. If* $u < 2 - B - b$ *or* $B + b > 1$*, then* $W_{LIV} < W_{AV}$*.*

(c) AV results in the same welfare level as NV when $u \geq 2 - B - b$*, and a higher welfare level when* $u < 2 - B - b$*.*

(d) LIV results in a higher welfare level than NV if $B + b < 1$*. If* $B + b > 1$*, then* $W_{NV} > W_{LIV}$*.*

Figure 3 illustrates Proposition 6 in (B, u)-space. First, notice that increasing u (weakly) decreases the attractiveness of AV relative to the other institutions. Intuitively, higher u increases the agenda-setter's leverage under AV, but has no effect on outcomes under the other institutions. Second, notice that welfare is minimized by either LIV or NV. More formally, we have the following corollary of Proposition 6:

Corollary 1. *(a) When* $B + b > 1$*, welfare under LIV is lower than under the other institutions. (b) When* $B + b < 1$*, welfare under NV is lower than under the other*

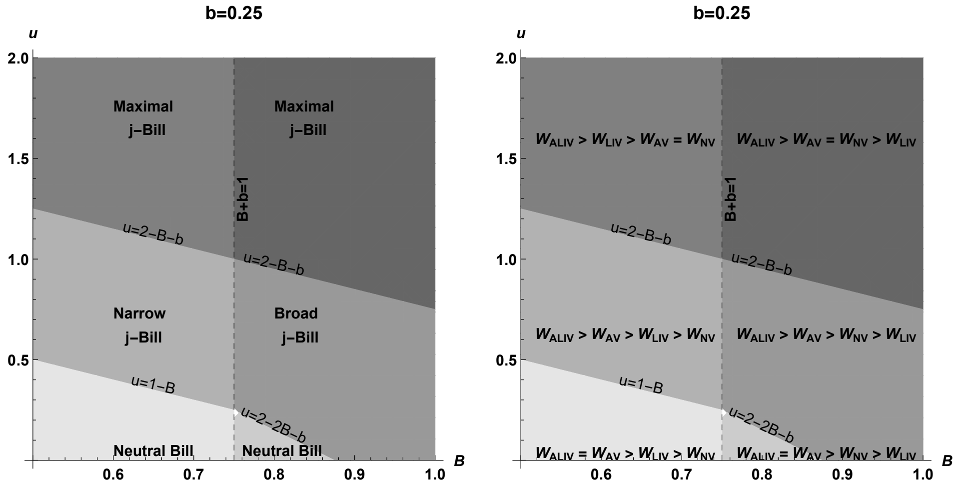

Figure 3: Left: Divided-government outcomes under AV, with faction j controlling the legislature. Right: Ranking veto regimes by their welfare level.

institutions if $u < 2-B-b$*, while* $W_{NV} = W_{AV} < \min\{W_{LIV}, W_{ALIV}\}$ *if* $u \geq 2-B-b$.

Even though some veto institutions mitigate the exploitation of agenda power under divided government, no regime has such a mitigating effect under unified government. Consequently, all equilibria result in inefficiencies.

Proposition 7. *The stage-game equilibrium under any institution considered is Pareto dominated by any strategy profile that implements the neutral bill.*

6 Effects of Institutions on Tacit Cooperation

For each institution, inefficiencies result due to opportunistic behavior under unified government, and may also arise when government is divided. From an ex-ante point of view, both parties would be better off if they could ensure the implementation of the neutral bill, regardless of who holds power. We now turn to how this can be achieved in a dynamic framework.

The *neutral outcome path*, i.e., the implementation of the neutral bill in every period, yields a discounted payoff to each party of

$$(2B-1+u)+\delta(2B-1+u)+\delta^2(2B-1+u)+\ldots=\frac{2B-1+u}{1-\delta}.$$

To support this path, the parties can use "trigger strategies," such that they are to cooperate in implementing the neutral bill, and deviations are punished via Nash reversion.[18]

A necessary and sufficient condition for this trigger strategy profile to be subgame-perfect is that no party have an incentive to make a "one-shot deviation" during a period of unified government (see Appendix). Since such a deviation triggers play of the stage-game equilibrium in all future periods, the optimal one-shot deviation for party j when they control both branches is to implement the maximal j-bill. For institution $I \in \{AV, ALIV, LIV, NV\}$, the payoff from such a deviation is

$$B+b+u+\delta W_I+\delta^2 W_I+\ldots=B+b+u+\frac{\delta}{1-\delta}W_I.$$

Consequently, trigger strategies can support the neutral outcome path in institution I if and only if

$$\delta \geq \delta_I^* \equiv \frac{1+b-B}{B+b+u-W_I}.$$

We call δ_I^*, the lowest value of δ for which the specified trigger-strategy profile is subgame-perfect, the *critical discount factor for institution I*. Thus, a low (high) critical discount factor is said to facilitate (inhibit) tacit inter-party cooperation.[19]

[18]Specifically, the legislative faction in any given period is to propose the neutral bill, provided it has been proposed and implemented in all prior periods, whereas play is to revert to the stage-game equilibrium if any other bill is ever proposed, or part or all of the neutral bill is ever vetoed.

[19]For an analogous interpretation of the critical discount factor, see Bruttel (2009).

As the neutral outcome path is supported via reversion to the stage-game equilibrium, the lower an institution's expected stage-game payoff W_I, the harsher the punishment for opportunistic behavior. Consequently, institutions with lower expected stage-game payoffs have a lower critical discount factor.

In light of Corollary 1, when $B + b > 1$, the institution with the lowest expected stage-game payoff, and thus the lowest critical discount factor, is LIV. If, instead, $B + b < 1$, no institution has a lower expected stage-game payoff, and thus a lower critical discount factor, than NV.

Finally, for any parameter profile, no institution has an expected stage-game payoff, and thus a critical discount factor, greater than that of ALIV.

Proposition 8. *The critical discount factor for institution $I \in \{AV, ALIV, LIV, NV\}$, denoted δ_I^*, is $\delta_I^* \equiv \dfrac{1+b-B}{B+b+u-W_I}$.*

(a) The critical discount factor for ALIV is greater than that of the other institutions if $u \geq \min\{1-B, 2-2B-b\}$, while $\delta_{ALIV}^* = \delta_{AV}^* > \max\{\delta_{LIV}^*, \delta_{NV}^*\}$ if $u < \min\{1-B, 2-2B-b\}$.

(b) When $B + b > 1$, δ_{LIV}^* is lower than δ_I^* for any other institution considered.

(c) When $B + b < 1$, δ_{NV}^* is lower than δ_I^* for any other institution considered if $u < 2 - B - b$, while $\delta_{NV}^* = \delta_{AV}^* < \min\{\delta_{LIV}^*, \delta_{ALIV}^*\}$ if $u \geq 2 - B - b$.

It is interesting to compare Proposition 8 to earlier work on tacit cooperation and checks-and-balances. In a setting where today's policy is tomorrow's status quo, De Figueiredo (2002) and Dixit, Grossman and Gul (2000) find that check-and-balance institutions can undermine tacit cooperation because they diminish the penalty from entering punishment subgames.

So long as outcomes under our veto regimes diverge from that of NV when government is divided,[20] this insight also holds in our setting with an exogenous status quo, provided that $B + b < 1$: Under such circumstances, veto regimes mute the penalty from entering a punishment subgame, and so have higher critical discount factors, thus undermining tacit cooperation. However, when $B + b > 1$, a LIV regime exacerbates the penalty from entering a punishment subgame vis-a-vis a no-veto regime, and so has a lower critical discount factor. Thus, when $B+b > 1$, properly designed check-and-balance institutions can facilitate tacit cooperation relative to environments with no such checks.

Summing up, the optimal form of checks-and-balances depends upon whether one is trying to limit the damage from legislative opportunism or to support norms whereby such opportunism does not arise. For the former objective, ALIV is optimal (Proposition 6), while for the latter, either NV or LIV is optimal (Proposition 8).

6.1 Comparative Statics

Our next proposition characterizes the effect of an increased value of the universal project on each institution's critical discount factor.

Proposition 9. *(a) The critical discount factors δ^*_{NV}, δ^*_{LIV} and δ^*_{ALIV} are independent of the value of the universal project, u. (b) δ^*_{AV} is almost everywhere constant in u, but, for particular values of u, drops discretely as u increases.*[21]

As the universal project is a part of every period's implementation package under the specified trigger strategy—both on the equilibrium path and in any punishment subgame—an increase in u does not *directly* affect the relative attractiveness of a

[20] As is always the case under ALIV and LIV, and is also the case under AV if $u < 2 - B - b$.

[21] When $B + b < 1$, drops occur at $u = 1 - B$ and $u = 2 - B - b$. When $B + b > 1$, a drop occurs at $u = 2 - B - b$, and if $2 - 2B - b > 0$, a drop also occurs at $u = 2 - 2B - b$.

given institution for facilitating tacit cooperation. Instead, u can affect the critical discount factor by influencing which partisan projects are implemented in punishment subgames. As variation in u has no effect on which partisan projects are implemented in punishment subgames of NV, LIV, and ALIV, their critical discount factors are independent of u. In contrast, under the stage-game equilibrium of AV, increases in u can trigger the implementation of more lopsided packages of partisan projects, raising the relative cost of Nash reversion, thereby lowering δ^*_{AV}.

Part (b) of Proposition 9 has implications for reforms to curb agenda-setter leverage under AV, for example limiting the ability of the agenda-setter to bundle projects (for instance, via "single-subject rules") or entrenching the universal project (so the matter is "off the table" going forward).[22] Such reforms could wind up undermining tacit cooperation among parties, as they can reduce the costs of Nash reversion by limiting the legislature's ability to induce the executive to accept a lopsided distribution of partisan projects.

Finally, not only can increases in u lower δ^*_{AV} and thus facilitate tacit cooperation, but they always raise payoffs from the neutral outcome path. Thus, under AV, the welfare consequences of increased u depend on whether tacit cooperation prevails (then, increased u is beneficial) or parties act opportunistically. In the latter case, increased u can decrease welfare (Proposition 3(b)). For the other institutions, increased u is beneficial regardless of whether cooperation prevails.

7 Comparison of AV and LIV on Spending

Throughout the 1980s and 1990s, many argued that the LIV could help curtail government spending. Yet, in summarizing the empirical literature examining such claims,

[22] Reforms of this nature have been offered in the context of the debt ceiling (e.g., Matthews 2021).

Douglas (2018, p. 5) writes that the LIV "appears to be a rather weak tool for controlling government spending."

Our model can explain such null effects. To do so, we assume that each project implemented has an associated budgetary cost, and compare expected spending under LIV and AV.

In the stage-game equilibrium under unified government, the veto regime has no effect on the set of projects approved. However, under divided government, only the universal project results under LIV, whereas the universal project and one or more partisan projects result under AV. Thus, LIV reduces expected spending.

If, instead, players enforce tacit cooperation such that the neutral bill is implemented in every period, spending is constant across regime types. A sufficient condition for both regimes to be able to sustain such a policy path as part of a SPE is that $\delta \geq \max\{\delta^*_{AV}, \delta^*_{LIV}\}$. More interestingly, if $\delta^*_{LIV} < \delta^*_{AV}$ and $\delta \in (\delta^*_{LIV}, \delta^*_{AV})$, expected spending under LIV can be higher than under AV.[23,24] Thus, while LIV always weakly reduces government spending in the stage-game equilibrium, once we allow for tacit cooperation, the effects of LIV on spending are ambiguous.

8 Discussion

Empirical Implications of Stage-Game Analysis. A key empirical implication that arises from the stage-game analysis is that, given divided government, ALIV leads to an even distribution of partisan projects, while AV can lead to lopsided distributions of partisan projects; further, LIV results in no partisan projects. Future

[23] A specific example for this is provided in the Appendix.

[24] Carter and Schap (1987, pp. 240–241) also provide an example in which the LIV can increase spending; however, their example does not invoke repeat play.

work might explore these predications in a laboratory setting.[25]

The Definition of an "Item." What is an "item" in a bill? That is, what can be vetoed under a line-item veto? This question has been litigated in several U.S. states (Holliday 1999). On one extreme, the governor might be able to delete words or sentences in a bill. At the other extreme, the governor might be restricted to deciding which "sections" of a bill to keep and which to delete, where the decision to divide a bill into sections, and what goes into each section, is entirely up to the legislature.

Clearly, in the latter scenario, LIV and ALIV approximate AV, as the legislature can evade the executive's line-item veto by including all provision of a bill in one single section. In the former scenario, interesting new effects can arise when a line-item veto cannot just remove a whole project, but can also reduce its size.

We provide two illustrative examples of these effects in Section D of the Appendix. First, we analyze an example in which the legislature's good partisan project can be cut in size (to one specific value, without eliminating it completely). We show that, in the equilibrium under ALIV and divided government, the neutral bill *plus* the bad project favored by the executive is implemented. The latter is included to provide a credible threat for the legislature in case that the executive cuts the size of the legislature's favorite partisan project. Second, we analyze an example in which both good partisan projects can be "finely sliced".[26] In this example, outcomes under ALIV and NPE can be very different.

[25] In experimental play of the dictator game (which bears some similarities to AV), non-pecuniary motivations may be operative: agenda-setters tend to offer non-trivial allocations to veto-players and veto-players sometimes reject offers that benefit them monetarily (Andersen et al. 2011). To the extent such findings carry over to experimental play of AV, we might expect a smaller range of u (relative to our theoretical model) under which lopsided outcomes arise.

[26] See Camara and Eguia (2017) for a related model of slicing and bundling.

Elections, Preferences, and Social Welfare. Underlying our exogenous stochastic process is an unmodeled population of voters. Can one envision settings in which cooperation (i.e., the neutral bill) is socially desirable (for these voters), not only when government is divided, but also when it is unified?

Our analysis of the desirability of cooperation is most applicable to societies in which shifts in political power are not indicative of significant preference shifts in the population. Specifically, we envision a society composed of two internally-homogeneous blocks that remain approximately equally-sized over time, where one block benefits from L-projects and the other from R-projects. We imagine elections in this world (and thus the composition of both legislature and executive) being decided by a small group of "noise voters" who cast their ballot for reasons independent of their preferences over partisan projects.

In such a setting, not only would implementation of the neutral bill be desirable from an ex-ante perspective for members of these blocks (as Proposition 7 would apply), but it can also be justified from an ex-post perspective (once electoral uncertainty is resolved so it's known which party controls which branch). With respect to the latter, given two blocks of approximately equal size over time, it would be reasonable to treat the utility of the two blocks as having equal weight, even in periods of unified government. Thus, social welfare in each period (as measured by the sum of the two blocks' utilities) would be promoted by implementing the neutral bill.

Now, suppose instead that elections resulting in unified government are indicative of a large majority of people preferring a given party's projects. While cooperation may still be desirable during periods of divided government, such cooperation may be counterproductive from a social welfare perspective during periods of unified government, because even the majority's "bad" projects would benefit an overwhelming number of voters.[27]

Exogenity of Power Dynamics. In our model, the stochastic process that determines which parties are in power in the legislature and executive is exogenous and independent of the veto system. There is no linkage between the set of projects implemented in one period and who holds power in the next period. Also, parties cannot commit to the projects they will implement in order to affect the probability of being elected; rather, the electoral process is a very simple stationary random process.

The assumptions that freeze the underlying electoral process are not necessarily realistic,[28] but are required to keep the analysis of the effects of veto institutions on tacit cooperation tractable.[29] However, even if a reader is unwilling to make these assumptions, it's clear that, in the one-shot version of our game, the policies that result under different veto rules are completely independent of the assumed power dynamics.

9 Conclusion

We have considered a two-party model with two classes of projects—universal projects that benefit everyone and partisan projects that benefit one side at the expense of the other. Under AV, during times of divided government, the party controlling the legis-

[27]In such a setting, the stage-game equilibrium under ALIV may be especially attractive, as it results in the majority's preferred policies when government is unified and the neutral bill when government (and presumably, society) is divided.

[28]For example, consider an election in which a slight majority of the electorate prefers the left party positions (i.e., the projects favored by party L), but the R-candidate for governor has a higher valence than the L-candidate for that office. If the veto rule affects which projects the majority party in the legislature can implement against the wishes of an executive belonging to the other party, then this could conceivably affect whom voters elect as governor.

[29]This, of course, is a common approach in many comparative institutional analyses. Dixit, Grossman and Gul (2000), for example, analyze the effects of majority vs super-majority rules on political compromise. In their setting, a party's legislative seat share is governed by an exogenous Markov process that is independent of both the compromises struck and the legislative rule in place.

lature can leverage the universal project to achieve a lopsided distribution of benefits. In expectation, such hostage-taking makes both parties worse off. LIV eliminates this hostage-taking, but this is a two-edged sword because LIV also undermines beneficial log-rolls.

We construct a new veto institution, ALIV, that combines the positive aspects of AV (enabling beneficial log-rolls) with those of LIV (preventing exploitation of the universal project to implement a lopsided distribution of benefits). Under ALIV, for any passed legislative proposal, the executive and the legislature take turns eliminating projects until either no projects remain or one of the actors refrains from striking projects when it's their turn.

A problem that cannot be solved by veto institutions is that a party in control of unified government can implement very lopsided packages of projects. While this lopsided exploitation is the equilibrium outcome in a one-shot game, it's inefficient from an ex-ante point of view.

Since both parties can increase their ex-ante utility through a norm of non-exploitation enforced by standard repeated-game mechanisms, we explore the degree to which different veto institutions facilitate such a norm. If parameters are such that all veto institutions allow for the enforcement of non-exploitation, then variation in veto institutions need not affect equilibrium welfare. Moreover, because non-exploitation is easier to enforce through mechanisms that do worse in a static setting (because the reversion to Nash behavior is a more severe threat), the welfare ranking of institutions can be reversed in a dynamic setting, relative to their static ranking. Similarly, we show that those institutions that curtail spending in a static setting (i.e., LIV) may facilitate more spending under repeat play.

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