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Repeated Agenda Setting and the Unanimous Approval of Bad Policies*

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Abstract

This paper addresses the puzzle of why legislation, even highly inefficient legislation, may pass with overwhelming majorities. We model a legislature in which the same agenda setter serves for two periods, showing how he can exploit a legislature (completely) in the first period by promising future benefits to legislators who support him. In equilibrium, a large majority of legislators vote for the first-period proposal because a vote in favor maintains the chance for membership in the minimum winning coalition in the future. The model thus generates situations in which legislators approve policies by large majorities, or even unanimously, that benefit few, or even none, of them. The results are robust: some institutional arrangements, such as super-majority rules or sequential voting, limit but do not eliminate the agenda setter's power to exploit the legislature, and other institutions such as secret voting do not limit his power.

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1 Introduction

Much legislation can be usefully viewed as imposing a tax on all legislators (or their constituents) and distributing the benefits among only some groups or individuals. One might therefore think that proposed legislation can gain majority support only if in a majority of districts the revenues distributed exceed the taxes collected. When this result is violated, say that very few districts benefit from the legislation (as with farm bills), we often think that some special interest has extraordinary influence.

This paper shows how an agenda setter can induce a majority of legislators to vote for a policy that directly benefits few, or even none, of them. The agenda setter can induce support for his proposal by threatening legislators voting against him in period 1 that he will not include them in a winning coalition in a following period. We do not claim that an agenda setter will always exploit the legislature; for example, he may not have the agenda setting powers we discuss, as when he cannot forbid amendments to a policy he proposes. Rather, our analysis can point to conditions which allow for exploitation, and conditions or institutional arrangements which limit it.

A classic example of a legislative leader who long controlled the agenda and used this power, among other powers, to control policy is Joseph Cannon, Speaker of the U.S. House of Representatives from 1903 to 1911, and called at the time the "Tyrant from Illinois." He was reported to have punished disloyal members by refusing to schedule their favored legislation, and declining to recognize them to offer amendments or private bills. Through his chairmanship of the House Rules Committee, he limited amendments that could be made on the floor of the House. Nevertheless, he did not punish all opponents or reward all supporters. Our model can explain how an agenda setter can wield great power even when rewards and punishments are rare or small.

Our analysis is not just of historical interest. Though currently the Speaker has less power than Cannon enjoyed, congressional committees have agenda setting powers, particularly, when the vote on the floor of the House of Representatives is made under the closed rule. Under fast-track legislation, the President proposes a treaty that Congress can either accept or reject, but not amend. In the European Union, the Commission has significant agenda setting power: in some policy domains, only the Commission can propose a policy, and the power of the Council and the Parliament to amend the proposal may be restricted (e.g. by super-majority requirements) depending on the legislative procedure used. Many parliamentary democracies allow the government to propose a policy as a confidence vote, which the legislature can adopt or reject, but not amend. In Germany, Finland, France, Italy, Portugal and Spain, the constitution authorizes the government to make policies questions of confidence. By convention, the government can make the vote on a specific policy a question of confidence in Australia, Canada, the Netherlands, New Zealand, Norway, and the United Kingdom. Other parliaments have adopted procedures permitting votes of confidence. Consider an example from Italy. In 1995 members of the lower house proposed more than 150 amendments to a budget introduced

by the Prime Minister. The Prime Minister eventually invoked a confidence vote procedure on his budget package, which the legislature passed without the amendments.[1]

The agenda setter could more generally be the bureaucracy, as in the seminal work by Romer and Rosenthal (1978). But their model underestimates the agenda setter's power, because it assumes voters must be indifferent between the proposal and the status quo, without looking at the bureaucracy's ability to punish opponents. Niskanen (1971) similarly assumes that the executive branch's power is limited to making take-it-or-leave-it offers.

In our model the agenda setter can credibly punish legislators because carrying out the threat is costless. Such threats have been observed. When Senator James Buckley tried to delete forty-four public works projects at the committee stage in the Senate, the members voted down all his amendments, but cut out projects in his home state (as reported by Epple and Riordan 1987). Senator William Proximre was similarly punished for supporting proposals to cut appropriations for the Department of the Interior—a House-Senate Conference Committee deleted the Senator's favored project from the Interior appropriations bill (see Ferejohn 1974, p. 114).

Among the predictions of our model are that a district gets more benefits the more closely allied are its representatives with the central government, and that policies benefiting few districts can be approved by majorities which are larger than necessary. These empirical predictions are consistent with empirical findings. Concerning the first point, evidence from the United States (see Larcinese, Rizzo and Testa 2006), Spain (see Solé-Ollé and Sorribas-Navarro 2008), Israel (see Rozevitch and Swiss 1993) and Japan (see Tamura 2010) find that local governments under the control of the same party as the central government receive higher transfers from the central government. Concerning the second point, King and Zeckhauser (2003) report that in the 1997-98 session of the U. S. House of Representatives, 324 non-procedural roll-call votes, which constitute 42% of the total, passed with more than 300 votes in a chamber with 435 members. The results are not atypical. Data on the U.S. House of Representatives over the years 1873-1998 show that overwhelming majorities (with ninety percent of those voting on the same side) appear on over forty percent of the roll-call votes in several sessions, and occur on over 25 percent of the roll-call votes in about half of the congressional sessions (Gaines and Sala 2000).

2 Literature

2.1 Agenda setting

We build on earlier papers which study agenda setting in legislatures. A seminal paper is Romer and Rosenthal (1978). Other influential models are in Baron and Ferejohn (1989), Baron (1989), and Harrington (1990). They assume that any legislator can make a proposal, with proposals considered in a random

[1] This discussion of confidence votes is based on Huber 1996.

order. In proposing and voting on policies, a legislator must thus compare the benefits from the proposal to the status quo, and to a future proposal. They also assume that the game ends once some legislation is adopted. They therefore do not consider a repeated game.

An additional paper which examines the power of the agenda setter is by Binmore, Osborne, and Rubinstein (1992, Section 2.8) who state the following: Three players rotate in making proposals $a = (a_1, a_2, a_3)$ on how to split a cake. Let the discount factor be $1/2 < \delta < 1$. Then, for every proposal a, there exists a sub-game perfect equilibrium in which a proposal is accepted immediately. If bargaining is made sequentially among three or more players, then, in general, any allocation can be an equilibrium. But if players look only at the current state, ignoring history, then the Rubinstein bargaining results generalize—the earlier a player gets to propose an allocation, the higher his share of the pie.

How legislators can obtain local benefits is discussed by Bernheim, Rangel, and Rayo (2006), who consider the default policy changing from period to period, and the agenda setter in each period offering a policy that depends on the policy that was most recently adopted. The authors show that a majority may support a pork-barrel policy that hurts almost every legislator. Relatedly, Kalandrakis (2004) models a legislature in which a player is selected at random to make a proposal in each round. The proposal is pitted against the status quo, with the winning alternative becoming the status quo in the next round of bargaining. The equilibrium has the proposer eventually extract the whole dollar in all periods. These results resembles ours in the sense that (almost) all legislators would be better off if there were no vote.

Diermeier and Fong (2011) have a dynamic model with a repeated agenda setter and an endogenously evolving default policy. They show that, compared to a once-and-for-all policy choice, reconsideration of a policy choice (for example, an entitlement) can give voters an incentive to protect each other and limit the power of the agenda setter to exploit the legislature. In our model entitlements also limit the agenda setter's power (see Subsection 7.4). The point of comparison, however, is different because our model is best interpreted as annual appropriations, rather than as a once and for all policy choice.

Other authors recognize that a punishment strategy can give the agenda setter much power. Cotton (2010), and Fan, Ali, and Bernheim (2010) show that an agenda setter who can exclude from the majority coalition legislators who had voted against him can capture a large share of the budget. We have even stronger results: the agenda setter can have much power even under a finite horizon. And not only can the agenda setter get a large share of the budget, but he can win strong support for a policy which hurts all other legislators.

2.2 Size of winning coalitions

The literature looks at two extreme forms of winning coalitions. One approach, introduced by Riker (1962), predicts the existence of minimum winning coalitions—why should the agenda setter, or for that matter any member of the majority, offer anything to the minority. The agenda-setting models described

above also predict minimum winning coalitions.

The other extreme examines conditions under which policies will be passed by very large majorities, with benefits going to almost all legislators. Weingast (1979), Shepsle and Weingast (198l), and Grofman (1984) show that legislators operating under a "veil of ignorance" (they do not know which coalitions will form in the future) will adopt a norm of universalism that calls for all legislators to benefit from pork barrel projects. Costs of drafting policy can affect the policies a legislator proposes, by inducing him to propose policies which are supported by a large majority of legislators (Glazer and McMillan 1992), or by proposing policies which other legislators would later not want to amend (Glazer and McMillan 1990). Large majorities may appear from logrolling or vote trading (as first argued by Tullock 1959). In logrolling a legislator votes for a policy that benefits other legislators, in the expectation of reciprocity. Typically the legislators involved in such a vote trade are willing to incur a low cost on one provision of a proposal in exchange for a large benefit on a different provision. In contrast, in our mechanism legislators incur a large current cost to obtain only a small future benefit. In a recent paper Tsai and Yang (2010) introduce incomplete information in the Baron and Ferejohn model and show that oversized coalitions may appear.

Dal Bó (2007) has the key insight that if a majority of legislators can be induced to vote for a policy, then no legislator is decisive, and therefore each is indifferent between voting for and against the policy. A special interest group can induce legislators to support it by committing to pay a legislator if and only if he casts a *decisive* vote for the policy the special interest favors. This approach requires the special interest group to make only a very small payment in equilibrium, and generates unanimous approval. Dal Bó's influence mechanism differs from ours; we discuss the relationship to our model in detail in Section 5.

2.3 Punishing opponents and rewarding supporters

The idea that a political leader can exercise power by rewarding supporters and punishing opponents is of course not a novel one. In the Introduction we mentioned how Joseph Cannon, as Speaker of the House of Representatives, used such tools. Bueno de Mesquita et al. (2002) argue that an incumbent, even one who pursues policies that most oppose, can stay in power if members of the incumbent's winning coalition are more likely to become members of the winning coalition in the future than do members of the challenger's coalition. The PRI party in Mexico maintained power by threatening districts which did not support it that they will be denied private benefits from the central government which the PRI controlled (see Diaz-Cayeros, Magaloni, and Weingast 2003).[2] In discussing governance, Dixit (2009) argues that private order can be sustained by the threat of expulsion.

[2]Padró i Miquel (2007), though not citing the work of these political scientists, presents a related model, in which a group's fear of later falling under an inefficient and venal ruler that favors another group suffices to discipline supporters.

More closely related to our approach is Epple and Riordan (1987), who consider the power of an agenda setter to punish opponents. Their model has repeated interactions, with different individuals having the right to propose policies in different periods. They show that a wide range of allocations can be sustained as equilibria by the threat of political banishment. Like them, we suppose that the punishment for defection is banishment, which in equilibrium is not invoked. Their result on plutocracy resembles our result about the agenda setter exploiting others. But whereas they consider punishment by multiple legislators, we consider punishment by the agenda setter. They have an infinite horizon whereas we have a finite horizon. And whereas they consider complicated strategies, ours is simple. Moreover, we extend the analysis to consider sequential voting, counter threats, and the agenda setter's decision of whether to privilege the status quo, among others.

3 Assumptions

We consider a two-period model and later generalize this and other assumptions. One person, say the President, or the Speaker of the House, or the majority of a legislative committee, is the agenda setter in both periods.[3]

He, and only he, can propose a policy, which is adopted if and only if a majority of the legislators vote for it. Votes are public and simultaneous. The cost of any policy is divided equally among all legislators or districts.

The agenda setter maximizes his benefits, subject to the constraint that his proposal is approved only if a majority of legislators vote for it. Each legislator cares only about the net benefits he gets, and votes for a proposal if the present discounted utility of voting for the proposal exceeds the present discounted value of voting against.

We look at sub-game perfect, or time consistent, solutions. In a two-period model there can therefore be no collusion.

The time line is as follows

1. The agenda setter proposes a policy
2. The agenda-setter's proposal is adopted if a majority of legislators vote for it
3. Payoffs are realized
4. The agenda setter again proposes a policy

[3]Consistent with our assumptions, Primo (2002) notes that most political bargaining in the U.S. Congress has only one actor make a formal proposal. Also, consistent with our assumption that the agenda setter remains in power, Cotton (2010) reports that agenda setting authority in the US Congress rarely changes hands. Since the first US Congress in 1789, for example, there have been only 59 changes in the Speaker of the House, of which no more than 24 can be attributed to the speaker losing support amongst his party. Diermeier and Fong (2011) give further examples for institutions, among them central banks, in which an agenda setter persistently controls proposals.

5. The agenda-setter's proposal is adopted if a majority of legislators vote for it

6. Payoffs are realized

4 Illustration

We illustrate our essential idea with a a numerical example. Suppose that in each of two periods the agenda setter faces a budget constraint of $1,000,000, with taxes divided equally among the 100 districts. We shall consider a proposal in period 1 which gives $1,000,000 to the agenda setter, and nothing to each of the 100 legislators. Because the net benefit to a legislator of having the policy adopted is $-1,000,000/100 = -$10,000, each prefers that the policy not be adopted. The agenda setter can, however, obtain large support for a similar proposal by providing some legislators a benefit of $1 in the future.

In period 2, the legislator proposes to tax each of 100 legislators by $10,000, to give $10,001 to each of 51 legislators, and to give $1,000,000 - (51)(10,001) = $489,949 to himself. Each of the 51 legislators in the majority thus gains $1 in period 2; each of the 49 members in the minority loses $10,000. Since a majority gain, they vote for the policy in period 2.

Now consider again period 1. The agenda setter proposes a benefit to himself of $1,000,000, and says that any legislator who votes against his proposal will never be eligible for the $1 benefit in the future. Suppose that 99 legislators vote for the proposal in period 1. The last legislator could vote for or against. In either case, his vote makes no difference. If he votes against, then in period 2 he will be excluded from the majority coalition, and will lose $10,000. If he votes for the proposal in period 1, then in period 2 he is as likely as any other legislator to become a member of the majority coalition, so that his expected benefit in period 2 is $-10,000 + (51/100)($10001)= $-4899.49. That is, a legislator's loss when he votes for the proposal in period 1 is less than than when he votes against the proposal. Thus, it is an equilibrium for a legislator to vote for the agenda setter's proposal in period 1.

5 Benchmark result

For an analytical solution, suppose that in each of two periods the agenda setter proposes how to divide a dollar among the three legislators and himself. His proposal is adopted if a majority of legislators vote for it. The dollar is financed with taxes which are divided equally among the three districts.[4] Denote the intertemporal discount factor by $\delta > 0$.

[4]The qualitative results of this section would not change if the agenda setter were also required to pay taxes, or to vote and the legislature consisted of at least four members. Were the agenda setter a member of the legislature with the right to vote, he would find it even easier to win approval for his proposal—he would need the support of fewer legislators (when the legislature consists of five voters two other legislators are needed as opposed to three when the agenda setter has no voting right). The case of three legislators with one of them

Our solution concept for this game between the agenda setter and the legislators is sub-game perfect equilibrium.

Let the agenda setter use the following strategy. In period 1 he proposes to give $s \leq 1/3$ to each legislator, and to give the remainder of the budget to himself. Optimization by the agenda setter requires minimizing the side payments s; we will investigate how s depends on the modeling assumptions.[5] In period 1 the agenda setter threatens that any legislator who votes against the bill will be politically banished, in the sense that he will have a lower chance of becoming a member of a future minimum winning coalition than does a legislator who voted for the proposal. In period 2, the agenda setter proposes to split the dollar equally with the members of a minimum winning coalition. Any legislator who supported him in period 1 has an equal chance to participate in the minimum winning coalition in period 2. If a minimum winning coalition requires more members than the number of legislators who supported the proposal in period 1, then the remaining members are chosen with equal probability among the legislators who opposed the agenda setter in period 1. Having in mind the saying "all things come to he who waits," we will call this strategy all-things-come.

Consider period 2. No member of the minimum winning coalition gains by rejecting the proposal, and the proposal will be accepted.[6]

Turn now to period 1. Given that all legislators face the same situation, we search for a symmetric equilibrium. Consider a given legislator and suppose that all other legislators vote for the proposal. Notice that a single vote does not change the outcome of the collective decision which approves the proposal. A legislator who votes for the proposal has a 2/3 chance of becoming a member of the minimum winning coalition in period 2, in which case he gets a benefit of 1/3. So, considering the taxes he will pay, his expected net benefit when he votes for the proposal is $-1/3(1+\delta) + s + \delta 2/9$. A legislator who votes against the proposal is certain to be excluded from the minimum winning coalition in period 2; his payoff is only $-1/3(1+\delta) + s$. Thus, for any s a legislator strictly prefers to support the agenda setter's proposal in period 1, and it is an equilibrium for each legislator to vote for that proposal.

The agenda setter maximizes his surplus by setting $s = 0$; and since he obtains the largest possible surplus, clearly he has no better strategy. In period

the agenda setter is special because of the small number of legislators. The equilibrium in Proposition 1 below is still an equilibrium, but in period 1 it is no longer the unique symmetric equilibrium in pure strategies.

[5] Notice that we force the agenda setter to treat each legislator equally; he cannot make side payments conditional on votes. This assumption makes it more difficult to explain universal support for the proposal, and so makes our results more striking.

[6] Period 2 is a version of a majoritarian ultimatum game. We follow much of the literature in assuming that a legislator who is indifferent accepts the proposal. The condition is stronger than needed. A strictly positive probability that agenda-setter's proposal in period 2 is accepted is sufficient. This assumption rules out an equilibrium in which in both periods the proposal of the agenda setter is unanimously rejected. This equilibrium disappears if the agenda setter can provide a legislator with some small benefit outside of the legislation (such as a fundraiser, a campaign appearance or an invitation to the White House) that rewards a vote in favor. The equilibria below in Propositions 1–3 would be unaffected by this modification of the model.

1 he obtains the whole surplus, whereas in period 2 his surplus is maximized subject to the constraint that the proposal be accepted. Further reducing the share for members of the minimum winning coalition in period 2 would yield strictly negative benefits for each, causing rejection of the proposal. The above strategies thus constitute a sub-game perfect equilibrium.

Moreover, it cannot be a Nash equilibrium in pure strategies for all legislators in period 1 to vote against the proposal. Assume they do. Again a single vote does not change the outcome of the collective decision which rejects the proposal. But a legislator who votes for the proposal will be a member of the minimum winning coalition in period 2. Hence, a legislator who votes for the proposal has zero payoff in period 2. Opposing the proposal reduces the chance to be part of the minimum winning coalition in period 2, so that total payoffs are $0 + \delta(2/9 - 1/3)$. The difference is $\delta/9 > 0$, which represents the benefit from ensuring membership in the minimum winning coalition in period 2. Thus, a legislator strictly prefers to vote for the proposal in period 1; it is not an equilibrium for all legislators to vote against it.

We summarize with

Proposition 1 *A sub-game perfect equilibrium exists in which*

- *the agenda setter plays the all-things-come strategy with $s = 0$ and*
- *in period 1 the legislature unanimously approves the agenda-setter's proposal; in period 2 a minimum winning coalition approves the proposal the agenda setter makes in that period.*

Moreover, for any all-things-come strategy with $s \geq 0$, it is not an equilibrium for legislators to vote unanimously against the agenda-setter's proposal in period 1.

As in many other voting games, our model generates multiple equilibria. For instance, in period 2 a legislator who is not a member of the minimum winning coalition cannot avoid having the proposal approved, and might as well vote for it. This would not change the equilibrium payoffs. Other voting behavior in period 1, however, could potentially affect policy.

5.1 Avoiding asymmetric equilibria with side payments

Given the agenda setter's strategy, in period 1 there also exist asymmetric equilibria in which one legislator votes for the proposal and free-rides on the negative vote of the two other legislators. In many situations our focus on the symmetric equilibrium seems more reasonable, because in an asymmetric equilibrium identical legislators behave differently. Coordination of legislators on some particular form of asymmetric behavior must be based on some underlying asymmetry which should be modeled explicitly.[7]

[7] A natural explanation would be a sequential voting procedure. We consider this extension in Subsection 7.2.

Notice, however, that if legislators respond to the all-things-come strategy (when $s = 0$) by playing asymmetric pure strategies, then the agenda setter's payoffs in period 1 are zero; he could benefit by increasing s. We therefore ask whether some side payment $s \leq 1/3$ prevents the existence of the asymmetric equilibria in period 1, and assures approval of the agenda-setter's proposal in period 1. And if such an s exists, we determine its minimum value.[8]

Consider the decision of some legislator in period 1. Notice that in an asymmetric pure-strategy equilibrium some legislator, whose vote is decisive, votes against the proposal. In voting for the proposal he obtains $-1/3(1+\delta)+s+\delta/3$; opposing yields $-\delta/3 + \delta/6$. A vote in favor is advantageous if and only if $s \geq (2-\delta)/6$. Notice that $(2-\delta)/6$ strictly decreases in δ, and lies in the interval $[1/6, 1/3]$. The more important the future, the more valuable the certain future benefits of membership in the minimum winning coalition, and the easier it is for the agenda setter to sway the legislator. Moreover, for any $\delta > 0$, some feasible payment yields the agenda setter strictly positive payoffs in period 1, and induces legislators to vote for the proposal. Thus, asymmetric pure strategy equilibria in period 1 disappear.

To show that this strategy of the agenda setter and unanimous approval in period 1 are an equilibrium, it remains to consider the case in which a given legislator is not decisive (because he knows or anticipates that none or two other legislators vote in favor). As the vote does not change the outcome in period 1, but increases the legislator's chances to be part of the minimum winning coalition in period 2, for any s he strictly prefers to vote in favor.

Thus, it is optimal for the agenda setter to offer $s = (2-\delta)/6$. This value is the smallest payment that in period 1 makes it a (weakly) dominant strategy for each legislator to vote for the proposal. As a result, it overcomes the difficulty that legislators could coordinate on an asymmetric simultaneous voting equilibrium in period 1.

The above strategies thus constitute a sub-game perfect equilibrium. We summarize with

Proposition 2 *There exists a sub-game perfect equilibrium in which*

- *the agenda setter plays the all-things-come strategy with* $s = (2-\delta)/6$ *and*
- *in period 1 the legislature unanimously approves the agenda setter's proposal; in period 2 a minimum winning coalition approves the proposal the agenda setter makes in that period.*

[8] Legislators could also respond to the all-things-come strategy by playing a symmetric mixed strategy. It can be shown (see Appendix A) that given the agenda setter's strategy with $s = 0$, a mixed-strategy equilibrium exists. Notice that in such an equilibrium, in period 1 the legislatures approves the proposal with positive probability, implying that the agenda setter can sometimes exploit the legislature. When the discount factor is high enough the agenda setter can make side payments such that a mixed-strategy equilibrium does not exist and the equilibrium described in Proposition 1 constitutes the unique symmetric equilibrium for period 1. When the future is not too important, this equilibrium cannot be induced, as for low discount factors such a side payment does not exist. Playing a mixed strategy can thus sometimes protect the legislature from complete exploitation—although it cannot eliminate the exploitation completely.

Moreover, in period 1 it is not an equilibrium for the legislators to respond to the all-things-come strategy which has $s = (2 - \delta)/6$ by playing an asymmetric pure-strategy equilibrium in period 1.

5.2 Agenda setting power when each vote in period 1 is decisive

Notice that the equilibria described in Propositions 1 and 2 base the agenda setter's all-things-come strategy on two characteristics. First, in equilibrium no individual legislator is decisive and therefore cannot stop the proposal in period 1. Second, the agenda setter can condition future benefits or political banishment on voting behavior in period 1.[9] We show now that what drives our result is the second characteristic. To do so we modify our previous assumptions and suppose that approval of the agenda-setter's proposal in period 1 requires unanimity, while the voting rule in period 2 remains as before.

Suppose the agenda setter plays the all-things-come strategy with payments s. Given that the incentives in period 2 remain unchanged, a minimum winning coalition will vote for the agenda setter's proposal in period 2. Consider then the decision of some legislator in period 1. Assume that his vote is not decisive (because he knows or anticipates that at least one other legislator votes against). As his vote does not affect the outcome in period 1 but affects his chances to be part of the minimum winning coalition in period 2, he strictly prefers to vote in favor.

Suppose now that the legislator's vote is decisive (because all other legislators vote in favor). A legislator who votes for the proposal obtains $-1/3(1 + \delta) + s + \delta 2/9$; opposing yields $-\delta/3$. A vote in favor is advantageous if and only if $s \geq (3 - 2\delta)/9$. Notice that $(3 - 2\delta)/9$ strictly decreases in δ, and lies in the interval $[1/9, 1/3]$. The more important the future, the more important the future benefits of membership in the minimum winning coalition, and the easier it is for the agenda setter to sway the legislator. Moreover, for any $\delta < 1$ some feasible payment yields the agenda setter strictly positive payoffs in period 1, and induces legislators to vote for the proposal.

Thus, it is optimal for the agenda setter to offer $s = (3-2\delta)/9$. This value is the smallest payment that in period 1 makes it a (weakly) dominant strategy for each legislator to vote for the proposal. As a result it overcomes the difficulty that under a unanimity rule the equilibrium has all legislators pivotal.

The above strategies thus constitute a sub-game perfect equilibrium. We summarize with

Proposition 3 *Under a unanimity rule in period 1, there exists a sub-game perfect equilibrium in which*

- *the agenda setter plays the all-things-come strategy with $s = (3 - 2\delta)/9$ and*

[9] Under a secret ballot future benefits or political banishment can in principle not be conditioned on period 1 voting behavior. In subsection 8.1 we show conditions under which Proposition 1 continues to hold.

- *the legislature unanimously approves the agenda setter's proposal in period 1; in period 2 a minimum winning coalition approves the proposal the agenda setter makes in that period.*

Moreover, for any all-things-come strategy with $s \geq 0$, it is not an equilibrium for legislators to vote unanimously against the agenda setter's proposal in period 1.

5.3 Observations

Several comments are in order.

First, comparing Propositions 1, 2 and 3 shows that in equilibrium the expected benefit of a legislator is $-1/3(1+\delta) + s + \delta 2/9$. Given the size of the different payments s, we see that in the equilibria in all these Propositions legislators obtain strictly negative expected payoffs, whereas if both proposals were rejected expected payoffs are zero. In period 1 all legislators vote for a policy that hurts all of them.

Second, we see that exploitation is most severe under the conditions of Proposition 1. On the other hand, legislators can make the most of the all-things-come strategy under the threat of the asymmetric voting equilibrium in Proposition 2.[10] This shows that the extent of exploitation is sensitive to the specific institutions and behavioral conditions under which agenda setting takes place. We further analyze the sensitivity of our conclusions to variations of our assumptions in later sections.

Third, under majority voting in the equilibrium of period 1 (Proposition 1), no legislator is decisive; in contrast, under the unanimity rule in the equilibrium of period 1 (Proposition 3) all legislators are decisive. The discussion of decisiveness relates our model to an insight by Dal Bó (2007), who shows that if a majority of legislators can be induced to vote for a policy, then no legislator is decisive, and therefore each is indifferent between voting for and against the policy. A special interest group can induce legislators to support it by committing to pay a legislator if and only if he casts a *decisive* vote for the policy the special interest group favors. This approach requires the special interest to make only a very small payment in equilibrium. Our Proposition 3 shows that the indifference of a legislator who is not decisive strengthens our result, but is not crucial for unanimous approval of bad policies.

Fourth, crucial for unanimous approval of bad policies is the agenda setter's ability in period 2 to reward a legislator who voted in favor of the agenda setter's proposal in period 1. A unanimity rule in period 2 breaks this link between the

[10] Although in both Propositions 2 and 3 the payments make it a dominant strategy for a legislator to vote for the period 1 proposal, the payments and consequently the expected utilities differ. The reason is that the different voting rules imply that the number of votes in favor when a legislator is decisive differs. A unanimity rule in period 1 compared to a majority rule in period 1 implies a higher benefit to a legislator of voting for the proposal in period 1 because his chances of membership in the minimum winning coalition in period 2 increase by more. The payments the agenda setter must make in period 1 can therefore be lower under the unanimity rule.

periods because then in period 2 every vote is needed and no legislator can be excluded. On the other hand, any scarce resource controlled by the agenda setter and valued by legislators could establish such a link. In some situations it is reasonable to interpret the president as the agenda setter. Rewards could then consists, for example, of invitations to the White House, fundraisers, or campaign appearances. In other situations one might think of party leaders as agenda setters, in which case rewards might consist of committee assignments and money from political action committees to reelection campaigns, which are controlled by party leaders.

Fifth, notice that it is not necessary for the result in Proposition 1 that the agenda setter punish with certainty a legislator who voted against the proposal in period 1. It suffices that banishment occurs with a small but strictly positive probability. This result can reconcile the view by historians that Joseph Cannon, as Speaker of the US House of Representatives, exercised power by punishing opponents, with the findings by Krehbiel and Wiseman (2001) that in making committee appointments Cannon did not consistently reward supporters or punish opponents. For, as we have seen, what matters is that when a legislator is not decisive, the cost to him of voting for a policy he dislikes is small or even zero, so that if he expects even a small gain from membership in the winning coalition in a future period, he will support the agenda setter's policy. Strong loyalty can appear under weak punishments and rewards.

6 Generalizations

The benchmark result continues to hold under more general conditions. Here we consider several extensions: large legislatures, a finite number of periods greater than 2, turnover among legislators, turnover of the agenda setter, and partisan coalitions.

6.1 Large legislatures

For simplicity we take the number of legislators, n, to be an odd number.[11] As before, assume simple majority voting and let the agenda setter play the all-things-come strategy. Again, a minimum winning coalition will support his proposal in period 2.

Consider period 1. Suppose all legislators vote for the proposal, so that no individual vote is decisive. The expected utility of a legislator who votes for the proposal is $-(1+\delta)/n + \delta(n+1)/(2n^2)$. The first term is the taxes that have to be paid in both periods, as both proposals are approved. The second term represents the expected value of obtaining δ/n with probability $(n+1)/(2n)$. Voting against the proposal in period 1 yields $-(1+\delta)/n$. The

[11] This assumption is to simplify the exposition. Proposition 1 extends to even-sized legislatures with at least four members requiring $n/2+1$ votes for approval. The case of two-person legislatures is special because majority rule effectively becomes a unanimity rule and both legislators are pivotal.

difference $\delta(n+1)/(2n^2)$ is strictly positive. Again, a legislator will strictly prefer to support the period 1 proposal: it is an equilibrium for each legislator to vote for the proposal in period 1. Notice that the agenda setter benefits from larger legislatures, as $(n+1)/(2n)$, the share of the surplus given to the period 2 minimum winning coalition, decreases with n.

As in our previous analysis, in period 1 this is the unique equilibrium with symmetric pure strategies. A legislator who expects all others to vote against the proposal strictly prefers to vote in favor, because his vote does not change the outcome but assures the legislator of membership in the minimum winning coalition in period 2. Voting against the proposal makes him a member of this coalition with the smaller probability $(n+1)/(2n)$.

6.2 Multiple periods of exploitation

The agenda setter's power to exploit the legislature does not depend on offering the reward after just one period of exploitation. An increase in the number of periods allows the agenda setter to exploit the legislature in more periods. We will see that this holds for any finite number of periods.

Consider T periods, denoted by $t = 1, \ldots, T$. Notice that $T = 2$ gives the setting of Section 5.

The agenda setter can modify the all-things-come strategy in the following way. In all but the last period he proposes to retain the whole budget to himself and threatens to banish any legislator who votes in any period against the proposal, such that the dissenter will forever be ineligible for any benefit. In the last period, the agenda setter proposes to split the revenue equally with the members of a minimum winning coalition. Any legislator who supported him in all periods before the last one has an equal chance to be a member of the minimum winning coalition in the last period. If a minimum winning coalition requires more members than the number of legislators who supported all proposals before the last period's proposal, then the remaining members are chosen, taking into account the number of votes in favor of the agenda-setter's proposals made by each legislator in the past. That is, the two legislators with the most votes in favor participate with probability 1 (in case of ties, equal probabilities are assigned.)

Again, a minimum winning coalition will approve the proposal the agenda setter makes in the last period.

Consider now a given legislator in any period t before the last, with all other legislators voting for the proposal. Notice that a single vote does not change the outcome of the collective decision which approves the proposal. By voting for the proposal the legislator obtains

$$-\frac{1-\delta^{T-t}}{3\,(1-\delta)}+\frac{2\delta^{T-t-1}}{9},$$

the discounted value of tax payments in all periods plus the option value of potential membership in the minimum winning coalition in period T. A legislator

who votes against the proposal does not reduce his tax, but excludes himself from future benefits, yielding him expected benefits of

$$-\frac{1-\delta^{T-t}}{3\left(1-\delta\right)}.$$

Because the difference is strictly positive, a legislator strictly prefers to support the proposal in each period. It follows that there is a sub-game perfect equilibrium in symmetric pure strategies in which each legislator votes for the agenda setter's proposal in each period $t < T$, and in the last period a minimum winning coalition approves the agenda-setter's proposal.

It is not an equilibrium for each legislator to vote against the proposal in each period $t < T$. The reason is that any deviation from this strategy in any period assures that the legislator is a member of the minimum winning coalition in the last period. A legislator who votes against the agenda setter's proposal in each period will become a member of the minimum winning coalition in the last period only with probability 2/3.

6.3 Term limits and turnover

One might expect that term limits and turnover limit the capacity of the agenda setter to punish or reward present voting behavior in the future. For that result to hold, however, the end of the legislators' terms must be close and certain.

Suppose that each district might be represented in the second period by a different legislator. That is, each legislator in period 1 continues only with some probability in the second period. It is easy to see that the result in Proposition 1 is robust, because conditional on continuing to serve, a legislator who votes for the proposal in period 1 enjoys higher expected utility over the two periods than he would by voting against.

Suppose now that between the two periods the identity of the agenda setter may change. More precisely, assume that the probability with which the agenda setter in period 1 continues is q. With probability $1-q$ in period 2 some other person makes a proposal which is unrelated to voting in period 1, and yields benefits π to the legislator whose voting behavior will be analyzed below.

Let the agenda setter in period 1 choose the all-things-come strategy. If the agenda setter continues in period 2, his proposal in period 2 will be accepted by a minimum winning coalition.

Consider now a given legislator in period 1, and suppose that all other legislators vote for the proposal. Again, a single vote does not change the outcome of the collective decision and the proposal is approved. A legislator who votes for the proposal obtains $-1/3\left(1+\delta\right)+\delta(q2/9-\left(1-q\right)\pi)$, whereas voting against yields $-1/3\left(1+\delta\right)+\delta\left(1-q\right)\pi$. The difference is $\delta q2/9>0$. For $q=1$ we obtain the trade-off of Section 5 . But for any strictly positive probability that the agenda setter continues to serve, a legislator strictly prefers to vote for the proposal in period 1.

If in period 1 all legislators vote against the proposal, a single vote does not change the outcome of the collective decision which rejects the proposal. But

by voting for the proposal a legislator can make sure to belong to the minimum winning coalition in period 2 in case the agenda setter continues. Thus, each legislator strictly prefers to support the proposal in period 1, and it is not an equilibrium for each legislator to vote against it.

Consider now term limits. Term limits which make a legislator leave before the agenda setter does mean that the legislator will not want to vote for a policy that benefits the agenda setter.[12] Speaking loosely, term limits may weaken the power of the agenda setter. Instead, the agenda setter would have to form a minimum winning coalition of beneficiaries in each period.[13]

A term limit applying to the agenda setter represents the case of $q = 0$ in the analysis above.[14] Even in this case, the legislators might be exploited. Suppose the current agenda setter will never serve again, but that some current member of the legislature will be an agenda setter in the future. The current agenda setter can still propose a policy that benefits himself greatly, while giving nothing to all but one legislator. Let the current agenda setter propose a policy that gives benefits to himself and to one other legislator, say P, who may become the agenda setter in the next period. Legislator P would then have an incentive to threaten that when he becomes the agenda setter, he will propose no benefits to any legislator who votes against the benefits proposed to P in period 1. It is therefore an equilibrium for all legislators to vote for the proposal in period 1, and it is not an equilibrium for all to vote against.

6.4 Partisan coalitions

Our model and analysis has been set up to yield our point in the strongest possible way: in period 1 a legislature unanimously approves a policy which benefits the agenda setter and hurts each legislator. So far, however, our analysis has abstracted from important political institutions, like political parties. Enriching the model by taking into account further elements of reality might yield predictions which are weaker, and may be more realistic—without affecting our main point.

Suppose there is a majority and a minority party; the majority party has n members and the minority party has m members, with $n > m + 2$.[15] Minority party members expect to be excluded from a future minimum winning coalition because the agenda setter plays the all-things-come strategy but promises future benefits only to members of the majority party.[16] It is straightforward to see

[12] Actually, the legislator is indifferent and might as well vote in favor. Therefore Proposition 1 is robust in the sense that it is still an equilibrium to approve the first proposal, while a minimum winning coalition approves the second period proposal.

[13] Whereas in the U.S. federal congressmen and senators face no term limits, some states do have term limits for state legislators. Given that these limits are usually longer than eight years they do not seem to restrict the agenda setter's power so much that he has to form a minimum winning coalition of beneficiaries in each period.

[14] Notice that there might be a possibility that a term limit will not be applied. A recent example for the possibility that term limits can be extended is mayor Michael Bloomberg of New York City who has been elected to an additional (third) term.

[15] Again, for simplicity take n to be an odd number.

[16] That appears to be the strategy followed by Speaker Joseph Cannon, discussed above,

that we can apply the analysis in Subsection 6.1 and conclude that the following constitutes a sub-game perfect equilibrium: the agenda setter plays the all-things-come strategy restricted to members of the majority party; the proposal in period 1 is approved with the votes of the majority party; the agenda setter's proposal in period 2 is approved by a minimum winning coalition (excluding at least one member of the majority party).

Partisan behavior makes our assumption of a finitely repeated game (rather than an infinitely repeated one) seem appropriate. An election after period 2 might change the majority party and the agenda setter. In the next term the new agenda setter and legislature might play a similar sub-game perfect equilibrium.

7 Institutions that limit the power of the agenda setter

Some institutional arrangements, such as sequential voting and super-majority voting rules, limit the agenda setter's power more than others.

7.1 Super-majorities

One might think that super-majority voting rules reduce the power of the agenda setter. Consider a large legislature, as in Subsection 6.1. As now approval of the period 2 proposal requires more legislators, the agenda setter can extract a smaller surplus in period 2.[17] It is, however, straightforward to see that if the majority requirement is less than unanimity, the preceding argument applies and in period 1 all legislators vote for a policy that hurts all of them.

7.2 Sequential voting

Let us return to consider three legislators plus the agenda setter, but assume that voting is sequential with voting order 1, 2, 3. As before, assume that the agenda setter plays the all-things-come strategy. Sequential voting does not change the incentives in period 2, and in period 2 a minimum winning coalition will support the proposal.

An important difference between sequential and simultaneous voting is that under sequential voting in period 1 which approves the proposal, some legislator knows that he is decisive. The individual voting incentives are the same as in the situation in which in period 1 the legislators play the asymmetric equilibrium which we analyzed before.

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who allowed the leader of the minority party to make appointments of his party members to committees. See Finocchiaro (2002).

[17] In the context of Proposition 1 the agenda setter makes no payments in period 1. With more than three legislators the payments in period 1 in the context of Proposition 2 become $1/n - \delta(n-m)/(n(n-m+1))$, where m is the number of votes in favor necessary for approval. These payments increase with m.

Suppose the agenda setter sets low payments, say $s = 0$. It is straightforward to see that in period 1 a legislator votes against the proposal if and only if he is decisive. Therefore, legislator 1 votes for the proposal, and free rides on the negative vote of the other two legislators.

On the other hand, from Proposition 2 we already know that sufficiently high payments in period 1 make it a (weakly) dominant strategy for each legislator to vote for the proposal in period 1. This implies the following.

Corollary 1 *Under sequential voting, there exists a sub-game perfect equilibrium in which*

- *the agenda setter plays the all-things-come strategy with* $s = (2-\delta)/6$ *and*
- *in period 1 the legislature unanimously supports the agenda-setter's proposal; in period 2 a minimum winning coalition supports the proposal the agenda setter makes in that period.*

Comparing Corollary 1 to Proposition 1 we see that sequential voting benefits legislators, but does not eliminate the power of the agenda setter.

7.3 Counter-threats

The analysis so far had the agenda setter threaten legislators with political banishment, and allowed a legislator to take only one action—vote. A legislator might, however, react to the all-things-come strategy with $s = 0$ by making a counter-threat to banish the current agenda setter if the legislator in question later becomes the agenda setter. In what follows we enrich the basic model to capture this possibility and show that in equilibrium the legislature will still be exploited–albeit less than if different agenda setters, serving for two periods each, each play the all-things-come strategy with $s = 0$.

Let the legislature consist of five members, with one of them the agenda setter, and with all paying taxes and voting. Voting occurs over two legislative terms, each consisting of two periods. Legislator 1 is the agenda setter in the first two periods; each of the other four legislators is equally likely to be the agenda setter in the following two periods.[18]

Given our assumption of uncertainty over the future agenda setter and the symmetry among legislators who are not the agenda setter in period 1, let each react to the all-things-come strategy with $s = 0$ by making the following counter-threat: if the agenda setter in period 1 does not make a payment of s in period 1, he will be excluded from the minimum winning coalition in period 4 in case the legislator making the threat becomes the agenda setter in period 3. If the agenda setter makes the requested payment he will be included in the minimum winning coalition in period 4 with probability 1.[19]

[18] Notice that excluding the possibility of legislator 1 being the agenda setter in the second term makes the counter-threat more credible and exploitation in the first term more difficult.

[19] Again, we force the agenda setter to treat each legislator equally, which is here motivated by the uncertainty over the identity of the next agenda setter. Assuming that the agenda

Proceeding by backward induction, consider the last period. Notice that even if the two agenda setters form part of the last period's minimum winning coalition with probability one, there is still one slot open and the second agenda setter can reward voting behavior in period 3 appropriately. Note also that the second agenda setter is willing to banish or to include the agenda setter of periods 1 and 2 in the last period's minimum winning coalition because this costs him nothing. Thus it is an equilibrium for the second agenda setter to play the all-things-come strategy with $s = 0$, for the proposal he makes in period 3 to be unanimously approved, and for the proposal he makes in period 4 to be approved by a minimum winning coalition that includes the first agenda setter.

Consider the first term, or periods 1 and 2. The preceding makes it clear that for any all-things-come strategy with s, an equilibrium exists in which the legislature approves the proposals made in periods 1 and 2.

Consider the first agenda setter; call him A1. Suppose that A1 does not give in to the threat. This implies that $s = 0$ but that A1 will be excluded from the minimum winning coalition in period 4. On the other hand, if A1 gives in, he is assured of membership in the minimum winning coalition in period 4, at a cost of s. Giving in is better if and only if $-4s + \delta^3/5 \geq 0$, which is equivalent to $s \leq \delta^3/20$.

It is thus optimal for the counter-threat to request $s = \delta^3/20$. The above strategies thus constitute a sub-game perfect equilibrium. We summarize with

Proposition 4 *With two terms and a change in agenda setters, a sub-game perfect equilibrium exists in which:*

In the first term

- *the agenda setter plays the all-things-come strategy with* $s = \delta^3/20$ *and*
- *in period 1 the legislature unanimously approves the agenda-setter's proposal; in period 2 a minimum winning coalition approves the proposal the agenda setter makes in that period.*

In the second term

- *the agenda setter plays the all-things-come strategy with* $s = 0$ *and*
- *in period 3 the legislature unanimously approves the agenda-setter's proposal; in period 4 a minimum winning coalition which includes the first agenda setter approves the proposal the agenda setter makes in that period.*

A counter-threat benefits the legislators, but notice that the first agenda setter still obtains at least 4/5 of the period 1 surplus.

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setter of the second term is known and that period 1 payments can be individually, would not affect the extent of total period 1 exploitation but would affect the distribution within the legislature.

7.4 Entitlements

One may think that the agenda setter necessarily benefits from committing future policy. But here the opposite occurs. Suppose that whatever policy is adopted in period 1 will also hold in period 2. Roughly speaking, we can think of policies which are subject to annual appropriations and of entitlements which remain in force unless explicitly changed. Then the agenda setter in period 1 could no longer threaten that in period 2 he will punish a legislator who voted against the proposal in period 1. The best the agenda setter could do in period 1 is to propose a policy that gives zero net benefits to members of the minimum winning coalition; that generates lower benefits to the agenda setter than he could obtain if he had power to set the agenda in both periods.

A different question is what happens if the policy adopted in period 1 continues in force in period 2, unless the agenda setter proposes an amendment, which the legislature supports; that is, the default policy in period 2 is the policy adopted in period 1, rather than no spending in period 2. If in period 1 the legislature adopted a policy that gives all benefits to the agenda setter, the next period the agenda setter of period 1 would not want to change the policy. By assumption, no one other than the agenda setter in period 1 can propose a new policy in period 2. Therefore, in period 1 no legislator would support the policy that gives negative benefits in period 1, and the best the agenda setter can do in period 1 is to propose a policy that generates zero net benefits to each member of the minimum winning coalition. Put differently, the agenda setter would prefer annual appropriations over entitlements. This shows that the default policy strongly affects the agenda-setter's power.

8 Institutions that do not limit the power of the agenda setter

Some institutional arrangements, such as secret voting, may at first sight appear to greatly restrict, or even eliminate, the agenda-setter's power. We show, however, that they do not.

8.1 Secret ballots

The agenda setter can have much power even if voting is by secret ballot. Under a secret ballot the agenda setter does not know who voted against him, and so cannot later punish a particular defector. It appears that any one legislator would be willing to vote no in period 1, and it appears that he would be willing to do so if there is even a small probability that he will be decisive. But suppose that there is some turnover among some legislators, with each legislator unsure whether he will serve in the next period. The agenda setter can then threaten to give priority to new legislators in the next period if the vote in the current period is not unanimous. That is, in period 2 the minimum winning coalition would include all new legislators, and (if needed) some continuing legislators.

Each legislator in period 1 then has an incentive to vote for the proposal if he expects others to. That is, turnover can increase the agenda setter's power.

In what follows we formalize this idea. Let the probability with which a legislator continues in period 2 be q. As before, in period 2, each member of the minimum winning coalition gains by supporting the proposal, and the proposal will be accepted. Note that a legislator's probability of being included in the period 2 minimum winning coalition, conditional on his continuing to serve, is $p^C = 2q^2/3 + (1 - q^2)$ when members of the minimum winning coalition are chosen first from continuing legislators, and $p^N = 2q^2/3 + (1 - q)q$ when new legislators have priority in becoming members of the minimum winning coalition.

Consider a given legislator in period 1 and suppose that all other legislators vote for the proposal. In voting for the proposal he obtains $-(1 + \delta q)/3 + q\delta p^C/3$. A legislator who votes against the proposal does not reduce his tax payments, but does cause the agenda setter to give priority to new legislators, yielding the legislator expected benefits of $-(1 + \delta q)/3 + q\delta p^N/3$. Given that $p^C > p^N$, the difference is strictly positive and, thus, a legislator strictly prefers to support the proposal in period 1.

Could it be a pure-strategy symmetric Nash equilibrium for all legislators in period 1 to vote against the proposal? Denote by x the number of votes against the proposal in period 1. Suppose the agenda setter threatens that in forming the minimum winning coalition in period 2 he will give priority to new legislators with probability $r(x)$. Furthermore, assume that $r(x)$ strictly increases with x. Note that the agenda setter is willing to do so, because this mechanism costs him nothing. Consider period 1 and suppose all legislators vote against the proposal. Again a single vote does not change the outcome of the collective decision which rejects the proposal. But a legislator who votes for the proposal increases the chances that a continuing member will be a member of the minimum winning coalition. Hence, conditional on continuing to serve, a legislator's expected utility in period 2 is

$$\frac{1}{3}\delta\left(-1 + (1 - r(x))p^C + r(x)p^N\right).$$

The legislator will have to pay taxes in period 2, and his chances of belonging to the minimum winning coalition decline with $r(x)$. Voting for the proposal implies that $x = 2$, whereas opposing the proposal has the consequence that $x = 3$. The legislator will strictly prefer to vote in favor if and only if $r(3) > r(2)$. Hence, a legislator strictly prefers to vote for the proposal in period 1; it is not an equilibrium for all legislators to vote unanimously against the proposal.

8.2 Separation of budgetary powers

Our analysis does not depend on the specification that in each period the decisions on taxation and spending are bundled. Suppose that in each of two periods a budget of one dollar is already approved and legislators have only to

decide how to allocate the dollar.[20] If in any period the proposal is rejected, no allocative decision is taken and no district gets any benefits. Assume that the agenda setter plays an all-things-come strategy in which he offers in period 2 a small benefit $b > 0$ to members of the winning coalition.

Consider period 2. No member of the minimum winning coalition gains by rejecting the proposal, and the legislature passes the proposal. Consider now a given legislator in period 1, with all other legislators voting for the proposal. When the legislator in question votes for the proposal he gets $b\delta 2/3$, whereas in voting against he obtains nothing. Thus, a legislator strictly prefers to support the agenda setter's proposal in period 1, and it is an equilibrium for each legislator to vote for that proposal.[21]

Could it be a Nash equilibrium in symmetric pure strategies for all legislators in period 1 to vote against the proposal? Assume they do. A legislator who votes for the proposal will be a member of the minimum winning coalition in period 2, obtaining $b\delta$. Opposing the proposal reduces the chance to be part of the minimum winning coalition in period 2, so that total payoffs are $b\delta 2/3$. Thus, a legislator strictly prefers to vote for the proposal in period 1; it is not an equilibrium for all legislators to vote against it.

Put differently, the agenda setter would prefer separation of budgetary powers over combined taxation and expenditure decisions.

9 Conclusion

It is well known that an agenda setter enjoys power which he can wield to his own benefit. But this paper showed much more, suggesting that under not-crazy assumptions the agenda setter in the initial period can gain all the benefits from legislation, and, more surprisingly, that he can get large majorities to support such a selfish policy. An implication for interpreting observed behavior is that wide support for policy need not mean wide benefits from that policy. The result is surprisingly robust: it holds for multiple periods, and for situations where the agenda setter is not assured of remaining in power.

Agenda setting models have been reinterpreted as an autocrat in a nondemocratic regime, because even an autocrat needs for his policies the support from a part of the society, say the political elite (see e.g. Diermeier and Fong 2011). With such an interpretation our analysis implies that the autocrat might be less constrained in exploiting the elite than commonly thought. Moreover, the autocrat prefers that his future power be restricted. For if he had dictatorial powers in the final period, then he could not credibly promise future rewards and would get little benefits in earlier periods. Paradoxically, the expectation of more formal power endows the proposer with less real power. Put differently, weakness creates strength.

[20] An analogous result holds if an entitlement program sets benefits to all legislators, but in each period the legislature decides how to allocate taxes among its members.

[21] A technical issue concerns the existence of the optimal amount to be offered. That may be solved by making the realistic assumption that a smallest monetary unit exists.

It might appear that agenda setters are less powerful than our model predicts. This might occur because the agenda setter wants to benefit members of his own party. Another possibility is that an agenda setter fears that he will be overthrown (as happened to Speaker Cannon). A third possibility is that institutions–amendments from the floor, or veto by the president–have arisen to limit the agenda setter's power.

The qualitative effects of our model can explain some stylized facts. For example, the agenda setter does better for himself, and garners stronger majorities, in earlier periods of power than in his last term. That fits the pattern of a lame duck president losing power. The results can also explain why an agenda setter may not constrain future policy; the ability to change policy in the future is precisely what gives the agenda setter the ability to threaten legislators in earlier periods.

Appendix

A Symmetric mixed strategy equilibria

Under majority rule, the equilibrium in period 1 can also have each legislator vote for the proposal with positive probability less than 1. A mixed strategy allows for trading off the increased chance of forming part of the minimum winning coalition in period 2 with the increased probability that an exploitive policy is approved in period 1. In this appendix we explore, analogously to Proposition 2, under what conditions a mixed strategy equilibrium exists and whether the agenda setter can offer sufficient side payments s to induce the equilibrium in Proposition 1.

Consider a given legislator and suppose the other two legislators vote for the proposal with probability x. If the legislator votes for the proposal, his chances of forming part of the minimum winning coalition in period 2 are higher, the more often the realizations of the other legislators' mixed strategies specify a vote against the period 1 proposal. More precisely, expected payoffs are given by

$$x^2\left(-\frac{1}{3}+s+\delta\left(\frac{2}{9}-\frac{1}{3}\right)\right)+2x(1-x)\left(-\frac{1}{3}+s+\delta\left(\frac{1}{3}-\frac{1}{3}\right)\right)+(1-x)^2\,\delta\left(\frac{1}{3}-\frac{1}{3}\right),$$

which simplifies to

$$-\frac{1}{3}\left(2x-x^2+\frac{x^2\delta}{3}\right)+sx(2-x).$$

On the other hand, a legislator who votes against the proposal only has a chance of forming part of the period 2 minimum winning coalition when at least one other legislator votes against, in which case the proposal in period 1 is rejected. Expected payoffs are thus

$$x^2\left(-\frac{1}{3}+s-\frac{\delta}{3}\right)+2x(1-x)\delta\left(\frac{1}{6}-\frac{1}{3}\right)+(1-x)^2\,\delta\left(\frac{2}{9}-\frac{1}{3}\right),$$

which simplifies to

$$-\frac{1}{3}\left(x^2+\frac{\delta}{3}\left(x^2+x+1\right)\right)+sx^2.$$

A legislator is indifferent between voting for and against the proposal if and only if

$$x^2-x\left(1-\frac{\delta}{6}\right)+\frac{\delta}{6}+3x(1-x)s=0.$$

Since this equation is quadratic, there exist two equilibria in mixed strategies. Given the unique symmetric pure strategy equilibrium described in Proposition 1, in period 1 the number of symmetric equilibria is therefore 3.

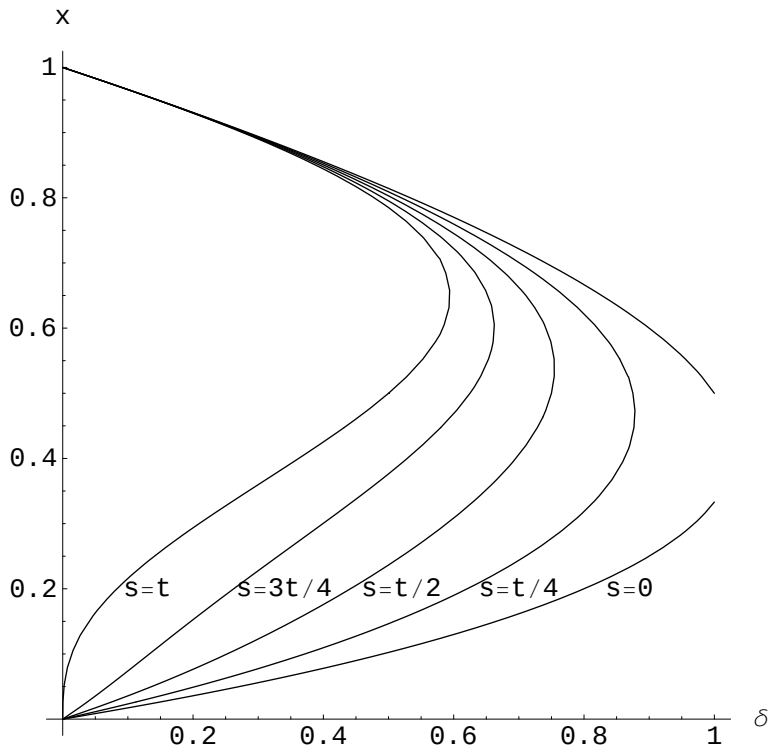

Figure 1: Mixed-strategy equilibria for different values of δ and s.

Figure 1 shows these equilibria for different side payments s and discount factors δ. Given a side payment, say $s = 0$ which indicates the right-most discontinuous curve, for any δ the two mixed strategy equilibria have very different comparative statics. For the first equilibrium (the lower part of the discontinuous curve), an increase in the discount factor δ increases the probability that a legislator votes for the proposal; in the second equilibrium (the upper part of the discontinuous curve) the opposite holds.[22] As δ increases the mixed strategy equilibria converge towards each other.

Interestingly, with more legislators this convergence might be complete for a

[22]One could argue that the first is a more appealing equilibrium than the second. First, it is plausible that as the future becomes more important the period 1 proposal is more often approved. Second, as the discount factor goes to zero, the former converges to the symmetric pure strategy equilibrium in which the proposal is unanimously rejected. The latter converges to unanimous approval. For $\delta = 0$, unanimous approval is only sustained in equilibrium because of a coordination failure. Third, for any discount factor the expected payoffs are strictly higher at the former equilibrium. Lastly, when there is a collective mistake in which everyone mixes with slightly different probability, the former equilibrium is stable, while the latter is unstable.

discount factor smaller than 1. In such a case mixed strategy equilibria appear not to exist for high discount factors. When the future is important enough, the legislator strictly prefers to increase his chances of forming part of the minimum winning coalition in period 2 rather than to reduce the probability that an exploitive policy is approved in period 1. For example, with five legislators and an agenda setter, for a mixed strategy equilibrium to exist the discount factor must be smaller than 0.6.[23]

The right-most discontinuous curve in Figure 1 corresponds to the case of $s = 0$ and curves further to the left are based on higher payments. The maximal amount the agenda setter is willing to pay to each legislator in order to induce the equilibrium in Proposition 1 is $t = (1 - x^3 - 3x^2(1 - x))/3$, because $x^3 + 3x^2(1 - x)$ is his expected period 1 payoff from the mixed strategy equilibrium.

The figure shows that when the discount factor is sufficiently large (roughly higher than 0.6), the agenda setter is willing to make side payments in order to avoid a mixed strategy equilibrium. For low discount factors, however, the equilibrium in Proposition 1 cannot be induced. When the future is not important enough, forming part of the minimum winning coalition in period 2 is relatively unimportant and the legislator strictly prefers to reduce the probability that an exploitive policy is approved in period 1. In these situations playing a mixed strategy can thus protect the legislature from complete exploitation—although it cannot eliminate the exploitation completely.

[23] With five legislators a mixed strategy allows for trading off the increased chance of forming part of the the minimum winning coalition in period 2, given by $\delta(1-x)^4 2/25 + \delta x(1-x)^3 1/10 + \delta x^2(1-x)^2 2/15 + \delta x^3(1-x)3/20 + \delta x^4 3/25$, with the increased probability that an exploitive policy is approved in period 1, $x^2(1-x)^2/5$. The former is always larger than $\delta(1/2)^4 16/75$, while the latter is at most $(1/2)^4 1/15$. Equality is therefore impossible to hold for high δ.

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