Veto Power in Committees: An Experimental Study*

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Abstract

In a number of multilateral bargaining situations one or more players has veto power – the right to unilaterally block decisions but without the ability to unilaterally secure their preferred outcome. Our experimental outcomes show that committees with a veto player take longer to reach decisions (are less efficient) than without a veto player, that veto players' proposals generate less consensus then non-veto players' proposals, that veto power in conjunction with proposer power generates substantially more proposer power than in related bargaining games, and that non-veto players show substantially more willingness to compromise than veto players, with players in the control game somewhere in between. We relate our results to the theoretical literature on the impact of veto power as well as concerns about the impact of veto power in real-life committees.

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1. Introduction

A large number of important voting bodies grant one or several of their members a veto right which allows its holder to block decisions even when a proposal has secured the necessary majority. Different voting bodies adopt the veto rule for different reasons. In the prominent case of the United Nations Security Council the rationale behind awarding permanent members a right of veto was to prevent the Council from reaching decisions that would then fail to be implemented. The US President's veto power over legislative actions was meant to allow the executive branch flexibility in conducting its policy and preserve it as a power separate from the legislature. There are a variety of institutions in which the veto power is formed rather than granted. Political parties may find themselves holding veto power because they comprise a significant number of seats in the legislative body and the legislation in question requires a supermajority to move forward (e.g., the United States Senate). Minority shareholders might have a veto position on the board of directors in a corporation as is the case with "golden shares," sometimes used by governments who wish to maintain control over privatized companies. Whether granted exogenously or arising through the voting game, the existence of veto power often raises concerns among committee members.

The first concern is that the veto right grants its holder excessive power. The worry is that while the formal veto right only grants the power to block undesirable decisions, de facto it allows veto members to impose their ideal decision on the rest of the committee. The second concern is that the veto right inefficiently prolongs the process of decision making and stalls agreements. These concerns were at the core of decades long debate within the UN General Assembly about veto power which has triggered numerous UN resolutions and various attempts to introduce procedural changes into the Council (see for example Russel and Muther (1958) and Bailey (1969)). In a less formal manner these concerns are often raised in other committees in which veto power exists.

Much of the theoretical literature about the effects of veto power in committees builds on models of the Baron and Ferejohn (1989) type used to study legislative bargaining. Winter (1996) summarizes some of the major comparative statics on committees with veto power. He shows that the veto player's share of power is increasing as the cost of delaying an agreement decreases, so that non-veto members' shares decline to zero as the cost of delay becomes negligible. Banks and Duggan (2000) derive a related result in a more general model of collective decision making. Other papers build on more specific environments, focusing primarily on the case of Presidential veto (see for example Diermeier and Myerson, 1999 and McCarty, 2000).

The purpose of this paper is to offer an experimental framework for analyzing the effects and consequences of veto power in committees. Our objectives in this respect are twofold. First, we provide an experimental environment for testing some of the theoretical results on the effects of veto power in committees. But more importantly, we want to identify outcomes from the experimental results on which the theory is silent, and to identify implications of the outcomes reported for the debate about veto power in real-life committees.

Our experimental game is designed along the lines of Baron and Ferejohn's (1989) model of legislative bargaining and Winter's (1996) model of veto committees. Our veto committee involves three players (one of which is a veto player) who vote on the allocation of a sum of money. To pass an agreement requires the acceptance of at least two players one of which is the veto player. The voting game runs over a potentially unlimited number of stages. At each stage a proposer is designated randomly to propose an allocation followed by a voting phase. If the proposal passes the game terminates and the allocation is implemented. If it fails the process repeats itself beginning with the selection of a new random proposer. We follow the theoretical literature by assuming that delay is costly using a common discount factor δ which represents the cost of delay that the committee faces along with the ability to convene frequent meetings to consider proposals.[1] Our experimental design employs two values for δ: $\delta = .50$ (the high delay cost case) and $\delta = .95$ (the low delay cost case).[2] In addition we conduct control treatments using the same rules except that agreements are passed by a simple majority.

Our analysis focuses on four issues: (1) efficiency, (2) the distribution of power/benefits, (3) the extent of agreement on proposals, and (4) voting patterns. In analyzing these issues we will compare results between veto committees and non-veto

[1] That is to say, high delay costs can be offset by more frequent meetings and low delay costs increased by less frequent meetings.
[2] One might argue that $\delta = .50$ is too high a cost of delay to be realistic. However, for experimental purposes it is excellent for establishing strongly contrasting predictions relative to the δ=.95 case.

(control) committees holding the cost of delay constant. Hence there are four treatments altogether. For each treatment we have two inexperienced subject sessions and an experienced subject session. The main focus of the analysis is on inexperienced subject behavior for which the role played – veto player or non-veto player – was held constant, as switching roles between inexperienced and experienced subject sessions appears to affect some behaviors. And in real life committees, the role of the veto player tends to remain fixed.

We briefly summarize our main findings on the effect of veto power in committees:

1. Efficiency: Committees with veto power are less efficient (take longer to reach decisions) compared with ones with no veto power, with this difference most pronounced in the case of low delay costs. This is a result on which the theory is completely silent, since regardless of the cost of delay, and independently of whether a veto player exists or not, the model predicts that agreements are reached without delay in equilibrium.

2. Distribution of Power: The existing literature on legislative bargaining games focuses on the strong power that proposers have with respect to the command of the available resources. However, both the theory and experimental results support the idea that veto players as coalition partners obtain significantly larger shares that non-veto proposers with low delay costs. This indicates that in many legislative actions where the delay between proposals is typically quite short, veto power may be a substantially more important issue than proposer power. Further, previous experimental work on games of this sort show that proposers get larger shares than coalition partners, but these shares fall well short of predicted levels (see the brief review of previous research reported on below). Our experiment shows that veto power substantially enhances proposer power, well above what the theory predicts. This suggests that limiting veto players' proposer rights (e.g., limiting their ability to chair committees) would go a long way to curbing their power, a major concern in committees in which one or more players has veto power.

3. Extent of Agreement on Proposals: There are significantly more minimal winning coalitions (MWCs) proposed by veto as compared to non-veto players for inexperienced subjects.[3] Our data suggests that this is a consequence of tacit collusion between non-veto players attempting to offset the power of the veto player.

4. Voting Patterns: Discount rates push voting patterns in the predicted direction as there is a greater tendency to compromise in high than low delay cost cases. Further, non-veto players show substantially more willingness to compromise than veto players, with players in the control games somewhere in between.

Although the Baron-Ferejohn model is the leading formal legislative bargaining in the literature it has been subject to limited experimental investigation until recently. McKelvey (1991) was the first person to investigate the Baron-Ferejohn model experimentally. He did so under closed amendment rule procedures with three voters choosing between three or four predetermined allocations (resulting in a mixed strategy equilibrium). His main result is that the proposers share was substantially smaller than predicted under the stationary subgame perfect equilibrium (SSPE) for the game. Diermeier and Morton (2005) investigate the Baron-Ferejohn model focusing on varying recognition probabilities and on the share of votes that each elector controls under closed rule procedures, in an environment with a finite number of bargaining rounds and three voting blocks. They too find that coalition member shares are more equal than predicted under the SSPE, and that a majority of, but not all, allocations are for minimal winning coalitions. In a series of papers, Fréchette, Kagel and Morelli (2005 a, b, c) study the Baron-Ferejohn model and compare it with demand bargaining (Morelli,1999) and Gamson's Law (Gamson, 1961) using closed amendment rule procedures and an infinite time horizon. Their main findings are that there is support for the qualitative implications of the Baron-Ferejohn model, but serious deviations from the point predictions of the model, as proposer power is far less than predicted under the stationary subgame perfect equilibrium.[4] The present paper is the first to explore veto power in experimental studies of voting within the context of the Baron-Ferejohn legislative bargaining model The most important result of the present paper in terms of these earlier findings is the large increase in proposer power that results from adding veto power to proposer power.

[3] A MWC consists of the minimum number of players required to pass a proposal under majority rule while also accounting for the existence of a veto player in the veto games.

[4] Also see Fréchette, Kagel, and Lehrer (2003) who study the impact of closed versus open amendment rules within the framework of the Baron-Ferejohn model.

There is also a substantial body of experimental work on committee decision making using spatial voting that emerged during the late 70s and 80s. Unlike our framework, in this literature money is not assumed to be transferable. Instead proposals involve two-dimensional vectors representing policies on two issues and voters payoffs are measured in terms of the distance between a player's ideal point and the implemented policy (see McKelvey and Ordeshook, 1990, for a detailed survey of this literature). In the experiments that grant the power of agenda setting to one of the players, with either simple majority voting or qualified majority voting (without a formal veto player), the theoretical literature predicts that the agenda setter can implement his/her ideal point as the outcome of the voting game. However the experimental results do not support this prediction (see for example Berl *et al.*, 1976; Fiorina and Plott, 1978; Hoffman and Plott, 1983; Eavey and Miller, 1984). It is reasonable to assume that the reduced power of the agenda setter in these experiments compared with the theory is related to our experimental observation that proposers, whether they are veto players or have no proposer power as in our control treatments, do not earn as much as the theory predicts.

We are aware of two spatial voting experiments that provide players with the power to block proposals, but no individual, including the "veto" player, has agenda setting power (Wilson and Herzberg, 1987; Haney, Herzberg, and Wilson, 1992). In the control treatment, absent a veto player and absent a core outcome, with a simple majority voting rule outcomes can, in theory, potentially end up anywhere in the outcome space. Introducing a veto player yields the theoretical prediction that outcomes will coincide with the veto player's ideal point, as the veto player will simply exercise his veto power until this outcome is achieved. The experiment shows that although outcomes do not fall precisely at the veto player's ideal point, they systematically favor the veto player, in contrast to the control treatment where no single member appears to be advantaged (Wilson and Herzberg, 1987).[5] The closest analogue to this in our design is when a non-veto player is the proposer, in which case the veto player can also exercise "negative proposer power," and is predicted to get a larger share than coalition partners in the

[5] Haney, Herzberg, and Wilson (1992) employ a somewhat different setup but obtain very similar results.

control treatment.[6] Our data confirms this prediction, but once again the share the veto player gets as coalition partner compared to the control treatment is not as large as predicted, with payoffs far more egalitarian than predicted. Further, beyond the fact that these two papers deal with a spatial environment while ours deal with a distributive environment, they do not deal with comparative static results. As such they are silent concerning any procedural effects that can diminish veto power, which is at the center of our analysis.

The plan of the paper is as follows: Section 2 outlines the theoretical implications of adding veto power into the legislative bargaining process for our experimental games. Section 3 characterizes our experimental procedures. Section 4 reports our experimental results. Section 5 concludes with a summary of our results and their broader implications including the large and growing other regarding preference literature.

2. The Theory

We model the process of decision making in a committee using the following version of Baron and Ferejohn's (1989) voting game. Under our main experimental treatments, at the beginning of each bargaining round a player is selected with probability 1/3 to make a proposal. A proposal is an allocation (x_1, x_2, x_3) of the single unit of benefit among the three players, i.e., $x_i \geq 0$ and $\sum_i x_i = 1$. Each proposal is voted up or down by the three members of a committee without any room for amendment. A proposal passes if it gets the support of a winning coalition. In the veto committee a winning coalition is any coalition containing at least two members one of which is the veto player. In the non-veto committee any coalition containing at least two members is winning. If a proposal passes each player receives his proposed payoff and the game ends. If a proposal is rejected a second stage of bargaining begins with the process repeating itself, again with a random choice of proposer. Finally, if the agreement (x_1, x_2, x_3) is reached in stage t, then player i receives the payoff $x_i\delta^{t-1}$, where δ is the common discount factor.

Our theoretical benchmark is the stationary subgame perfect equilibrium (SSPE) of the game. For the veto committee, it can be shown that the (ex-ante) expected payoffs of the players in an SSPE must satisfy the following two equations:

[6] Although not statistically significant, similar to our results, the time it takes to get a proposal passed is longer with the veto player than without.

$$u_v = (1/3)(1-\delta u_{nv})+(2/3)\delta u_v,$$

$$u_{nv}=(1/3)(1-\delta u_v)+(1/3)(1/2)\delta u_{nv},$$

where u_v is the payoff of the veto player, u_{nv} is the payoff of a non-veto player, and δ is the discount factor. The first equation asserts that the expected payoff of a veto player arises from two events. The first (with probability 1/3) involves the veto player making a proposal in which case he earns $1-\delta u_{nv}$ and the other (with probability 2/3) involves a proposal by a non-veto player under which the veto player earns δu_{v}.. A similar equation applies to non-veto players. Here the second term refers to the event in which the proposer is the veto player, in which case each non-veto player will be selected to receive an offer with probability one half.

The ex-ante expected payoffs of the players also determine the ex-post payoffs when acting as a proposer. For the veto player this is given by $u_v^* = 1- \delta u_{nv}$ and for the non veto player it's given by $u_{nv}^* = 1- \delta u_v$. For our discount factors of $\delta = .95$ and $\delta = .50$ the equilibrium payoffs allocated within a formed coalition are given in Table 1.[7]

Note that for low delay costs the predicted ex-post payoff for the veto player as coalition partner is greater than that of the non-veto proposer. This outcome is essentially supported by the large share the veto player gets as proposer in conjunction with the small shrinkage in the amount of money to be allocated; i.e., the veto player can afford to wait her turn as proposer if the share allocated is too small. In contrast, with high delay costs the share of the veto player as coalition partner is less than that of the non-veto proposer as a consequence of the high cost of delay. We view this contrasting prediction as one of the key comparative static implications of the model as to whether the behavioral forces underlying the theory are actually at play in the experiment.

For our control committees where decisions are taken by a simple majority (without a veto player) the equilibrium payoffs are derived more easily. Since the three players are symmetric the *ex ante* expected payoff is a one third share for each player. In the SSPE the proposer offers this share and earns $1-\delta(1/3)$ (see Table 2).[8]

[7] For further details on the derivation of the SSPE of the game see Winter (1996)

[8] There is an interesting, and somewhat counter-intuitive, contrast between the effect of the high delay cost on proposer power as the veto player's power shrinks a bit with $\delta = .50$ but it increases substantially for the control treatment and for non-veto proposers. The latter is the proximate cause for the reduction in the veto player's power. More generally, the veto player's share as proposer does not change monotonically with changes in δ, and reaches a minimum of 83.2% when $\delta = .71$.

Two important properties of the equilibrium outcomes for both veto and control games are the following:

1. The equilibrium outcomes are efficient as proposals are accepted in the first stage of any given bargaining round (i.e., no delay). This is a consequence of proposers offering a coalition member what the latter expects to earn when rejecting the proposal.
2. Only minimal winning coalitions (of two members) form in equilibrium. Put differently, the proposer should not offer positive shares to two coalition partners in equilibrium as any money allocated to the redundant member can be better allocated to own payoff and to the non-redundant coalition member, thereby increasing the likelihood of the proposal passing.

After completing our main experimental treatments, we conducted an additional low delay cost treatment in which we reduced the recognition probability of the veto player to 1%. This treatment was motivated by the fact that although the emphasis in the literature on legislative bargaining games is on proposer power, with equal recognition probabilities, the presence of a veto player blunts this proposer power, both in theory and in our experimental results. Within the theory, it takes recognition probabilities well below 10% for the veto player's share to drop well below 50%. Reducing the recognition probability of the veto player to 1% reduces her predicted share to 9.1% as a coalition partner.[9] This provides a convenient "stress test" of the theory – does veto power still trump proposer power in this extreme case?

3. Experimental Procedures[10]

Three subjects had to divide $30 among themselves in each bargaining round. Between 12 and 18 subjects were recruited for each experimental session, so that there were between 4 and 6 groups bargaining simultaneously in each session. After each bargaining round, subjects were randomly re-matched, with the restriction that in the veto sessions each group contained a single veto player. Subject identification numbers also changed randomly between bargaining rounds (but not between stages within a given bargaining

[9] All other predictions of the theory continue hold in this case: Namely the prediction regarding only MWCs forming and no delays in the bargaining process. We chose the 1% recognition probability over a zero recognition probability as the equilibrium analysis for the latter is based on a corner solution.

[10] See http://www.econ.ohio-state.edu/kagel/veto_insts.pdf for the experimental instructions.

round) to preserve anonymity. In the veto sessions, veto players were selected randomly at the beginning of the session with their role as veto players remaining fixed throughout the session.

The procedures for each bargaining round were as follows: First, all subjects entered a proposal on how to allocate the $30 among each of the three subjects in their group. Then one proposal was picked randomly to be the standing proposal. This proposal was posted on subjects' screens giving the amounts allocated to each player, by subject number. If the proposal was accepted, the proposed payoff was implemented and the bargaining round ended. If the proposal was rejected, the process repeated itself (hence initiating a new stage for the same bargaining round), with the amount of money available reduced by the relevant discount factor. Complete voting results were posted on subjects' screens, giving the amount allocated by subject number, whether that subject voted for or against the proposal, and whether the proposal passed or not.[11] In veto sessions the veto player was clearly distinguished on everyone's computer screen throughout the entire bargaining process.

Subjects were recruited through e-mail solicitations from the set of students enrolled in undergraduate economics classes at the Ohio State University for the current and previous academic quarter. There were two inexperienced subject sessions for each treatment.[12]

A total of 10 bargaining rounds were held in each experimental session with one of the rounds, selected at random, to be paid off on. In addition, each subject received a participation fee of $8. These cash bargaining rounds were preceded by a bargaining round in which subjects were "walked through" the contingencies resulting from either rejecting or accepting an offer. Although each bargaining round could potentially last indefinitely, there was never any need for intervention by the experimenters to ensure

[11]Screens also displayed the proposed shares and votes for the last three bargaining rounds as well as the proposed shares and votes for up to the past three stages of the current bargaining round.

[12] We also ran one experienced subject session for each veto treatment. However, we were unable to hold player type (veto or non-veto) constant across sessions, which resulted in a number of spurious results reflective of subjects' past roles; primarily in terms of sharply reduced MWCs as veto players with past experience as non-veto players provided shares to all three players. Since we believe these results to be spurious (while also being rather tedious to report), and the role of veto player tends to remain fixed in real world committees, we only report results for inexperienced subject sessions. Results for these experienced subject sessions are available from the authors on request..

completing a session, with sessions lasting approximately 1.5 hours. Table 3 lists the number of subjects in each treatment condition.

4. Experimental Results

In what follows we first cover results concerning efficiency, market power and the extent to which MWCs are formed for our main experimental treatments – the $\delta = .5$ and .95 treatments with equal recognition probabilities. We then report the effects of the 1% recognition probability treatment on these outcomes. We conclude with an analysis of voting patterns.

4.1 Efficiency

Table 4 reports efficiencies and the percentage of bargaining rounds that end in stage one for both high (top panel) and low (bottom panel) delay cost cases. Efficiency is calculated as the mean percentage of the maximum amount of money ($30) distributed for accepted proposals, summarizing the extent of delays along with their economic cost.

For both high delay and low delay cost cases efficiency is lower in the games with veto players than in the control treatment, regardless of experience levels. Although these differences are not statistically significant for $\delta =.50$, they are for $\delta = .95$ ($p < .01$ using a two tailed Mann-Whitney test).[13] As the data reported in the remainder of table 4 show, the primary source of these efficiency differences for the low delay cost case is that non-veto players stage-one proposals were accepted only 48.1% of the time compared to 71.4% of the time for veto players and 72.0% of the time for the controls.[14]

Figure 1 reports the full distribution of stages within bargaining rounds for when proposals were accepted. The differences between veto and non-veto treatments are clearly minor for the high delay cost case with well over 85% of all proposals accepted in stage one, with only a few of bargaining rounds going beyond stage two. There are, however, marked differences between treatments with low delay costs. In particular, there are substantially fewer proposals accepted in stage one for veto compared to the control treatment, and there are a handful of bargaining rounds that fail to be completed by stage 4, with most of these occurring in games with veto players. In bargaining rounds that

[13] For bargaining round outcomes of this sort the unit of observation, unless stated otherwise, is the outcome for each bargaining group for the treatment in question.

[14] For veto versus non-veto players $Z = 2.13$, $p < .05$, two-tailed binomial test statistic using bargaining round as the unit of observation.

failed to reach closure in stage one, 17.9% of the time players in the low delay cost veto treatment wound up with a smaller share than had they accepted their stage 1 offer (14.3% for veto players; 21.4% for non-veto players) versus 8.9% for the controls.[15] Thus, although the reductions in efficiency between the veto and control treatments are not large in absolute value, for the low delay cost case there are some striking differences in the stage in which proposals were accepted and in players' payoffs as a consequence of rejecting stage one offers.

Efficiency is lower in the $\delta = .50$ treatment than the $\delta = .95$ treatment for both veto and control sessions. This, however, is primarily the result of the much higher discount rate in the $\delta = .50$ treatment, as the average number of stages required to pass a proposal is uniformly lower in the $\delta = .50$ treatment. Finally, the frequency of disadvantageous counter-offers following rejection of a stage-one offer is higher here than in the low delay cost case: 9.1% (1/11) for veto players, 15.5% (3/19) for non veto players, and 23.3% (7/30) for the control treatment. These do not appear to be mistakes as similar percentages hold in the last five bargaining rounds.

Conclusion 1: Efficiency is lower in games with veto players than in the control treatment, with this effect most pronounced with low delay costs ($\delta = .95$) where it is significantly lower. The efficiency differences with low delay costs reflect a substantially smaller probability of proposals being accepted in stage one for games with veto players, as well as a handful of bargaining rounds with veto player that take four stages or more to reach completion.

4.2 Distribution of Power

Table 5 shows the mean shares obtained by players as a function of who the proposer was for both high (top panel) and low (bottom panel) delay cost cases. Shown at the bottom of each panel are the shares predicted under the SSPE. We have included *all* final allocations in these calculations. Similar results are reported when restricting the analysis to MWCs (see the appendix for these results). In the case of non-MWCs, for both the

[15] This was *not* the result of disadvantageous counter-offers as there were very few of these (3.6% and 1.8% for veto and control treatments in stage two, respectively), where by disadvantageous counter offer we mean a player proposing less money for themselves in the next stage than they had rejected in the previous stage. Beyond stage two there were 0% (0/39), 8.2% (5/61), and 5.6% (1/18) disadvantageous counteroffers for veto, non-veto and control players respectively.

control and veto treatments (with a veto proposer), partner's share consists of the *largest* share given to any other player.[16]

Looking at the results as a whole, there are a total of 66 possible pairwise comparisons that can be made between shares in Table 5.[17] Although virtually all of these pairwise comparisons fail to satisfy the quantitative predictions of the SSPE (and in a number of cases are off quite a bit), the qualitative implications of the model are satisfied in all but four cases, and in none of these cases are the differences statistically significant at conventional levels.[18]

Table 6 summarizes results for the primary comparative static predictions of the model.[19] Note in particular result 2 for the within treatment comparisons: veto players as coalition partners obtained *larger* shares than non-veto proposers earned in the low delay cost case and *smaller* shares than non-veto proposers earned in the high delay cost case. This rules out a naive argument that veto players earned larger shares strictly as a consequence of their holding veto power. Further, the fact that veto players as coalition partners in the low delay cost case obtained larger shares than non-veto proposers, although anticipated in the theory, goes against the emphasis in the literature on proposer power.

That veto players in their role as proposers achieved substantially larger shares than non-veto proposers, or than proposers in the control treatments, is not terribly surprising given the large shares the theory predicts they will get. What is striking in the control data, as well as in previous legislative bargaining experiments, is that proposers fail to achieve anything like the large shares predicted in the theory.[20] Given this limited (actual) proposer power, our data show that veto power adds substantially to proposer power. In addition veto power adds substantially more to proposer power than it adds to the share a

[16] As a result of non-MWCs the shares sum to less than one in all cases.

[17] Here we are comparing any pair including, for example, a veto proposer with high delay costs with a control partner with low delay costs.

[18] The four cases where the differences have the incorrect sign relative to the predicted outcome are veto proposers and the non-veto partners with high delay costs versus their counterparts with low delay costs, veto partners with low delay costs versus proposers with high delay costs in the control treatment, and non-veto proposers with high delay costs versus proposers with low delay costs in the control treatment.

[19] Bargaining round is the unit of observation in all of these statistical tests. Unless otherwise noted all tests for statistical significance are one-tailed Mann-Whitney tests. One-tailed tests are used here as the theory makes definite predictions on all counts.

[20] The reasons behind this will be discussed in some detail in section 4.4 below where we review how players voted conditional on the shares allocated to them.

player can expect as a coalition partner. The latter has important policy implications for controlling veto power, namely limiting the veto player's proposal power by, for example, enacting committee rules that either exclude, or at least rotate, the chair's position.

To measure the increase that veto power adds to proposer power we take the difference between the veto player's share as proposer and the proposer's share in the control treatment and divide it by the difference between the veto player's share as proposer and the partner's share in the control treatment. These calculations are reported in the first two columns of Table 7 along with the shares predicted under the SSPE. Veto power adds substantially more to proposer power than the theory predicts for both high and low delay cost cases: 46.5% versus 3.5% predicted for $\delta = .50$ and 87.8% versus 39.7% for $\delta = .95$. Thus, veto power and proposer power are strong compliments.

The last two columns of Table 7 contrast the increased shares veto players get as proposers to the increased share they get as coalition partners. To calculate this we take the difference between the veto player's share as proposer and their share as coalition partner divided by the difference between the veto player's share as proposer and the partner's share in the control treatment. For the low delay cost case this is substantially more than the theory predicts - over 50% achieved in practice versus just under 21% predicted. For $\delta = .50$ the percentage share is essentially the same as the theory predicts.

In all cases the increased share that veto power adds to proposer power is greater than 50%, and is relatively larger with high compared to low delay costs. Thus, from a policy perspective (or a mechanism design perspective), to the extent that it is desirable to curb the veto player's power, there is much to be gained by limiting their proposal power; i.e., enact committee rules that either exclude, or at least rotate, the chair's position. In fact this policy implication is largely incorporated into the rules of the United Nation's Security Council where the provisional agenda for the Security Council is drawn up by the Secretary-General and approved by the President of the Security Council, with the presidency of the Council rotating among its members from month to month.

Conclusion 2: The qualitative implications of the model regarding player shares are largely satisfied (62 out 66 cases), although the point predictions typically fail. In particular, proposer power is not nearly as large as predicted in the control treatments. However, veto power adds substantially to actual proposer power. Further, comparing what veto power adds to proposer power versus what it adds to one's share as a coalition partner, it adds substantially more to proposer power, at least with equal recognition probabilities. Thus, one way to curb veto power in cases such as this is to curb the veto player's right to propose.

4.3 Extent of Agreements on Proposals

Table 8 shows the percentage of minimum winning coalitions (MWCs) for all proposals as well as all proposals that passed for both high (top panel) and low (bottom panel) delay costs. In both cases veto players are significantly more likely to propose and pass MWCs than non-veto players, with this tendency somewhat more pronounced with low delay costs.[21] However, in neither case do we find fewer MWCs in the veto games than in the control treatment.[22]

Figure 2 reports the frequency with which MWCs were proposed, by bargaining round, for the veto games. (We focus on all proposals as they give a better idea of players' intentions than do passed proposals.) MWCs grew substantially for veto players: 60.6% (47.5%) averaged over the first two bargaining rounds versus 95.8% (93.6%) averaged over the last two bargaining rounds for high (low) costs. In contrast, there was much smaller growth in the frequency with which non-veto players proposed MWCs for the high delay cost case, and essentially no growth in their frequency for the low delay cost case. This, in conjunction with the significantly lower overall frequency of MWCs for non-veto versus veto players suggests the following story: A non-veto player offers a non-MWC frequently as a way to collude with the other non-veto player against the veto player, hoping that if the proposal fails the other non-veto player will reciprocate in the next stage of the bargaining round by proposing a non-MWC as well. The veto player doesn't need to offer a large coalition because he is assured of being a member of any proposed coalition. This argument also helps explain the growth in MWCs for non-veto

[21]For all proposals $Z = 1.76$, $p < .10$ ($Z = 2.30$, $P < .05$) two-tailed Mann-Whitney test using subject averages as the unit of observation for $\delta = .50$ ($\delta = .95$). For passed proposals $Z = 1.75$, $p < .10$ ($Z = 2.52$, $p < .05$) two-tailed binomial test using bargaining round as the unit of observation for $\delta = .50$ ($\delta = .95$).

[22] For the high delay cost case we find significantly fewer MWCs for passed proposals in the control treatment than in the veto games ($Z = 3.13$, $p <.01$, two-tailed binomial test statistic using bargaining round as the unit of observation). This result, however, is misleading as there were relatively large numbers of non-MWCs in the control treatment in which one of the players was offered a $1/30^{th}$ share or less, shares that were virtually never voted in favor of by the player in question (and which happened infrequently in all other treatments). If we consider offers less than or equal to a $1/30^{th}$ share as effectively MWCs, then 61.0% of all proposals passed were MWCs in the control treatment, which is no longer significantly different from the corresponding veto games ($Z < 1.0$).

players with high delay costs versus the absence of growth with low delay costs, as there were more likely to be multiple proposals for the $\delta = .95$ case, providing increased incentives for a non-veto player to propose large coalitions.

Conclusion 3: Veto players tend to propose and pass significantly more minimal winning coalitions than non-veto proposers with both high and low delay costs. There are substantial increases over time in the frequency with which veto players propose MWCs, with much slower, or no growth, for non-veto players.

4.4 Veto Games with One Percent Recognition Probability

This section briefly reviews and compares efficiency levels and the frequency of MWCs in the 1% recognition case compared to the equal recognition probability case with $\delta = .95$. We then report the effect of the virtual elimination of proposer power for the veto player on her share of the pie as coalition partner, the issue of primary interest.

Efficiency averaged 97.8% (0.50) under the 1% recognition treatment compared to 95.5% (0.69) in the equal recognition case (standard error of the mean in parentheses). These differences are statistically significant at conventional levels ($p < .01$ using a two-tailed Mann-Whitney test). When non-veto players obtained the right to propose first, bargaining rounds ended in stage one in 70.9% of all cases here compared to 48.1% of the time for the equal probability recognition case ($Z = -2.93$, $p < .01$, two-tailed binomial test using bargaining round as the unit of observation). This means that much of the gain in efficiency in the 1% recognition probability case resulted from a sharp decline in the frequency with which players exercised their veto power.

Non-veto players proposed MWCs 61.7% of the time in the 1% recognition probability treatment compared to 46.2% of the time in the equal probability recognition case. Winning proposals involved MWCs in 54.5% of the 1% recognition rule cases versus 48.4% of all such cases when the winning proposal came from a non-veto player in the equal recognition case ($Z = 1.32$, $p > .10$).[23]

Table 9, compares shares obtained by non-veto proposers for proposals that passed in the 1% recognition rule case along with the shares of their veto partners. Also reported, for comparative purposes, are average shares veto players obtained as coalition partners for the equal recognition rule cases. Shares of veto players as coalition partners

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[23] Veto players got the right to propose first in 1 out of the 80 bargaining rounds conducted. This one case has been excluded in calculating the frequency of MWCs for the 1% case.

are slightly higher than for non-veto proposers in the 1% recognition rule treatment - 45.8% (0.8) versus 43.7% (1.2) (with standard errors in parentheses) – in striking contrast to the much smaller shares veto players are predicted to get.[24] However, consistent with the comparative static prediction of the model, the sharp reduction in proposer power inherent in the 1% recognition rule reduces the share that veto players get as coalition partners - 45.8% (0.8) versus 50.7% (1.0) (with standard errors of the mean in parentheses; Z = 3.57, $p < .01$, two-tailed Mann-Whitney test). These lower shares, in conjunction with the higher efficiency in the 1% recognition rule case, suggests that veto players were more accommodating than with low delay costs in the equal recognition case, and/or that non-veto players were satisfied getting approximately half the pie and chose not to push the issue. Finally, shares of veto players as coalition partners are slightly higher than with equal recognition probabilities and high delay costs – 45.8% (0.8) versus 42.2% (1.0) (Z = 3.23, $p < .01$). As such halving the discount factor had a slightly greater impact on reducing the veto player's power as coalition partner compared to a drastic reduction in their proposer power.

The 1% recognition rule treatment might be likened to an infinite horizon bilateral bargaining game where one player, the veto player, never gets to make an offer. How can veto players maintain such high shares contrary to the theory's prediction in this case? We conjecture that since non-veto proposers know that if their proposal was rejected there was a better than 50% chance that their share will drop to zero (if they were left out of the MWC) they opted for the safe strategy of giving a relatively large share of the pie to the veto player in the hope that their proposal would be accepted.[25]

Proposer power has been reported in shrinking-pie bilateral bargaining games where it does not exist in theory (Ochs and Roth, 1989), as well as in multilateral bargaining games (Frechette, Kagel and Morelli, 2005c) where theory implies it should not exist. As such the absence of proposer power in the low delay cost case, particularly in the 1% probability recognition treatment, provides a notable counter-example, and a tribute to the veto player's power.

[24] These differences, although small, are quite consistent as they are significantly different using bargaining round as the unit of observation ($p < .01$, two-tailed Mann-Whitney test). Further, this difference becomes slightly larger over the last five bargaining rounds: 48.5% (0.8) versus 45.0% (1.5) (Z = 3.23, $p < .01$).

[25] Average shares offered to non-veto players, conditional on shares being allocated to everyone, were 22.8% for accepted proposals.

Conclusion 4: Reducing proposal recognition probabilities for the veto player to a negligible level still results in veto players obtaining larger average shares than non-veto proposers in the low delay cost case, contrary to the theory's prediction. As such veto power trumps proposer power with low delay costs even when the theory predicts the opposite result. However, the comparative static predictions of the model are satisfied as the reduction in recognition probabilities does reduce the veto players' share as coalition partner.

4.5 Voting Patterns

Figure 3 plots the empirical cumulative density functions (cdf) for the frequency with which the different player types voted in favor of the shares they were offered. Votes of proposers are excluded from the analysis. For both high and low delay costs the data line up qualitatively the way the theory predicts except for a handful of observations involving very large shares that were rejected by non-veto players in the low delay cost case. Excluding these observations (a handful of shares of 50% or more to non-veto players) (i) the empirical cdf for veto players stochastically dominates that of the controls (i.e., for a given share, the controls were more likely to vote in favor of a proposal than were the veto players) and (ii) the empirical cdf for the controls stochastically dominates that of the non-veto players.[26]

However, the quantitative predictions of the SSPE were clearly not satisfied as both non-veto players and controls were unwilling to accept anything approaching the SSPE share as coalition partners, as were veto players in the high delay cost case. In contrast, veto players were willing to accept much smaller shares than predicted with low delay costs. For example, with $\delta = .95$ non-veto players as coalition partners within a MWC should have accepted all shares of 7.6% or more. However, they were never even received an offer of 15% or less, and had three offers of 20% or less that they voted on, of which one was accepted. Thus, offers in the neighborhood of the SSPE seem to have been considered too small to be seriously considered by the veto players, and would have stood little chance of being accepted. Similarly controls should have accepted all shares of 31.7% or more according to the SSPE. But within MWCs there were a total of eleven offers between 30 and 39% that were voted on, of which three were accepted. In

[26] The empirical cdf for veto players in the equal recognition probability, low delay cost case stochastically dominates that of veto players in the 1% recognition probability case, which in turn stochastically dominates the empirical cdf for veto players in the equal recognition probability, high delay cost case.

contrast, with δ = .95 veto players should have *rejected* all shares 79.8% or less as coalition partners within a MWC. But this clearly did not happen, as all shares offered were less than or equal to 62.0%, and 63.3% of all offers in the interval 50-62% that were voted on were accepted. As a result, coalition partner shares predicted under the SSPE would have generated much lower expected payoffs to proposers than the shares actually offered with both high and low delay costs.[27]

Figure 3 also reveals a number of focal points in voting. For veto players there is a focal point at the 50% split that generates large numbers of acceptances for both high and low delay costs, with a somewhat smaller focal point at the 33.3% split for the high delay cost case. For non-veto players there is a focal point at the 33.3% split for both high and low delay costs. For the control treatments there is a focal point at the 33.3% split for both δ = .50 and δ = .95, and a focal point at the 50% split for the low delay cost controls, with a much smaller focal point at around 45% for the high delay cost controls. Note, these focal points are to a considerable extent sensitive to the conditions underlying the bargaining process. For example, the focal point of a 33.3% share for veto players in the high delay cost case is not found in the low delay cost case where veto players have much greater power because of the minimal shrinkage involved in rejecting a proposal. Similarly, there is a large equal split focal point for the controls in the low delay cost case which is not present in the high delay cost case where potential coalition partners are in a weaker position because of the large reduction in the money to be split should a proposal be rejected. Further, as the theory predicts, all player types are as likely, or more likely, to vote in favor of smaller shares given the larger discount factor associated with high versus low delay costs.

The voting patterns of non-veto players and coalition partners in the control treatment are quite similar to those reported in earlier experimental studies of the Baron-Ferejohn bargaining model – a minimum threshold for accepting offers that is typically well above the SSPE. This has generally been attributed to "fairness" or "equity" considerations, and is characteristic of the bilateral bargaining literature as well (see Roth, 1995, for a review). However veto players in the low delay cost case show the

[27] This result is based on the detailed analysis of voting patterns reported in Sung (2006) based on probit estimates of voting patterns.

opposite pattern, a minimum threshold for accepting offers that is *less than* the SSPE. The closest counterpart to a veto player in these earlier infinite horizon multilateral bargaining games is that of an Apex player who controls more votes than other players but cannot, unilaterally, block or pass a proposed allocation. Here too the “strong” player (the Apex player) tends to accept a relatively smaller share than predicted under the SSPE when invited in as a coalition partner (Fréchette, Kagel and Morelli, 2005c). We believe that similar equity and strategic considerations drive the strong players to accept smaller shares than their SSPE allocation in both cases as (i) they average more than 50% of the pie and (ii) as a proposer the strong player is unable to get potential coalition partners to accept anything approaching the small share predicted under the SSPE.

Finally, given the focal points reported in Figure 3, and the role of equity considerations, or other-regarding preferences, reported in the bargaining literature it is of some interest to determine how frequently subjects proposed equal splits of the $30, and whether these frequencies varied with players bargaining strength. Figure 4 reports these results. We consider two types of equal splits: (i) when proposers divided the money equally between all three players and (ii) when proposers divided the money equally between two of the three players, with a zero allocation to third player. In both cases we classify outcomes in terms of “approximately” equal splits.[28] There are relatively few cases of equal splits for all players reaching a maximum of 18.2% of non-veto players’ proposals in the high delay cost case and a low of 0.9% for veto players in the same committees. We find similar differences as a function of players bargaining power for the ½, ½, 0 case with 29.8% of non-veto players in the low delay cost case proposing these splits (along with 33.3% of the controls) versus 4.6% of the veto players. Thus, in general, non-veto players were much more “equality” minded than veto players, with control players’ sense of equity changing substantially with changes in the discount factor.

Conclusion 5: Voting patterns indicate a greater tendency to accept proposals in the high than in the low delay cost cases for all player types for almost all offers. Further, veto players required a substantially larger share than non-veto players in order to vote in

[28] For the case of equal shares all around we permit a maximum difference of $0.30 between the largest and smallest share, and for splits of ½, ½, 0 we permit a maximum difference of $0.30 for the two players receiving the largest shares and a share of no more than $1.00 for the “zero” share player. Results reported are robust to using precise definitions of equality.

favor of a proposal, with coalition partners in the control treatment being somewhere in between in both high and low delay cost cases.

5. Summary and Conclusions

Veto power has a substantial effect on the functioning of committees. First, it prolongs the process of decision making, especially with low delay costs when committees face no exogenous pressure to reach fast decisions or are able to meet frequently and easily make proposals. Second, it awards veto members excessive bargaining power particularly when combined with proposer power (though not as much as the theory predicts). Third, veto power can lead to less consensus (smaller winning coalitions) when veto members initiate proposals than when non-veto players initiate proposals. Our experimental results, which expose these side effects, on which concerns are often raised in real-life committees, also suggest some means to diminish them. First, limiting the proposal power of veto members by, for example, restricting the veto player's role as committee chair, can serve to reduce the second effect. Such a measure seems to be particularly effective with high delay costs. Limiting the proposer power of veto players would also have the beneficial side effect of increased consensus (fewer minimal winning coalitions). Second, to the extent that the proposal power of the veto player is restricted, the veto player's power can be further restricted by introducing deadlines on decisions which generate high delay costs.

The suggestion that one way to avoid an excessive concentration of power within a committee is to separate veto power and agenda setting power has been adopted, at least to some extent, at the state level in the U. S. In some states (e.g., Maryland) only the governor can propose public work projects. The legislature can amend the proposal (but can only devote *less* money to any project), with the governor retaining the option to veto the amended proposal. The veto power of the governor, as well as the requirement that legislative amendments can only devote less money to any project are meant to put a limit on pork barrel spending, as the governor's interests tend to be statewide as opposed to the more parochial interests of individual legislators. However, the fact that the governor cannot propose amendments serves to limit the governor's veto power.

Our results also have some interesting general implications for bargaining behavior. First, they confirm previous findings that although fairness considerations are essential to explaining bargaining results, these results are also responsive to strategic considerations. But more importantly, our results hint at the fact that subjects' perceptions about fairness are affected by strategic considerations. For example, with high cost (low cost) of delays non-veto players propose either equal shares for all, or an equal split between themselves and one other player, in 52.3% (38.5%) of all stage-one proposals versus 20.9% (12.9%) for veto proposers, and 21.0% (51.3%) for control players when they are proposers.[29] These differences as a function of a player's role in the bargaining game are quite dramatic. As such this suggests that the fairness reference point shifts as a function of the underlying rules of the game in conjunction with a subject's bargaining power. Models of social preferences such as Fehr and Schmidt (1999) or Bolton and Ockenfels (2000), and even some of their extensions that incorporate issues of reciprocity and efficiency (Charness and Rabin, 2002, Dufwenberg and Kirchsteiger, 2004), ignore this feature. Indeed, general models that take such features into account are likely to turn out to be exceedingly complex. This suggests that modeling of social preferences should be tailored for specific strategic environments.

As is the case with many other experimental studies one might wonder whether the consistencies between the theory and behavior reported here is generated by the strategic forces the theory suggests or some other factors. Solving for the precise equilibrium of the game is probably beyond our subjects' capabilities, nor are we suggesting that they do so. Nevertheless we believe that the fundamental strategic forces, and the basic intuition underlying the theory, are sufficiently transparent for subjects to recognize and to respond to in their behavior. A key result supporting this is the effect of the change in the discount factor between high and low delay costs treatments. With low delay costs it is reasonably transparent that veto players can more readily afford to reject offers that do not provide them with a relatively large share of the pie than with high delay costs, as it is much less expensive in terms of future expected income to reject such offers. This is the fundamental strategic force at play between the two treatments resulting in the equilibrium prediction that with low delay costs veto players will obtain

[29] Using the approximately equal split definitions developed earlier. Note that ½, ½, 0 splits by non-veto players almost always give the ½ share to the veto player.

larger shares as coalition partners than non-veto proposers, but will obtain smaller shares than non-veto proposers with high delay costs, results which are satisfied in the data.

References

Bailey, Sydney D. (1969); *Voting in the Security Council*, Bloomington & London: Indiana University Press.

Banks, J.S and Duggan, J (2000); "A Bargaining Model of Collective Choice," *American Political Science Review* 94(1), 73-88.

Baron, D. P., and J. A. Ferejohn (1989); "Bargaining in Legislatures," *American Political Science Review*, 83(4), 1181-1206.

Berl, J., R. McKelvey, P. Ordeshook, and M. Winer (1976); "An experimental test of the core in a simple n-person cooperative non-side payment game," *Journal of Conflict Resolution*, 20, 453-479.

Bolton, G., and A. Ockenfels (2000); "ERC: A Theory of Equity, Reciprocity, and Competition," *American Economic Review* 90(1): 166-193.

Charness, G and Rabin, M. (2002); "Understanding Social Preferences with Simple Tests," *Quarterly Journal of Economics* 117: 817-869.

Diermeier, D. and R. Morton (2005); "Proportionality versus Perfectness: Experiments in Majoritarian Bargaining," David Austen-Smith and John Duggan, eds. *Social Choice and Strategic Behavior: Essays in the Honor of Jeffrey S. Banks*. Berlin et al.: Springer

Diermeier, D. and R. Myerson (1999); "Bicameralism and Its Consequences for the Internal Organization of Legislatures," *American Economic Review* 89(5):1182-1196

Dufwenberg, M. and Kirchsteiger, G. (2004); "A Theory of Sequential Reciprocity," *Games and Economic Behavior*, 47, 268-98.

Eavey, C., and G. Miller (1984); "Fairness in majority rule games with a core," *American Journal of Political Science*, 28 (3), 570-586.

Fehr, E and K. M. Schmidt (1999); "A Theory of Fairness, Competition and Cooperation," *Quarterly Journal of Economics* 114: 817-868.

Fiorina, M.., and C. Plott (1978); "Committee decisions under majority rule: An experimental study," *American Political Science Review*, 72, 575-598.

Frechette, G. R., J. H. Kagel, and S. F. Lehrer (2003); "Bargaining in Legislatures: An Experimental Investigation of Open versus Closed Amendment Rules," *American Political Science Review*, 97(2), 221-232.

Frechette, G. R., J. H. Kagel, and M. Morelli (2005a); "Gamson's Law versus Non-Cooperative Bargaining Theory," *Games and Economic Behavior* 51: 365-390.

---------- (2005b); "Nominal Bargaining Power, Selection Protocol and Discounting in Legislative Bargaining," *Journal of Public Economics*, 89: 1497-1517.

---------- (2005c); "Behavioral Identification in Coalitional Bargaining: An Experimental Analysis of Demand Bargaining and Alternating Offers," *Econometrica,* 73: 1893-1938.

Gamson, W.A.(1961): "A Theory of Coalition Formation," *American Sociological Review*, 26(3), 373-382.

Haney, P. J., R. Herzberg and R. K. Wilson (1992); "Advice and consent: Unitary actors, advisory models, and experimental tests," *The Journal of Conflict Resolution* 36 (4), 603-633.

Hoffman, E., and C. Plott (1983): "Pre-meeting discussions and the possibility of coalition breaking procedures in majority rule committees", *Public Choice*, 421-439.

McCarty, N. M. (2000); "Presidential Pork: Executive Veto Power and Distributive Politics," *American Political Science Review*. 94(1): 117-29.

McKelvey, R. D. (1991); "An Experimental Test of a Stochastic Game Model of Committee Bargaining: in *Contemporary Laboratory Research in Political Economy*, ed. by Thomas R. Palfrey. Ann Arbor: University of Michigan Press.

____________ and P. Ordeshook (1990); "A decade of experimental research on spatial models of elections and committees," in *Readings in the Spatial Theory of Voting*, edited by J. M. Enlow and M. J. Hinich, Cambridge, England: Cambridge University Press, 99-144.

Morelli, M. (1999); "Demand Competition and Policy Compromise in Legislative Bargaining," *American Political Science Review* 93, 809-820.

Ochs, J. and Roth, A. E. (1989); "An Experimental Test Study of Sequential Bargaining," *American Economic Review* 79, 355-384.

Roth, A. E. (1995); "Bargaining Experiments," in *Handbook of Experimental Economics*, ed. by John H. Kagel and Alvin E. Roth. Princeton: Princeton University Press, 253-348

Russell, Ruth B, with Jeanette E. Muther (1958); *A History of the United Nations Charter: The Role of the United States, 1940-1945*. Washington DC: The Brookings Institution.

Sung, H (2006); *Essays on Veto Bargaining Games*, Ph D. dissertation, Ohio State University.

Wilson, R. K. and R. Herzberg (1987); “Negative Decision Powers and Institutional Equilibrium: Experiments on Blocking Coalitions,” *The Western Political Quarterly*, 40 (4), 593-609.

Winter, E (1996); “Voting and Vetoing,” *American Political Science Review*, 90(4), 813-823

High Delay Cost (δ= .50)				Low Delay Cost (δ= .95)			
Veto Proposer		Non-Veto Proposer		Veto Proposer		Non-Veto Proposer	
Veto	Non-Veto	Veto	Non-Veto	Veto	Non-Veto	Veto	Non-Veto
85.7 %	14.3 %	21.5 %	78.6 %	92.4 %	7.6 %	79.8 %	20.2 %

Table 1: Equilibrium Payoff of the Veto Game

High Delay Cost (δ= .50)		Low Delay Cost (δ= .95)	
Proposer	Partner	Proposer	Partner
83.3 %	16.7 %	68.3 %	31.7 %

Table 2: Equilibrium Payoffs of the Control Game

Treatment		Recognition Probabilities	Number of Subjects
δ = .95	Veto game	Equal	33
		One Percent for Veto[a]	24
	Control game	Equal	30
δ = .50	Veto game	Equal	33
	Control game	Equal	30

Table 3: Number of Subjects Per Treatment

[a] Non-veto players recognition probabilities 49.5% for both players.

		Efficiency[a]	Percentage of Bargaining Rounds that End in Stage-One		
			Veto Proposer	Non-Veto Proposer	All Proposers
High Delay Cost (δ= .50)	Veto Game	92.8 % (1.84)	86.1 % {31/36}	87.8 % {65/74}	87.3 % (1.16) [4]{96/110}
	Control Game	93.6 % (1.88)	89.0 % (1.15) [4]{89/100}		
Low Delay Cost (δ= .95)	Veto Game	95.5% (0.69)	71.4 % {20/28}	48.1 % {39/81}	54.1 % (1.95) [12]{59/109}
	Control Game	98.1 % (0.33)	72 % (1.4) [4]{72/100}		

Table 4: Percentage of Bargaining Rounds that End in Stage 1 and Efficiency

Average number of stages in parenthesis. Maximum number of stages in brackets. Raw data in braces

[a] Standard error of the mean in parentheses.

		Veto Proposer		Non-Veto Proposer		Control Treatment	
		Veto Player	Non-Veto Player	Veto Player	Non-Veto Player	Proposer	Partner
High Delay Cost (δ= .50)	Reported Share	59.1 % (2.4)	36.5 % (2.2)	42.2 % (1.0)	44.6 % (1.7)	50.5 % (1.0)	40.6 % (1.0)
	Predicted Share	*85.7 %*	*14.3 %*	*21.5 %*	*78.6 %*	*83.3 %*	*16.7 %*
Low Delay Cost (δ= .95)	Reported Share	58.8 % (1.6)	37.0 % (1.0)	50.7 % (1.0)	41.2 % (1.6)	45.8 % (1.1)	44.0 % (0.7)
	Predicted Share	*92.4 %*	*7.6 %*	*79.8 %*	*20.2 %*	*68.3 %*	*31.7 %*

Table 5: Mean Shares Obtained by Players
(standard error of the mean in parenthesis)

		Veto Power Adds to Proposer Power[b]	Proposer Power Adds to Veto Power[c]
High Delay Cost (δ= .50)	All coalitions	46.5 %	91.4 %
	MWCs	41.3 %	92.2 %
	Predicted[a]	*3.5 %*	*93.0 %*
Low Delay Cost (δ= .95)	All coalitions	87.8 %	54.6 %
	MWCs	69.4 %	68.6 %
	Predicted[a]	*39.7 %*	*20.8 %*

Table 7: Veto Player's Power: Predicted vs. Actual

a. For MWC's
b. [U(pr, v) – U(pr, c)]/[U(pr, v) – U(pa, c)]*100
c. [U(pr, v) – U(pa, c)]/[U(pr, v) – U(pa, c)]*100

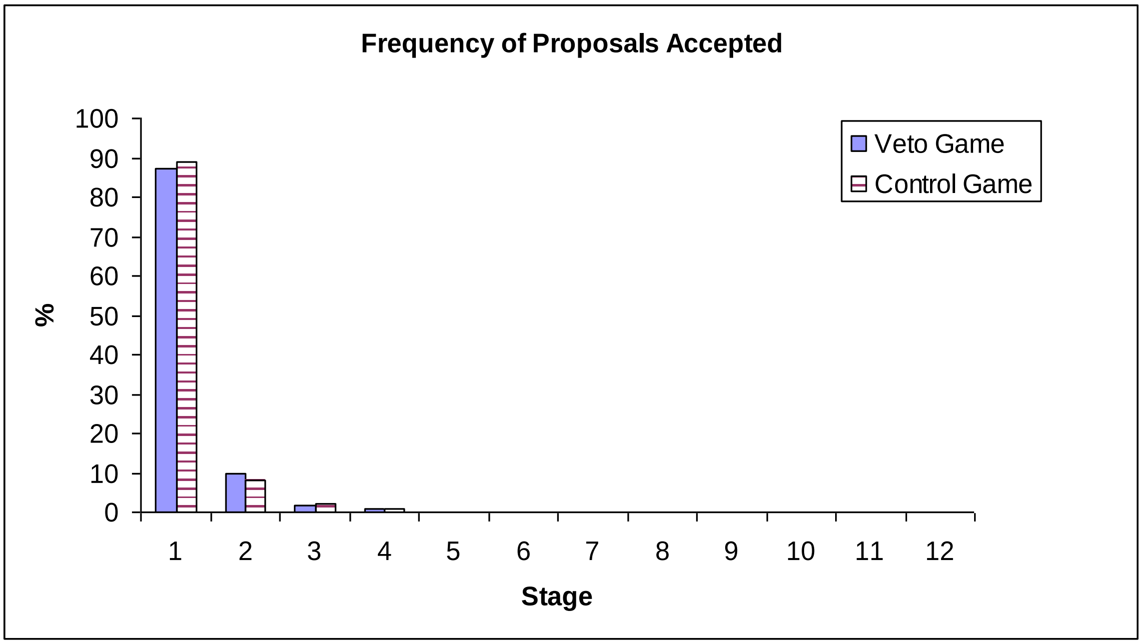
where U(pa, c) and U(pr, c) are payoffs of coalition partner and proposer in the control treatment and U(pr, v) and U(pa, v) are payoffs of veto players as proposer and coalition partner.

		All Proposals			Passed Proposals		
		Veto Proposer	Non-Veto Proposer	Overall	Veto Proposer	Non-Veto Proposer	Overall
High Delay Cost (δ= .50)	Veto Game	79.7 % (102/128)	55.1 % (141/256)	63.3 % (243/384)	76.5 % (26/34)	59.2 % (45/76)	64.5 % (71/110)
	Control Game	42.6 % (147/345)			43.0 % (43/100)		
Low Delay Cost (δ= .95)	Veto Game	78.4 % (167/213)	46.2 % (197/426)	60.0 % (364/639)	72.3 % (34/47)	48.4 % (30/62)	58.7 % (64/109)
	Control Game	59.2 % (245/414)			61.0 % (61/100)		

Table 8: Percentage of Minimum Winning Coalitions

(raw data is in parenthesis)

High Delay Cost (δ= .50)



Low Delay Cost (δ= .95)

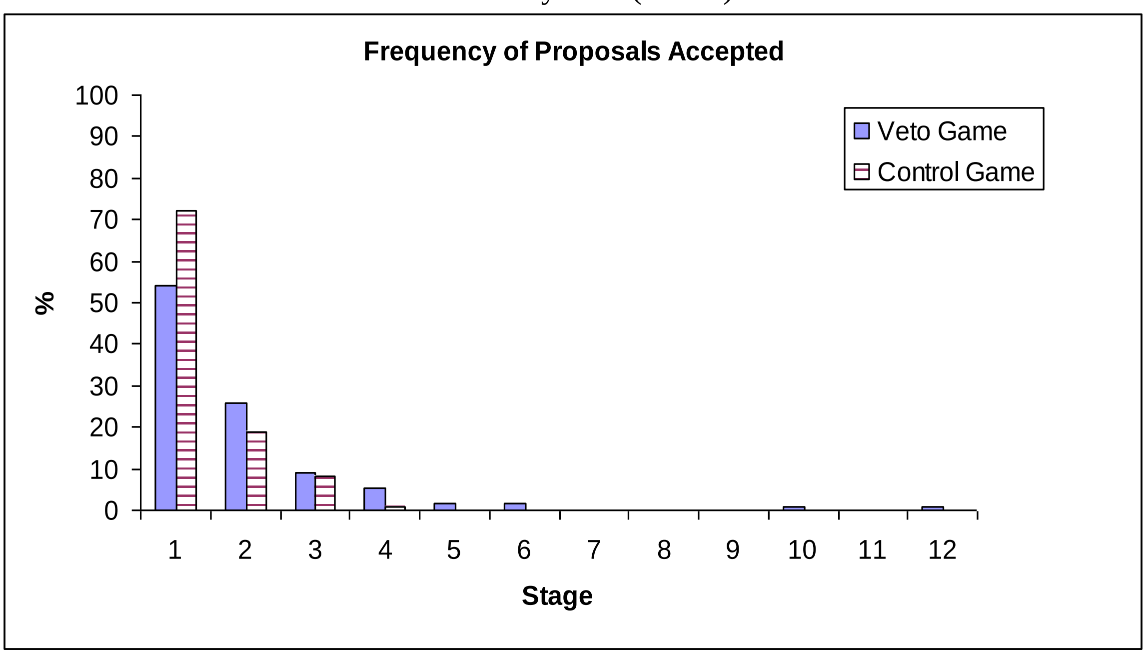
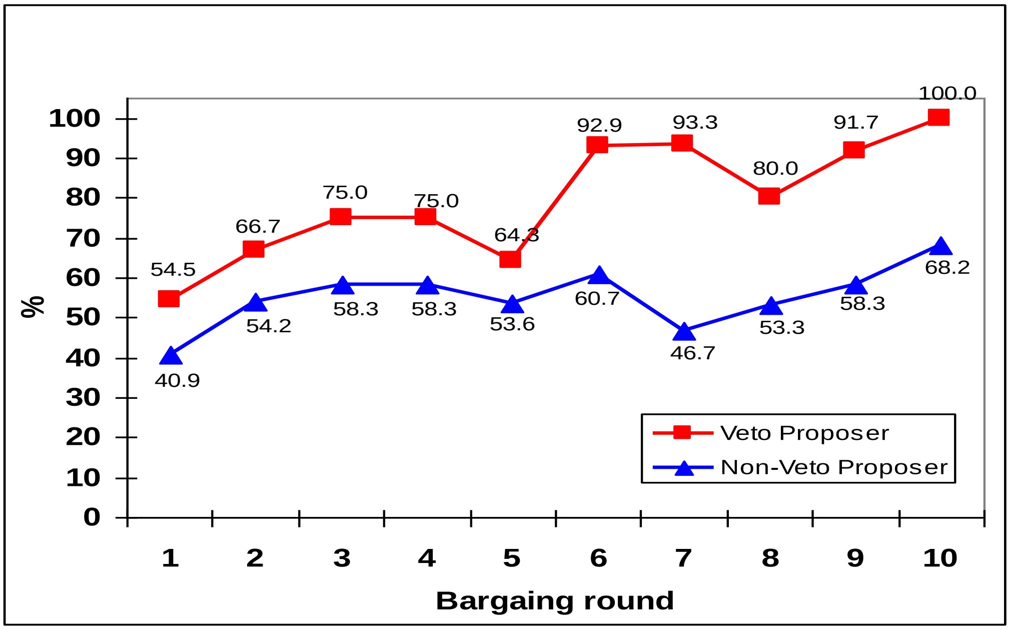


Figure 1: Stages in which Proposals Were Accepted

High Delay Cost (δ= .50)



Low Delay Cost (δ= .95)

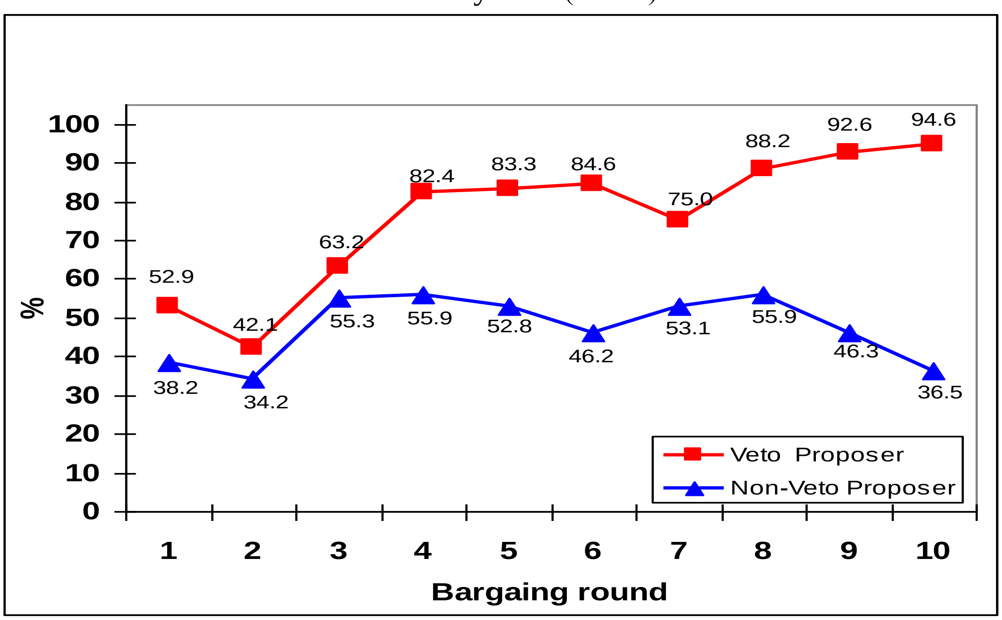
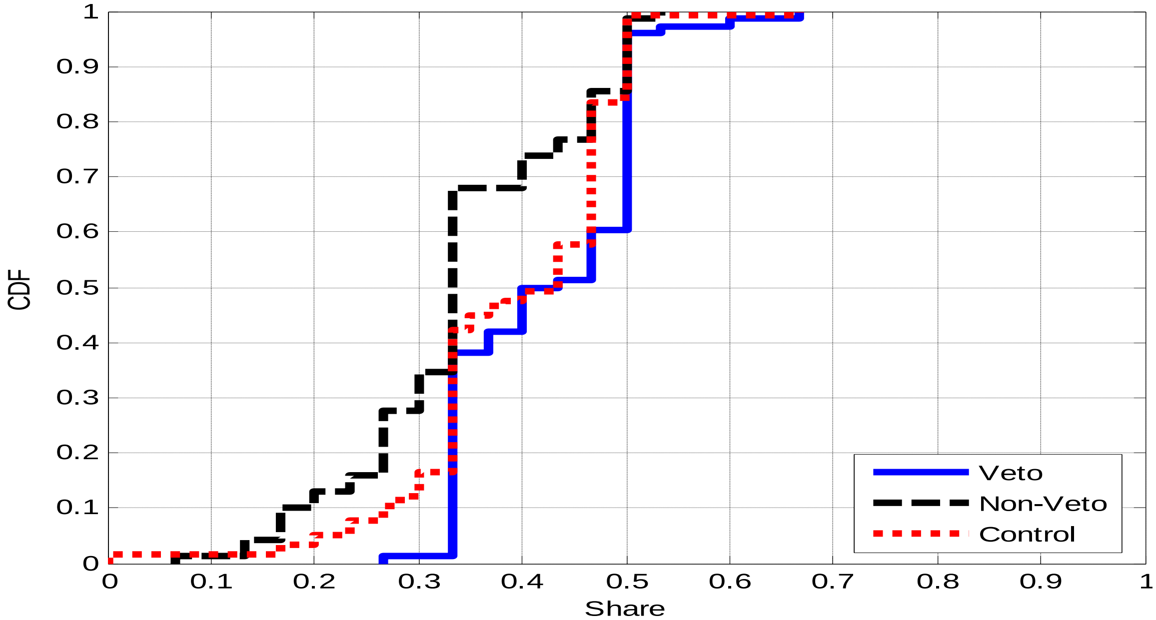


Figure 2: Percentage of MWCs: All Proposals

High Delay Cost (δ= .50)



Low Delay Cost (δ= .95)

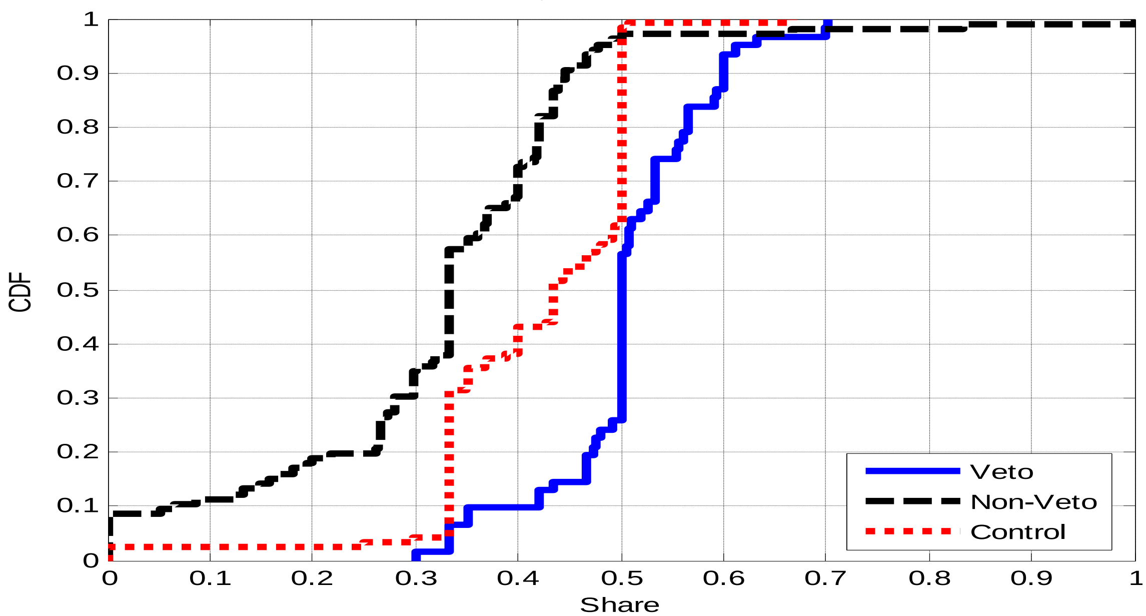
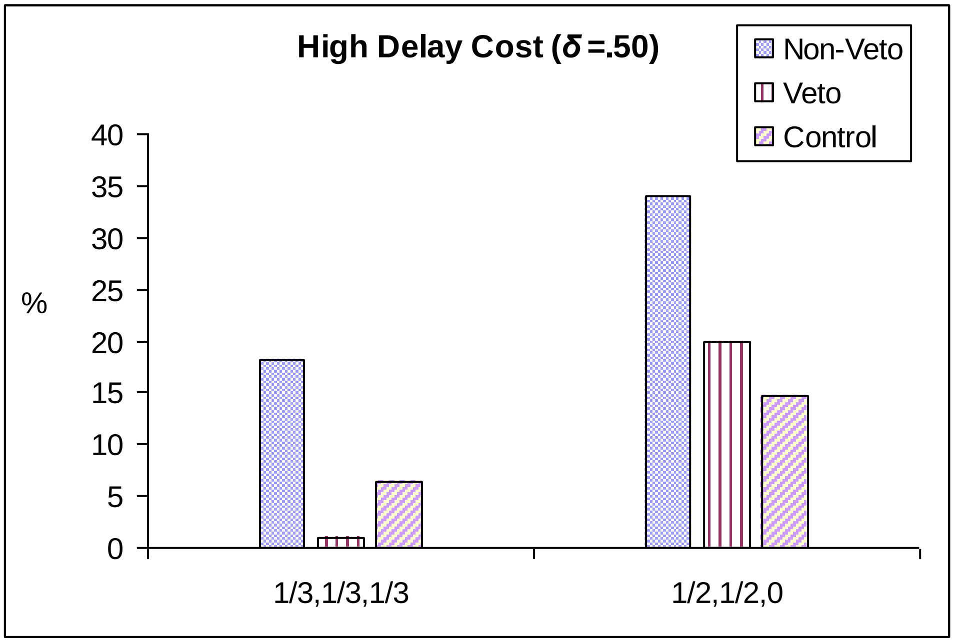


Figure 3: The Cumulative Density Function for Voting in Favor of a Proposal as a Function of Share Offered



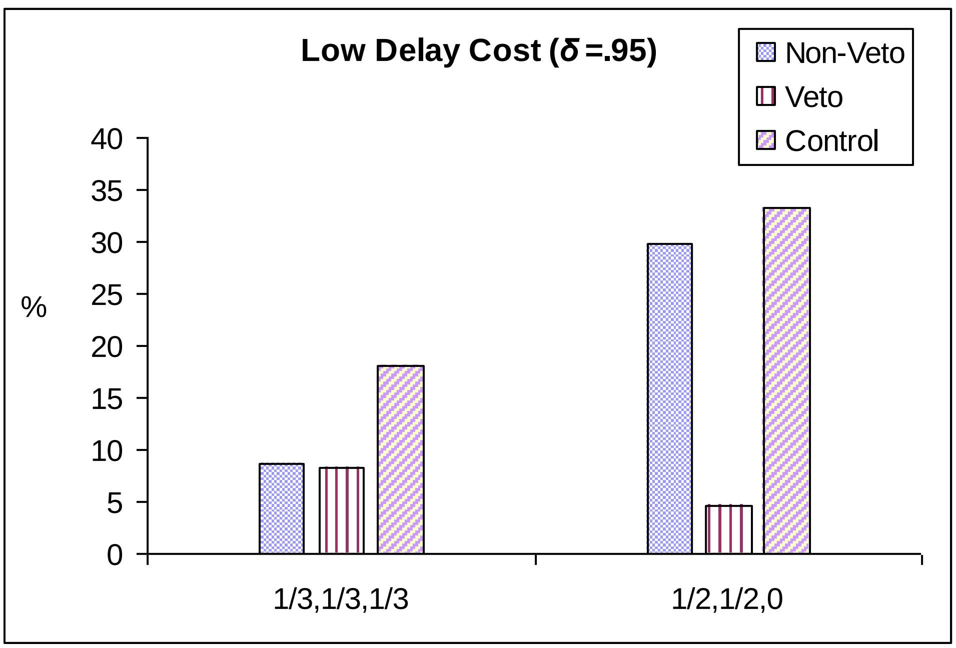


Figure 4: Equal Share Allocations (all stage-one proposals)

Appendix: Mean Shares Obtained for MWCs only

(standard error of the mean in parentheses)

		Veto Proposer		Non-Veto Proposer		Control Treatment	
		Veto Player	Non-Veto Player	Veto Player	Non-Veto Player	Proposer	Partner
High Delay Cost (δ= .50)	Reported Share	62.7 (2.5)	37.3 (2.5)	46.1 (1.1)	50.5 (2.3)	55.3 (1.1)	44.7 (1.1)
	Predicted Share	*85.7 %*	*14.3 %*	*21.5 %*	*78.6 %*	*83.3 %*	*16.7 %*
Low Delay Cost (δ= .95)	Reported Share	62.4 (1.3)	37.6 (1.3)	52.3 (0.6)	46.6 (1.3)	52.2 (0.5)	47.9 (0.5)
	Predicted Share	*92.4 %*	*7.6 %*	*79.8 %*	*20.2 %*	*68.3 %*	*31.7 %*