Online Appendix: Communication in Legislative Bargaining

Andrzej Baranski and John H. Kagel

This appendix provides instructions, detailed results for the open door bargaining sessions, and other items referred to in the text. There were two open door sessions with 12 subjects in one session and 15 in the other.[1] The open door communication treatment modifies the closed door procedures in three ways. First, in addition to private communication between the proposer and each voter, voter-to-voter communication is permitted without the proposer having access to these discussions. Second, there is also a "Public Chat Screen" where messages can be broadcast to all three players. Third, subject ID numbers remain fixed within a given bargaining round. The third change is needed for voters to be able to form a blocking coalition with the goal of one of them being selected as the proposer in the next stage of the bargaining process and establishing a more equitable distribution between the two of them.

Table A1 reports outcomes in the last five bargaining rounds under open versus closed door communication. Over the last five bargaining rounds, proposer's share is down a bit compared to closed door communication, with this difference significant at the 10% level. MWCs are, if anything, more frequent with open communication, with the frequency of approximate SSPE allocations a bit greater as well.

What is noticeable here is the relatively high frequency of equal splits between the proposer and one other voter with open communication over the last five bargaining rounds, 11.4%. However, these equal splits had declined dramatically compared to the first five bargaining rounds, 28.9%, and declined in favor of substantially more unequal splits between the proposer and her coalition partner. This suggests that proposer power with open communication may take more time to develop on account of voters' efforts to form blocking coalitions, which are largely unsuccessful (see below).

Voters communicate privately with each other in efforts to form a blocking coalition in 26.8% of all bargaining rounds, and in 41.9% of the last five bargaining rounds. Voter-to-voter communication is coded according to whether voters were discussing a *weak* or a *strong deal*.[2] A *weak deal* is one in which the voters discuss rejecting a proposal with no specification of how they planned to split the $30 after the proposal is rejected. A *strong deal* involves discussions on

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[1] One of these sessions suffered a computer breakdown in bargaining round 9.
[2] There was 99% agreement rate between the two coders on this dimension.

how to distribute the $30 after rejecting the proposed allocation, typically involving an equal split between voters after the proposal is rejected.[3]

	Closed Door	Open Communication[1]
Proposer's Share ($)	19.0	17.6
(Std. Errors)	*(0.284)*	*(0.334)*
Highest Voter Share ($)	9.6	12.06
(Std. Errors)	*(0.281)*	*(0.253)*
Percentages		
First Round Approval	80.0	80.0
MWC	81.2	97.1
SSPE$_{\pm2}$	42.4	57.1
$15-$15 Split	3.5	11.4
Equal Split	8.2	2.9

[1] For Session 2 we use rounds 6-8, because we had a computer breakdown in round 9.

Table A1. Closed and Open Communication Results.

	Total Observations	Fulfilled
Weak Deals	6	1
Strong Deals	19	4

Table A2. Voter Proposed Blocking Coalitions

Table A2 shows the breakdown between weak and strong deals for all bargaining rounds.[4]   Just over 75% of all voter-to-voter discussions represent strong deals, of which 80.9% involved discussions of an equal split, excluding the proposer. For a strong deal to materialize, both voters must reject the offer in question, with one of them recognized as the proposer in the next stage of the bargaining round. Of the 19 strong deals, 12 of them failed to materialize as

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[3] Under our procedures, these discussions would have occurred before any formal proposals were made. But voters had considerable information regarding the nature of the likely proposal from the pre-proposal bargaining and from past experience.
[4] The unit of observation here is the bargaining round and includes all bargaining rounds.

one of the voters accepted the offer at hand (this averaged $12.10).[5] Of the 7 successful rejections of the proposed allocation, 3 of them were unlucky, facing the same proposer in stage 2, at which point the deal collapsed in 2 cases.[6] The remaining five cases all concluded with an equal split between the two voters. Only one weak deal was successful in blocking a proposal. In the rest of them, one member did not comply in the voting stage, instead accepting positive shares which averaged $11.80. There are many reasons why blocking coalitions would not be successful, as partly represented by the fact that, in 77.5% of all negotiations, at least one voter suggests an MWC to the proposer.

Examples of weak and strong bargaining discussions – open door communication

> I. *Weak Deal in the Open Communication Treatment*
>
> This is the one successful attempt to block an allocation with no specification in round 1 of how the money would be allocated after the stage 1 proposal was rejected. The new proposer implemented a $15-$15 split between herself and the other voter in stage 2 of the bargaining process.

Voter 1 to Voter 2	
Voter 1:	If we both reject, there is a 66% chance that one of us would be the next proposer.
Voter 2:	I'm planning on rejecting… I offered $22 for him $8 for me
Voter 1:	more money for both of us
Voter 2:	I am rejecting
Voter 1:	You want to reject?
Voter 2:	Yes
Voter 1:	I am rejecting. That way we'll make our own terms

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[5] All of these occurred within the context of an MWC.

[6] The largest share averaged $12.20 for proposals that were blocked. The one group that managed to successfully reject a proposal twice in the same bargaining round agreed to an equal split in stage 1. In stage two, the proposer offered $15 to voter 1 who proceeded to ask voter 2 "should we reject again?" Voter 2 replied, "we should reject and you can go 20-10, you with more," with voter 1 responding "I'll probably still go with 15-15 though." The final allocation was a $17-$12 split in favor of voter 1 with the original proposer getting $1. This is counted as a successful strong deal despite the unequal final split.

II.   *Strong Deals in the Open Communication Treatment*

This is a failed attempt to block an allocation and secure the $15-$15 payoff in stage 2. Voter 2 accepts a $12 share in stage 1.

Voter 1 and Voter 2	
Voter 1:	don't accept less than $15! You can do at least as well if we restart the election
Voter 2:	then split the next attempt $15-$15 you and me no matter what?
Voter 1:	Yeah

What follows is a successful attempt to block an allocation and implement the $15-$15 payoff. Voter 1 rejects a first offer of $10 in an MWC and in the next stage is recognized as the proposer.

Voter 1 to Voter 2	
Voter 1:	Reject? He is offering me a deal to leave you out
Voter 2:	Yes
Voter 1:	He is still making deals
Voter 2:	I offered 20 for him, 10 for me and he said "ok"
Voter 1:	Same for me
Voter 2:	Reject, then 15-15?
Voter 1:	Yeah fur sure.
Voter 2:	Sounds like a plan!
Voter 1:	Cool! Its fairer this way

Figure A1 shows the distribution of shares voters proposed and whether the proposed accepted or rejected these shares for the closed door communication treatment.
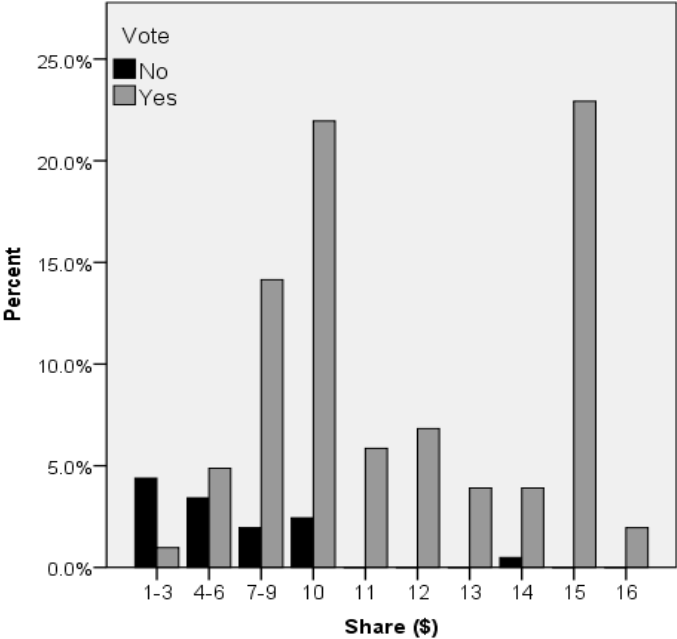

Figure A1. Distribution of Shares by Vote.

Examples of Bargaining Styles Reported in the Text (unedited except for grammatical mistakes).

I.   *Weak Proposer Bargaining*

Voter 1 establishes a reservation share of $12 and suggests to the proposer "you can take the rest". The final allocation is $11 for the proposer, $8 for voter 1 who votes against the proposal, and $11 for voter 2 who votes in favor of the proposal.

Proposer and Voter 2

Voter:	Hey what were you thinking
Prop:	voter 1 wants 12…
Voter:	Well that leaves us with less, he sounds greedy
Prop:	Yeah
Voter:	why not cut him to 8 and give ourselves more
Prop:	sounds good
Voter:	we could do more as well
Prop:	he said anything less than 12 he will not accept
Voter:	well, if you and I accept…

II.   *Strong Proposer Bargaining*

The final allocation here is $21 for the proposer and $9 for voter 1 and is approved. (There were similar discussions with voter 2.)

Proposer and Voter 1

Prop:	Hey what's your proposal
Voter:	How do you divide 30?
Prop:	well the other voter offered 17/13
Voter:	18-12
Prop:	he said 20-10. Can you beat that?
Voter:	21-9?
Prop:	Ok you win

III.   Voter Initiated Bargaining

In this bargaining round, voter 1 and the proposer do not communicate. The final allocation is $15-$15.

Proposer and Voter 2	
Voter:	hey, give me 15 and you 15 majority rules
Prop:	Haha I was about to suggest that
Voter:	well you've got my vote
Prop:	you win!

Closed door bargaining

Instructions

This is an experiment in the economics of decision making. Funding for this research has been provided by the Ohio State University and the National Science Foundation. The instructions are simple, and if you follow them carefully and make good decisions you may earn a CONSIDERABLE AMOUNT OF MONEY which will be PAID TO YOU IN CASH at the end of the experiment.

Description of the Experiment

In this experiment you will act as voters that distribute funds between yourself and others in a series of elections. In each election you must decide how to split a sum of money. Proposals will be voted up or down (accepted or rejected) by majority rule.

Each election will proceed as follows: You will be randomly split into groups of three people, with $30 to divide between the three of you. One member of the group will be randomly chosen to propose an allocation of the $30 between the group members. Once this proposal is made it will be voted up or down by majority rule. If the proposal is accepted, the proposed allocation is binding for that election. If it is rejected this process will repeat itself with one member of the group selected at random to make the allocation to be voted on. Note that in selecting a new proposer, everyone in the group has an equally likely chance to be selected as the proposer.

Prior to submitting the proposed allocation of the $30, the proposer will have an opportunity to communicate with the other members of his or her group. This will be referred to as the **communication stage**. The proposer can send messages to each member of his/her group through separate chat boxes. Note that only the proposer can communicate with other members of his/her group and they, in turn, can only communicate with the proposer. The communication stage will last for 3 minutes. The communication stage is designed to provide a period of "closed door" bargaining between the proposer and other members of his/her group.

The experiment will proceed as follows:

1) Once the communication stage is completed, the proposer must choose how to divide $30 among the three people in his/her group.

2) Once this is done, everyone in your group will see the proposed allocation and will be free to either accept or reject the proposal. The proposer will be automatically counted as voting in favor of the proposal.

3) Next, the result of the voting is reported back to everyone in your group.

   a. If the proposal is rejected, a new negotiation round will start. You will remain with the same group, with the computer again randomly determining who the proposer will be. There will then be a new period for communication between the proposer and the other members of the group, with a new proposal made which again will be voted up or down by majority rule.

   b. If a majority votes in favor of the proposal it is approved. You will then be on standby until all groups have reached an allocation.

This process will repeat itself until your group has approved an allocation of the $30. Once all the groups have reached an allocation you will start a new election with a new group whose composition is randomly determined (i.e., It is extremely unlikely that you will have the same members in your group from one election to the next).

Payments

There will be a total of 10 elections of this sort. Once the 10 elections are completed, one election will be randomly chosen for payment with whatever allocation was voted on for your group in that election being your payment plus a show up fee of $8 dollars. So you should treat each election as if it is the one that will determine your earnings from today's experiment.

Are there any questions?

We will have one practice election before proceeding with the 10 elections in order to familiarize you with the software and the procedures. We will tell you what to do during this practice election.

There are a couple of simple rules we want you to follow during the communication phase. First, no offensive language is to be admitted. Second, we ask you to stay anonymous and not provide information that identifies you (e.g., do not say your name, nickname, or subject number).

Examples

Some examples might help clarify the voting process. The examples are not necessarily intended to be realistic, just to give you an idea how the process works. In all cases we will assume that there is $50 to be allocated.

Example 1:

The proposer, who is selected randomly, after the discussion period proposes $49.01 to himself, $0.99 to voter 1 and 0 to voter 2. Now the votes *could* be accept, accept, reject, in which case the proposal would pass as it has a majority of votes. As such, if this election were paid off on, the proposer would get $49.01, voter 1 would get $0.99 and voter 3 would get $0. Alternatively the votes could be accept, reject, reject, so the proposal does not receive a majority, and the process would repeat itself with a new proposer selected (with everyone having an equal chance to be the proposer).

Example 2:

After the discussion period the proposed allocation is $10 to the proposer, $10 to voter 1, and $30 to voter 2. Now the votes could be accept, accept, accept and so that the proposer would get $10, voter 1would get$10 and voter 2 $30. But they don't have to do this.

Alternatively, the votes could be accept, reject, reject, and the election would go to the next round.

Example 3:

After the discussion period the proposed allocation could be $16.33 to the proposer and $16.33 to voter 1, and $16.34 to voter 2. Now the votes could be accept, accept, accept and the proposer would get $16.33, voter would get $16.33 and voter 2 would get $16.34. But they don't have to do this. Again they could vote differently and if the election goes to another round, the whole process would repeat itself. .

 What should you do? If we knew the answer to this we would not have to conduct the experiment.

 Review

Let's summarize the main points:

- The experiment will consist of 11 elections, 1 practice and 10 for real. There may be several rounds to each election.
- In each election there are three players one of which will be randomly selected to act as the proposer.
- There will then be a 3 minute chat period for "closed door" bargaining between the proposer and the other members of his/her group.
- The proposer will then choose how to split of $30.00 between the members of the group.
- If the proposal receives a simple majority of the votes it passes, the proposed allocation is binding, and the election ends.
- If the proposal is rejected, a new proposer will be selected randomly, followed by a 3 minute discussion period, with a new proposal made and voted on.
- At the end of the 10 cash elections, one election, selected at random will be paid off on. Your earnings will be equal to the amount of money allocated to you for that election plus the $8 participation fee.

Are there any questions?