



Instructor Guide to Democratic Consolidation and Coups

Laboratory implementation, theoretical foundations,
experimental evidence, and variants

Behavioral and Experimental Economics Research Lab
Department of Economics



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<https://beer-lab.org/>

How to use this guide

This guide supports the preparation, implementation, and classroom discussion of the democratic consolidation and coups family available through the Behavioral and Experimental Economics Research Lab (BEER Lab) at the Department of Economics of Tecnológico de Monterrey. It is intended for instructors with different levels of familiarity with experimental and behavioral economics.

The document offers three reading paths. The **quick guide** is enough to launch a session. The operational chapters explain each screen used by instructors and students. The conceptual chapters present the theories, predictions, and empirical findings needed to lead the post-game discussion.

Access instructions and common screens are explained once. Each variant then focuses only on what changes relative to the basic game: configuration, group size, decisions, predictions, relevant outcomes, and academic literature.

Author

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For the instructor

This guide follows the English-language interface. Spanish configurations use the same logic. Never project individual codes or connect outcomes to names, student identification numbers, or seats in the room.

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Prepare the class and arrange access

Purpose	Explain how anticipated reversal affects redistribution and regime stability.
Experimental unit	Four people: one A and three B; B vote and A can attempt reversal.
Participants	Multiples of four, minimum four; rematching minimum eight; demo eight.
Basic edition	One round; ten with fixed group; ten with rematching preserving roles.
Extended edition	Twelve conditions, six rounds each: reference, costs, protected menu, crises, persistence, guarantees and information with announcements.
Decision	Median of three tax votes; A chooses a costly reversal attempt; optional nonbinding announcement.
Payoff	Income plus reserve, fiscal transfer, common fee and attempt costs. Resources renew and closing accounts accumulate.
Topics	democracy; redistribution; threat of breakdown; minority protection; institutional commitment; regime stability
JEL	A22, C92, D31, D72, D74, C73
Suggested duration	25–35 minutes one round; 45–65 repeated, including discussion; planning estimates.

1.1 The question organizing the activity

A majority may have the formal right to choose a policy and still refrain from implementing its preferred option when another party can overturn it. This activity makes that distinction between formal authority and an effective constraint visible. Three people vote on a redistributive tax rate; a fourth person, whose income is taxed, can pay to attempt reversal. The teaching question concerns how anticipated reversal changes redistribution. Relevant outcomes include the distribution of resources, the costs of conflict, and the survival of the voting rule.

Introduce the economic problem before interpreting decisions institutionally. Participant screens refer to persons A and B, voting, and changes of rule. Person A represents a high-income elite; the three B persons represent a lower-income majority. These are assigned positions in an artificial environment, not personal identities or categories that the instructor should attach to students. The reversal option is an induced feature of the model. Choosing it does not express support for any real political procedure, and the class should not treat it as a personality assessment.

The activity complements the laboratory's games about democratization, informal power, and

electoral accountability. Democratization concerns the transfer of decision rights before majority voting begins. Here those rights already exist, and the elite can try to reverse their distributive consequences. Electoral accountability replaces an officeholder through an accepted procedure. Here a costly action can overturn a policy and, in one condition, suspend later voting. An electoral defeat, a confidence vote, and a coup alter different rights and should not be counted as the same event.

Use the one-round version to separate accounting from strategic reasoning. Repeated versions add experience, history, and interaction with either the same people or newly assigned groups. The dynamic extension adds a particular institutional dependence: a successful attempt changes the rule governing later rounds. Repeating a static game ten times does not create that dependence automatically. Write this distinction on the board before comparing sessions. Participants may respond to experience even when the formal regime resets, but that response differs from a rule that removes future choices.

For the instructor

For a first class, use one round to establish the accounts and one institutional comparison to discuss the mechanism. Do not try to run all twelve extended conditions in a single session. A useful comparison needs time for predictions, denominator checks, and consideration of alternative interpretations.

1.2 From the laboratory website to the correct room

Start at <https://beer-lab.org/en/> and choose CLASSROOM. The link opens <https://teaching.beer-lab.org/en/>, where games can be located by title, topic, or JEL code. Once this family has been incorporated into the public directory, its card will provide Spanish and English access. The website captures in this guide document the navigation available when the materials were prepared; they do not establish that the new card has already been published. Publishing repository changes and deploying the server are separate operations.

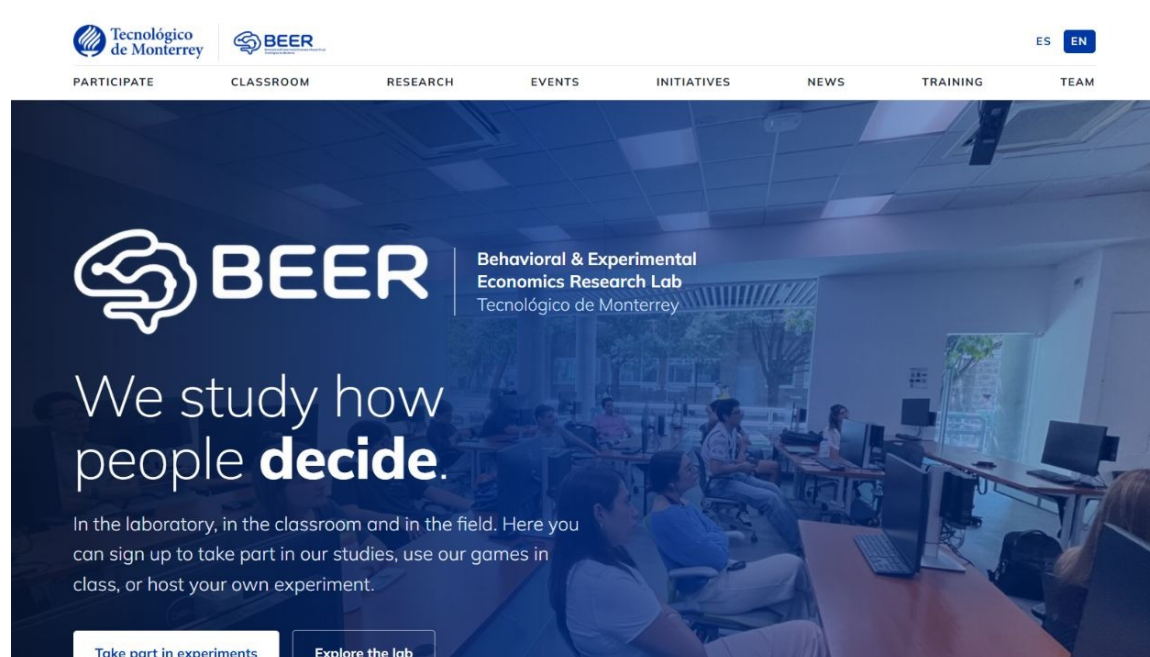


Figure 1.1: The laboratory website's CLASSROOM link leads to the teaching games.

The proposed family address is <https://consolidation.beer-lab.org/>. The English basic room is https://consolidation.beer-lab.org/room/consolidation_en and its extended room is https://consolidation.beer-lab.org/room/consolidation_extended. Spanish rooms are https://consolidation.beer-lab.org/room/consolidacion_es and https://consolidation.beer-lab.org/room/consolidacion_extendida. These proposed canonical routes require deployment. For a review on the computer running the instance, use <http://localhost:8137/demo>. That local address does not automatically connect phones or computers elsewhere on a network.

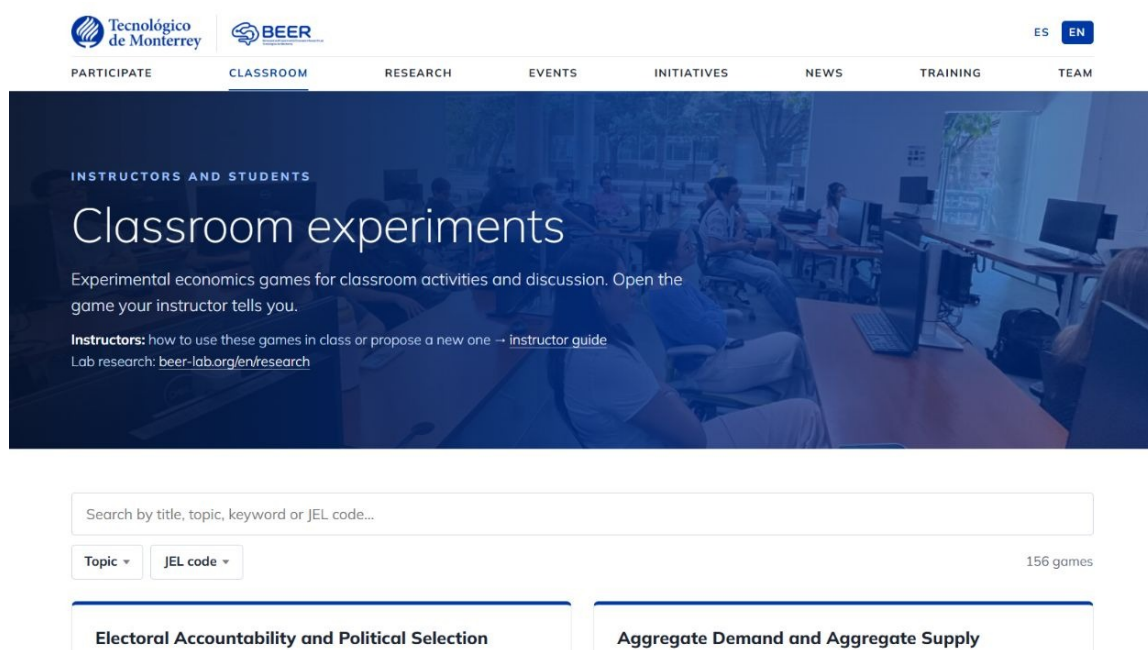


Figure 1.2: The directory supports searches by title, topic, and JEL code.

Demo contains this family alone. There are three basic formats and twelve extended conditions in each language, giving thirty configurations. Rooms contains exactly four rooms. Each basic room must offer three options in its language and initially select the one-round basic configuration. Each extended room offers twelve conditions. Directory language and session language are separate choices; check both before distributing a link. A descriptive session name helps distinguish classroom comparisons, but it does not change the selected treatment or its parameters.

The instructor creates the session, chooses its configuration, and enters the actual number of participants. Use multiples of four. A single interaction and fixed groups accept at least four people; rematching needs at least eight. Demonstrations use eight. Each group contains one A and three B persons, and initial roles remain fixed. Rematching permits re-encounters; it does not promise a sequence of entirely new partners. Individual participant links and a general session link appear after creation. Follow the room's normal access procedure rather than distributing administrative controls.

Never share the administrative interface with students or project individual access codes. Opening two links does not turn one student into two independent participants. Resolve absences before creating groups where possible. If someone leaves after starting, address the interruption without inventing a vote or outcome. Waiting pages correspond to missing decisions by real people. The report can display pending groups, but those groups must not be replaced with observations of zero. This is both an operational requirement and an essential lesson about interpreting incomplete evidence.

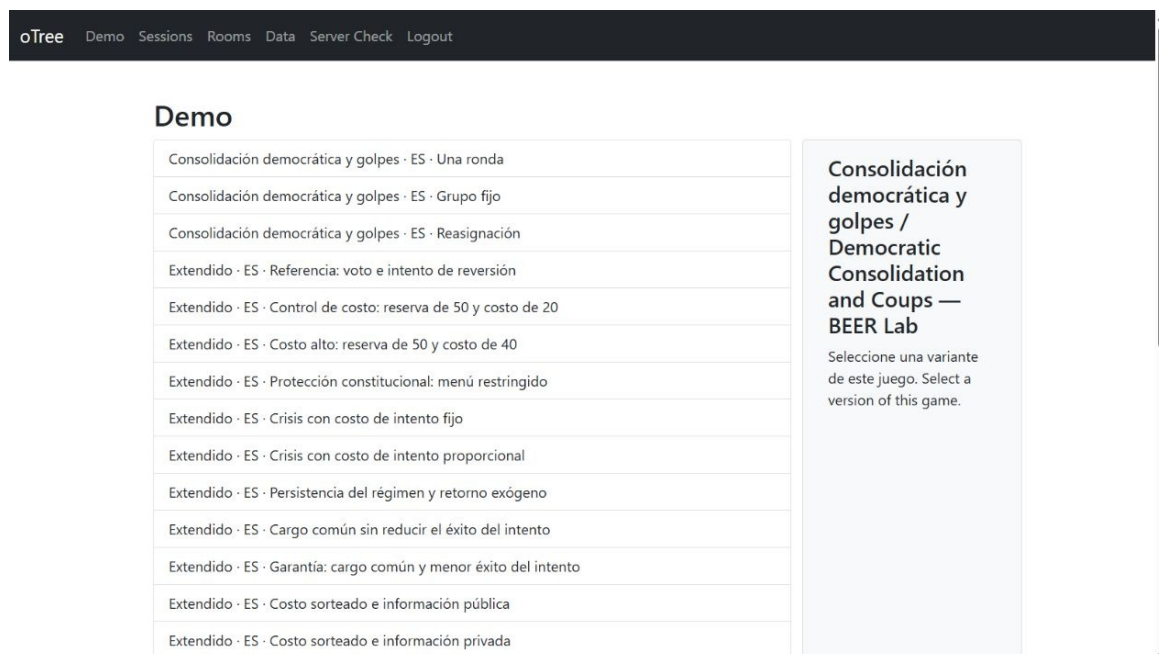


Figure 1.3: Demo contains only democratic consolidation configurations.

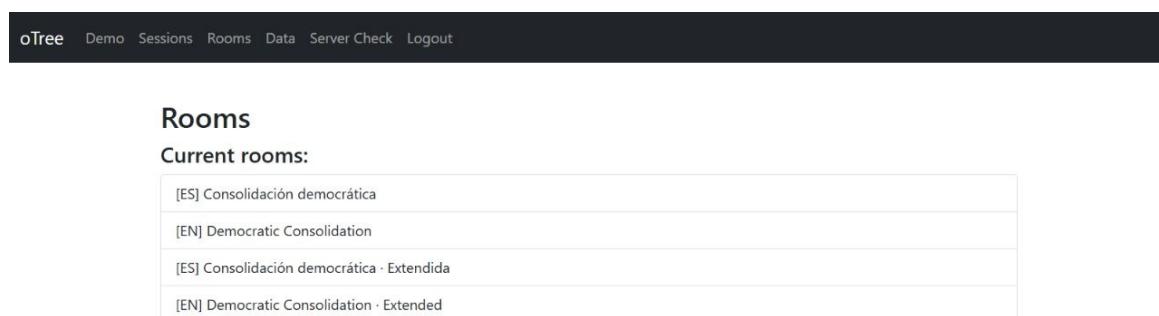


Figure 1.4: Four rooms separate language and edition.

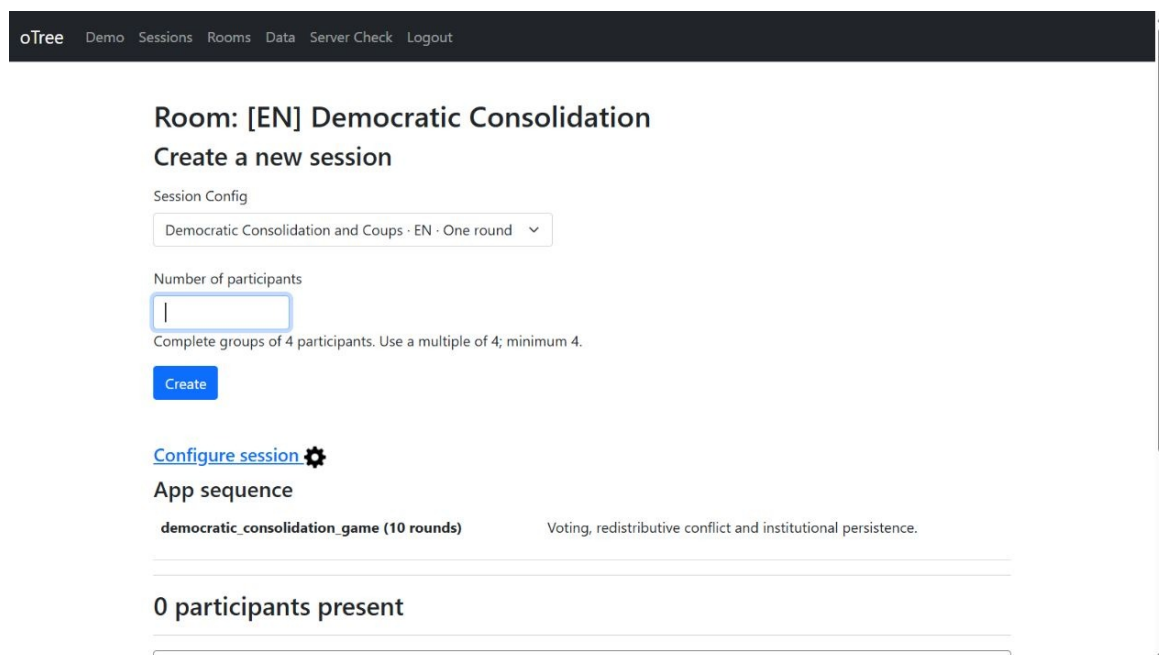


Figure 1.5: The English basic room initially selects a basic configuration.

1.3 Preparation, timing, and the end of the activity

Plan roughly twenty-five to thirty-five minutes for one round with discussion, or forty-five to sixty-five for a repeated format. These are planning estimates, not measured completion times. Allow time to explain ECU, read the instructions, and clarify procedure. Comprehension is checked within the game. Incorrect answers do not reduce payoffs; participants correct the affected question while their other answers remain available. Students should understand why an answer is wrong before continuing, without being told which strategic choice the instructor prefers.

Prepare an unnamed prediction sheet asking which rate students expect, what they think A will do, and how an institution might change those outcomes. For treatment comparisons, assign complete groups and keep common instructions, available time, and matching rules constant. Do not announce before play which action demonstrates rationality, cooperation, or democratic commitment. Such guidance would affect the behavior being discussed and make differences harder to interpret. Ask for conditional predictions rather than an unconditional claim that a particular rate must always emerge.

Keep aggregate outcomes hidden during play. The progress screen shows how many group-rounds have finished. At completion each participant retains an explicit end screen and their cumulative outcome. Ask them to leave it open until instructed otherwise. Then reveal aggregates and return to the written predictions. A choice that differs from the monetary benchmark can motivate additional hypotheses, but it does not by itself diagnose ability, political values, or misunderstanding. Use discrepancies to ask which assumption or incentive might require closer examination.

Resources and strategic choices

2.1 Income, reserves, and the unit of account

ECU means Experimental Currency Units. It records outcomes within the activity, and the teaching configuration does not promise conversion into real money. Distinguish income, reserve, and closing account. Only A's income is taxed; the reserve funds costs; the closing account combines all components. A figure in a page header cannot substitute for this explanation. Instructions state the resources received by each role and make clear whether a condition changes income, reserves, or a charge paid by everyone.

In the reference condition, A receives income of one hundred twenty ECU and each B person receives forty. Everyone additionally receives a reserve of thirty. A therefore starts with one hundred fifty available, while each B starts with seventy. The group begins with three hundred sixty. Income inequality is induced by the protocol; it is not the result of prior effort or participant choice. Do not present the assignment as evidence about merit or rights acquired outside the experiment. Its purpose is to create a clearly specified distributive conflict.

Resources renew every round. Participants accumulate high or low outcomes, but their accumulated balance does not alter the income or reserve available for the next decision. The final total is the sum of closing accounts from active rounds. There is no reinvestment of earlier gains, borrowing, or bankruptcy from a low earlier balance. Renewal separates experience from accumulated spending power, although it does not eliminate memory, learning, or expectations about other people. This distinction matters particularly when interpreting behavior in fixed groups.

What participants will see

A B person sees their income, reserve, and current rule before voting. A knows those resources and the cost of an attempt. Under private costs, B knows the announced distribution but not the realized cost for that round. An instructor table containing complete information should not be projected while that condition is being played.

2.2 Tax redistribution is an accounting transfer

The three B persons vote simultaneously for zero, twenty-five, fifty, or seventy-five percent. Their votes are ordered and the middle value is selected. A does not vote. Votes of zero, twenty-five, and seventy-five select twenty-five. The median is not the average and is well defined even when every submitted rate differs. A observes only the selected rate, not individual votes. Explain this rule with a numerical example so that students can distinguish the aggregation mechanism from a simple plurality contest.

Let t denote the rate as a fraction between zero and one. The tax is one hundred twenty times t , divided into four equal transfers. A pays the tax but receives one quarter of revenue back. A's net redistribution loss is ninety times t ; each B person receives thirty times t . Without an attempt, A obtains one hundred fifty minus ninety times t , and each B obtains seventy plus thirty times t . The sum remains three hundred sixty. Redistribution changes who receives resources rather than the amount available to the group.

$$\pi_A^D = 150 - 90t, \quad \pi_B^D = 70 + 30t.$$

At fifty percent, revenue is sixty ECU and everyone receives fifteen. A closes with one hundred five; each B closes with eighty-five. One hundred five plus three times eighty-five equals three hundred sixty. Common mistakes include subtracting sixty from A without restoring the fifteen transfer, or dividing revenue among three rather than four people. Correct those calculations before interpreting institutions or distributive preferences. The transfer received by A is part of the announced rule, not an exception granted after a decision.

At twenty-five percent, the tax is thirty and each transfer is seven and a half. A receives one hundred twenty-seven and a half; each B receives seventy-seven and a half. At seventy-five percent, the tax is ninety, A receives twenty-two and a half back and closes with eighty-two and a half, and each B closes with ninety-two and a half. These are accounts conditional on the chosen rate remaining in force. They are not predictions about A's subsequent action and should not be used as unconditional expected payoffs.

2.3 An attempt costs resources whether it succeeds or fails

After observing the median, A can keep the chosen rate or attempt to restore a zero rate. In the reference condition, an attempt costs twenty ECU regardless of success. Each B person loses ten ECU whenever an attempt occurs. An independent draw gives the attempt a one-half chance of success. Success removes this round's tax; failure leaves the selected rate in place. With no attempt, no success draw or attempt deductions occur. The distinction between an absent draw and a failed draw is also retained in the data.

At a fifty-percent selected rate with a successful attempt, A keeps the income of one hundred twenty plus thirty reserve, minus the twenty cost, giving one hundred thirty. Each B receives forty plus thirty minus ten, giving sixty. If the attempt fails, A obtains one hundred five minus twenty, or eighty-five. Each B obtains eighty-five minus ten, or seventy-five. Both outcomes sum to three hundred ten. The attempt destroys fifty resources: twenty paid by A and ten paid by each of the three B persons.

Success and failure change the distribution, while attempting generates a resource loss in both branches. A can gain in expectation even when the group loses resources with certainty. A failed attempt therefore cannot be treated as an absence of conflict. The costs have already been paid. Participant results distinguish attempt, success, voted rate, applied rate, and own closing account so that these questions can be answered separately. Ask students to identify which comparisons concern the distribution of a fixed surplus and which concern destruction of surplus.

Checkpoint

Reconstruct one complete round first: income plus reserve; tax on A only; a four-way refund; any common fee; and attempt costs only when an attempt occurs. The sum of four accounts must equal initial resources minus external fees and conflict costs. Resolve an accounting discrepancy before interpreting behavior.

2.4 Solve the later decision first

The monetary benchmark assumes that everyone values only their own account, understands probabilities, and is risk neutral. It organizes conditional predictions rather than describing all motives. A acts after the tax vote, so solve that decision first. Compare keeping the rate with the expected account from attempting reversal. The attempt cost is certain, whereas removing the tax happens only after a successful draw. Students who compare the best possible attempt outcome with the certain no-attempt account omit the downside risk.

Removing a rate t recovers A's net redistribution loss, ninety times t in the reference condition. The gross tax is one hundred twenty times t , but a quarter was already refunded to A. At success probability one half and attempt cost twenty, the expected gain from trying is forty-five times t minus twenty. An attempt is strictly profitable above twenty divided by forty-five, approximately 0.4444. Given the discrete menu, the prediction is to keep zero or twenty-five percent and attempt reversal at fifty or seventy-five percent.

$$\Delta_A(t) = p \frac{3Y_A}{4}t - k; \quad \Delta_A(t) = 45t - 20 \quad \text{in the reference condition.}$$

At fifty percent, A receives one hundred five if the rate is kept. Attempting gives one hundred thirty upon success and eighty-five upon failure. The expected account is one hundred seven and a half, a gain of two and a half. Observing failure and an account of eighty-five does not refute that calculation. A decision is evaluated using the information available when it was made; a realized outcome additionally reflects the random draw. A successful attempt likewise does not show that attempting would have been profitable at every possible rate.

At twenty-five percent, keeping produces one hundred twenty-seven and a half. Attempting produces one hundred thirty upon success and one hundred seven and a half upon failure. Its expectation is one hundred eighteen and three quarters, a loss of eight and three quarters. At zero there is no tax to recover, so an attempt loses twenty with certainty. A cost can therefore make an action unattractive without making it physically unavailable. Feasibility and profitability are different questions, and the interface preserves the choice so that this distinction can be observed.

Theoretical foundation

Identify the net amount A recovers if an attempt succeeds, multiply by its probability, and subtract the cost paid in every attempt. Then ask how voters respond. Reversing this order treats tax transfers as final even though a later action can overturn them.

2.5 Moderation need not indicate different distributive preferences

Without an attempt, B receives seventy, seventy-seven and a half, eighty-five, or ninety-two and a half at the four menu rates. Anticipating A's monetary response changes the latter two consequences. At fifty, B expects half of sixty plus half of seventy-five, or sixty-seven and a half. At seventy-five, the expectation is half of sixty plus half of eighty-two and a half, or seventy-one and a quarter. Twenty-five consequently gives the highest expected account, seventy-seven and a half without an attempt, under this specified response.

Moderation arises from a strategic constraint. It does not establish that B no longer prefers a more equal allocation when that allocation can be implemented without conflict. To explore that distinction, compare an institution that raises reversal costs or otherwise changes the threat. Also distinguish an individual desired rate from the median actually selected. A person can vote high

without affecting the outcome when the other two voters already agree. The report displays group medians; the individual export allows the instructor to inspect submitted votes separately.

This consequence-based argument does not establish a unique equilibrium of submitted votes. There are three voters, several available rates, and situations in which an individual vote is not pivotal. A unanimous profile can allow unilateral changes that leave the median unchanged. It is therefore more precise to say that twenty-five maximizes each B person's expected account under the specified response by A than to claim that everyone must vote twenty-five in every equilibrium. The distinction is useful for teaching both backward reasoning and the limits of simple equilibrium statements.

B's conflict cost matters for the ordering. Changing it requires recalculating each consequence rather than retaining a prediction by analogy. Risk aversion, concern for equality, procedural preferences, or a belief that A will not attempt may also change votes. A classroom session does not automatically separate those explanations. A subsequent question can explore stated reasons, but it does not transform intention into a variable directly observed in the original decisions. Ask students to distinguish an accounting error, a different belief, and a different objective before explaining a deviation.

2.6 Stability, inclusion, and welfare differ

A stable rule may sustain limited redistribution because the majority restrains itself. Constitutional protection can prevent attempts by removing rates from the feasible menu, while also restricting distributive options. A guarantee can support the implementation of a higher rate but consume common resources. No single outcome ranks all these possibilities. Discuss at least who receives resources, how much is destroyed, and which decision rights remain available. These criteria can move in different directions even when everyone understands the same monetary incentives.

In the reference condition, any attempt lowers the group account from three hundred sixty to three hundred ten. Without an attempt every rate gives the same total. A high sum thus does not establish an inclusive distribution or a wide exercise of political choice. Under a common charge, net initial resources are lower even if no conflict occurs. A guarantee can reduce attempt losses while adding a fixed loss. Its evaluation must consider both components instead of declaring the condition with fewer attempts superior by construction.

Attention

Do not turn an attempt into a personal diagnosis or a low rate into proof of acceptance of inequality. Actions depend on rules, costs, beliefs, and information. Discuss aggregate patterns and explanations compatible with them. Keep threats, attempts, and successful regime changes analytically distinct.

A threat can shape voting even when no attempt occurs. Zero attempts therefore do not establish institutional irrelevance. Conversely, voters may knowingly accept risk, so many attempts do not establish that they ignored the threat. Identify the counterfactual through a comparison that changes reversal possibilities while holding other relevant features constant.

Lead the game and compare institutions

3.1 Welcome, instructions, and comprehension

The welcome screen introduces the laboratory and its general rules. Everyone accepts that they will work individually, remain silent, and communicate only through the permitted channels. The start button opens the selected condition's instructions. These may include a common charge, randomly drawn costs, or persistence of the rule. Such differences belong to the protocol and must be read before deciding. The instructor clarifies mechanics without recommending a tax rate or suggesting how to respond to the other role's action.

The comprehension check asks three questions: the median of three votes, B's closing account at twenty-five percent without an attempt, and when B's attempt cost is charged. The account uses the condition's actual resources. A crisis changes income, a guarantee changes the common charge, and the cost comparison changes reserves. Feedback displays the submitted answer, the correct answer, and the calculation. Already correct fields are preserved. Repeated comprehension attempts are not deducted from experimental outcomes and should not be interpreted as strategic behavior.

When everyone completes comprehension, the group's round is prepared. A resource page confirms the person's role and the applicable rule. Under a random-cost condition, the realization becomes known at this point according to the information rule. In the announcement condition A sends a message before B persons vote. A waiting page means that submitted decisions are preserved while other group members complete the stage. Students do not need to refresh or open another participant link to proceed.

3.2 Votes, A's action, and round results

Each B chooses a rate from the condition's menu. Votes are recorded without displaying other people's choices. Once all three have voted, A sees the median. A's screen states the applicable attempt cost and success probability, then offers the two available actions: keep the selected rate or attempt a return to zero. The interface does not remove choices that look unfavorable under a monetary calculation. Doing so would prevent observation of the behavior that the exercise is intended to make available for discussion.

The result page states the voted and applied rates, whether an attempt occurred, whether it succeeded, the transfer per person, and the participant's own deductions. Individual results contain no other participant's name. When A's cost is private, B cannot infer it from a displayed A account,

Round 1 / 1 - Your role: Person B

Voting and rule changes



The Behavioral and Experimental Economics Research Lab in the Department of Economics at Tecnológico de Monterrey is a space for learning about economic decision making through controlled activities.

Laboratory rules

- Remain silent and do not communicate outside the options in this activity.
- Make your decisions individually and privately.
- Follow the instructions on the screen.
- Do not refresh, close, or leave the page.

Figure 3.1: The welcome screen presents laboratory rules and an explicit start.

Round 1 / 1 - Your role: Person B

Activity rules

Resources and unit of account

Each round, A receives income of 120 ECU; each of the three B persons receives 40 ECU. Everyone also receives a reserve of 30 ECU. Resources renew every round; the group starts with 360 ECU.

ECU stands for Experimental Currency Units. It is the unit of account for this activity.

This session does not convert ECU into real money.

1. Under the voting rule, only the three B persons choose a rate. The middle of their three votes is applied to A's income. Collected tax is divided equally among all four people, including A. Reserves and B incomes are not taxed.
2. Available rates are: 0%, 25%, 50%, 75%. Individual votes are private; A observes only the middle rate.
3. After observing the rate, A can keep it or attempt to return to a zero rate. Every attempt costs A 20 ECU, even if it fails. Its probability of success is 50%.
4. If an attempt succeeds, the applied rate is zero. If it fails, the voted rate remains. Each B

Figure 3.2: Instructions distinguish incomes, reserves, and roles.

1. Under the voting rule, only the three B persons choose a rate. The middle of their three votes is applied to A's income. Collected tax is divided equally among all four people, including A. Reserves and B incomes are not taxed.
2. Available rates are: 0%, 25%, 50%, 75%. Individual votes are private; A observes only the middle rate.
3. After observing the rate, A can keep it or attempt to return to a zero rate. Every attempt costs A 20 ECU, even if it fails. Its probability of success is 50%.
4. If an attempt succeeds, the applied rate is zero. If it fails, the voted rate remains. Each B person loses 10 ECU for every attempt, whether it succeeds or fails. Without an attempt these costs are not deducted.
5. Every round begins under the voting rule, regardless of the previous result. A successful change affects this round's distribution only.
6. Each closing account is added to the final outcome. Next-round resources renew: previous gains and losses do not finance new decisions. There is no conversion into real money.
7. This session has one round. Roles remain fixed.

Continue

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Figure 3.3: The remaining rules explain costs, information, and the horizon.

Round 1 / 1 · Your role: Person B

Check the rules

Three votes are 0%, 25% and 75%. Which middle rate is selected? Enter the percentage without the % sign.

0

Your answer: 0. The correct answer is 25. Ordered votes are 0, 25, 75. The middle value is 25%.

Example without an attempt: if the rate is 25%, what is a B person's closing account, including this condition's reserve and common fee?

77.5

When is each B person's cost deducted?

With any attempt, successful or unsuccessful ▾

Figure 3.4: Comprehension feedback explains the error beside its question and retains other answers.

Round 1 / 1 - Your role: Person B

Resources and rule this round

Each round, A receives income of 120 ECU; each of the three B persons receives 40 ECU. Everyone also receives a reserve of 30 ECU. Resources renew every round; the group starts with 360 ECU.

Rule at start: **Rule with voting**

A's attempt cost this round: **20 ECU**

Continue

ECU stands for Experimental Currency Units. It is the unit of account for this activity.

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Figure 3.5: The round-start page confirms role and renewed resources.

Round 1 / 1 - Your role: Person B

Your vote on the rate

Each round, A receives income of 120 ECU; each of the three B persons receives 40 ECU. Everyone also receives a reserve of 30 ECU. Resources renew every round; the group starts with 360 ECU.

Rule at start: **Rule with voting**

A's attempt cost this round: **20 ECU**

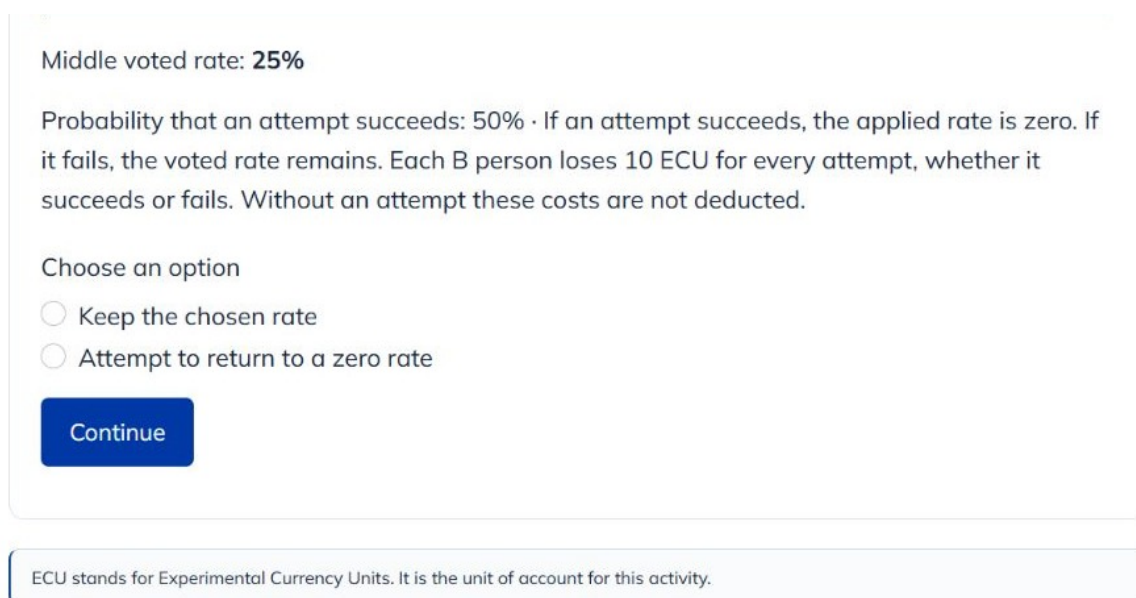
Other votes are not shown. The middle of the three rates will be used.

Desired rate (%)

Continue

Figure 3.6: B persons privately vote on the tax rate.



Middle voted rate: **25%**

Probability that an attempt succeeds: 50% · If an attempt succeeds, the applied rate is zero. If it fails, the voted rate remains. Each B person loses 10 ECU for every attempt, whether it succeeds or fails. Without an attempt these costs are not deducted.

Choose an option

☐ Keep the chosen rate

☐ Attempt to return to a zero rate

Continue

ECU stands for Experimental Currency Units. It is the unit of account for this activity.

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Figure 3.7: A decides after learning the middle voted rate.

group account, or total-loss table because those items are not presented to B. The distinction between public and private information consequently remains in place while session choices are being made.

In a static game the next round begins with voting even after a successful attempt. In the dynamic version the result identifies the next rule. If a round starts without voting, nobody chooses a tax or attempt. A zero rate is imposed, the closing account is shown, and a return draw occurs only if another round remains. A page with no decision form in this state is an institutional consequence, not a lost submitted vote. The instructor should explain that distinction without revealing future random draws.

The end screen retains a ledger of active rounds and the participant's own accounts. Summing that ledger verifies the cumulative outcome even if the regime changed. There is no default demographic question or hidden additional choice at completion. Ask students to keep this screen open, check aggregate progress, and then begin discussion. If groups remain unfinished, first explain what evidence is available and what is pending. Reveal means only with their actual sample sizes and without treating unfinished decisions as zero.

3.3 High costs and minority protection

The twelve extended conditions use six rounds with the same group and roles. The reference reproduces the central game. The first comparison changes attempt costs while giving everyone a reserve of fifty in both arms. An attempt costs twenty in the control and forty in the high-cost arm. Comparing the latter directly with the basic game also changes reserves. Although an extra reserve does not affect the payoff difference under risk neutrality, it may influence preferences or perceptions of available resources. The control makes the distinction explicit.

With reserve fifty, A starts with one hundred seventy and B with ninety. A's attempt gain remains forty-five times t minus the cost. At cost forty, even seventy-five percent gives an expected loss of six and a quarter. The static monetary benchmark predicts no attempts within this menu. If

Round 1 / 1 · Your role: Person B

Round outcome

Middle voted rate	50%
Actually applied rate	0%
A change was attempted	Yes
The attempt succeeded	Yes
Tax transfer per person	0 ECU
Your common-service fee	0 ECU
Your cost deducted for the attempt	10 ECU
Your closing account	60 ECU
Rule at round end	Rule without voting
Continue	

Figure 3.8: Results distinguish the selected rate, attempt, success, and closing account.

Round 1 / 1 · Your role: Person B

Activity completed

Your cumulative outcome: **60 ECU**

The activity has ended. Keep this screen open and wait for the instructor's directions.

Accounts from your active rounds

Round	Rule at start	Actually applied rate	Your closing account
1	Rule with voting	0%	60 ECU

ECU stands for Experimental Currency Units. It is the unit of account for this activity.

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Figure 3.9: The final screen explicitly ends the activity and displays the individual cumulative outcome.

B anticipates that response, seventy-five gives one hundred twelve and a half. The group retains four hundred forty without conflict. Comparing this total directly with the reference is misleading because initial group resources are eighty higher.

Constitutional protection retains reference incomes, reserves, and costs but restricts the rate menu to zero or twenty-five. It removes the rates at which attempts are monetarily attractive to A. Evaluate attempt rates together with feasible redistribution. An absence of coups need not mean preferences changed; the institution may have removed conflict-generating options. Protection of a minority and that minority's coercive power are related but different mechanisms. A discussion should ask who benefits from the restricted menu and which alternative policies can no longer be chosen.

Round 1 / 6 · Your role: Person B

Your vote on the rate

Each round, A receives income of 120 ECU; each of the three B persons receives 40 ECU. Everyone also receives a reserve of 30 ECU. Resources renew every round; the group starts with 360 ECU.

Rule at start: **Rule with voting**

A's attempt cost this round: **20 ECU**

Other votes are not shown. The middle of the three rates will be used.

Desired rate (%)

Continue

Figure 3.10: A protected menu changes the rates available to voters.

3.4 Crisis: separate income from the price of reversal

Both crisis conditions lower A's income to sixty and each B income to twenty, while retaining reserve thirty. The fixed-cost crisis keeps the attempt cost at twenty; the proportional-cost crisis lowers it to ten. The first changes incomes while preserving the price of an attempt. The second adds a cost reduction. These are different session conditions, not random realizations of the same economy. Their resources and account rules are specified publicly before play, and the instructor should state the intended comparison before interpreting any differences.

With lower income, A recovers forty-five times t if redistribution is removed. Multiplying by success probability one half gives twenty-two and a half times t . At cost twenty, the threshold is approximately 0.8889, outside the menu. At cost ten it returns to 0.4444. Lower income therefore need not strengthen reversal incentives: the result depends on the benefits that can be recovered and on how the attempt cost changes. The protocol teaches that dependence without asserting a universal empirical relationship between recessions and coups.

At fifty percent without an attempt, A receives sixty plus thirty minus twenty-two and a half, or sixty-seven and a half. B receives twenty plus thirty plus seven and a half, or fifty-seven and a half. In the proportional-cost crisis, an attempt gives A eighty upon success and fifty-seven and a half upon failure, averaging sixty-eight and three quarters. The gain is one and a quarter. With fixed cost twenty, the corresponding attempt accounts are ten lower, eliminating the monetary incentive. This calculation identifies exactly which comparison isolates the role of cost.

3.5 Regime persistence and return to voting

The dynamic condition starts under voting. A successful attempt removes the current tax and activates the no-voting rule next round. A round that begins without voting has a zero rate and no vote or attempt choices. At its end, if another round remains, an independent draw restores voting with probability twenty-five percent. Otherwise the following round also begins without voting. Accounts renew in either state. The persistent effect concerns decision rights and allocation rules rather than a stock of accumulated wealth carried between rounds.

Return is exogenous. Nobody votes to restore democracy, bargains over an exit, or pays for a revolution in this extension. This specifies the mechanism being taught and limits the interpretation of a recovered voting rule. Starting regime, end-of-round regime, and next-round regime are recorded separately. Success in the final round changes the current allocation but cannot create another round. No return draw is made for a period beyond the end. All participants know the six-round horizon from the outset.

The one-period benchmark does not solve the full dynamic game. A may value future income without redistribution; B may anticipate losing later opportunities to vote. The remaining horizon and return probability affect those expectations. An advanced exercise can solve backward from round six. An introductory class can instead compare trajectories and identify which future choices disappeared. Avoid calling one uneventful round consolidation, and do not compare mean voted rates without counting how many rounds actually permitted votes. Conditional rates and institutional exposure answer different questions.

3.6 An external guarantee financed by a common fee

The guarantee comparison charges five ECU to every person, twenty per group, in both arms. Its control retains fifty-percent attempt success; the effective guarantee lowers success to twenty percent. The charge leaves the activity every round whether or not an attempt occurs. Four equal contributions from reserves finance it, rather than an additional tax chosen later by a participant. This comparison separates reduced feasibility of reversal from the effect of taking resources out of the group.

Under the guarantee, A's expected attempt gain is eighteen times t minus twenty. At seventy-five this equals minus six and a half, so the static monetary benchmark predicts no attempts. The no-conflict group account is three hundred forty because the fee costs twenty; an attempt lowers it to two hundred ninety. To evaluate the guarantee against the free reference condition, compare the chance of avoiding fifty in conflict losses with a fixed charge of twenty. Fewer attempts are relevant, but they do not define a higher realized resource total.

The word guarantee does not mean that success probability becomes zero. A retains the choice and may use it; the application implements and records the announced draw. Perfect enforcement would require a different institution and parameters. Ask which part of an observed difference belongs to the credibility of protection and which belongs to financing. A free guarantee and a group-financed guarantee answer different economic questions. Classroom discussion can also

Round 3 / 6 · Your role: Person B

Resources and rule this round

Each round, A receives income of 120 ECU; each of the three B persons receives 40 ECU. Everyone also receives a reserve of 30 ECU. Resources renew every round; the group starts with 360 ECU.

Rule at start: **Rule without voting**

A's attempt cost this round: **20 ECU**

This round has no votes or attempt decision. A zero rate applies. Continue to see your account.

Continue

ECU stands for Experimental Currency Units. It is the unit of account for this activity.

Figure 3.11: A round starting without voting announces the automatic rule and requests no nonexistent choices.

distinguish a transfer to another actor from the modeled fee, which is treated as a resource leaving this economy.

3.7 Public costs, private costs, and nonbinding announcements

The final block draws A's attempt cost as ten or thirty each round with equal probability. The cost is not a persistent type. The public condition reveals the realization to everyone before voting; the private condition reveals it only to A. The comparison retains the distribution and changes information. The announcement condition retains private costs and adds a message before voting. A may announce keeping the selected rate or considering an attempt, without restricting the later action or incurring any penalty for inconsistency. Comparing messages and actions does not directly identify beliefs or planned lies; communication predictions require explicit assumptions about what receivers infer.

At cost ten, A prefers attempting from twenty-five percent upward; at thirty, only at seventy-five. B's best consequences under publicly observed costs can differ. With ten, seventy-five yields an expected seventy-one and a quarter, above seventy at zero. With thirty, fifty yields eighty-five without an attempt. There is no universal rule that a stronger threat must always reduce the tax rate. The menu and conflict losses matter for the ranking of all available alternatives. This is a useful opportunity to replace verbal monotonicity claims with explicit comparisons.

Without observing realized costs, B can use the equal-probability distribution and the specified monetary response. Zero gives seventy; twenty-five gives 70.625; fifty gives 76.25; seventy-five gives 71.25. At fifty, for example, cost is ten half the time, leading to an attempt and expected B account 67.5. Cost is thirty the other half, with no attempt and B account 85. Their average is 76.25. Under these assumptions fifty maximizes expected B accounts within the menu. A belief

about types is an input to that prediction, not an observed property of a particular message.

Round 1 / 6 · Your role: Person A

Your announcement before the votes

Each round, A receives income of 120 ECU; each of the three B persons receives 40 ECU. Everyone also receives a reserve of 30 ECU. Resources renew every round; the group starts with 360 ECU.

Rule at start: **Rule with voting**

A's attempt cost this round: **10 ECU**

Before voting, A sends one of two announcements. The announcement does not change choices, costs or payoffs; A can act differently afterward.

Choose a nonbinding announcement

Continue

Figure 3.12: A's announcement does not bind the subsequent action.

Read the report and lead discussion

4.1 Progress, revelation, and denominators

The instructor report initially displays participant counts, settled group-rounds, and pending group-rounds. Outcomes remain hidden until the instructor selects Reveal outcomes. Refresh progress queries the same session again. Revelation controls classroom discussion; it does not alter decisions or payoffs. Avoid projecting individual monitoring windows, participant codes, or downloads containing identifiers. The aggregate report supports teaching from the activity without associating a choice with a named student. Keep the distinction between a private administrative tool and information participants were allowed to observe.

A settled group-round has completed the stages relevant to its rule. Four people in six rounds generate six group observations, not twenty-four independent tax decisions. There are three individual votes per voting opportunity and one A attempt decision per opportunity. A round beginning without voting belongs to the trajectory and accounts but contains neither three missing votes nor a zero attempt choice. Those distinctions determine the denominator that should appear beside each measure and prevent artificial changes in behavior from being inferred from changes in institutional exposure.

The attempt rate divides attempts by opportunities that began with voting. Success rate divides successful attempts by attempts, not by all rounds. If nobody attempts, success rate is absent; that absence does not mean technological success probability was zero. Mean voted rate uses voting rounds. Mean applied rate uses every settled round, including imposed zero rates under the rule without voting. Consequently the two means can differ even when no selected median was reversed within the subset of voting rounds. The distinction is especially important for dynamic sessions.

Instructor report: consolidation and redistribution

Reference: voting and reversal attempts · Matching: One round



Means exclude pending groups. Voted rates and attempts use rounds that began with voting only. Success is conditional on attempts; a round without voting is not a zero vote. Role accounts pool rounds, not distinct people.

Figure 4.1: The report initially shows progress while aggregate outcomes remain hidden.

The median-rate distribution has four categories and their counts. Under the protected menu, some categories have no observations because they were unavailable. Do not interpret those bars as



Figure 4.2: Metrics distinguish role accounts, resource losses, and different denominators.

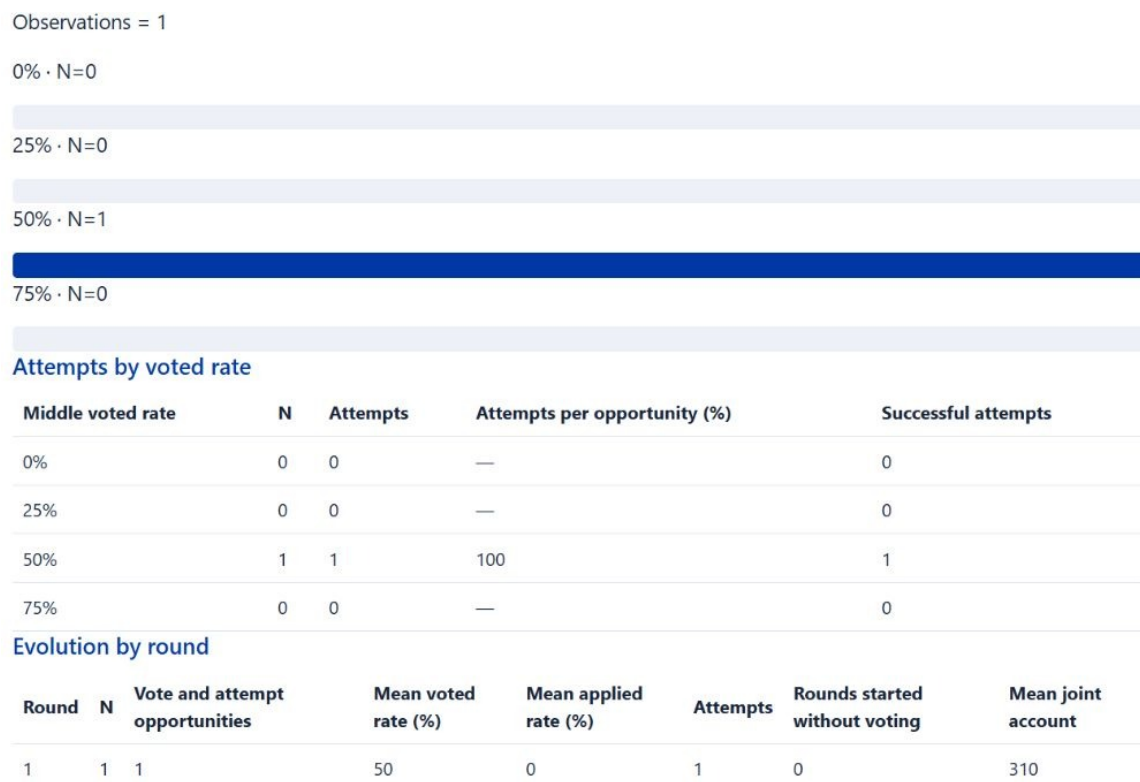


Figure 4.3: Distributions and conditional tables retain their observation counts.

voluntary rejection of a rate. The attempts-by-rate table shows opportunities, attempts, successes, and frequency. A rate observed in few groups provides a limited basis for comparing responses. Displaying counts lets the instructor recognize that limitation before attributing a difference to an economic mechanism or comparing percentages with very different sample sizes.

The trend table separates rounds and counts those that started without voting. Mean accounts by role pool several round experiences; they are not average cumulative outcomes per person. The percentage with voting at round end uses the state after that round's conflict. Next-round state additionally incorporates a static reset or dynamic return when applicable. To study institutional duration, reconstruct the state sequence rather than substituting an average tax rate. A reduced average may represent lower chosen rates, successful reversal, or fewer opportunities to choose at all.

4.2 A complete worked reading

Consider the Spanish one-round verification session with two groups. The first finishes at median fifty, with A keeping the rate. A receives one hundred five and each B eighty-five, totaling three hundred sixty. The other group is pending. The report should show one settled observation out of two, one attempt opportunity, zero attempts, and no conditional success rate. Both voted and applied rates are fifty. The pending group neither lowers the mean rate to twenty-five nor halves the reported role accounts. The sample size describes the evidence actually available.

Suppose the second group later finishes at median fifty with a successful attempt. A receives one hundred thirty and each B sixty, totaling three hundred ten. Pooling both groups gives a fifty-percent attempt frequency and one hundred percent success conditional on attempting. Mean voted rate remains fifty, while mean applied rate becomes twenty-five. A's mean account is one hundred seventeen and a half; B's is seventy-two and a half; the group mean is three hundred thirty-five. These are arithmetic consequences of an illustrative example, not population estimates or empirical research results.

This contrast explains why an isolated mean is insufficient. A low applied rate can result from moderation, successful reversal, or a round without voting. A low resource total can reflect conflict, a common charge, or lower initial income during a crisis. Identify the branch producing a difference and the parameter that changed before explaining the pattern. Interpretation should return to the design rather than treating a condition's name as an adequate explanation. A label such as guarantee does not state whether its benefits exceeded its financing cost in a particular session.

4.3 Download formats and reconstruction

The download link includes the selected session code. The native wide format has one row per participant and columns for ten technical rounds. Session configuration states how many rounds were active: one, six, or ten. A technically available but inactive round is not a period with income, votes, or attempt decisions of zero. The family's custom long format includes active rounds only, including pending records. Preserve legitimate empty values and filter settled observations before calculating complete-outcome statistics. Keeping pending rows makes missingness visible without inventing choices.

In the long file, session, participant, round, group, role, language, edition, treatment, and matching describe each record. Parameters retain incomes, reserves, costs, success probability, common fee, and return probability. Group fields record starting, end, and next regime; realized cost; median; attempt; success; random draws; announcement; applied rate; tax; transfer; and group accounts. Individual fields contain the vote, message, A's action, closing account, and final total. Preparation,

resolved-voting, and completion flags distinguish stages and indicate whether an otherwise empty field has become applicable.

Group variables repeat across four participant rows. Deduplicate by session, round, and group before summing losses or group resources. Keep B rows and voting rounds to analyze individual votes. A failed attempt has a false success realization; a round without an attempt has no success realization. Realized private cost is available for administrative analysis even though B did not observe it. Do not project that file during play or use its complete information to claim that voters knew something the protocol withheld. Administrative observability and experimental information sets are different.

Checkpoint

Before computing a rate, identify its unit, filter active periods, confirm settlement, and write its denominator. Do not confuse protocol probabilities with realized frequencies. Fixed groups create within-group dependence; rematching requires retaining participant histories and assignment restrictions when interpreting repeated observations.

4.4 A discussion built around conditional predictions

Begin by asking what each role could choose and when. Reconstruct a numerical round before revealing every mean. Then compare written predictions with outcomes, separating B's votes, A's response, and the draw. A correct incentive prediction can coexist with an unfavorable realization. A median near the benchmark can also arise through different motives, so it does not establish the reasoning the instructor intended. Ask students which part of a prediction concerned behavior and which part concerned a probability distribution over outcomes.

Compare two institutions with a precise question. Did the gain from attempting change? Did information change? Was a tax rate removed from the menu? Were later opportunities to vote lost? Students should state what stayed constant. A three-column board listing modified rule, prediction, and relevant evidence helps organize answers. Do not convert every difference between sessions into a causal effect. If groups were allocated by schedule, prior experience, or preference, those differences may also matter. A classroom comparison is useful even when its limits prevent a population-level causal interpretation.

An introductory exercise can focus on identifying an effective veto. An advanced class can calculate consequences for every rate. An institutions course can discuss who gains stability and who loses decision rights. A methods class can examine opportunity selection and temporal dependence. The same activity supports these uses, but pursuing all of them simultaneously without a learning priority makes discussion diffuse. Choose the central comparison, specify its learning objective, and identify the report fields needed to assess it before starting the session.

For the instructor

Before revealing outcomes, ask for a conditional prediction and its assumptions. After revelation, distinguish calculation mistakes, different beliefs, and different objectives. Discussion improves when students can identify evidence that would change their explanation rather than defend a general label of rationality or political commitment.

4.5 Exercises with answer criteria

Exercise 1. Votes are seventy-five, zero, and twenty-five. The median is twenty-five regardless of submission order. If A keeps it, tax is thirty, the transfer is seven and a half, A closes at 127.5, and each B at 77.5. Their sum, 360, verifies that taxation is a transfer. An average of 33.33 does not implement the game's aggregation rule. Ask students to explain why changing the order of submissions cannot change this median.

Exercise 2. The selected rate is fifty and A attempts. Write accounts under success and failure. Success gives A 130 and B 60; failure gives A 85 and B 75. Both total 310. A's expectation is 107.5, compared with 105 without an attempt. B's expectation is 67.5, compared with 85 if taxation could be implemented without conflict. The example separates private expected gain from certain destruction of group resources and distinguishes a failed attempt from no attempt.

Exercise 3. Which is the highest menu rate avoiding a strictly profitable attempt in the reference condition? Twenty-five. A's gain is $45t - 20$, with continuous threshold approximately 0.4444. Fifty already exceeds it. This answer assumes the specified monetary behavior, but it neither forces each individual B to submit the same vote nor proves a unique equilibrium of submitted messages. State the conclusion in terms of consequences and best responses before making a broader equilibrium claim.

Exercise 4. Compare cost twenty with forty while reserve is fifty. Attempt gains differ by twenty ECU at every tax rate. At seventy-five the low-cost gain is 13.75 and the high-cost gain -6.25 . Without conflict, both arms total 440. Comparing high cost with the basic reserve-thirty game would additionally change eighty group resources, so raw account differences would not isolate attempt costs. The controlled pair keeps the resource difference separate from the incentive comparison.

Exercise 5. Calculate the attempt threshold in the fixed-cost crisis. The expected recovered redistribution is $22.5t$. With cost twenty, t must exceed 0.8889, outside the menu. With cost ten the threshold falls to 0.4444. Claiming that every crisis increases coups would ignore the relationship between recoverable income and reversal cost that determines this difference. The answer should identify which parameters changed rather than rely on the condition's descriptive name.

Exercise 6. A guarantee costs twenty per group and no attempt occurs. The total is 340. The free reference without an attempt gives 360, while an attempted reversal gives 310. Avoiding conflict can therefore save fifty but financing protection costs twenty every round. An ex ante assessment needs a counterfactual conflict probability; one comparison of realized totals does not identify it. Distribution may provide another evaluation criterion even if the guarantee lowers the available group total.

Exercise 7. A successful attempt occurs in dynamic round one. Round two starts without voting and its return draw fails, so round three also starts without voting. If round three's draw restores voting, round four begins with votes. Rounds two and three must not enter individual-vote data as zero choices. They do count toward time without voting and cumulative accounts because resources continue to be received. Starting regime and next regime must be read in their correct temporal order.

Exercise 8. Private cost is ten or thirty. At rate fifty and under A's monetary response, B expects 67.5 when cost is ten and 85 when cost is thirty. Equal probabilities give 76.25. Do not replace cost with its mean of twenty and first predict a single action. Incentives cross a decision threshold, so expectations must be formed over the responses to each realization. This distinction illustrates why behavior at an average parameter can differ from average behavior under parameter uncertainty.

Exercise 9. A report has four attempt opportunities and two attempts, with one success. Attempt

frequency is fifty percent and conditional success is also fifty percent. If two additional rounds began without voting, successes divided by all six rounds would be approximately 16.67 percent. That ratio answers a different question. Specify the relevant denominator and do not rename the last fraction technological success probability. Small realized counts can diverge substantially from the protocol's known probability without indicating a software problem.

Exercise 10. A announces keeping the rate and later attempts reversal. Does that show announcements are uninformative in every session? No. One inconsistent case shows that an announcement is not an enforceable guarantee. Assessing informational content requires multiple cases, realized costs, and a comparison with no announcements, while recognizing that receiver beliefs were not directly elicited. The observation supports a description of announcement-action concordance, not a complete inference about intended deception or the communication equilibrium.

Feedback script

Close with three questions: which decision generated redistribution, what made the threat credible, and which right changed after conflict? A complete explanation distinguishes accounts, beliefs, and institutional rules, and states which conclusion the available evidence cannot establish.

4.6 Common problems and boundaries of inference

If a session stops advancing, check that all four people completed the relevant stage. A submitted vote cannot release the group while other votes are missing. If comprehension is rejected, read the displayed calculation and confirm inclusion of reserves and the common fee. If a report appears empty, check the selected session and whether any round has settled; do not import outcomes from another session to fill the display. If an account fails to reconcile, reconstruct tax, refund, and each cost separately before interpreting behavior.

Rematching preserves the four initial positions and randomizes people within B positions. Re-encounters can occur and not every possible composition of three B persons is available. Consider that restriction when discussing anonymity, independence, and learning. Repeated observations in fixed groups are likewise not independent replications. A class provides examples of behavior under controlled rules, but its size and composition do not justify extrapolating frequencies to countries or populations. Report its actual units, opportunities, and institutional exposure rather than treating every participant-round as a new independent political system.

Acemoglu and Robinson (2001) connect distributive conflict, transitions, and consolidation theoretically. This protocol uses that question to build its own classroom accounts, menu, and draws; it does not reproduce their full model. Rytkin and Semykina (2017) study a voluntary majority-vote transition toward autocracy with investment and taxation. That delegation differs from the elite-initiated reversal modeled here. Keeping the distinction explicit prevents a related citation from being presented as direct validation of this design or as evidence for a general empirical frequency of coups.

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American Economic Association

JEL Classification System. <https://www.aeaweb.org/econlit/jelCodes.php?view=jel>.