



Instructor guide to electoral accountability and political selection

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 helps instructors prepare, run, and discuss the electoral accountability and political selection family available at the Behavioral and Experimental Economics Research Lab (BEER Lab), Department of Economics, Tecnológico de Monterrey. It is written for instructors with different levels of familiarity with experimental economics, game theory, and political economy.

The text does not assume specialist knowledge: it develops the institution step by step, derives its predictions, and explains what each observed result can and cannot establish. The document offers three reading paths. The **quick guide** is sufficient to launch a basic session.

The operational chapters explain every screen seen by instructors and students. The conceptual chapters distinguish discipline, retrospective voting, and political selection, derive predictions, and connect each variant to the literature. Common instructions appear once; the variants chapter focuses on what changes relative to the benchmark.

Author

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For the instructor

This guide follows the English interface. Spanish configurations reproduce the same logic. The proposed routes use accountability.beer-lab.org; the server administrator must register that subdomain before public deployment. Never project individual codes or connect decisions to names, student numbers, or seats in the room.

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Quick implementation guide

1.1 Access through the updated laboratory website

Start at <https://beer-lab.org/en/>. Select **CLASSROOM** in the top navigation menu; it opens <https://teaching.beer-lab.org/en/>. In the **Classroom experiments** catalog, use the search box to locate the activity by name. You can also filter by **Topic** or **JEL code**. Clear any filters left from an earlier search before looking for another game.

Each family's card distinguishes **Español** and **English** access links. The **Show extended version** checkbox selects that edition before following a link. Catalog language and session language are separate choices: verify both. Students use the room specified by the instructor; the instructor prepares and monitors the session through this family's own administrative pages.



Figure 1.1: Current institutional website. Select CLASSROOM in the top navigation menu to open the teaching experiments. Captured on October 7, 2026.



Figure 1.2: Current catalog: search by title, topic, or JEL code. Then locate this family's card and select language and edition. Captured on October 7, 2026.

Checking resources, comprehension, and participant requirements

Before opening the room, check the selected configuration and the number of students present. The session-creation form states the group size and minimum required by that configuration. An individual activity accepts any positive participant count; an interactive activity must satisfy its stated requirement: complete groups when size is fixed, or a minimum participant count when size is flexible. Requirements may change across treatments, for example when adding a third party or changing an institution's size. If you edit a grouping parameter, check the requirement for the edited configuration, rather than relying only on the demo's suggested count.

In the instructions, ensure that students can identify what each role receives, what they can decide, and how the outcome is calculated. An initial account, a distributable budget, and final earnings need not be the same amount. Refer to the resources panel and the example for the selected treatment. Do not carry the basic edition's endowment into a treatment that changes accounts or introduces additional positions.

ECU stands for *Experimental Currency Units*: the activity's unit of account. An outcome of 100 ECU does not automatically equal 100 pesos or 100 dollars. Conversion depends on the session configuration. Before announcing a payment, confirm with the laboratory whether money is paid, the conversion rate, and which decisions count for payment. In hypothetical modules, describe amounts as outcomes in the stated situation.

When a comprehension check is included, an incorrect response receives an explanation beside that question, identifying the submitted answer and the correct answer. Other answers remain in the form. Ask the student to return to the example, locate the relevant rule, and redo the calculation before correcting the response. Avoid revealing answers to the entire class for an individual error, and do not interpret a comprehension mistake as an economic choice in the game.

electoral — un encuentro	Disciplina electoral y selección de gobernantes / Electoral Accountability and Political Selection — BEER Lab Seleccione una variante de este juego. Select a version of this game.
electoral — 4 encuentros, grupo fijo	
electoral — 4 encuentros, grupo reasignado	
countability — one encounter	
countability — 4 encounters, fixed group	
countability — 4 encounters, reassigned group	
electoral extendida — referencia	
electoral extendida — continuidad aleatoria	
electoral extendida — señal imperfecta	
electoral extendida — tipos políticos privados	
electoral extendida — mayor valor del cargo	
electoral extendida — límite de mandato	
electoral extendida — auditoría y sanción	
electoral extendida — información sobre ambos políticos	
electoral Accountability — benchmark	
electoral Accountability — random continuation	
electoral Accountability — imperfect signal	
electoral Accountability — private politician types	
electoral Accountability — higher office value	
electoral Accountability — term limit	
electoral Accountability — audit and sanction	
electoral Accountability — information about both politicians	

Figure 1.3: Demo contains only the configurations of this game family, in both languages and editions.

Rooms

Current rooms:

[ES] Disciplina electoral y selección de gobernantes
[EN] Electoral Accountability and Political Selection
[ES] Disciplina electoral y selección: extendido
[EN] Electoral Accountability and Political Selection: extended

Figure 1.4: Rooms contains the four rooms for this family: basic and extended editions in Spanish and English.

Room: [EN] Electoral Accountability and Political Selection

Create a new session

Session Config

[EN] Electoral Accountability — one encounter

Number of participants

Complete groups of 5 participants. Use a multiple of 5; minimum 5.

Create

[Configure session](#) ⚙

App sequence

political_accountability_game (4 rounds)

Two-period political agency game with retrospective voting and selection.

Figure 1.5: Session-creation form for the basic English room. Check the selected configuration and participant requirement before creating the session.

Downloading a session with several rounds

For the instructor

Open **Data** within the relevant session and use that session’s CSV or CSV-for-Excel download link. The general export has one row per participant and columns for the different rounds. Ten rounds do not necessarily mean ten rows per person. When the family provides its own long-format export, observations may instead be organized by participant and round or another unit defined by the design.

Save the original file together with the configuration name, session code, and active-round count. Check that columns for the last active round are present and that the data belong to the selected session. Empty cells can represent inactive rounds, a pending decision, or a field that does not apply to a role; do not automatically recode them as zeros. To compare learning, preserve round and group identifiers alongside participant identifiers. Share only anonymous aggregates in class, and record session incidents before constructing derived tables.

1.2 Core facts

Purpose	Study how the prospect of remaining in office changes an officeholder’s behavior and how information allows voters to choose between politicians with different types.
Experimental unit	A five-person group: three voters and two politicians, labeled P and Q.
Basic edition	One encounter or four encounters with fixed or reassigned groups.
Extended edition	Eight treatments on continuation, information, types, office value, term limits, and audits.

Decision	The incumbent selects a rent of 0, 10, or 20 ECU; each voter chooses retention or replacement.
Topics	electoral discipline; political accountability; political selection; corruption; information; political economy.
Outcome	Aggregate report with rents, retrospective voting, continuation, selection, sanctions, payoffs, and dynamics.
Suggested duration	45–55 minutes for one encounter; 70–90 minutes for four encounters or a treatment comparison.
Participants	Multiples of five; demonstration configurations use ten people.
Student link	accountability.beer-lab.org/room/electoral_accountability_en .
Instructor access	accountability.beer-lab.org/demo .
JEL	A22; C92; D72; D73.

1.3 Minimum sequence

1. Confirm attendance and plan for a multiple of five. Decide how observers will participate if attendance does not match.
2. Go to beer-lab.org, open the games section, and continue to teaching.beer-lab.org.
3. Find the **Electoral Accountability and Political Selection** card and open the instructor access for this family.
4. Log in, open **Rooms**, and select **[EN] Electoral Accountability and Political Selection** or its extended room.
5. Choose a configuration. Use `electoral_accountability_en_one_encounter` for a first class and four encounters for learning dynamics.
6. Create the session with ten, fifteen, twenty, or any multiple of five. Keep **Monitor** and **Report** in separate tabs.
7. Share only the room link. Ask for silence and do not announce the equilibrium prediction.
8. Make sure everyone passes the comprehension questions before the first-period decision begins.
9. Wait for the session to finish. Reveal aggregate results only after all expected decisions are complete.
10. Begin the debrief with observed behavior, then introduce discipline, selection, and the end-period problem.

Checkpoint

Before admission, confirm that the room contains only this family's configurations, that language and treatment are correct, and that the participant count is a multiple of five. The application fails explicitly when started with an unknown family; it never substitutes the full catalog.

1.4 Material and pedagogical preparation

No physical objects or cash payments are required for a classroom demonstration. A slide with the timing and a board for four quantities are useful: mean period-one rent, mean period-two rent, incumbent continuation, and mean support. If the class will discuss selection, reserve space to separate outcomes by incumbent and challenger types. This separation prevents every punishment vote from being treated as evidence of selection.

Neutral instructions serve a pedagogical purpose. Words such as “corruption,” “stealing,” or “good politician” can activate moral judgments before the decision. The interface uses “private rent,” “incumbent,” and “challenger.” The instructor may introduce normative language during the debrief after decisions have been recorded. If framing is the learning objective, a change in vocabulary should be a planned treatment rather than an improvised explanation.

Attention

Do not announce that a zero rent is the correct answer. The activity studies incentives and beliefs. If the instructor induces a norm before play, the outcome combines the electoral institution with experimenter demand and no longer cleanly demonstrates the mechanism.

Platform access and family isolation

2.1 Route from the laboratory website

The route starts at beer-lab.org. The section for instructors and students opens the catalog at teaching.beer-lab.org. This activity's card should display a short description, the topics “electoral discipline, political accountability, political selection, corruption, information, political economy,” its JEL codes, and Spanish and English access. The proposed public route is accountability.beer-lab.org.

The family is designed as an isolated oTree instance. When the server starts with `GAME_FAMILY=accountability`, the **Demo**, **Rooms**, **Sessions**, and **Data** pages know only the twenty-two configurations and four rooms in this family. The filter prevents a person entering through this activity's host from launching trust, public goods, or any other game in the repository. Isolation also makes exports and session diagnosis easier because families are never mixed.

2.2 The four rooms

Room	Configurations	Use
<code>disciplina_electoral_es</code>	3	Spanish basic version: one encounter, four fixed-group encounters, and four reassigned encounters.
<code>electoral_accountability_en</code>	3	The same three structures in English.
<code>disciplina_electoral_extendida</code>	8	Spanish treatments that identify institutional mechanisms.
<code>electoral_accountability_extended</code>	8	The same eight treatments in English.

The student route requires no administrative credentials. The instructor route requires a username and password. The instructor creates the session, monitors progress, and opens the report. Students receive an individual link after entering the room. Never distribute the **Demo** address as the participation link because it contains administration controls.

For the instructor

Create sessions before projecting. Then show the report or a neutral slide so credentials, individual codes, and administrative links remain private.

The participant experience

3.1 Welcome and laboratory rules

The first screen presents the institutional logos, the broad purpose, and six rules: remain silent, do not communicate, decide individually, follow each screen, do not close or refresh the page, and raise a hand for assistance. Acceptance is mandatory. The common welcome standardizes protocols across game families and allows a session to begin even if the instructor did not repeat every rule aloud.

3.2 Instructions and timing

The instructions introduce a group with three voters and two politicians. One politician begins as incumbent and manages a 60 ECU budget. In each period, the officeholder chooses a rent of 0, 10, or 20 ECU. The remainder benefits the three voters equally. After period one, each voter chooses to retain the incumbent or replace them with the challenger; two votes form a majority. Period two is terminal.

The interface represents the sequence in four blocks: period-one decision, election, period-two decision, and encounter result. Payoff formulas and an end-period warning appear underneath. Each variant adds one box explaining only its institutional modification. Relevant information is contained in boxes and cards; blue text is reserved for headings, indicators, and navigation elements.

3.3 Comprehension check

Before assigning a position, the platform asks how much each voter obtains when rent equals 0, how many votes form a majority, and whether another election follows period two. Correct answers are 40 ECU, two votes, and “no.” The page blocks incorrect answers and provides feedback in the selected language. These questions prevent three common mistakes: dividing the budget among all five participants, treating majority as unanimity, and assuming that the terminal officeholder still faces reelection.

3.4 Positions and decisions

Each encounter assigns three voter positions and two political positions, P and Q. The system randomly selects the initial incumbent. In type treatments, each politician sees their preference



Welcome to the BEER Lab

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

In this activity you will make individual decisions in an institution with a budget, offices, and voting.

General laboratory rules

- Remain silent throughout the activity.
- Do not talk or communicate with other participants.
- Make decisions individually and privately.
- Follow the instructions on each screen.
- Do not refresh, close, or leave this page.
- If you have a problem, raise your hand and wait for laboratory staff.

☐ I confirm that I understand and will follow these rules.

Start

Powered by [oTree](#)

Figure 3.1: English welcome and acceptance of the laboratory's general rules.



Instructions

Election with full information

Resources and unit of account

Public budget per round: 60 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.

The political institution

The group contains three voters and two politicians. One politician starts as the incumbent and the other as the challenger.

In each period, the officeholder administers a 60 ECU budget and chooses a private rent of 0, 10, or 20 ECU. The remainder benefits the three voters equally.

After period one, each voter chooses whether to retain the incumbent or replace them. Two votes form a majority. Period two is terminal: no election follows.

1

Period 1

2

Election after period one

3

Period 2

4

Encounter result

Election with full information

Voters observe the true rent and their majority selects the period-two officeholder.

Each voter payoff: $20 + (60 - \text{rent}) / 3$.

Officeholder: $20 + \text{rent}$. Politician out of office: 10 ECU.

There is no reelection prize in period two. This difference makes the end-period problem visible.

Continue

Con tecnología de [oTree](#)

Figure 3.2: Current instructions for the basic edition: initial resources, decision rules, and experimental units.



Review the marked questions. Each shows your answer and an explanation; your other answers are retained.

Comprehension check

Election with full information

Resources and unit of account

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

This session does not convert ECU into real money.

If the rent is 0 ECU, how much does each voter receive in that period?

Your answer: 41. The correct answer is 40. Review the rules: with rent 0 each voter receives 40 ECU, two votes form a majority, and period two is terminal.

How many votes are needed to retain or replace the incumbent?

Does period two end without another election?

Continue

Con tecnología de oTree

Figure 3.3: Current comprehension check with an incorrect answer, its specific explanation, and retained responses.

privately. In the information-about-both-politicians treatment, types also appear on the election screen. Across encounters, the configuration determines whether the group stays fixed or is reassigned. Position may change, allowing one person to experience voter and politician incentives without exposing individual history in the public discussion.



Your position in this encounter

Encounter 1 of 1



Position

Incumbent officeholder

Politician preference: **Common type**

Initial incumbent: **Politician Q**

Voters observe the true rent and their majority selects the period-two officeholder.

Continue

Powered by [oTree](#)

Figure 3.4: Position screen. The participant learns their role and the treatment before making a decision.

The incumbent selects one of three rent cards. Each card displays the officeholder payoff and the payoff of each voter, making the distributive cost visible without stating a moral recommendation. A larger rent raises the incumbent's private payoff and lowers voter benefits equally. The audit treatment also states detection probability and the possible fine.

After the decision, voters observe the signal authorized by the treatment. In the benchmark, the signal equals the actual rent. The screen presents incumbent and challenger and two equally prominent vote cards. Public-type variants add the relevant information inside the politician cards.

The period-two officeholder selects rent again. Because no later election exists, the continuation incentive disappears. Comparing first- and second-period rents makes the end-period problem visible. The result screen reports actual rent, signal, aggregate vote, continuation, any sanction, and payoffs. After all active encounters, each participant receives an individual summary.

Officeholder decision — period 1

Encounter 1 of 1

Choose how many ECU from the budget to keep as private rent.

0 ECU

Budget benefit for each voter:
20 ECU

10 ECU

Budget benefit for each voter:
16.67 ECU

20 ECU

Budget benefit for each voter:
13.33 ECU

Continue

Powered by [oTree](#)

Figure 3.5: The incumbent's period-one rent decision. Every alternative translates the choice into payoffs.

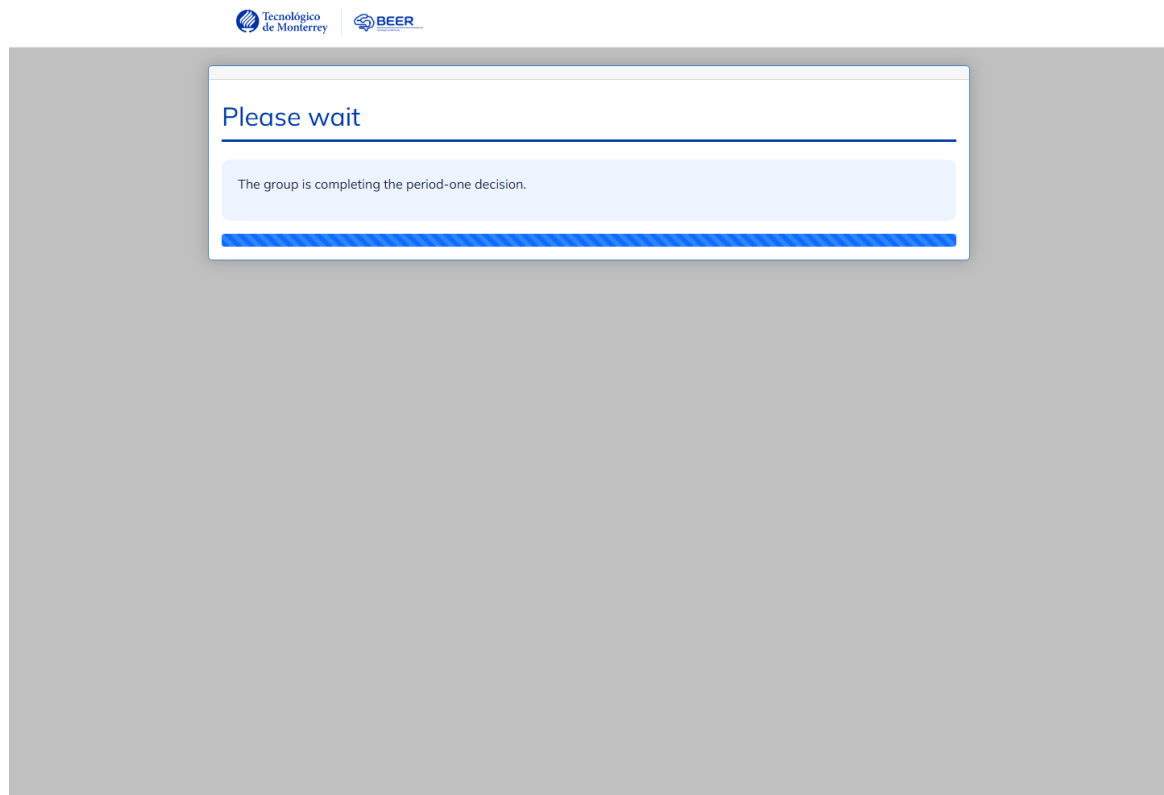


Figure 3.6: Neutral waiting screen while the incumbent completes the decision. The activity continues automatically.



Election after period one

Election with full information

Public signal about the rent

10 ECU

Announced reliability: 100%

Initial incumbent

Politician Q

Challenger politician

Politician P

Retain the incumbent

Replace with the challenger

Continue

Powered by [oTree](#)

Figure 3.7: Election after period one. A majority of three voters determines continuation in the benchmark.



Officeholder decision — period 2

Encounter 1 of 1

This is the terminal period; no election follows.

Choose how many ECU from the budget to keep as private rent.

0 ECU

Budget benefit for each voter:

20 ECU

10 ECU

Budget benefit for each voter:

16.67 ECU

20 ECU

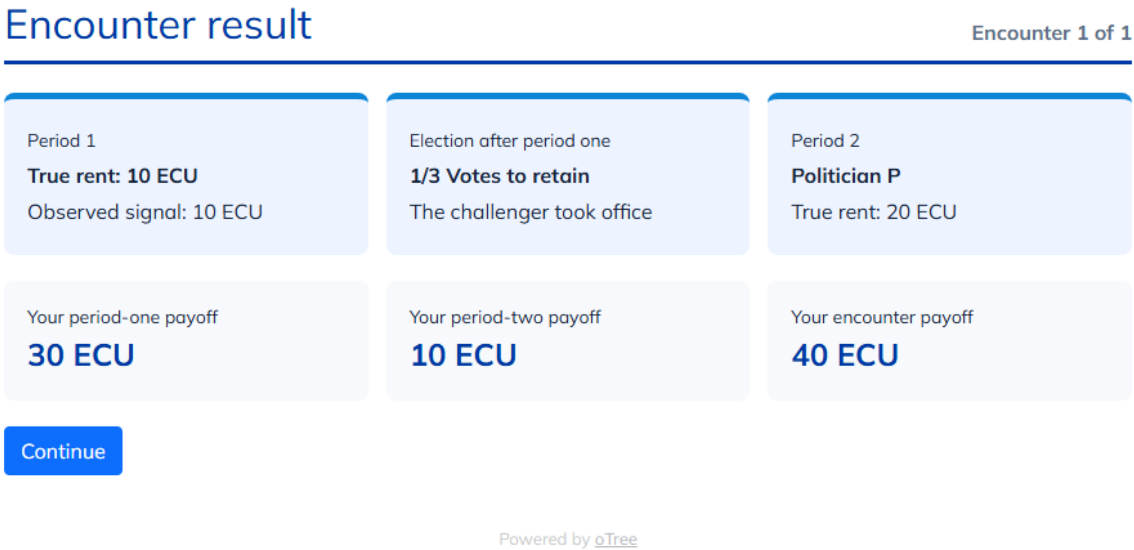
Budget benefit for each voter:

13.33 ECU

Continue

Powered by [oTree](#)

Figure 3.8: From the terminal decision to results, the interface preserves a consistent visual hierarchy. Terminal-period decision.



Economic model and predictions

4.1 Payoffs and distributive conflict

Let $r_t \in \{0, 10, 20\}$ denote rent chosen by the period- t officeholder. The public budget is $B = 60$ and there are three voters. Each voter obtains

$$u_t^V = 20 + \frac{B - r_t}{3}.$$

A rent of 0 gives each voter 40 ECU; rent 10 gives $20 + 50/3 \approx 36.67$; rent 20 gives $20 + 40/3 \approx 33.33$. Total voter payoff falls by one unit for each unit diverted by the officeholder. Rent does not destroy resources in the benchmark: it transfers one unit from collective benefit to the officeholder.

The active politician receives $20 + r_t$, and the politician outside office receives 10 ECU. With homogeneous politicians who care only about monetary payoff, an officeholder prefers $r_t = 20$ when each period is viewed in isolation. The election creates a link between period-one rent and the probability of receiving the active payoff in period two.

Theoretical foundation

The activity combines an agency problem with an election. Voters delegate control of the budget, cannot contract directly over rent, and use continuation as reward or punishment. A low rent can be an investment in remaining in office even when the politician prefers a high rent within the current period.

4.2 Backward induction and the terminal period

There is no later election after period two. A homogeneous, monetarily self-interested politician chooses 20. Anticipating this, voters cannot improve terminal behavior through their current choice when incumbent and challenger are identical. Voting can still allocate the benefit of office to one person. This distinction matters: punishment does not reduce predicted terminal rent under homogeneity, yet an anticipated punishment rule can sustain first-period incentives.

Consider a rule that retains an incumbent if first-period rent is at most 10 and replaces them if it is 20. Choosing 20 and losing gives the incumbent $40 + 10 = 50$ across the two periods. Choosing 10 and continuing gives $30 + 40 = 70$. Moderation pays. Choosing 0 and continuing gives $20 + 40 = 60$, so rent 10 dominates rent 0 under this threshold. The best policy depends on the electoral standard and future office value.

A rule that retains only after rent 0 produces another calculation: rent 0 followed by continuation yields 60, while rent 20 followed by replacement yields 50. The threat can support zero rent. Yet

replacing a high-rent incumbent does not improve terminal voter payoff when both politicians are identical; without reputations, commitment, or nonmonetary preferences, voters may be indifferent. Equilibrium therefore depends on beliefs, contingent strategies, and how that indifference is resolved. Instructors should present the calculation without claiming a single universal prediction.

4.3 Discipline and selection

Electoral discipline is a causal effect of prospective continuation: the same type changes behavior because a current action affects the probability of staying in office. The most direct comparisons contrast period one with the terminal period or compare effective elections with random continuation and term limits. A lower first-period rent when votes determine continuation is descriptive evidence consistent with discipline.

Political selection requires persistent heterogeneity. A public-interest politician bears an additional private cost $2r$ from diverting resources, while an office-rent politician bears no such cost. The public type prefers rent 0 even in the terminal period, whereas the rent-seeking type prefers 20. Electing the public type improves terminal voter payoff. An election can therefore create value even after its power to discipline future behavior has ended.

Both mechanisms may operate at once. A low rent can reveal a public type or reflect temporary moderation by a rent-seeking type. A high rent can reveal type or reflect a shock, an imperfect signal, or pessimism about the vote's effectiveness. The report therefore separates the across-period gap, the signal-vote relationship, continuation, and—where applicable—the rate at which public types are selected.

4.4 Information, signals, and learning

Under complete information, voters observe r_1 . Under an imperfect signal, they observe s_1 , which equals actual rent with probability 0.70. When it differs, the system displays one of the other rent levels. The election then responds to information rather than the true action. Announced accuracy supports a Bayesian discussion: a low signal increases the probability of a low rent but does not make it certain.

Noise creates two democratic errors. A moderate incumbent may be punished after an unfavorable signal, and a high-rent incumbent may survive after a favorable one. Information quality affects both ex ante discipline and ex post selection. When politicians know that signals are noisy, the expected return to moderation falls because responsible action is no longer reliably recognized.

Feedback script

Ask first, “What did the incumbent expect to achieve with the period-one rent?” Then ask, “Did the vote punish the true action, the signal, or an inference about type?” Finally ask, “Would changing the politician necessarily improve period two?” This order moves from behavior to mechanism and prevents punishment from being equated with effectiveness.

Theoretical foundations and evidence

5.1 Officeholders as agents

Political agency models begin with unavoidable delegation. Citizens value public goods or preferred policies, while officeholders control information and decisions that cannot be fully contracted. [Barro \(1973\)](#) and [Ferejohn \(1986\)](#) formalize reelection as a device for limiting rents. Voters announce or learn a performance standard; the incumbent compares current rent with the expected value of continuation.

In this tradition, retrospective elections do not require voters to know the entire future platform. Evaluating observed performance may be enough. Discipline is stronger when future office is valuable, the signal is accurate, and continuation responds to the vote. It becomes weaker under term limits, noisy information, or a large probability of continuation unrelated to the election. The activity translates each condition into a concrete treatment.

The basic version uses homogeneous politicians to isolate discipline. This is a pedagogical design choice. If types differed from the start, lower rents could come from moderation or from replacing one type with another. Separating mechanisms first provides a clean benchmark. Extensions then reintroduce heterogeneity and show how an institution can improve outcomes through more than one channel.

5.2 Retrospective voting

Retrospective voting evaluates past outcomes as information or as a reward criterion. [Key \(1966\)](#) emphasized the electorate's ability to reward and punish; later models clarify when a retrospective rule is sequentially rational. In the laboratory, the slope between observed signal and incumbent support summarizes retrospective response. A negative slope means that higher-rent signals reduce retention votes.

The slope alone does not show that the institution improves welfare. With noisy signals, votes can respond strongly and still select poorly. With homogeneous politicians, replacement does not improve predicted terminal behavior. With audit sanctions, lower rent can arise from the expected fine rather than the election. Instructors should connect every observed pattern to the treatment that generated it.

5.3 Selecting political types

[Fearon \(1999\)](#) distinguishes selecting good types from sanctioning poor performance. In a selection

model, actions reveal information about persistent characteristics. Elections change the composition of officeholders, and their effect can survive in the terminal period. The private-types variant creates this logic: the public-interest type bears a cost of rent and the office-rent type does not. The challenger-information variant adds a direct signal that makes alternatives easier to compare.

Selection creates an identification problem. A rent-seeking type may temporarily mimic a public type when future office is valuable. If both choose 0, action does not identify type. Conversely, a public type can receive an unfavorable signal and be replaced. The activity provides visible examples of pooling, signaling, and inference without requiring a full technical model. In an advanced course, students can propose strategies and beliefs that support separation or pooling.

5.4 Public information and audits

Evidence in [Ferraz and Finan \(2008\)](#) shows that disclosing municipal audits in Brazil changed electoral outcomes and that local media amplified the response. The result highlights two links: generating information and transmitting it to voters. The imperfect-signal variant weakens the second link; the audit variant adds detection and a direct fine. These institutions are different. An audit may affect rent even if nobody votes, while information without consequences depends on electoral response.

During the debrief, ask which institution acted. If rent falls with audits, compare the expected fine with the reelection prize. If voting responds to a signal, examine its accuracy. If outcomes improve when types are public, the mechanism is informed selection. This decomposition mirrors empirical political economy: formulate a mechanism, identify variation, and inspect intermediate outcomes.

5.5 Experimental evidence and external validity

[Woon \(2014\)](#) uses experiments to separate accountability and selection under electoral institutions. A broad lesson is that institutions change both politician and voter strategies, and similar aggregate outcomes may conceal different mechanisms. This teaching laboratory follows that comparative logic but is not a literal replication. Round parameters, two periods, and simplified roles are chosen for comprehension and discussion.

Internal validity in a class session requires uniform instructions, anonymity, no communication, and a stable treatment. External validity requires caution. Real politicians compete along many dimensions, build reputations, belong to parties, face media, and govern under uncertain horizons. ECU payoffs are stylized incentives. The objective is not to estimate how much corruption falls in a country, but to observe strategic relationships that organize richer evidence.

Theoretical foundation

A session produces evidence about behavior inside the programmed institution. It does not prove that real voters are rational or that elections always reduce corruption. Its pedagogical value comes from comparing predictions, choices, and mechanisms under transparent conditions.

Basic versions

6.1 One encounter

`electoral_accountability_en_one_encounter` implements one two-period encounter. It is recommended for introducing political agency, backward induction, and retrospective voting. It limits learning and dependence across encounters, so the contrast between periods is easy to explain. Its statistical limitation is substantial: ten participants form only two groups and cast six votes. Treat the report as an illustration rather than a stable estimate.

Use this version when time is short or when the activity immediately precedes a theoretical lecture. Before revealing results, ask for three predictions: modal first-period rent, modal second-period rent, and voting rule. Record answers on the board. Differences between prediction and behavior usually open a productive discussion of credible threats, reciprocity norms, and heterogeneous beliefs.

6.2 Four encounters with fixed groups

`electoral_accountability_en_4_fixed_group` keeps each group of five together for four encounters and reassigns positions inside the group. It supports institutional learning. People see consequences, adjust voting rules, and experience different positions. The report shows encounter dynamics, allowing the class to ask whether first-period rent converges, punishment becomes more consistent, or a common standard emerges.

Repetition also creates history. Even though payoffs and positions reset, people remember group patterns. Falling rents may reflect learning about the electoral rule, reciprocity, or informal reputation. Describe the result as fixed-group dynamics rather than automatically attributing it to a static equilibrium.

6.3 Four encounters with reassignment

`electoral_accountability_en_4_random_group` rebuilds groups in every encounter. It weakens stable relationships and exposes people to different norms. This is useful for discussing diffusion of learning and reducing local reputation among a fixed set of politicians and voters. It requires at least ten participants and works better with twenty or more because reassignment then creates meaningful variety.

Compare rent and support under fixed groups and reassignment. Convergence may reflect coordination or norm diffusion; distinguish these mechanisms using additional evidence.

Extended versions

For the instructor

Do not run all eight variants in one class. Select a comparison tied to the learning objective: benchmark versus random continuation for discipline; benchmark versus imperfect signal for information; private types versus challenger information for selection; benchmark versus audit for electoral and legal control.

7.1 Extended benchmark

The extended benchmark repeats four fixed-group encounters with an effective election. It is the common baseline for other extensions. It keeps a perfect signal, homogeneous politicians, standard office value, and no audit. Its purpose is to match the duration and data structure of treatments. Use this configuration as the comparator whenever possible.

Prediction: period-two rent should be high under monetary self-interest; period-one rent may be lower if continuation rewards a favorable signal. Central indicators are the terminal gap, support by signal, and continuation. A positive gap is consistent with discipline but may include learning or norms. Random continuation and term limits help interpret it.

7.2 Random continuation

In `electoral_accountability_extended_random_continuation`, all three votes are recorded, but a 50 percent lottery determines whether the incumbent remains. The treatment retains expressive voting while breaking the causal link between majority and office. If first-period rent is lower in the benchmark, the contrast supports a continuation-incentive interpretation.

The comparison does not remove every other channel. Participants may follow a norm, anticipate discussion, or value the vote symbolically. In addition, the control's continuation probability should be compared with actual continuation in the benchmark. If benchmark voters retain almost everyone, expected office value also differs. Present the control as a diagnostic tool rather than a perfect all-else-equal reproduction.

7.3 Imperfect signal

In `electoral_accountability_extended_imperfect_signal`, the signal equals actual rent with probability 70 percent. Voters know this precision and learn the true rent after voting. The variant

supports discussion of information, classification errors, and transparency. The report displays realized accuracy, which can differ sharply from 70 percent in a small sample.



Elección después del primer periodo

Señal imperfecta

Señal pública sobre la renta

20 ECU

Confiabilidad anunciada: 70%

Titular inicial

Político Q

Político rival

Político P

Retener al titular

Sustituir por el rival

Continuar

Powered by [oTree](#)

Figure 7.1: Election with an imperfect signal. The screen states announced reliability without revealing actual rent before the vote.

Before play, ask why a signal of 20 does not guarantee rent 20. Afterward, classify mistakes: replacing a low-rent incumbent and retaining a high-rent one. Ask how uncertain recognition changes the incumbent's incentive. Theory predicts weaker discipline when responsible action is not reliably rewarded.

7.4 Private politician types

In `electoral_accountability_extended_political_types`, one politician is a public-interest type and one an office-rent type. The public type pays a private cost $2r$; the rent-seeking type does not. Politicians know their own types, while voters do not see identities. First-period behavior may reveal information. The treatment introduces selection without giving voters a direct label.

Terminal prediction separates types: public-interest politicians choose 0 and rent-seeking politicians choose 20. In period one, a rent-seeking type may imitate the public type to continue. If both choose 0, action does not identify type; if they separate, the vote can select. Use public-type selection and rents by type, not continuation alone. Low continuation can be beneficial or harmful depending on who replaces whom.

7.5 Higher office value

In `electoral_accountability_extended_office_value`, the active politician receives a base of 40 ECU and the inactive politician receives 0. The gap between holding and losing office increases.

The marginal gain from rent is unchanged, but expected continuation becomes more valuable. Agency models predict stronger first-period moderation when votes respond to rent.

Compare first-period rent with the benchmark and continue to inspect the terminal period. If terminal rent stays high while initial rent falls, the pattern fits discipline. If both fall, consider norms, learning, or social preferences. Ask whether higher public salaries always improve behavior: they may raise the cost of losing office, but may also change entry and the value of capturing the position.

7.6 Term limit

In `electoral_accountability_extended_term_limit`, the incumbent must leave after period one. Votes are recorded as advisory opinions, but the challenger governs period two. The treatment eliminates the reelection prize. Under homogeneous, monetarily self-interested types, both period rents should be 20.

The comparison illustrates a possible cost of term limits: they weaken accountability for an outgoing incumbent. Real term limits may also create rotation, reduce accumulated power, or admit new types, none of which is represented here. Ask students to separate the modeled mechanism from omitted benefits. A responsible institutional conclusion states both mechanism and assumptions.

7.7 Audit and sanction

In `electoral_accountability_extended_audit`, each positive rent is detected with probability 50 percent and triggers a 20 ECU fine. Audit operates in both periods. For rent 10, the expected fine is 10, eliminating its expected monetary gain over zero. For rent 20, the expected fine is also 10, leaving an expected gain of 10. Election and sanction interact in period one; only sanction remains terminally.

Compare terminal rents with the benchmark to isolate the nonelectoral component. Compare initial rents to study the combination. The sanction count depends on choices and chance; a session with no detections does not mean the audit had no incentive effect. Separate ex ante probability from ex post realization.

7.8 Information about both politicians

In `electoral_accountability_extended_challenger_information`, voters observe incumbent and challenger types before voting. They can directly select the public type. Incumbent rent still informs behavior, but the type label reduces ambiguity. The central result is the share of period-two offices held by public-interest politicians.

Comparison with private types measures the value of information about alternatives, not just the incumbent. Real elections combine retrospective evaluation of government with unequal information about challengers. Ask why a voter might retain a rent-seeking incumbent when the challenger is also rent-seeking, or replace a moderate incumbent when a public-interest challenger offers a better terminal prospect.

Elección después del primer periodo

Auditoría y sanción

Señal pública sobre la renta 20 ECU Confiabilidad anunciada: 100% La auditoría detectó una renta positiva y aplicó la sanción.	Titular inicial Político Q	Político rival Político P			
Retener al titular			Sustituir por el rival		
Continuar					

Powered by oTree

Figure 7.2: Audit variant. The voter observes the signal and the interface recalls the detection-and-sanction institution.

Election after period one

Information about both politicians

Public signal about the rent 20 ECU Announced reliability: 100%	Initial incumbent Politician P Office-rent type	Challenger politician Politician Q Public-interest type			
Retain the incumbent			Replace with the challenger		
Continue					

Powered by oTree

Figure 7.3: Election with information about both politicians. Type labels appear inside the politician cards.

Instructor report and interpretation

8.1 Hide before revealing

The report opens with results hidden. It displays participants, completed decisions, pending decisions, and completed encounters but no choices or payoffs until the instructor presses **Reveal aggregate results**. This separation allows progress to be projected without contaminating ongoing decisions. If anything remains pending, wait. Early revelation can inform delayed groups and change the treatment.

Application error (500)



Figure 8.1: The reveal control protects decision independence and organizes the debrief. Report with results hidden.

8.2 Main indicators

Mean period-one rent summarizes behavior under a possible continuation prize. Mean period-two rent describes the terminal stage. The terminal gap is mean period two minus mean period one; a positive value is consistent with initial strategic moderation. It is not by itself a causal estimate because officeholders may change after the election and types may differ.

Continuation is the share of encounters in which the incumbent stays. Mean support divides retain votes by all votes. A 100 percent continuation rate can coexist with 66.7 percent support because two votes are enough. The retrospective-voting table groups choices by signals 0, 10, and 20 and reports the retain percentage. Inspect observation counts before interpreting percentages based on few votes.

Signal accuracy equals 100 percent under complete information and is a random realization around 70 percent under imperfect information. Audit sanctions count detections, not rents. Mean voter payoff summarizes welfare in the institution; mean politician payoff includes active and inactive politicians. Type treatments add the public-selection rate, the share of terminal offices held by the public-interest type.

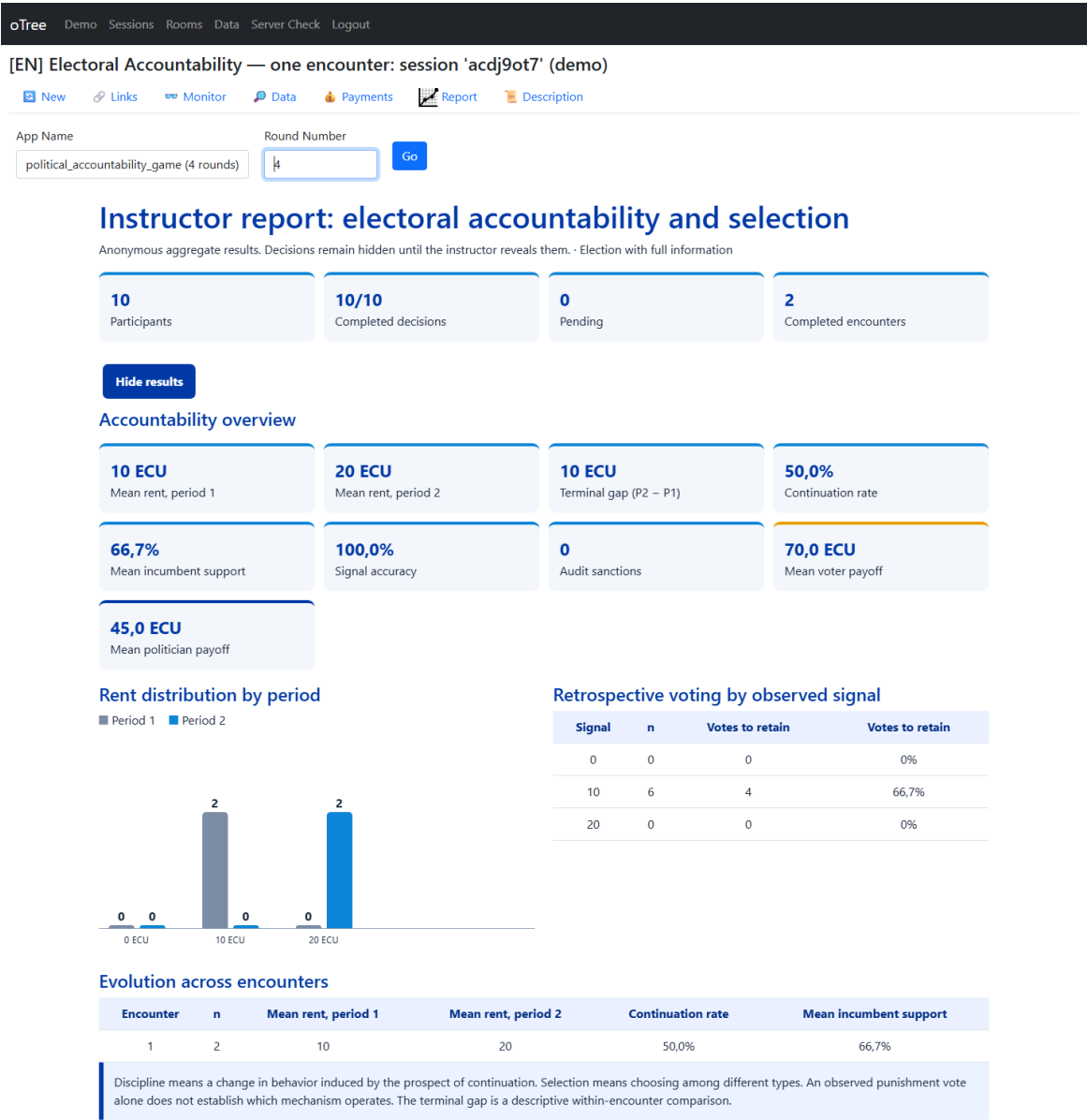


Figure 8.2: Aggregate report after revelation.

8.3 Charts

The histogram compares frequencies of rents 0, 10, and 20 across periods. A concentration of period-one choices at low rents and period-two choices at 20 makes the terminal problem visible. The encounter table shows whether a pattern is present immediately or develops through learning. Distribution and dynamics answer different questions and should be shown together.

Before explaining, ask students to describe the chart without theory. “Two out of two terminal choices were 20” is a description; “politicians are corrupt” is an interpretation. Introduce the mechanism next and examine alternatives. This verbal discipline teaches economic inference and prevents overinterpretation of small samples.

Feedback script

Suggested order: (1) describe the distribution; (2) compare periods; (3) connect signal and vote; (4) identify who governed terminally; (5) compare treatment and control; (6) discuss welfare and limitations. Always ask how many observations support each percentage.

8.4 Worked example

Suppose there are two groups. Both incumbents choose 10 in period one; four of six voters support continuation and both incumbents remain. Both select 20 in period two. The report shows initial mean rent 10, terminal mean 20, a gap of 10, continuation 100 percent, and support 66.7 percent. The pattern is consistent with a majority threshold that tolerates rent 10. It does not prove strategic calculation: social preferences or a focal point could also produce 10.

Each voter earns about 36.67 in period one and 33.33 in period two, for 70 total. Each continuing incumbent receives 30 and 40, for 70. Each politician outside office receives 10 per period, for 20. Replacement reallocates who obtains office benefits; with homogeneous types it does not change predicted terminal rent.

Class plans

9.1 A 50-minute session

Reserve five minutes for entry and rules, seven for instructions and comprehension, ten for one encounter, fifteen for the report, and thirteen for theory. Ask for individual predictions before play. Afterward, project the histogram and begin with descriptive questions. Introduce backward induction only after hearing student explanations. Finish with an exit statement in which everyone distinguishes discipline from selection in two sentences.

This format works in introductory political economy or game theory. The goal is not to cover all variants, but to understand that an election creates an incentive before the vote and that the incentive disappears terminally. If the session shows no gap, use the absence as evidence: ask whether the threat was credible, office was valuable enough, or voters coordinated on a standard.

9.2 An 80-minute session

Use four encounters with fixed groups. Allocate fifteen minutes to entry, instructions, and comprehension; twenty-five to play; twenty-five to dynamics; and fifteen to formalization. Do not reveal aggregates before the fourth encounter. At the end, compare first and last encounters and ask students to identify learning, retrospective response, and position changes.

As a complement, ask small groups to write voting rules capable of supporting rent 0, 10, or 20. Each group calculates deviation payoffs and discusses credibility. The discussion shows why a strict threshold is not automatically optimal when voters cannot commit or the challenger is identical.

9.3 A 100-minute comparative session

Split the class into two sessions or run two blocks: benchmark and one variant. Choose random continuation or term limit for discipline, imperfect signal for information, private and public type information for selection, or audit for control institutions. Keep group size, encounter count, and language fixed. State what variable changes and what indicator should respond.

If a clean comparison matters, conceal the other group's treatment until both finish. In the joint debrief, create a table with prediction, result, mechanism, and alternative explanation. This structure mirrors an empirical design: treatment, intermediate outcome, final result, and threat to interpretation.

Questions, exercises, and assessment

10.1 Questions before revealing results

1. Which rent maximizes the incumbent's immediate payoff in each period?
2. What is the value of continuation if terminal rent will be 20?
3. Which voting rule did the incumbent expect voters to use?
4. Why might a voter punish when the challenger is identical?
5. Which across-period difference is evidence consistent with discipline?
6. Which information is needed before discussing selection?
7. How does a signal that is correct only 70 percent of the time change behavior?
8. Does an audit substitute for elections or complement them, and what comparison would show this?

10.2 Quantitative exercises

First, compute payoffs for all nine combinations of first- and second-period rent when the same politician continues. Then compute incumbent payoff after replacement. Find the minimum increase in continuation probability that compensates for giving up 10 ECU of rent. With active base 20, terminal rent 20, and inactive payoff 10, continuation is worth 30, so giving up 10 requires an increase of at least $10/30 = 1/3$.

Second, analyze audits. With detection 0.5 and fine 20, expected active payoffs are 20 at rent 0, 20 at rent 10, and 30 at rent 20. Ask why rent 10 loses its attraction and what fine makes rent 20 indifferent to zero. A fine F solves $40 - 0.5F = 20$, hence $F = 40$.

Third, use Bayes. Suppose public and rent-seeking types are equally likely; the public type always chooses 0 and the rent-seeking type chooses 0 with probability 0.25. After rent 0, the posterior probability of a public type is $1/(1 + 0.25) = 0.8$. With a noisy signal, the calculation must incorporate accuracy. The exercise connects selection and information.

10.3 Short-answer rubric

An excellent answer defines the mechanism, uses the timing, names the relevant contrast, and recognizes at least one alternative explanation. An adequate answer describes incentives correctly

but confuses descriptive and causal evidence. An insufficient answer uses normative labels without connecting them to payoff, information, or continuation. The rubric fits a 300-word memo or oral discussion.

For the instructor

Sample prompt: “Using the report, assess whether the session provides evidence of electoral discipline. Use two indicators, explain one limitation, and propose a variant that would strengthen the inference.” The task requires movement from description to design.

Operations, contingencies, and responsible use

11.1 Incomplete participation

The session needs complete groups of five. If one person is missing before play, close the session and create another with the correct count; do not give one student two links because that reveals decisions meant to remain separate. If someone disconnects after starting, ask them to reopen the same link. Experimental identity is attached to that code. Do not create a new session while other groups continue without explaining the interruption.

If the report shows pending decisions, use Monitor to identify the stage but do not project codes. Wait before revealing. A “Please wait” page can be normal: voters wait for rent, politicians wait for the vote, and groups wait for terminal choices. It becomes a problem when someone closed the tab or opened a link from another session.

11.2 Visual quality and accessibility

The interface keeps institutional headers, one visible title, consistent cards, high contrast, and large buttons. Color is never the only cue: alternatives include text and values. For low-vision participants, use browser zoom and verify that cards do not require horizontal scrolling. Read timing aloud but not private options. When assistance is needed, staff should explain navigation without recommending a choice.

Guide screenshots preserve proportions and centered headings. Blue, orange, purple, green, and red boxes have stable meanings. Instructor keys and credentials must appear inside attention boxes, never as loose blue text. The same standard applies to every catalog family.

11.3 Data and privacy

The report is suitable for projection because it aggregates outcomes and omits codes. The Data page can contain experimental identifiers and should never be projected. Export data only for an authorized teaching or research purpose. A classroom demonstration does not automatically become human-subject research; scientific use must follow applicable ethics review and consent.

At the end, download data if appropriate, record configuration, date, participant count, and contingencies, and close administrative tabs. Never compare identifiable individuals or groups in public. The debrief should refer to distributions, averages, and mechanisms.

11.4 Technical diagnosis

If **Demo** shows other games, the server was not launched with the correct family. Check `GAME_FAMILY=accountability`. If Rooms contains something other than four rooms, inspect the family filter. If a basic room lists eight variants, check explicit room assignment. If participant pages display Debug info, the server is in development mode or a template exposes developer output.

Public deployment should use production mode, **STUDY** authentication, PostgreSQL, and an instance-specific database. One codebase can support one process per family. Never run `resetdb` against data that must be retained. Before deployment, back up the database, test Spanish and English, and confirm that exports belong only to the intended instance.

Checkpoint

Minimum acceptance: 22 configurations in Demo, four rooms in Rooms, no other families; one completed Spanish and one completed English session; hidden and revealed report; no Debug info; updated local server; passing automated tests; compiled and audited guides.

11.5 Glossary and conceptual map

Political agency: citizens delegate decisions to an officeholder whose objectives may differ. **Discipline:** behavior changes because an election creates future consequences. **Selection:** voters choose among people with different persistent characteristics. **Rent:** private benefit diverted from the budget. **Retrospective voting:** a choice based on past performance. **Incumbent:** the politician initially in office. **Challenger:** the alternative in the election. **Signal:** observed information about an action or type. **Terminal period:** a stage after which no election remains. **Credible threat:** a response voters have an incentive to carry out when its decision node arrives.

The conceptual map begins with delegation. Incumbent action creates payoffs and a signal. The signal forms beliefs; beliefs affect votes; the electoral rule determines continuation; expected continuation feeds back into initial action. With types, action and candidate information also alter the composition of terminal officeholders. Audits add a direct consequence, and term limits sever continuation.

Every report indicator belongs on this chain. Rents measure behavior; accuracy measures information technology; support measures response; continuation measures the collective rule; public-type selection measures composition; payoffs measure consequences. Good interpretation follows the chain rather than jumping from one average to a general conclusion.

Annotated references

[Barro \(1973\)](#) offers an early economic formulation of electoral control and explains why future office may discipline present action. [Ferejohn \(1986\)](#) develops a canonical retrospective-control model built around a performance standard; it motivates threshold and credibility discussions. [Besley \(2006\)](#) integrates agency, selection, and political institutions and provides a broader framework for advanced courses.

[Fearon \(1999\)](#) states the distinction between sanctioning performance and selecting types with unusual clarity; that distinction organizes the variants. [Key \(1966\)](#) represents the retrospective-electorate tradition. [Ferraz and Finan \(2008\)](#) demonstrates how disclosure of audits affected Brazilian elections and motivates the information and sanction treatments. [Woon \(2014\)](#) uses experiments to study accountability and selection under electoral rules and connects formal models with laboratory evidence.

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Implementation card

Before	Confirm family, configuration, language, multiple of five, projector, credentials, and room link.
During	Maintain silence, monitor progress, solve navigation without suggesting choices, and keep the report hidden.
After	Reveal aggregates, describe before interpreting, separate discipline and selection, discuss the terminal period, and export only when appropriate.
Recommended comparison	Benchmark versus random continuation for discipline; private types versus both-candidate information for selection.
Visible canonical URL	https://accountability.beer-lab.org/ .

Feedback script

Closing sentence: “Elections can change who governs and how officeholders act before they seek continuation. Identifying the channel requires comparisons across institutions, information, types, and horizons; one average is never enough.”