



Sanctions, Concessions, and Economic Coercion

Instructor's guide to implementation, strategic analysis,
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 preparation, implementation, and classroom discussion of **Sanctions, Concessions, and Economic Coercion**, a teaching game from the Behavioral and Experimental Economics Research Lab (BEER Lab), Department of Economics at Tecnológico de Monterrey. The game models a sequential international negotiation between a sender that makes a demand and a target that may concede or resist. After resistance, the sender withdraws or imposes a sanction; after a sanction, the target has one final opportunity to concede. The sequence separates a demand, a threat, an imposed sanction, an early concession, and a late concession.

The document has three reading paths. Instructors organizing a session can begin with the quick guide, facts table, and checklist. Instructors preparing a theoretical discussion can move to the game tree, solved calculations, and credibility analysis. Instructors comparing mechanisms can consult the variants on damage restitution, sender cost, sanctioning coalitions, third-party evasion, and the distribution of costs between a ruling government and its population. Screenshots reproduce the current instructor and participant interfaces, and the text explains parameters and denominators alongside them.

Author

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For the instructor

The activity studies an abstract international-relations mechanism. Roles A and B are stylized political units rather than named countries. Do not associate an individual's choice with patriotism, morality, or a position on a current conflict. Keep discussion focused on incentives, information, beliefs, and costs. Never project participant codes or connect results to names, student identification numbers, or seats in the room.

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Quick implementation guide

1.1 Access through the laboratory website

Start at <https://beer-lab.org/en/>. Select **CLASSROOM** to open <https://teaching.beer-lab.org/en/>. In the **Classroom experiments** catalog, search for the activity title or filter by topics such as economic coercion, international sanctions, or bargaining. The JEL codes in the facts table provide another route. The catalog card distinguishes Spanish and English and can display the extended edition. Catalog language, selected edition, and room language are separate controls; check all three before distributing a link.

The proposed direct address for the basic English room is https://economic-coercion.beer-lab.org/room/economic_coercion_en. The instructor creates a session from the room and shares the participant link generated for that session. The room address creates a session; it is not a replacement for the unique link of a session that already exists.

1.2 Basic facts

Purpose	Separate demand, threat, imposed sanction, concession, and withdrawal; examine how costs and outside options affect economic coercion.
Experimental unit	A pair consisting of sender A and target B, with roles fixed throughout the session.
Basic edition	One encounter, ten encounters with a fixed pair, or ten encounters with pair reassignment. Each actor starts with 100 ECU.
Extended edition	Damage restitution, higher sender cost, coalition support, third-party evasion, and separate government and population accounts.
Decision	B concedes or resists; after resistance, A withdraws or sanctions; after a sanction, B continues resistance or concedes.
Outcome	Payoffs depend on the full path. A concession transfers 30 ECU; the basic sanction costs A 15 ECU and destroys 40 ECU held by B.
Topics	Economic coercion, international sanctions, bargaining, concessions, threats, evasion, coalitions, and distributional costs.
JEL	A22, C72, C92, D74, F51, and F52.
Suggested duration	20–30 minutes for one encounter and discussion; 40–60 minutes for ten encounters and trend analysis.

Participants

Minimum of two; any even number. Reassignment and aggregate comparisons work best with at least eight participants.

The game's currency is the Experimental Currency Unit, abbreviated ECU. It does not represent dollars, pesos, or a real welfare index. Its purpose is to make the consequences of each action transparent. If the instructor converts ECU into participation points or a reward, announce the conversion before the session and apply it uniformly. This guide uses the word payoff for results inside the game; a classroom session can operate without outside monetary incentives.

1.3 Minimum sequence

The shortest implementation has six steps. First, open the room in the desired language and select one of the three basic configurations. Second, enter an even number of participants and create the session. Third, share the participant link and wait until everyone reaches the welcome page. Fourth, ask participants to read the instructions and complete the comprehension check. Fifth, let the tree proceed while aggregate outcomes remain hidden. Sixth, after the session ends, open the report, verify completion, and reveal aggregate results for discussion.

Checkpoint

Before sharing the link, confirm the room language; number of encounters; fixed or reassigned pairs; even participant count; basic or extended treatment; projector setup for the report; and a plan for late arrivals. The basic room contains only the three basic configurations. The variants appear in the extended room so that an instructor cannot select one accidentally.

1.4 A 50-minute class plan

A compact session can allocate five minutes to a neutral introduction, five to instructions and comprehension, fifteen to ten encounters, five to private predictions before the report is revealed, and twenty to feedback. In a bargaining class, preserve time to reconstruct the game by backward induction. In an international political economy class, devote more time to the distinction between threats and imposition and to selection: observed sanctions are cases in which an early concession did not occur.

Do not explain in advance what either role “should” do. Define the order, resources, and accounting. Strategic instruction before play would turn the activity into a test of the lecture. Instead, collect anonymous predictions for the early-concession rate, the sanction rate following resistance, and the late-concession rate following sanctions. These quantities have different denominators and can later be compared with the report.

Attention

Do not describe a sanction as a transfer. In the basic treatment, 15 ECU held by the sender and 40 ECU held by the target are destroyed. If B concedes afterward, the 30 ECU transfer is calculated from the resources that remain; the previous damage does not vanish. Only the restitution variant explicitly restores B's damage before the transfer.

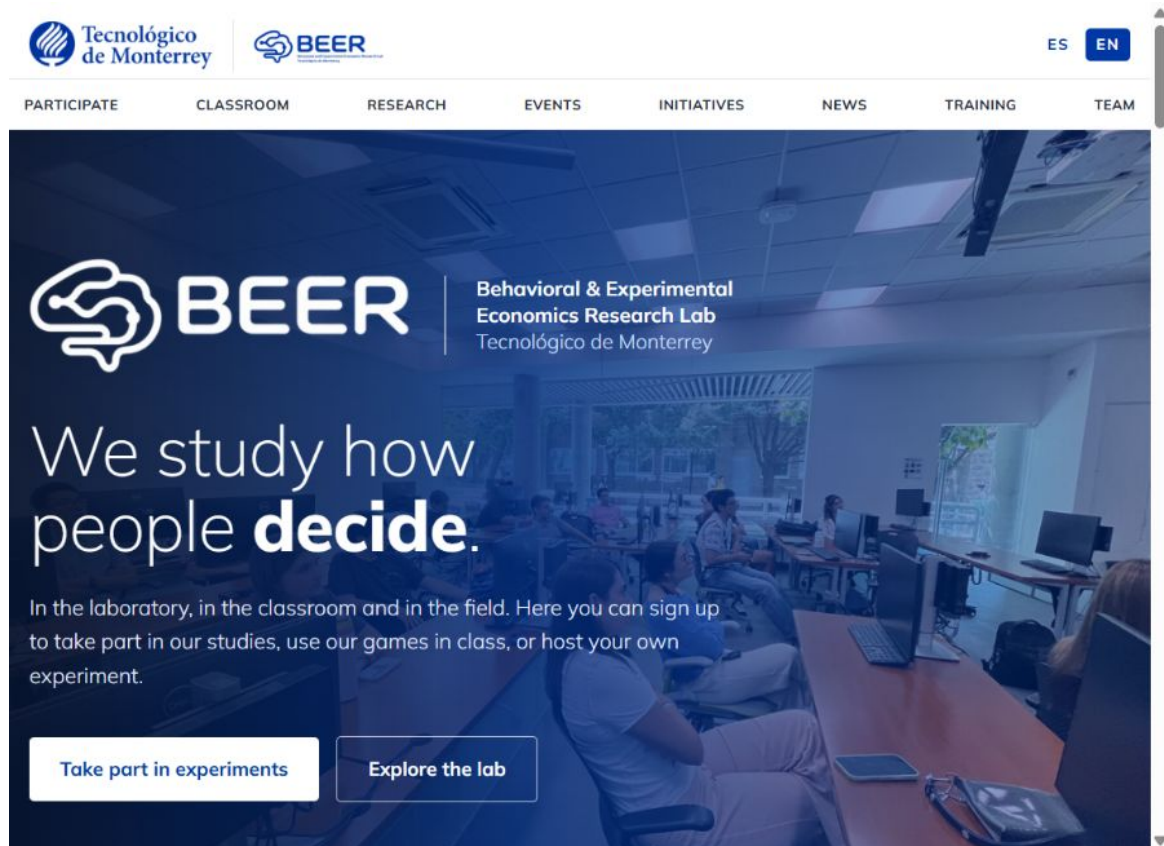


Figure 1.1: BEER Lab institutional website. CLASSROOM opens the teaching-experiment catalog.

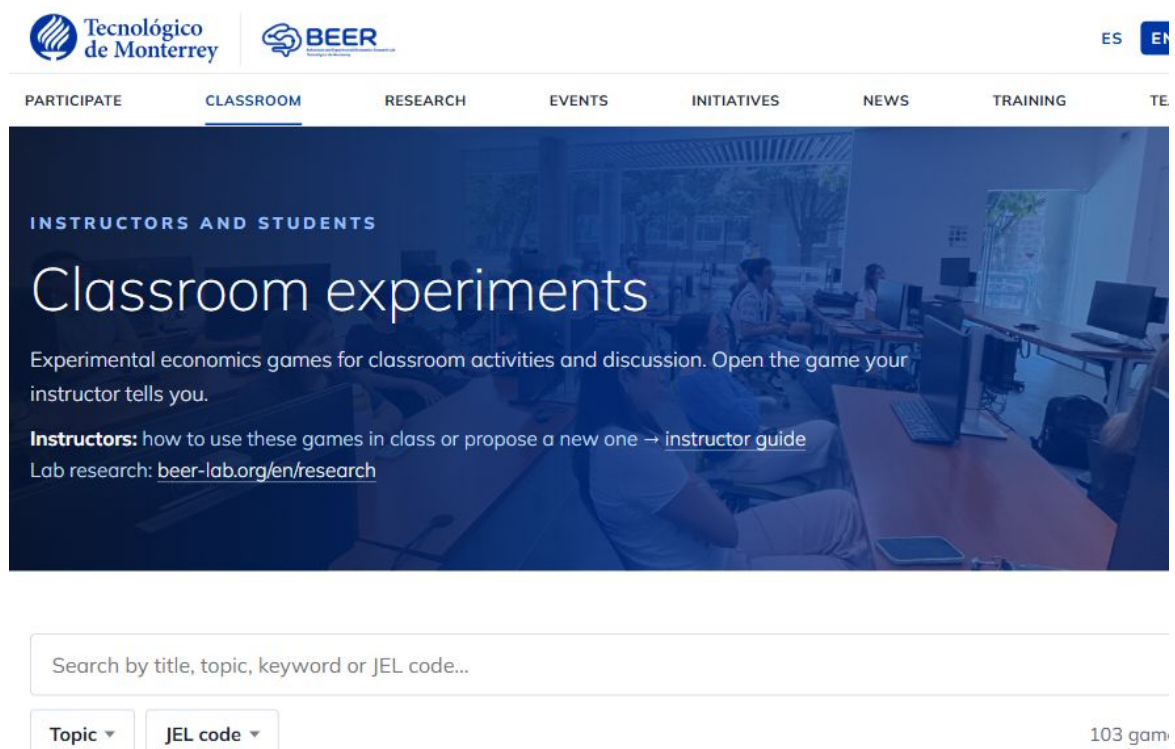


Figure 1.2: Teaching catalog. The title, topics, and JEL codes identify this game family.

Demo

Sancciones, concesiones y coerción económica — Un encuentro
Sancciones, concesiones y coerción económica — Diez encuentros con pareja fija
Sancciones, concesiones y coerción económica — Diez encuentros con reasignación
Sanctions, Concessions, and Economic Coercion — One encounter
Sanctions, Concessions, and Economic Coercion — Ten encounters with a fixed partner
Sanctions, Concessions, and Economic Coercion — Ten encounters with reassignment
Sancciones, concesiones y coerción económica — Restitución del acceso
Sancciones, concesiones y coerción económica — Alto costo para el emisor
Sancciones, concesiones y coerción económica — Coalición coordinada
Sancciones, concesiones y coerción económica — Acceso alternativo por terceros
Sancciones, concesiones y coerción económica — Gobierno y población
Sanctions, Concessions, and Economic Coercion — Access restitution
Sanctions, Concessions, and Economic Coercion — High sender cost
Sanctions, Concessions, and Economic Coercion — Coordinated coalition
Sanctions, Concessions, and Economic Coercion — Third-party access
Sanctions, Concessions, and Economic Coercion — Government and population

Sancciones,
concesiones y
coerción
económica /
Sanctions,
Concessions,
and Economic
Coercion —
BEER Lab

Seleccione una variante
de este juego. Select a
version of this game.

Rooms

Current rooms:

Sancciones, concesiones y coerción económica — Básica
Sanctions, Concessions, and Economic Coercion — Basic
Sancciones, concesiones y coerción económica — Extendida
Sanctions, Concessions, and Economic Coercion — Extended

(a) Configurations listed on the demo page.

(b) Rooms available for session creation.

Figure 1.3: Administrative routes for the economic-coercion family.

Session access, creation, and monitoring

2.1 Two distinct routes

Participants need only the session link. It assigns a temporary code and leads to the welcome page, instructions, and decisions. The instructor uses the room to create a session and the administrative panel to monitor progress. Keeping these routes separate prevents administrative controls from being projected and avoids asking students to search for the activity during class.

The demo page lets an instructor inspect configurations without organizing a full class. It is useful for rehearsing the flow, checking text, and preparing a lecture. The room, by contrast, asks for a participant count and creates a shared session. In the local environment validated for this release, the demo is available at <http://localhost:8196/demo>; the proposed public domain is <https://economic-coercion.beer-lab.org/>. The local address works only on the computer running the server.

2.2 Choosing a configuration

The three basic configurations use the same mechanism. A single encounter is appropriate when the class isolates the game tree or has little time. Ten encounters with fixed pairs allow reputation, reciprocity, and learning inside a stable relationship. Ten encounters with pair reassignment reduce bilateral continuity and make implicit agreements harder to sustain, although they do not eliminate learning about the class or adaptation to the interface.

The five extended configurations run one encounter to keep one change visible at a time. This design prevents a long history from being mistaken for a treatment effect. An instructor who wants to study repetition with an extended treatment can compare several independent sessions, but should not describe that comparison as equivalent to a ten-round sequence with the same partner.

2.3 Entry and contingencies

When someone opens the participant link, the system places that browser in the session. Ask participants to keep one tab open and avoid the Back button. After a connection loss, they should reopen the same link in the same browser whenever possible. A duplicate entry may occupy another place and leave a partner waiting. Before restarting anything, inspect the monitor; brief disconnections often resolve without losing decisions.

Room: Sanctions, Concessions, and Economic Coercion — Basic

Create a new session

Session Config

Sanctions, Concessions, and Economic Coercion — One encounter

Number of participants

Complete groups of 2 participants. Use a multiple of 2; minimum 2.

Create

[Configure session](#) 

App sequence

economic_coercion_game (10 rounds)

Sanctions, Concessions, and Economic Coercion / Sanciones, concesiones y coerción económica.

0 participants present

Start links

These URLs will stay constant for new sessions, even if the database is recreated.

Room-wide URL

Here is the room-wide URL anyone can use. Don't use this link when testing in multiple tabs on the same browser, because all tabs will be assigned to the same participant, using a cookie.

http://127.0.0.1:8196/room/economic_coercion_en

Figure 2.1: Basic English room form. Only the three configurations appropriate for that room are listed.

The game requires complete pairs. If class size is odd, the instructor can join silently from an additional device, remove one terminal before creating the session, or assign an alternative observation task to one person. Do not change the expected participant count after the link has circulated. For late arrivals, the clean options are to wait before starting or reserve an even number of places; adding people after decisions begin changes matching conditions.

2.4 Monitoring without intervening

The monitor shows how many people occupy each page and who is waiting. A short wait is normal: B waits for A's response, and A may wait for B's final response. Intervene only when a page has remained stuck for several minutes or a participant reports a problem. Avoid announcing "who is missing," because the timing of a wait can reveal a role or a decision.

The instructor report protects aggregate results behind a reveal control. While play continues, the instructor can review progress and pending cases without displaying rates or payoffs. After completion, reveal the aggregates and hide them again if the class must return to an operational view. This separation permits projection of session status without feeding information into later decisions.

Mechanism and common screens

3.1 Resources and roles

Each encounter creates a pair. Role A is the sender of a demand; role B is the target. Both begin with 100 ECU. Roles remain fixed even when partners are reassigned. A concession transfers 30 ECU from B to A. An early concession therefore produces 130 for A and 70 for B, before any sanction is imposed.

If B resists, A chooses between withdrawing the demand and sanctioning. Withdrawal preserves the initial endowments: 100 for A and 100 for B. In the basic version, sanctioning destroys 15 ECU held by A and 40 held by B, leaving 85 and 60 before the final response. B then chooses continued resistance or concession. Resistance yields 85 for A and 60 for B. A late concession transfers 30 from B's remaining account, producing 115 for A and 30 for B.

What participants will see

The interface displays the current stage, the relevant resources, and the consequences of available actions. B does not see a hypothetical sanction as if it had already occurred. A does not choose B's final response. The result page presents the path in sequence and separates the transfer, sender cost, target damage, and, where applicable, restitution or population damage.

3.2 Welcome, instructions, and comprehension

The welcome page names the activity without production codes and reminds participants of general rules: make individual decisions, do not communicate during play, and treat ECU as the experimental unit. Instructions present the full tree from the assigned role's perspective. Ask for silence until everyone reaches comprehension; reading fragments aloud while others advance creates unequal pacing.

The comprehension check asks for calculations rather than opinions. When an answer is wrong, the page identifies the field to revisit and explains the relevant arithmetic. Its purpose is to ensure that a sanction is counted once and that a late concession starts from the resources remaining after damage. Allow retries. A failed check is not an ability measure and should not affect grades.

BEER
Behavioral and Experimental Economics Research Lab
Tecnológico de Monterrey

Extended edition · Target government and population

Sanctions, Concessions, and Economic Coercion

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.

In this activity, a sender demands a concession and a target decides whether to concede before or after a possible sanction. The decisions separate an effective threat from implemented punishment.

General laboratory rules

- Remain silent and do not communicate outside the platform.
- Make decisions individually and privately.
- Follow the instructions shown on the screen.
- Do not refresh, close, or leave this page.
- If a problem arises, raise your hand and contact the staff privately.

☐ I have read and accept the activity rules.

Start

(a) Welcome page and general rules.

Extended edition · Target government and population

How economic coercion works

Resources and unit of account

Each role begins every encounter with 100 ECU; the concession transfers 30 ECU from the target to the sender.

If implemented, the sanction costs the sender 15 ECU and damages the target-controlled account by 10 ECU.

The population has a separate 100 ECU social account, reduced by 50 ECU when sanctions are implemented.

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

This session does not convert ECU into real money.

You form a pair. A is the sender and B is the target; each begins the encounter with an account of 100 ECU. ECU stands for Experimental Currency Units. Roles remain fixed during the session.

First, B accepts or rejects a 30 ECU concession. If B accepts, 30 ECU transfer from B to A: A ends with 130 and B with 70. If B resists, A chooses whether to withdraw or implement the sanction.

In the reference condition, implementing the sanction destroys 15 ECU for A and 40 ECU for B. If A withdraws, both keep 100. After a sanction, B may keep resisting or concede 30 ECU. Costs already incurred remain sunk unless the session rule restores access.

The platform records the transfer, sender cost, target damage, and any restitution separately. A concession is therefore not confused with destroyed resources or restored access.

Rule for this session

Participant B represents the target government and controls a 100 ECU account. The population has a separate 100 ECU social account. The sanction costs A 15 ECU, the government 10 ECU, and the population 50 ECU.

Continue

(b) Sequence, resources, and possible outcomes.

Figure 3.1: Participants' opening screens.

Comprehension check

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 B concedes before a sanction, how many ECU does A receive?

130

If B resists, A sanctions, and B keeps resisting, how many ECU does A receive?

85

If B concedes after a sanction, how many ECU remain in the account controlled by B?

60

Continue

(a) Arithmetic check before decisions.

Encounter 1 of 1

A new encounter begins

Sender A
One interaction

100 ECU
A's starting account

100 ECU
Population social account

As sender, you observe the target's initial response. If the target resists, you choose whether to withdraw or pay the cost of implementing the sanction.

Participant B represents the target government and controls a 100 ECU account. The population has a separate 100 ECU social account. The sanction costs A 15 ECU, the government 10 ECU, and the population 50 ECU.

Continue

(b) Role and encounter confirmation.

Figure 3.2: Comprehension and the beginning of an encounter.

3.3 Decisions and waits

B takes the first action: concede or resist. If B concedes, the encounter ends without an A decision. If B resists, A sees withdrawal and sanction choices. If A withdraws, the encounter ends without a second B decision. Only a sanction opens the final response. This conditional structure is essential for interpreting observation counts: not every pair reaches every stage.

Wait pages reveal no partner outcome before it is needed. They explain that the system is waiting for a paired decision. In ten encounters, a quick participant may wait repeatedly; explain that speed does not improve payoff and that reading each page prevents errors. Reassignment occurs between encounters, never within the game tree.

(a) B responds to the demand.

(b) A waits for the initial response.

Figure 3.3: First-stage decision and corresponding wait.

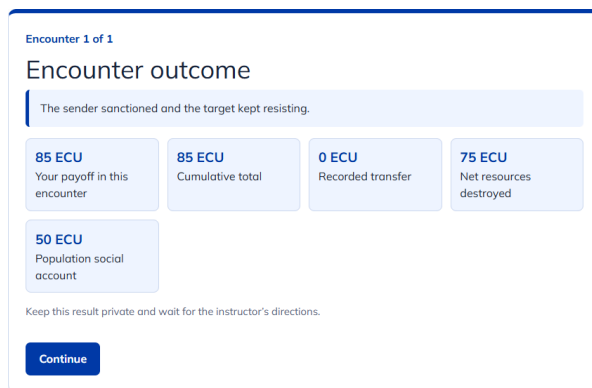
(a) A chooses after observing resistance.

(b) B responds after a sanction.

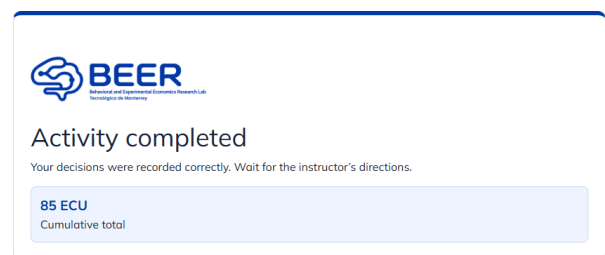
Figure 3.4: Conditional stages in the mechanism.

3.4 Outcome and completion

The result page shows the path and itemizes accounting. A sanction followed by resistance contains no transfer. A late concession includes the sanction cost, target damage, and transfer. After ten encounters, the closing page summarizes round payoffs and the participant's cumulative total. It does not disclose identities or decisions from other pairs.



(a) Encounter result and accounting components.



(b) Summary after the session ends.

Figure 3.5: Individual result and completion screens.

Strategic analysis

4.1 The tree and its four paths

The game tree has four terminal outcomes. First, early concession: B transfers 30 and payoffs are (130, 70). Second, resistance followed by withdrawal: there is no destruction or transfer and payoffs are (100, 100). Third, sanction followed by resistance: 15 and 40 are destroyed, yielding (85, 60). Fourth, sanction followed by a late concession: after destruction, 30 is transferred, yielding (115, 30). The first number always belongs to A.

Listing paths prevents two common mistakes. A threat has no resource cost until a sanction is imposed. In addition, the sunk cost of an imposed sanction is not subtracted again after a late concession. A's account moves from 100 to 85 and then to 115; B's moves from 100 to 60 and then to 30. Total resource destruction on either sanction path is 55.

Theoretical foundation

Backward induction begins with B's last decision, but it requires a preference assumption. If B maximizes material payoff, 60 under continued resistance exceeds 30 under late concession, so B resists. A anticipates that action and compares 100 under withdrawal with 85 under sanction, so A withdraws. B anticipates withdrawal and compares 100 after initial resistance with 70 under early concession, so B resists. The materially self-interested prediction for the basic game is withdrawal and payoffs (100, 100). It is a benchmark, not a moral recommendation or a claim about real governments.

4.2 Threats, imposition, and selection

A sanction threat and an imposed sanction are different observations. When a credible threat induces B to concede, the case ends before resources are destroyed. That event is a coercive success but is absent from a dataset that records only imposed sanctions. Whenever a sanction is observed, early concession has already failed; observed cases are selected by an earlier outcome.

This logic motivates Drezner's emphasis on the hidden effect of threats and the selection bias in studies of imposed sanctions (Drezner, 2003). It also explains why the report separates three rates. The early-concession rate uses all completed encounters. The sanction rate uses only encounters with initial resistance. The late-concession rate uses only sanctioned encounters. Adding or comparing percentages without their denominators produces invalid conclusions.

4.3 Credibility and sender costs

A threat is credible when A would carry it out if the relevant node were reached. In the basic treatment, an A that values only its material payoff prefers withdrawal and 100 to a sanction and 85 if B will continue resisting. The threat is not credible in that subgame. A may nevertheless sanction because of reputation, negative reciprocity, an aversion to backing down, punishment preferences, security objectives outside the represented payoff, or an expectation of late concession.

If A believes that B will concede late with probability q , the expected basic payoff from sanctioning is $q(115) + (1 - q)(85) = 85 + 30q$. It exceeds 100 under withdrawal when $q > 0.5$. This threshold makes beliefs explicit. A sanction can be consistent with expected-payoff maximization when A assigns a sufficiently high chance to late concession, even when B later resists.

For B, the final basic comparison is 60 under resistance and 30 under concession. A late concession therefore requires preferences or benefits outside the represented payoff, a different perception of future costs, or an error. Early concession can reflect anticipation of sanctions, but if B is certain that A will withdraw, resistance yields 100 instead of 70. Strategic interest comes from the interaction of expectations and material consequences.

4.4 Sunk costs and efficiency

Once a sanction has been imposed, the 55 destroyed ECU are sunk. They should not enter a comparison of future alternatives except through the resources that remain. B chooses whether to keep 60 or transfer 30 from it. A has no new decision at that stage. Counting the prior damage as a second future cost is double counting.

Withdrawal produces a total of 200 ECU, equal to the joint initial endowment. Early concession also preserves 200 because it only redistributes. Both sanction paths sum to 145, regardless of late concession; the transfer does not restore efficiency. This distinction separates surplus distribution from social loss. A concession may benefit A without recovering destroyed resources.

4.5 Information, preferences, and learning

The model provides complete information about parameters. Both roles know the initial resources, transfer, and sanction costs. The software does not assign a private type. Differences in behavior may arise from preferences, beliefs, interpretation, and experience. Over ten encounters, participants can learn the arithmetic, update beliefs, and adopt simple decision rules. With fixed pairs they may also condition behavior on bilateral history, even though the interface supplies neither messages nor contracts.

Reassignment reduces the ability to reward or punish a particular counterpart in the next round, but it does not create perfect anonymity. Participants learn about the class through their own experience and the pace of play. A difference between fixed and reassigned pairs may therefore combine reputation, population learning, and composition. State competing hypotheses before seeing the report rather than assigning one explanation afterward.

Evidence and empirical scope

5.1 What sanctions research contributes

Formal work on economic sanctions treats policy as a bargaining interaction in which threats and implementation impose costs on both sides. Eaton and Engers model sanctions that harm sender and target and place imposition inside a strategic relationship ([Eaton and Engers, 1992](#)). Drezner emphasizes that many potentially successful bargains occur before implementation, so focusing on visible sanction episodes creates selection problems ([Drezner, 1999, 2003](#)).

An elegant bargaining model does not guarantee strong empirical fit. The analysis by [Morgan et al. \(2023\)](#) reports limited support for several implications of a bargaining model once sanctions have been imposed. This critical evidence matters in class. The tree organizes questions and predictions; it is not a universal law. Real actors face multiple demands, incomplete information, domestic coalitions, longer horizons, and diplomatic or military alternatives omitted from the activity.

5.2 Multilateral cooperation and enforcement

A coalition can lower A's cost, raise B's damage, and convey legitimacy. It can also create coordination, burden-sharing, and defection problems. Drezner shows that multilateral cooperation does not mechanically strengthen coercion: maintaining the coalition and policing compliance can change the achievable bargain ([Drezner, 2000](#)). The game's coalition treatment represents favorable net institutional support through parameters; it does not simulate bargaining among multiple human senders.

The distinction limits the conclusion. If behavior changes in the variant, the class can say that coercion changes "under these parameters." It cannot claim that adding countries always improves sanctions. A human coalition would require rules for entry, contributions, vetoes, benefits, and punishment of defectors. Those institutions are insufficiently specified for the current package and therefore remain research extensions.

5.3 Evasion and third parties

Sanctions may lose force when third parties provide trade, finance, logistics, or substitutes. Research on sanctions-busting relationships shows that outside links change the target's cost. The evasion treatment keeps A's cost at 15 but reduces B's net damage to 15. The third party is an outside option represented by parameters, not a third participant making a decision.

The simplification isolates the immediate consequence. After sanction, B retains 85 instead of

60. If B concedes late, B ends with 55 while A ends with 115. Continued resistance is even more attractive to a materially self-interested B. A's terminal payoffs remain the same as in the basic treatment, so evasion directly changes B's vulnerability and affects A indirectly through beliefs about B.

5.4 Government, population, and distribution

A single national account can obscure who bears the cost. Research documents distributional effects, authoritarian adaptation, and humanitarian externalities of sanctions (Peksen, 2017, 2019). In the distributional treatment, participant B controls a government account that begins at 100 and loses 10 after sanction. A separate population account begins at 100 and loses 50. A loses 15.

If B continues resistance, A receives 85, the government 90, and the population 50. If B concedes late, the 30 transfer leaves the government account: A receives 115, the government 60, and the population 50. The participant follows the stated role, while the report displays both domestic outcomes. The variant makes a possible divergence between regime survival and social welfare visible; it does not assume that every government values only its controlled account.

5.5 What a classroom session cannot identify

Student choices do not estimate the historical effectiveness of sanctions and do not reveal a national preference. Class sizes are small, samples are not representative, and countries are not randomized. Rates help compare mechanism logic, formulate hypotheses, and practice conditional interpretation.

A comparison across sessions may reflect time of day, experience, composition, explanation, or technical disruption. Formal research would require a protocol, consent, appropriate assignment, power analysis, data protection, and applicable ethical review. A teaching version does not replace those requirements.

Implementing the basic game

6.1 Solved calculations

Early concession. Both actors begin with 100. B gives 30 to A. No sanction occurs: $A = 100 + 30 = 130$ and $B = 100 - 30 = 70$. Total resources remain 200.

Withdrawal after resistance. B resists and A withdraws. There is no transfer or destruction: $A = 100$ and $B = 100$. Total resources remain 200.

Sanction and continued resistance. A pays 15 and B loses 40: $A = 100 - 15 = 85$ and $B = 100 - 40 = 60$. Total resources fall to 145.

Sanction and late concession. Apply sanction costs first, then transfer 30: $A = 100 - 15 + 30 = 115$ and $B = 100 - 40 - 30 = 30$. Total resources equal 145. Concession changes distribution, not destruction.

6.2 Before the session

Prepare a neutral slide containing the link, the no-communication rule, and the meaning of ECU. Decide whether participation affects course points and how disconnections will be handled. Open the room and report in separate tabs. For ten encounters, reserve enough time for the final matching and for all rounds to reach the report.

Write down predictions before class. For example: fewer than 25% early concessions, sanctions in 30% to 60% of initial-resistance cases, and fewer than 20% late concessions. Do not announce these numbers. Their purpose is to discipline interpretation: compare direction and denominator afterward rather than inventing an explanation that fits every possible outcome.

6.3 Introductory script

One neutral script is: “You will interact in pairs and have different roles. Every consequence is expressed in ECU. Read the decision order and complete the comprehension check. Do not communicate or try to identify your counterpart. There is no answer that the course expects; choose according to your judgment within the rules.”

Avoid terms such as aggressor, victim, justified punishment, or enemy state. Sender, target, demand, withdrawal, and sanction describe actions without endorsing them. If someone asks what the demand represents, explain that substantive content remains abstract so that the class can study the mechanism. Historical examples can be introduced after all decisions close.

6.4 During play

Watch the monitor and record incidents such as duplicate terminals, additional explanations, late arrival, or interruption. Do not give strategic advice. When someone asks about a calculation, point to the table on the screen or restate the rule without recommending an action. If several participants make the same comprehension error, pause before the first encounter and explain the operation to everyone.

Do not reveal partial rates during a ten-round session. A sanction or concession rate can become social information and alter later decisions. The report permits completion monitoring while aggregates remain hidden. Wait until no cases are pending before feedback, unless a technical failure makes completion impossible. In that event, state the denominator explicitly.

6.5 Fixed pairs and reassignment

With fixed pairs, a current action may influence future expectations. B may concede to avoid a conflictual relationship, A may sanction to build a reputation, or the pair may coordinate a pattern. The game does not enforce a strategy and offers no message channel, so history is communicated only through actions and results.

Under reassignment, the counterpart may change each round. Roles do not change: an A remains A. This constancy supports learning comparisons within roles. Reassignment does not promise that the same pair can never recur, especially in a small group. Describe it as a fresh random match rather than guaranteed non-repetition.

Feedback script

Begin with the four paths and ask the class to reconstruct payoffs. Then ask what B expected A to do after resistance and what A expected B to do after sanction. Only then reveal the three rates and denominators. Finish by comparing total loss, distribution, and credibility. Keep the discussion at the aggregate level; do not ask named participants to defend their choices in public.

Extended variants

7.1 Comparative map

Each variant changes a component while preserving the order of decisions. Restitution changes what a late concession does. Higher sender cost changes A's burden. Coalition support lowers A's cost and raises B's damage. Evasion lowers B's net damage. Distribution separates the account controlled by B from the population account.

The variants do not lie on a single "severity" scale. Coalition support changes two parameters; distribution changes welfare structure; restitution modifies the effect of a late action. Hypotheses should identify a decision and comparison. "There will be more cooperation" is too vague because early concession, withdrawal, and late concession are different outcomes.

7.2 Damage restitution

The sanction still destroys 15 from A and 40 from B. Continued resistance still yields (85, 60). If B concedes late, the 40 damage is first restored to B and then 30 is transferred. Thus $A = 100 - 15 + 30 = 115$ and $B = 100 - 40 + 40 - 30 = 70$. A's cost is not restored.

At the final node, B compares 60 under resistance with 70 under concession and concedes under material self-interest. A anticipates 115 from sanction rather than 100 from withdrawal, so A sanctions after resistance. B anticipates 70 after resistance and compares it with 70 from early concession. B is materially indifferent. Risk, process costs, trust, or sanction aversion may break that indifference.

The variant represents an agreement that recovers measured economic access after compliance. It does not claim all real loss is reversible. Reputation, investment, health effects, and destroyed supply chains may persist. During feedback, distinguish the contractual restitution rule in the game from an empirical claim about actual recovery.

7.3 Higher sender cost

A's cost rises from 15 to 35 while B's damage stays at 40. Sanction and resistance produce (65, 60); sanction and late concession produce (95, 30). A earns less than 100 on either sanction path. If A maximizes own payoff, withdrawal dominates sanction even when late concession is certain.

The comparison isolates sender exposure to lost trade, administrative coordination, or domestic pressure. It predicts a lower conditional sanction rate than the basic treatment, holding beliefs and preferences fixed. Participants may still sanction because of reciprocity or commitment. Observing

a sanction does not invalidate the arithmetic; it indicates that own payoff did not summarize motivation or that an error occurred.

Extended edition · Costly sanction for the sender

How economic coercion works

Resources and unit of account

Each role begins every encounter with 100 ECU; the concession transfers 30 ECU from the target to the sender.

If implemented, the sanction costs the sender 35 ECU and damages the target-controlled account by 40 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.

You form a pair. A is the sender and B is the target; each begins the encounter with an account of 100 ECU. ECU stands for Experimental Currency Units. Roles remain fixed during the session.

First, B accepts or rejects a 30 ECU concession. If B accepts, 30 ECU transfer from B to A: A ends with 130 and B with 70. If B resists, A chooses whether to withdraw or implement the sanction.

In the reference condition, implementing the sanction destroys 15 ECU for A and 40 ECU for B. If A withdraws, both keep 100. After a sanction, B may keep resisting or concede 30 ECU. Costs already incurred remain sunk unless the session rule restores access.

The platform records the transfer, sender cost, target damage, and any restitution separately. A concession is therefore not confused with destroyed resources or restored access.

Rule for this session

The sanction costs the sender 35 ECU and destroys 40 ECU for the target. A late concession does not recover those costs.

Continue

Figure 7.1: Instructions for the high sender-cost variant. A sanction costs A 35 ECU.

7.4 Sanctioning coalition

Simulated coalition support lowers A's cost to 5 and raises B's damage to 50. Sanction and resistance yield (95, 50); sanction and late concession yield (125, 20). B materially prefers 50 to 20 at the last node. A needs a probability above one sixth of late concession for sanctioning to beat 100 under withdrawal: $95 + 30q > 100$.

The variant can make the threat more credible, although B may still expect withdrawal if it believes late concession is unlikely. The coalition is part of the scenario and is not a human decision maker. There is no contribution bargaining or exit decision. Use the treatment to ask which institutions would be needed to sustain the favorable parameters.

Encounter 1 · Sender A

Sender's decision

B resisted the initial demand. Choose whether to withdraw or implement the sanction described for this session.

35 ECU

Cost to A

40 ECU

Damage to B's account

☐ Withdraw: both keep 100 ECU

☐ Implement the sanction

Continue

Figure 7.2: Sender decision in the high-cost variant, with both consequences visible.

7.5 Third-party evasion

Evasion keeps A's cost at 15 but reduces B's net damage to 15. Outcomes are (85, 85) under continued resistance and (115, 55) under late concession. B gains 30 from resisting at the final node, equal to the avoided transfer. Relative to the basic treatment, B keeps an additional 25 on both sanction paths.

The immediate prediction is less early concession if B anticipates access to alternatives and understands the lower damage. A's conditional sanction rate may also fall if A expects less response from B, even though A's own terminal payoffs do not change. A treatment can therefore change one actor through beliefs about the other without altering the first actor's payoff table.

7.6 Government and population

Participant B controls the government account. A sanction costs A 15, the government 10, and the population 50. A concession transfer comes from the government. Continued resistance yields 85, 90, and 50; late concession yields 115, 60, and 50. Early concession leaves the population at 100 and produces 130 for A and 70 for government.

The government materially prefers 90 under resistance to 60 under late concession, while social loss is large. The class can calculate welfare as the sum of all accounts, the sum of government and population, a maximin criterion, or an explicit normative weighting. No weighting is built into B's decision. Require proposals to state the welfare unit they use.

This variant illustrates how a sanction can fail to change a ruler's behavior while harming other people. It also opens discussion of targeted measures, humanitarian exemptions, and protection mechanisms. Do not describe the government account as literal personal income; it represents resources under political control in the model.

Extended edition · Coordinated enforcement coalition

How economic coercion works

Resources and unit of account

Each role begins every encounter with 100 ECU; the concession transfers 30 ECU from the target to the sender.

If implemented, the sanction costs the sender 5 ECU and damages the target-controlled account by 50 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.

You form a pair. A is the sender and B is the target; each begins the encounter with an account of 100 ECU. ECU stands for Experimental Currency Units. Roles remain fixed during the session.

First, B accepts or rejects a 30 ECU concession. If B accepts, 30 ECU transfer from B to A: A ends with 130 and B with 70. If B resists, A chooses whether to withdraw or implement the sanction.

In the reference condition, implementing the sanction destroys 15 ECU for A and 40 ECU for B. If A withdraws, both keep 100. After a sanction, B may keep resisting or concede 30 ECU. Costs already incurred remain sunk unless the session rule restores access.

The platform records the transfer, sender cost, target damage, and any restitution separately. A concession is therefore not confused with destroyed resources or restored access.

Rule for this session

A coordinated coalition shares enforcement: the sender cost is 5 ECU and target damage is 50 ECU. The coalition is an institutional rule; there is no third human participant.

Continue

Figure 7.3: Coalition-support instructions. Institutional support lowers sender cost and raises target damage.

7.7 Repetition

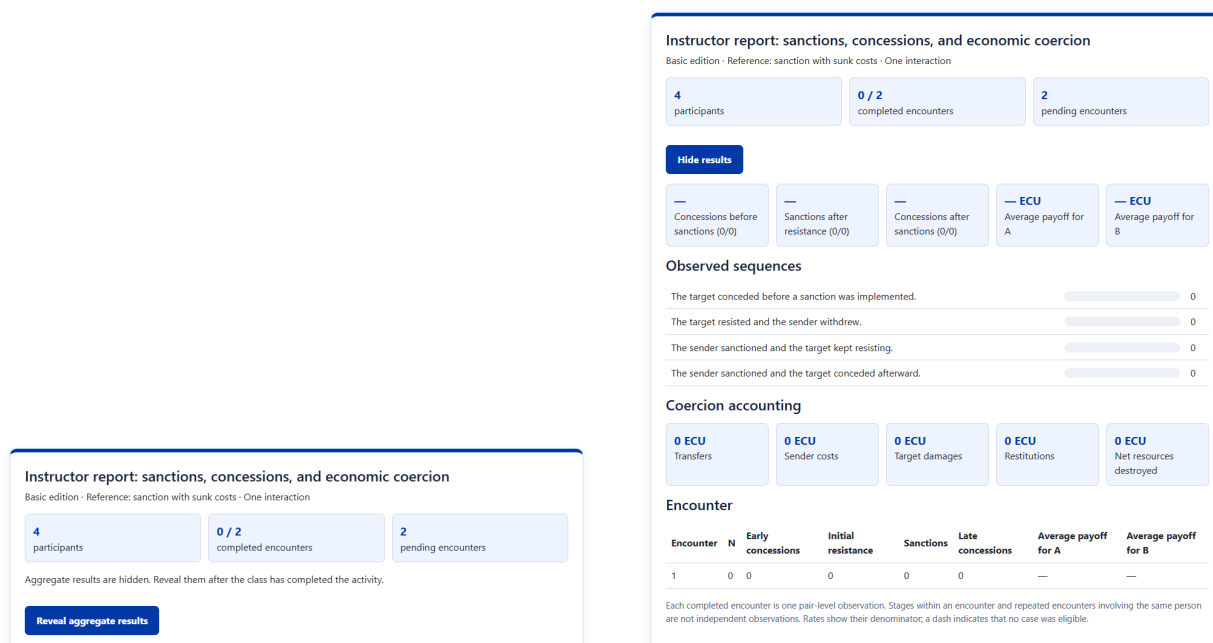
Repetition is a sixth analytical dimension already implemented in the basic edition through ten encounters. It is not added as a cosmetic option to every variant because fixed pairs and reassignment require separate interpretations. Stable pairs permit bilateral reputation, whereas reassignment creates less continuity.

Examine trends by encounter number. A decline in sanctioning may reflect learning that B does not concede late. An increase may reflect reputation, frustration, or correction of an early misunderstanding. Inspect concession and composition together: if early concession rises, fewer encounters can reach sanctioning. A conditional rate can rise while the absolute count falls.

Instructor report and interpretation

8.1 Reveal protection

The report opens with aggregate results hidden. The instructor can see progress and pending decisions. After deliberate reveal, the report displays rates, payoffs, paths, accounting components, and trends. The Hide control returns to an operational view if play is incomplete. The choice is stored in the instructor's browser and does not affect decisions or data.



(a) Empty session with aggregates protected.

(b) Report structure revealed before observations exist.

Figure 8.1: Report states before completed encounters.

8.2 Three rates and three denominators

The early-concession rate is encounters ending immediately in concession divided by all completed encounters. The conditional sanction rate is sanctions divided by encounters with initial resistance. The late-concession rate is late concessions divided by sanctioned encounters. The report prints numerator and denominator so an unavailable rate cannot be mistaken for zero.

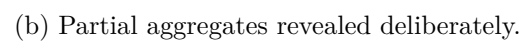
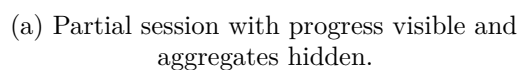


Figure 8.2: Partial states used to validate pending cases and denominators.

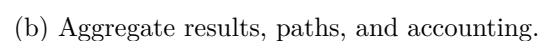


Figure 8.3: Complete report and reveal for feedback.

If nobody resists, there is no opportunity to sanction; the conditional sanction rate is undefined rather than 0%. If nobody sanctions, there is no opportunity for late concession. This precision teaches conditional probability and selection. When comparing treatments, display counts as well as rates: one of two contains less information than twenty of forty even though both equal 50%.

8.3 Payoffs and accounting components

Role averages summarize consequences but can conceal distinct paths. An A average of 100 might come from withdrawals or from a mixture of concessions and costly sanctions. The path table shows composition. The accounting panel aggregates transfers, sender costs, target damage, restitution, and population damage when relevant.

Total destruction must match net costs rather than transfers. A transfer moves resources and does not change the total. In restitution, initial damage and restoration are shown separately, so net damage depends on the path. In distribution, the population account appears separately instead of being treated as payoff controlled by B.

8.4 Trends and repetition

The report displays decisions and outcomes by encounter number. Under fixed pairs, a trend combines learning and relationship dynamics. Under reassignment, it reduces individual continuity but retains accumulated experience. Do not treat a line based on a handful of cases as robust. Add confidence intervals or formal tests only when design and sample size support inference.

Ask the class to propose two rival explanations for the same pattern. A fall in sanctions might indicate learning about costs, or more early concessions leaving fewer resistant targets. Use denominators to determine what evidence separates them. This exercise shifts discussion from storytelling toward measurement.

8.5 A feedback sequence

First reconstruct the tree without data. Second elicit backward-induction predictions and assumptions. Third reveal aggregate paths. Fourth show conditional rates. Fifth compare payoff distribution and total destruction. Sixth introduce one variant and request new predictions before displaying outcomes. Seventh connect the result with research and limitations.

Feedback script

Suggested questions: When was the threat credible? What did A believe about B's late response? Does an imposed sanction prove that a threat worked? Which outcome component is a transfer and which is destruction? Did fixed pairing change behavior? Who bears costs in the distributional treatment? What institutions are missing from a real coalition? Require answers to identify a stage, denominator, or payoff comparison.

Questions, activities, and assessment

9.1 Questions before revealing results

Ask each participant to record privately which path they expected to be most common. Then request one prediction for every conditional decision. This prevents claims such as “there will be many sanctions” without counting opportunities. The class can also derive A’s belief threshold: with a cost of 15 and transfer of 30, sanctioning beats withdrawal if the probability of late concession exceeds 0.5.

Another exercise asks students to identify false claims among four statements: early concession destroys resources; an imposed sanction costs both sides; late concession automatically reverses damage; withdrawal preserves endowments. Two statements are false for different reasons. Require numerical corrections.

9.2 Comparing variants

Divide the class into groups and assign one variant to each. Each group submits a terminal tree, backward-induction prediction under material self-interest, behavioral hypothesis, possible international analogue, and two omitted dimensions. Comparing these outputs prevents a historical example from replacing mechanism analysis.

For a short assessment, assign new parameters: A’s cost equals 20, B’s damage equals 35, and the transfer equals 25. Ask for all four paths and A’s sanction threshold under uncertain late response. In general, A receives $100 - c_A$ under continued resistance or $100 - c_A + t$ under late concession. B’s damage does not come out of A’s account. When withdrawal yields 100, the threshold is $q > c_A/t$.

9.3 Normative debate

Efficiency does not settle evaluation. Early concession preserves total resources but distributes them 130 and 70. Withdrawal preserves 100 and 100. Sanction reduces the total. Theories of justice can rank those outcomes differently. Separate a positive prediction of choice from a normative judgment about legitimacy.

In the distributional variant, compare total resources, population welfare, government resources, and A’s objective. A sanction might advance an omitted security objective while reducing measured welfare. Stating the objective avoids calling a policy “effective” without saying effective for whom and for what.

9.4 Connecting the game to cases

Introduce historical cases after play. Choose a case with an identifiable demand, threat stage, possible sanctions, sender costs, target vulnerability, and third-party role. Ask students to map elements to the tree and mark what does not fit: multiple demands, uncertainty, time, communication, domestic politics, private actors, and humanitarian measures.

A careful comparison does not require game numbers to imitate a case. It asks whether the mechanism organizes evidence. When history conflicts with the material benchmark, investigate omitted preferences, information, and constraints. Disagreement between model and case is a reason to refine the model, not to change the payoffs after seeing behavior.

Data, privacy, and troubleshooting

10.1 Export structure

The export contains a row for every pair and encounter, including pending encounters. It records configuration, round, roles, decisions reached, path, accounting components, and payoffs. Retaining pending cases diagnoses interruption and prevents a file from appearing complete when it is not. Filter or mark completion before analysis.

Construct conditional indicators with explicit denominators. A sanction decision exists only after initial resistance. A late response exists only after sanction. Do not convert unreached values into “no,” because doing so artificially lowers rates. Compare calculations with report numerators.

10.2 Privacy and responsible use

Participant codes are temporary technical identifiers, not names. Do not collect student numbers in free-text fields or publish exports that permit reidentification. If data will be retained beyond class, document purpose, access, retention period, and ethical basis. Delete unneeded demonstration files after verifying results.

Choices may create social pressure. Do not ask for a show of hands by decision or display individual rows. Group averages can also reveal behavior when only one pair exists; discuss the tree without attribution in that case. Pedagogical participation does not automatically imply consent for research.

10.3 Common problems

A participant waits too long. Check whether the partner closed the tab or remains on comprehension. Ask the participant to reopen the same link. Do not advance manually without documenting the intervention.

Participant count is odd. Resolve the count before creating the session. Adding an instructor terminal or removing one place is cleaner than leaving an unmatched participant.

The room shows an unexpected variant. Confirm that you opened the basic English room. Its list should contain only one encounter, ten fixed-pair encounters, and ten reassigned-pair encounters.

The report has a small denominator. Check completed encounters and reached paths. A small conditional denominator may be correct when nearly everyone conceded early.

Someone counted damage twice. Rebuild the account chronologically. Begin at 100, subtract once when the sanction is imposed, then apply the stated transfer or restitution.

A screenshot or sentence does not match the session. Verify language and treatment. Coalition, evasion, and high-cost parameters differ from the basic version.

Connection was lost. Wait and reopen the link before creating a second session. A full restart should be the last option because it discards the history relevant to the pair.

10.4 Post-class quality control

Verify that completed encounters agree with participant count, pairs, and rounds. Check path accounting. In the basic version, sanction and resistance must be 85/60 and late concession 115/30. In restitution, late concession must be 115/70. In distribution, the report must show 85 for A, 90 for government, and 50 for population after continued resistance.

Record any extra explanation delivered in class. When groups are compared, that intervention is part of the effective treatment. Save configuration and date with the export. Do not use a technical filename as a substitute for a human-readable treatment description.

Prediction matrix and glossary

11.1 Material-interest predictions

In the basic game, B resists at the final node, A withdraws, and B initially resists; withdrawal is predicted. Under restitution, B concedes at the final node, A sanctions, and B is initially indifferent between 70 and 70. With high sender cost, A withdraws even if late concession is certain, so B initially resists. Under coalition support, B resists at the last node and A sanctions only with a sufficient late-concession belief or another objective. Under evasion, B resists with a larger cushion. Under distribution, the government resists while the population suffers a large loss.

These predictions require complete information, maximization of the controlled account, and no utility from punishment, reputation, or social outcomes. Use them as baselines. A deviation does not identify which assumption failed. Learning requires combining the decision, treatment, history, and, when the teaching protocol permits, a non-incentivized post-decision belief question.

11.2 Glossary

Threat: a possible sanction before implementation. **Early concession:** B's transfer before sanction. **Resistance:** rejection of the demand at an available stage. **Withdrawal:** A's decision not to sanction after resistance. **Sanction:** an action that destroys resources according to the treatment. **Late concession:** transfer after sanction. **Sunk cost:** a resource already lost and unchanged by the next decision. **Restitution:** explicit restoration of B's damage before the late transfer. **Evasion:** outside access that reduces net target damage. **Coalition:** outside support represented through cost and damage. **Conditional rate:** a proportion computed only among cases that reached a stage. **Selection:** systematic difference between threats that end early and observed sanctions.

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Closing perspective

The game converts a broad debate about economic coercion into an observable sequence. Its main contribution is not a claim that sanctions work or fail. It compels the class to ask at which stage, for which actor, at what cost, relative to what alternative, and with which denominator. Early concession, withdrawal, sanction, and late concession are distinct outcomes. The variants show how restitution, sender vulnerability, multilateral support, evasion, and domestic distribution change specific comparisons.

A strong discussion preserves that discipline when returning to real cases. Classroom parameters are teaching adaptations rather than estimates from a historical episode. Aggregate choices can confront predictions, reveal the role of beliefs, and expose omitted dimensions. By the end, students should be able to reconstruct accounting, apply backward induction, explain selection between threats and observed sanctions, and evaluate who bears the cost of coercive policy.