



Instructor guide to the insurance market

Laboratory implementation, theoretical foundations,
experimental evidence, and variants

Behavioral and Experimental Economics Research Lab
Department of Economics



Revised edition | October 2026

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

How to use this guide

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

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

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

Author

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For the instructor

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

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Quick guide and learning outcomes

1.1 Access through the updated laboratory website

Existing public rooms are available; the ten additional treatments in this revision require pushing the commit and updating the instance before public use. 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.

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.

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.



Figure 1.1: CLASS access to the catalogue.

1.2 Family facts

https://insurance.beer-lab.org/room/insurance_market_en

Purpose	Study how private risk, coverage and subsequent action affect purchase, prevention and insurance sustainability.
Participants	5 per market with one supplier; 6 with two; complete multiples.
Architecture	Interactive market with four clients and one or two insurers.
Unit of account	Experimental Currency Units (ECU). Each client starts with 100 ECU; insurers hold 240, 248 with verification, or 60 with limited capital.
Risks	Low risk: 20% chance of a 60-ECU loss, expected claim 12. High risk: 60% chance of the same loss, expected claim 36.
Sequence	Insurers post; clients choose and decide prevention when available; losses are drawn and contracts settled.
Suggested duration	30–40 minutes for one interaction; 50–65 minutes for ten rounds; 75–90 minutes for a two-institution comparison.
Size	Multiples of five with one insurer or six with two.
Basic room	Existing route: English basic room .
Extended room	Existing route: English extended room .
Instructor access	insurance.beer-lab.org/demo .
Results	Anonymous report with coverage by type, composition, premiums, expected and realized costs, claims, transfers, histograms, and round evolution.
Experimental unit	Markets of 5 or 6; client-round and insurer-round observations for descriptive results.
Basic edition	one interaction; 10 rounds, fixed market; 10 rounds, reassigned markets.
Extended edition	18 conditions: original institutions, deductibles, menus, competition, prevention, verification, limited capital, guarantee and paid reinsurance.
Decision	Choose premium, deductible, policy and prevention according to role and condition.
Outcome	Coverage, premiums, losses, and outcomes for policyholders and insurers.
Topics	insurance; adverse selection; deductibles; coverage menus; moral hazard; reinsurance.
JEL	C92; D82; G22.

Attention

The four public rooms already exist. Added treatments require pushing the commit and preparing the instance update. Until that revision is deployed, test the complete package at <http://localhost:8101/demo>. The separate local database preserves existing sessions.

1.3 Learning outcomes

Students should first be able to state what insurance does. Coverage does not remove the adverse state; it transfers resources from no-loss states to loss states. A premium is paid whenever the policy is purchased, while indemnity is paid only if a claim occurs. Comparing a premium with

the 60-ECU loss is therefore incomplete. The immediate actuarial comparison uses expected loss: 12 ECU for low risk and 36 ECU for high risk.

Students should also distinguish heterogeneity from selection. Different risks alone do not constitute a market failure. Selection occurs when purchasing depends on private risk and therefore changes the composition of the insured. If a common premium appeals to high risks and not to low risks, the insured pool costs more than the invited population. If next period's premium responds to that cost, additional low risks may leave and reinforce the process.

A third outcome is institutional diagnosis. Risk-based premiums, mandatory insurance, subsidies, penalties, reinsurance, and experience-rated renewal are not interchangeable remedies. Some alter who buys. Others change the net price or the insurer's exposure. Experience rating links current prices to past composition. A student should identify the affected margin before evaluating a policy.

Finally, students should interpret evidence within its limits. More coverage does not by itself prove greater welfare. An insurer's realized profit depends on claims and may differ sharply from expected profit. A negative result in one market does not establish structural insolvency. Analysis requires coverage, composition, expected cost, realized claims, transfers, and the value of risk protection.

Theoretical foundation

Adverse selection operates before contracting, when private type affects purchase. Moral hazard operates afterward, when an action changes losses. The baseline fixes risks; extensions add costly prevention. Identify the margin available before interpreting claims.

1.4 Minimum classroom sequence

1. Choose a basic or extended configuration and confirm that attendance fits groups of five with one insurer or six with two.
2. Enter through beer-lab.org, open teaching.beer-lab.org, and select **Insurance Market**.
3. Check that **Demo** lists exactly 42 configurations and **Rooms** lists four rooms.
4. Open the relevant room, choose the configuration, and create a session. Keep **Monitor** and **Report** in separate tabs.
5. Give students only the room route. Do not announce risk identities or teach the adverse-selection prediction before decisions.
6. Let participants complete comprehension, premium setting, and coverage choices. A normal wait page does not require manual advancement.
7. Reveal aggregated results only when the report confirms that every expected decision is complete.
8. Describe premiums, coverage by type, pool composition, expected cost, claims, and balances before introducing theory.

1.5 Preparation checklist

Checkpoint

Before opening the room, verify a stable connection; complete groups of five or six according to the condition; configuration and room names; family-only deployment; language; rounds; treatment; no conflicting active session; Monitor and Report tabs; projector; a late-arrival rule; and a fallback if the required markets cannot be completed.

The sequence requires discipline because the insurer moves first and consumers wait for the offer. Waiting is part of the market, not an error. Ask each participant to use one tab, keep it open, and never share an individual URL. For an instructor demonstration, open each link in a separate browser context so oTree does not assign the same participant cookie to every tab.

Write 12 and 36 on the board for later use, but identify them initially only as expected claims. Do not present them as automatic purchase cutoffs. Willingness to pay also reflects risk aversion, wealth, trust, and subjective beliefs. The teaching design simplifies these dimensions to make selection visible; it does not estimate all motives behind insurance demand.

Access, rooms, and session creation

2.1 From the institutional portal to the family domain

The pedagogical route begins at the BEER Lab website. From beer-lab.org, instructors enter the teaching catalogue at teaching.beer-lab.org and select the Insurance Market card. The proposed deployment leads to insurance.beer-lab.org. That process must run with `GAME_FAMILY=insurance`, so Demo, Rooms, Sessions, and Data contain no other family.

Demo contains 42 configurations: six basic and 36 extended. Each language has three basic modes and 18 extended conditions. These are treatments of one family; participants use the assigned room rather than the administrative menu.

For the instructor

Family isolation is an acceptance condition. If Demo lists any other family, do not create a session. Restart the instance with the correct family environment. A participant link is not an adequate check because administrative pages could still expose unrelated configurations and data.

2.2 The four rooms

Four stable rooms separate edition and language. Each basic room contains three configurations and each extended room 18. Existing routes are preserved. A room is associated with an instructor-created session; visiting it does not guarantee an active session exists.

Proposed participant routes are:

- https://insurance.beer-lab.org/room/mercado_seguros_es
- https://insurance.beer-lab.org/room/insurance_market_en
- https://insurance.beer-lab.org/room/mercado_seguros_extendido
- https://insurance.beer-lab.org/room/insurance_market_extended

For local validation, replace the domain with `localhost:8101`.

Use multiples of five with one insurer or six with two. Basic reassignment requires at least ten people to create two markets. Roles and types remain stable while counterparties change under the selected matching rule.

Rooms

Current rooms:

[ES] Mercado de seguros
[EN] Insurance Market
[ES] Mercado de seguros: extendido
[EN] Insurance Market: extended

Figure 2.1: Four stable rooms.

2.3 Monitor, Report, and Data

Monitor tracks page progress and helps resolve an interrupted participant. **Report** protects and presents aggregated classroom feedback. **Data** exports observations for subsequent analysis. Keep these purposes separate. Report starts hidden and allows instructor-controlled disclosure of completed aggregates, with pending observations counted separately.

Do not share the administrative password, Report URL, or individual links on a public slide. The room is the only group-facing route. QR codes should encode the room. Reusing an old individual URL can produce a missing-participant message after the database or session has changed.

Demo

[ES] Mercado de seguros — una interacción
[ES] Mercado de seguros — 10 rondas, mercado fijo
[ES] Mercado de seguros — 10 rondas, mercados reasignados
[EN] Insurance Market — one interaction
[EN] Insurance Market — 10 rounds, fixed market
[EN] Insurance Market — 10 rounds, reassigned markets
[ES] Mercado de seguros extendido — tarifa comunitaria
[ES] Mercado de seguros extendido — primas diferenciadas por riesgo
[ES] Mercado de seguros extendido — seguro obligatorio
[ES] Mercado de seguros extendido — subsidio a riesgo bajo
[ES] Mercado de seguros extendido — penalización por no asegurarse
[ES] Mercado de seguros extendido — reaseguro
[ES] Mercado de seguros extendido — renovación según experiencia
[ES] Mercado de seguros extendido — mayor proporción de riesgo alto
[EN] Extended Insurance Market — community rating
[EN] Extended Insurance Market — risk-based premiums
[EN] Extended Insurance Market — mandatory insurance
[EN] Extended Insurance Market — low-risk subsidy
[EN] Extended Insurance Market — penalty for remaining uninsured
[EN] Extended Insurance Market — reinsurance
[EN] Extended Insurance Market — experience-rated renewal

Figure 2.2: Family configurations, first section.

[EN] Extended Insurance Market — higher high-risk share
[ES] Mercado de seguros extendido — Prima y deducible elegidos
[ES] Mercado de seguros extendido — Menú de coberturas
[ES] Mercado de seguros extendido — Competencia entre aseguradoras
[ES] Mercado de seguros extendido — Competencia con menús
[ES] Mercado de seguros extendido — Cobertura total y prevención privada
[ES] Mercado de seguros extendido — Deducible y prevención privada
[ES] Mercado de seguros extendido — Prevención verificada y descuento
[ES] Mercado de seguros extendido — Capital limitado y pago proporcional
[ES] Mercado de seguros extendido — Garantía pública de indemnizaciones
[ES] Mercado de seguros extendido — Reaseguro con prima actuarial
[EN] Extended Insurance Market — Chosen premium and deductible
[EN] Extended Insurance Market — Coverage menu
[EN] Extended Insurance Market — Insurer competition
[EN] Extended Insurance Market — Competing menus
[EN] Extended Insurance Market — Full coverage and private prevention
[EN] Extended Insurance Market — Deductible and private prevention
[EN] Extended Insurance Market — Verified prevention and rebate
[EN] Extended Insurance Market — Limited capital and pro rata payment
[EN] Extended Insurance Market — Public indemnity guarantee
[EN] Extended Insurance Market — Actuarially priced reinsurance

Figure 2.3: The same list continued.

Participant experience

What participants will see

Each client sees their risk, available offers and balances by state. When available, prevention follows purchase. Insurers post before these choices. Each role sees their own outcome and an explicit final screen; aggregates remain in private instructor access.

3.1 Welcome and laboratory rules

The first screen provides a common institutional beginning. It displays the Tecnológico de Monterrey and BEER Lab logos, explains the controlled decision environment, and requires acceptance of silence, individual work, and attention. This is not a theory screen. Its purpose is to standardize conduct and reduce unauthorized communication.

Avoid teaching the selection hypothesis here. Saying that high risks “should” buy more turns a prediction into a demand characteristic and can contaminate behavior. Operational vocabulary such as premium, claim, and ECU may be clarified neutrally.

3.2 Instructions, states, and payments

Each client receives 100 ECU per round. Each insurer receives 240, except 248 with verification and 60 with limited capital. Baseline full coverage leaves an insured client at $100 - a$; without a policy wealth is 100 or 40. Deductibles, rebates and prevention change these balances under the announced extension rules.

The table deliberately gives consumers objective probabilities. The information asymmetry is between a consumer and the insurer about the individual’s type, not between the software and the participant. Under risk-based pricing, the category becomes verifiable and the insurer may offer different prices.

3.3 Comprehension check

Participants identify who moves first, calculate both expected claims, state whether individual risk is revealed, and report the session length. Incorrect answers produce guidance. The goal is not grading. It prevents a purchase decision from resting on confusion between a 60-ECU possible loss and a 36-ECU expected loss.



Welcome to the BEER Lab

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

You will make decisions about coverage offers and outcomes expressed in ECU.

General laboratory rules

- Remain silent and do not talk with other participants.
- Make decisions only on your own computer.
- Read each screen carefully before continuing.
- Do not use your phone or open other applications.
- If you have a question, raise your hand and wait for the laboratory team.

I confirm that I have read and will follow the laboratory rules.

- ☐ Yes
☐ No

Start

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

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Figure 3.1: Rules before starting.

Insurance Market • Round 1 / 1

Activity instructions

Insurer

Resources and unit of account

Each client receives 100 ECU at the start of every round; each insurer has 240 ECU in capital. Accounts renew every round.

The market contains 1 insurer(s) and four clients. Balances across all rounds are summed, with no automatic monetary conversion.

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

This session does not convert ECU into real money.

Each market contains four clients and one or two insurers, depending on the session. Roles and risks remain fixed throughout the session.

Community rating with private risk The insurer posts one premium without observing individual types.

Market sequence

1. Insurers post offers simultaneously.
2. Clients observe their private risk and choose at most one policy.
3. If prevention is available, clients decide after purchasing.
4. Losses are drawn, indemnities are paid, and own results are displayed.

Coverage and payoffs

Every client starts each round with 100 ECU. Without a policy a loss subtracts 60. A policy subtracts its net premium and pays its stated indemnity if a loss occurs.

Every insurer has the capital stated for this session. Its balance is capital plus received premiums minus indemnities, costs and treaty premium, plus explicit external transfers.

Capital per insurer: 240 ECU

	Loss probability	Possible loss	Expected claim cost
Low risk	20%	60 ECU	12 ECU
High risk	60%	60 ECU	36 ECU

Each loss is drawn independently at the stated probability. No fixed number of losses is assigned per person.

Your type and private action are not shown to the insurer. The instructor may reveal aggregate results at closure.

The session contains 1 round(s).

The grouping rule is: one interaction.

Continue

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Figure 3.2: Resources and sequence.

If many participants miss the same item, pause without revealing results. Explain $0.20 \times 60 = 12$ and $0.60 \times 60 = 36$, emphasizing that expected cost is a many-repetition average. Do not tell students which option maximizes utility because risk aversion can support willingness to pay above expected cost.

3.4 Insurer role

Under community rating the insurer chooses a premium from 0 to 70; zero withdraws that plan. Risk-based pricing permits two verifiable prices. Menus add a premium for each coverage level. Automatic renewal uses previous expected portfolio cost plus four, with a ceiling of 70. This is a teaching rule using program information rather than an inference of individual private types.

Twenty-eight is not an equilibrium answer. It is a reference between 12 and 36. With two consumers of each type, population expected cost is 24. Charging 28 creates an expected margin of four if all buy. If only high risks buy, pool cost is 36 and the same price loses eight per enrollee in expectation. The move from 24 to 36 is the key compositional calculation.

3.5 Consumer role

Consumers see private type, probability, loss, expected claim, listed premium, any subsidy, and net premium. They purchase or decline privately. The four decisions are simultaneous in economic terms: no consumer observes another choice before confirmation. The orange role card keeps private information salient.

Under risk neutrality, a consumer buys when the net premium does not exceed expected loss. At a price of 28, this benchmark predicts low-risk rejection and high-risk purchase. Insurance also reduces dispersion, however, so a risk-averse consumer may rationally pay a load. The activity reveals a selection incentive; it does not estimate each student's risk-aversion coefficient.

3.6 Round result and completion

After purchase and, where available, prevention, each client receives an independent loss draw at effective probability. Each participant sees only their own role-specific result. Clients see premiums, costs, loss and indemnity; insurers see revenue, obligations and transfers. Individual types and private actions are not published to participants.

Draws do not force frequencies of 20 or 60 percent in small samples. A uniform value per client-round produces a loss when below effective probability. Buying alone does not change that probability; prevention can reduce it. Distinguish realized variation from expected type differences.

At completion, the final screen reports the sum of balances across all rounds. It never ranks named participants. Use Report for the main discussion because the final page is an individual accounting summary.

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



Insurance Market

Comprehension questions

Who decides first in each round?

Consumers decide before seeing the premium ▼

Your answer: Consumers decide before seeing the premium. The correct answer is The insurer posts the premium first. ('La aseguradora publica primero; 20% de 60 es 12 y 60% de 60 es 36. En tarifa comunitaria el tipo no se revela antes de la oferta. Compruebe el número de rondas.', 'The insurer posts first; 20% of 60 is 12 and 60% of 60 is 36. Under community rating types are not revealed before quoting. Check the number of rounds.')

What is the expected claim cost of a low-risk consumer?

0

Your answer: 0. The correct answer is 12. ('La aseguradora publica primero; 20% de 60 es 12 y 60% de 60 es 36. En tarifa comunitaria el tipo no se revela antes de la oferta. Compruebe el número de rondas.', 'The insurer posts first; 20% of 60 is 12 and 60% of 60 is 36. Under community rating types are not revealed before quoting. Check the number of rounds.')

What is the expected claim cost of a high-risk consumer?

0

Your answer: 0. The correct answer is 36. ('La aseguradora publica primero; 20% de 60 es 12 y 60% de 60 es 36. En tarifa comunitaria el tipo no se revela antes de la oferta. Compruebe el número de rondas.', 'The insurer posts first; 20% of 60 is 12 and 60% of 60 is 36. Under community rating types are not revealed before quoting. Check the number of rounds.')

Under community rating, does the insurer observe individual risk before setting the premium?

Yes ▼

Your answer: Yes. The correct answer is No. ('La aseguradora publica primero; 20% de 60 es 12 y 60% de 60 es 36. En tarifa comunitaria el tipo no se revela antes de la oferta. Compruebe el número de rondas.', 'The insurer posts first; 20% of 60 is 12 and 60% of 60 is 36. Under community rating types are not revealed before quoting. Check the number of rounds.')

How many rounds are in this session?

10 ▼

Your answer: 10. The correct answer is 1. ('La aseguradora publica primero; 20% de 60 es 12 y 60% de 60 es 36. En tarifa comunitaria el tipo no se revela antes de la oferta. Compruebe el número de rondas.', 'The insurer posts first; 20% of 60 is 12 and 60% of 60 is 36. Under community rating types are not revealed before quoting. Check the number of rounds.')

Continue

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Figure 3.3: Feedback beside the incorrect question.



Insurance Market · Round 1 / 1

Set the insurance premium

Insurer

Post your offer before clients choose. A value of 0 withdraws that plan.

Community rating with private risk

The insurer posts one premium without observing individual types.

Capital per insurer: 240 ECU

Common premium

Enter 0 to withdraw the plan for this round. The maximum premium is 70 ECU.

Every client starts each round with 100 ECU. Without a policy a loss subtracts 60. A policy subtracts its net premium and pays its stated indemnity if a loss occurs.

Post premium

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

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Figure 3.4: Basic policy offer.



Insurance Market · Round 1 / 1

Decide whether to buy insurance

Potential policyholder

Choose at most one plan. The table displays wealth without and with a loss; subsequent costs are stated separately.

Community rating with private risk

The insurer posts one premium without observing individual types.

Low risk · Your probability of loss: 20%

Every client starts each round with 100 ECU. Without a policy a loss subtracts 60. A policy subtracts its net premium and pays its stated indemnity if a loss occurs.

Select	Insurer	Policy	Premium you pay	Deductible	Wealth without loss	Wealth with loss
☐	1	Full coverage	28 ECU	0 ECU	72 ECU	72 ECU
☐	—	No policy	0 ECU	60 ECU	100 ECU	40 ECU

Your type and private action are not shown to the insurer. The instructor may reveal aggregate results at closure.

Confirm decision

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

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Figure 3.5: Wealth with and without loss.

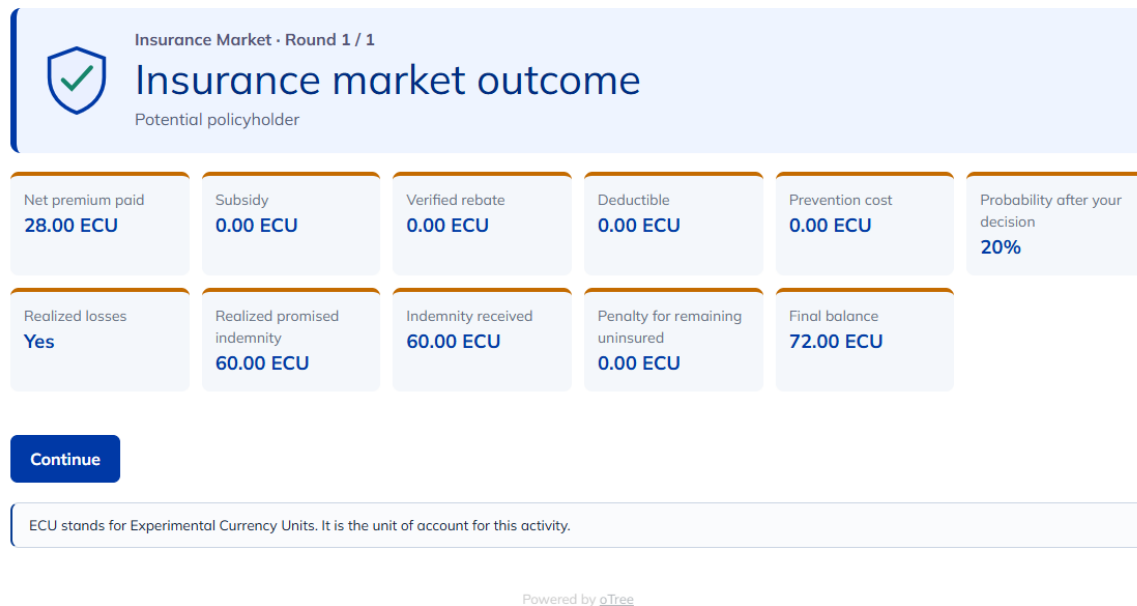


Figure 3.6: Private client outcome.

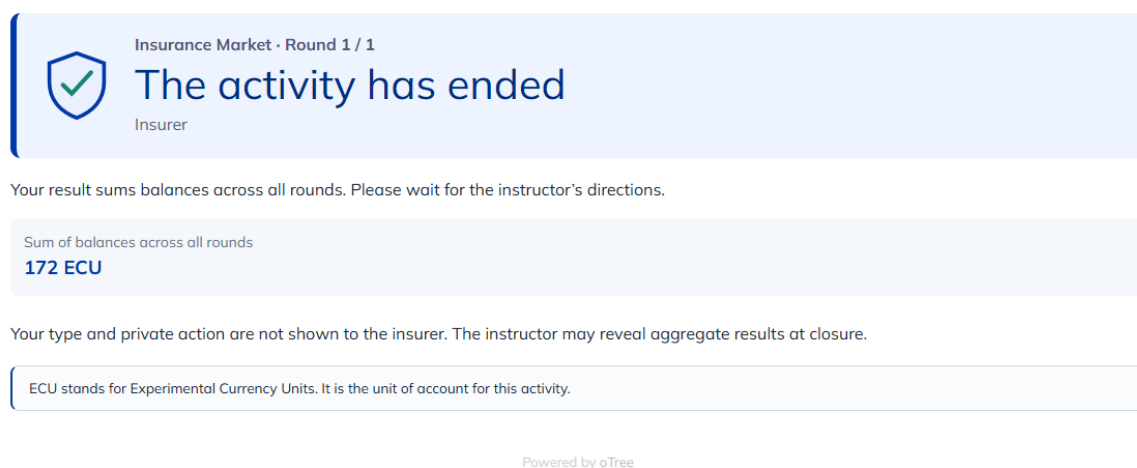


Figure 3.7: Explicit single-interaction closure.

Theory and a complete worked example

4.1 Insurance as a state transfer

Let initial wealth be w , loss L occur with probability q , premium be p , and coverage be full. Without insurance,

$$EU_0 = (1 - q)u(w) + qu(w - L).$$

With insurance, wealth is $w - p$ in both states and $EU_1 = u(w - p)$. A consumer purchases when $u(w - p) \geq EU_0$. Linear utility makes maximum premium equal to qL . Concave utility permits a higher premium because eliminating dispersion is valuable.

This framework prevents two mistakes. Comparing 28 directly with 60 ignores probability. Declaring every low-risk purchase above 12 irrational ignores risk aversion. The program does not impose a utility function, so predictions should be relative: holding preferences fixed, high risk receives a larger expected benefit from coverage.

4.2 Private information and selection

The standard population has two low and two high risks. If all purchase,

$$\bar{c}_{\text{population}} = \frac{2(12) + 2(36)}{4} = 24.$$

The insurer prices before knowing who will enter. Purchasing indirectly reveals information. If low risks decline and high risks buy, the insured pool costs 36. Selection is the endogenous difference between population composition and buyer composition.

[Rothschild and Stiglitz \(1976\)](#) show that private information can undermine a pooling competitive equilibrium and produce separating contracts with incomplete coverage for low risks. The classroom activity simplifies the contract menu by retaining full coverage and manipulating pricing rules. This makes composition transparent but is not a literal implementation of every equilibrium condition in the classic model.

4.3 One-round example under community rating

Suppose the insurer posts 28. Both high risks buy and both low risks decline. Coverage is 50%. High-risk take-up is 100%; low-risk take-up is zero; the selection gap is 100 percentage points. The

invited population was evenly split, while the insured pool is entirely high risk. Pool expected cost is 36 rather than 24.

Expected revenue from two policies is $2 \times 28 = 56$. Expected claim cost is $2 \times 36 = 72$. Expected profit is -16 . Realized cost can be zero, 60, or 120. If one covered claim occurs, accounting profit is $56 - 60 = -4$. Report includes pool expected cost to diagnose selection and realized claims to reconcile payment.

Feedback script

Ask in this order: How many were insured? Which types bought? What was population expected cost? What was insured-pool expected cost? How many claims occurred? Must realized profit equal expected profit? This sequence separates composition from luck.

4.4 Premium-composition feedback and a death spiral

Suppose renewal equals prior pool expected cost plus four. After a high-risk-only pool, next premium is $36 + 4 = 40$. That price may still attract some high risks and be even less attractive to low risks. The departure of inexpensive consumers raises average cost, leading to a higher premium and further departure. This is the death-spiral intuition.

The spiral is not inevitable. It requires sufficiently elastic demand, average-cost pricing, and no stabilizing subsidy, mandate, or risk adjustment. It may stop in a small high-risk pool. [Cutler and Reber \(1998\)](#) document selection and premium feedback in university health plans. The classroom reproduces the mechanism, not their institutional scale.

4.5 Average cost, marginal cost, and welfare

The framework in [Einav and Finkelstein \(2011\)](#) ranks consumers by willingness to pay and compares demand, average cost, and marginal cost. Under adverse selection, people buying at high prices tend to cost more. As price falls, marginal entrants can be cheaper, placing marginal cost below average cost. An equilibrium price equal to average cost may leave uninsured people whose willingness to pay exceeds their marginal cost, creating inefficient underinsurance at the margin.

This report does not estimate continuous demand or structural welfare. Four consumers create discrete take-up and cost measures. Welfare analysis additionally needs utility, administrative load, public-fund costs, and transfer incidence. Premium minus claim cost is an insurer outcome, not social welfare; the reduction in risk is valuable to risk-averse consumers.

4.6 Equilibrium and limits of the adaptation

The baseline has one insurer. Two extensions add two simultaneous suppliers, with one plan or menus. There is no free entry or continuous contract space. Prices may reflect learning and strategy, so the activity illustrates mechanisms rather than verifying an equilibrium theorem.

The baseline uses full coverage and extensions add deductibles, menus, competition and prevention. Provider networks, fraud and correlated catastrophes remain outside the design, delimiting empirical applications.

Reading the instructor report

5.1 Disclosure and progress

The private report opens with results hidden. It displays people and complete and pending observations over active rounds. Instructors can reveal complete or partial aggregates under their protocol; avoid influencing unfinished decisions. Hide closes the panel again. With no completed results, absence of data is displayed rather than zero purchase. The report works from technical round ten even when only one round is active.

5.2 Denominators and composition

Coverage divides clients with a policy by clients with completed outcomes. Type-specific rates use only that type. Distributions distinguish full, partial and no coverage. N accompanies each measure; a dash denotes zero denominator. Mean premiums use purchased policies, excluding rejections and withdrawn plans. Expected indemnity is gross promised liability: coverage times effective probability, before any limited-capital haircut.

5.3 Costs and counterparties

Accounts distinguish revenue, promised obligations, actual payments, reinsurance, treaty premiums, verification, shortfalls and guarantees. The gross loss ratio divides summed obligations by summed received premiums, without averaging ratios lacking revenue. Capital and transfers also finance payment. Subsidies and penalties appear separately. Reconstruct welfare using physical losses and real costs; retain counterparties of external transfers and do not count indemnity as newly produced output.

5.4 Distribution and evolution

The histogram displays client balances in exhaustive bins; counts sum to completed client-rounds. The time table displays N, coverage, prevention, mean wealth and total insurer profit. Pending rounds are not drawn as zeros. Compare fixed and reassigned groups without treating repeated choices as independent markets. Roles start from different endowments, requiring separate interpretation of balances.

Measure	Value	N / denominator
Coverage rate	100.00%	4
Low-risk coverage	100.00%	2
High-risk coverage	100.00%	2
Mean listed premium	28.00	4
Expected indemnity per policy	24.00	4
Prevention among clients	0.00%	4
Premium revenue	112.00	1
Promised claims	180.00	1
Insurer profit	-68.00	1
External reinsurance	0.00	1
Reinsurance premium paid	0.00	1
Public guarantee transfer	0.00	1
Shortfall before guarantee	0.00	1
Verification cost	0.00	1
External subsidies	0.00	4
Penalties	0.00	4
Prevention cost	0.00	4
Verified rebate	0.00	4
Paid claims	180.00	1
Claims as share of premiums	160.71%	1

Figure 5.1: Aggregates with denominators.

0	0	4	0	0
<40	40-<60	60-<80	80-<100	100+

Figure 5.2: Balance distribution.

Basic versions

6.1 One interaction

`insurance_market_en_one_round` captures an initial response without learning. Its advantage is speed; its limitation is that the insurer cannot adapt and consumers see no repeated consequences. Use it in a 35-minute class or before formal theory.

Before disclosure, predict that a price between 12 and 36 produces a pool tilted toward high risk under risk neutrality. If both types buy, discuss risk aversion. If neither buys, consider premium, trust, or comprehension. One observation cannot distinguish these explanations.

6.2 Ten rounds with a fixed market

`insurance_market_en_10_rounds_fixed` preserves group and roles. Insurers learn from take-up, claims, and profit. Consumers observe offers and outcomes. The insurer never sees individual labels under community rating, but may infer aggregate composition. Repetition permits study of learning, convergence, and reactions to recent claims.

Fixed markets also create strategy: an insurer may lower price to broaden the pool or raise it to protect the margin. Do not call the last premium an equilibrium simply because it stopped changing. Check whether stability is consistent with coverage and expected cost.

6.3 Ten rounds with reassigned markets

`insurance_market_en_10_rounds_reassigned` reshuffles groups while preserving one insurer per market. Use at least ten participants. Reassignment weakens a specific relationship and asks whether learning attaches to an institution or a counterpart.

Repeated observations remain statistically dependent. For teaching, compare trajectories and cross-market dispersion. For research, document matching, cluster appropriately, and define the inferential unit before data collection.

Extended treatments and institutions

7.1 Community rating

The insurer posts one premium without observing individual types before quoting. With two clients of each type, population expected cost is 24, whereas buyer cost can differ. Compare type-specific purchase, composition and expected profit before realized profit. A premium of 28 does not guarantee profit if only high types buy. This condition reproduces the baseline within the extended menu and provides a common reference for institutional comparisons.

7.2 Risk-based pricing

Two premiums apply to verifiable types; each client still chooses whether to buy. Prices 18 and 42 impose loads of 6 above expected losses 12 and 36. Calculate loads before comparing participation. Differentiation can reduce cross-subsidies while making high-risk access more expensive. Ask what verifiable information is required and which distributional criterion the class wishes to apply. Equal actuarial loads need not produce equal take-up when preferences and expected losses differ.

7.3 Mandatory coverage

A positive premium triggers automatic purchase; the client confirms without an opt-out decision. Zero still withdraws the offer, so obligation does not guarantee availability. With a positive offer the portfolio contains both low and both high types, with mean expected cost 24. Compare coverage and profit without interpreting forced purchase as revealed willingness to pay. Financing and normative acceptance of a mandate are different questions from the accounting of the rule.

7.4 Low-risk subsidy

A low client receives up to 12 in subsidy, capped at the premium. At quote 28 the client pays 16, the insurer receives 28, and an external account finances 12. A high client pays the full quote. Targeting uses the program-assigned type. More low-risk entry can reduce cost per policy, but a subsidy is not automatically a social saving. Record additional coverage, fiscal cost and incidence while holding loss and population fixed.

7.5 Penalty for remaining uninsured

Any absence of a policy subtracts 15 from the client, including when the insurer withdrew its offer. A policy avoids that charge. Declining leaves 85 without loss and 25 with loss. The public account receives the penalty; the insurer does not. Compare against subsidy and mandate: the rule changes the cost of rejection without creating coverage itself. Higher purchase does not demonstrate a change in risk aversion.

7.6 Subsidized reinsurance

An external account returns 50 percent of realized indemnities without charging a treaty premium. Insurer capital remains 240 and clients retain contracted premiums. Two full claims cost 120 and generate transfer 60. Supplier exposure declines but physical losses do not disappear. Compare with paid reinsurance to distinguish sharing risk from receiving a subsidy. A portfolio can remain selected even after its financial cost has been shared with another account.

7.7 Experience-rated renewal

The first premium is 28. Later renewal equals previous expected indemnity per policy plus 4, capped at 70. With no buyers the rule sets 70. Only high types produce 40; all types produce 28; only low types produce 16. This automatic rule uses program information without asking the insurer to infer individual types or edit the offer. Discuss selective exit and renewal feedback, distinguishing this rule from a reaction to realized claims.

7.8 Higher high-risk share

The population becomes one low and three high types. Mean expected cost is $(12 + 3 \times 36)/4 = 30$, compared with reference 24. A quote of 28 is therefore below cost even with universal purchase. Compare type-specific rates and composition rather than high-risk counts alone. The condition separates exogenous population changes from price-induced selection. Assigned high risk reveals no real student characteristics.

Contracts, competition and subsequent decisions

8.1 Chosen premium and deductible

The insurer chooses a premium from 0 to 70 and a deductible from 0 to 40. Zero withdraws the offer; a positive policy indemnifies $60 - d$ after a loss. Premium, deductible and any possible prevention cost cannot exceed 100, ensuring the client can finance the worst state. One supplier and private types remain. A change in purchase can reflect either price or retained exposure. Compare contracts at a common premium first, then at a common expected insured loss.

With premium 15 and deductible 20, wealth is 85 without loss and 65 with loss. Expected indemnity is $0.2(40) = 8$ for the low type and 24 for the high type. These amounts bound risk-neutral demand without recommending a choice. The deductible reduces the transfer into the adverse state; a lower premium can compensate. The conceptual reference is the price-quantity contract in [Rothschild and Stiglitz \(1976\)](#), although a human insurer here uses a discrete grid.

8.2 Two plans and self-selection

The menu offers full coverage and coverage with deductible 20, with separate premiums from 0 to 70. Zero withdraws only that plan. Each client chooses one or neither, without stacking indemnities. The screen compares wealth by state and the report distinguishes full, partial and no coverage by type. Keeping these categories separate avoids interpreting every increase in purchase as an equivalent increase in protection.

With full premium 28 and partial premium 15, the high type compares expected costs 28 and $15 + 0.6(20) = 27$; the low type compares 28 and 19. A small change can reverse the high type's preference without changing the low type's. Risk aversion can favor full coverage. Do not promise type separation or estimate preferences from one decision. Menus can contain dominated options: check wealth in both states before labeling a plan dominated ([Liu and Sydnor, 2022](#)). Limits and prices are classroom adaptations.

8.3 Competition between two insurers

There are six people: two insurers and four clients, two of each type. Offers are simultaneous; neither supplier observes the rival premium before confirming. Each can cover all four clients and has capital 240, sufficient for four losses of 60 before premium receipts. Clients observe both offers and choose at most one. There is no rationing, speed priority or automatic allocation to the lowest



Insurance Market: Extended - Round 1 / 10

Set the insurance premium

Insurer

Post your offer before clients choose. A value of 0 withdraws that plan.

Chosen premium and deductible

The insurer posts a premium and a deductible (0 to 40). A covered loss pays 60 minus the deductible.

Capital per insurer: 240 ECU

Common premium

Enter 0 to withdraw the plan for this round. The maximum premium is 70 ECU.

Deductible

Every client starts each round with 100 ECU. Without a policy a loss subtracts 60. A policy subtracts its net premium and pays its stated indemnity if a loss occurs.

Post premium

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

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Figure 8.1: Actual interface for this condition.



Insurance Market: Extended - Round 1 / 10

Decide whether to buy insurance

Potential policyholder

Choose at most one plan. The table displays wealth without and with a loss; subsequent costs are stated separately.

Coverage menu

Each insurer offers two plans: full coverage and coverage with a deductible of 20. Each person may choose one or neither.

Low risk - Your probability of loss: 20%

Every client starts each round with 100 ECU. Without a policy a loss subtracts 60. A policy subtracts its net premium and pays its stated indemnity if a loss occurs.

Select	Insurer	Policy	Premium you pay	Deductible	Wealth without loss	Wealth with loss
☐	1	Full coverage	28 ECU	0 ECU	72 ECU	72 ECU
☐	1	Partial coverage	15 ECU	20 ECU	85 ECU	65 ECU
☐	—	No policy	0 ECU	60 ECU	100 ECU	40 ECU

Your type and private action are not shown to the insurer. The instructor may reveal aggregate results at closure.

Confirm decision

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

Powered by [oTree](#)

Figure 8.2: Actual interface for this condition.

price.

Compare quote dispersion and policy allocation. With identical coverage and certain performance, a client preferring lower expenditure can choose the cheaper premium. Two suppliers do not imply free entry or guarantee zero profit. The six-person market is an institutional unit; its members' clicks are not independent replications. Compared with monopoly, population and loss remain fixed, but a role and capital account are added. Separate client outcomes from total capital in welfare comparisons, rather than interpreting a larger sum of initial accounts as surplus created by competition.

8.4 Competition with coverage menus

Each insurer offers a full plan and a plan with deductible 20. Up to four contracts compete and each client chooses one or neither. The condition asks whether competition changes price within a coverage level or the relative appeal of protection. Record premium, deductible, supplier and type alongside purchase.

A decline in average purchased premium may reflect more partial coverage. Compare expected indemnity and wealth after a loss. A contract is dominated if another gives at least as much wealth in both states and strictly more in one, with identical risk and performance. Build an anonymous dominance table at closure. The exercise approximates the menu reasoning of [Rothschild and Stiglitz \(1976\)](#) without reproducing all assumptions or proving equilibrium existence from classroom outcomes. Self-selection is observed, whereas incentives and welfare still depend on preferences and the outside option.

8.5 Private prevention under full coverage

After buying or declining, all clients can pay 4 ECU to halve probability: from 20 to 10 percent or from 60 to 30 percent. Type and action remain private to the insurer. Losses use effective probability; there is no claim quota. The instructor can reveal aggregate rates at closure.

Without a policy a risk-neutral client saves expected losses of 6 if low and 18 if high, against cost 4: both have an incentive to prevent. With full and complete coverage, prevention costs 4 without improving the insured result. This is moral hazard, without a judgment about anyone's character. Here probability changes; much health-insurance research studies utilization, a different margin ([Einav and Finkelstein, 2018](#)). Do not confuse initial type with action or interpret a purchase-claim correlation as the causal effect of coverage. Prices, types and subsequent actions can move together, requiring a deliberate comparison.

8.6 Deductible and private prevention

The same subsequent choice is added to the contract with an insurer-chosen deductible. The client retains d per covered loss. Under neutrality, prevention saves $(p/2)d$ and costs 4. With $d = 20$, savings are 2 for low risk and 6 for high risk: the benchmark predicts prevention only by the high type. Without coverage retained loss is 60 and savings return to 6 or 18.

The calculation displays the trade-off between sharing risk and preserving incentives. A larger deductible can increase prevention and wealth exposure. The insurer may change premiums in anticipation, and types may choose different contracts. To isolate action compare the same contract or assign conditions experimentally. Initial probability, action, effective probability and expected indemnity are separate data. [Einav et al. \(2013\)](#) show why selection and insurance responses can



Insurance Market: Extended · Round 1 / 10

Decide whether to buy insurance

Potential policyholder

Choose at most one plan. The table displays wealth without and with a loss; subsequent costs are stated separately.

Competing menus Two insurers each offer two plans. Compare premium, deductible and wealth in each state.

Low risk · Your probability of loss: 20%
 Every client starts each round with 100 ECU. Without a policy a loss subtracts 60. A policy subtracts its net premium and pays its stated indemnity if a loss occurs.

Select	Insurer	Policy	Premium you pay	Deductible	Wealth without loss	Wealth with loss
☐	1	Full coverage	28 ECU	0 ECU	72 ECU	72 ECU
☐	1	Partial coverage	15 ECU	20 ECU	85 ECU	65 ECU
☐	2	Full coverage	28 ECU	0 ECU	72 ECU	72 ECU
☐	2	Partial coverage	15 ECU	20 ECU	85 ECU	65 ECU
☐	—	No policy	0 ECU	60 ECU	100 ECU	40 ECU

Your type and private action are not shown to the insurer. The instructor may reveal aggregate results at closure.

Confirm decision

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

Powered by [oTree](#)

Figure 8.3: Actual interface for this condition.

coexist; classroom numbers do not calibrate their study. Ask what causal question a proposed comparison answers before computing a difference in claim rates.

Insurance Market: Extended - Round 1 / 10

Subsequent prevention decision
Potential policyholder

Deductible and private prevention The insurer chooses premium and deductible. Each client may then pay 4 to halve their loss probability; the action is private.

You may pay 4 ECU to halve your loss probability, including if you did not buy a policy.

Low risk - 20% → 10,0%

☒ Pay 4 ECU and prevent
☐ Do not pay for prevention

Confirm decision

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

Powered by [oTree](#)

Figure 8.4: Actual interface for this condition.

8.7 Verified prevention and a rebate

Prevention costs 4 and halves risk. A policy with verified action receives up to 6 in rebates, capped at its premium to avoid negative net premiums. The insurer pays 2 per policy for verification even when the client does not prevent. Capital 248 covers up to 240 in indemnities and 8 in verification before revenue. Verified action changes effective price rather than relying on a voluntary private declaration.

At premium at least 6 with full coverage, prevention costs 4 and saves 6, a private net benefit of 2. At premium 3 the maximum rebate of 3 removes this neutral incentive. The report separates rebates, revenue and verification. Client payments plus external subsidy equal received revenue; the rebate reduces that revenue. Verification is not free. Compare profit separately from initial capital because 248 and 240 are different starting accounts. The incentive scheme is an original classroom adaptation, rather than an empirical estimate of monitoring effectiveness.

8.8 Limited capital and a public guarantee

Payments use two decimals. Pro rata allocation conserves total cents; one-cent rounding differences follow anonymous experimental order, without arrival priority.

Two paired conditions reduce capital to 60. Contracts and choices stay the same; who absorbs a shortfall changes. Without a guarantee, if capital plus premiums is insufficient, every indemnity is reduced proportionally. With a guarantee an external public account funds exactly the shortfall and claims are paid in full. The insurer never ends with negative wealth from an unpayable obligation.



Powered by oTree

Figure 8.5: Actual interface for this condition.

Four policies at premium 10 produce resources $60 + 40 = 100$. Four losses promise 240. Without a guarantee each indemnity of 60 pays 25 and each client ends at $100 - 10 - 60 + 25 = 55$. With the guarantee the transfer is 140, each indemnity pays 60, and each client ends at 90. The insurer ends at zero in both cases; the difference is financed outside the market. These hypothetical accounts represent no current regulation. Compare promises, payout proportion, shortfall and transfer. If the guarantee changes offers and purchases it also changes its fiscal cost, so include financing in welfare assessment rather than treating full payment as newly created resources.



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Figure 8.6: Actual interface for this condition.

8.9 Subsidized and paid reinsurance

The existing condition returns 50 percent of realized indemnities without a treaty premium. It is retained and interpreted as externally subsidized reinsurance. The new condition cedes the same half and charges the insurer half the expected indemnity of its contracted portfolio. The client does not pay directly, and the charge is not an additional physical loss. With no prevention in these conditions, initial buyer probabilities determine expected claims.

Two high types with full coverage have expected cost 72. The treaty charges 36 and returns half realized claims. Its expected net transfer is zero and insurer outcome dispersion declines. The legacy subsidy has a positive expected transfer. Compare expected profit, round variation and financing source. No human reinsurance market is introduced: the counterparty is automatic and the actuarial rule is an original accounting adaptation. Selection can persist after transferring insurer risk. A risk-sharing institution can therefore alter exposure without eliminating the informational mechanism that determines portfolio composition.

8.10 Choosing a useful comparison

Ten new conditions complement eight existing institutions; they are not ten separate games. For a short class choose one question: price and coverage, supplier choice, subsequent action or financing incidence. Hold initial risks, loss and horizon fixed where possible. State outcomes before seeing data and preserve information and closure rules.

Risk pooling already appears under community rating and mandatory coverage, while reinsurance reallocates exposure across accounts. No independent family is created for these same mechanisms. Utility is not induced: ECU remain account balances, and choices do not automatically identify preferences. Correlated catastrophes, fraud and healthcare providers require their own designs. A comparison can teach effectively without the replication, power and assignment necessary for a research claim. Report descriptive differences honestly, and distinguish classroom learning from causal evidence about actual insurance markets.

Empirical evidence and scope

9.1 Classic theory and modern evidence

[Rothschild and Stiglitz \(1976\)](#) show how private information changes contracts and equilibrium. The baseline isolates composition with one supplier and full coverage; extensions add menus and two suppliers. Values are original classroom parameters, not estimates from that paper.

[Einav and Finkelstein \(2011\)](#) review markets with adverse selection, no selection, and advantageous selection. Advantageous selection can arise when those valuing coverage are especially risk averse or cautious and therefore have lower costs. Our probabilities are assigned and preferences are not correlated with risk, deliberately constructing the adverse case. Real-world selection should be tested, not assumed.

[Finkelstein and McGarry \(2006\)](#) show that multiple dimensions of private information can offset in aggregate data: people expecting higher costs buy more, while cautious people also buy more and may cost less. Zero coverage-claim correlation does not prove symmetric information. This evidence clarifies why the classroom abstraction is useful and incomplete.

9.2 Spirals and welfare

[Cutler and Reber \(1998\)](#) study changes in health-plan contributions that altered enrollment and cost, producing selection feedback. The classroom analogue is low-risk exit, rising pool cost, and renewal. Their environment had multiple plans, subsidies, and outside options that the teaching game omits.

[Einav, Finkelstein, and Cullen \(2010\)](#) estimate demand and cost curves using price variation and combine them for welfare. The classroom offers a discrete analogy but does not automatically create exogenous price variation. Student insurers respond to earlier outcomes, so a premium-coverage correlation combines causality, selection, and learning.

9.3 Mandates, subsidies, and regulation

[Hackmann, Kolstad, and Kowalski \(2015\)](#) relate the Massachusetts mandate to higher enrollment, lower premiums, lower average cost, and altered markups. This is a useful policy connection if institutional details remain explicit. The classroom mandate guarantees purchase; actual mandates have exemptions, penalties, subsidies, heterogeneous plans, and enforcement.

Community rating pursues solidarity while restricting price variation. Risk adjustment and reinsurance compensate plans for expensive enrollees. Subsidies change consumers' net prices.

Evaluation must compare incidence, information requirements, fiscal cost, access, and efficiency. The game supplies mechanisms, not an automatic policy ranking.

9.4 Permissible inference

An instructor may describe whether high-risk take-up exceeded low-risk take-up, whether insured composition was riskier than the population, whether premium followed cost, and whether an intervention changed these measures. Predictions can be stated before disclosure and compared with outcomes.

One class cannot establish causal treatment effects without assignment, replication, and analysis. Assigned risk does not reveal a student's actual health or preferences. ECU prices should not be mapped mechanically into medical dollars. Insurer profit is not welfare. These boundaries preserve both scientific rigor and participant privacy.

Class plans and feedback scripts

10.1 Thirty-five-minute plan

Allocate five minutes to access, seven to instructions and comprehension, five to one round, fifteen to report discussion, and three to an exit response. Use one interaction. Before disclosure, collect an anonymous prediction of which type will buy more. Reveal coverage, type rates, composition, and expected pool cost. Finish with 24 versus the observed pool cost.

The goal is not to observe a spiral. It is to understand that price selects buyers. If the predicted ordering fails, discuss risk aversion, posted price, comprehension, and small-sample variation. An unexpected outcome remains useful when evidence and mechanism are separated.

10.2 Sixty-minute plan

Use ten fixed rounds. Reserve ten minutes for setup, twenty for decisions, twenty-five for feedback, and five for an individual written explanation. Mark rounds in which premium changed. Ask whether pool expected cost moved before or after price and contrast expected with realized profit.

An exit prompt can read: “In 120 words, explain why a premium above population average cost can still produce losses.” A complete response identifies selective entry, insured-pool cost, and realized claims. “The insurer charged too little” is insufficient.

10.3 Ninety-minute comparison

Run community rating and one intervention. Use risk-based pricing for selection and equity, mandate or penalty for participation, reinsurance for insurer exposure, or experience rating for dynamics. Hold risk parameters fixed and collect three predictions before the second treatment: total coverage, selection gap, and expected pool cost.

Organize feedback into four columns: rule, behavior, composition, and finance. This prevents attributing to consumers a change produced directly by an insurer transfer. End with a conditional recommendation based on coverage, stability, or solidarity as the stated objective.

10.4 Ready-to-use feedback

Feedback script

1. What premium was posted and how many policies sold?
2. What was take-up for each type?
3. How did insured composition differ from population composition?
4. What was pool expected cost?
5. How many claims occurred and who paid them?
6. Does realized profit reflect composition or luck?
7. What margin did the institution alter?
8. Who financed subsidies, penalties, or reinsurance?
9. What else is needed for welfare analysis?
10. What prediction would we make for another session?

Wait for answers before displaying formulas. Put *population*, *buyers*, *expected*, and *realized* on the board and assign each statistic to one column. This routine prevents any outcome from being rationalized retrospectively as adverse selection.

Exercises with answer guidance

11.1 Risk and selection

1. Calculate expected loss by type. *Answer:* $0.2(60) = 12$ and $0.6(60) = 36$; baseline population mean is 24.
2. Only two high types buy at 28. *Answer:* coverage is 50 percent, cost per policy 36 and expected profit $56 - 72 = -16$.
3. Does a low-type purchase above 12 establish error? *Answer:* no; risk aversion can justify a load.
4. Do more claims among buyers identify moral hazard? *Answer:* no; composition and action are mixed. Separate initial type, contract and effective probability.

11.2 Contracts and action

5. Premium 15 and deductible 20: calculate both balances. *Answer:* 85 without loss and 65 with loss, before prevention.
6. Who prevents with deductible 20 under neutrality? *Answer:* savings of 2 do not cover cost 4 for the low type; savings of 6 do for the high type.
7. Prevention costs 4 and a verified rebate is 6. *Answer:* private net gain is 2 if the premium permits the full rebate; premium 3 caps it at 3.
8. Does a lower average premium under menus mean better protection? *Answer:* no; partial purchase may rise. Compare wealth by state and deductibles.

11.3 Institutions and inference

9. Four policies at 10, capital 60, four full losses. *Answer:* resources 100, obligations 240, shortfall 140; each claim pays 25 without guarantee.
10. Two high types buy full coverage with paid reinsurance. *Answer:* expected cost is 72 and treaty premium 36; expected net transfer is zero.
11. Does full mandatory coverage with lower profit prove failure? *Answer:* no; evaluate objective, price, composition, claims and financing.
12. Does a rising premium prove a spiral? *Answer:* no; establish selective exit and rising cost alongside possible margin strategy.

Data, privacy, and troubleshooting

12.1 Data structure

The private report download returns a CSV for this session with all ten technical rounds. Each row is complete, pending or inactive; pending result fields remain empty. The native download is wide, with one row per person and rounds in columns. Preserve session identity and check the last round; do not recode empty fields as zero decisions.

Exports contain anonymous ID, round, group, role, risk type, premium, choice, insured status, claim, payments, subsidy, penalty, reinsurance, balance, and group aggregates. Preserve configuration and treatment. Observations are nested within people, markets, and rounds and are not independent rows for inference.

For description, reconstruct each round's eligible count, coverage, type take-up, composition, expected pool cost, revenue, claims, transfers, and profit. Verify accounting identities. For treatment comparisons, document assignment. Do not maintain a roster linking anonymous codes to student identities.

12.2 Common problems

Symptom	Recommended action
Other games appear in Demo	Restart with <code>GAME_FAMILY=insurance</code> ; do not continue without isolation.
Room has no configuration	Check exact route and settings entry, including underscores.
Invalid participant number	Use multiples of five or six by treatment; basic reassignment requires at least ten.
"Please wait"	Use Monitor to find the pending role. Insurer posts first; four consumers follow.
Comprehension will not advance	Check order, 12, 36, hidden individual risk, and active rounds.
Report will not reveal	Check completed and pending observations; use instructor disclosure under the session protocol.
Premium is zero	The plan is withdrawn for that round; this is valid behavior.
Extreme profit	Separate composition from claims and inspect expected cost first.
Link no longer works	Create a new session; do not reuse old individual URLs.

User does not exist	The database changed or session expired; distribute fresh links.
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12.3 Versions and historical sessions

Stable room routes do not make data interchangeable across revisions. The previous version used a loss schedule and a different insurer account. This expansion uses independent draws and explicit capital. Save date, code revision and configuration with the CSV; compare role-specific balances and profit separately from starting capital. Do not combine versions without reconstructing their rules.

New contract and prevention columns require technical preparation before public deployment. The laboratory must back up and export old sessions and validate a separate database. Instructors should not erase a database to make a new treatment appear or change rules during an ongoing class. A missing column in an old CSV does not mean a student chose zero. Consult the laboratory team to preserve historical access and use a new session from the validated revision for the next class.

Checkpoint

Before closing, confirm that every participant reached completion; export data if needed; record configuration, size, and incidents; stop projecting the report; and retain only authorized anonymous files. Never run `resetdb` against production data that must be preserved.

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