



Teacher guide to the posted-offer market

Laboratory implementation, theoretical foundations,
experimental evidence, and variants

Behavioral and Experimental Economics Research Lab
Department of Economics



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

How to use this guide

This guide helps you prepare, run, and debrief the **posted-offer market** developed for the Behavioral and Experimental Economics Research Lab (BEER Lab) of the Department of Economics at Tecnológico de Monterrey. It is written for instructors of intermediate microeconomics and industrial organization, with or without prior experience in experimental economics.

The **quick guide** is enough to launch a session. The operational chapters explain every screen. The conceptual chapters present the theoretical benchmarks and the evidence needed to interpret the results. Common rules are explained once; the extended variant describes only what changes relative to the baseline game.

This game belongs to a family of three markets with induced values and costs: the double auction, the pit market (direct bilateral negotiation), and this posted-offer market. All three share the same economics and differ only in the institution that sets prices, so they can be compared across successive classes.

Author

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For the instructor

This guide covers the English interface. A separate Spanish version exists. The screens in this guide were captured on a local instance of the game with simulated decisions; the numbers they show illustrate the interface and are *not* results from a class. Project only aggregate results: do not link codes to names, student IDs, seats, or individual decisions.

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Quick implementation guide

1.1 Fact sheet

Purpose	Show how an institution in which only sellers set prices, once per period and on a take-it-or-leave-it basis, compares with the competitive equilibrium: prices above equilibrium, slow convergence from above, and a split of surplus that favors the side that posts.
Participants	Any number from 2 up. The whole class forms <i>a single market</i> . Half of the participants (rounded up) are buyers and the rest sellers, at random; role and value or cost stay the same for the whole session. Recommended: 12 or more.
Market	Buyer of rank i : value $\max(0, 200 - 20(i - 1))$. Seller of rank j : cost $20(j - 1)$. Each person buys or sells at most one unit per period.
Decision	First, each seller posts an integer price no lower than their cost. Then each buyer sees all prices and chooses a seller (among those that would not make them lose money) or not to buy.
Earnings	Buyer: value – price. Seller: price – cost. Anyone who does not trade earns 0 that period.
Duration	10–15 minutes for one period; 25–35 for eight periods or the chat variant, not counting the debrief.
Instructor (you)	teaching-admin.beer-lab.org/en → the game’s card → Open panel . It asks for a username and password (Section 2.1).
Students	The room link postedoffer.beer-lab.org/room/posted_offer_en , its QR code (Section 2.5), or teaching.beer-lab.org .
Report	Theoretical benchmark (units, equilibrium price and band), average efficiency, path of the transacted and posted price by period, early versus late periods, histogram of prices in the last period, and a table by period.

Attention

There are two different pages. **teaching-admin.beer-lab.org** is yours: from there you enter the game’s panel and download this guide. **teaching.beer-lab.org** is your students’ page: from there one can only *play*, not create sessions.

1.2 Minimum sequence

Before class

1. Request panel access from lab.economia@servicios.tec.mx, stating the game, course, number of students, and date. You will receive the password for the username **admin**.
2. Open teaching-admin.beer-lab.org/en, find **Posted-Offer Market**, and click **Open panel**. Enter the username and password.
3. Rehearse in **Demo**: open a configuration and play the participants' tabs yourself to learn the buyer and seller screens and the report (Section 2.3).
4. Choose the mode (one period or eight periods) or the extended chat variant.

In class

5. Count the students present.
6. In the panel, open **Rooms** and the room **[EN] Posted-Offer Market** (or the extended one). Choose the configuration, enter the *exact* number of students in **Number of participants**, and click **Create**.
7. Share the room link or project its QR code. Each student clicks **Start**.
8. In the room, click **Monitor the session**: this opens the session page, with the tabs **Monitor** (progress) and **Report**. When the count of completed periods reaches the total, open **Report**, click **Show results**, and lead the discussion.

After class

9. In the room, click **Close this room**. This frees it for the next group; the session's data stay available under **Sessions**.

1.3 Checklist

- ☐ Panel password received and tested at postedoffer.beer-lab.org/login.
- ☐ Rehearsal done in **Demo**.
- ☐ Devices, internet, browser, and projector ready.
- ☐ Mode or variant chosen to fit the question of the class.
- ☐ Number of participants in the session equal to the number of students present (the whole class is one market: one absent person stops everyone).
- ☐ Room link or QR code at hand (Section 2.5); tested from a phone.
- ☐ Students told that ECU are experimental units and that there is no cash payment.
- ☐ Monitor and report open; supply and demand curves ready for the board.

Accessing the platform

2.1 Your access: teaching-admin and the game's panel

The instructors' page is teaching-admin.beer-lab.org/en. It is not in the beer-lab.org menu: type the address directly or bookmark it. It gathers all the lab's classroom games; you can search by title, topic, or JEL code.

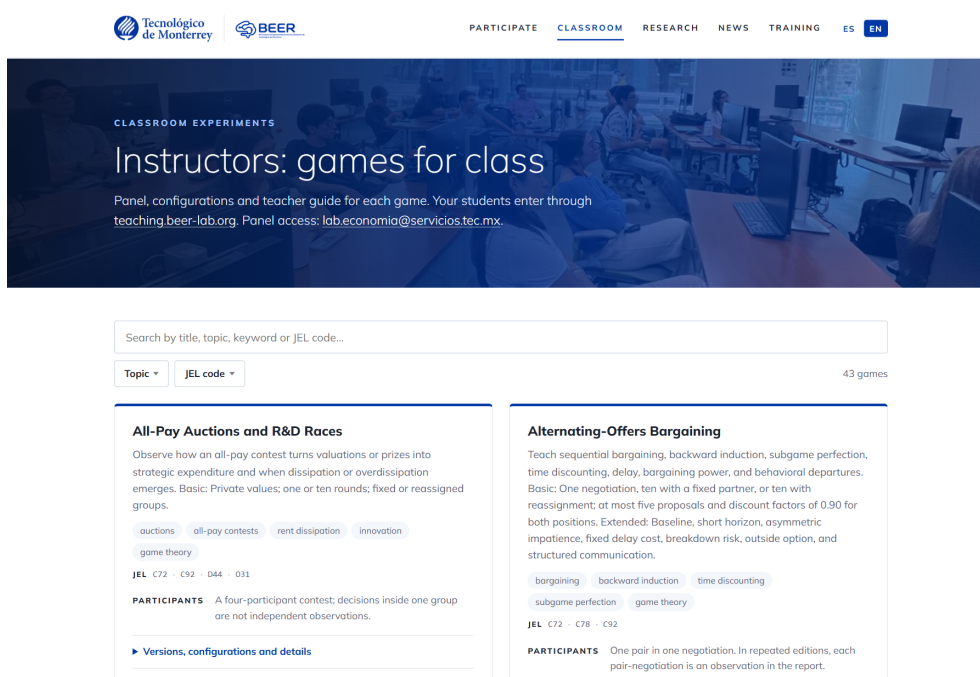


Figure 2.1: The instructors' page: teaching-admin.beer-lab.org.

Each game has a card with its description, number of participants, and duration, and two buttons: **Open panel**, which takes you to the game's panel, and **Teacher guide (PDF)**, which downloads this guide (the **ES** link downloads the Spanish version).

Posted-Offer Market

Each seller posts a take-it-or-leave-it price without seeing the others; buyers then see all prices and choose whom to buy from. Same private-value market as the double auction, to contrast institutions (Ketcham, Smith and Williams, 1984). One period or eight periods, plus an extended version with chat.

competitive markets

posted prices

price discovery

efficiency

market institutions

JEL C92 · D41 · D47 · L11

PARTICIPANTS One market per session; about half buyers and half sellers. Works with any class size.

DURATION Approx. 10–15 min (one period) · 35–50 min (eight periods), including instructions and comprehension check. No real-time trading: two turns per period.

► **Versions, configurations and details**

Open panel

Teacher guide (PDF)

ES

Figure 2.2: The game’s card on the instructors’ page.

Expanding **Versions, configurations and details** shows the list of rooms. Each **open panel** link in that list goes straight to the form for creating a session in that room (after you log in).

- **Español:** [open panel](#) — configurations: *[ES] Precios publicados — un periodo*, *[ES] Precios publicados — 8 periodos*
- **English:** [open panel](#) — configurations: *[EN] Posted offer — one period*, *[EN] Posted offer — 8 periods*
- **Español · extendido:** [open panel](#) — configurations: *[ES] Precios publicados extendido — con chat, 8 periodos*
- **English · extended:** [open panel](#) — configurations: *[EN] Posted offer extended — with chat, 8 periods*

Figure 2.3: The game’s rooms in the expanded card; tick **Show extended version** to see the extended ones as well.

The game’s panel (<https://postedoffer.beer-lab.org>) is password-protected. **Open panel** shows the **Admin Login** screen: enter **admin** under **Username** and the password the lab gave you under **Password**. If you do not have it, request it from lab.economia@servicios.tec.mx.

Figure 2.4: Login screen of the game's panel.

2.2 The panel: minimum vocabulary

The panel is oTree's own and is in English. These are the only terms you need:

Demo	Practice sessions. Creates a session with fictitious participants that you play yourself in several tabs. Use it to rehearse, never with students.
Rooms	Fixed addresses for class. Each game has four: basic and extended, in Spanish and in English. Your students always enter through a room.
Create / Number of participants	Create the session in the room and declare how many people will play.
Monitor	Table with the period and screen each participant is on. It does not show decisions.
Advance slowest participants	Monitor button that pushes forward whoever is behind (Section 2.4).
Report	The instructor report for projecting aggregate results.
Data	Download of the data as CSV.
Sessions	List of all your sessions, to return to an earlier one.
Close this room	Frees the room when you finish, for the next group.

In this panel, **Demo** lists only this game's 6 configurations and **Rooms** only its four rooms. If another game appears, do not start the session and notify the lab.

Demo	
[ES] Precios publicados — un periodo	Juegos de mercados / Market games — BEER Lab Mercado de precios publicados (posted offer) / Posted-offer market
[ES] Precios publicados — 8 periodos	
[EN] Posted offer — one period	
[EN] Posted offer — 8 periods	
[ES] Precios publicados extendido — con chat, 8 periodos	
[EN] Posted offer extended — with chat, 8 periods	

Figure 2.5: Demo: the game's 6 configurations (4 basic and 2 extended, in Spanish and English).

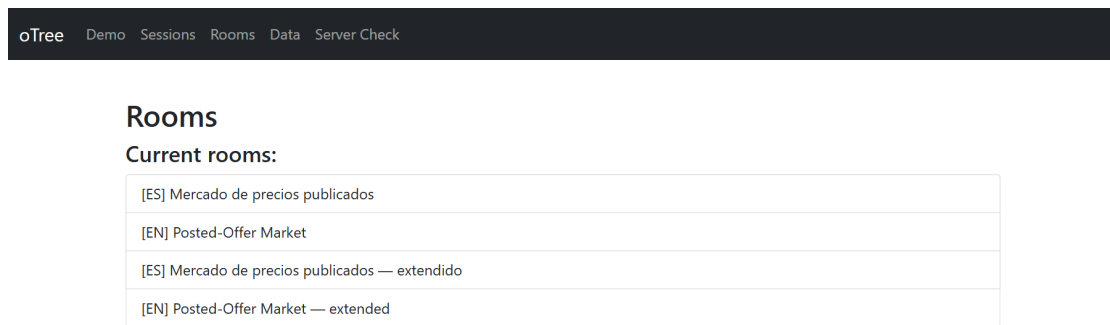


Figure 2.6: Rooms: the game's four rooms.

2.3 Rehearsing before class

In **Demo**, click a configuration: this creates a practice session with 8 participants (4 buyers and 4 sellers) and shows its links page. Open each link **P1**, **P2**, ... in a separate tab and play as if you were each student; then open **Report**. Since the whole session is one market, each period moves on only when all 8 tabs have decided. With 4 and 4, the report's theoretical benchmark differs from that of a large group (Section 5.1). These sessions do not affect your classes.

oTree Demo Sessions Rooms Data Server Check

[EN] Posted offer — 8 periods: session 'z23yezoz'

Edit
Links
Monitor
Data
Payments
Report
Description

You can either use the session-wide link, persistent links, or single-use links.

Session-wide link

If it's not practical for you to use a Room, you can distribute the following link to participants.

<http://localhost:8025/join/gopitapa>

Persistent links

For a real session, you should use a [room](#).

Single-use links

Below are single-use links.

P1	http://localhost:8025/InitializeParticipant/dzwwpkzj
P2	http://localhost:8025/InitializeParticipant/3ea24t7o
P3	http://localhost:8025/InitializeParticipant/nekkf30h
P4	http://localhost:8025/InitializeParticipant/czjpiudc
P5	http://localhost:8025/InitializeParticipant/st8k4lav
P6	http://localhost:8025/InitializeParticipant/361wnpol
P7	http://localhost:8025/InitializeParticipant/t8py04l8
P8	http://localhost:8025/InitializeParticipant/3tskzvhi
P9	http://localhost:8025/InitializeParticipant/w0iwy7tv
P10	http://localhost:8025/InitializeParticipant/f3lkqskm
P11	http://localhost:8025/InitializeParticipant/h3nd84s4
P12	http://localhost:8025/InitializeParticipant/ygbtkmv8
P13	http://localhost:8025/InitializeParticipant/t9psiyhf
P14	http://localhost:8025/InitializeParticipant/jbc9phlx

Figure 2.7: Links of a test session with 14 participants. The screenshots in this guide were taken on a local copy, which is why the addresses read `localhost`; on the server they read `postedoffer.beer-lab.org`.

Attention

Do not rehearse with the room link open in several tabs of the same browser: oTree recognizes the browser and all tabs would be the same person. To rehearse, use **Demo**.

2.4 Creating the session in class

In **Rooms**, open the room for the language you will use. The form offers only that room's configurations. Choose the configuration, enter the number of students present in **Number of participants**, and click **Create**.

oTree Demo Sessions Rooms Data Server Check

Room: [EN] Posted-Offer Market

Create a new session

English room. Only the configurations of this game, language and edition are shown below.

Session Config

Number of participants

 Must be a multiple of 1

[Create](#)

[Configure session](#) ⚙️

App sequence

Figure 2.8: Form of the basic English room: only its two configurations appear.

The room then shows that a session is taking place, with the link **Monitor the session** and the button **Close this room**.

oTree Demo Sessions Rooms Data Server Check

Room: [EN] Posted-Offer Market

Session **2aaqr95z** is taking place in this room.

[Monitor the session](#) 🔗

[Close this room](#)

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://localhost:8025/room/posted_offer_en

Hard-coded links

Generally, you should provide your participants with the room-wide URL above. But in special cases where you need to open (or re-open) a specific participant's link, by using the participant code, you can use the below links.

► Show/Hide

Figure 2.9: A room with a session in progress.

Attention

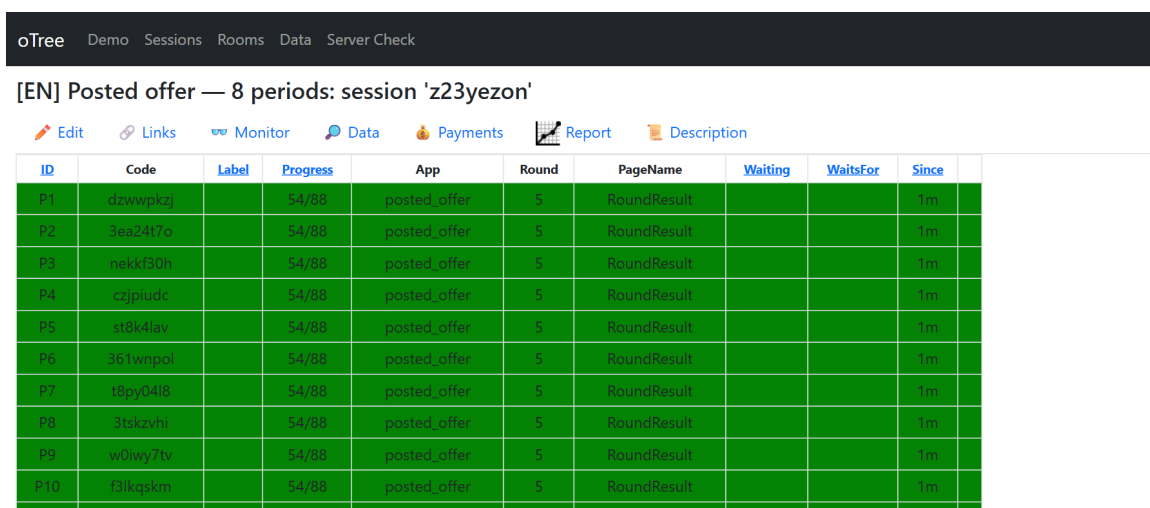
Declare the exact number, with no spare places. The lab's general guide suggests creating a few extra places; not in this game. Roles and values or costs are assigned when the session is created, and the whole class is a single market: every waiting page waits for *everyone*. If you declare more participants than actually join, the market never moves. If one more student arrives than you declared, they see a message in Spanish, “La sesión está

llena” (the session is full), even in the English rooms. In either case, before starting, click **Close this room**, create another session with the correct number, and ask everyone to open the link or QR code again.

If a student disconnects mid-activity, there is no time limit for the decision and the whole group stops. Ask them to reopen the room in the same browser: they resume where they were. If they cannot, **Advance slowest participants** in the Monitor pushes forward whoever is furthest behind (up to 20 people per click), with these consequences:

- On the buyer’s screen, the choice is recorded as “do not buy”. Nobody else is affected.
- On the seller’s screen, the price is recorded as **0**, even if that person’s cost is higher. Buyers will see a price of 0; if someone chooses that seller, the seller loses their cost that period. The 0 price also enters the report’s average posted price.

It is therefore better to ask the student to post a price before advancing them, and to mention any affected period in the debrief.



The screenshot shows the oTree Monitor interface for session 'z23yezon'. The interface includes a top navigation bar with links for Demo, Sessions, Rooms, Data, and Server Check. Below the navigation bar, there is a title '[EN] Posted offer — 8 periods: session 'z23yezon'' and a set of action buttons: Edit, Links, Monitor, Data, Payments, Report, and Description. The main part of the interface is a table with the following columns: ID, Code, Label, Progress, App, Round, PageName, Waiting, WaitsFor, and Since. The table contains 10 rows of data, all with a green background, representing participants P1 through P10.

ID	Code	Label	Progress	App	Round	PageName	Waiting	WaitsFor	Since
P1	dzwwpkzj		54/88	posted_offer	5	RoundResult			1m
P2	3ea24t7o		54/88	posted_offer	5	RoundResult			1m
P3	nekkf30h		54/88	posted_offer	5	RoundResult			1m
P4	czpiudc		54/88	posted_offer	5	RoundResult			1m
P5	st8k4lav		54/88	posted_offer	5	RoundResult			1m
P6	361wnpol		54/88	posted_offer	5	RoundResult			1m
P7	t8py04i8		54/88	posted_offer	5	RoundResult			1m
P8	3tskzvhi		54/88	posted_offer	5	RoundResult			1m
P9	w0wv7tv		54/88	posted_offer	5	RoundResult			1m
P10	f3ikqskm		54/88	posted_offer	5	RoundResult			1m

Figure 2.10: Monitor: each participant’s period and page, without showing decisions.

2.5 How your students join

Students need no account and nothing to install; the browser on their phone or computer is enough. They have three routes, all leading to the same room:

1. **QR code.** Project the one for the room you will use (below, and full-size in Appendix A). They scan it with their phone camera.
2. **Room link.** Share it in the class chat or on Canvas: https://postedoffer.beer-lab.org/room/posted_offer_en.
3. **Catalogue.** On teaching.beer-lab.org they find **Posted-Offer Market** and click the button for their language (**English**, or **English · extended** if they tick **Show extended version**).



English, basic

`postedoffer.beer-lab.org/room/posted_offer_en`



English, extended

`postedoffer.beer-lab.org/room/posted_offer_extended`



Español, básica

`postedoffer.beer-lab.org/room/posted_offer_es`



Español, extendida

`postedoffer.beer-lab.org/room/posted_offer_extendido`

What participants will see

Students open the room and click **Start**. If you have not created the session yet, the room shows a short waiting message in Spanish (“Por favor espere”, please wait) and lets them in automatically once you create it; so you can share the link or QR code from the start of class. They need no email or password: they receive an anonymous code.

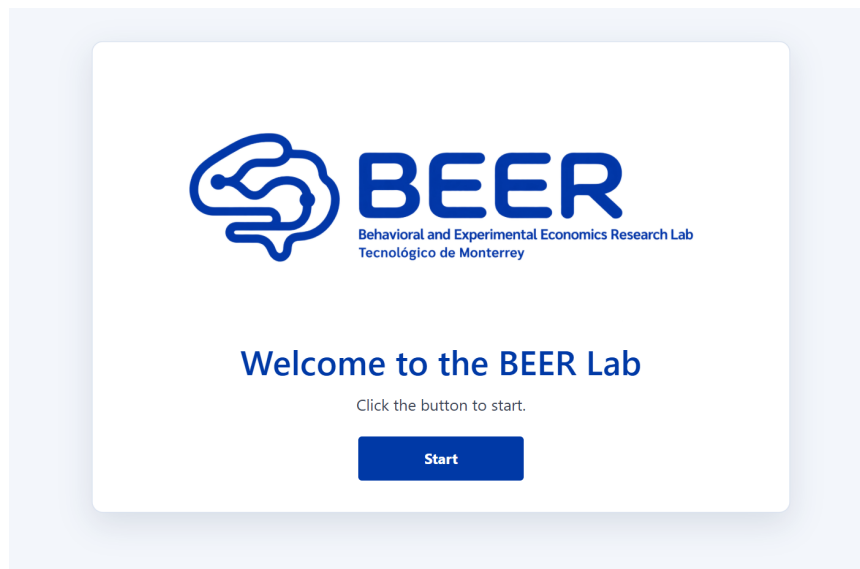


Figure 2.11: The room as students see it.

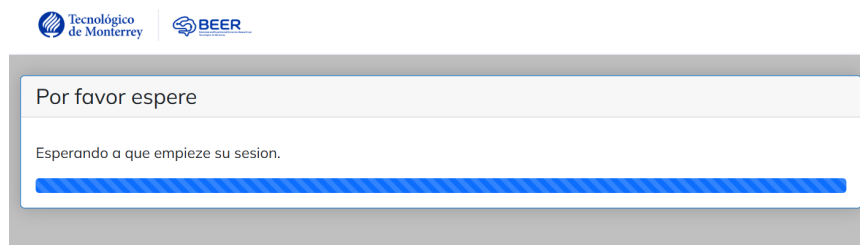


Figure 2.12: Student waiting screen if the session does not exist yet. oTree shows it in Spanish (“Por favor espere”: please wait for your session to start), even in the English rooms.

Language is set per room: a session created in the English room only receives students who enter through the English room. If your group is mixed, choose one language for everyone.

Posted-Offer Market

Each seller posts a take-it-or-leave-it price without seeing the others; buyers then see all prices and choose whom to buy from. Same private-value market as the double auction, to contrast institutions (Ketcham, Smith and Williams, 1984). One period or eight periods, plus an extended version with chat.

competitive markets

posted prices

price discovery

efficiency

market institutions

JEL C92 · D41 · D47 · L11

Address: `postedoffer.beer-lab.org`

Español

English

Español · extendido

English · extended

☒ Show extended version

Figure 2.13: The game's card on teaching.beer-lab.org, the students' page.

The baseline game and its screens

3.1 Rules, incentives, and benchmarks

When the session is created, participants are ordered at random. The first half (rounded up) are buyers and the rest sellers. Each buyer receives a rank i and a **value** $v_i = \max(0, 200 - 20(i - 1))$: 200, 180, 160, ..., 20, and 0 from rank 11 on. Each seller receives a rank j and a **cost** $c_j = 20(j - 1)$: 0, 20, 40, ... Role, rank, and value or cost stay the same in every period.

Each period has two simultaneous turns:

1. **Sellers.** Each posts an integer price without seeing the others. The system rejects prices below the seller's own cost; there is no upper limit.
2. **Buyers.** Each sees the full list of posted prices, sorted from lowest to highest, and chooses a seller at the posted price, or not to buy. Only sellers whose price does not exceed the buyer's value appear as options.

Each seller has a single unit. If several buyers choose the same seller, the system draws who gets it; the others do not buy that period. Earnings are $v_i - p$ for the buyer and $p - c_j$ for the seller who trade, and 0 for anyone who does not trade.

For the instructor

Before playing, ask the class to draw supply and demand with the first seven values and costs, and to predict the price and the number of units traded. Then ask: if only sellers can set the price, will the price end up above, below, or at that point?

3.2 Cover page, instructions, and comprehension

The cover page presents the BEER Lab and the rules of conduct. Participants confirm they have read them. The instructions depend on the assigned role and describe only the action (post a price or choose whom to buy from): they do not mention “posted offer” or “competitive equilibrium”, nor which price it pays to post.



Welcome to the BEER Lab

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

Today you will take part in a market as a buyer or a seller. Your earnings depend on your decisions.

During the session

- Do not talk or communicate with other people, except through the means shown on screen.
- Make your decisions individually.
- Follow the on-screen instructions. Do not refresh or close this page.
- If you need help, raise your hand.

I have read and understood the lab rules.

☐ Yes ☐ No

Start

Powered by [oTree](#)

Figure 3.1: Cover page and lab rules.

Instructions

Period 1 of 8

In this activity you are a seller. Each period you want to sell one unit of a product.

Each period you have your own **cost** for your unit: the lowest price it is worth accepting. If you sell at a higher price you earn the difference. No one else knows your cost.

Your earnings = the price you sell at – your cost. If you do not sell, your earnings are 0.

Example: if your cost is 50 and you sell at a price of 90, your earnings are $90 - 50 = 40$ ECU.

How the market works

- Each period, you post an asking price. You post it without knowing what price the other sellers are posting.
- The system will not let you post a price below your cost. You can post any price at or above your cost.
- Afterwards, every buyer sees all posted prices and chooses who to buy from, or not to buy. If more than one buyer chooses you, you can only sell to one; the system picks randomly who.
- You can buy or sell at most one unit per period; if you do not trade, your earnings for that period are 0.

- There will be 8 periods. Your role and your value or cost stay the same in every period. Your earnings from all periods are added up.
- Amounts are in ECU (experimental currency units). There is no cash payment.

Continue

Powered by [oTree](#)

Figure 3.2: Instructions for a seller.




Instructions

Period 1 of 8

In this activity you are a buyer. Each period you want to buy one unit of a product.

Each period you have your own **value** for your unit: the highest price it is worth paying. If you buy at a lower price you earn the difference. No one else knows your value.

Your earnings = your value – the price you buy at. If you do not buy, your earnings are 0.

Example: if your value is 130 and you buy at a price of 90, your earnings are $130 - 90 = 40$ ECU.

How the market works

- Each period, every seller posts an asking price, without knowing what the others post.
- Afterwards, you see all posted prices and choose which seller to buy from (at the price they posted), or not to buy. The system will not let you choose a price that would lose you money.
- If more than one buyer chooses the same seller, that seller can only sell to one of them; the system picks randomly who. If it is not you, you do not buy that period.
- You can buy or sell at most one unit per period; if you do not trade, your earnings for that period are 0.

- There will be 8 periods. Each period you are given a new value or cost. Your earnings from all periods are added up.
- Amounts are in ECU (experimental currency units). There is no cash payment.

Continue

Powered by [oTree](#)

Figure 3.3: Instructions for a buyer.

The example uses a value of 130, a cost of 50, and a price of 90 (earnings of 40 ECU for each side). These numbers match neither the ladder of values and costs nor the equilibrium price (100), so the example does not act as an anchor. The comprehension check asks everyone both questions, whatever their role: the buyer's and the seller's earnings in that case. After a mistake it restates the rule and allows another attempt; the number of attempts is recorded in the data.




Before you start

Period 1 of 8

Answer both questions based on the instructions (they apply to any buyer or seller).

A buyer has a value of 130 and buys at a price of 90. What are their earnings?

☐ -40 ECU

☐ 40 ECU

☐ 90 ECU

☐ 130 ECU

A seller has a cost of 50 and sells at a price of 90. What are their earnings?

☐ -40 ECU

☐ 40 ECU

☐ 50 ECU

☐ 90 ECU

Check

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Figure 3.4: Comprehension check.

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Por favor corrija los errores.

Before you start

Period 1 of 8

Answer both questions based on the instructions (they apply to any buyer or seller).

A buyer has a value of 130 and buys at a price of 90. What are their earnings?

☐ -40 ECU
 ☐ 40 ECU
 ☐ 90 ECU
 ☐ 130 ECU

Check: a buyer's earnings = their value – the price they buy at.

A seller has a cost of 50 and sells at a price of 90. What are their earnings?

☐ -40 ECU
 ☐ 40 ECU
 ☐ 50 ECU
 ☐ 90 ECU

Check: a seller's earnings = the price they sell at – their cost.

Check

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Figure 3.5: Wrong answers: the message restates the rule without giving the answer.

3.3 The seller's turn

The seller types a price and clicks **Post price**. The label, “Price you offer to sell at (minimum ...)”, shows the minimum price allowed, which is the seller's cost; a lower price is rejected. The box starts empty, so as not to suggest a value.

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Your asking price

Period 1 of 8

Price you offer to sell at (minimum 20)

140

Post price

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Figure 3.6: Seller's turn: posting the price.

While sellers decide, buyers wait.

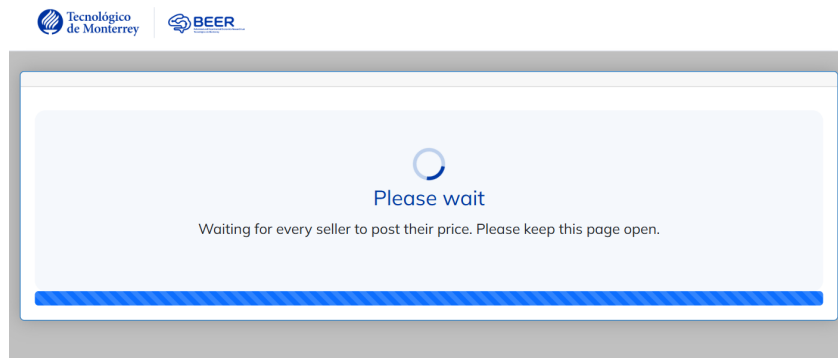


Figure 3.7: Buyers wait while prices are posted.

What participants will see

“Please wait” means that decisions by other people in the market are missing; since the market is the whole class, one pending person is enough. It is not an error. Participants should not close or refresh the page.

3.4 The buyer's turn

The buyer sees the table of all posted prices, identified as “Seller 1”, “Seller 2”, and so on, with their options below. Each seller keeps the same number in every period, so buyers can follow sellers' behavior over time. If no price is at or below the buyer's value, the only option is not to buy, and the screen says so.

Choose who to buy from

Period 1 of 8

Posted prices

Seller	Price
Seller 4	135
Seller 2	140
Seller 5	145
Seller 1	150
Seller 6	155
Seller 3	160
Seller 7	170

Your choice

- ☐ Buy from seller 4 at 135 ECU
- ☐ Buy from seller 2 at 140 ECU
- ☐ Buy from seller 5 at 145 ECU
- ☐ Buy from seller 1 at 150 ECU
- ☐ Buy from seller 6 at 155 ECU
- ☐ Buy from seller 3 at 160 ECU
- ☐ Buy from seller 7 at 170 ECU
- ☐ Do not buy this period

Confirm

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Figure 3.8: Buyer's turn: public list of prices and purchase options.




Choose who to buy from

Period 1 of 8

Posted prices

Seller	Price
Seller 4	135
Seller 2	140
Seller 5	145
Seller 1	150
Seller 6	155
Seller 3	160
Seller 7	170

Your choice

☐ Do not buy this period

No posted price is at or below your value; you can only choose not to buy.

Confirm

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Figure 3.9: A buyer whose value is below every posted price.

Attention

Buyers choose at the same time and do not see each other's choices. If two or more choose the same seller, the draw leaves all but one without a unit, even if other sellers remain unsold. This is a coordination friction specific to this implementation (Section 5.3).

3.5 Result and closing

The result shows the role, the value or cost, whether a trade took place, the price, the period's earnings, and the cumulative earnings. Below it appear all posted prices and which ones sold. This information is public: everyone sees the same table.

Period result

Period 1 of 8

Your role

seller

Your cost

20

Did you trade?

Yes

Price

140

Your earnings

120 ECU

Cumulative earnings

120 ECU

Every posted price this period

Seller	Price	Sold?
Seller 4	135	Yes
Seller 2	140	Yes
Seller 5	145	No
Seller 1	150	No
Seller 6	155	No
Seller 3	160	No
Seller 7	170	No

Next periodPowered by [oTree](#)

Figure 3.10: Result for a seller who sold.

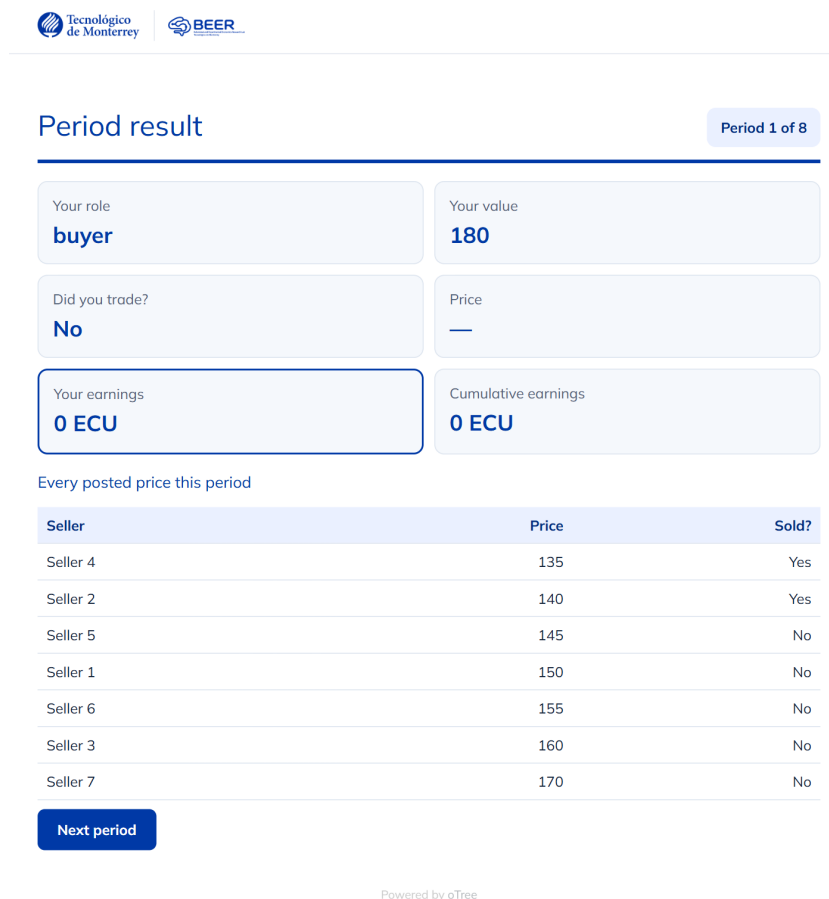


Figure 3.11: Result for a buyer who chose a seller also chosen by someone else and lost the draw.

The result does not distinguish between “I chose not to buy” and “I chose a seller but lost the draw”; in both cases it shows “No” and earnings of 0. At the end, participants see their total earnings and the history of periods.

End of the activity

Period 8 of 8

Your total earnings

355 ECU

Period	Role	Value / cost	Traded	Price	Earnings
1	buyer	180	No	—	0
2	buyer	180	Yes	135	45
3	buyer	180	No	—	0
4	buyer	180	Yes	125	55
5	buyer	180	Yes	120	60
6	buyer	180	Yes	118	62
7	buyer	180	Yes	115	65
8	buyer	180	Yes	112	68

Thank you for participating. Please wait for your instructor.

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Figure 3.12: Closing screen: total earnings, history, and instruction to wait for the instructor.

Instructor report and debrief

4.1 When to reveal

Report is a tab of the session page: reach it from the room via **Monitor the session**, or via **Sessions** if the session has already ended. It opens with results hidden. At the top it shows the number of participants, buyers, sellers, and completed periods. You can therefore project it from the start without giving anything away. Click **Show results** when completed periods reach the total; **Refresh** adds new periods and **Hide results** covers them again.

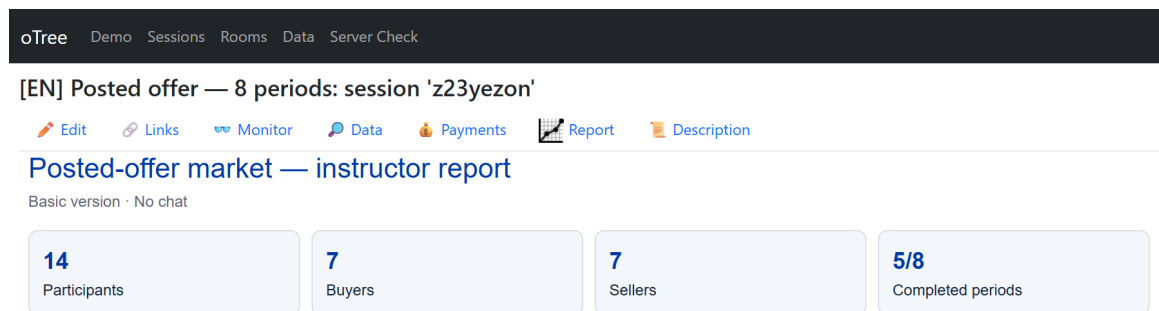


Figure 4.1: Report with results hidden and period counter.

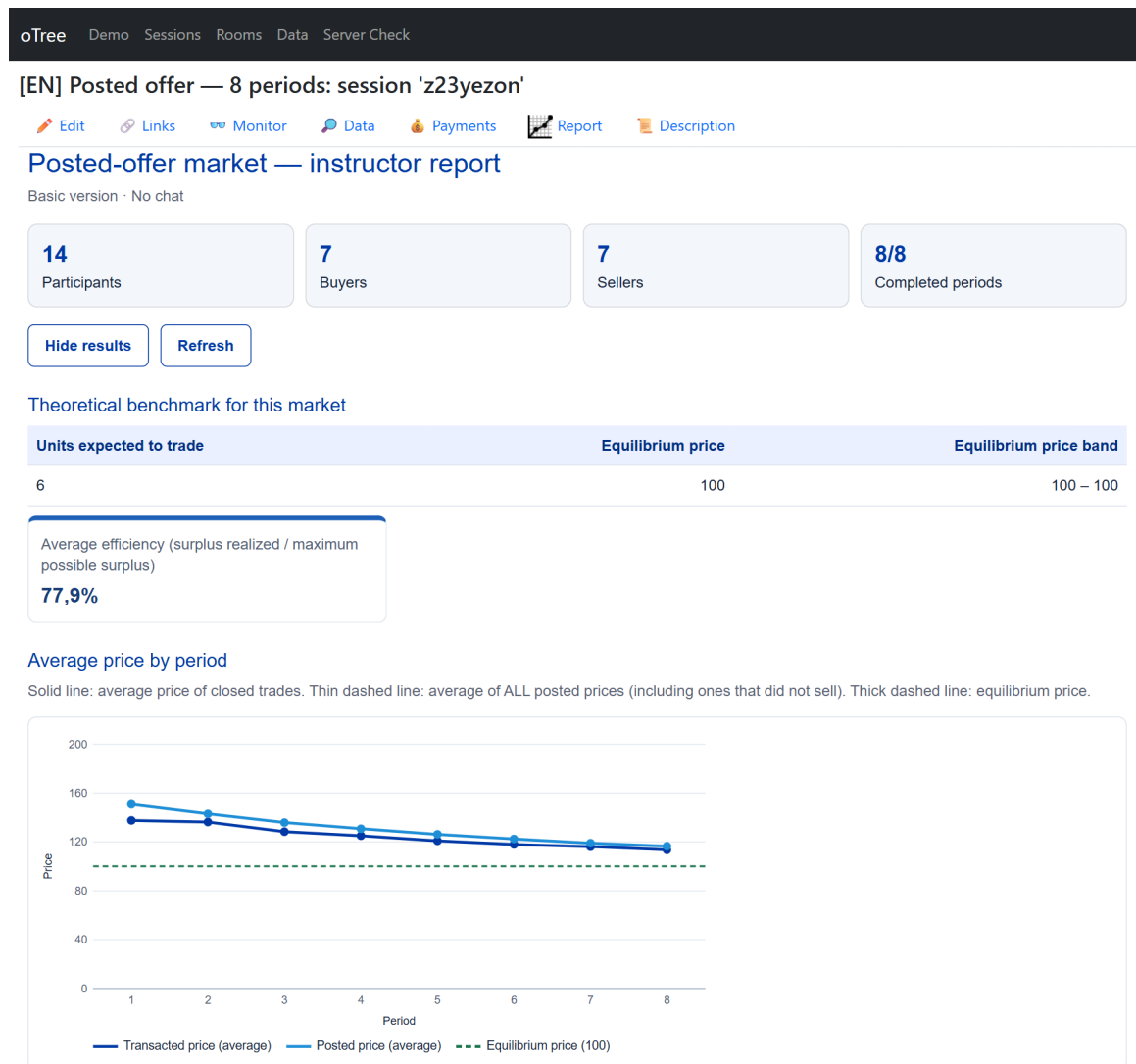


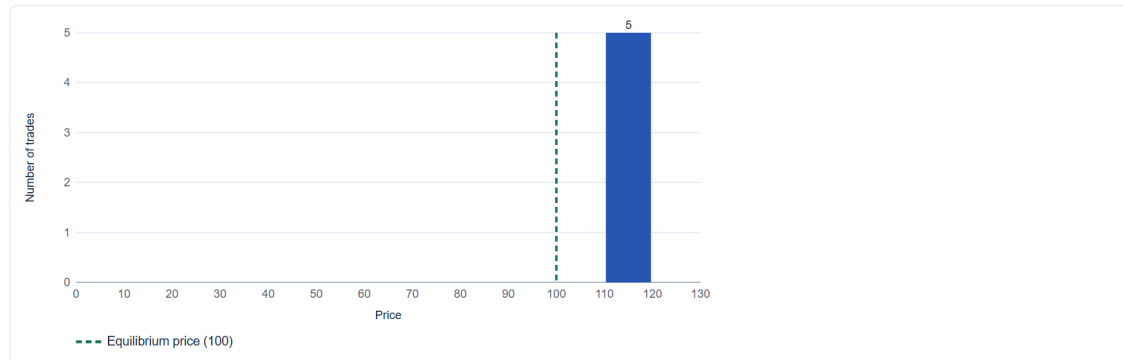
Figure 4.2: Revealed report: theoretical benchmark, efficiency, and price path (simulated decisions).

Early periods versus late periods (efficiency)

	Efficiency
Periods 1–3	63,4%
Periods 6–8	91,1%

Distribution of transacted prices

Trade prices in the last completed period.



Results by period

Period	Trades	Average price	Efficiency
1	2	137,5	46,7%
2	4	136,2	86,7%
3	3	128,3	56,7%
4	4	125	86,7%
5	4	120,8	73,3%
6	4	117,8	73,3%
7	5	116	100,0%
8	5	113,4	100,0%

Individual data: Data → Custom export (posted_offer). Chat messages: Data → Chat.

Figure 4.3: Revealed report: early versus late periods, histogram, and table by period (simulated decisions).

4.2 How to read the report

1. Start with the theoretical benchmark: units expected to trade, equilibrium price, and band. With 6 or more people on each side it is always 6 units at 100.
2. The price chart has two series: the average price of closed trades (dark blue) and the average of *all* posted prices, including those that did not sell (light blue). The dashed green line is the equilibrium price. The gap between the series and the green line is the result the game exists to show. The chart appears only with more than one period.
3. Efficiency is realized surplus (sum of value minus cost over the units traded) divided by the maximum possible. Read it together with the price: high efficiency with prices above 100 means almost all the surplus was created but was split in favor of sellers.
4. With six or more completed periods, the early-versus-late table compares the average efficiency of the first three and the last three periods.

5. The histogram shows trade prices in the last completed period (bins of 10); the final table summarizes trades, average price, and efficiency for each period.

Debrief script

First ask what price the class expected. Reveal the price chart and ask sellers to explain why they did not lower their price faster; ask buyers whether they ever chose not to buy on purpose. Finish at the board with supply and demand, mark the observed price, and shade the surplus sellers captured.

Theory and evidence

5.1 Theoretical benchmarks

Theoretical foundation

Induced values and costs generate step-shaped demand and supply. At price p , quantity demanded is the number of buyers with $v_i \geq p$ and quantity supplied the number of sellers with $c_j \leq p$. Unit k trades in the competitive equilibrium if $v_k \geq c_k$, that is, if $200 - 20(k - 1) \geq 20(k - 1)$, or $k \leq 6$. With 6 or more people on each side, the equilibrium is 6 units at a unique price of 100 (the sixth buyer's value and the sixth seller's cost are both 100; the seventh buyer's value is 80 and the seventh seller's cost is 120).

Unit k	Value v_k	Cost c_k	$v_k - c_k$	Traded in equilibrium?
1	200	0	200	Yes
2	180	20	160	Yes
3	160	40	120	Yes
4	140	60	80	Yes
5	120	80	40	Yes
6	100	100	0	Yes (zero margin)
7	80	120	-40	No

Maximum surplus is $200 + 160 + 120 + 80 + 40 + 0 = 600$ ECU. At a price of 100 it is split equally: 300 for buyers and 300 for sellers. Because the sixth unit has zero margin, five trades between the five highest-value buyers and the five lowest-cost sellers already achieve 100% efficiency.

The price does not affect efficiency, only the split. If the first five buyers buy at 120 from the five lowest-cost sellers, efficiency is still 100%, but buyers get $80 + 60 + 40 + 20 + 0 = 200$ and sellers $600 - 200 = 400$. Efficiency falls when units with a positive margin go untraded (prices too high, buyers who withdraw, or buyers who pick the same seller) or when an “extramarginal” trader trades: a seller with a cost of 120 or more, or a buyer with a value of 80 or less, who displaces someone with a larger margin.

With fewer than 6 people on each side, every possible unit trades in equilibrium and the price lies in a band. For example, the 8-participant demo (4 and 4) has a benchmark of 4 units, a band from 60 to 140, a midpoint price of 100, and a maximum surplus of 560 ECU. In large groups there are buyers with a value of 0 (rank 11 and above) and sellers with costs of 200 or more, who can never trade at a profit; their role is to complete the market.

5.2 Why posted prices favor the side that posts

The competitive equilibrium is a benchmark, not an exact strategic prediction for this game. Several features of the institution push prices above 100:

- **Commitment.** Each seller sets a single price per period, without seeing the others, and cannot adjust it within the period. In the double auction, by contrast, prices are improved continuously in front of everyone.
- **Asymmetric roles.** Buyers cannot make counteroffers: they only accept a price or walk away. Walking away to push prices down costs them earnings that period.
- **Little learning per period.** The price adjusts at most once per period; eight periods give eight chances to correct.
- **Market power with limited capacity.** Each seller has one unit. A seller who raises the price risks only their own sale, and if other sellers have already been chosen, some buyer will have to accept a higher price.

Buyers reveal their demand when they always buy whenever the price does not exceed their value; if they refuse to buy at high prices (withhold demand), they can discipline sellers at the cost of their own earnings. This tension is a good topic for discussion.

5.3 Experimental evidence

[Smith \(1962\)](#) showed that the oral double auction converges quickly to the competitive equilibrium even with few participants. [Plott and Smith \(1978\)](#) compared that auction with a posted-price institution and found that the way prices are set changes both the speed of convergence and the level of prices. [Ketcham et al. \(1984\)](#) compared the double auction and the seller posted-offer market directly with the same parameters: in the latter, prices tend to stay above equilibrium, converge from above and more slowly, and efficiency is lower. [Plott \(1986\)](#) summarizes this evidence on posted-price institutions and discusses its implications for regulation. [Davis and Holt \(1993\)](#) and [Holt \(1995\)](#) present the mechanism and review the literature on posted prices and market power.

In the usual procedure in the literature, buyers go through the price list one at a time, in random order, and see which units remain available ([Davis and Holt, 1993](#)). In this game they choose at the same time and the system draws when they coincide. This simplification makes the game faster in class, but it adds a coordination friction: some units may go unsold even though interested buyers exist. Keep this difference in mind when comparing your results with published ones.

Communication also matters. [Isaac et al. \(1984\)](#) study conspiracies among sellers and find that market organization conditions how effective they are; the chat variant (Chapter 7) allows you to discuss this, with the difference that here buyers and sellers write in the same chat.

5.4 Regularities worth discussing

- Posted prices start above 100 and fall slowly; the average posted price stays above the average trade price, because the highest prices do not sell.
- Efficiency can be high even with high prices: the main issue is usually the split, not the quantity.

- Early periods lose efficiency because buyers coincide on the same seller and because some prices nobody accepts.
- Low-cost sellers can sustain high prices because someone always buys from them; high-cost sellers are left out.

Attention

The results of one class are descriptive. With a single market per session, periods are not independent observations, and a difference between two sessions (for example, with and without chat, or against the double auction) does not estimate a causal effect without random assignment and enough markets.

Baseline modes

The baseline modes have no chat. Both use the same market and the same screens.

6.1 One period

`posted_offer_en_1_period` has a single period. It serves to introduce supply and demand with induced values and to show that the first attempt at setting prices usually lands far from equilibrium. The report shows neither the price-path chart nor the early-versus-late comparison; the histogram includes all trades.

6.2 Eight periods

`posted_offer_en_8_periods` repeats the market eight times with the same roles, values, and costs. It lets you observe convergence (or its absence) and the gap between posted and trade prices. Do not announce aggregate results between periods: participants already see every posted price in each result.

Extended variants

7.1 Map of treatments

The extended version has one variant, with eight periods and the same market.

Variant	What changes	Teaching question
Communication	60-second chat with the whole group before each period	Do sellers try to coordinate prices? Do buyers respond? Are agreements kept?

7.2 Communication

posted_offer_extended_communication: before each period, everyone in the market can write for 60 seconds in an anonymous chat. Everyone appears as “Participant”, so it is impossible to tell whether a message comes from a buyer or a seller. Nothing written is binding. The chat closes by itself when time runs out; anyone who clicks **Go to the market** earlier waits for the rest.

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Time left to complete this page: 0:56

Messages Period 1 of 8

You can write to the whole group. You have 60 seconds. Do not write your name or any personal information.

Participant (Me) What if nobody posts below 150?
 Participant I will not go below 140.
 Participant At those prices I am not buying.

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Figure 7.1: Chat before the period (demo messages).

Debrief script

Compare the price path with that of a session without chat, if you have one. Read aloud, without identifying anyone, a few messages (**Data** → **Chat**) and check whether posted prices followed what was agreed. Ask why a price agreement is hard to sustain when each seller posts in private, and connect it to competition policy.

Class plan and interpretation

8.1 Suggested 50-minute session

0–5 min	Room access, lab rules, and role assignment.
5–12 min	Instructions, example, and comprehension check.
12–30 min	Eight periods (about 2 minutes each). Do not reveal the report between periods.
30–33 min	Class predictions: equilibrium quantity and price; who earned more, buyers or sellers.
33–43 min	Path of posted and trade prices, efficiency, and table by period.
43–48 min	Supply and demand on the board; split of surplus; published evidence.
48–50 min	Applications: shops with shelf prices, online platforms, gas stations, mandatory tariff posting.

8.2 Questions to guide the discussion

1. How many units and at what price do supply and demand predict? What did we observe?
2. Why did sellers not lower their price to 100 from the start?
3. Buyers: did you ever refuse to buy to push prices down? Did it pay off?
4. Why can efficiency be high even though the price is above equilibrium? Who kept the difference?
5. What would change if buyers could make counteroffers, as in the double auction?
6. Which real markets work with posted prices? Why do sellers prefer this institution?

8.3 Common misreadings

Hasty reading	Correction
If efficiency is high, the market is competitive.	Efficiency measures how much surplus is created, not how it is split. With high prices, sellers keep more.
The average posted price is the market price.	It includes prices nobody accepted. The price that matters for earnings is the trade price.

Hasty reading	Correction
High prices prove there was collusion.	In this institution high prices can appear without any agreement; the useful comparison is with the double auction or with the chat variant.
Whoever did not buy made a mistake.	They may have lost a draw, had a value below every price, or withheld their purchase on purpose.
A difference between two classes is causal.	This requires comparable assignment and enough independent markets.

Operations, privacy, and troubleshooting

9.1 Privacy and conduct

- Do not ask for names, student IDs, or demographic information during this activity.
- Project the aggregate report. Keep codes, roles, and individual screens private.
- Ask students not to write personal information in the chat; the screen itself reminds them.
- Do not use the session to grade anyone on their decisions.
- Treat the session as a teaching activity unless there is a research protocol with specific consent.

9.2 Common problems

Situation	Action
I went to <code>teaching.beer-lab.org</code> and cannot find how to create the session	That is the students' page. Use <code>teaching-admin.beer-lab.org</code> → Open panel .
The panel asks for a username and password	Username admin and the lab's password. If you do not have it, write to <code>lab.economia@servicios.tec.mx</code> .
"Por favor espere" before starting	You have not created the session in that room yet, or the student opened another room (other language or edition). Once you create it, they are let in automatically.
"Please wait" for a long time during the game	Check Monitor : at least one person is missing, and the whole group waits. Ask them to reopen the room in the same browser; if they cannot, use Advance slowest participants (an advanced seller gets a price of 0 and an advanced buyer does not buy).
"La sesión está llena" (the session is full)	More students joined than were declared; the message is in Spanish even in the English rooms. Before starting: Close this room , a new session with the correct number, and everyone opens the link again.
The market never starts	More participants were declared than joined. Close the room and create a new session with the correct number.
A buyer can only choose "do not buy"	Their value is below every posted price. This is normal, especially for buyers with low or zero values.
A seller never sells	Their cost is high (120 or more) or their price is above the others'. It is part of the game.
"I chose a seller and did not buy"	Another buyer chose the same seller and won the draw.
"The price cannot be below your cost"	The seller tried a price below their cost; they must post one at or above it.
Several tabs of the same browser are the same participant	This is normal with the room link. To rehearse, use Demo .
Not Found on a <code>/p/...</code> link	The individual link belongs to an earlier session. Share the room again (link or QR code), not the individual link.
I want to see a session from another day	Panel → Sessions → the session → Report or Data .
Report without data	No period is complete yet. Wait and click Refresh .

9.3 Data for later analysis

Data → **Custom export (posted_offer)** provides one row per participant and period: session, anonymous code, period, language, edition, treatment, chat, role (**buyer/seller**), rank, value or cost, posted price (sellers), chosen seller (buyers; the seller's internal identifier in the group, which does not match the number participants see, and 0 if they did not buy), whether they traded, trade price, earnings, and comprehension attempts. Chat messages are in **Data** → **Chat**. Treat

the periods of one session as dependent.

Annotated bibliography

- [Smith \(1962\)](#): the founding market experiment with induced values and costs and the double auction.
- [Plott and Smith \(1978\)](#): first experimental comparison between a posted-price institution and the oral auction.
- [Ketcham et al. \(1984\)](#): direct comparison between seller posted offers and the double auction.
- [Isaac et al. \(1984\)](#): market organization and conspiracies among sellers.
- [Plott \(1986\)](#): implications of posted-price institutions.
- [Davis and Holt \(1993\)](#): experimental economics textbook; description of the posted-offer mechanism.
- [Holt \(1995\)](#): survey of industrial organization experiments, including market power under posted prices.

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- Smith, V. L. (1962). An experimental study of competitive market behavior. *Journal of Political Economy*, 70(2), 111–137. [doi:10.1086/258609](https://doi.org/10.1086/258609).

QR codes of the rooms

Project or print the page for the room you will use. Students scan it with their phone camera and click **Start**.

Posted-Offer Market

English room



`postedoffer.beer-lab.org/room/posted_offer_en`

Scan the code and press **Start**.

Posted-Offer Market

English room, extended version



`postedoffer.beer-lab.org/room/posted_offer_extended`

Scan the code and press **Start**.

Posted-Offer Market

Sala en español



postedoffer.beer-lab.org/room/posted_offer_es

Escanee el código y pulse **Comenzar**.

Posted-Offer Market

Sala en español, versión extendida



`postedoffer.beer-lab.org/room/posted_offer_extendido`

Escanee el código y pulse **Comenzar**.