

Who Bears a Per-Unit Tax?

AP Microeconomics | Unit 2: Supply and Demand

New original free-sample lesson. This is not an excerpt from a paid lesson.

Page 1: The bottle market

Aim: How can a graph show who bears a tax, what the government receives, and which trades no longer happen?

This lesson uses a hypothetical competitive market for reusable bottles. The numbers are **illustrative simulated data**, not observations of an actual market. Quantity is measured in **bottles per day**. Every price is in **dollars per bottle**.

Assume straight-line demand and supply, no external costs or benefits, no other market failure, and no other policy change. The tax is fully collected, with no avoidance. Connect the table points with straight lines and treat quantity as continuous when measuring areas.

1. Predict before calculating. Sellers will have to send a tax to the government. Who do you predict will bear its economic burden: buyers, sellers, or both? Give a reason. This prediction is ungraded. Revisit it after task 7.

My prediction and reason:

Your market data

The final column is for task 3. Leave it blank until you reach that task.

Quantity, bottles/day	Price on demand, dollars/bottle	Original supply price, dollars/bottle	Seller asking price with tax, dollars/bottle
0	12	0	_____
4	10	2	_____
8	8	4	_____
12	6	6	_____
16	4	8	_____
20	2	10	_____
24	0	12	_____

The same schedules can be written as: demand price = $12 - Q/2$; original supply price = $Q/2$. You may use the table, these equations, or both.

Keep these meanings separate: remit means send a payment to the government; buyer price means the amount paid for a bottle; seller receipt means the amount the seller keeps after remitting tax.

Economic incidence concerns how the burden is divided.

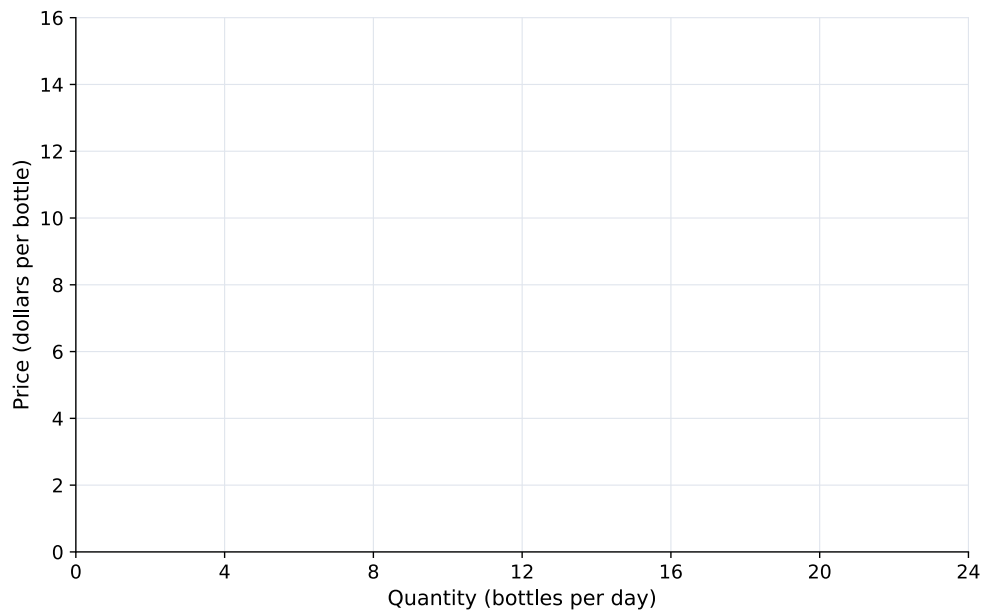
Page 2: Make the model visible

2. Establish the starting point. Use the table to graph demand **D** and original supply **S** on the blank axes. Label their original equilibrium **E0**, quantity **Q0**, and price **P0**. Include units.

Q0 = _____ bottles/day. P0 = \$_____ per bottle.

3. Add the policy. A **\$4 tax per bottle** is imposed on sellers. For each bottle sold, sellers must remit \$4 to the government. Complete the final table column on page 1 by adding the tax to each original supply price.

4. Locate the new outcome. On the same graph, draw **S + tax**. Label the new equilibrium **Etax**, quantity **Qt**, and buyer price **Pb**. At Qt, mark the seller receipt **Ps** on the original supply curve. Mark the vertical tax wedge between Pb and Ps.



Qt = _____ bottles/day. Pb = \$_____ per bottle. Ps = \$_____ per bottle.

Wedge check: \$_____ - \$_____ = \$4 per bottle.

Graph checklist: units on both axes; all three curves named; original and new equilibria marked; buyer price and seller receipt read at the same new quantity.

Page 3: Account for the burden

5. Complete the before-and-after accounting. Use your graph to complete the table. Calculate each group's burden per bottle relative to P_0 , its total burden on the bottles still traded, and its percentage share of the \$4 tax. Show working and units.

Measure	Before the tax	After the tax
Quantity traded, bottles/day	_____	_____
Buyer price, dollars/bottle	_____	_____
Seller receipt, dollars/bottle	_____	_____

Burden measure	Buyers	Sellers
Burden per traded bottle, dollars/bottle	_____	_____
Total burden on traded bottles, dollars/day	_____	_____
Percentage share of the per-unit tax	_____ %	_____ %

Use these calculation frames:

- Buyers' burden per bottle = $P_b - P_0$.
- Sellers' burden per bottle = $P_0 - P_s$.
- Each group's burden on traded bottles = its burden per bottle $\times$ Q_t .
- Each percentage share = its burden per bottle $\div$ \$4 $\times$ 100.

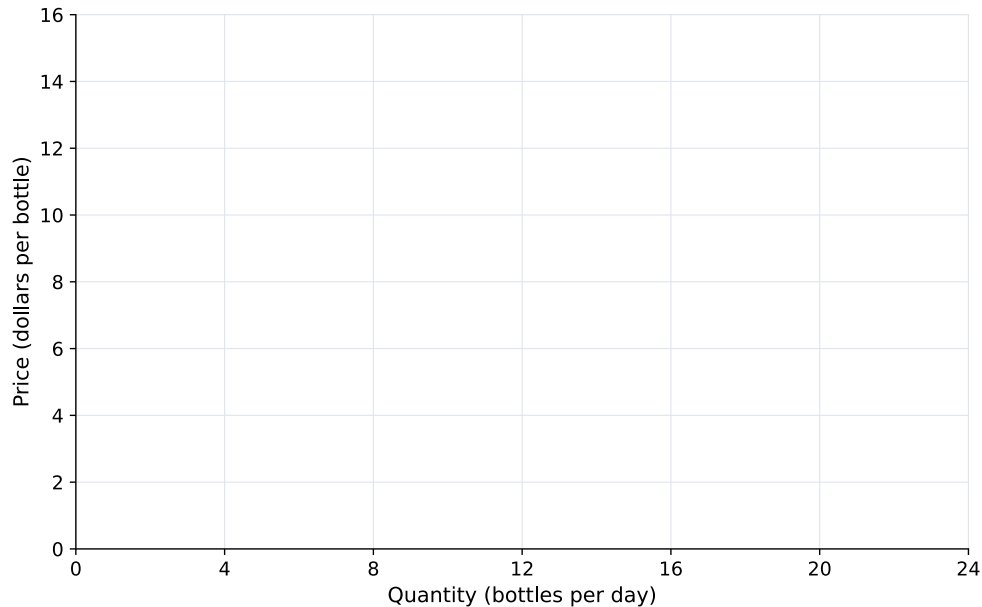
Buyers' working:

Sellers' working:

Checks: the two per-bottle burdens must add to the per-unit tax; the two shares must add to 100%. These burdens concern bottles still traded, not the lost surplus on trades that stop.

Page 4: Separate a transfer from a loss

6. Show and calculate the two areas. On your page 2 graph, shade and label the government-revenue rectangle and the deadweight-loss triangle. Use different patterns, such as stripes and dots, so they remain distinct in black-and-white printing. The extra blank axes below are available if you want a clean copy.



Area reminders: rectangle area = height $\times$ width; triangle area = $\frac{1}{2} \times$ base $\times$ height. A price difference in dollars/bottle multiplied by a quantity in bottles/day gives dollars/day.

Government tax revenue: \$_____ per bottle $\times$ _____ bottles/day = \$_____ per day.

Deadweight loss: $\frac{1}{2} \times$ \$_____ per bottle $\times$ _____ bottles/day = \$_____ per day.

Explain why the quantity traded falls. Identify the quantity interval of foregone trades and calculate the reduction in bottles/day. Use the continuous straight-line area model, rather than adding surpluses for individually numbered bottles.

Why should the rectangle and triangle have different economic meanings?

Page 5: Test the explanation

7. Evaluate a claim. A commentator says, "Sellers send the tax to government, so sellers must bear all of it." Evaluate that claim using prices from your graph. Under this stipulated model, would collecting the same tax from buyers instead change economic incidence? Explain. Then revisit your task 1 prediction.

My claim, price evidence, and explanation:

If buyers remitted the same tax under the stated assumptions:

My task 1 prediction was supported or revised because:

8. Transfer the reasoning. In another market, demand is less price-responsive **in percentage terms** than supply at the relevant equilibrium. Which side would bear more of a positive per-unit tax? Explain. Do not use slope alone as a universal measure of elasticity.

The side that bears more and why:

Page 6: Individual exit check

Use the same bottle-market model. Choose **one** answer for each question. Work independently.

9. After the \$4 tax, the equilibrium quantity is:

- A. 4 bottles/day
- B. 8 bottles/day
- C. 12 bottles/day
- D. 16 bottles/day

My choice: _____

10. After the tax, sellers retain:

- A. \$8 per bottle
- B. \$6 per bottle
- C. \$0 per bottle
- D. \$4 per bottle

My choice: _____

11. Daily government tax revenue is:

- A. \$32 per day
- B. \$48 per day
- C. \$64 per day
- D. \$96 per day

My choice: _____

12. Which condition tends to put a larger per-unit burden on buyers?

- A. Demand more elastic than supply
- B. Perfectly elastic demand
- C. Demand more inelastic than supply
- D. Sellers legally remit the tax

My choice: _____

Framework reference

This original practice lesson addresses AP Microeconomics Topic 2.8 and graphing skill 4.C in the [College Board course framework, effective Fall 2026](#), printed page 55 (PDF page 62). It is independently authored practice, not a College Board exam item or endorsed product.