



Today's Lecture

Finish Chapter 6 – Government
Intervention

AND

and Chapter 7 – Economic Well
Being



**Legal of statutory
incidence**

**Actual or economic
incidence of the tax**

IV. TAXES IN THE MARKET MODEL, p. 107

- The curve of the party bearing the legal incidence of the tax will shift by the per unit dollar amount of the tax., p.107

When a tax shifts the demand curve: If consumers bear the legal incidence of the tax, the demand curve will shift down vertically by the dollar amount of the per unit tax.

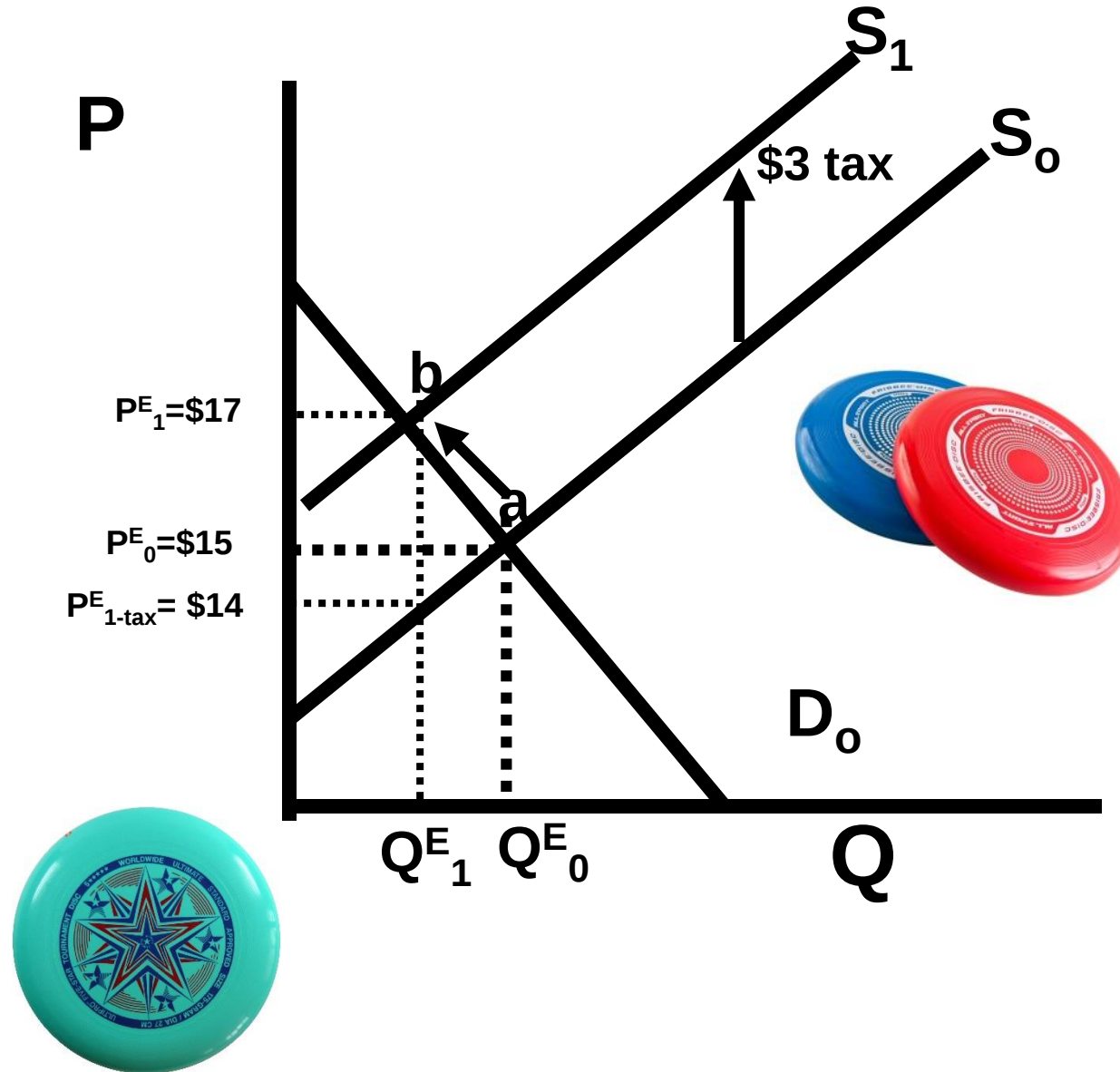


When a tax shifts the supply curve: If producers have legal incidence, the supply curve will shift upward vertically by the dollar amount of the per unit tax.



Frisbees Market where $P^E = \$15$

Government imposes a \$3 per unit excise tax on Frisbees.



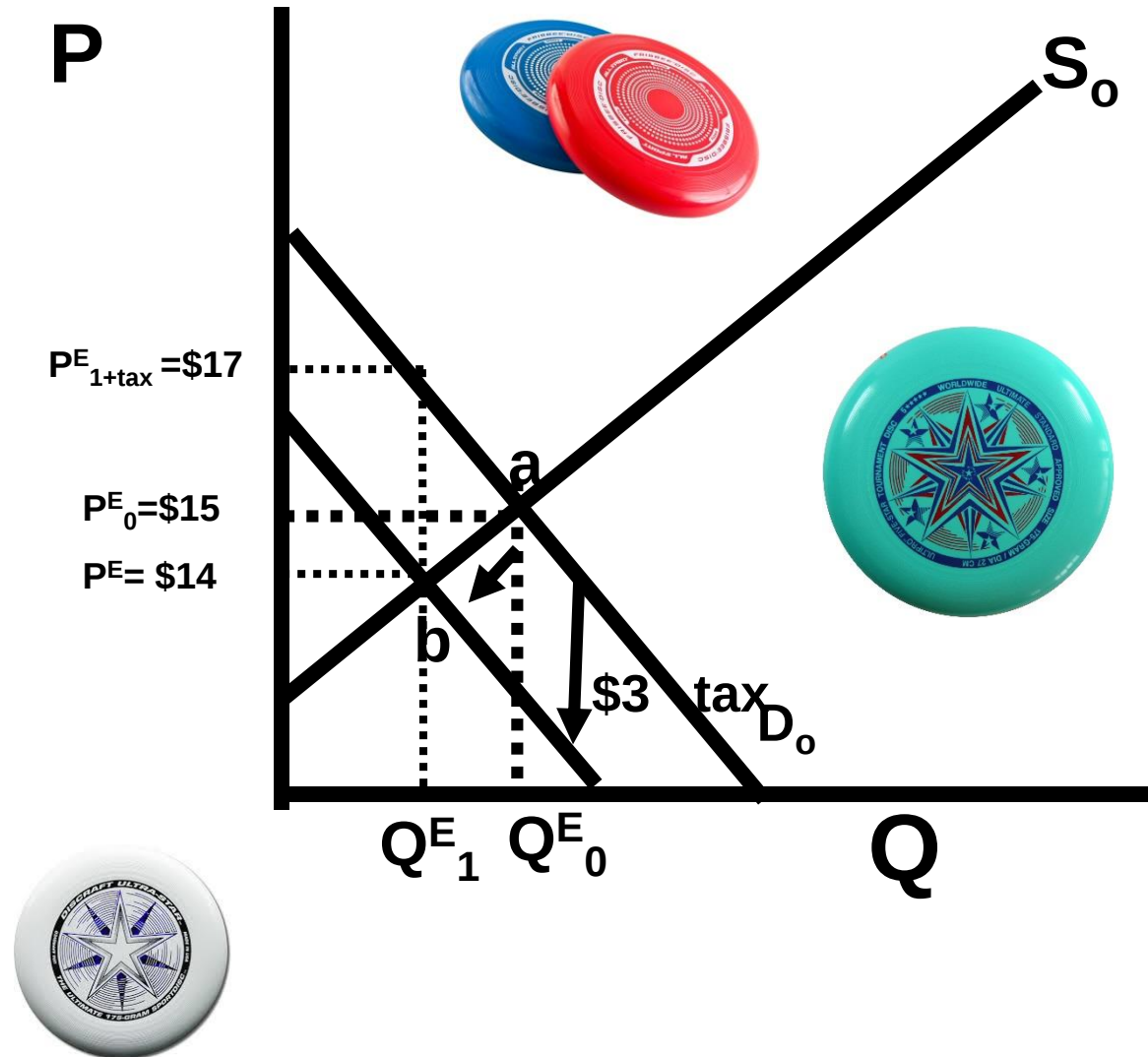
Producers bear legal tax incidence
Supply Shifts

- Price rises by \$2.00.
- The consumer pays \$2.00 of the tax (actual incidence)
- Producers sell product for \$17 but only get to keep \$14.
-
- Producer pays the remaining \$1.00 of tax burden.

Consumers bearing legal tax incidence

Demand Shifts, p. 108

- Price falls by \$1.00.



- The consumer pays \$2.00 of the tax (actual incidence)
- Producers sell product for \$14 instead of \$15.
- Producer pays the remaining \$1.00 of tax burden.

Tax equivalence, P.108

The impact of the tax is the same whether producers bear legal incidence or consumers bear legal incidence.

- fewer frisbees bought

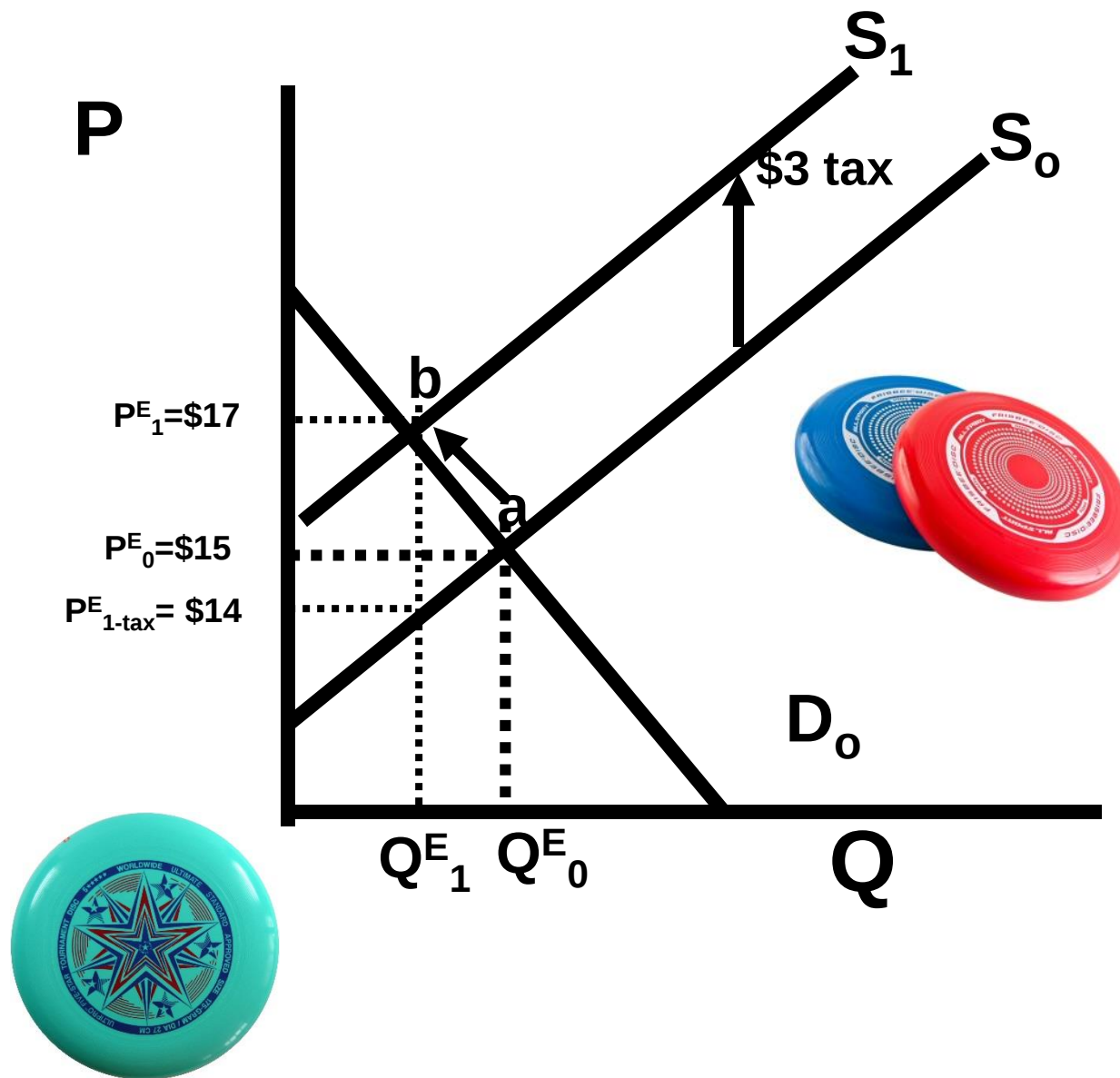
- \$2 actual incidence to consumer and \$1 to producer

V. Elasticity and Actual Tax Incidence, p. 109

Economic or actual incidence of a tax will depend on the relative elasticities of supply and demand.

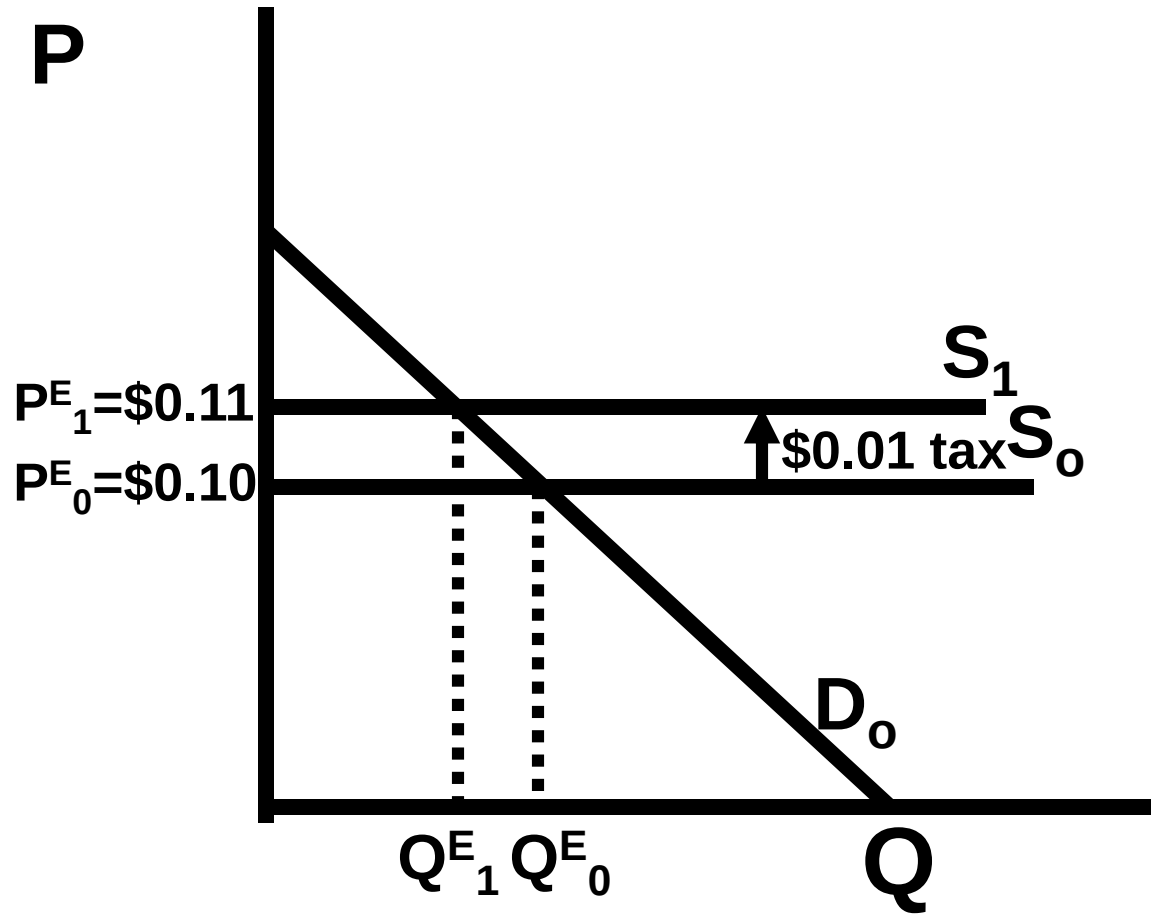
i.e. are consumers more flexible or are producers more flexible?

Case I: Frisbees Market where $P^E = \$15$, p. 109 or first graph on 108
Government imposes a \$3 per unit excise tax on Frisbees.



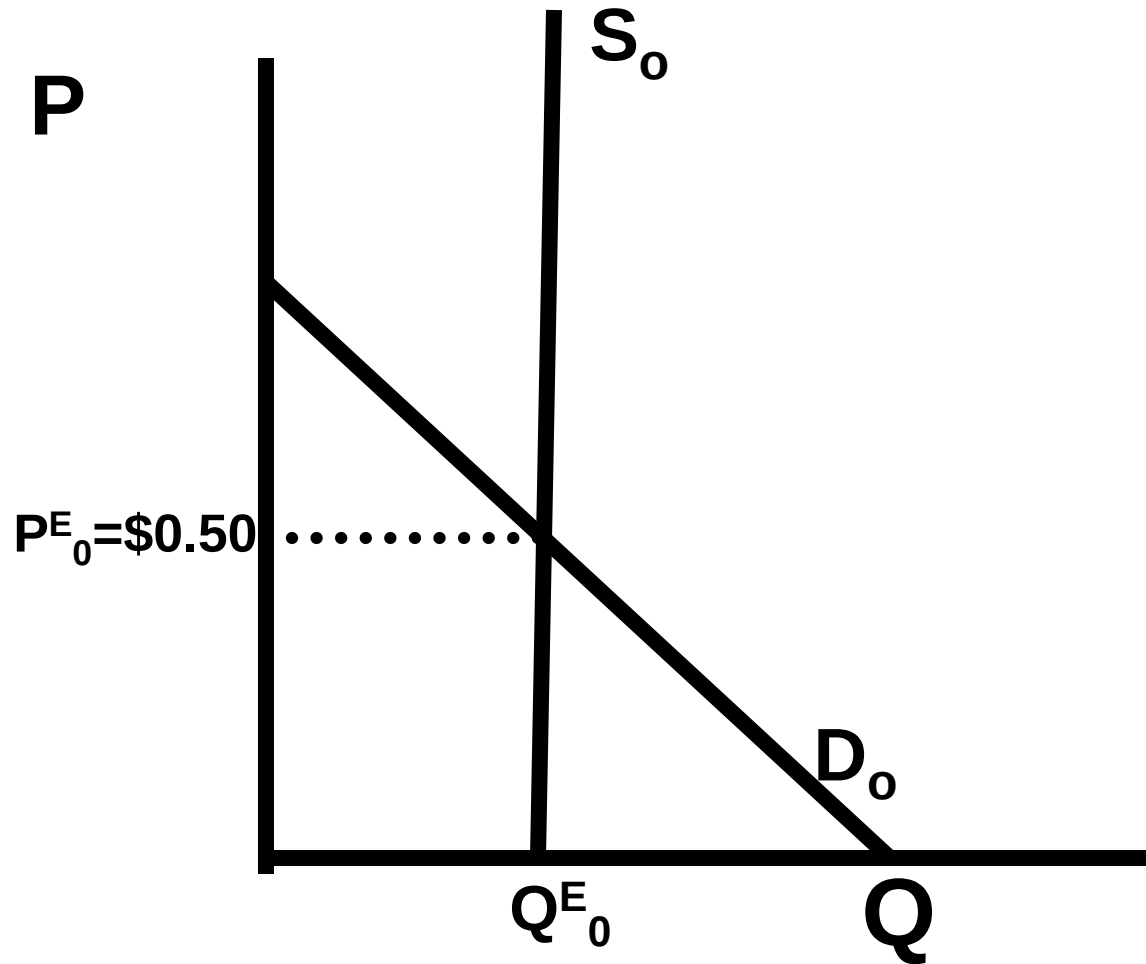
**Producers bear legal tax
incidence
Supply Shifts**

- Price rises by \$2.00.
- Consumer pays \$2.00 of the tax (actual incidence)
- Producers sells for \$17 but only keeps \$14.
- Producer pays remaining \$1.00 of tax burden.
- Who is more elastic?
- Producers



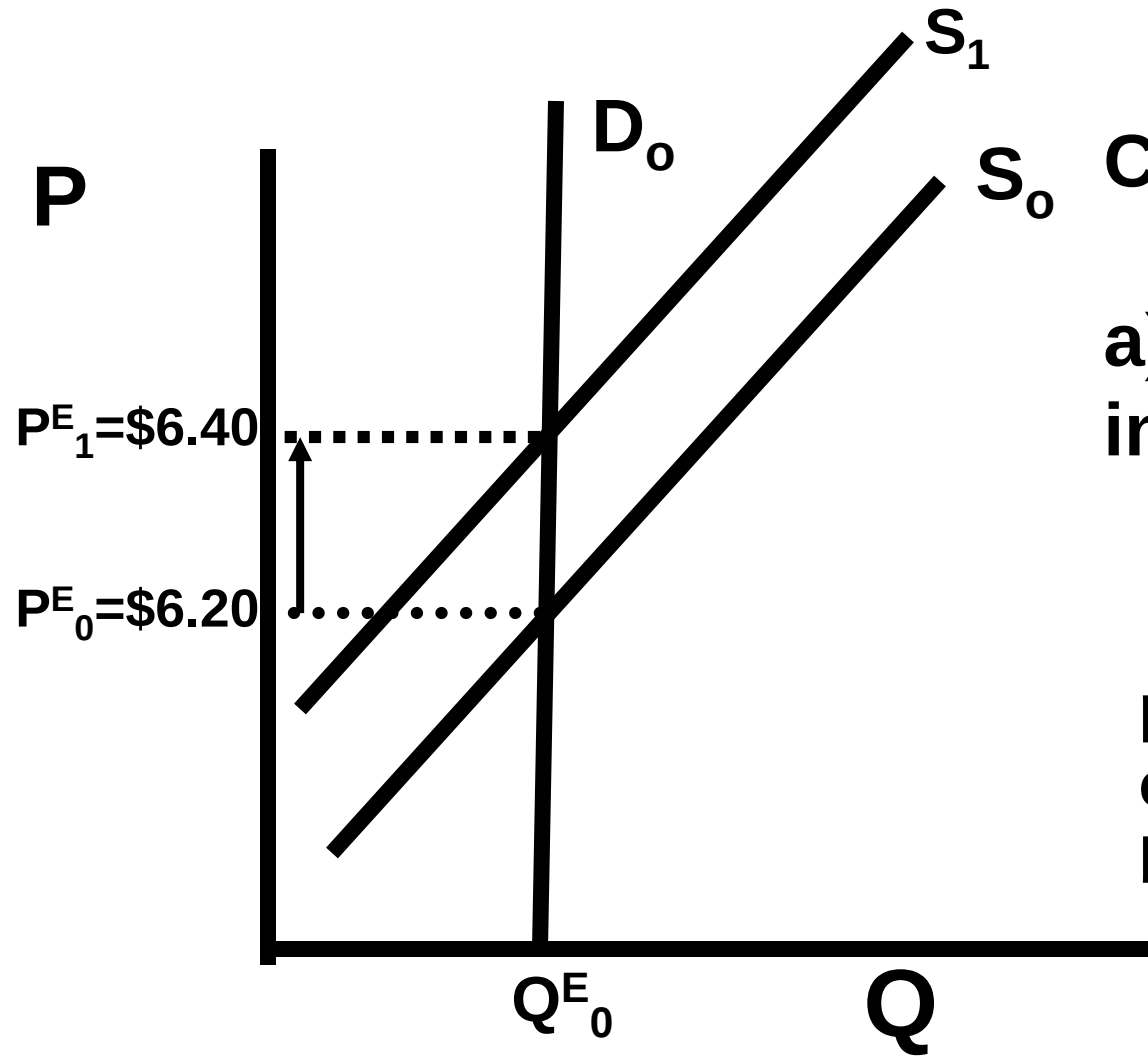
Case II: a)
p. 110

- **Perfectly elastic supply**
- **Price rises 1 cent so consumers bear full burden**



b) p. 110

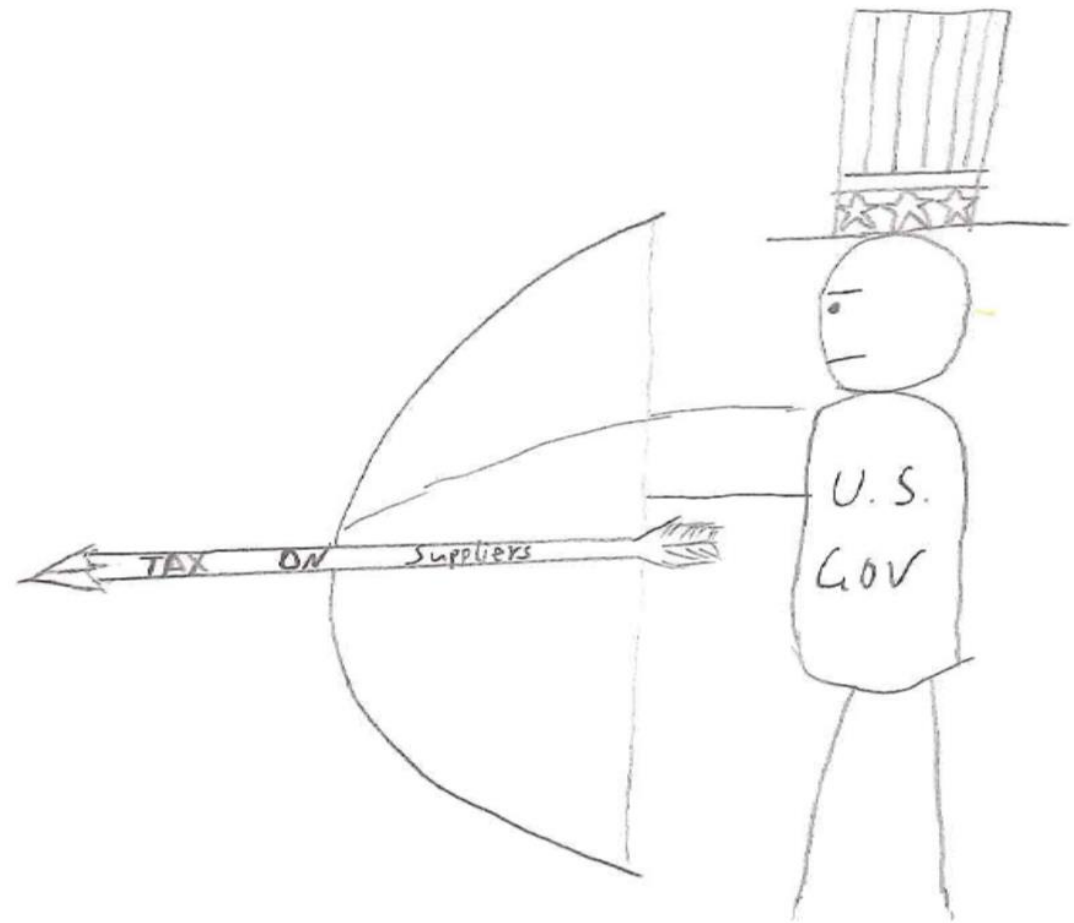
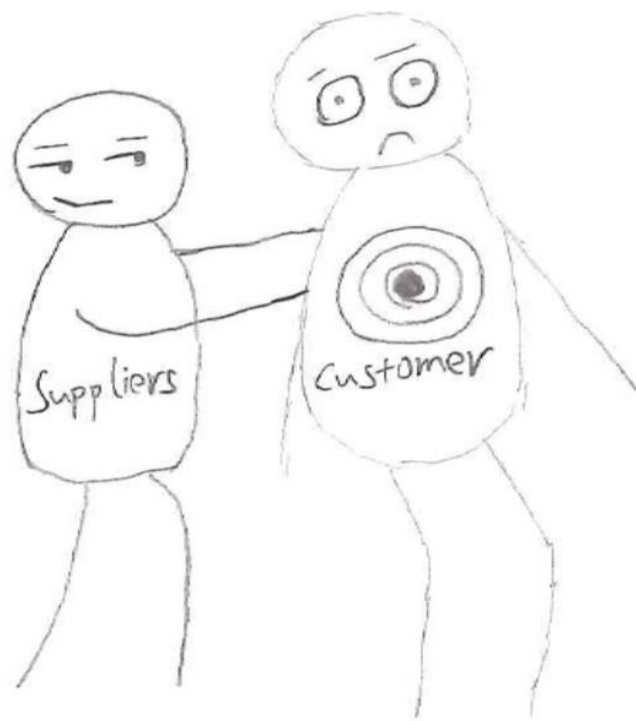
- **Perfectly inelastic supply**
- Producer bears full burden of tax

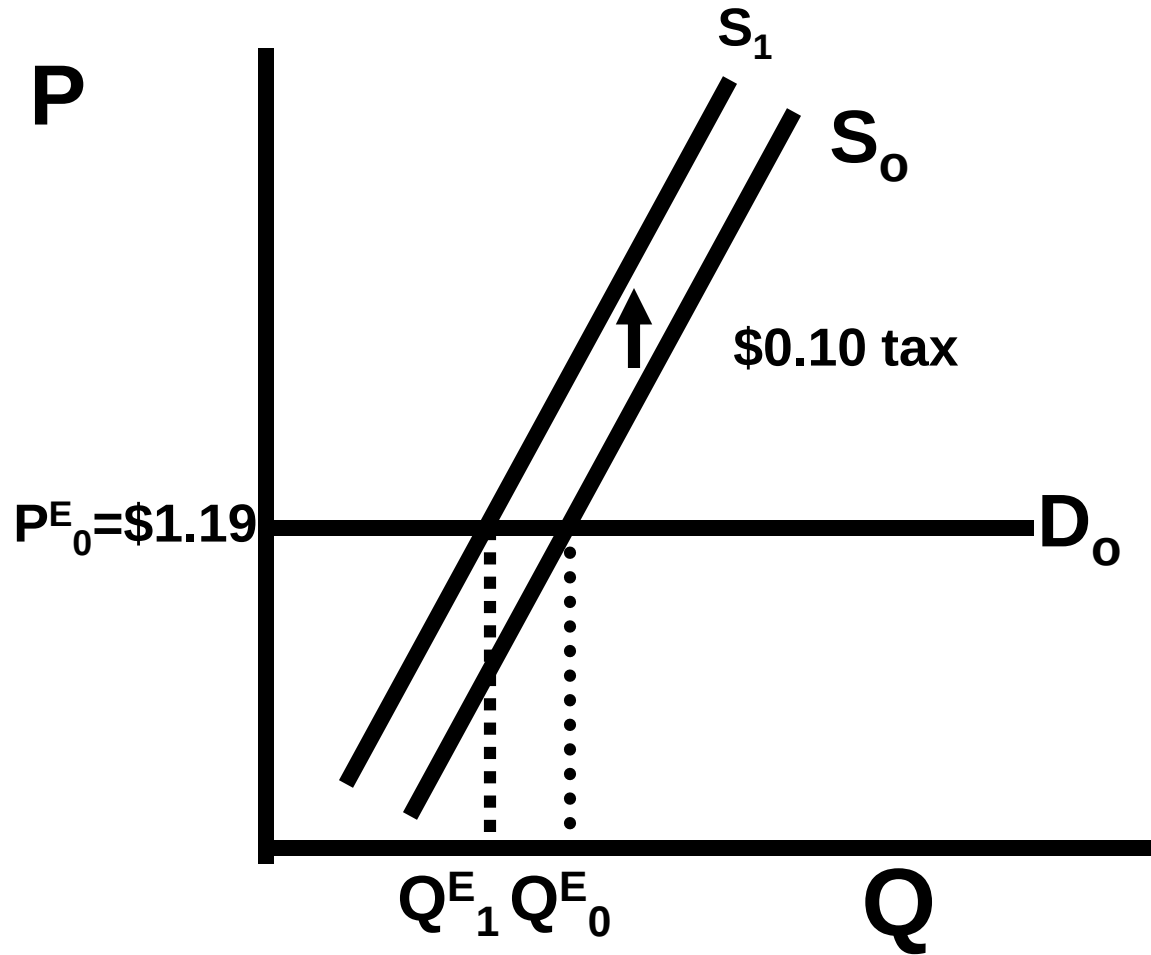


Case III: p. 110

**a) Perfectly
inelastic demand**

**price rises by 20 cents
consumer bears full
burden of tax**





**b) Perfectly
elastic
demand
p.111**

- Price does not change
- Seller bears the full burden of the tax.

Summary

p. 111

When comparing producers and consumers – whoever's curve is most elastic bears the least of the actual tax incidence.



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1) If the government imposes a \$500 excise tax on imported cars and the market price increases by \$100, what is the actual incidence of the tax to consumers?

A. \$0

B. \$100

C. \$400

D. \$500

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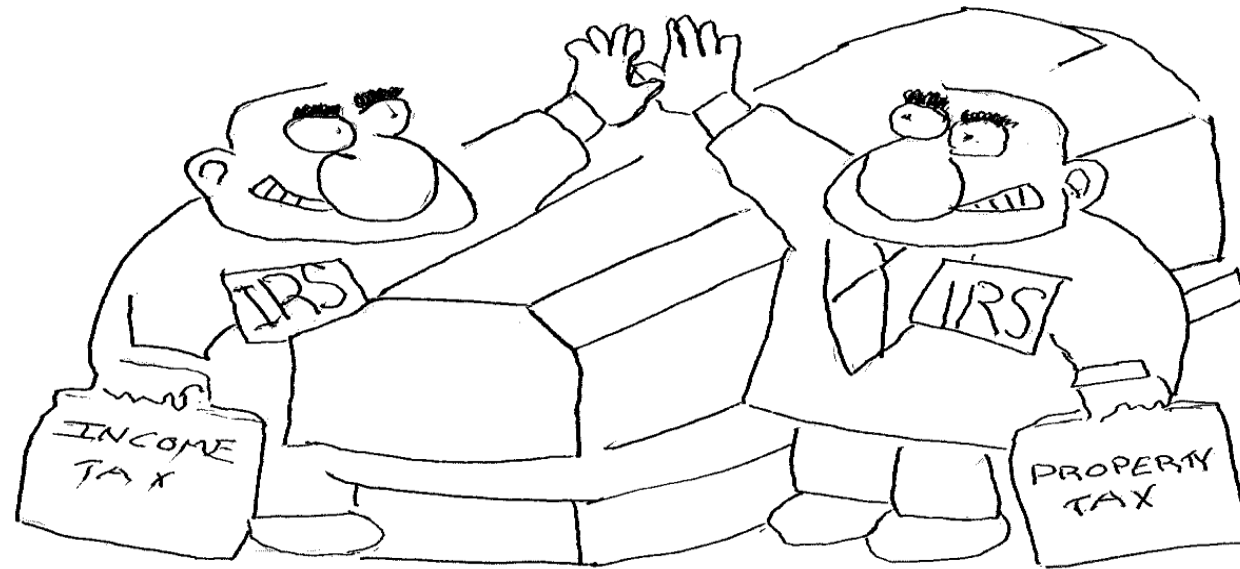


2) Assuming there is a \$500 excise tax and consumers bear \$100 of the tax burden while producers bear \$400 of the tax burden, which curve is relatively more elastic?

A. Demand

B. Supply

Death & Taxes are...



INEVITABLE. - HALIBURTON



Income Taxes,
p. 112

My
Grandfather's
Favorite Joke

INCOME TAXES

Local around 2.9%
“occupational license fee”

State around 6%

Federal -schedule

Version H, Cycle 1

Form **1040** Department of the Treasury—Internal Revenue Service (99) **2018** U.S. Individual Income Tax Return OMB No. 1545-0074 IRS Use Only—Do not write or staple in this space.

Filing status: ☐ Single ☐ Married filing jointly ☐ Married filing separately ☐ Qualifying widow(er) ☐ Head of household

Your first name and initial Last name Your social security number

Your standard deduction: ☐ Someone can claim you as a dependent ☐ You were born before January 2, 1954 ☐ You are blind

Spouse or qualifying person's first name and initial (see inst.) Last name Spouse's social security number

Spouse standard deduction: ☐ Someone can claim your spouse as a dependent ☐ Your spouse was born before January 2, 1954 ☐ Your spouse is blind ☐ Your spouse itemizes on a separate return or you were dual-status alien

Home address (number and street). If you have a P.O. box, see instructions. Apt. no. ☐ Full-year health care coverage (see instructions)

City, town or post office, state, and ZIP code. If you have a foreign address, attach Schedule 6. If more than four dependents, see instructions and check here . . . ▶ ☐

Dependents (see instructions):		(2) Social security number	(3) Relationship to you	(4) ✓ If qualifies for (see inst.):	
(1) First name	Last name			Child tax credit	Credit for other dependents
				☐	☐
				☐	☐
				☐	☐
				☐	☐

Sign Here Under penalties of perjury, I declare that I have examined this return and accompanying schedules and statements, and to the best of my knowledge and belief, they are true, correct, and complete. Declaration of preparer (other than taxpayer) is based on all information of which preparer has any knowledge.

Joint return? See instructions. Keep a copy for your records. ▶

Your signature Date Your occupation If the IRS sent you an Identity Protection PIN, enter it here (see inst.)

Spouse's signature. If a joint return, **both** must sign. Date Spouse's occupation If the IRS sent you an Identity Protection PIN, enter it here (see inst.)

Paid Preparers Print/Type preparer's name Preparer's signature PTIN Check if: ☐ 3rd Party Designee ☐ Self-employed

Firm's name ▶ Firm's EIN ▶

For Disclosure, Privacy Act, and Paperwork Reduction Act Notice, see separate instructions. Cat. No. 11320B Form **1040** (2018)

Average Tax Rate (ATR)

- Tax liability divided by taxable income. The percentage of income paid in taxes.



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3) If you earn \$20,000 a year and pay \$2,000 in taxes, your average tax rate is

A. \$20,000/\$2,000 or 10

B. \$2,000/\$20,000 or 10%

C. \$2,000

D. \$18,000

Marginal Tax Rate (MTR)



$(\text{additional tax liability}) / (\text{additional taxable income})$

- % of an extra dollar of income earned that must be paid in taxes
-

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4) John was able to pick up an additional shift working at his job. This increased his annual salary from \$40,000 to \$50,000 and as a result his tax liability increased by \$2,500. What is John's **MARGINAL TAX RATE**?

- A. \$10,000
- B. \$2,500
- C. 20%
- D. 25%
- E. 5%

4) John was able to pick up an additional shift working at his job. This increased his annual salary from \$40,000 to \$50,000 and as a result his tax liability increased by \$2,500. What is John's **MARGINAL TAX RATE**?

A. \$10,000

B. \$2,500

C. 20%

D. 25%

E. 5%

- Marginal Tax Rate = change in tax liability/change in income
- $MTR = 2,500 / 10,000 = 25\%$

2017 US Marginal Income Tax Rates

Single filers Taxable income (up to)	Current marginal rate
\$9,325	10%
\$37,950	15%
\$91,900	25%
\$191,650	28%
\$416,700	33%
\$418,400	35%
Over \$418,400	39.6%

BEFORE REFORM

Standard deduction \$6,350

Personal Exemption \$4,050

2018 US Marginal Income Tax Rates

Tax bracket	Single
10%	0–\$9,525
12%	\$9,525–\$38,700
22%	\$38,700–\$82,500
24%	\$82,500–\$157,500
32%	\$157,500–\$200,000
35%	\$200,000–\$500,000
37%	\$500,000 and up

AFTER REFORM

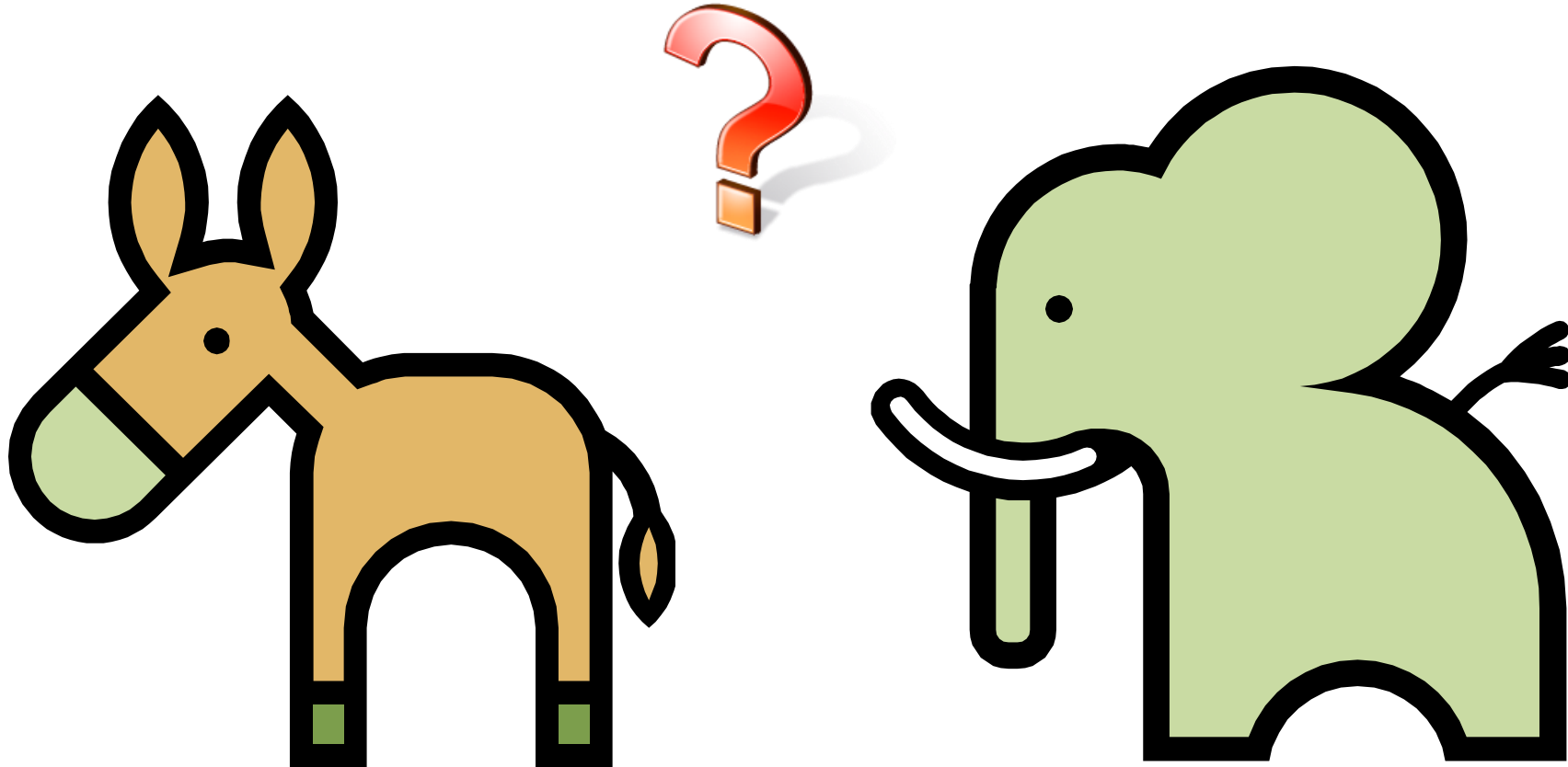
Standard deduction \$12,000

Personal Exemption -eliminated

Definitions on Page 112 in packet

- A progressive tax –A tax in which the average tax rate rises with income. People with higher incomes will pay higher percentage of their income in taxes.
- A regressive tax -A tax in which the average tax rate falls with income. People with higher incomes will pay smaller percentage of their income in taxes.
- A proportional tax – a tax in which the average rate is the same at all income levels. Everyone pays the same percentage of income in taxes.

- **Progressive Income Tax**
- **(Ability-to-pay – Principle of Taxation)**



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5) Carla lives in a country where the first \$20,000 anyone earns is taxed at 20% and any income beyond \$20,000 is taxed at a rate of 10%. If Carla earned \$50,000 this past year in her job, what is Carla's total TAX LIABILITY? (i.e. How much must she pay in taxes?)

- A. \$3,000
- B. \$4,000
- C. \$5,000
- D. \$7,000
- E. \$10,000

5) Carla lives in a country where the first \$20,000 anyone earns is taxed at 20% and any income beyond \$20,000 is taxed at a rate of 10%. If Carla earned \$50,000 this past year in her job, what is Carla's total TAX LIABILITY? (i.e. How much must she pay in taxes?)

- A. \$3,000
- B. \$4,000
- C. \$5,000
- D. \$7,000
- E. \$10,000

- **Tax Liability = \$20,000 X .2 + \$30,000 X .1**

- **Tax Liability = \$4,000 + \$3,000 = \$7,000**

Chapter 7: Consumers, Producers, and the Efficiency of Markets, p. 117



Outline: (Welfare Economics)

- I. Consumer surplus
- II. Producer surplus
- III. Market Efficiency



How do we measure well
being?

- Physical Health?
- Academic Health?
- Financial Health?



Welfare Economics – The study of how the allocation of resources affects economic well-being

I. Consumer Surplus

The amount a buyer is willing to pay for a good (threshold value) minus the amount the buyer actually pays for it.

CS with Lots of Buyers & a Smooth D Curve, p. 118

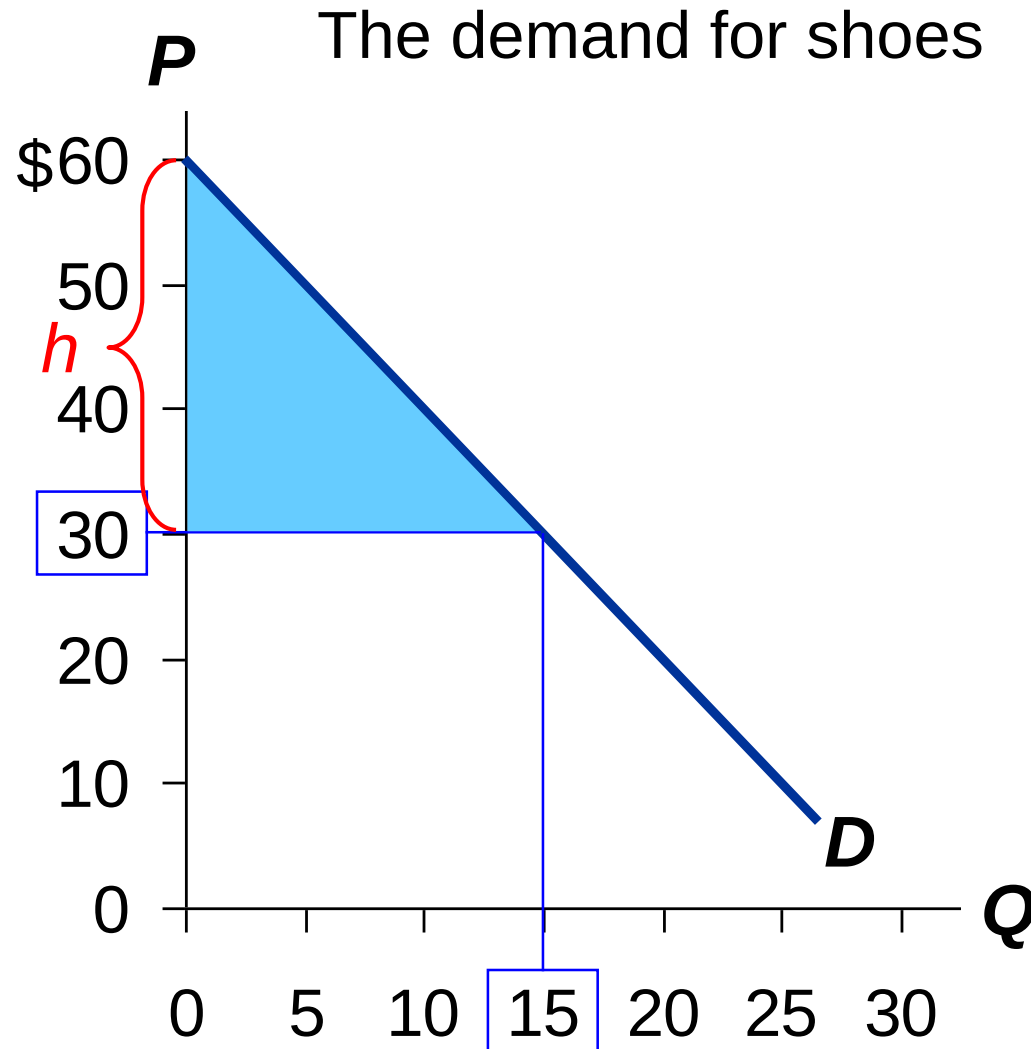
CS is the area b/w **P** and the **D** curve, from 0 to **Q**.

Recall: area of a triangle equals $\frac{1}{2} \times \text{base} \times \text{height}$

Height =
 $\$60 - 30 = \underline{\$30}$.

So,

$\text{CS} = \frac{1}{2} \times 15 \times \30
 $= \underline{\$225}$.

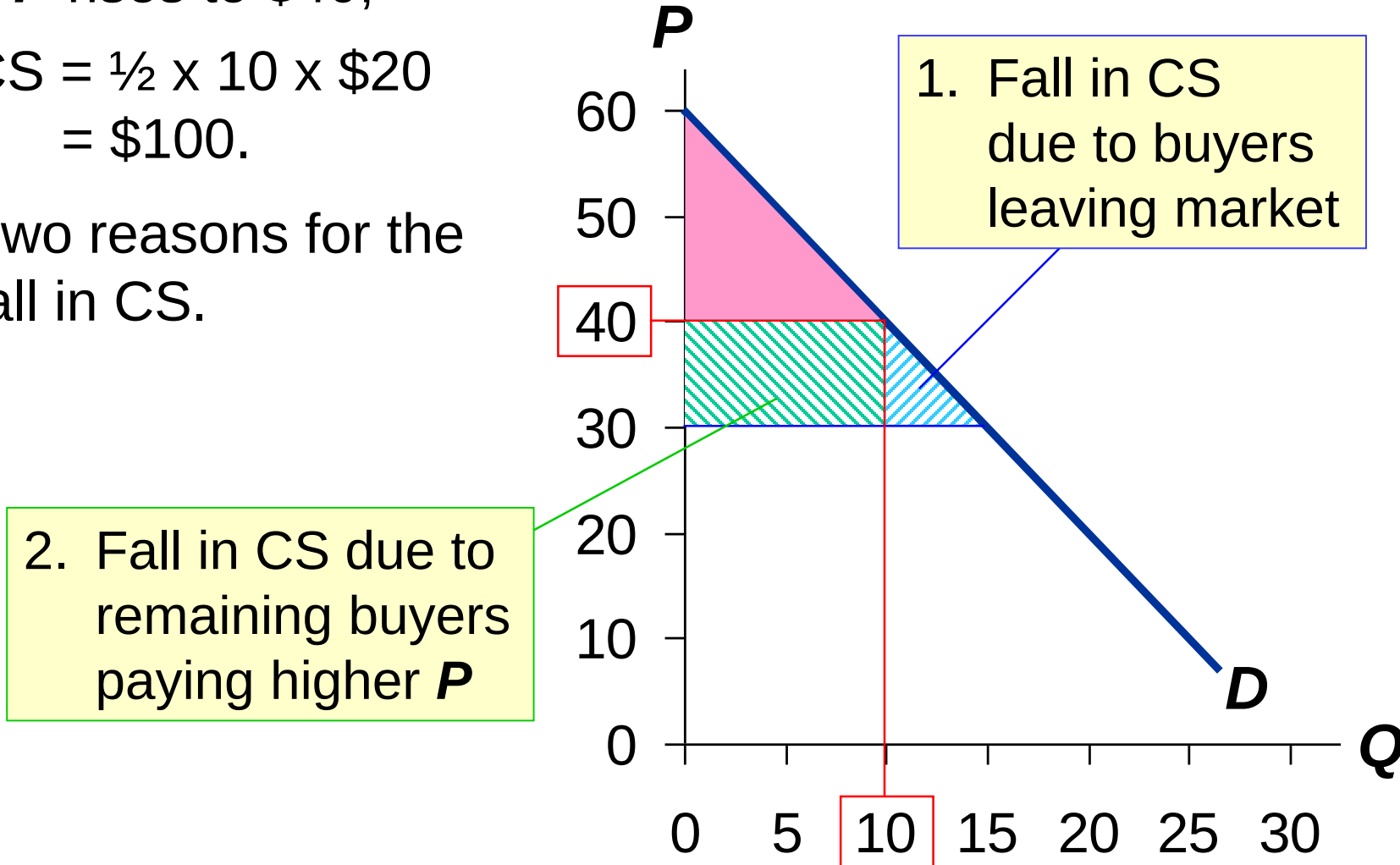


How a Higher Price Reduces CS

If P rises to \$40,

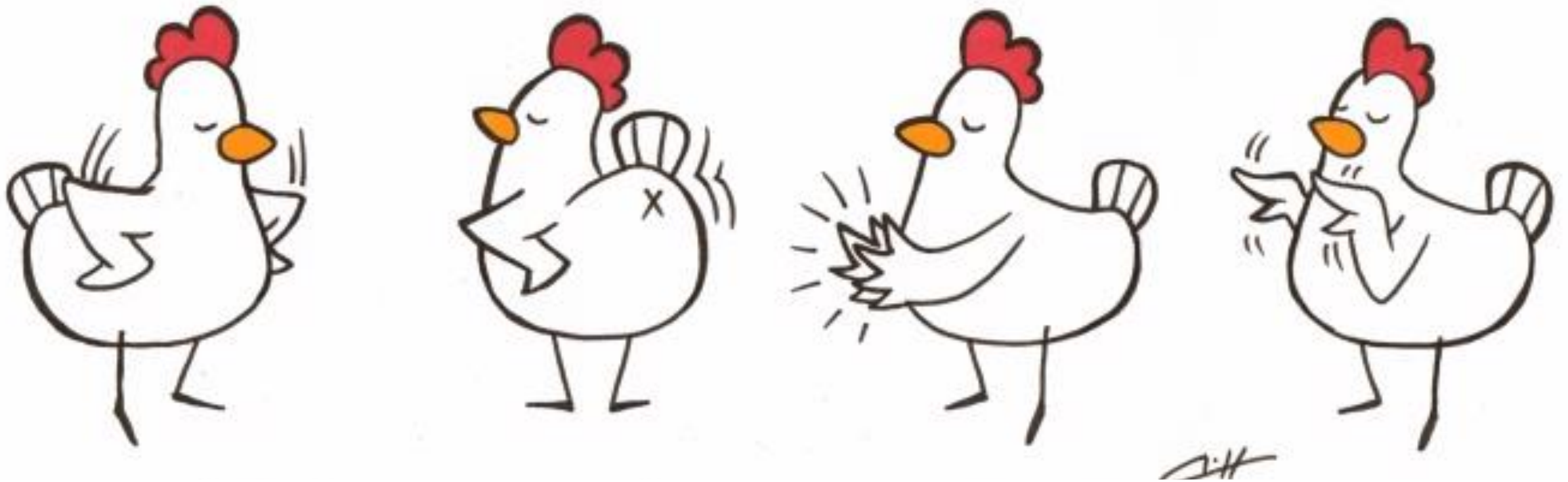
$$\begin{aligned} CS &= \frac{1}{2} \times 10 \times \$20 \\ &= \$100. \end{aligned}$$

Two reasons for the fall in CS.



II. Producer Surplus

The difference between the price suppliers actually receive (market price) and the minimum price they would be willing to accept (threshold value).



How much would you have to be paid to do the Chicken Dance alone in front of the class?

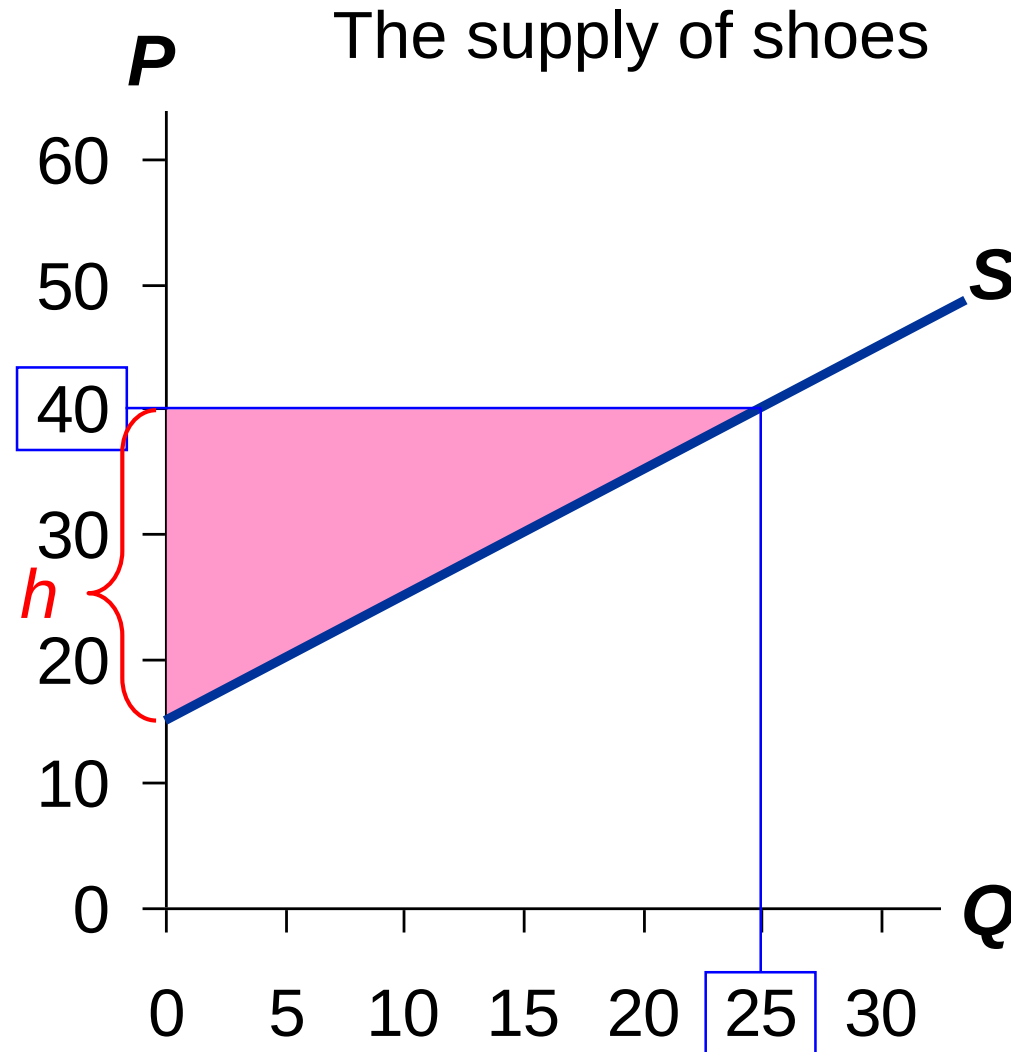
PS with Lots of Sellers & a Smooth S Curve, p. 120

PS is the area b/w
P and the **S** curve,
from 0 to **Q**.

The height of this
triangle is
 $\$40 - 15 = \25 .

So,

$$\begin{aligned} \text{PS} &= \frac{1}{2} \times b \times h \\ &= \frac{1}{2} \times 25 \times \$25 \\ &= \underline{\underline{\$312.50}} \end{aligned}$$



How a Lower Price Reduces PS

If P falls to \$30,

$$\begin{aligned} PS &= \frac{1}{2} \times 15 \times \$15 \\ &= \underline{\underline{\$112.50}} \end{aligned}$$

Two reasons for the fall in PS.

2. Fall in PS due to remaining sellers getting lower P

