

Econ 2010, Discussion Section

İlhan Güner

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Contact Info

- İlhan Güner
- ig7xs@virginia.edu
- Office: Monroe Hall 329
- Office Hours: Wednesday 5:15-7:15pm (Normally)
- Office Hours: Tuesday 5:15-7:15pm (Next Week)

Question

What is the general formula for an elasticity?

Answer

$$\frac{\text{Percentage change in } Q}{\text{Percentage change in } P} = \frac{\frac{Q_{new} - Q_{old}}{\frac{1}{2}(Q_{new} + Q_{old})}}{\frac{P_{new} - P_{old}}{\frac{1}{2}(P_{new} + P_{old})}}$$

Question

Calculate the following elasticities of Peanut Butter using the table below.

Quantity Demanded	Quantity Supplied	Price (of PB)	Income	Price of Jelly
2	9	\$25.00	\$64,000	\$16.00
4	3	\$15.00	\$50,000	\$8.00
12	2	\$4.50	\$30,000	\$4.00
20	1	\$1.50	\$8,000	\$2.00

- a) Price elasticity of demand: as the price of peanut butter goes from \$1.5 to \$4.5
- b) Price Elasticity of Supply: as the price of Peanut Butter goes from \$15 to \$25.
- c) Income Elasticity: as income goes from \$30,000 to \$50,000.
- d) Cross-Price elasticity with Jelly: as the price of jelly goes from \$4 to \$8.

Answer

- a) Price elasticity of demand: as the price of peanut butter goes from \$1.5 to \$4.5

$$\frac{\frac{12-20}{\frac{1}{2}(12+20)}}{\frac{4.5-1.5}{\frac{1}{2}(4.5+1.5)}} = \frac{-1/2}{1} = -1/2$$

Answer

- b) Price Elasticity of Supply: as the price of Peanut Butter goes from \$15 to \$25.

$$\frac{\frac{9-3}{\frac{1}{2}(9+3)}}{\frac{25-15}{\frac{1}{2}(25+15)}} = \frac{1}{\frac{10}{20}} = 2$$

Answer

c) Income Elasticity: as income goes from \$30,000 to \$50,000.

$$\frac{\frac{4-12}{\frac{1}{2}(4+12)}}{\frac{50000-30000}{\frac{1}{2}(50000+30000)}} = \frac{1/2}{1} = 1/2$$

Answer

- d) Cross-Price elasticity with Jelly: as the price of jelly goes from \$4 to \$8.

$$\frac{\frac{4-12}{\frac{1}{2}(4+12)}}{\frac{8-4}{\frac{1}{2}(8+4)}} = \frac{-1}{\frac{4}{6}} = -\frac{3}{2}$$

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Revenue vs Elasticity

Elasticity and Total Revenue

Prepare yourself for the simplest equation in business. (It should look familiar!)

$$\text{Total revenue} = TR = P \cdot Q$$

Q: number of units sold

P: the price at which these Q units are sold

General elasticity rules:

- $P \uparrow$ and $Ed < -1 \Rightarrow TR \downarrow$
- $P \uparrow$ and $-1 < Ed < 0 \Rightarrow TR \uparrow$
- $P \uparrow$ and $Ed = -1 \Rightarrow TR \text{ unchanged}$
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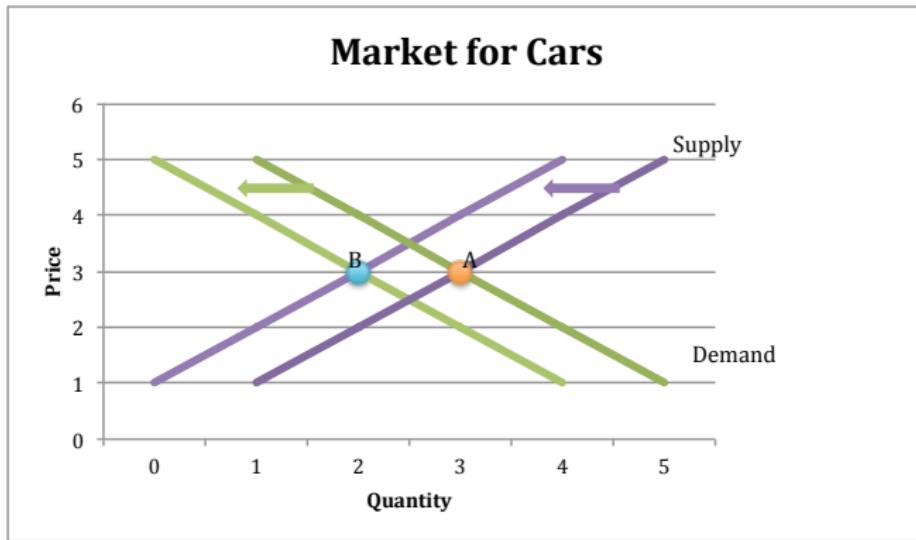
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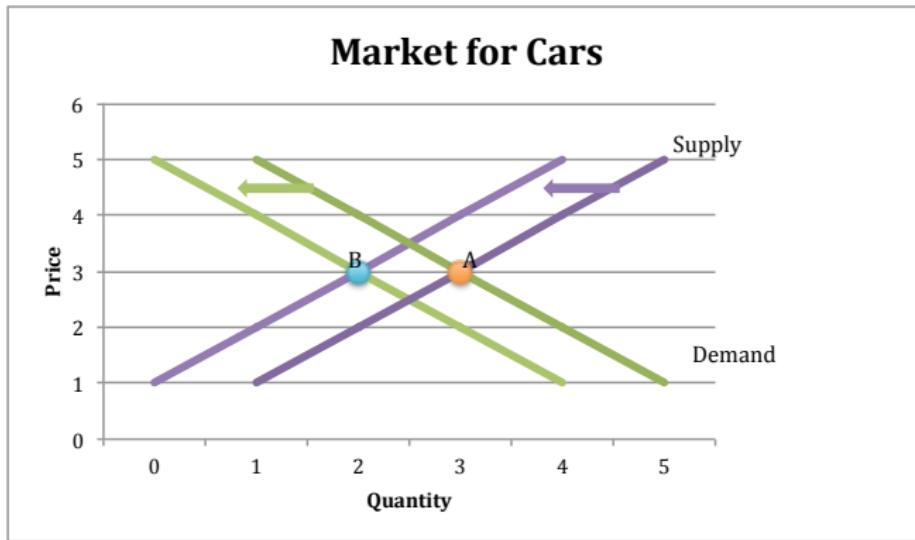
Question

The market for cars is in equilibrium. Then, a tax is imposed on both the production and the consumption of cars (i.e., on both sellers and buyers). Use a diagram to show the effect of these taxes on equilibrium price and quantity in the market for cars.

Answer

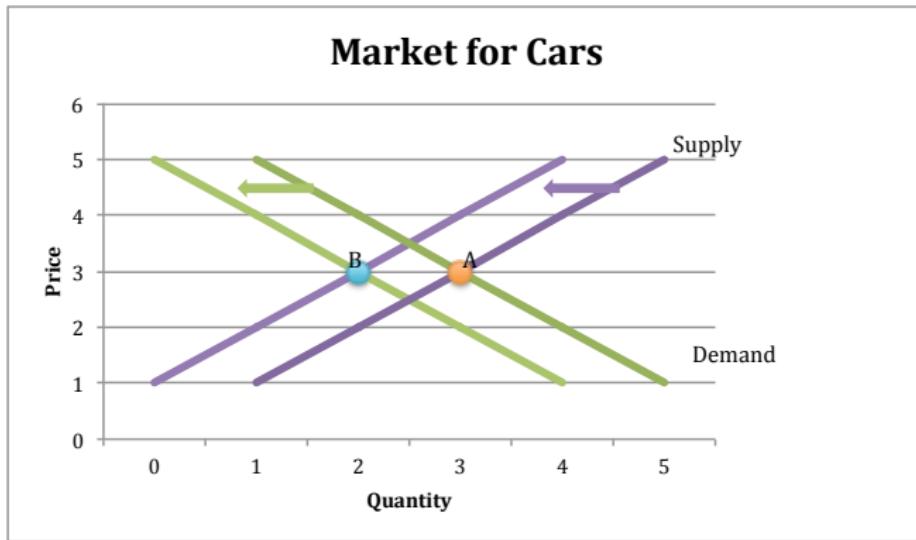


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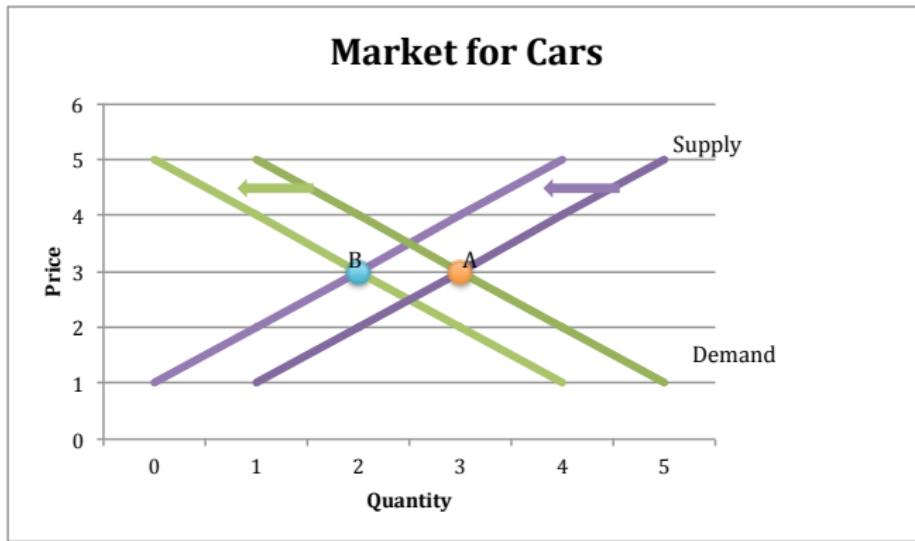
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Overall: $P?, Q \downarrow$

Question

In Rolling Stone magazine, several fans and rock stars, including Pearl Jam, were bemoaning the high price of concert tickets. One superstar argued, 'It just isn't worth \$75 to see me play. No one should have to pay that much to go to a concert.' Assume this star sold out arenas around the country at an average ticket price of \$75.

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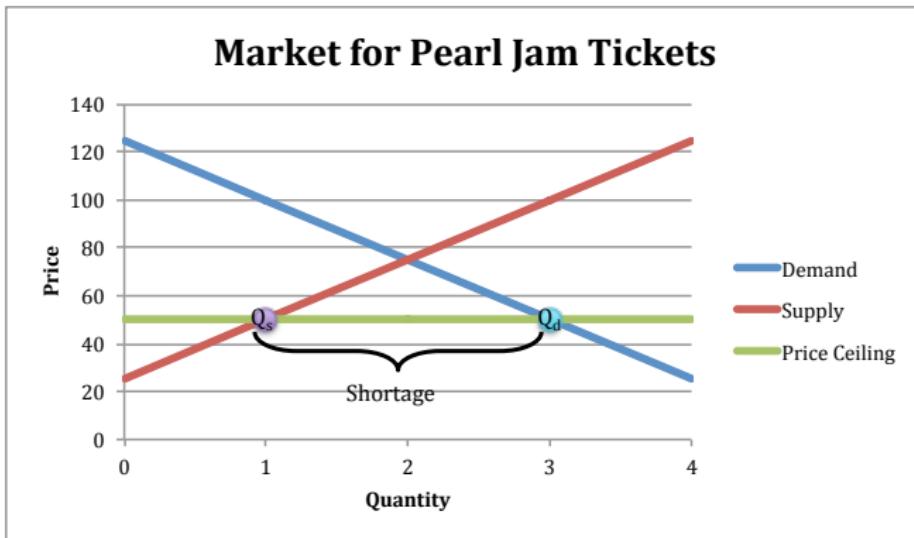
How would you evaluate the arguments that ticket prices are too high?

Actually, we would argue that ticket prices are not too high because the shows are selling out. The artist himself may not value a ticket to his own concert at \$75, but clearly a lot of people do. The interaction between Demand and Supply determine the equilibrium price of the ticket.

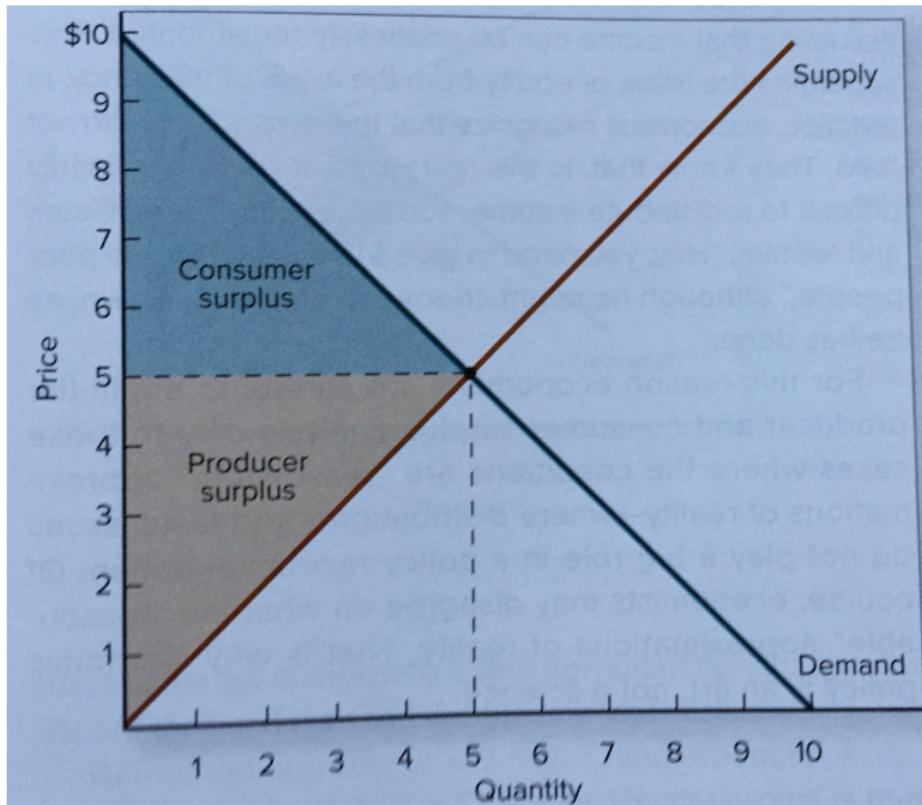
Question

Suppose that due to this star's protests, ticket prices were lowered to \$50. In what sense is this price too low? Draw a diagram using supply and demand curves to support your argument.

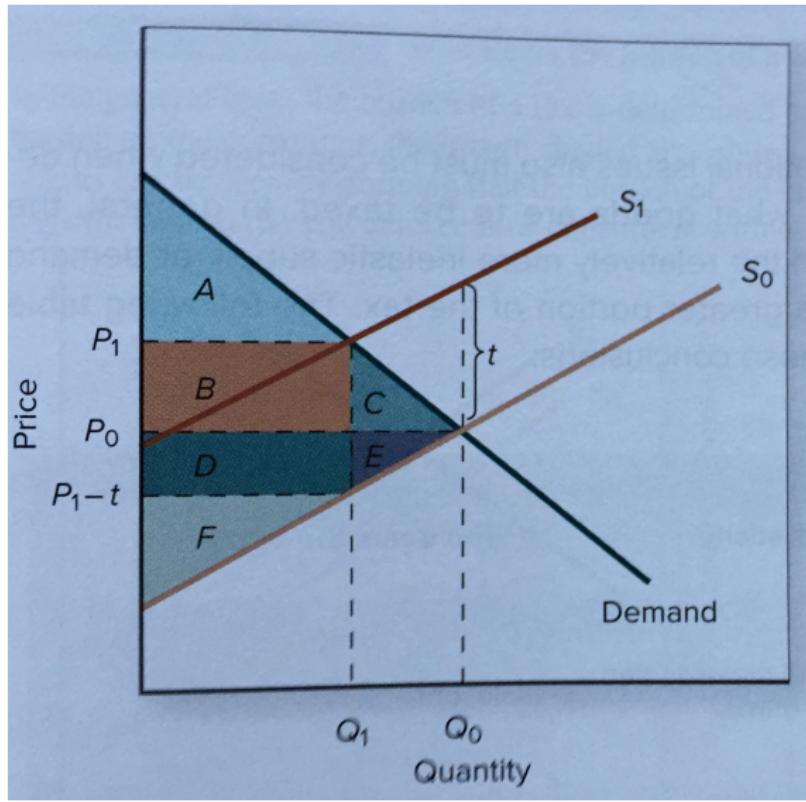
Answer



Cunsumer - Producer Surplus



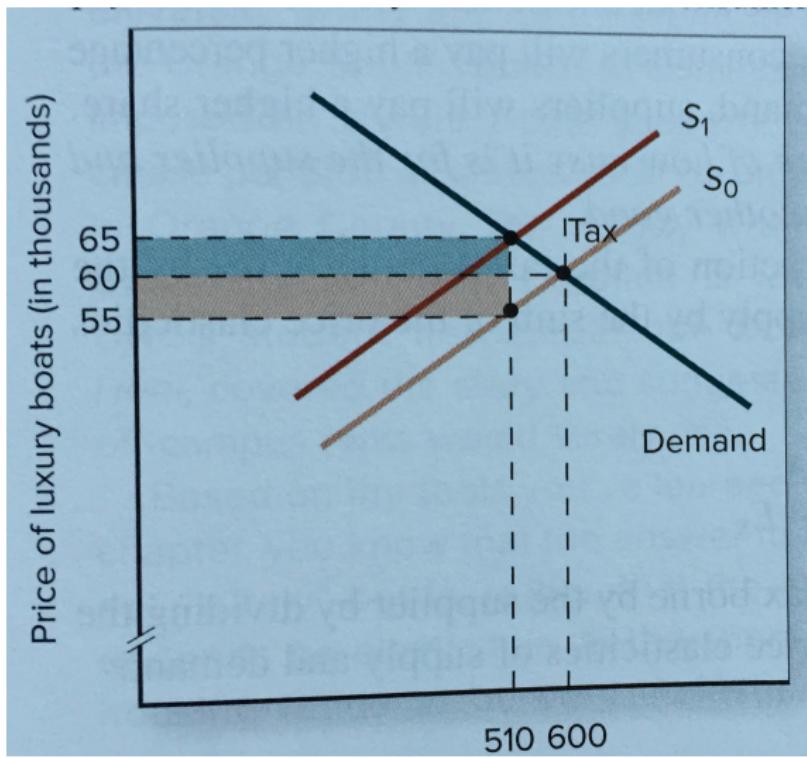
Government Intervention



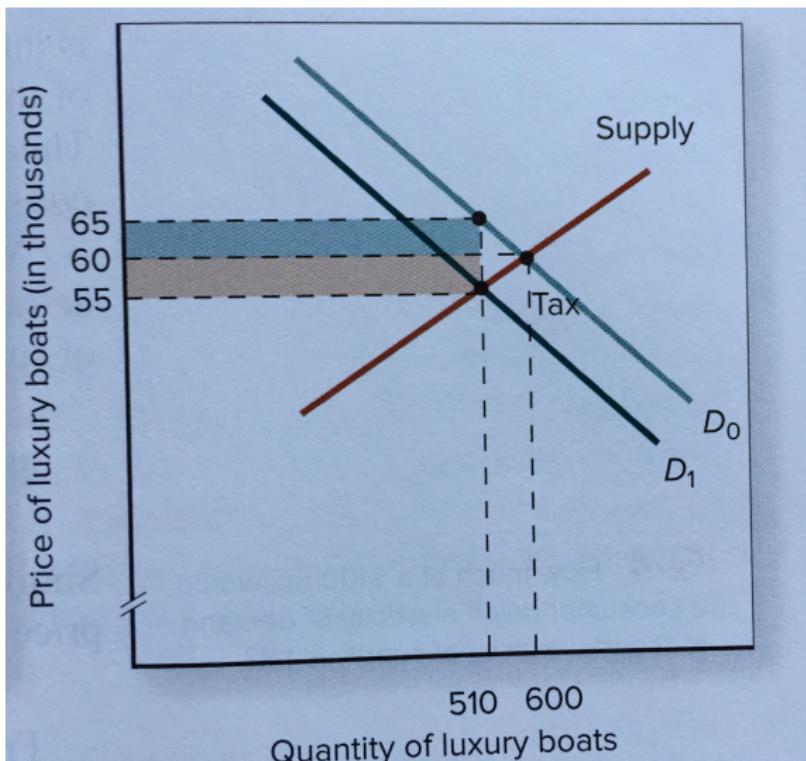
Burden of Taxation

Independent on who pays the tax
Depends on elasticities

Supplier Pays Tax



Consumers Pays Tax



Demand is Inelastic

