

OUTLINE — September 23, 2019

- Elasticity
 - Total Revenue Effect
 - Effect on Consumer Surplus
 - Effect on Burden of a Tax
- Accounting versus Economic Profit (maybe)

*Midterm #1: Wed 10/2, 7 pm. Read the old midterms yet?
Piazza!! Office Hours!!! SLC & Dept Tutors!!*

PS2 due Thursday 9/26, gradescope & bcourses

Extra handouts: in racks outside 532 Evans

Elasticity

- Elasticity of A with respect to B
 - How much does A change when B changes?



- $\text{elasticity} = \frac{\text{percent change of A}}{\text{percent change of B}}$

Taxes & Deadweight Loss **Elasticity** Applications of Elasticity Profit

Demand & Supply Elasticities

- How much does q_D change due to . . .
 - . . . a change in buyer income?
 - . . . a change in price?
 - . . . a change in other prices?
- How much does q_S change due to . . .
 - . . . a change in price?

Taxes & Deadweight Loss **Elasticity** Applications of Elasticity Profit

Income Elasticity of Demand

- Remember:
 - Normal Goods
 - Inferior Goods
- Question:
 - By **how much** does q_D change when Y changes?
- Answer:
 - Income Elasticity of Demand

Taxes & Deadweight Loss **Elasticity** Applications of Elasticity Profit

Examples: Income Elasticity

$$\% \Delta Y = -1 \%$$

$$\% \Delta q_D = -5 \%$$

$$\% \Delta Y = +2 \%$$

$$\% \Delta q_D = -1 \%$$

Taxes & Deadweight Loss

Elasticity

Applications of Elasticity

Profit

Terminology

- *Perfectly Inelastic:*
- *(Relatively) Inelastic:*
- *Unitarily Elastic:*
- *(Relatively) Elastic:*
- *Perfectly Elastic:*

Taxes & Deadweight Loss

Elasticity

Applications of Elasticity

Profit

Price Elasticity of Demand

- Remember:
 - Demand ALWAYS slopes down
- Question:
 - By **how much** does q_D change when p changes?
- Answer:
 - Price Elasticity of Demand

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Applications of Elasticity

Profit

Examples: Price Elasticity of Demand

$$\% \Delta p = -10 \%$$

$$\% \Delta q_D = +5 \%$$

$$\% \Delta p = +2 \%$$

$$\% \Delta q_D = -4 \%$$

Taxes & Deadweight Loss

Elasticity

Applications of Elasticity

Profit

Determinants of Price Elasticity of Demand

- Availability of Substitutes

- Share of Total Spending

- Time Horizon

Taxes & Deadweight Loss **Elasticity** Applications of Elasticity Profit

Total Revenue (TR) Effect

- What happens to total revenue when price rises?
 - TR (total revenue) = price * quantity

- Price effect

- Quantity effect

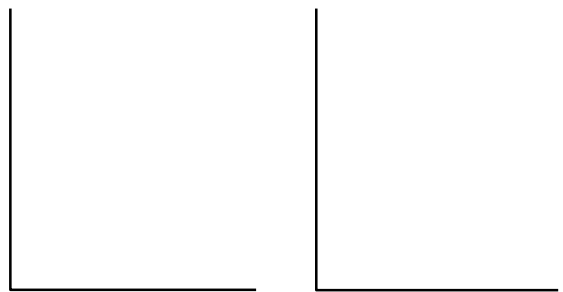
Taxes & Deadweight Loss Elasticity **Applications of Elasticity** Profit

Total Revenue (TR) Effect

- What happens to total revenue when price rises?
 - TR (total revenue) = price * quantity
- *Price-Elastic Demand*
 - *very responsive,*
- *Price-Inelastic Demand*
 - *not very responsive,*
- *Demand with Unitary Price Elasticity*

Taxes & Deadweight Loss Elasticity **Applications of Elasticity** Profit

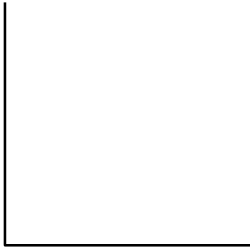
Price Elasticity and Slope



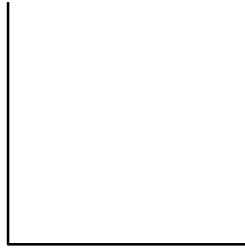
Taxes & Deadweight Loss Elasticity **Applications of Elasticity** Profit

Surplus Depends on Slope

Price-Elastic demand
relatively little consumer surplus



Price-Inelastic demand
relatively much consumer surplus



Taxes & Deadweight Loss

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Profit

Circle back: Burden of a Tax

- Tax on an item increases its price
 - But (in the short run) not by the full amount of the tax
 - Who “bears the (greater) burden” of the tax?
 - Definition: Burden = % of tax paid
-
- Burden depends upon slopes of S and D
 - That is, upon price-elasticity of supply and price-elasticity of demand

Taxes & Deadweight Loss

Elasticity

Applications of Elasticity

Profit

Burden & quantity effect Depend on Price-Elasticity



Taxes & Deadweight Loss

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Profit

Firms' Supply Decisions

- Question
 - Why does supply slope up?
- Assume
 - Goal of firms is to maximize profit

Taxes & Deadweight Loss

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Profit

Economic Profit

Profit = **Total Revenue** — **Total Costs**

Total Revenue (TR)
= Price * Quantity

Total Costs (TC) include both


- 1) Out-of-pocket (explicit, accounting) costs
- 2) **Opportunity (implicit) costs**

Keep in mind: there's a time frame, even if not stated explicitly. Per year, quarter, etc.

Taxes & Deadweight Loss Elasticity Applications of Elasticity **Profit**

Opportunity Cost of Capital


- Capital (machinery) costs you \$100,000
- What if your \$100,000 could earn 5 percent elsewhere
 - "Normal rate of return" = rate financial assets are earning
 - In this case, "normal rate of return" = 5 percent per year
- Implicit annual cost of capital = 5% of \$100,000



Tax Burden(s) **Profit** SR & LR Diminishing Marginal Returns Costs Industry Type Profit max rule

Opportunity Cost of Labor

- You could earn \$60,000 per year working elsewhere
 - Opportunity cost of your labor = \$60,000 per year



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Tax Burden(s) **Profit** SR & LR Diminishing Marginal Returns Costs Industry Type Profit max rule

Accounting vs. Economic Profit

- Total annual revenue = \$100,000
- Annual accounting costs = \$45,000
- Your savings tied up in company = \$100,000
- Normal annual rate of return = 5 %
- Working elsewhere, you could earn \$60,000 per year

Accounting Profit =

Economic Profit =

Tax Burden(s) **Profit** SR & LR Diminishing Marginal Returns Costs Industry Type Profit max rule