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Lecture 2

Consumer Choice & Demand

Economics & Society

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Previously in E&S

- Course presentation
- Definition of Economics
- Micro vs. Macro
- Opportunity Cost / Economic vs. Accounting Profit
- Ceteris paribus / post hoc propter ergo hoc fallacy
- Representative agent
- Utility basics
- Graphs & Equations

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The price elasticity of demand

- A demand curve ***shows*** how quantity demanded responds to changes in price along a ***wide range*** of prices
- However, usually we ***only need*** information in the vicinity of the ***current*** price
- A way to measure the response of quantity to price ***at a specific price point*** is the ***elasticity of demand*** (ε_d)

  ε_d ***measures*** the percentage change in quantity demanded of a good ***resulting from*** a percentage change in the good's price

$$\varepsilon_d = \frac{\%\Delta Q}{\%\Delta p} \quad \text{or} \quad \varepsilon_d = \frac{\Delta Q/Q}{\Delta p/p}$$

- The price elasticity of demand will always be ***negative***

Elasticity of demand – example

$$\varepsilon_d = \frac{\%\Delta Q}{\%\Delta p} \quad \text{or} \quad \varepsilon_d = \frac{\Delta Q/Q}{\Delta p/p}$$

- Assume that:
  - Price ***increases*** from \$10 to \$12
  - Quantity responds by ***decreasing*** from 50 to 45.
- Then,

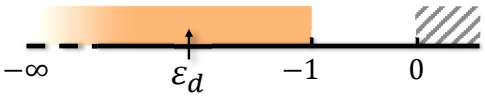
$$\frac{\Delta Q}{Q} = \frac{45-50}{50} = -0.1 \quad \text{and} \quad \frac{\Delta p}{p} = \frac{\$12-\$10}{\$10} = 0.2$$

- Thus,

$$\varepsilon_d = \frac{-0.1}{0.2} = -0.5$$

Elastic goods

- If a good has $-\infty < \varepsilon_d < -1$,
  - The $\%\Delta p$ causes a ***larger*** $\%\Delta Q$
  - Consumers respond ***strongly*** to price changes.

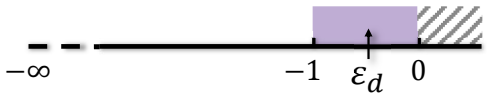


- ***For example***, p increases from \$10 to \$11 ($\Delta p/p = 0.1$); Q decreases from 500 to 400 ($\Delta Q/Q = -0.2$) } $\varepsilon_d = -2$

  that is, quantity demanded falls by ***twice*** the percentage of any price increase
- What ***kind*** of goods are elastic?
- What happens to the ***revenue*** of elastic goods?
  - Revenue ***before***: $\$10 \cdot 500 = \$5{,}000$
  - Revenue ***after***: $\$11 \cdot 400 =$

Inelastic goods

- If a good has $-1 < \varepsilon_d < 0$,
  - The $\%\Delta p$ causes a ***smaller*** $\%\Delta Q$
  - Consumers are ***relatively insensitive*** to price changes.



- ***For example***, p increases from \$10 to \$11 $\quad \Delta p/p = 0.1$
  Q decreases from 500 to 475 $\quad \Delta Q/Q = -0.05$ $\Big\} \ \varepsilon_d = -0.5$

  that is, quantity demanded falls by ***half*** the percentage of any price increase

- What ***kind*** of goods are inelastic?

- What happens to the ***revenue*** of inelastic goods?
  - Revenue ***before***: $\$10 \cdot 500 = \$5{,}000$
  - Revenue ***after***: $\$11 \cdot 475 =$

Demand elasticities estimates (at current price)

Goods	Price Elasticity
Olive Oil	-1.92
Peanut Butter	-1.73
Ketchup	-1.36
Wine	-1.00
Laundry Detergent	-0.81
Shampoo	-0.79
Potato chips	-0.45
Cigarettes	-0.40

- We knew that ***smoking*** is addictive, and that ***olive oil*** is not essential

Elasticity for linear demand

- A ***linear*** demand will be of the form

$$p = a - b \cdot q$$

constant, gradient

- Its elasticity of demand will ***always*** be given by

$$\varepsilon_d = 1 - \frac{a/b}{q}$$

- If, for instance, $p = 20 - 2q$, then $\varepsilon_d = 1 - \frac{10}{q}$
  - Elasticity is ***NOT constant*** along a linear demand (***varies*** with q)
  - A product becomes ***more inelastic*** ($\varepsilon_d \to 0$) as its quantity (q) ***increases***

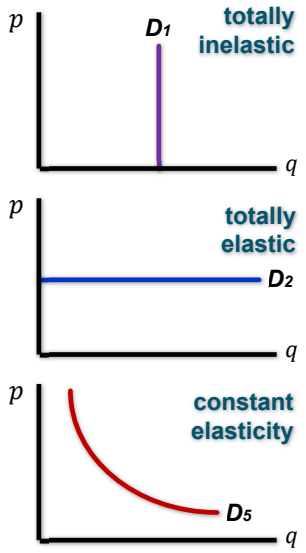
- For instance:

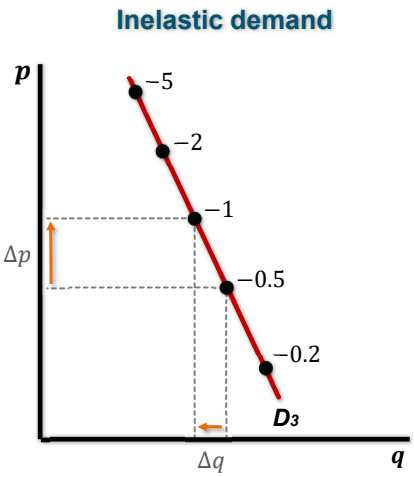
$$p = 20 - 2q$$

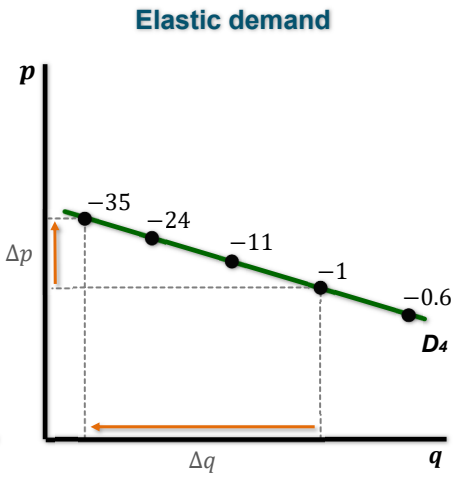
or $p = 5 - q$

or $p = 10{,}000 - 0.43q$

Demand curves & elasticity







Determinants of elasticity of demand

1. Strength of ***need*** and availability of ***substitutes***:
   - Consumers are ***less willing to tolerate*** price increases for goods that can be ***easily substituted*** or just ***avoided***
   - The ***fewer*** substitutes a product has, the ***more inelastic*** its demand.
2. ***Budget share*** spent on the good:
   - When a good represents a ***small share*** of one's budget, consumers are ***less sensitive*** to its price
   - The ***smaller*** the share, the ***more inelastic*** the product will be.
3. ***Time***: 
   - Products tend to become ***more elastic over time***
   - New, cheaper ***substitutes*** eventually emerge that satisfy the same need

Uses outside Economics

* Elasticity of demand is a ***valuable*** measure of response

  *how consumer **purchasing behavior** responds to changes in **price***

  brand desirability

  resources required

* Thus, elasticity ***can reveal*** information beyond the observable result:
  - ***Brand*** loyalty
  - Social ***relationships***
  - ***Politics***
  - Choosing a ***future***

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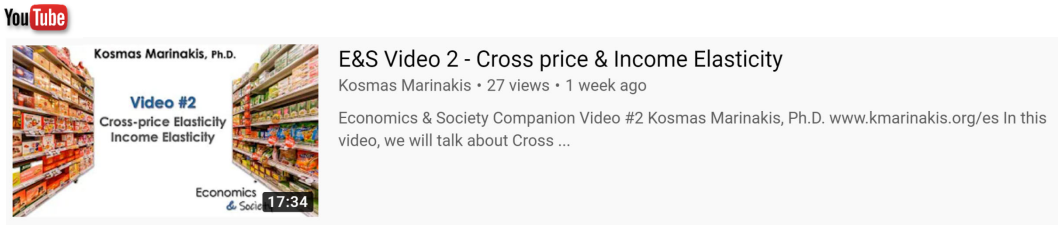
Internal video

This video presents Cross-price elasticity and Income elasticity. Everything you need to know with theory and examples.



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Thank you!

(you may stay for *consultation*)

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WARNING!

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