

# Micro-Machines

Company 1

- Damien
- Bruce
- Alana
- Michael M.
- Jadi
- Traci

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Company 2

- Michelle
- Chelsea
- Sienna
- Terry
- Tammy
- Michael S.

Snake Eyes

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# Lazy

Company 3

- Lindsey
- Kim
- Nick
- Sonia
- Beth
- Anna

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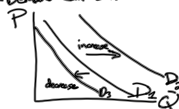
Lost Class

More on supply & demand

- Law of Demand  
 - Price & quantity demanded are inversely related



- Demand can shift



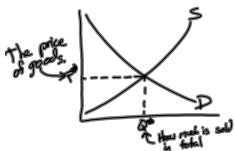
- ① Expectations  
 - Think  $P \uparrow$ ,  $D \uparrow$   
 - Think  $P \downarrow$ ,  $D \downarrow$
- ② Tastes (popularity)  
 - Popularity  $\uparrow$ ,  $D \uparrow$   
 - Popularity  $\downarrow$ ,  $D \downarrow$
- ③ Price of related goods  
 - Substitutes  
 - Related good  $\downarrow$ ,  $D \downarrow$   
 - Complements  
 - Related good  $\downarrow$ ,  $D \uparrow$
- ④ Income  
 - Income  $\uparrow$ ,  $D \uparrow$  unless  
 it is inferior.
- ⑤ Taxes & subsidies  
 - Subsidies  $\uparrow$ ,  $D \uparrow$   
 - Taxes  $\uparrow$ ,  $D \downarrow$

- Law of Supply  
 - Price & quantity supplied are positively related

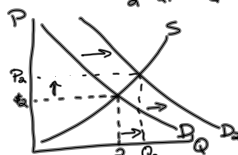
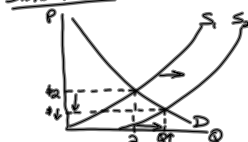


- ① Number of sellers
- ② Price of other goods
- ③ Expectations
- ④ Technology
- ⑤ Price of inputs.  $P \uparrow$ ,  $S \downarrow$

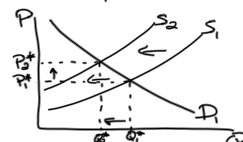
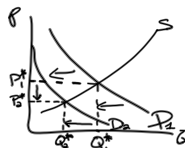
Market

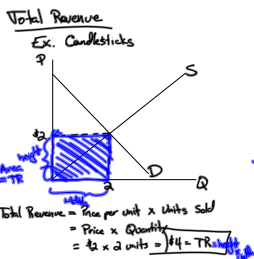


Shifts in Curves



S	D	P	Q
↑	↓	↓	↑
↓	↑	↑	↓





Elasticities

Reasons the demand curve shift

- ① Income
  - Normal vs Inferior goods
  - As income rises (or falls), how much does demand rise (or fall)?
- ② Price of other goods
  - Substitutes vs Complementary
  - As the price of another good increases (or falls), how much does demand rise (or fall)?
- ③ Price Elasticity
  - How sensitive are consumers to changes in price.

Price Elasticity of Demand

$$= \frac{\text{Percent change in quantity demanded}}{\text{Percent change in price}}$$

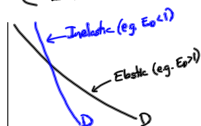
$$= \frac{\frac{\Delta Q_D}{Q_D}}{\frac{\Delta P}{P}} = E_D$$

↑ Elasticity of Demand

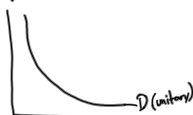
Ex: Netflix ↑ 20%, Q ↓ 33%

$$E_D = \frac{-33}{20} = -1.65$$

- $> 1$  Elastic
- $= 1$  Unitary
- $< 1$  Inelastic



As price increases (or decreases) by  $\%P$ , demand will decrease (or increase) by  $E_D$  percent.



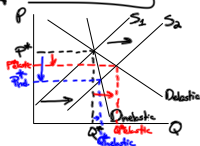
If you have 20% price increase then you lose 33%  
 $E_D = 1.65$

What happens for 100% increase?  
 $Q_D \downarrow 165\%$   
 Why?  $100\% \times 1.65 = 165\%$

$$E_D = \frac{\% \Delta Q_D}{\% \Delta P} \leftarrow \text{known?}$$

↑ unknown      ↓ known

$$\% \Delta P \times E_D = \% \Delta Q_D$$



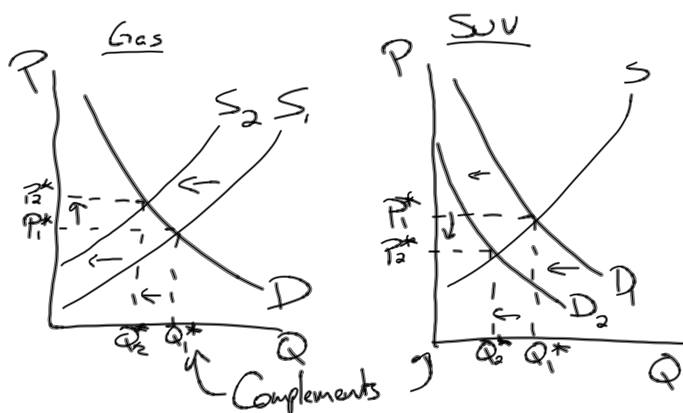
- When  $E_D > 1$  as  $P \uparrow$ ,  $TR \downarrow$   
 $P \downarrow$ ,  $TR \uparrow$
- $E_D = 1$  TR remains constant
- $E_D < 1$  as  $P \downarrow$ ,  $TR \downarrow$   
 $P \uparrow$ ,  $TR \uparrow$

Subsides

- Taxes  $P \uparrow$
- JEL marketing



Cross-price elasticity (price of other goods)  
 - As prices of another good changes,  
 what is the change in quantity  
 demanded for a related good?



$$\begin{aligned} & \text{Percent change in } Qd \text{ in good } x \\ &= \frac{\text{Percent change in } P \text{ in good } y}{\text{Percent change in } P \text{ in good } y} \\ &= \frac{\% \Delta Qd_x}{\% \Delta P_y} = E_{P_{x,y}} \end{aligned}$$

$$E_{x,y} \begin{cases} \text{Complement} < 0 \\ \text{Substitute} > 0 \\ \text{Unrelated} = 0 \end{cases}$$

Income elasticity

$$\begin{aligned} E_I &= \frac{\text{Percent change in demand}}{\text{Percent change in Income}} \\ &= \frac{\% \Delta D}{\% \Delta I} \end{aligned}$$

$$E_I \begin{cases} \text{Normal good} > 0 \rightarrow \text{Luxury} > 1 \\ \text{Inferior good} < 0 \end{cases}$$

$\downarrow$   
 e.g. a 1% increase in income leads to a 2% increase in BMW's.  
 $\frac{2\%}{1\%} = 2$