

Economics 101 – Section 5

Lecture 8
February 10

Government Intervention
Price Elasticity of demand

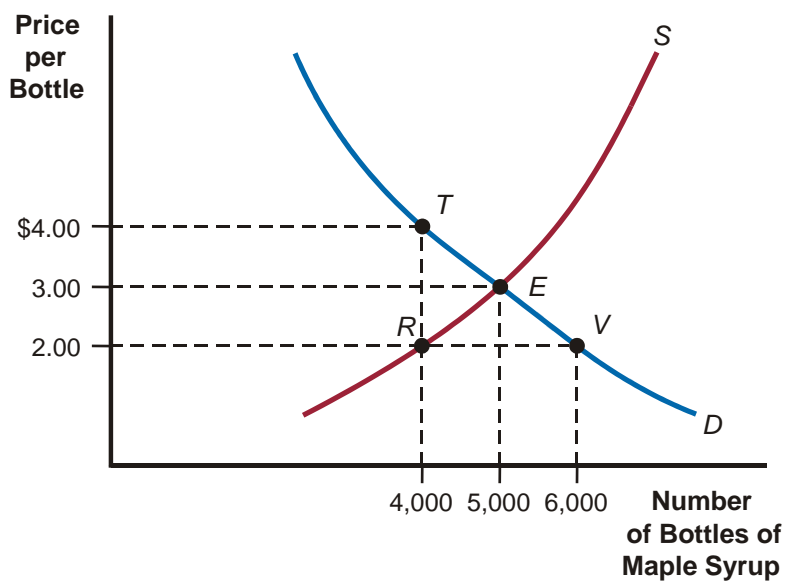
Price Ceilings

- Governments sometimes intervene in markets, in response to dissatisfaction from some groups in society, by instituting price ceilings or price floors. This intervention can have unintended—and sometimes harmful—consequences.

Price ceilings

- When quantity demanded and quantity supplied are different the shorter side of the market will prevail
 - That is, which is smaller of quantity supplied and quantity demanded
- A price ceiling creates a shortage and increases the time and trouble required to buy the good
 - While the price decreases the opportunity cost may rise
 - Possible emergence of a black market

Figure 1



Price floors

- Price floor
 - Is a government imposed minimum price in a market
 - Example of loan rates in US agriculture
 - Prices are usually set above the equilibrium and this causes excess supply
 - To maintain the price floor the government must prevent the excess supply from driving down the market price
 - To deal with the excess, the government often purchases the excess supply.

Price floors and ceilings

- Note:
 - A price floor below the market equilibrium would have no impact on the market
 - A price ceiling above the market price would have no impact on the market
 - Remember to draw the effective price floor above the equilibrium price and an effective price ceiling below the equilibrium price

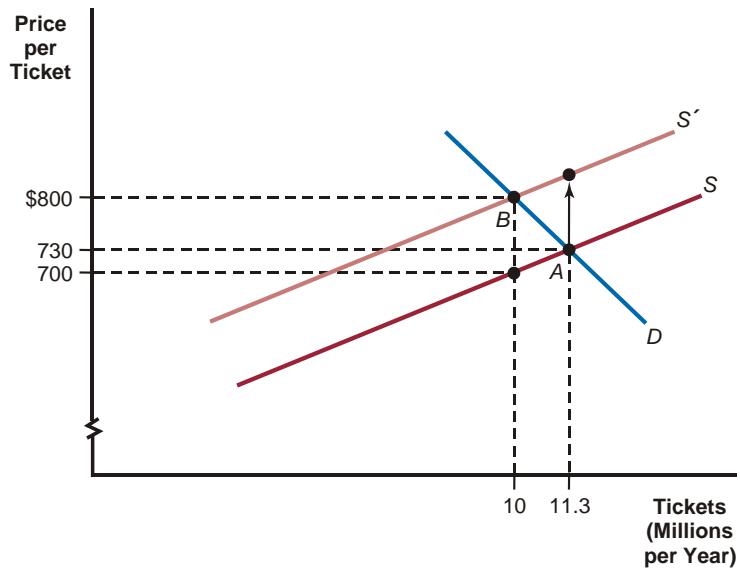
Taxes (excise tax)

- Excise tax – is a tax on a specific good or service
 - The key here is on a specific good
 - Examples include cigarettes, alcohol, airline tickets, gasoline
 - Note that these taxes do not change with the price of good
 - i.e. the tax for cigarettes does not depend on how much you paid in the store (do not confuse this with sales tax)

Taxes (excise tax)

- Example – Airline tickets
 - If government imposes a tax of \$100 then this will cause a shift in the supply curve to shift up by \$100

Figure 4



Elasticity

■ Elasticity

- Elasticity measures the sensitivity of one variable to a change in some other variable.
- Slope is not a desirable measure of sensitivity because slope does *not* take into account the relative size of the changes occurring.
- Elasticity is a better measure of sensitivity because it *does* take the relative size of the changes into account.

Elasticity

- *Price elasticity of demand*
 - measures the sensitivity of quantity demanded to a change in price.
 - The greater the absolute value of this number, the more sensitive quantity demanded is to price.
- Demand can be classified as inelastic, unitary elastic, or elastic.
 - A special case of inelastic demand is perfectly inelastic demand, shown by a vertical demand curve.
 - A horizontal demand curve shows perfectly elastic demand—a special case of elastic demand.

Elasticity

- The price elasticity of demand (E_D) for a good is the percentage change in quantity demanded divided by the percentage change in price

$$E_D = \frac{\% \Delta Q^D}{\% \Delta P}$$

Elasticity

- Calculating the elasticity

$$\% \Delta Q^D = \frac{(Q_1 - Q_0)}{\left(\frac{Q_1 + Q_0}{2} \right)}$$

$$\% \Delta P^D = \frac{(P_1 - P_0)}{\left(\frac{P_1 + P_0}{2} \right)}$$

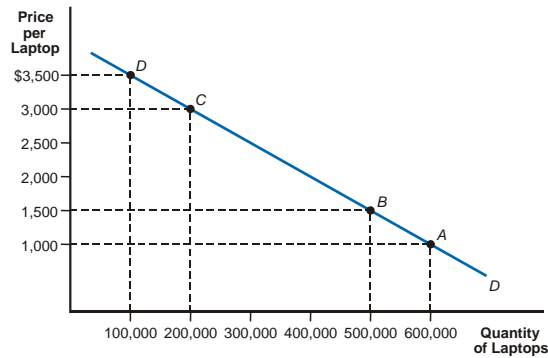
Elasticity

- Calculating the elasticity

$$E_D = \frac{\left(\frac{Q_1 - Q_0}{\left(\frac{Q_1 + Q_0}{2} \right)} \right)}{\left(\frac{P_1 - P_0}{\left(\frac{P_1 + P_0}{2} \right)} \right)} = \frac{\left(\frac{Q_1 - Q_0}{\left(\frac{Q_1 + Q_0}{2} \right)} \right)}{\frac{1}{2} (P_1 - P_0)} = \frac{(Q_1 - Q_0)}{(Q_1 + Q_0)} \times \frac{(P_1 + P_0)}{(P_1 - P_0)}$$

Figure 5

Movement Along Demand Curve	$\% \Delta Q^D$	$\% \Delta P$	Elasticity of Demand
Point A to Point B	$(500,000 - 600,000) / 650,000$	$(\$1,500 - \$1,000) / \$1,250$	$-18.2\% / 40\%$
	$= -0.182$ or -18.2%	$= 0.40$ or 40%	$= -0.46$
Point C to Point D	$(100,000 - 200,000) / 150,000$	$(\$3,500 - \$3,000) / \$3,250$	$-66.7\% / 15.4\%$
	$= -0.667$ or -66.7%	$= 0.154$ or 15.4%	$= -4.33$



Elasticity

- A straight line demand curve can be used to show that elasticity changes as we move along a demand curve.
 - This happens because elasticity is generally *not* a characteristic of a demand curve, but rather is a measure of price sensitivity for a *particular* price change along that curve.
- When demand is price inelastic, total expenditure moves in the same direction as price.
 - When demand is price elastic, total spending moves in the opposite direction as price.
 - When demand is unitary elastic, total expenditure remains the same as price changes.

Figure 6 Elasticity and Straight-Line Demand Curves

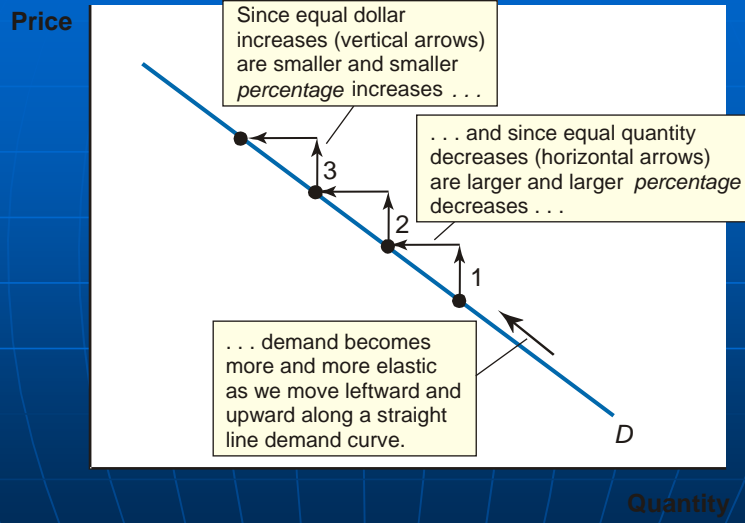


Figure 7

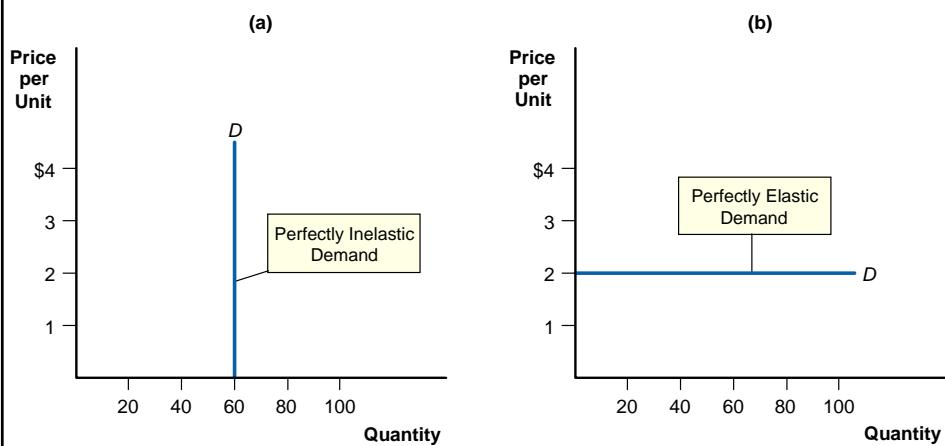


Table 1 Effects of Price Changes on Expenditure

Where demand is:	A price increase will:	A price decrease will:
Inelastic ($ E_D < 1$)	increase expenditure	decrease expenditure
unitary elastic ($ E_D = 1$)	cause no change in expenditure	cause no change in expenditure
elastic ($ E_D > 1$)	decrease expenditure	increase expenditure