

Economics 101 – Section 5

Lecture 8
February 10

Government Intervention
Price Elasticity of demand

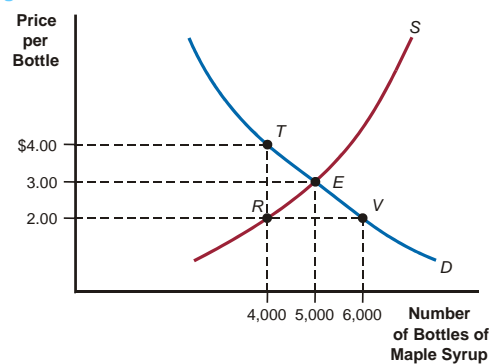
Price Ceilings

- 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

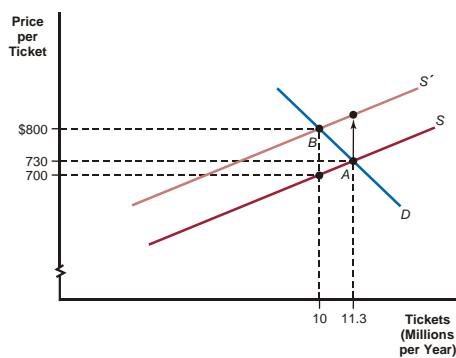
Taxes (excise tax)

- 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

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

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

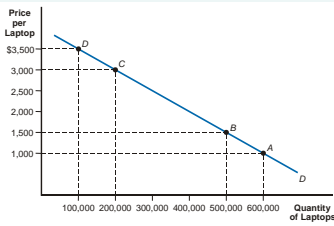
Elasticity

- Calculating the elasticity

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

Figure 5

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

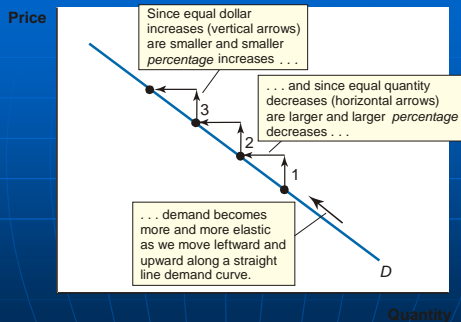


Figure 7

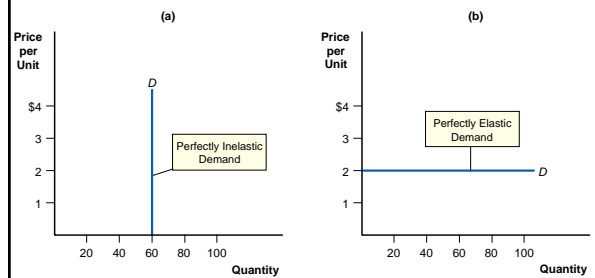


Table 1 Effects of Price Changes on Expenditure

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