Government Intervention
Price Elasticity of demand

Government Intervention

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

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

Figure 1

**Price Ceilings**

<table>
<thead>
<tr>
<th>Number of Bottles of Maple Syrup</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,000</td>
</tr>
<tr>
<td>5,000</td>
</tr>
<tr>
<td>6,000</td>
</tr>
</tbody>
</table>

**Price per Bottle**

- $4.00
- $3.00
- $2.00

**Points**

- T
- E
- V
- R
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)

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 The Market for International Air Travel

Price per Ticket

$600

730

700

S

S’

700

10

1.3

Tickets (Millions per Year)

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.

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.

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

$$\text{% change in } Q = \frac{(Q_1 - Q_0)}{(Q_0 / 2)}$$

$$\text{% change in } P = \frac{(P_1 - P_0)}{(P_0 / 2)}$$

$$\text{Elasticity of Demand} = \frac{(Q_1 - Q_0)}{(Q_0 / 2)} \times \frac{(P_0 / 2)}{(P_1 - P_0)}$$

### Elasticity

- Calculating the elasticity

$$\text{Elasticity of Demand} = \frac{(Q_1 - Q_0)}{(Q_0 / 2)} \times \frac{(P_0 / 2)}{(P_1 - P_0)}$$

### Figure 5

Elasticity and Straight-Line Demand Curves

- 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 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

- Since equal dollar increases (vertical arrows) are smaller and smaller percentage increases.
- And since equal quantity decreases (horizontal arrows) are larger and larger percentage decreases.
- Demand becomes more and more elastic as we move leftward and upward along a straight-line demand curve.
Table 1 Effects of Price Changes on Expenditure

<table>
<thead>
<tr>
<th>Demand Type</th>
<th>A Price Increase Will</th>
<th>A Price Decrease Will</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inelastic $</td>
<td>E_d</td>
<td>&lt; 1$</td>
</tr>
<tr>
<td>Unitary Elastic $</td>
<td>E_d</td>
<td>= 1$</td>
</tr>
<tr>
<td>Elastic $</td>
<td>E_d</td>
<td>&gt; 1$</td>
</tr>
</tbody>
</table>