Imperfect Competition

Topics

• Review perfect competition
• Imperfect Competition
  – Monopoly
  – Monopolistic Competition
  – Oligopoly
  – Monopsony
  – Government Intervention

Conditions for Perfect Competition

• Conditions from earlier lectures
  – Homogeneous products
  – Freely mobile resources
  – Large number of buyers and sellers
  – Perfect information
• Added for welfare analysis
  – No exchange barriers
  – No externalities
Efficiency

- Society’s net benefits are maximized from the use of the resources
- Can not do better from society’s viewpoint
- Perfect competition assumptions
  + no externalities
  + no exchange barriers

Surplus – Review

Total surplus = consumer surplus + producer surplus

Inefficient Allocation I

What if at price = $4.75 / bushel?
People Respond to incentives

- [http://www.youtube.com/watch?v=rt8LTN0zm3k](http://www.youtube.com/watch?v=rt8LTN0zm3k)

- Just a review as to why this class!
- Shortest law in economics
  - Incentives matter!
Imperfect Competition

- Conditions of perfect competition are not met
- Examine different types of imperfect competition input and output side
- Simultaneous idea
  - Joan V. Robinson 1903 – 1983
  - Edward H. Chamberlin 1899 – 1967
- Idea - degrees of imperfect competition

Firm is a “Price Taker” Under Perfect Competition - Review

Monopoly

- Single Seller – no competition
- Exist because of barriers to entry
  - Physical
  - Government
- Price is no longer fixed to the firm
  - Face downward sloping demand curve and MR curve
- Assume linear demand and supply – previous slide
Perfect Competition

Equilibrium point
\[ S = D \]
Price = 9.29
Quantity = 157

Monopoly Example

<table>
<thead>
<tr>
<th>Price</th>
<th>Quantity Demanded</th>
<th>Total Revenue P x Q</th>
<th>Marginal Revenue ( \frac{\Delta TR}{\Delta Output} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.00</td>
<td>0</td>
<td>0.00</td>
<td>-</td>
</tr>
<tr>
<td>22.50</td>
<td>25</td>
<td>562.50</td>
<td>22.50</td>
</tr>
<tr>
<td>20.00</td>
<td>50</td>
<td>1000.00</td>
<td>17.50</td>
</tr>
<tr>
<td>17.50</td>
<td>75</td>
<td>1312.50</td>
<td>12.50</td>
</tr>
<tr>
<td>15.00</td>
<td>100</td>
<td>1500.00</td>
<td>7.50</td>
</tr>
<tr>
<td>12.50</td>
<td>125</td>
<td>1562.50</td>
<td>2.50</td>
</tr>
<tr>
<td>10.00</td>
<td>150</td>
<td>1500.00</td>
<td>-2.50</td>
</tr>
<tr>
<td>7.50</td>
<td>175</td>
<td>1312.50</td>
<td>-7.50</td>
</tr>
<tr>
<td>5.00</td>
<td>200</td>
<td>1000.00</td>
<td>-12.50</td>
</tr>
<tr>
<td>2.50</td>
<td>225</td>
<td>562.50</td>
<td>-17.50</td>
</tr>
<tr>
<td>0.00</td>
<td>250</td>
<td>0.00</td>
<td>-22.50</td>
</tr>
</tbody>
</table>

Monopoly Total Revenue

Unitary elasticity portion
Inelastic portion
Elastic portion
Monopoly Example MR

Unitary elasticity
Elastic
Inelastic
Key point
MR is less than demand
Demand = AR not MR

Monopoly

As with all firms produce at MR = MC
Price from demand curve
Quantity given by point
MR = MC = S

Monopoly

Monopoly Price = 15.46
Monopoly Quantity = 95.6
Monopoly

\[ S = MC \]

Consumer Surplus
Producer Surplus
Deadweight Loss

Monopoly vs. Perfect Competition

- Monopoly - price is higher
- Monopoly - quantity is lower
- Monopoly - deadweight loss
Monopolistic Competition

• Realistic situation
• Numerous sellers
• Key – differentiated products
  – No barriers to entry or exit unlike “true” monopoly
    • Entry if profits / exit if loses
    • Advertising / sale promotion
    • Modification of particular product
• Some flexibility in pricing – price maker
  – Better at product differentiation the higher the price
  – Increase price too high drive consumers to other sellers

Starbucks Coffee Inc.

• Started 1971 in Seattle
• Sold in 1987 and first houses outside of Seattle
• 1996 first location outside U.S.
• Key – differentiated products
  – Gourmet coffee
  – Rapid growth – a new store every day in the 1990 into the 2000’s
  – Over 22,519 stores in 65 countries – June 2015

Other Gourmet Coffee

• Incomplete list showed 104 coffee house chains most started in the 1990’s and 2000’s
• Caribou Coffee – started 1992
  – One of the largest in U.S. 273 company owned stores in 18 U.S. states and 330 franchise locations worldwide in 10 countries
• McDonald’s gourmet coffee
• Local gourmet coffee houses
  – Texas A&M
• Restaurants / café / food service with premium coffee
  – Donkin’ Donuts – next largest to Starbucks
  – Tim Hortons’ Canadian
• Etc.
Starbucks Response

- End of period of growth since 2008
  - Closed approximately 1,000 stores in the U.S. and Worldwide (closed 61 of 84 stores in Australia)
- Cut 8,000 jobs
- Growth again starting 2012
- Expansion of products
  - Ethos Water
  - Via ready brew
  - Debranding – change name of some stores
- "Green" issues

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Monopolistic Competition

<table>
<thead>
<tr>
<th></th>
<th>Perfect Competition</th>
<th>Monopolistic Competition</th>
<th>Monopoly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>Lowest</td>
<td>Middle</td>
<td>Largest</td>
</tr>
<tr>
<td>Quantity</td>
<td>Largest</td>
<td>Middle</td>
<td>Smallest</td>
</tr>
<tr>
<td>Deadweight loss</td>
<td>None</td>
<td>Some</td>
<td>Largest</td>
</tr>
<tr>
<td>Product</td>
<td>Homogeneous</td>
<td>Differentiated</td>
<td>Unique</td>
</tr>
</tbody>
</table>
Monopolistic Competition

- Most agricultural related retail products
  - Soft drinks
    - Coca cola, Pepsi, Dr. Pepper / 7 Up, Gatorade, Hires, Big Red, Shasta, Fruit Drinks, etc.
  - Clothing / Jeans

Prisoner’s Dilemma

Two students have stolen AGEC 105 Exam 1, possible outcomes are given below, what should each student do? Students cannot communicate with each other.

<table>
<thead>
<tr>
<th>Student 1</th>
<th>Confess</th>
<th>Don’t Confess</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confess</td>
<td>One – D</td>
<td>One - B</td>
</tr>
<tr>
<td></td>
<td>Two – D</td>
<td>Two – F Dismissed</td>
</tr>
<tr>
<td>Don’t Confess</td>
<td>One – F Dismissed</td>
<td>One C</td>
</tr>
<tr>
<td></td>
<td>Two – B</td>
<td>Two C</td>
</tr>
</tbody>
</table>

Oligopoly

- Lies between pure monopoly and perfect competition
- Few sellers with similar products
- Each seller can influence market price and volume
  - Not independent in their decision making
- Can give rise to a wide range of market outcomes
  - Depends on company goals, trust, legal, collusion, competition
Oligopoly Dilemma

Two firms, what should they do, no collusion?

<table>
<thead>
<tr>
<th>Firm A</th>
<th>Lower Prices</th>
<th>Higher Price</th>
</tr>
</thead>
</table>
| Lower Price | A – low profits, same market share  
B – low profits, same market share | A – low profits, high market share  
B – loss, low market share |
| Higher Price | A – loss, low market share  
B – low profits, high market share | A – high profits, same market share  
B – high profits, same market share |

Oligopoly Two Diverse Outcomes

• No collusion / interaction
  – Best outcome a priori for both firms is low prices
  – Competition – leads to outcomes approaching perfect competition
• Collusion
  – Raise prices and restrict production
  – Approaching monopoly outcome
• Why don’t firms collude?
  – Costs of collusion high
    • Illegal
    • Different goals and objectives

Oligopoly

• Agricultural Sector in the input markets
• Animal Slaughter
• Computers – operating systems
  – MacOS, Window, Linux
• Automotive Sector
  – Ford, GM, Toyota, Nissan, Honda, Chrysler
• Gasoline Sector
  – Chevron, Exxon, Valero, Conoco-Phillips
**Oligopoly - Conclusions**

- Common in “real world”
- Wide range of outcomes
  - Equilibrium prices and quantities lie between monopoly and perfect competition
  - Collude – more like monopoly
  - No collusion more like perfect competition

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**Monopsony**

- Perfect competition
  - Numerous buyers and sellers – price takers
  - Firm’s purchases do not affect input price
- Monopsony – single buyer on the input side
- Similar to monopoly, but on the input side
  - Monopoly downward sloping demand curve
  - Unlike perfect competition firm’s actions affect price
- Monopsony faces a upward sloping market input supply curve
  - To increase input use, most pay a higher price

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**Monopsony**

- Perfect competition – input market
  - Firms set MVP = MIC
- Monopsony
  - Firms’ set MVP = MIC but now MIC is not fixed as in perfect competition
  - MIC cost not fixed increasing as use more of the input
Price Taker – Does Not Hold

Monopsony

Degrees of Imperfect - Input

• Oligopsony
  – Relatively few firms engaged in purchase of resources

• Monopsonistic Competition
  – Composed of many firms buying resources with the capacity of differentiating services
  * Differentiating services to producers by buyers
Government Actions

- Imperfect competition – not efficient
  - Implies govt. action may improve welfare
  - Govt. action appropriate if benefits of action greater than the costs
  - More later
- Government actions may also lead to inefficient allocations
  - Inappropriate intervention

Price Ceiling

- Maximum price that can be charged
  - To be relevant price ceiling must be below market price

Why $P_{\text{max}} < P^*$ to be binding
Maximum price at $P_{\text{max}}$ but market price at $P^*$
Equilibrium price an quantity $P^*Q^*$
Price Ceiling Welfare

- Welfare implications - inefficient

Price

Deadweight Loss

Quantity

Price Ceiling Welfare

Price Floor

- Minimum price that can be charged
  - To be relevant price must be above market price

Price Floor

Why $P_{\text{min}} > P^*$ to be binding
Minimum price at $P_{\text{min}}$ but market price at $P^*$
Equilibrium price an quantity $P^*Q^*$
Price Floor Welfare

- Welfare implications

Lump Sum Tax

Fixed amount regardless of output
Equilibrium $P^*Q^*$
Tax increases $ATC$

Lump Sum Tax

Profits / total costs before tax
**Lump Sum Tax**

Profits / total costs after tax

- Equilibrium price and quantity
  - No impact
  - Treated as a fixed cost no impact on marginal costs
- Profits decrease
- Cost increase
- Tax revenues = cost increase

**Per Unit Tax**

Tax per unit on amount produced
Equilibrium P*Q* before tax
Per unit tax increases MC

Equilibrium price and quantity
- No impact
- Treated as a fixed cost no impact on marginal costs
- Profits decrease
- Cost increase
- Tax revenues = cost increase
Per Unit Tax Impact

- Equilibrium price and quantity
  - Increases price
  - Decreases quantity
- Profits decrease
- Cost increase
- Tax revenues = cost increase
Summary

• Unlike perfect competition, imperfect competitors have ability to *influence price*.
• Monopolistic competitors try to *differentiate* their product.
• Monopolists are the *only seller* in their product market.
• Monopsonists are the *only buyer*.
• Oligopolies are a *few number of sellers* while oligopsonies are a *few number of buyers*.
• Know the *economic welfare* implications of imperfect competition.