Chapter 11 – Firms in Perfectly Competitive Markets
Introduction

• Organic foods
  ◦ 15 years ago, few sales
  ◦ By 2002, for sale in almost every grocery store
  ◦ Large demand for organic apples caused a 50% price increase compared to traditional apples.
  ◦ Do you think apple farmers will want to grow more regular apples or more organic apples?
    • ____________________________
    • ____________________________
    • ____________________________
    • ____________________________
  ◦ Why did profits ____________?

• Def: Produced without using most conventional pesticides; fertilizers made with synthetic ingredients or sewage sludge; bioengineering; or ionizing radiation
Competition

- What is competition?
- Economic Competition among firms.
• Each chapter we will make certain assumptions and see where they take us
  • Comic Book Example:
  • Batman
  • Superman
## Market Structure – Providing Context

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>PERFECT COMPETITION</th>
<th>MONOPOLISTIC COMPETITION</th>
<th>OLIGOPOLY</th>
<th>MONOPOLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of firms</td>
<td>Many</td>
<td>Many</td>
<td>Few</td>
<td>One</td>
</tr>
<tr>
<td>Type of product</td>
<td>Identical</td>
<td>Differentiated</td>
<td>Identical or differentiated</td>
<td>Unique</td>
</tr>
<tr>
<td>Ease of entry</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Entry blocked</td>
</tr>
<tr>
<td>Examples of industries</td>
<td>Wheat, Apples</td>
<td>Selling DVDs, Restaurants</td>
<td>Manufacturing computers, Manufacturing automobiles</td>
<td>First-class mail delivery, Tap water</td>
</tr>
</tbody>
</table>
Assumptions of Perfect Competition

1. There are many buyers and sellers
   - Example: Many sellers of Electricity?
   - Many buyers of star athlete talent?

2. All firms are selling identical products
   - Example: Wheat, film development, lawn care service

3. No Barriers to entry or exit
   - Example: Development of new operating system?

4. Perfect information
   - Example: Mechanic/Doctor
Information and the Black Eyed Peas

- I feel the weight of the world on my shoulder
  As I'm gettin' older, y'all, people gets colder
  Most of us only care about money makin'
  Selfishness got us followin' our wrong direction
  Wrong information always shown by the media
  Negative images is the main criteria
  Infecting the young minds faster than bacteria
  Kids wanna act like what they see in the cinema
  Yo', whatever happened to the values of humanity
  Whatever happened to the fairness in equality
  Instead in spreading love we spreading animosity
  Lack of understanding, leading lives away from unity
  That's the reason why sometimes I'm feelin' under
  That's the reason why sometimes I'm feelin' down
  There's no wonder why sometimes I'm feelin' under
  Gotta keep my faith alive till love is found

- Guns and the Media – Accidental Gun Deaths

- Information and conflicts of interest
Perfect Competition

- **Result:** Perfectly Competitive Firm cannot affect market price
  - **Price Taker:** A buyer or seller that is __________ to affect the market price

- Each firm's demand curve is perfectly elastic (A flat line at the market price)
- A change in q of any firm is not significant enough to change the market demand, D, so one firm __________ impact the market price.
Perfect Competition

- Establishing the Demand curve for a single firm
- Compare market to a single firm
- Consider wheat
Many roles of Firm’s demand curve in perfectly competitive markets

- **Punch line:** In PC, a firm’s demand curve is also the average revenue curve, and the marginal revenue curve.
- **Important because** this will help us to see profits in the graph
- **Total Revenue** = \( TR = Price_E \times \text{quantity} \)
- **Marginal Revenue:** Revenue from selling one more unit of the good
- **Conclusion:** \( MR = P_E \) for perfectly competitive firms

**LETS SHOW IT**
- if \( P_E = $10 \) and we sell 20 units, **what is TR?**
  - \( TR = $10(20) = $200 \)
- **How do you calculate average revenue?**
  - \( AR = \frac{TR}{q} \)
    - \( TR/q = 200/20 = $10 \)
  - \( AR = MR = P_E = $10 \)
- **Repeat Punch line:** In PC, a firm’s demand curve is also the average Revenue curve, and the marginal revenue curve.
Perfect Competition Graphically

- Market, __________, determines equilibrium price.
- At equilibrium price, the firm’s demand curve is the marginal revenue curve _______ the average revenue curve.
- This helps when finding profits.
Which Quantity Maximize Profits?

- Profit = TR – TC
- Want this difference to be as large as possible.

<table>
<thead>
<tr>
<th>QUANTITY (BUSHELS) (Q)</th>
<th>TOTAL REVENUE (TR)</th>
<th>TOTAL COSTS (TC)</th>
<th>PROFIT (TR-TC)</th>
<th>MARGINAL REVENUE (MR)</th>
<th>MARGINAL COST (MC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$0.00</td>
<td>$1.00</td>
<td>−$1.00</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>1</td>
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<td>4.00</td>
<td>0.00</td>
<td>$4.00</td>
<td>$3.00</td>
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<tr>
<td>2</td>
<td>8.00</td>
<td>6.00</td>
<td>2.00</td>
<td>4.00</td>
<td>2.00</td>
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<td>7.50</td>
<td>4.50</td>
<td>4.00</td>
<td>1.50</td>
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<tr>
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<td>6.50</td>
<td>4.00</td>
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<tr>
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<td>20.00</td>
<td>12.00</td>
<td>8.00</td>
<td>4.00</td>
<td>2.50</td>
</tr>
<tr>
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<td>4.00</td>
<td>3.00</td>
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<td>4.00</td>
<td>4.50</td>
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<td>40.50</td>
<td>−0.50</td>
<td>4.00</td>
<td>8.00</td>
</tr>
</tbody>
</table>
Which Q maximize profits?

- Graphically, we want the distance between TR and TC to be as large as possible.
- This is equivalent to Marginal Revenue = Marginal Cost
- If MR does not = MC at a whole unit, produce the next smallest quantity.

**Learned:** Choose Q so that TR is farthest away from TC \( \Rightarrow \text{MR} = \text{MC} \) or the next lowest quantity.
Show Profits in the Price Quantity Graph

- **Step 1**: Go to the best point. Quantity where MR = MC

- **Step 2**: Find Total Revenue
  - Total revenue = AR * Q

- **Step 3**: Find total costs
  - Total cost = Average Cost * Q

- The difference is Profit
Seeing Profits

• Consider Andy’s basketball firm.
• Is this firm Earning a Profit?

• Now that the price has dropped, are they earning a profit?
Produce or Shut Down?

- Will a firm willingly operate at a loss?
  - This is better than not operating at all
- If price is greater than minimum of AVC (think the wage of workers), then the firm will is better off operating at a loss.
- If price < AVC, then shutdown

Examples:
  - Fireworks stand
  - Christmas tree lots
• **Result:**
  - If Price is above AVC, produce
  - If price is below AVC, shutdown.
• Let’s consider many prices and see if and how much we produce.
• We just developed a relationship between price and quantity produced. **What is that called?**
  - ___________
• **Result:**
  - MC above the minimum of AVC is the firm’s ___________
• Should this firm shutdown?
  • No, they are earning a profit
  • Price > AVC

• Should this firm shutdown?
  • No, they are covering their wages and paying some on the lease.
  • P > AVC
  • When their lease is up (long run), then they can choose to go out of business completely.
Long Run Entry and Exit

If you see a firm earning lots of profits in a perfectly competitive world what are you going to do?

- $20 bills on the ground, ________
- Firms will continue to enter until economic profits are________
- Zero economic profit: A ___________ return to doing business
  - Remember, economic profit takes into account opportunity costs
If you are a firm in a *perfectly competitive* market, and making losses, what are you going to do?

___________
Assume: Demand for apples falls: USDA says there is no difference between organic and store bought Apples
Demand Shifts left, Prices go down, Losses cause some firms to exit.
Exit of firms cause the supply curve to shift to the left, price goes back up.
New equilibrium will be where firms are earning a normal rate of return.
Returning to Equilibrium in the case of Profits

- Begin at equilibrium
- Scientists show that eating 10 servings of wheat reduces cancer by 63%
- What happens?
- ______________________ What happens to price?
- ___________________________. What happens to profit of wheat growers?
- __________________________

- Others see the profits and begin to grow wheat themselves, What happens to the market supply curve as a result? How about the market price? How about Profit?
  - ________________________
  - _______________________
  - _________________________
Economics of Exam Taking

- Students take a lot of **Adderall** during Exam time
  - Normal price = $3 / per 10 mg pill
  - Exam Time Price = $5 / per 10 mg pill

- How might someone make money in this situation?
  - ________________________________

- Lots of dealers bought for $3 dollars and sold during Exam time. **What do you think will happen to the exam time price?**
  - ________________________________
Perfect Competition – The standard

- Economist measure outcomes against the case of perfect competition
  - Goods and services are:
    - produced exactly according to our preferences (allocative efficiency)
    - Produced in the least cost way (productive efficiency).
    - CS and PS are as Big as possible