Learning Objectives

1. Define and explain the differences between accounting profit, economic profit, and normal profit
2. Explain the Invisible Hand Theory and show how economic profit and economic loss affect the allocation of resources across industries
3. Explain why economic profit, unlike economic rent, tends toward zero in the long run
4. Identify whether the market equilibrium is socially efficient, and explain why no opportunities for gain remain open for individuals when a market is in equilibrium
5. Calculate total economic surplus and explain how it is affected by policies that prevent the market from reaching equilibrium
Markets Are Dynamic

- Every time you see one of these signs, you see the market dynamics at work:
  - Store for Lease
  - Going Out of Business Sale
    - Everything Must Go
  - Now Open
  - Close-Out Model
  - Under New Management

The Invisible Hand

- Individuals act in their own interests
  - Aggregate outcome is collective well-being
- Profit motive
  - Produces highly valued goods and services
  - Allocates resources to their highest value use
    - Jon Stewart does not wait tables
Accounting Profit

- Most common profit idea
  - **Accounting profit** = total revenue – explicit costs
  - **Explicit costs** are payments firms make to purchase
    - Resources (labor, land, etc.) and
    - Products from other firms
- Easy to compute
- Easy to compare across firms

Economic Profit

- **Economic profit** is the difference between a firm's total revenue and the sum of its explicit and implicit costs
  - Also called excess profits
- **Implicit costs** are the opportunity costs of the resources supplied by the firm's owners
- **Normal profit** is the difference between accounting profit and economic profit
  - Normal profits keep the resources in their current use
Three Kinds of Profit

Total Revenue = Explicit Costs + Accounting Profit

Economic Profit = Accounting Profit – Normal Profit

Example: Economic Profit Guides Decisions

- Pudge Buffet's decision: continue farming or quit?
  - Quit farming and earn $11,000 per year working retail
  - Explicit farm costs are $10,000
  - Total revenue is $22,000

<table>
<thead>
<tr>
<th>Accounting Profit</th>
<th>Economic Profit</th>
<th>Normal Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$12,000</td>
<td>$1,000</td>
<td>$11,000</td>
</tr>
</tbody>
</table>

- Pudge should stick with farming
  - His economic profit is positive
Example: Economic Profit Guides Decisions, A Change in Revenue

- Pudge Buffet's decision: continue farming or quit?
  - Quit farming and earn $11,000 per year working retail
  - Explicit farm costs are $10,000
  - Total revenue is $20,000

<table>
<thead>
<tr>
<th>Accounting Profit</th>
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<th>Normal Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$10,000</td>
<td>-$1,000</td>
<td>$11,000</td>
</tr>
</tbody>
</table>

- Pudge should quit
  - His economic profit is negative

Example: Owned Inputs

- Rent for the farm land is $6,000 of the $10,000 in explicit costs
  - What changes if Pudge inherits the land?
    - His rent payments become an implicit cost

<table>
<thead>
<tr>
<th>Total Revenue</th>
<th>Explicit Costs</th>
<th>Implicit Costs</th>
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<tbody>
<tr>
<td>$20,000</td>
<td>$4,000</td>
<td>$17,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accounting Profit</th>
<th>Economic Profit</th>
<th>Normal Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$16,000</td>
<td>-$1,000</td>
<td>$17,000</td>
</tr>
</tbody>
</table>

- Pudge should quit farming
Two Functions of Price

- **Rationing function** of price distributes scarce goods to the consumers who value them most highly.
- **Allocative function** of price directs resources away from overcrowded markets to markets that are underserved.
- **Invisible Hand Theory** states that the actions of independent, self-interested buyers and sellers will often result in the most efficient allocation of resources.
  - Articulated by Adam Smith in eighteenth century.

Responses to Profits and Losses

- Will the firm remain in business in the long run?
  - If it covers ALL of its costs.
- Firms that earn normal profit recover only their opportunity cost.
- Firms that earn positive economic profit recover more than their opportunity cost.
- Markets in which firms are earning economic profit will attract resources.
- Markets in which firms are suffering economic losses will lose resources.
Response to Economic Profits

- Markets with excess profits attract resources

![Graph showing the response to economic profits]

Shrinking Economic Profits

- Supply increases

![Graph showing shrinking economic profits]
Market Equilibrium

- Zero economic profits

Economic Losses

- Resources leave
Market Equilibrium

- No economic losses

Constant-Cost Industry

- In the long run, corn costs $1/bu regardless of the size of the industry
Features of the Invisible Hand

Benefits of Invisible Hand

Cost – Benefit Principle applies

- Marginal benefit of last buyer equals marginal cost of last unit produced

P = MC

- Price paid by buyers is no greater than cost to the seller

Example: Movement Toward Equilibrium

- All markets are in equilibrium when
  - Demand for haircuts decreases
  - Demand for exercise increases
- Price of haircuts goes down; hair stylists have losses
- Price of aerobics classes go up; instructors have excess profits
- Eventually the long-run prices of haircuts and aerobics class return to long-run equilibrium
Short-Run Adjustments

Haircut Market

Aerobics Market

Price ($/haircut)

Price ($/class)

Classes/day

Haircuts/day

Typical Hair Salon

Typical Aerobics Studio

Economic loss

Economic profit

MC

MC

ATC

ATC

$15.5

$15
Free Entry and Exit

- **Barrier to entry**: any force that prevents firms from entering a new industry
  - Legal constraints
  - Practical factors
- Free entry and exit is required for the Invisible Hand to work

Economic Rent

- Economic profits tend toward zero, yet people get rich
- **Economic rent** is the portion of a payment to a factor of production that exceeds the owner's reservation price
  - People who love their work
  - Non-reproducible input
- The case of the talented chef
  - Unique talent for cooking
  - In equilibrium, pay the chef the increase in revenue from his talent
Invisible Hand in the Supermarket

• No Cash on the Table Principle says short check-out lines get longer – quickly
  – Information is freely available
• Start in the shortest line
  – Observe the pace of all lines
    • Missing price in your line
    • Complaining customer next to you
  – Decide whether to switch

Invisible Hand and Cost-Saving Innovations

• Competitive firms are price takers
  – Cost management required
• Innovation lowers cost for one firm
  – Profits increase by amount of cost savings
  – Information is freely available
• Industry costs decrease
• Equilibrium price decreases by amount of cost savings
  – No excess profit
Example: Shipping Innovation

- 40 companies compete in trans-Atlantic shipping
  - Cost per trip is $500,000
- One firm innovates to save $20,000 in fuel per trip
  - Short-run economic profit
- Over time, competitors copy the innovation
  - Industry costs decrease by $20,000
  - Equilibrium price decreases by $20,000
- In the long run, no firm earns economic profit

Market Equilibrium and Big Payoffs

- Equilibrium leaves no opportunities for individuals to gain
  - Non-equilibrium opportunities benefit individuals
    - Exploiting opportunities moves the market toward equilibrium
- Three ways to earn a big payoff:
  1. Work exceptionally hard
  2. Have some unique skill or talent
  3. Be lucky
Invisible Hand and Socially Optimal Outcome

• Markets work best when
  – Buyers' marginal benefits = sellers' marginal costs
  **AND**
  – Society's marginal benefits = society's marginal costs

• Individual spending to improve a stock price forecast may benefit the individual
  – Some other individual loses
  – Return to society of the investment is less than the benefit

Market Equilibrium and Efficiency

• **Economic efficiency** exists when no change could be made to benefit one party without harming the other
  – Sometimes called Pareto efficiency
  – Different from engineering efficiency
  – Equilibrium price and quantity are efficient
  – Prices above or below equilibrium are not
Price Below Equilibrium

• Suppose milk is $1 per gallon

<table>
<thead>
<tr>
<th>Price ($/gallon)</th>
<th>Quantity (1,000s of gallons/day)</th>
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</thead>
<tbody>
<tr>
<td>2.50</td>
<td>1</td>
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<tr>
<td>2.00</td>
<td>2</td>
</tr>
<tr>
<td>1.50</td>
<td>3</td>
</tr>
<tr>
<td>1.00</td>
<td>4</td>
</tr>
<tr>
<td>0.50</td>
<td>5</td>
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</table>

Price Below Equilibrium

• A buyer offers $1.25

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Price above Equilibrium

![Graph showing supply (S) and demand (D) curves with price above equilibrium.]

Only equilibrium price is efficient

Efficiency Conditions

- Perfectly Competitive Markets
- No Costs or Benefits Shifted

Market Efficiency
Trade-Offs

- Efficiency
- Equity
- Basic Needs
- Fairness
- Maximum Total Surplus

The Cost of Preventing Price Adjustments

- Price ceilings
  - A maximum allowable price, specified by law
- Price subsidies
  - Meant to assist low-income consumers, governmental funding of “essential” goods and services
Example: Heating Oil Market

<table>
<thead>
<tr>
<th>Quantity (1,000s of gallons/day)</th>
<th>Price ($/gallon)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12345</td>
<td>1.60</td>
</tr>
<tr>
<td>12345</td>
<td>1.20</td>
</tr>
<tr>
<td>12345</td>
<td>1.00</td>
</tr>
<tr>
<td>12345</td>
<td>0.80</td>
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</tbody>
</table>

Producer surplus = $900/day

Consumer surplus = $900/day

Price Ceiling on Heating Oil

<table>
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<tr>
<th>Quantity (1,000s of gallons/day)</th>
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Producer surplus = $100/day

Lost surplus = $800/day

Consumer surplus = $900/day
Surplus Lost to a Price Ceiling

- $800 underestimates surplus loss
  - Consumers place different values on heating oil
    - If a person with a lower reservation price gets the oil, there is additional surplus lost
  - Shortages increase non-market costs
    - Waiting in line
    - Side payments

Alternative Heating Oil Policy

<table>
<thead>
<tr>
<th>Surplus with Price Controls</th>
<th>Surplus with Income Transfers Only</th>
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</thead>
<tbody>
<tr>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>P</td>
<td>P</td>
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R = high income
P = low income
Example: Price Subsidy for Bread

- Imported bread costs $2
  - Perfectly elastic supply
- Government program to subsidize bread
  - Government imports bread for $2
  - Government sells bread for $1
  - Results
    - More bread
    - Less efficiency

Price Subsidies for Bread

- Consumer Surplus = $4 M/month
- Consumer Surplus = $9 M/month

BUT…
The Cost of the Subsidy

- The bread subsidy appears to increase consumer surplus from $4 million to $9 million
- BUT …
  - The government loses $1 on every loaf
    - Imports 6 million loaves for $2 per loaf
    - Government losses are $6 million
- The net benefit of the subsidy program
  - Consumer surplus – government losses
  - Net benefit = $3 million

Price Subsidies for Bread

<table>
<thead>
<tr>
<th>Price ($/loaf)</th>
<th>Consumer Surplus</th>
<th>Total Surplus Lost = $1 M/month</th>
<th>Government Losses</th>
<th>S with subsidy</th>
</tr>
</thead>
<tbody>
<tr>
<td>$4.00</td>
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Quantity (millions of loaves/month)
Invisible Hand in Action

Economic Efficiency

Market Equilibrium

Price Ceilings

Subsidies

Invisible Hand

Profits

Examples

Resource Allocation

Economic Rents