Comparative Advantage

Chapter 2

Learning Objectives

1. Explain and apply the Principle of Comparative Advantage
2. Explain and apply the Principle of Increasing Opportunity Cost (also called the Low-Hanging-Fruit Principle)
3. Identify factors that shift the menu of production possibilities
4. Explain and apply the role of comparative advantage in international trade and describe why some jobs are more vulnerable to outsourcing than others
Exchange and Opportunity Cost

• Joe Jamail, a highly successful trial attorney, employs another attorney to write his will
  – Writing your own will 2 hours
  – Opportunity cost of 2 hours $10,000+
  – Hiring someone to spend 4 hours on your will $3,200
  – Making the right economic choice Priceless

• Do It Yourself only when
  
  Opportunity cost < hired cost

Exchange and Opportunity Cost

• A person has an absolute advantage at a particular task if he or she can perform the task in fewer hours than the other person

• A person has a comparative advantage at a particular task if his or her opportunity cost of performing the task is lower than the other person’s opportunity cost
The Principle of Comparative Advantage

Everyone does best when each person (or each country) concentrates on the activities for which his or her opportunity cost is the lowest.

The Principle of Comparative Advantage

- Two parties have different opportunity costs for two activities
  - Concentrate on the activities for which you have the lowest opportunity cost
- Total value of output increases with specialization and trade
Comparative Advantage Example

<table>
<thead>
<tr>
<th>Production Times</th>
<th>Web Update</th>
<th>Bike Repair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beth</td>
<td>20 minutes</td>
<td>10 minutes</td>
</tr>
<tr>
<td>Paula</td>
<td>30 minutes</td>
<td>30 minutes</td>
</tr>
</tbody>
</table>

- Paula and Beth can each update web pages and repair bikes
  - Beth has an absolute advantage in both
  - Comparative advantage drives specialization

<table>
<thead>
<tr>
<th>Opportunity Cost</th>
<th>Web Update</th>
<th>Bike Repair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beth</td>
<td>2 repairs</td>
<td>0.5 update</td>
</tr>
<tr>
<td>Paula</td>
<td>1 repair</td>
<td>1 update</td>
</tr>
</tbody>
</table>
### Comparative Advantage Example

**Production Times**

<table>
<thead>
<tr>
<th></th>
<th>Web Update</th>
<th>Bike Repair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beth</td>
<td>20 minutes</td>
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</tr>
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<td>Paula</td>
<td>30 minutes</td>
<td>30 minutes</td>
</tr>
</tbody>
</table>

**Hourly Output**

<table>
<thead>
<tr>
<th></th>
<th>Web Update</th>
<th>Bike Repair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beth</td>
<td>3 updates</td>
<td>6 repairs</td>
</tr>
<tr>
<td>Paula</td>
<td>2 updates</td>
<td>2 repairs</td>
</tr>
</tbody>
</table>

- 16 web updates are ordered
  - Beth spends half her time at each activity: 12 updates and 24 repairs
  - Paula produces 4 updates and 12 repairs
  - Total output 16 updates and 36 repairs
- Specialization produces 16 updates and 48 repairs
  - 12 more repairs for the same inputs!
Another Example

This table shows output per hour:
- Apply the Principle of Comparative Advantage
  - Look at opportunity cost per unit
  - Pat repairs bikes and Barb updates web pages

<table>
<thead>
<tr>
<th></th>
<th>Web Update</th>
<th>Bike Repair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pat</td>
<td>2 updates</td>
<td>1 repair</td>
</tr>
<tr>
<td>Barb</td>
<td>3 updates</td>
<td>3 repairs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Web Update</th>
<th>Bike Repair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pat</td>
<td>½ repair</td>
<td>2 updates</td>
</tr>
<tr>
<td>Barb</td>
<td>1 repair</td>
<td>1 update</td>
</tr>
</tbody>
</table>

Where Have All the 0.400 Hitters Gone

- None since 1941
  - Not a decline in athletic ability
- Specialization keeps averages lower
  - Pitching and fielding skills have improved
    - Pitchers specialize in starters, middle relievers, and closers; right- or left-handed batters; strike outs
    - Fielders play one position
    - Specialized coaches
    - Detailed analysis of hitters' weaknesses
Sources of Comparative Advantage

- Talent
- Natural resources
- Cultures or societal norms
  - Languages
  - Institutions
    - Value placed on craftsmanship
    - Support for entrepreneurship

Production Possibilities Curve

- A production possibilities curve illustrates the combinations of two goods that can be produced with given resources
- Definitions:
  - Unattainable point
  - Attainable point
    - Inefficient point
    - Efficient point
- Scarcity Principle
  - Give up one good to get another
Susan's Production Possibilities

- Two goods: coffee and nuts
  - Work 6 hours per day
- 1 hour of labor
  - 4 pounds of coffee OR 2 pounds of nuts
  - Graph shows options
    - Negative slope

Susan's Opportunity Cost

- Marginal cost: 8 coffee
- Marginal benefit: 4 nuts
  \[
  \frac{\text{Loss in coffee}}{\text{Gain in nuts}}
  \]
  - Opportunity cost of 1 nut is 2 coffee
- Marginal cost: 8 nut
- Marginal benefit: 16 coffee
  \[
  \frac{\text{Loss in nuts}}{\text{Gain in coffee}}
  \]
  - Opportunity cost of 1 coffee is ½ nut
Tom's Production Possibilities

- Work 6 hours per day
- Productivity determines the slope of the PPC
- 1 hour of labor
  - = 4 pounds of nuts OR
  - = 2 pounds of coffee
- Opportunity cost
  - Marginal cost: – 4 coffee
  - Marginal benefit: 8 nuts
- Tom's opportunity cost of 1 coffee is 2 nuts
- His opportunity cost of 1 nut is ½ coffee

Tom, Meet Susan

- PPCs show comparative advantage
- Sue's curve is steeper, better for coffee
- Tom's curve is flatter, better for nuts
- Comparative advantage is a comparison
- To get 1 coffee
  - Sue gives up ½ nuts
  - Tom gives up 2 nuts
Gains from Specialization and Trade

- Without trade, each person can consume along his production possibilities curve
  - What you produce determines what you consume
- With trade, each person's consumption can be greater than production
  - Produce according to comparative advantage
  - Trade to get what you want

Preferred diet is half nuts, half coffee
- No trade: 8 pounds of coffee and 8 pounds of nuts
- Total output is 32 pounds
- Specialization gives each person 12 pounds of each good
  - 48 total pounds
Gains from Specialization and Trade

- Benefits increase when differences in opportunity cost increase
  - Sue's opportunity cost of one pound of nuts increases to 6 coffee
  - Tom's opportunity cost of one pound of coffee increases to 6 nuts
- No trade: 3.4 nuts and 3.4 coffee each
- With trade: 12 nuts and 12 coffee each

Production Possibilities for an Economy

- Two goods: coffee and nuts
- Multiple people
- Different opportunity costs
- Intercepts show maximum production of one good
- Some resources better at coffee, some better at nuts
The Principle of Increasing Opportunity Cost

- Maximum coffee: 100,000 lb / day
  - Give up 5,000 pounds coffee, get 20,000 pounds of nuts
  - Give up another 5,000 pounds of coffee, get 10,000 additional pounds of nuts

![Diagram showing the principle of increasing opportunity cost](image)

The Principle of Increasing Opportunity Cost

- Start with resources with lowest opportunity cost
- Then move to next highest opportunity cost
- And still higher opportunity cost

![Diagram illustrating the principle of increasing opportunity cost](image)
The Dynamic Economy

- A PPC represents current choices
  - Changes in choices occur over time due to
    - More resources
      - Investment in capital
      - Population growth
    - Improvements in technology
      - More specialization: start-up and switching costs
    - Increases in knowledge

Shifts in PPC
Some Countries Resist Specialization

- Specialization is easier when
  - Population density passes a threshold
  - Markets are connected
    - Transportation for goods
    - Communications for services
  - Legal framework supports business
  - Financial markets enable start-ups

Too Much Specialization?

- Imagine this:
  - Your hair stylist only cuts blonde hair
  - An expert in tropical diseases opens a practice in a town of 500 people in Wisconsin
  - Seven bookstores, each open a different day of the week
Comparative Advantage and International Trade

- Principle of Comparative Advantage and gains from trade apply worldwide
  - Potentially large gains from trading with different and distant countries
- Trade can be controversial
  - Trade benefits society broadly
  - Costs are concentrated
    - Some industries suffer
    - People lose their jobs

Outsourcing

- Service work performed overseas by low wage workers has been termed outsourcing
  - Medical transcription
  - Customer call center
  - Medical tourism
  - Technical writing

- Limits to outsourcing
  - Quality control
  - Physical presence (haircuts)
  - Complex communications
  - Understand nuance

- Greatest security for workers is the ability to adapt quickly to changing circumstances
Comparative Advantage

Increasing Opportunity Cost

Specialization and Gains from Trade

Production Possibilities Curve

Individual Economy

Outsourcing

Shift PPC