

## Chapter 8: Trade

Modified by Joseph Tao-yi Wang

**Microeconomics**

Do free-trade deals in college worth it? How does free trade affect the rental cost of housing? How much does a welfare state cost? How do you price your house? Would a worker get the full \$100 if he works for \$90? How do you affect demand? How do you affect supply? How do you affect the overall well-being of society? Will free trade cause you to lose your job? How can the Queen of England lower her commute time to Windsor? What is the optimal size of government? Is there discrimination in the labor market? Can a monopoly ever be good for society? Is there value in selling yourself into someone else's shop? How many times are necessary to make a market competitive? Do people exhibit a preference for immediate gratification? Why do you care how much you value the things they are driven off the lot? How should you bid in an eBay auction? Do people care about fairness?

**Acemoglu Laibson List**

2016/11/3 Trade Joseph Tao-yi Wang

### Chapter Outline

- 8.1. The Production Possibilities Curve
- 8.2. The Basis for Trade:  
Comparative Advantage
- 8.3. Trade between States
- 8.4. Trade between Countries
- 8.5. Arguments against Free Trade

2016/11/3 Trade Joseph Tao-yi Wang

### Key Ideas

1. The production possibilities curve tells us how much we can produce from existing resources and technology.
2. The basis for trade is comparative advantage.
3. Specialization is based on comparative, not absolute, advantage.

2016/11/3 Trade Joseph Tao-yi Wang

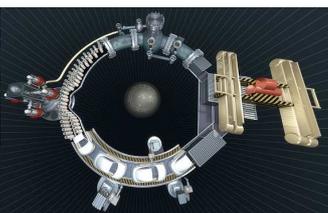
### Key Ideas

4. There are winners and losers within trading states and countries.
5. The winners from trade can more than compensate the losers.
6. Important arguments against free trade exist.

2016/11/3 Trade Joseph Tao-yi Wang

### Evidence-Based Economics Example

▶ Will free trade cause you to lose your job?  
▶ Or, let you earn 22k?

2016/11/3 Trade Joseph Tao-yi Wang

### Production Possibilities Curve

▶ To understand trade between individuals, states, or countries, you must first understand trade with yourself.

- ▶ Boston Red Sox had a left-handed pitcher who helped the Sox win the World Series in 1916 and 1918 and set the record for consecutive scoreless innings—a record that stood until 1961.
- ▶ After 1918, he was traded, and in the 1919 season, he only pitched 17 games for his new team—he played outfield instead. **Who was he?**

2016/11/3 Trade Joseph Tao-yi Wang

Production Possibilities Curve



Why did the Yankees put him in the outfield?

Production Possibilities Curve

Hours Spent on Web Sites	Number of Web Sites Produced	Hours Spent on Computer Programs	Number of Computer Programs Produced
8	8	0	0
7	7	1	2
6	6	2	4
5	5	3	6
4	4	4	8
3	3	5	10
2	2	6	12
1	1	7	14
0	0	8	16

Exhibit 8.1 Your Production Schedule

Production Possibilities Curve

- ▶ Production Possibilities Curve
- ▶ Shows the relationship between the maximum production of one good for a given level of production of another good

Production Possibilities Curve

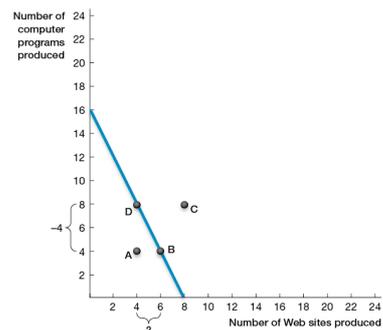


Exhibit 8.2 The Production Possibilities Curve

Production Possibilities Curve

- ▶ The PPC divides the space into 3 parts:
  1. Points B and D
- ▶ These 2 points (and all points on the PPC) represent levels of production of the goods that efficiently use resources.

Production Possibilities Curve

2. Points A
- ▶ This point (and all points below the PPC) represents a level of production of the goods that can be achieved, but that is inefficient because it doesn't use all resources.

## Production Possibilities Curve

### 3. Points C

- ▶ This point (and all points above the PPC) represents a level of production of the goods that cannot be achieved with the current level of resources.

2016/11/3

Trade

Joseph Tao-yi Wang

## Production Possibilities Curve

- ▶ Two other things about the PPC:

1. Sign of slope
  - ▶ Why is the PPC negative?
2. Size of slope
  - ▶ What does the slope represent?
  - ▶ What does one program "cost" you?
  - ▶ What does one Web site "cost" you?

2016/11/3

Trade

Joseph Tao-yi Wang

## Production Possibilities Curve

- ▶ How do you complete 240 programs AND 240 Web sites?

- ▶ 1 day of programming = 16, so you'll need to work 15 days
- ▶ 1 day of Web site design = 8, so you'll need to work 30 days
- ▶ Total of 45 days of work!

2016/11/3

Trade

Joseph Tao-yi Wang

## Production Possibilities Curve

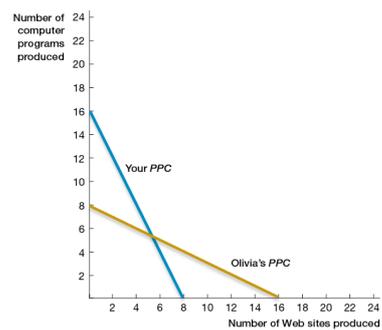


Exhibit 8.3 Two Production Possibilities Curves

2016/11/3

Trade

Joseph Tao-yi Wang

## Production Possibilities Curve: Calculating Opportunity Cost

- ▶ What does one program "cost" Olivia?
- ▶ What does one Web site "cost" her?

2016/11/3

Trade

Joseph Tao-yi Wang

## The Basis for Trade: Comparative Advantage

- ▶ Comparative Advantage
- ▶ The ability of one economic agent to produce at lower opportunity cost than another

2016/11/3

Trade

Joseph Tao-yi Wang

### The Basis for Trade: Comparative Advantage

Opportunity costs for Web sites and programs

	Web Site Opportunity Cost	Computer Program Opportunity Cost
You	2 computer programs	1/2 Web sites
Olivia	1/2 computer program	2 Web sites

2016/11/3 Trade Joseph Tao-yi Wang

### The Basis for Trade: Comparative Advantage - Specialization

- ▶ You have a lower cost of producing programs.
- ▶ Olivia has a lower cost of producing Web sites.
- ▶ If you each specialize and trade, more output can be produced.

2016/11/3 Trade Joseph Tao-yi Wang

### The Basis for Trade: Comparative Advantage - Specialization

Exhibit 8.4 The Gains from Specialization

2016/11/3 Trade Joseph Tao-yi Wang

### The Basis for Trade: Absolute Advantage Comparative Advantage

- ▶ What if you took a course on Web site design and became better than Olivia at both Web site design and computer program production?

2016/11/3 Trade Joseph Tao-yi Wang

### The Basis for Trade: Absolute Advantage Comparative Advantage

Exhibit 8.5 An Illustration of Absolute Advantage

2016/11/3 Trade Joseph Tao-yi Wang

### The Basis for Trade: Absolute Advantage Comparative Advantage

- ▶ Absolute advantage
- ▶ The ability of an economic agent to produce more output than another agent with the same resources

2016/11/3 Trade Joseph Tao-yi Wang

**The Basis for Trade: Absolute Advantage**  
**Comparative Advantage**

Opportunity costs for Web sites and programs

	Web Site Opportunity Cost	Computer Program Opportunity Cost
You	2/3 computer programs	3/2 Web sites
Olivia	1/2 computer program	2 Web sites

2016/11/3 Trade Joseph Tao-yi Wang

**The Basis for Trade: Absolute Advantage**  
**Comparative Advantage**



Why didn't Babe pitch again?

2016/11/3 Trade Joseph Tao-yi Wang

**The Basis for Trade: The Price of the Trade**  
**Comparative Advantage**

	Web Site Opportunity Cost	Computer Program Opportunity Cost
You	2/3 computer programs	3/2 Web sites
Olivia	1/2 computer program	2 Web sites

- ▶ What if Olivia offered to trade you 1 of her Web sites for 1 of your programs?
  - ▶ Would you do it?

2016/11/3 Trade Joseph Tao-yi Wang

**The Basis for Trade: The Price of the Trade**  
**Comparative Advantage**

	Web Site Opportunity Cost	Computer Program Opportunity Cost
You	2/3 computer programs	3/2 Web sites
Olivia	1/2 computer program	2 Web sites

- ▶ What if Olivia offered to trade you 2 of her Web sites for 1 of your programs?
  - ▶ Would you do it?

2016/11/3 Trade Joseph Tao-yi Wang

**The Basis for Trade: The Price of the Trade**  
**Comparative Advantage**

	Web Site Opportunity Cost	Computer Program Opportunity Cost
You	2/3 computer programs	3/2 Web sites
Olivia	1/2 computer program	2 Web sites

- ▶ What if you offered to trade Olivia 1 of your programs for 3 of her Web sites?
  - ▶ Would she do it?

2016/11/3 Trade Joseph Tao-yi Wang

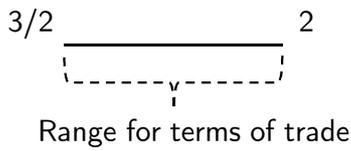
**The Basis for Trade: The Price of the Trade**  
**Comparative Advantage**

- ▶ Terms of Trade
- ▶ The "price" of one good in terms of the other; the exchange rate between goods

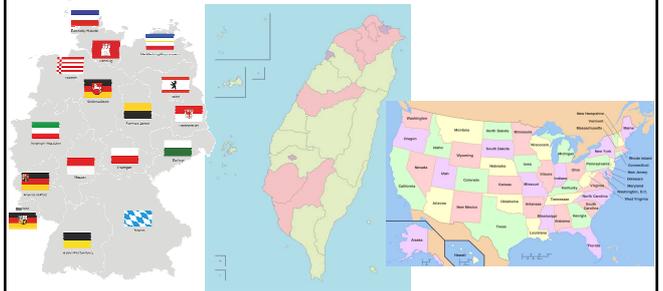
2016/11/3 Trade Joseph Tao-yi Wang

### The Basis for Trade: The Price of the Trade Comparative Advantage

- ▶ Your min. price for a program = 3/2 Web sites
- ▶ Olivia's max. price for a program = 2 Web sites
- ▶ Therefore, the terms of trade will be between 3/2 and 2:



### Trade Between States



Just as individuals gain from specialization and trade, so do states, provinces and regions.

### Trade Between States

- ▶ What are some sources of comparative advantage among states?

### Trade Between States

- ▶ Export =
  - ▶ A good produced domestically and shipped to another state or country
- ▶ Import =
  - ▶ A good produced in another state or country but sold domestically



### Trade Between States: Economy-Wide PPC

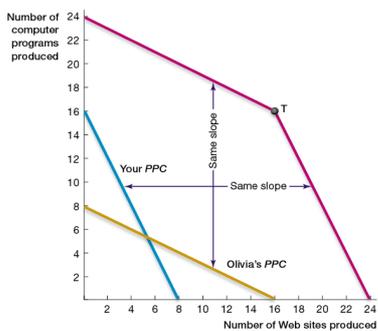


Exhibit 8.4 The Gains from Specialization

### Trade Between States: Economy-Wide PPC

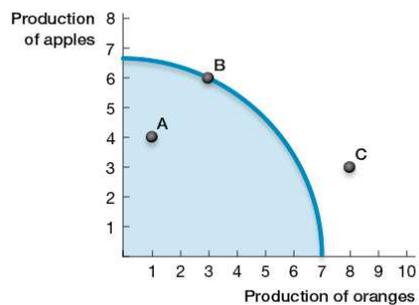


Exhibit 8.7 A Production Possibilities Curve

Trade Between States: Economy-Wide PPC

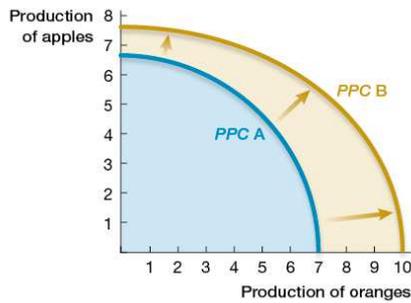


Exhibit 8.8 How Improved Technology Shifts the PPC

2016/11/3 Trade Joseph Tao-yi Wang

Trade Between States: Comparative Advantage and Specialization Among States

	Apricots Opportunity Cost	Bananas Opportunity Cost
California	1/5 bananas	5 apricots
Florida	8 bananas	1/8 apricots

Who should produce what?

2016/11/3 Trade Joseph Tao-yi Wang

Trade Between States: Comparative Advantage and Specialization Among States

	Apricots Opportunity Cost	Bananas Opportunity Cost
California	1/5 bananas	5 apricots
Florida	8 bananas	1/8 apricots

It costs California 1/5 of a banana to produce 1 apricot  
It costs Florida 8 bananas to produce 1 apricot

It's cheaper for California to produce apricots!

2016/11/3 Trade Joseph Tao-yi Wang

Trade Between States: Comparative Advantage and Specialization Among States

	Apricots Opportunity Cost	Bananas Opportunity Cost
California	1/5 bananas	5 apricots
Florida	8 bananas	1/8 apricots

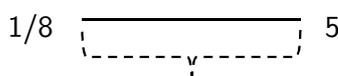
It costs California 5 apricots to produce 1 banana  
It costs Florida 1/8 of an apricot to produce 1 banana

It's cheaper for Florida to produce bananas

2016/11/3 Trade Joseph Tao-yi Wang

Trade Between States: Comparative Advantage and Specialization Among States

- Florida's min. price for a banana = 1/8 apricot
- California's max. price to pay for a banana = 5 apricots
- Therefore, the terms of trade will be between 1/8 and 5:



Range for terms of trade for a banana

2016/11/3 Trade Joseph Tao-yi Wang

Trade Between Countries

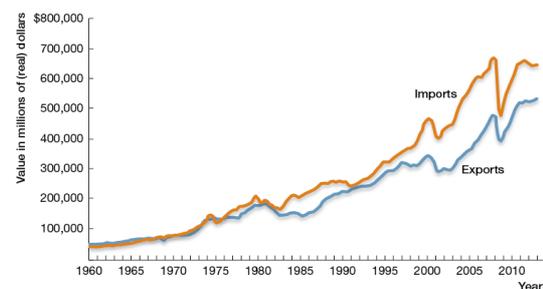


Exhibit 8.9 U.S. Exports and Imports Since 1960

2016/11/3 Trade Joseph Tao-yi Wang

### Trade Between Countries

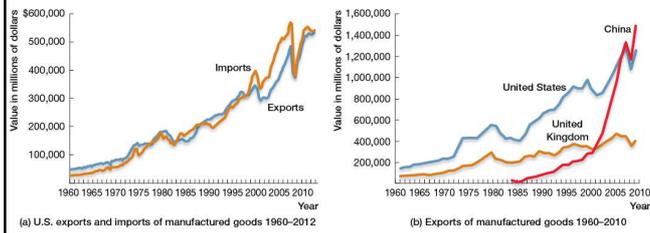


Exhibit 8.11 Changing Trading Patterns for Manufactured Goods

2016/11/3 Trade Joseph Tao-yi Wang

### Trade Between Countries

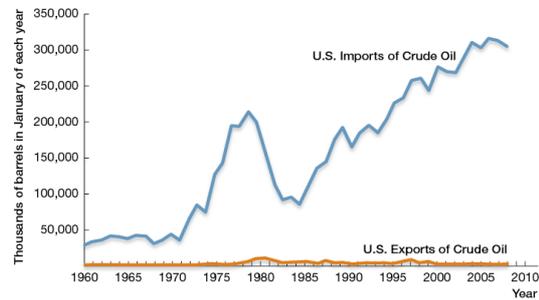


Exhibit 8.10 U.S. Imports and Exports of Crude Oil Since 1960

2016/11/3 Trade Joseph Tao-yi Wang

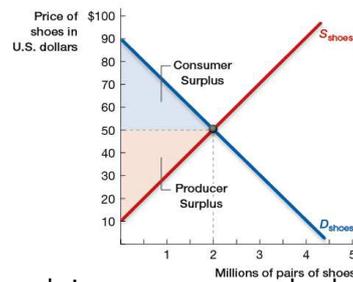
### Trade Between Countries: Determinants of Trade Between Countries

- ▶ The market for basketball shoes in Denmark
- ▶ Assume **free trade**—trade with no government involvement—which leads to a **world price**—price on the world market.



2016/11/3 Trade Joseph Tao-yi Wang

### Trade Between Countries: Determinants of Trade Between Countries

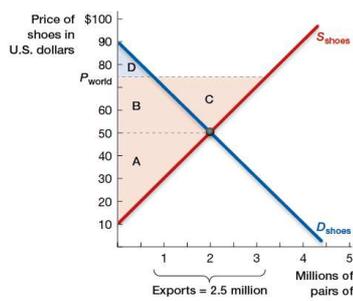


Will Denmark import or export basketball shoes?

Exhibit 8.11 Equilibrium for Basketball Shoes in Denmark

2016/11/3 Trade Joseph Tao-yi Wang

### Trade Between Countries: Exporting Nations: Winners and Losers



- ▶ The answer?
- ▶ It depends!

Exhibit 8.13 Winners and Losers in an Exporting Nation

2016/11/3 Trade Joseph Tao-yi Wang

### Trade Between Countries: Exporting Nations: Winners and Losers

- ▶ Danish consumers
- ▶ Less product at a higher price



- ▶ Danish shoe producers
- ▶ More product at a higher price

2016/11/3 Trade Joseph Tao-yi Wang

### Trade Between Countries: Exporting Nations: Winners and Losers

- ▶ Consumer surplus before trade:
  - ▶ Area B + D
- ▶ Consumer surplus after trade:
  - ▶ Area D
- ▶ Loss in consumer surplus of
  - ▶ Area B

Exhibit 8.13 Winners and Losers in an Exporting Nation

2016/11/3 Trade Joseph Tao-yi Wang

### Trade Between Countries: Exporting Nations: Winners and Losers

- ▶ Producer surplus before trade:
  - ▶ Area A
- ▶ Producer surplus after trade:
  - ▶ Areas A + B + C
- ▶ Gain in producer surplus of
  - ▶ Areas B + C

Exhibit 8.13 Winners and Losers in an Exporting Nation

2016/11/3 Trade Joseph Tao-yi Wang

### Trade Between Countries: Exporting Nations: Winners and Losers

- ▶ Summary of winners and losers:
  1. Producers gain Areas B + C
  2. Consumers lose Area B
  3. Net overall gain = Area C

2016/11/3 Trade Joseph Tao-yi Wang

### Trade Between Countries: Importing Nations: Winners and Losers

Alternatively...

Exhibit 8.14 Winners and Losers in an Importing Nation

2016/11/3 Trade Joseph Tao-yi Wang

### Trade Between Countries: Importing Nations: Winners and Losers

- ▶ Danish shoe producers
  - ▶ Less product at a lower price

- ▶ Danish consumers
  - ▶ More product at a lower price

2016/11/3 Trade Joseph Tao-yi Wang

### Trade Between Countries: Importing Nations: Winners and Losers

- ▶ Consumer surplus before trade:
  - ▶ Area B
- ▶ Consumer surplus after trade:
  - ▶ Areas B + C + D
- ▶ Gain in consumer surplus of
  - ▶ Areas C + D

Exhibit 8.14 Winners and Losers in an Importing Nation

2016/11/3 Trade Joseph Tao-yi Wang

## Trade Between Countries:

### Importing Nations: Winners and Losers

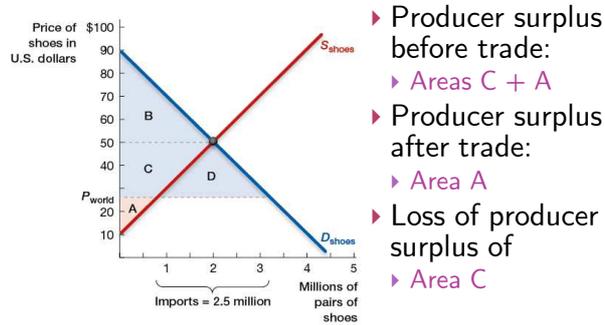


Exhibit 8.14 Winners and Losers in an Importing Nation

2016/11/3

Trade

Joseph Tao-yi Wang

## Trade Between Countries:

### Importing Nations: Winners and Losers

- ▶ Summary of winners and losers:
  1. Consumers gain Areas C + D
  2. Producers lose Area C
  3. Net overall gain = Area D

2016/11/3

Trade

Joseph Tao-yi Wang

## Trade Between Countries:

### Importing Nations: Winners and Losers

- ▶ In both cases—net exporter or net importer—Denmark is made better off through trading.
- ▶ The specific winners and losers change, but overall well-being is increased.
- ▶ Winners could be required to compensate the losers.

2016/11/3

Trade

Joseph Tao-yi Wang

## Trade Between Countries:

### Importing Nations: Winners and Losers

- ▶ Why would a domestic price be different than the world price?

2016/11/3

Trade

Joseph Tao-yi Wang

## Arguments Against Free Trade:

### National Security Concerns

1. National security concerns
  - ▶ Over-reliance on other countries for needed goods and services

2016/11/3

Trade

Joseph Tao-yi Wang

## Arguments Against Free Trade:

### Fear of Globalization

2. Effects of globalization—
  - ▶ shift toward interdependent economies—on domestic culture
  - ▶ Desire to protect culture from dilution or infringement of other values

2016/11/3

Trade

Joseph Tao-yi Wang

### Arguments Against Free Trade: Resource Protection

- Environmental and resource concerns
  - Countries vary by how stringent their environmental policies are.
  - Free trade can lead to greater pollution and resource depletion in those countries with lax standards because of the increase in demand.

2016/11/3 Trade Joseph Tao-yi Wang

### Arguments Against Free Trade: Infant Industry Arguments

- Infant industry arguments
  - When industries are first getting started, they may need some government protection from free trade until they get established.
- Protectionism
  - the view that governments should control trade due to the harmful effects of free trade

2016/11/3 Trade Joseph Tao-yi Wang

### Arguments Against Free Trade: The Effects of Tariffs

5. The Effects of Tariffs

Exhibit 8.15 The Effect of a Tariff

2016/11/3 Trade Joseph Tao-yi Wang

### Arguments Against Free Trade: The Effects of Tariffs

Exhibit 8.15 The Effect of a Tariff

- Consumer surplus before the tariff:
  - Areas  $B + F + E + G + H + I + J$
- Consumer surplus after the tariff:
  - Areas  $B + F + H$
- Loss in consumer surplus:
  - Areas  $E + G + I + J$

2016/11/3 Trade Joseph Tao-yi Wang

### Arguments Against Free Trade: The Effects of Tariffs

Exhibit 8.15 The Effect of a Tariff

- Who gets the lost surplus?
- Producers get Area E
  - (higher price on more shoes)
- Government gets Area I
  - (tax on imports)

2016/11/3 Trade Joseph Tao-yi Wang

### Arguments Against Free Trade: The Effects of Tariffs

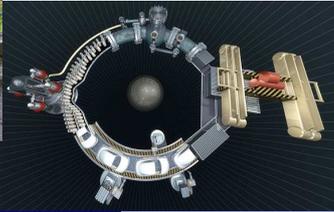
Exhibit 8.15 The Effect of a Tariff

- Who gets
  - Areas  $G + J$
- No one =
  - deadweight loss

2016/11/3 Trade Joseph Tao-yi Wang

## Evidence-Based Economics Example

- ▶ Will free trade cause you to lose your job?



2016/11/3

Trade

Joseph Tao-yi Wang

## Homework

- ▶ ALL Chap.8, Problem 3, 7, 8, 11, 12
- ▶ Challenge Questions (from Past Midterms)
  - ▶ 2007 - Essay Q5
  - ▶ 2008 - Multi-Choice Q1, Q9-Q11, Q15
  - ▶ 2009 - Essay B (Multi-Choice Q2, Q3, Q5)
  - ▶ 2010 - Essay C1-C4 (True/False Q2, Q9)
  - ▶ 2012 - Essay A7-A8 (True/False Q9)
  - ▶ 2013 - Essay III (True/False Q3)
  - ▶ 2014 - Essay C2
  - ▶ 2015 - Essay C

2016/11/3

Trade

Joseph Tao-yi Wang

## Experiment 6: Gains From Trade

Round 1: Autarky

Round 3: Global Trade

Round 2: Neighbors Trade



2016/11/3

Trade

Joseph Tao-yi Wang