University of Global Village (UGV), Barishal
Department of Business administration

Course Title: Microeconomics

Course Code : 0311-124	**Credits : 03**
Semester End Exam Hours (SEE) : 03	**CIE Marks : 90** **SEE Marks : 60**

- **Course Learning Outcomes (CLOs):** Upon completing this course, students should be able to

CLO1	Understand, Summarize and Describe Basic Economic Concepts: Students will demonstrate understanding of fundamental economic principles such as supply, demand, elasticity, and opportunity cost.
CLO2	List, Illustrate and Analyze Market Behavior: Students will be able to analyze how markets function, including the determination of equilibrium prices and quantities, and the effects of changes in supply and demand.
CLO3	Narrate Summarize and Evaluate Consumer and Producer Behavior: Students will assess how consumers make choices based on utility maximization and how firms make decisions regarding production, costs, and profit maximization.
CLO4	Comprehend and Apply Economic Models: Students will apply microeconomic models (such as supply and demand diagrams, cost curves, and indifference curves) to analyze real-world economic issues and make predictions about market outcomes.

❖ Course plan specifying Topics, Teaching time and CLOs

Sl. no	Topic	Hours	CLOs
1	**Limits, Alternatives, and Choices**	06	**CLO1** **CLO2**
2	**The Market System and the Circular Flow**	06	**CLO1** **CLO2** **CLO3**
3	**Demand, Supply, and Market Equilibrium**	05	**CLO1** **CLO2**
4	**The United States in the Global Economy**	05	**CLO2**
5	**Elasticity, Consumer Surplus, and Producer Surplus**	O7	**CLO1** **CLO2** **CLO3**
06	**Consumer Behavior**	06	**CLO2** **CLO3**
07	**The Costs of Production**	07	**CLO2** **CLO3** **CLO4**

❖ Course plan specifying content, CLOs, co-curricular activities (if any), teaching learning and assessment strategy matching with CLOs

Week	Course Content	Teaching-Learning Strategy	Assessment Strategy	CLOs
1	**Limits, Alternatives, and Choices:** The Economic Perspective Scarcity and Choice / Purposeful Behaviour / Marginal Analysis: Benefits and Costs Theories, Principles, and Models Microeconomics and Macroeconomics Microeconomics / Macroeconomics / Positive and Normative Economics	▪ Lecture ▪ Discussion ▪ Assignment	▪ Question & Answer (Oral) ▪ Written Test	**CLO1** **CLO2**
2	**Limits, Alternatives, and Choices:** Society's Economizing Problem Scarce Resources / Resource Categories Production Possibilities Model Production Possibilities Table / Production Possibilities Curve / Law of Increasing Opportunity Costs / Optimal Allocation Individuals' Economizing Problem Limited Income / Unlimited Wants / A Budget Line.	▪ Lecture ▪ Discussion ▪ Exercise	▪ Question & Answer (Oral) ▪ Class Test ▪ Written Test	**CLO1** **CLO2**
3	**The Market System and the Circular Flow:** Economic Systems The Command System / The Market System Characteristics of the Market System Private Property / Freedom of Enterprise and Choice / Self-Interest / Competition / Markets and Prices Technology and Capital Goods / Specialization	▪ Lecture ▪ Discussion ▪ Exercise	▪ Question & Answer (Oral) ▪ Written Test	**CLO1**

	/ Use of Money / Active, but Limited Government Five Fundamental Questions What Will Be Produced? / How Will the Goods and Services Be Produced? / Who Will Get the Output? / How Will the System Accommodate Change? / How Will the System Promote Progress? The "Invisible Hand"			
4	**The Market System and the Circular Flow** :The Demise of the Command Systems The Coordination Problem / The Incentive Problem Consider This: The Two Koreas The Circular Flow Model Resource Market / Product Market	▪ Lecture ▪ Discussion ▪ Assignment	▪ Question & Answer (Oral) ▪ Class Test ▪ Written Test	**CLO2** **CLO3**
5	**Demand, Supply, and Market Equilibrium:** Markets Demand Law of Demand / The Demand Curve / Market Demand / Change in Demand / Changes in Quantity Demanded Supply Law of Supply / The Supply Curve / Market Supply / Determinants of Supply / Changes in Supply / Changes in Quantity Supplied	▪ Lecture ▪ Discussion ▪ Problem Solving ▪	▪ Question & Answer (Oral) ▪ Written Test	**CLO1** **CLO2**
6	**Demand, Supply, and Market Equilibrium:** Market Equilibrium Price and Quantity / Rationing Function of Prices / Efficient Allocation / Changes in Supply, Demand, and Equilibrium	▪ Lecture ▪ Discussion ▪ Problem Solving ▪ Exercise	▪ Question & Answer (Oral) ▪ Written Test	**CLO1** **CLO2**
7	**The United States in the Global Economy:** The United States and World Trade Volume and Pattern / Rapid Trade Growth / Participants in International Trade Specialization and Comparative Advantage Comparative Advantage: Production Possibilities Analysis	▪ Lecture ▪ Discussion ▪ Problem Solving	▪ Question & Answer (Oral) ▪ Class Test	**CLO2**
8	**The United States in the Global Economy:** The Foreign Exchange Market Dollar-Yen Market / Changing Rates: Depreciation and Appreciation Government and Trade Impediments and Subsidies / Why Government Trade Interventions? / Costs to Society Multilateral Trade Agreements and Free-Trade Zones Reciprocal Trade Agreements Act / General Agreement on Tariffs and Trade / World Trade Organization.	▪ Lecture ▪ Discussion ▪ Problem Solving	▪ Question & Answer (Oral) ▪ Class Test ▪ Written Test	**CLO2**
9	**Elasticity, Consumer Surplus, and Producer Surplus:** Price Elasticity of Demand The Price-Elasticity Coeffi cient and Formula / Interpretations of Ed / The Total- Revenue Test / Price Elasticity and the Total- Revenue Curve / Determinants of Price Elasticity of Demand / Applications of Price Elasticity of Demand.	▪ Lecture ▪ Discussion ▪ Assignment	▪ Question & Answer (Oral) ▪ Class Test	**CLO1** **CLO2**
10	**Elasticity, Consumer Surplus, and Producer Surplus:** -Price Elasticity of Supply Price Elasticity of Supply: The Market Period / Price Elasticity of Supply: The Short Run / Price Elasticity of Supply: The Long Run /	▪ Lecture ▪ Discussion	▪ Question & Answer (Oral) ▪ Written Test	**CLO2**

	Applications of Price Elasticity of Supply.			
11	**Elasticity, Consumer Surplus, and Producer Surplus:** Cross Elasticity and Income Elasticity of Demand Cross Elasticity of Demand / Income Elasticity of Demand Consumer and Producer Surplus Consumer Surplus / Producer Surplus / Efficiency Revisited / Efficiency Losses (or Deadweight Losses)	▪ Lecture ▪ Discussion ▪ Assignment	▪ Question & Answer (Oral) ▪ Class Test ▪ Written Test	**CLO1**
12	**Consumer Behavior:** Law of Diminishing Marginal Utility Terminology / Total Utility and Marginal Utility / Marginal Utility and Demand Consider This: Vending Machines and Marginal Utility Theory of Consumer Behavior	▪ Written exam ▪ MCQ test ▪ Presentation	▪ Written exam ▪ MCQ test ▪ Oral test	**CLO1** **CLO2** **CLO3**
13	**Consumer Behavior:** Consumer Choice and Budget Constraint / Utility- Maximizing Rule / Numerical Example / Algebraic Generalization Utility Maximization and the Demand Curve Deriving the Demand Schedule and Curve / Income and Substitution Effects Applications and Extensions iPods / The Diamond-Water Paradox / The Value of Time / Medical Care Purchases / Cash and Noncash Gifts	▪ Lecture ▪ Discussion ▪ Exercise	▪ Question & Answer (Oral) ▪ Class Test ▪ Written Test	**CLO2** **CLO3**
14	**The Costs of Production:** Economic Costs Explicit and Implicit Costs / Normal Profit as a Cost / Economic Profit (or Pure Profit) / Short Run and Long Run Short-Run Production Relationships Law of Diminishing Returns	▪ Lecture ▪ Discussion ▪ Problem Solving	▪ Question & Answer (Oral) ▪ Written Test	**CLO2** **CLO3**
15	**The Costs of Production:** Short-Run Production Costs Fixed, Variable, and Total Costs / Per-Unit, or Average, Costs / Marginal Cost / Shifts of the Cost Curves Long-Run Production Costs Firm Size and Costs / The Long-Run Cost Curve / Economies and Diseconomies of Scale / Minimum Efficient Scale and Industry Structure.	▪ Lecture ▪ Discussion ▪ Exercise ▪ Assignment	▪ Question & Answer (Oral) ▪ Class Test ▪ Written Test	**CLO2** **CLO3**
16	**The Costs of Production:** Applications and Illustrations The Doubling of the Price of Corn / Successful Start- Up Firms / The Version Stamping Machine /	▪ Lecture ▪ Discussion ▪ Problem Solving ▪	▪ Question & Answer (Oral) ▪ Written Test	**CLO2** **CLO3**
17	**The Costs of Production:** The Daily Newspaper / Aircraft and Concrete Plants Pure Competition Four Market Models Pure Competition: Characteristics and Occurrence Demand as Seen by a Purely Competitive Seller	▪ Lecture ▪ Discussion ▪ Assignment	▪ Question & Answer (Oral) ▪ Written Test	**CLO3** **CLO4**

Assessment and Evaluation

1) **Assessment Strategy:** Group Discussion, Class tests, Case Study, Term Paper, Presentation.

2) **Marks distribution:**

a) **Continuous Assessment:**

- Class attendance is mandatory. Absent of 70% classes; disqualify the student for final examination only authority recommendation will be accepted with highly reasonable causes.
- Late submission of assignments is not allowed. Late submission of assignments will be only taken with highly reasonable causes and 20% mark will be deducted.
- To pass this course student will have to appear mid-term and final examination.

b) **Summative:**

❖ **CIE- Continuous Internal Evaluation (90 Marks)**

Bloom's Category **Marks (out of 90)**	**Test** (15)	**Assignments** (15)	**Quiz** (15)	**External Participation in Curricular/ Co-curricular Activities** (15)
Remember	**05**			Bloom's Affective Domain: (Attitude or will) Attendance:15 Copy or attempt to copy: -10 Late Assignment: -10
Understand	05	06	07	
Apply	05			
Analyze	10		08	
Evaluate	05	09		
Create	10			
	05			

❖ **SEE- Semester End Examination (60 Marks)**

Bloom's Category	**Test**
Remember	10
Understand	10
Apply	10
Analyze	10
Evaluate	10
Create	10

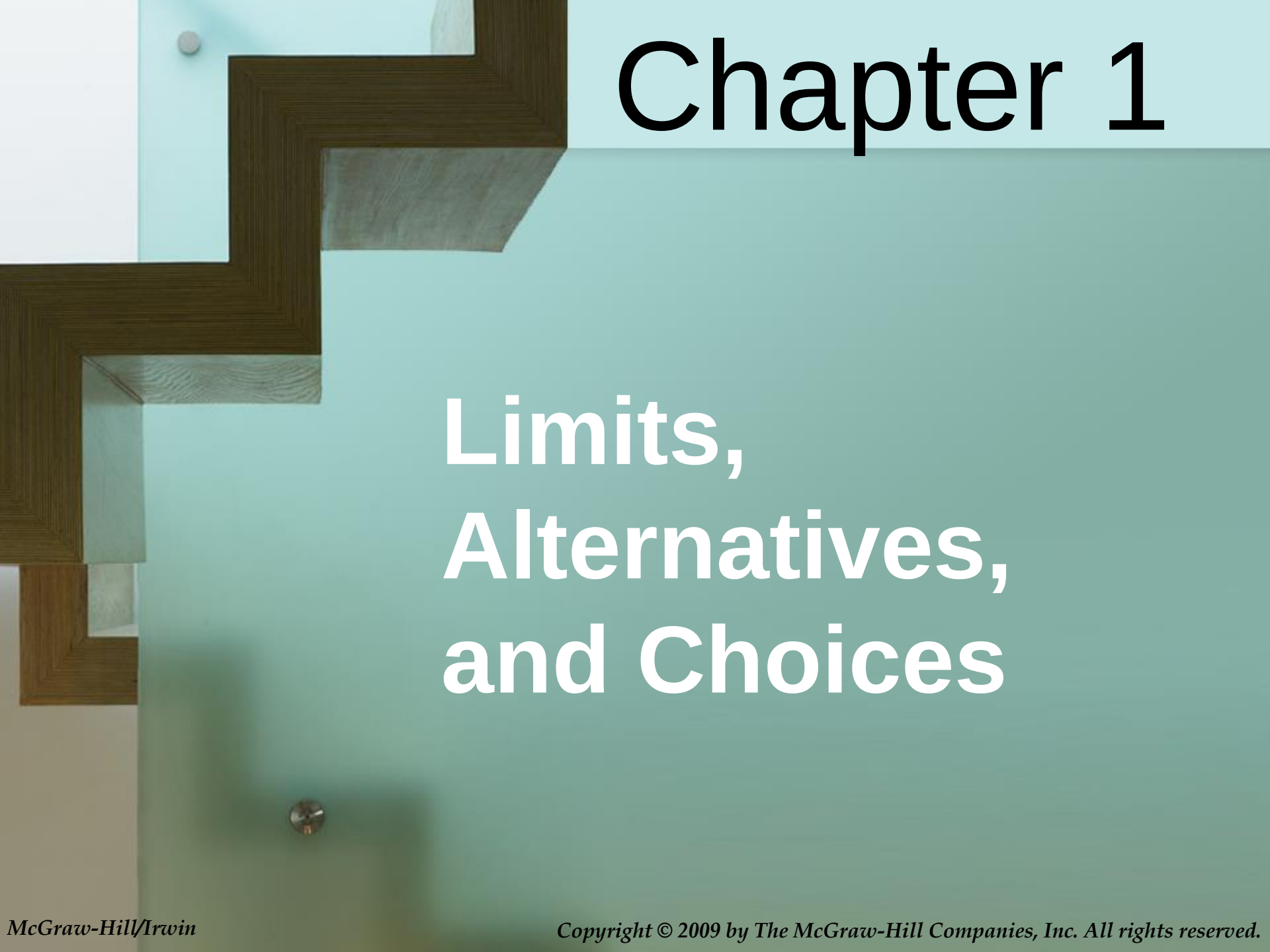
3) **Make-up Procedures:** Dates for exams will be strictly followed. No makeup exam (Normal case), for exceptional case university rules and regulation should be followed.

Recommended Books:

1) Recommended Readings:
   Economics by McConnel, Brue and Flynn.

2) Supplementary Readings:
   Understanding Economics, 3rd Edition, by Mark Lovewell, Khoa Nguyen and Brennan Thompson.

Week: 01
Slides 2-15



Chapter 1

Limits, Alternatives, and Choices

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Chapter Objectives

- Economics defined
- Role of economic theory
- Microeconomics vs. macroeconomics
- Resource scarcity and the economizing problem
- Production possibilities model

Economics Defined

- Economic wants exceed productive capacity
- Social science concerned with making optimal choices under conditions of scarcity

The Economic Perspective

- Thinking like an economist
- Key features:
  - Scarcity and choice
  - Purposeful behavior
  - Marginal analysis

Scarcity and Choice

- Resources are scarce
- Choices must be made
- There is no free lunch
- Opportunity cost

Purposeful Behavior

- Rational self-interest
- Individuals and utility
- Firms and profit
- Desired outcomes

Marginal Analysis

- Marginal benefit
- Marginal cost
- Marginal means extra
- Comparison of marginal benefit and marginal cost

Economic Models

- The scientific method
- Cause and effect
- Economic principles
- Simplification of reality
- Other-things-equal assumption
- Graphical expression

Macro vs. Micro

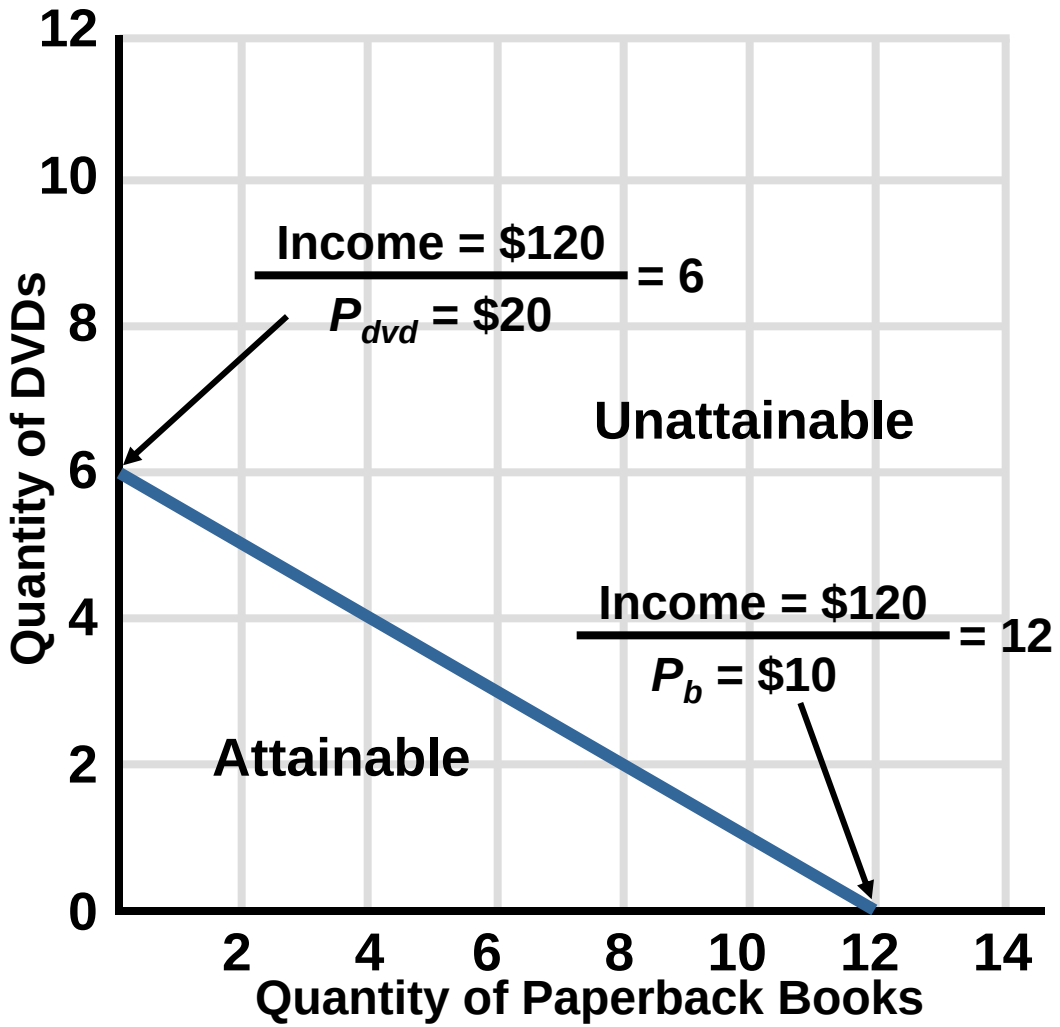
- Macroeconomics
  - Aggregate
- Microeconomics
  - Individual Units
- Positive Economics
- Normative Economics

Individual's Economizing Problem

- Limited income
- Unlimited wants
- A budget line
- Tradeoffs & opportunity costs
- Make best choice possible
- Change in income

A Budget Line

$120 Budget	
DVDs $20	Books $10
6	0
5	2
4	4
3	6
2	8
1	10
0	12



Society's Economizing Problem

- Scarce resources
  - Land
  - Labor
  - Capital
  - Entrepreneurial Ability
- Factors of production

Production Possibilities Model

- Illustrate production choices
- Assumptions:
  - Full employment
  - Fixed resources
  - Fixed technology
  - Two goods

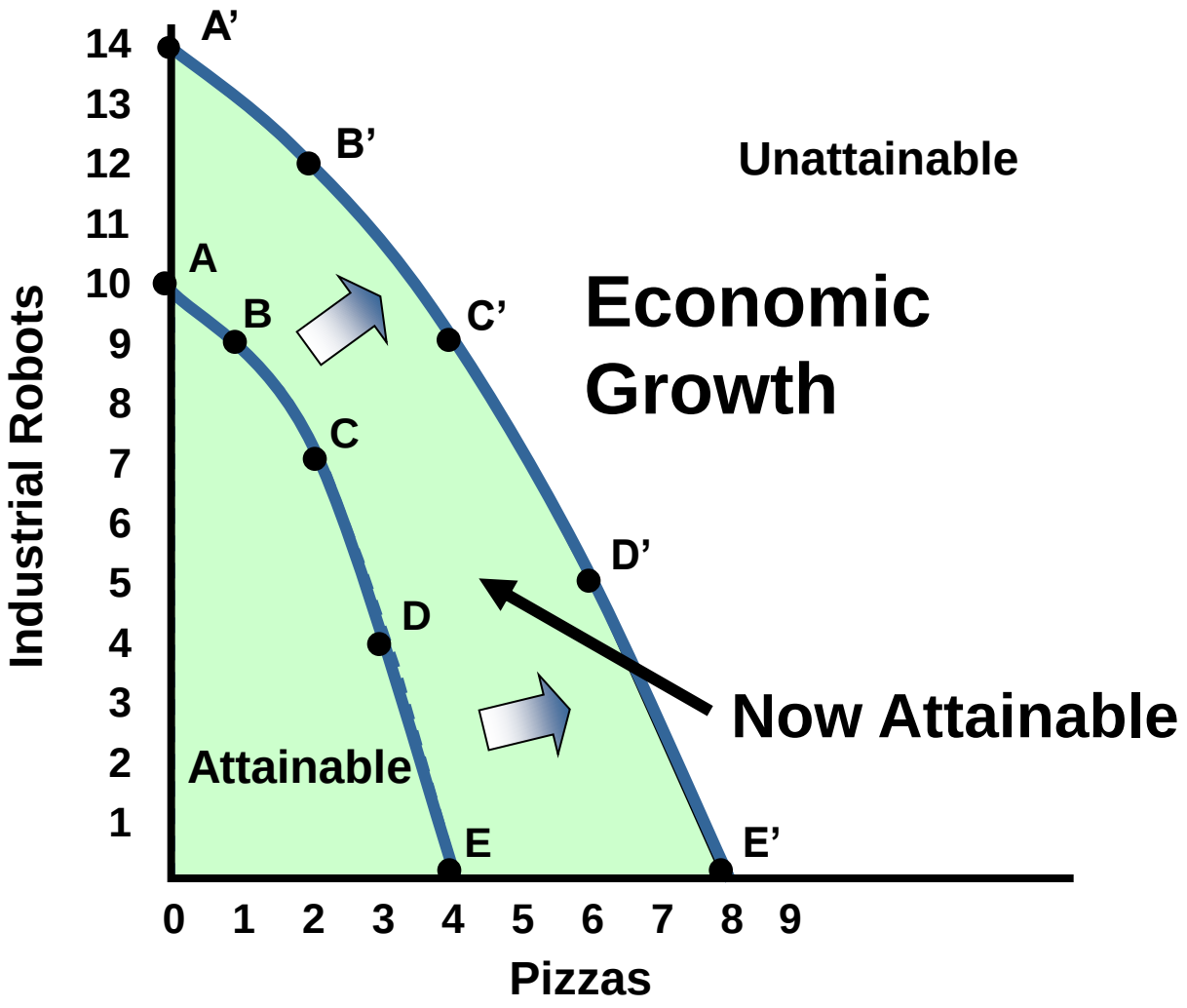
Production Possibilities Table

Type of Product	Production Alternatives A	B	C	D	E
Pizzas (in hundred thousands)	**0**	**1**	**2**	**3**	**4**
Industrial Robots (in thousands)	**10**	**9**	**7**	**4**	**0**

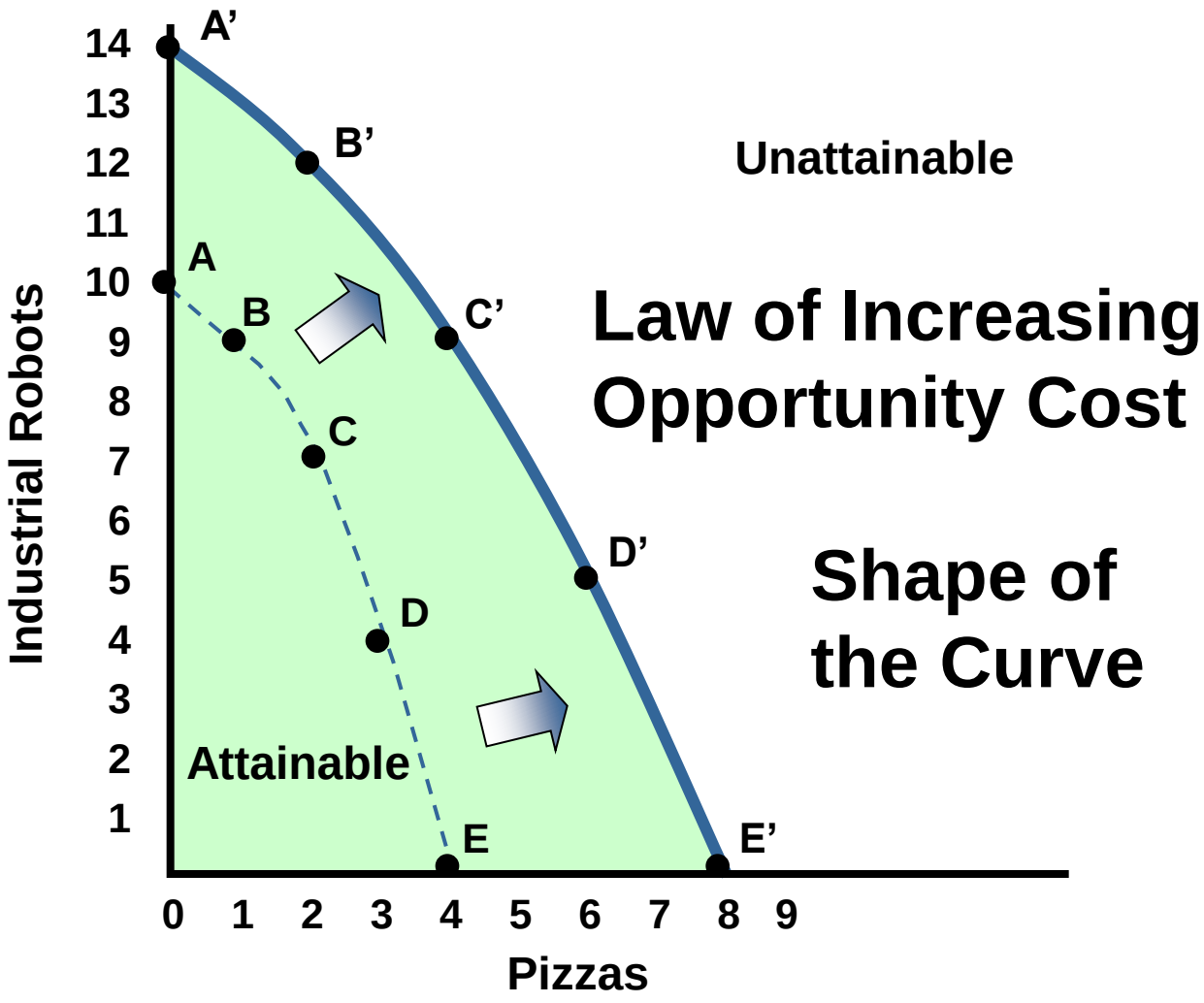
Plot Points to Create Graph…

Week: 02
Slides 17-27

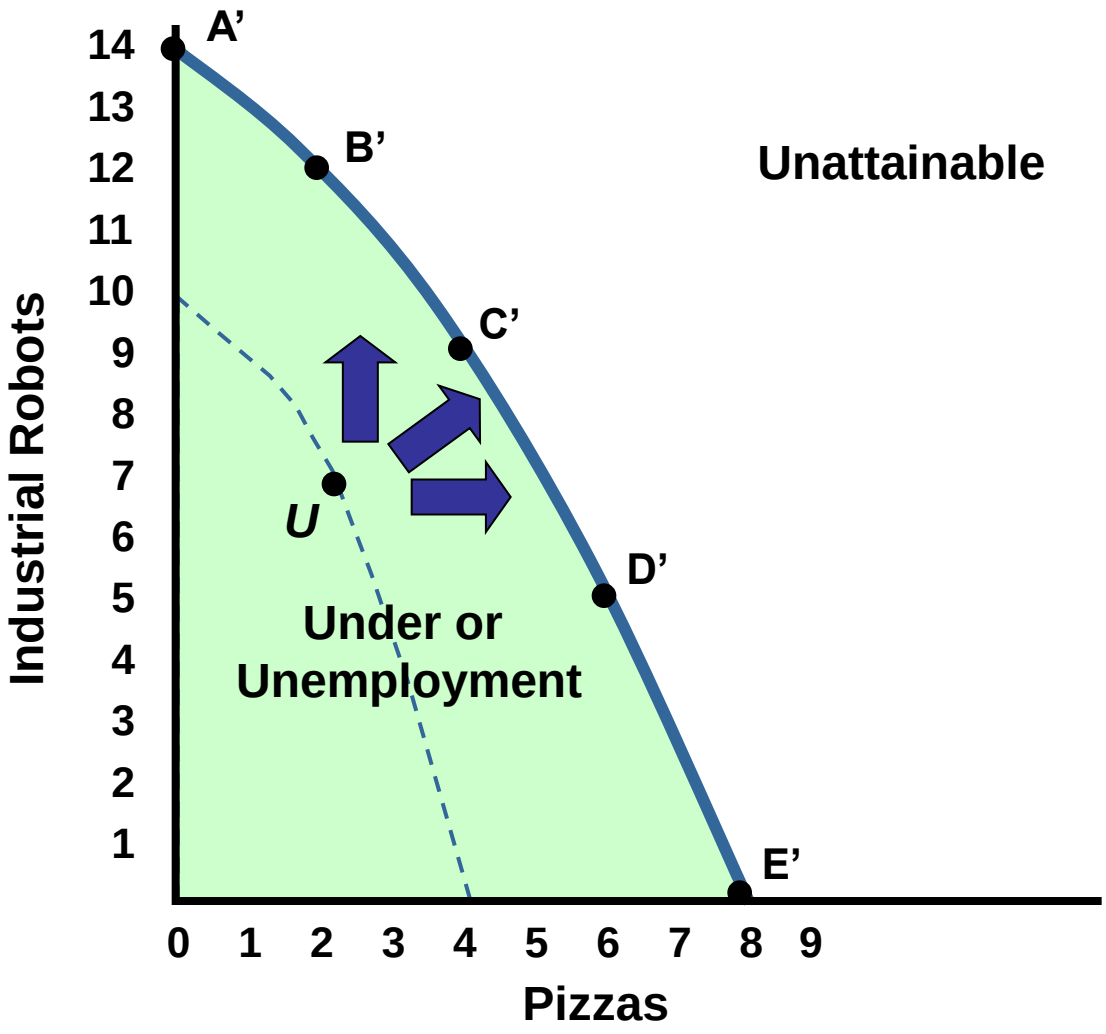
Production Possibilities Curve



Production Possibilities Curve



Production Possibilities Curve

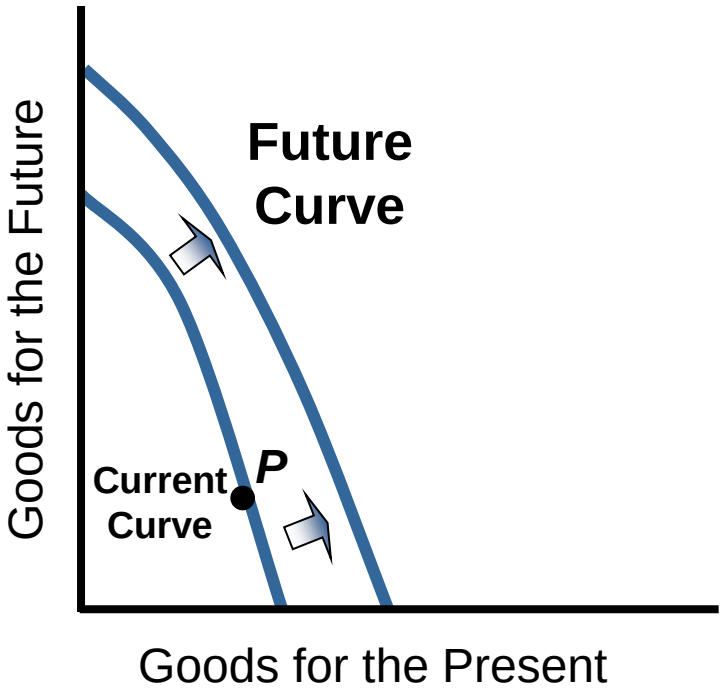


The Future Economy

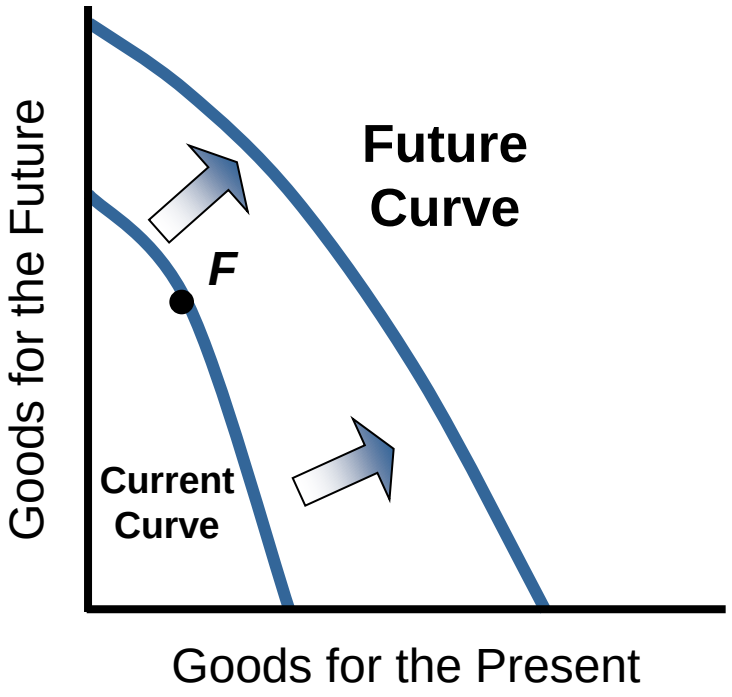
- Consequences of unemployment
- Economic growth
  - More resources
  - Better quality resources
  - Technological advances

Future Possibilities

Compare Two Hypothetical Economies



Presentville

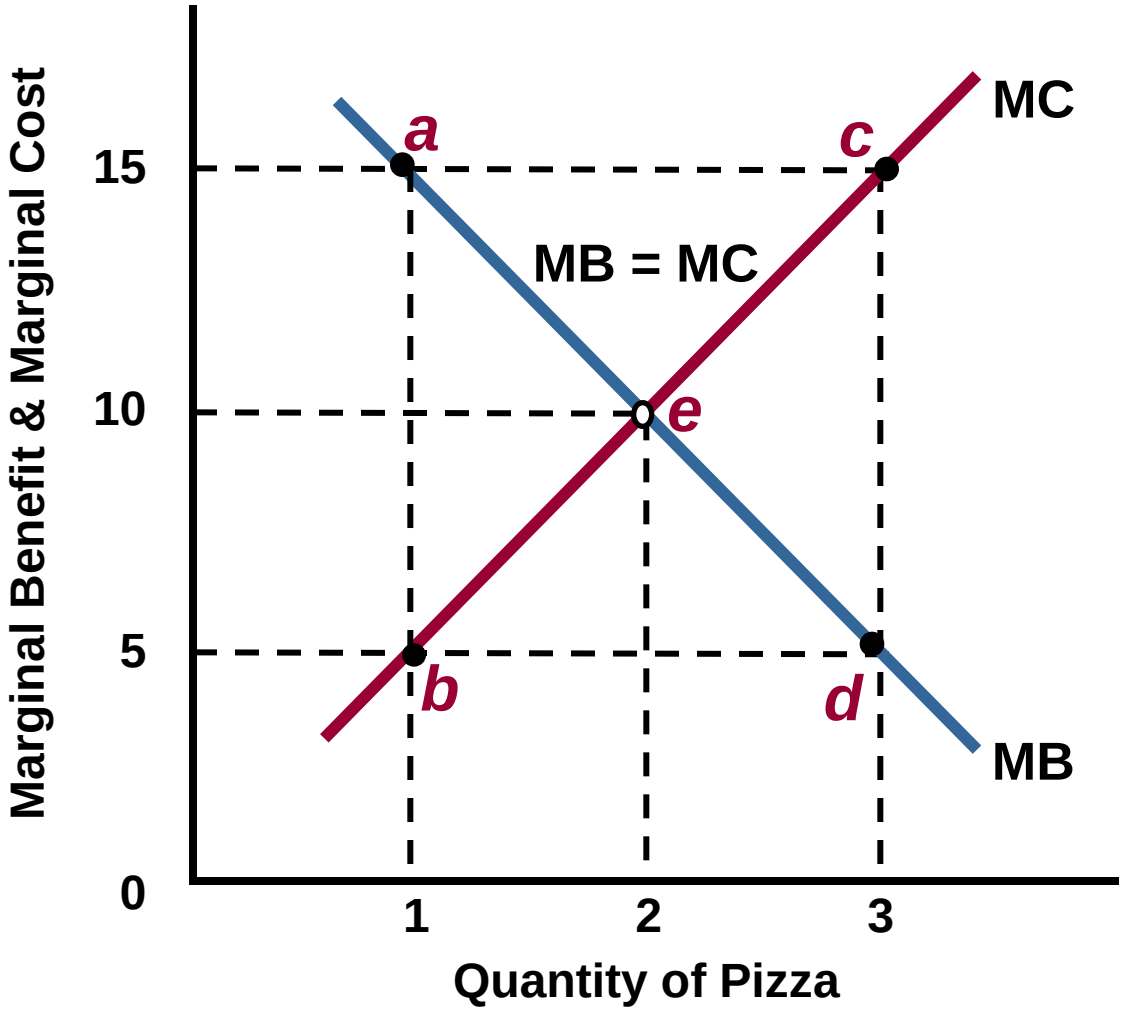


Futureville

International Trade

- Production point
- Consumption point
- Specialization
- Preview

Optimal Allocation of Resources



LAST Word:
Pitfalls to Sound Economic Reasoning

- Biases
- Loaded terminology
- Fallacy of composition
- Post hoc fallacy
- Correlation but not causation

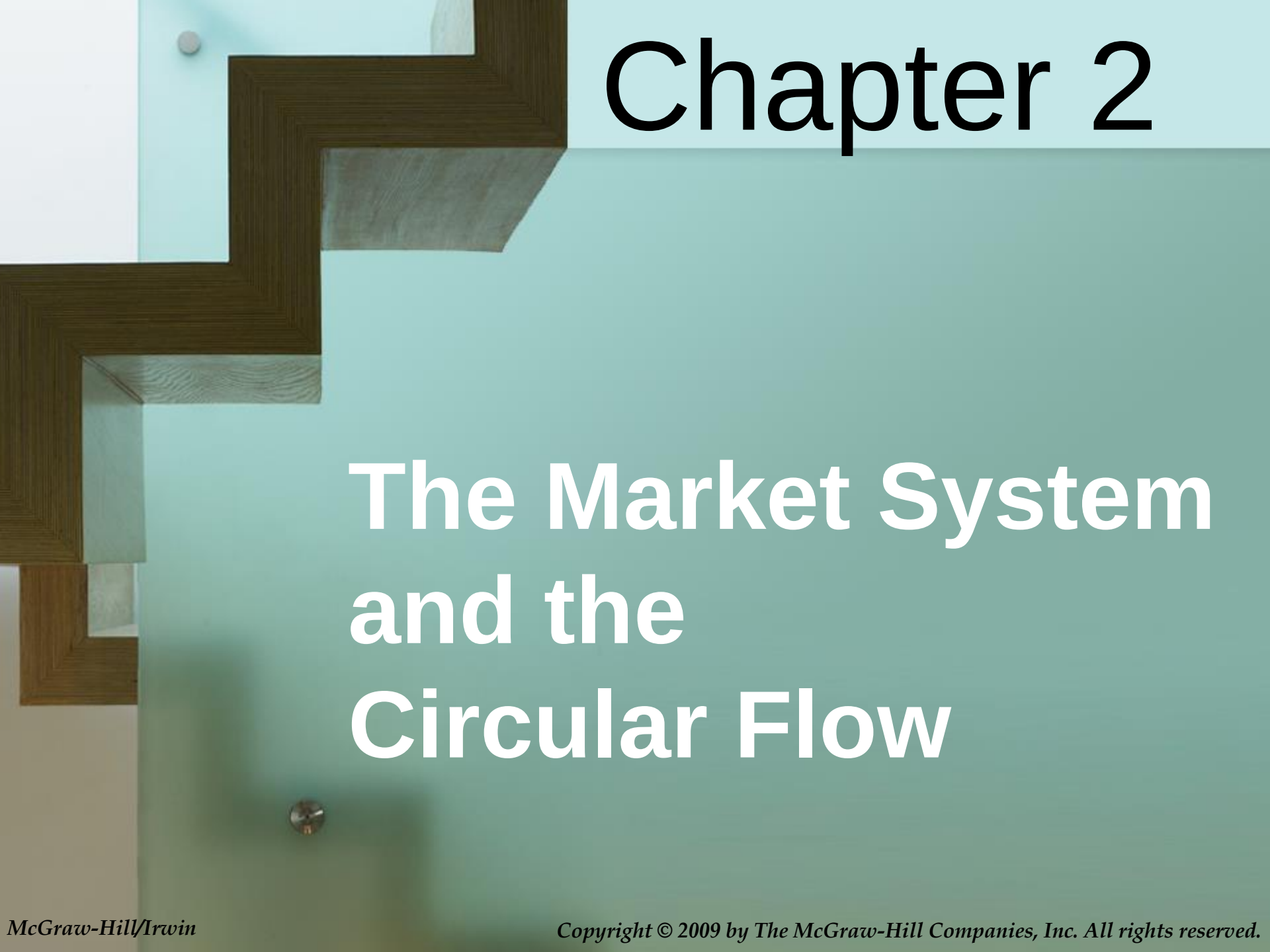
Key Terms

- economics
- economic perspective
- opportunity cost
- utility
- marginal analysis
- scientific method
- economic principle
- other-things-equal assumption
- macroeconomics
- aggregate
- microeconomics
- positive economics
- normative economics
- economizing problem
- budget line
- economic resources
- land
- labor
- capital
- investment
- entrepreneurial ability
- factors of production
- consumer goods
- capital goods
- production possibilities curve
- law of increasing opportunity costs
- economic growth

Next Chapter Preview…

The Market System and the Circular Flow

Week: 03
Slides 28-38



Chapter 2

The Market System and the Circular Flow

McGraw-Hill/Irwin

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Chapter Objectives

- Economic systems
- Market system characteristics
- Market system questions
  - what, how, and who
- Change and progress in the market system
- The circular flow model

Economic Systems

- Set of institutional arrangements
- Coordinating mechanism
- Differ based on:
  - Who owns the factors of production
  - What method directs economic activity

Economic Systems

- The market system
  - Private ownership
  - Markets
- The command system
  - Government ownership
  - Central planning board

Index of Economic Freedom

Ranking of 157 countries for 2008

Free	Mostly Free	Mostly Unfree	Repressed
1- Hong Kong	20- Belgium	101- Brazil	148- Venezuela
3- Ireland	31- Spain	126- China	156- Cuba
5- United States	48- France	134- Russia	157- North Korea

Market System Characteristics

- Private property
- Freedom of enterprise and choice
- Self-interest
- Competition
- Markets and prices

Market System Characteristics

- Technology and capital goods
- Specialization
  - Division of labor
  - Geographic specialization
- Use of money
- Active, limited government

Market System Questions

- What will be produced?
  - consumer sovereignty
  - dollar votes
- How will goods be produced?
  - technology
  - resource cost

Market System Questions

- Who gets the output?
  - willingness to pay
- How is change accommodated?
  - self-interest
- How is progress promoted?
  - technological advance
  - capital accumulation

The Invisible Hand

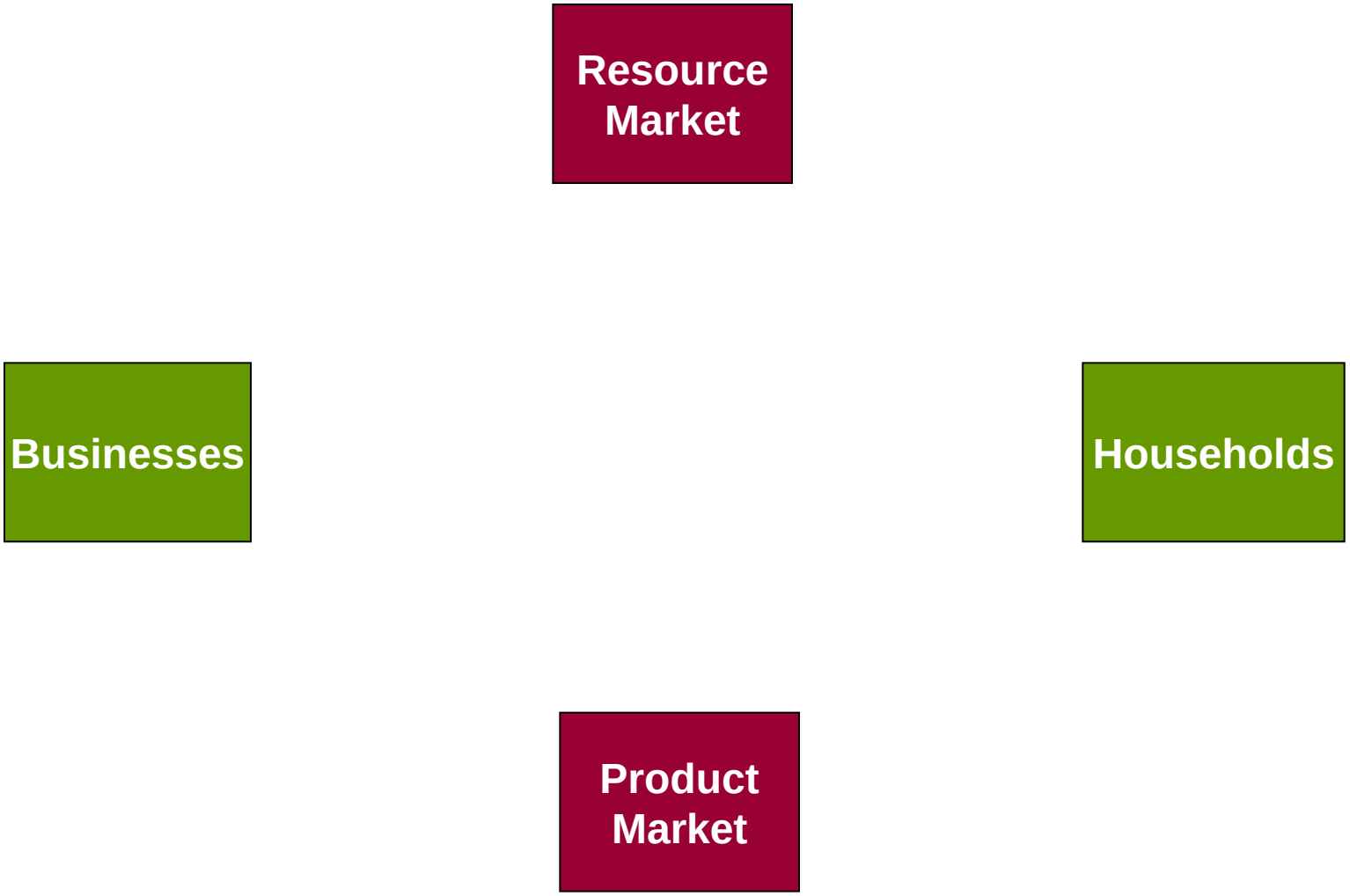
- 1776 *Wealth of Nations* by Adam Smith
  - Unity of private and social interest
- Virtues of the market system
  - Efficiency
  - Incentives
  - Freedom

Week: 04
Slides 39-45

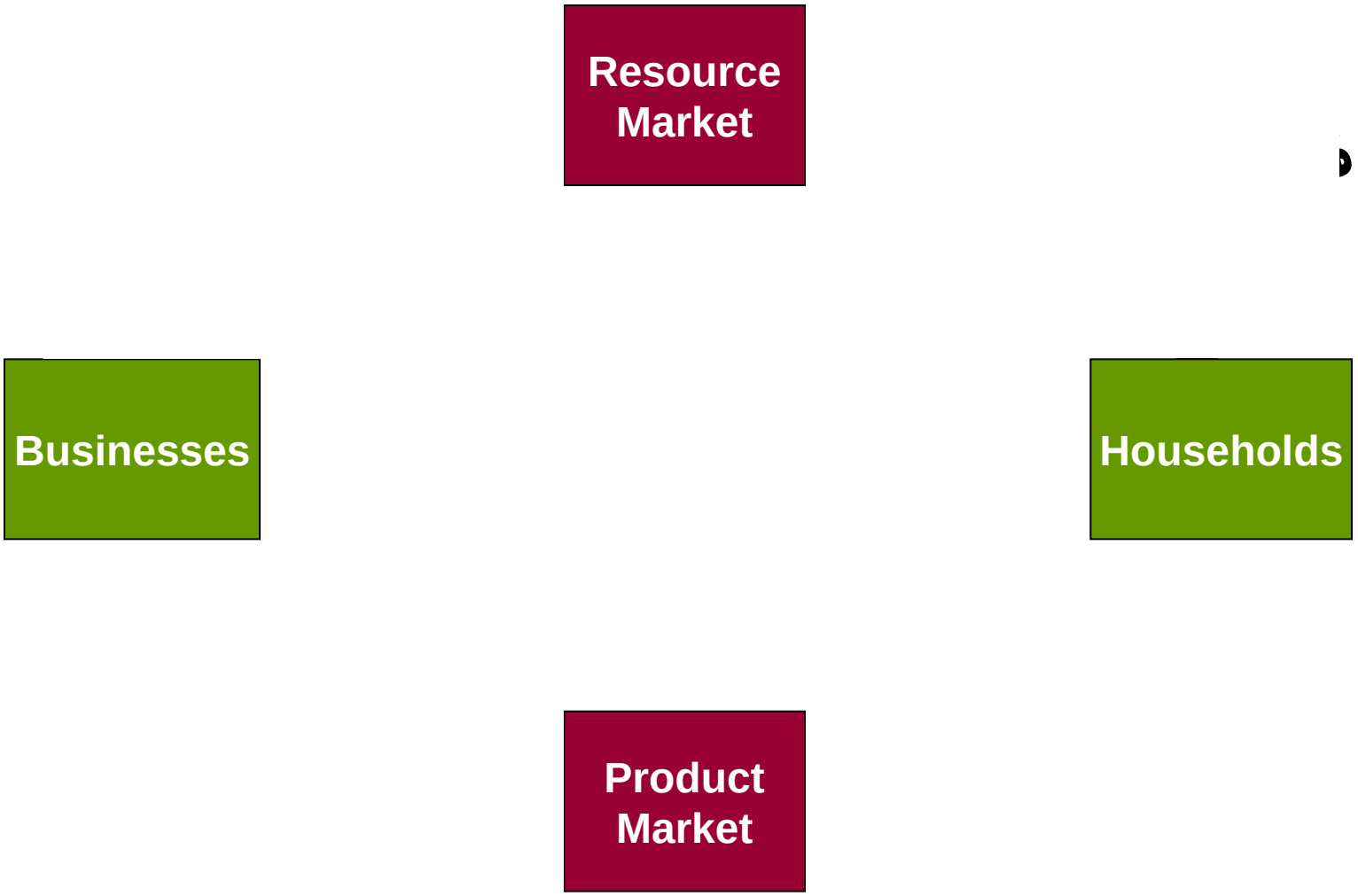
The Command System

- Soviet Union, Eastern Europe, China
- System was a failure
- The coordination problem
  - Set output targets for all goods
- The incentive problem
  - No adjustments for shortage or surplus

Circular Flow

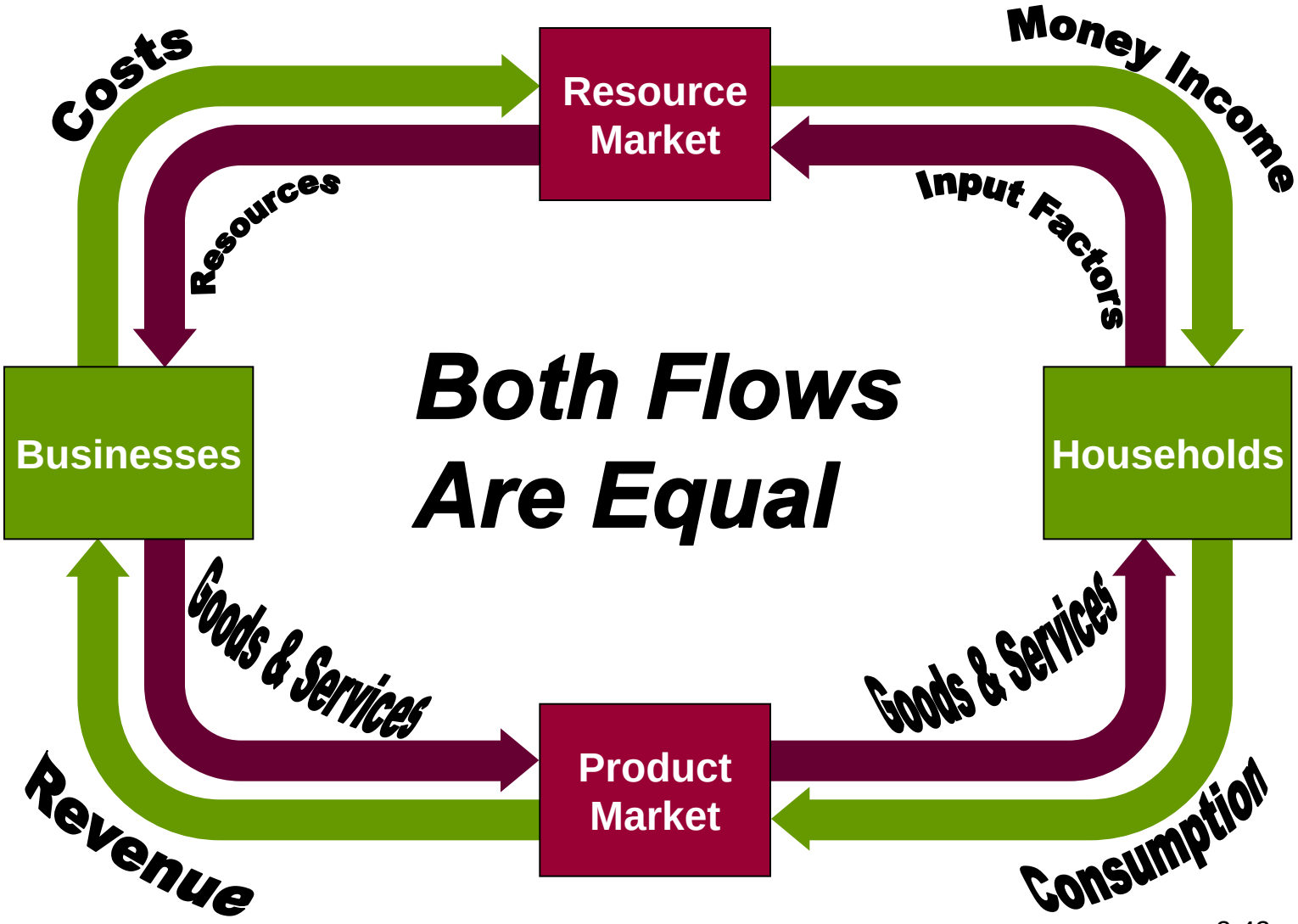


Circular Flow



Circular Flow

Figure 2.2; page 40



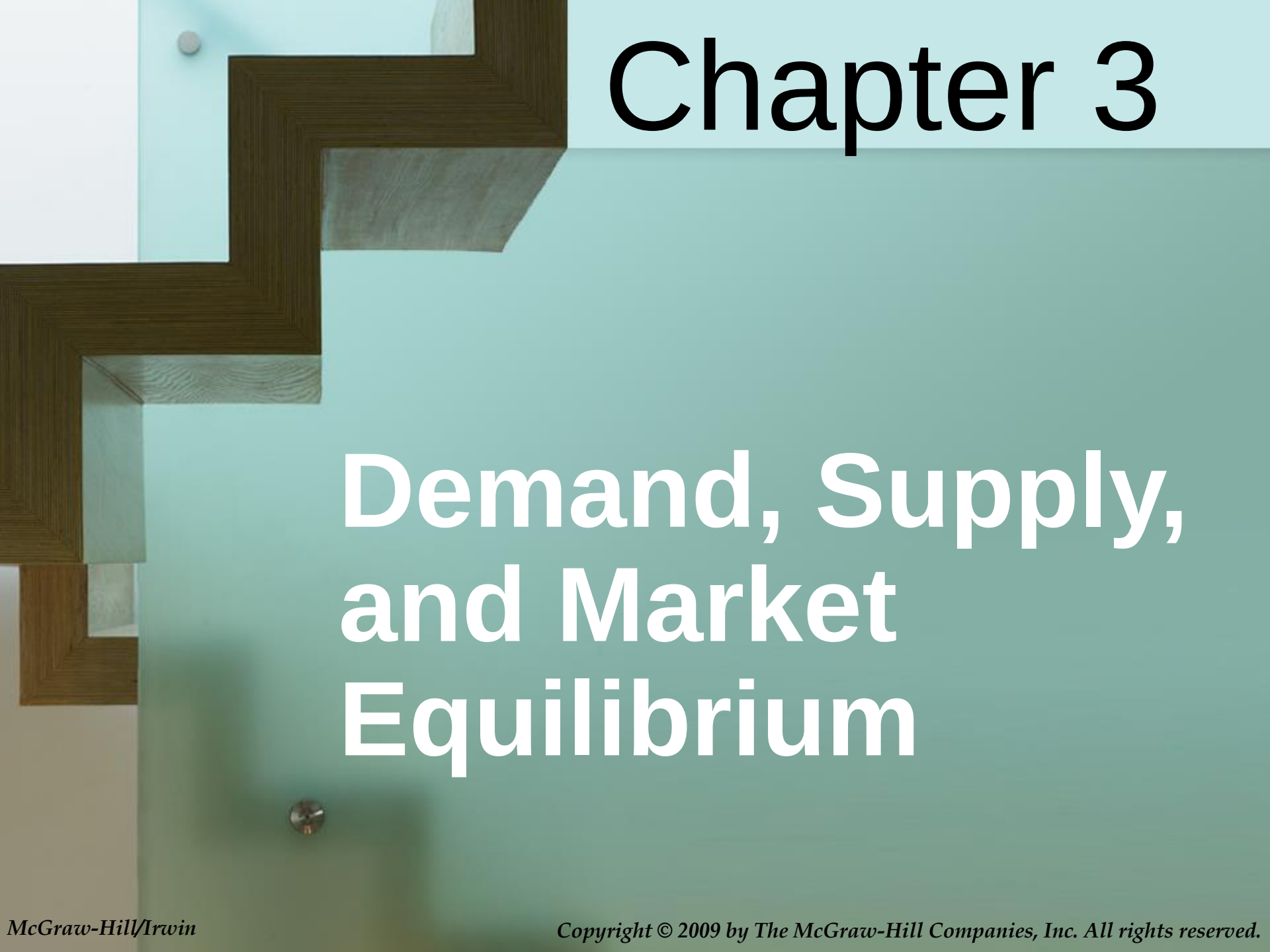
Key Terms

- economic system
- command system
- market system
- private property
- freedom of enterprise
- freedom of choice
- self-interest
- competition
- market
- specialization
- division of labor
- medium of exchange
- barter
- money
- consumer sovereignty
- dollar votes
- creative destruction
- “invisible hand”
- circular flow diagram
- resource market
- product market

Next Chapter Preview…

Demand, Supply, and the Market Equilibrium

Week: 05
Slides 46-59



Chapter 3

Demand, Supply, and Market Equilibrium

McGraw-Hill/Irwin

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Chapter Objectives

- Demand and its determinants
- Supply and its determinants
- Supply, demand, & market equilibrium
- Changes in supply and demand
- Government-set prices

A Market

- Interaction between buyers and sellers
- Buyers demand goods
- Sellers supply goods
- Assumptions
  - Standardized good
  - Competitive market

Demand

- Schedule or curve
- Amount consumers *willing and able* to purchase at a given price
- Other things equal
- Individual demand
- Market demand

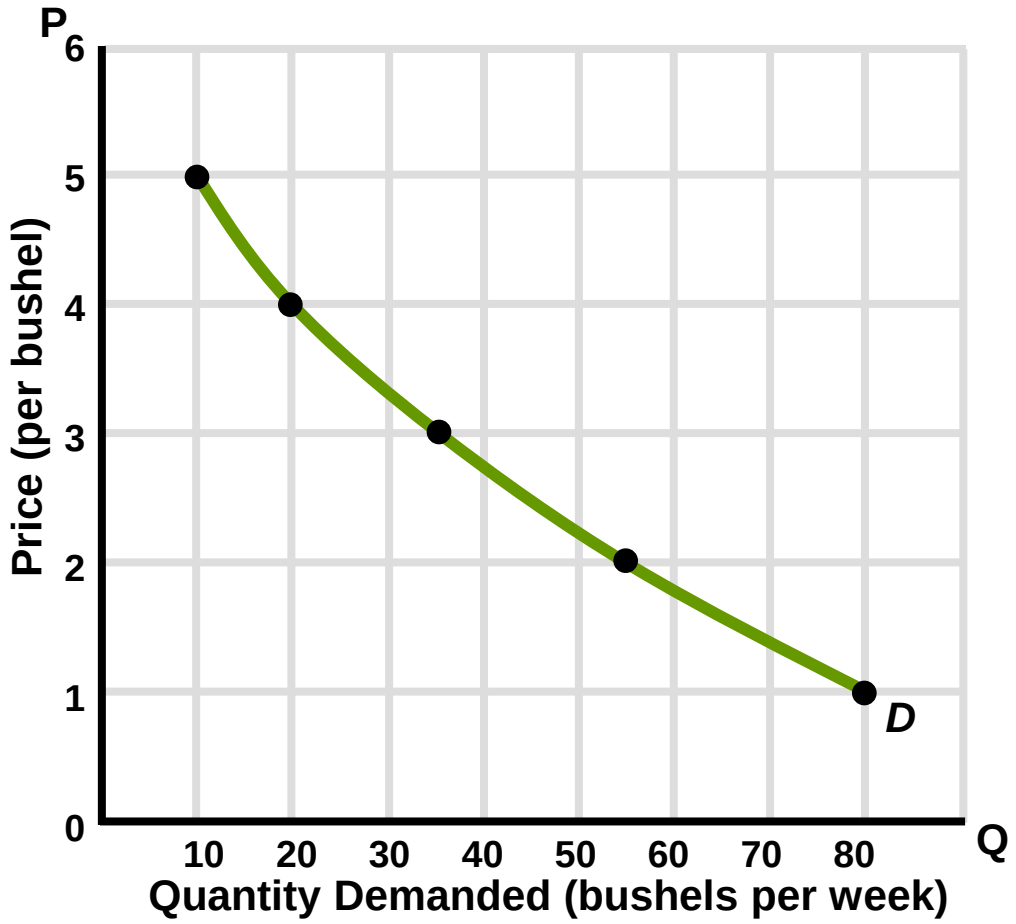
Law of Demand

- Other things equal, as price falls quantity demanded rises
- Explanations:
  - Diminishing marginal utility
  - Income effect
  - Substitution effect

Individual Demand

Individual Demand

P	Q_d
$5	10
4	20
3	35
2	55
1	80



Determinants of Demand

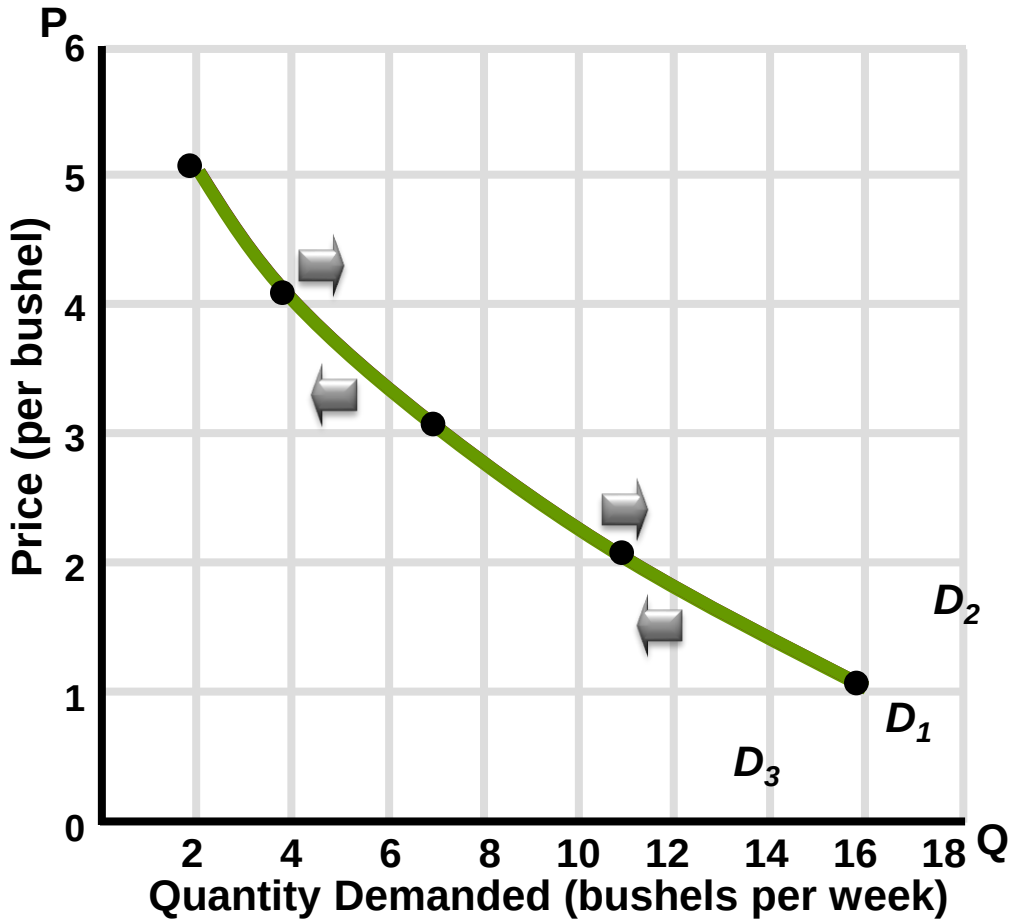
- Factors that shift the demand curve
- Cause more or less to be bought at any possible price
- Increase or decrease in demand
- Tastes
- Number of buyers

Determinants of Demand

- Income
  - Normal goods
  - Inferior goods
- Price of related goods
  - Substitute good
  - Complementary good
  - Unrelated goods
- Consumer expectations

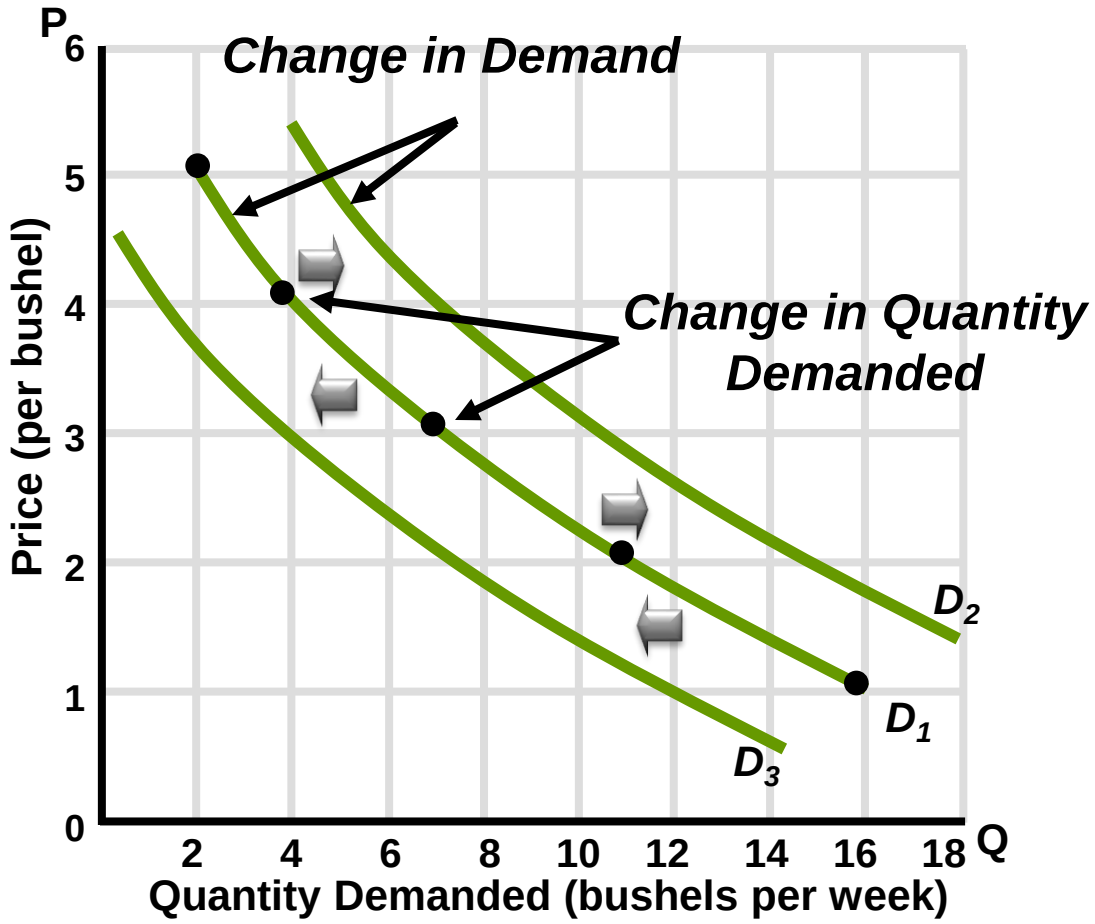
Individual Demand

P	Q_d
$5	10
4	20
3	35
2	55
1	80



Individual Demand

P	Q_d
$5	10
4	20
3	35
2	55
1	80



Supply

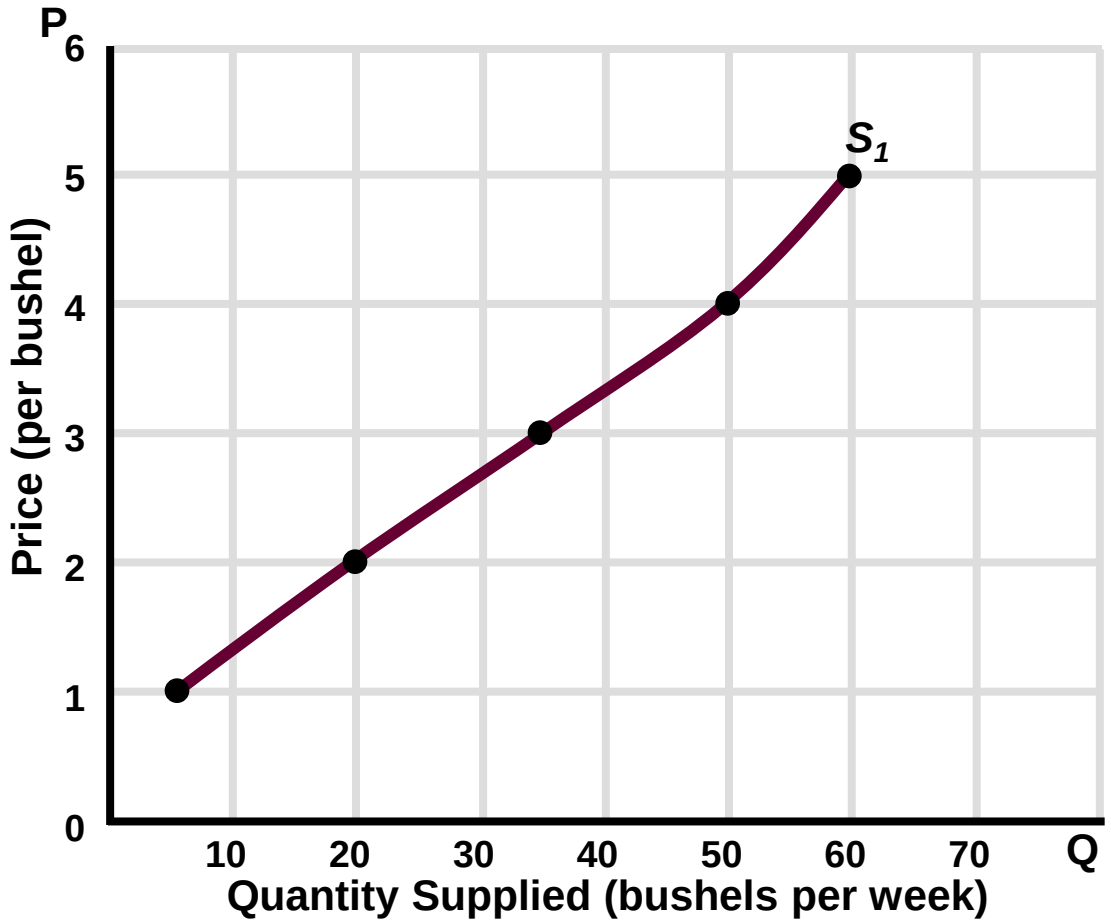
- Schedule or curve
- Amount producers *willing and able* to sell at a given price
- Individual supply
- Market supply

Law of Supply

- Other things equal, as price rises the quantity supplied rises
- Explanations:
  - Revenue implications
  - Marginal cost

Individual Supply

P	Q_S
$5	60
4	50
3	35
2	20
1	5



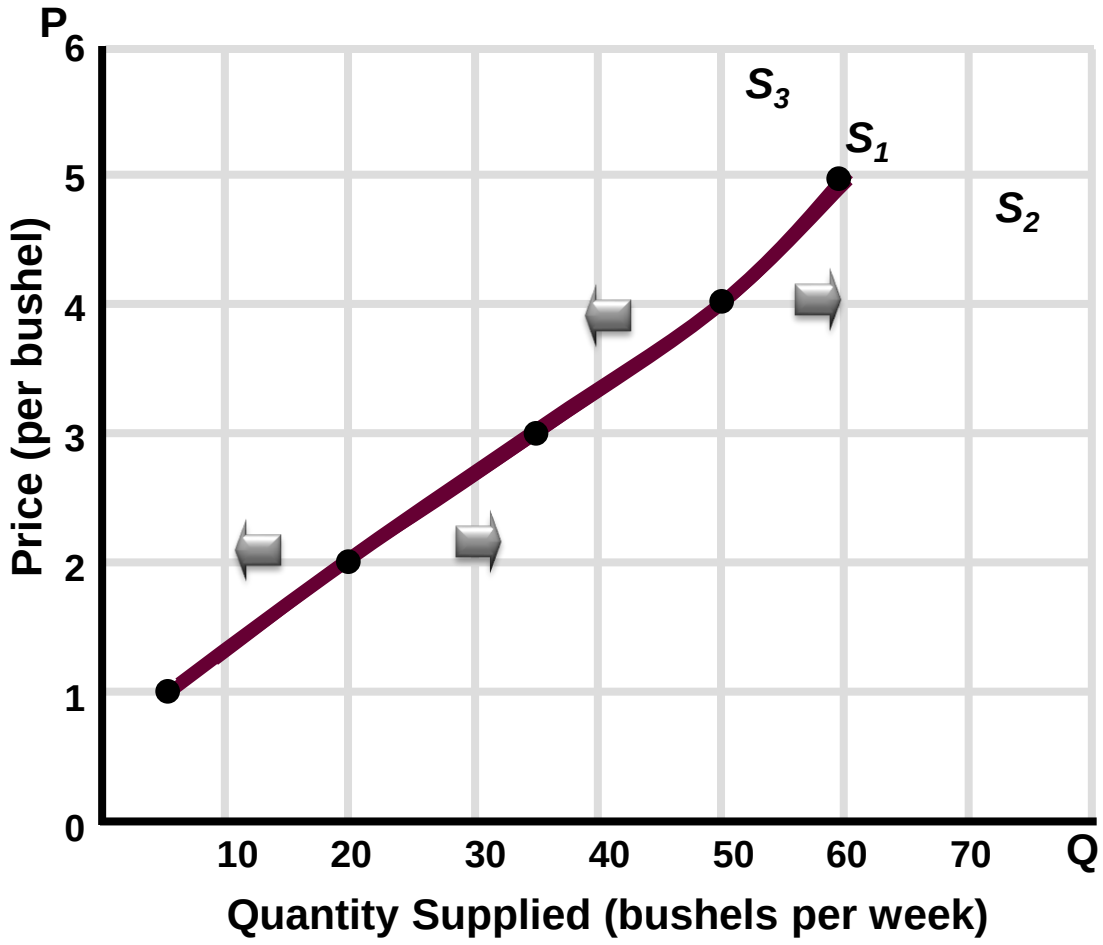
Week: 06
Slides 60-71

Determinants of Supply

- Resource prices
- Technology
- Taxes and subsidies
- Prices of other goods
- Producer expectations
- Number of sellers

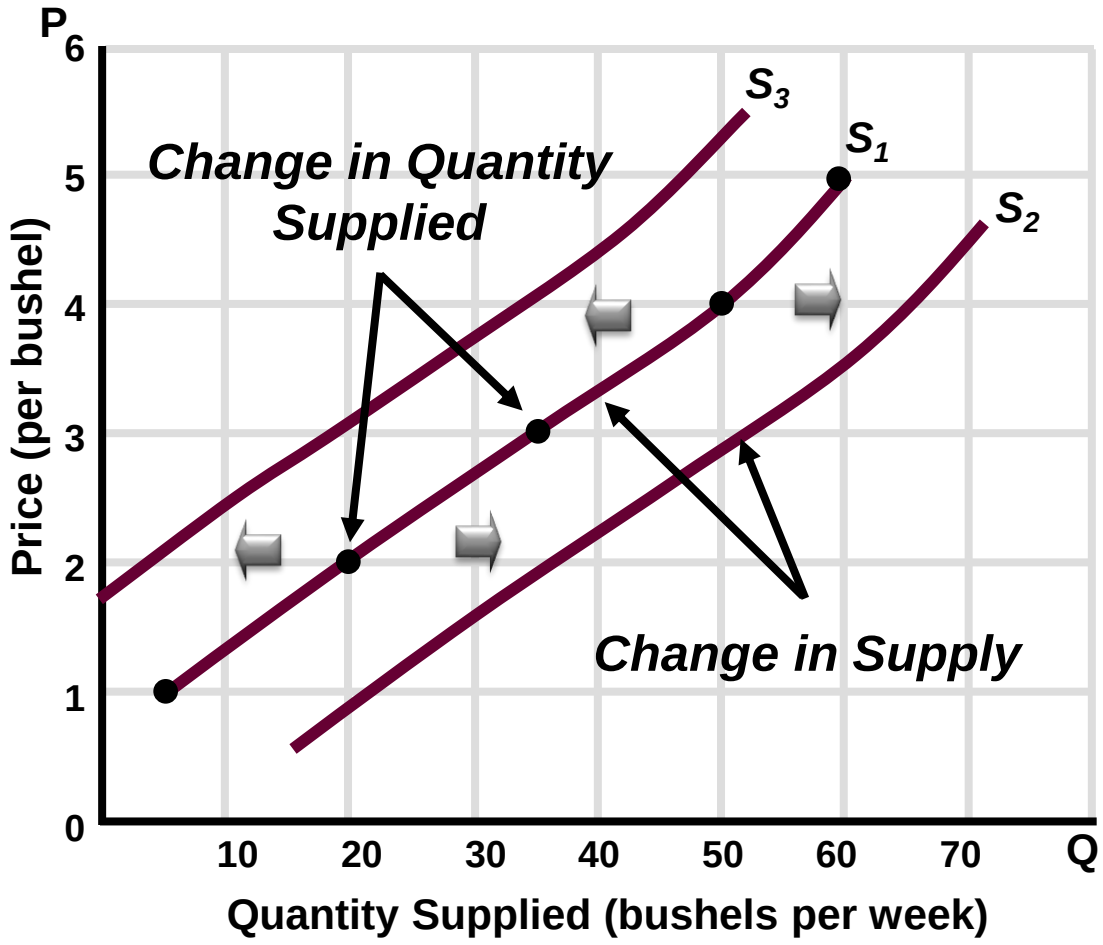
Individual Supply

P	Q_S
$5	60
4	50
3	35
2	20
1	5



Individual Supply

P	Q_S
$5	60
4	50
3	35
2	20
1	5

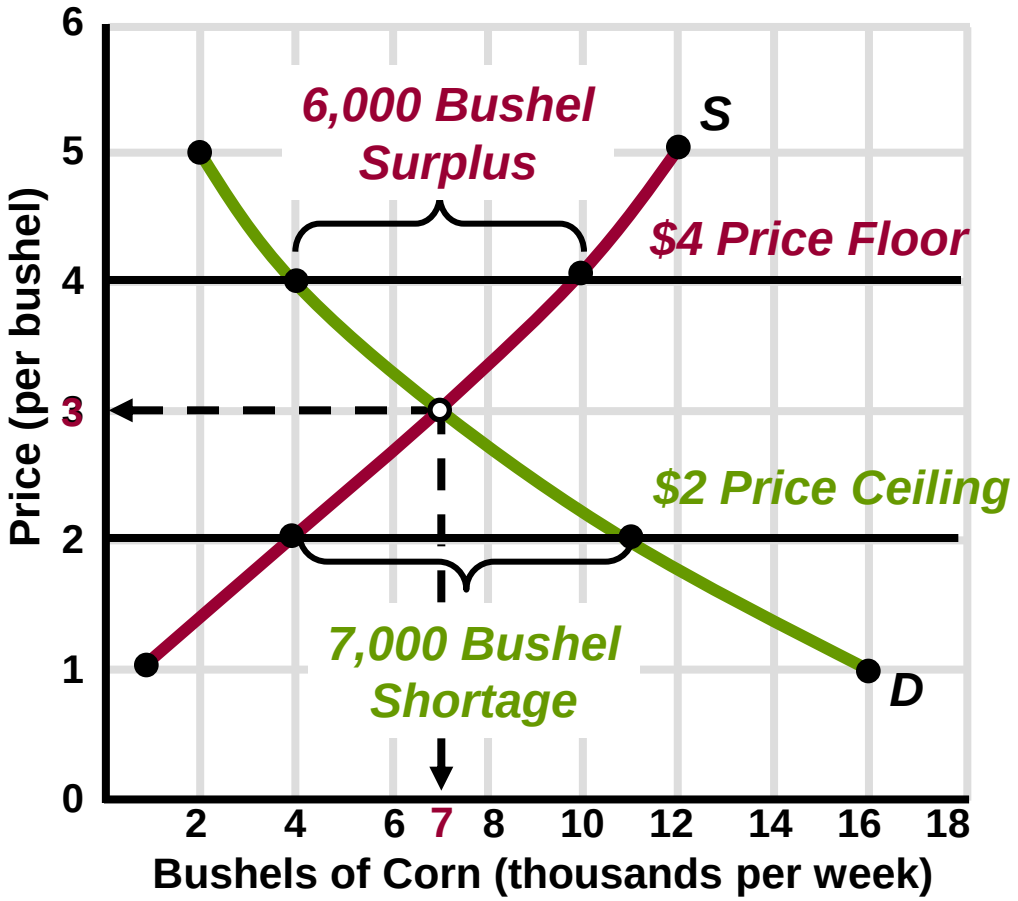


Market Equilibrium

- Equilibrium price and quantity
- Surplus and shortage
- Rationing function of price
- Efficient allocation
  - Productive efficiency
  - Allocative efficiency

Market Equilibrium

P	Q_d
$5	2,000
4	4,000
3	7,000
2	11,000
1	16,000



P	Q_s
$5	12,000
4	10,000
3	7,000
2	4,000
1	1,000

Market Equilibrium

- Change in demand
  - Shift of the demand curve
- Change in supply
  - Shift of the supply curve
- Change in equilibrium price and quantity

Market Equilibrium

	Price	Quantity
• Supply increase; Demand decrease		?
• Supply decrease; Demand increase		?
• Supply increase; Demand increase	?	
• Supply decrease; Demand decrease	?	

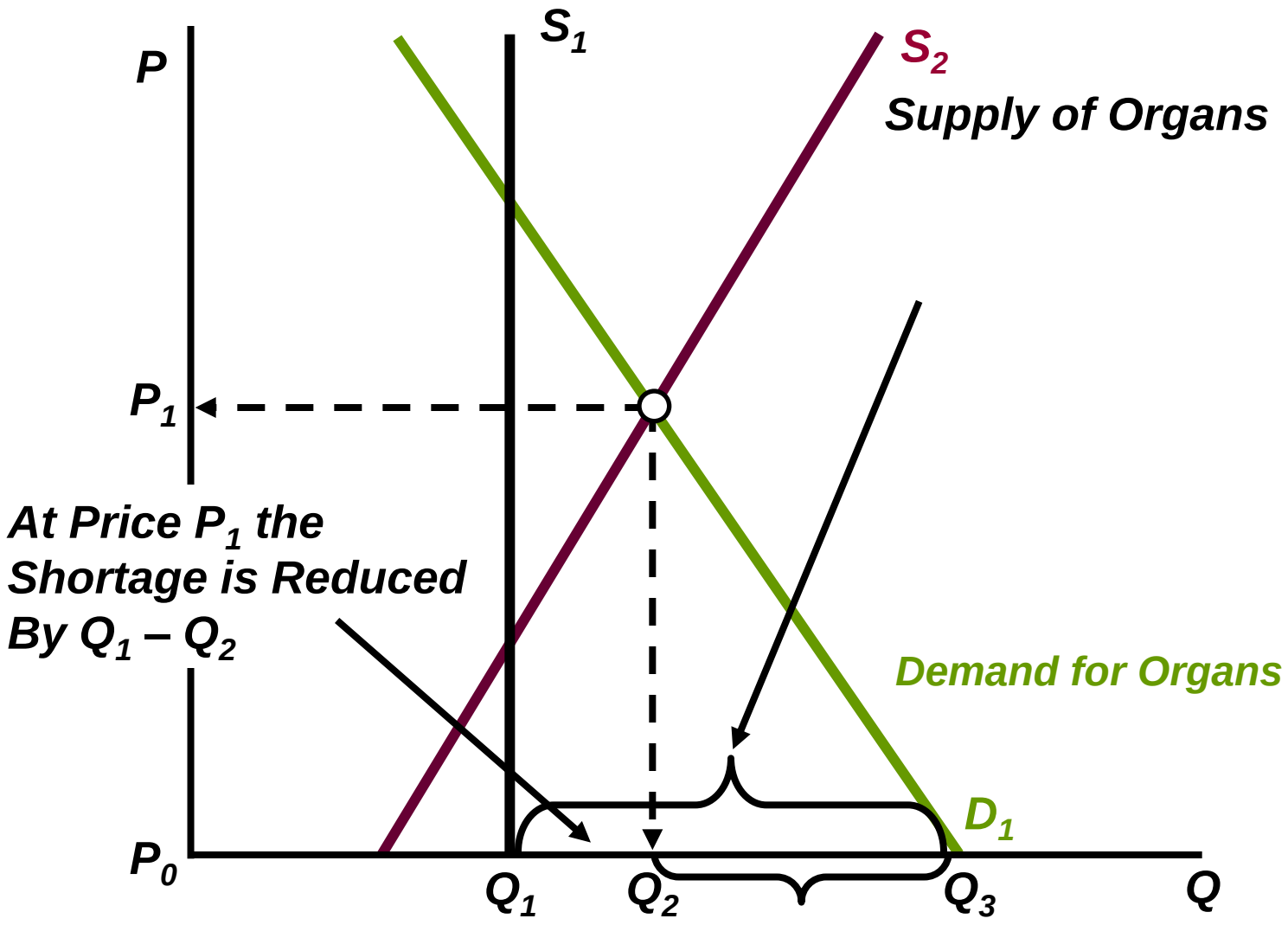
Government-Set Prices

- Price ceilings on gasoline
  - Rationing problem
  - Black markets
- Rent controls
- Price floors on wheat
  - Optimal allocation of resources

A Market for Human Organs

- Waiting list for transplants
- Demand for organs
- Supply of organs—two possibilities
- Market eliminates shortage
- Moral objections
- Legalize and regulate?

A Market for Human Organs



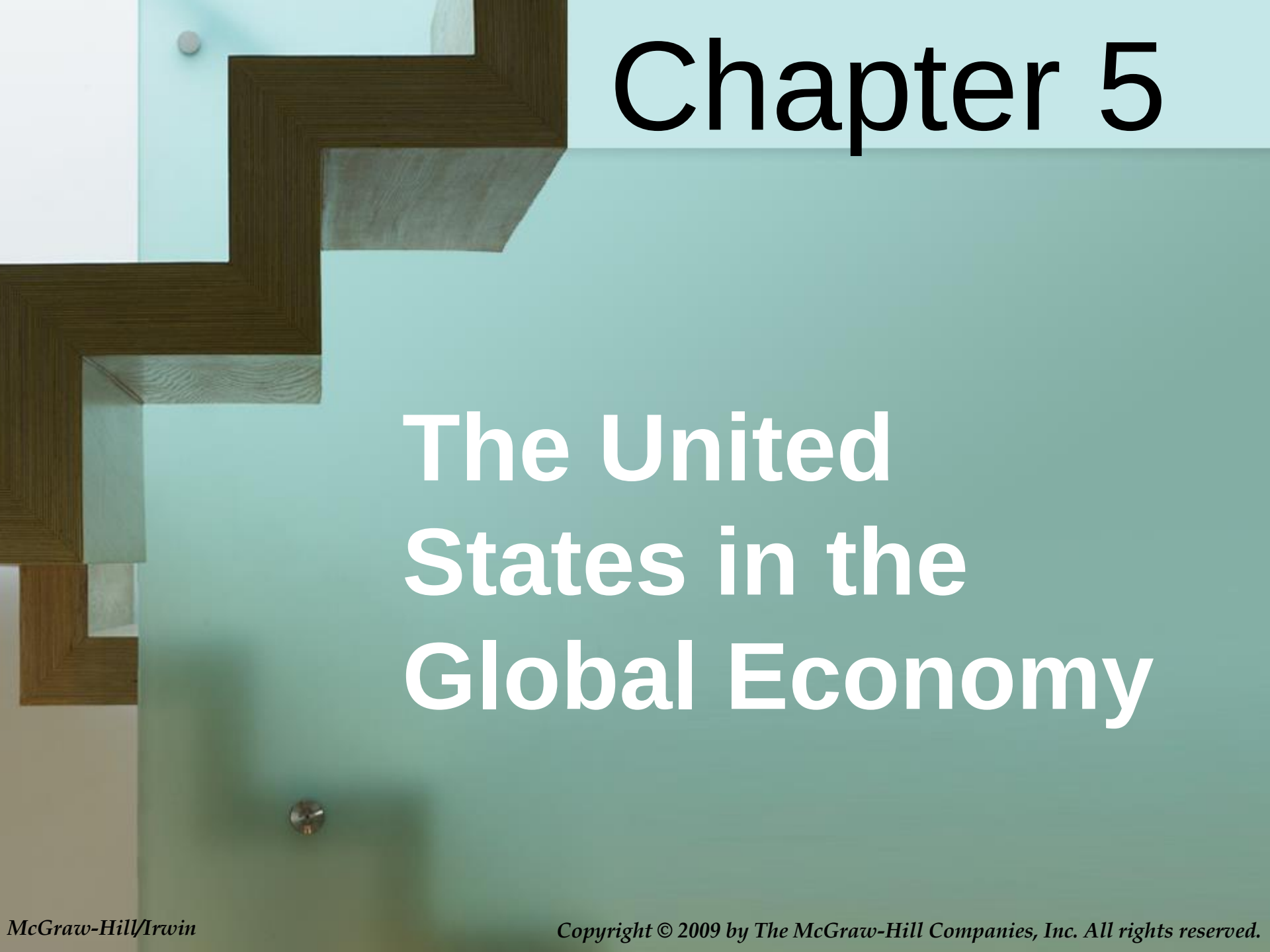
Key Terms

- demand
- demand schedule
- law of demand
- diminishing marginal utility
- income effect
- substitution effect
- demand curve
- determinants of demand
- normal goods
- inferior goods
- substitute good
- complementary good
- change in demand
- change in quantity demanded
- supply
- supply schedule
- law of supply
- supply curve
- determinants of supply
- change in supply
- change in quantity supplied
- equilibrium price
- equilibrium quantity
- surplus
- shortage
- price ceiling
- price floor

Next Chapter Preview…

The U.S. Economy: Public and Private Sectors

Week: 07
Slides 73-87



Chapter 5

The United States in the Global Economy

McGraw-Hill/Irwin

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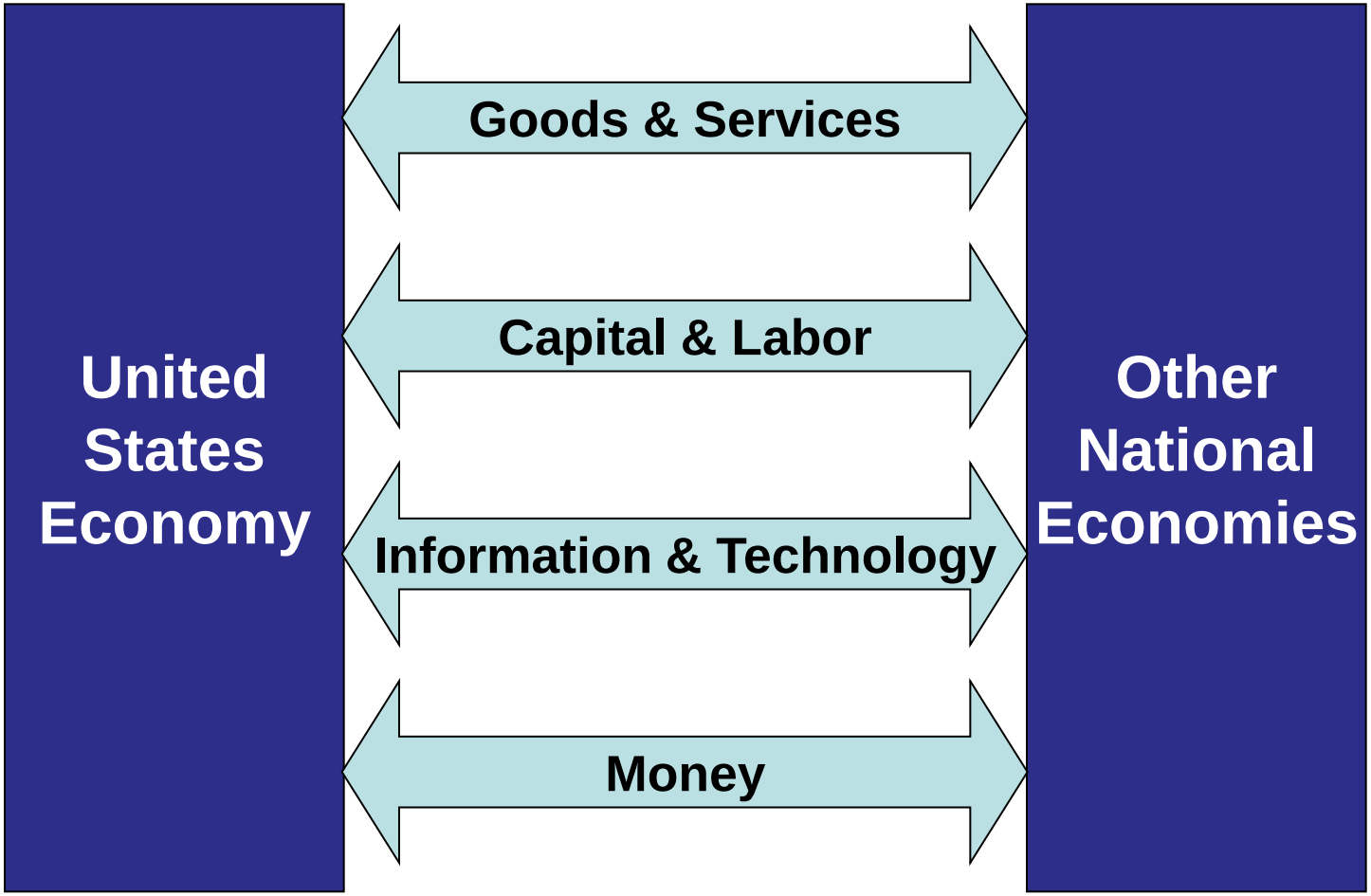
Chapter Objectives

- U.S. international trade
- Comparative advantage, specialization, international trade
- Exchange rates
- Government intervention with free international trade
- Trade-related topics

International Linkages



World Trade

- Volume as a percentage of GDP
  - Larger for small countries
  - Larger for countries with restricted resources
- Dependence on world market
  - Lack key resource
  - Sell surplus goods

World Trade

- Trade deficit
  - Imports exceed exports
  - Borrow from foreigners
  - Sell real assets to foreigners
- Trade surplus
  - Exports exceed imports
  - Lend to foreigners

Rapid Trade Growth

- Transportation technology
- Communications technology
- General decline in tariffs
- All nations participate

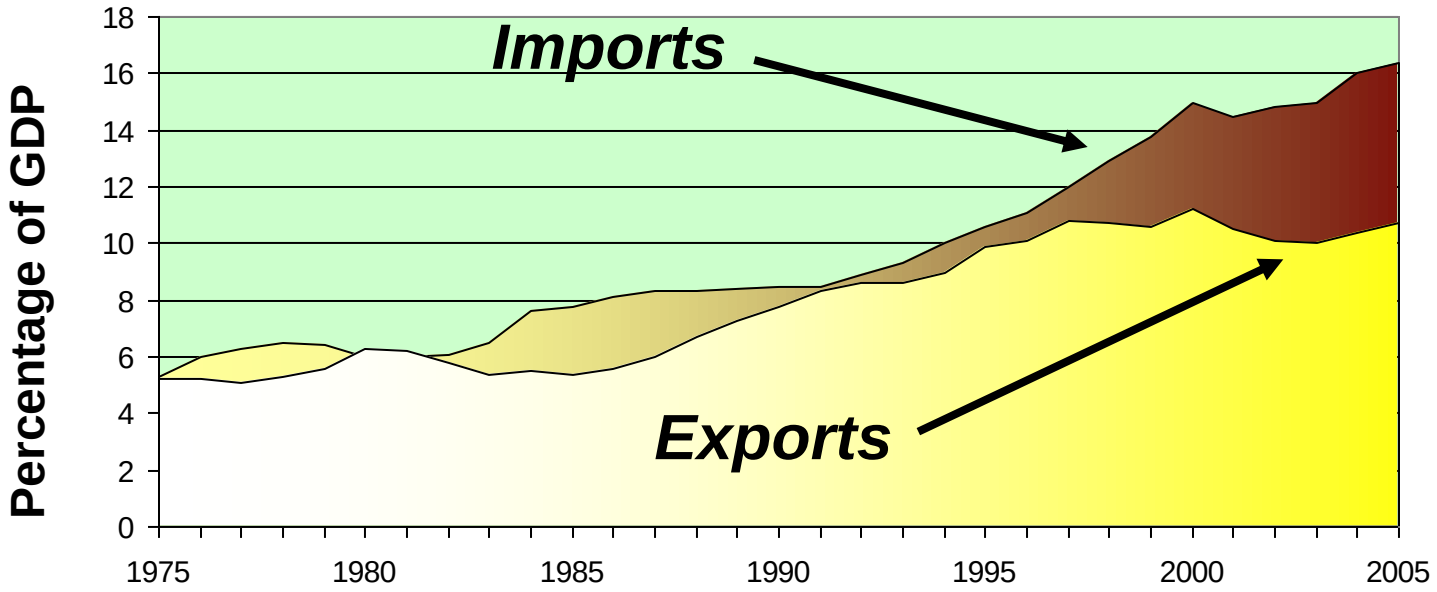
Exports of Goods and Services

Belgium	91%
Netherlands	75%
Germany	47%
South Korea	45%
Canada	35%
Italy	29%
France	27%
New Zealand	27%
Spain	26%
United Kingdom	25%
Japan	18%
United States	12%

Source: IMF, International Financial Statistics, 2007

United States Trade

Percentage of GDP, adjusted for inflation, billions of 2000 dollars



Source: Bureau of Economic Analysis

U.S. Imports and Exports

Billions of dollars, 2007

Exports		Imports	
Chemicals	$94.1	Petroleum	$331.0
Consumer Durables	70.9	Automobiles	133.8
Agricultural Products	77.6	Household Appliances	112.1
Semiconductors	50.2	Computers	104.0
Computers	42.9	Metals	115.7
Generating Equipment	41.5	Clothing	86.3
Automobiles	43.6	Consumer Electronics	94.7
Aircraft	48.6	Generating Equipment	55.0
Medical Equipment	32.0	Chemicals	56.2
Fuels and Lubricants	47.7	Aircraft	34.4

Source: Department of Commerce Data

U.S. Imports and Exports

Goods by area – 2007

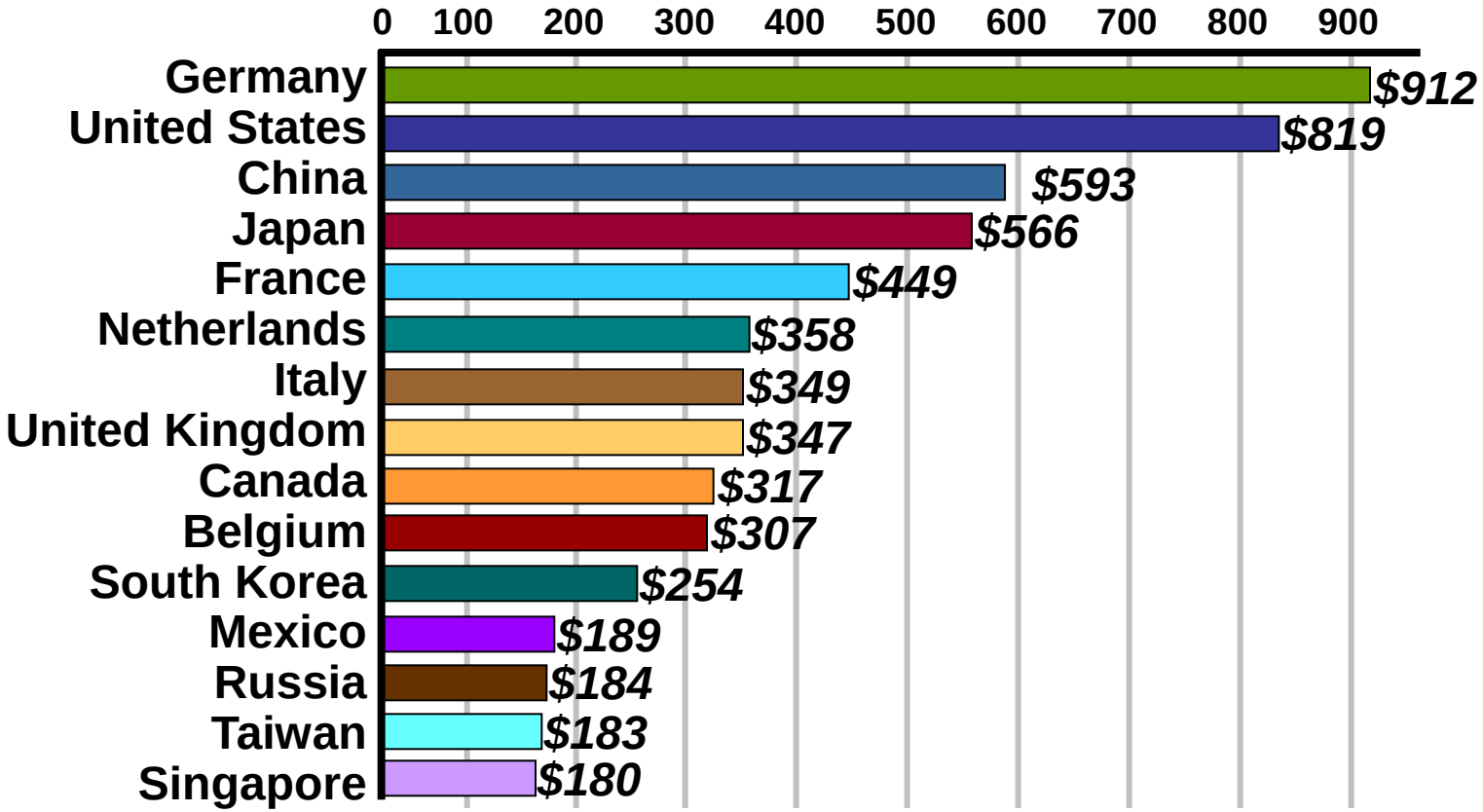
Exports to	Value	Imports from	Value
Canada	$250	Canada	$317
European Union	242	European Union	356
Mexico	136	Mexico	214
China	65	China	322
Japan	61	Japan	146
OPEC countries	49	OPEC countries	174
All other	346	All other	436
TOTAL	$1149	TOTAL	$1965

Imports Exceed Exports by $816 Billion

Source: Survey of Current Business, April 2006

Exports of Goods

Billions of dollars, 2006



Source: World Trade Organization

Specialization

- Shift resources to export industry
- Achieve higher overall output and income
- Absolute advantage
  - Higher output per worker for a good
- Comparative advantage
  - Lower domestic opportunity cost for a good

Comparative Advantage

Mexico's Production Possibilities Table (in Tons)

	Production Alternatives				
Product	**A**	**B**	**C**	**D**	**E**
Avocados	0	20	**24**	40	60
Soybeans	15	10	**9**	5	0

- Sacrifice 5 tons soybeans for 20 tons avocados
- Costs 1 ton soybeans to produce 4 tons avocados

Comparative Advantage

U.S.'s Production Possibilities Table (in Tons)

	Production Alternatives				
Product	**A**	**B**	**C**	**D**	**E**
Avocados	0	30	**33**	60	90
Soybeans	30	20	**19**	10	0

- Absolute advantage in both goods
- Sacrifice 10 tons soybeans for 30 tons avocados
- Costs 1 ton soybeans to produce 3 tons avocados

Comparative Advantage

- Mexico will produce avocados
- U.S. will produce soybeans
- U.S. gives up 3 A for 1 S
- Mexico gains 4 A for 1 S
- Terms of trade
  - 3.5 A for 1 S
  - Both countries benefit

Week: 08
Slides 88-102

Comparative Advantage

- Gains from trade
- Mexico starts at C (24 A and 9S)
  - Move to E (60 A and 0 S)
  - Trade 35 A for 10 S
- U.S. starts at T (33 A and 19 S)
  - Move to R (0 A and 30 S)
  - Trade 10 S for 35 A
- Overall gains?

Exchange Rates

One U.S. dollar will buy

January 2008

39.17 Indian rupees

.51 British pounds

1.01 Canadian dollars

10.94 Mexican pesos

1.12 Swiss francs

.68 European euro

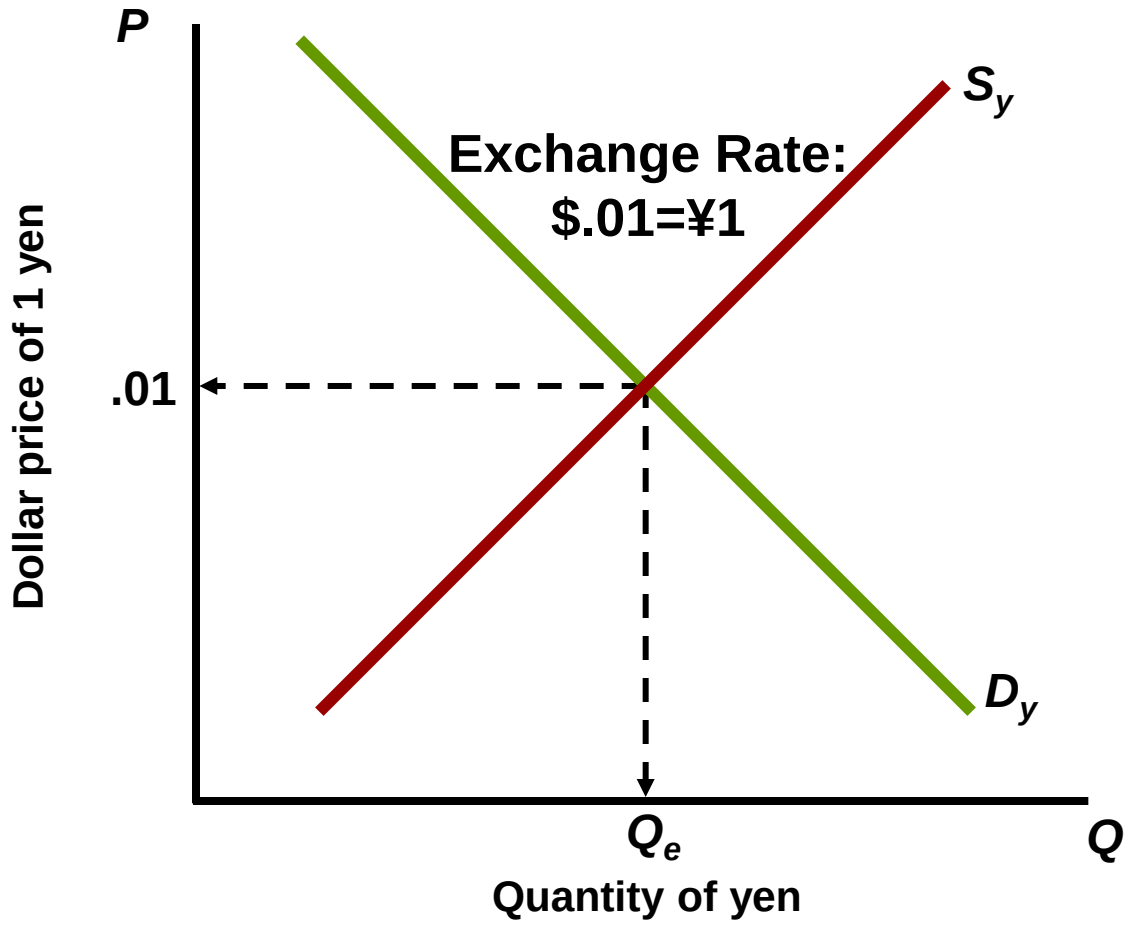
109.87 Japanese yen

937.38 South Korean won

6.42 Swedish kronors

The Foreign Exchange Market

Dollar – Yen Market



Changing Exchange Rates

- Shifts in demand for currency
- Shifts in supply of currency
- Rise in dollar price of yen
  - Dollar depreciates
- Currency appreciation

Trade Barriers

- Protective tariffs
- Import quotas
- Nontariff barriers
- Export subsidies

Reasons for Trade Barriers

- Misunderstanding gains from trade
- Political considerations
- Costs to society

Government and Trade

- Trade Wars
- Long history of U.S. tariffs
  - Smoot-Hawley Tariff Act of 1930
- Reciprocal Trade Agreements Act of 1934
  - Reduce tariffs
  - Negotiating Authority
  - Most-Favored-Nation Clause

Multilateral Trade Agreements

- General Agreement on Tariffs and Trade (GATT)
  - Equal trade treatment
  - Reduction in tariffs
  - Elimination of import quotas
- Uruguay Round 1995

Multilateral Trade Agreements

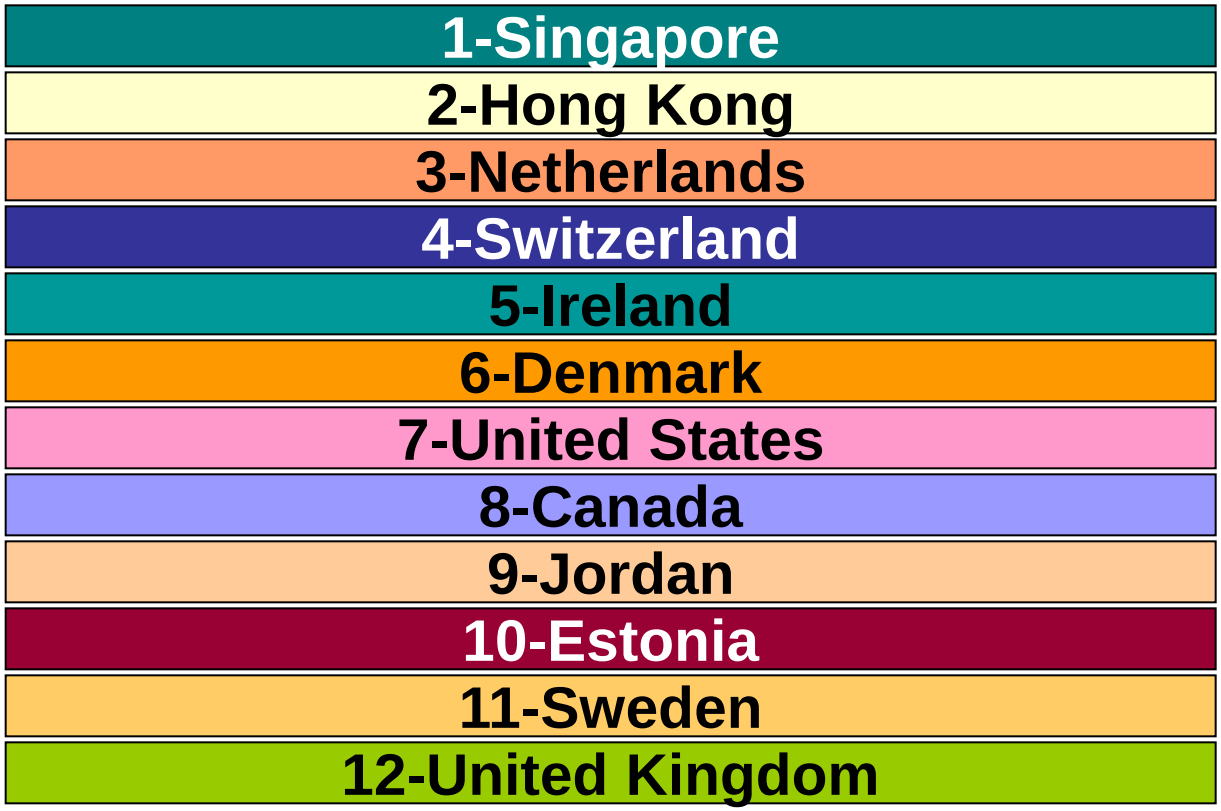
- World Trade Organization (WTO)
  - Successor to GATT
  - 151 nations belong
- Doha Round (Doha, Qatar)
  - Trade negotiation
  - Latest round 2001

Free Trade Zones

- European Union (EU)
  - Established 1958
  - The euro zone
- North American Free Trade Agreement (NAFTA)
  - Established 1993
  - Canada, Mexico, and U.S.

Top Globalized Economies

2007, based on 13 key indicators



Source: A. T. Kearney, Foreign Policy

Trade-Related Issues

- Trade adjustment assistance
- Offshoring of jobs
  - Outsourcing
  - Benefits and costs
- Fair-trade products
  - The purpose

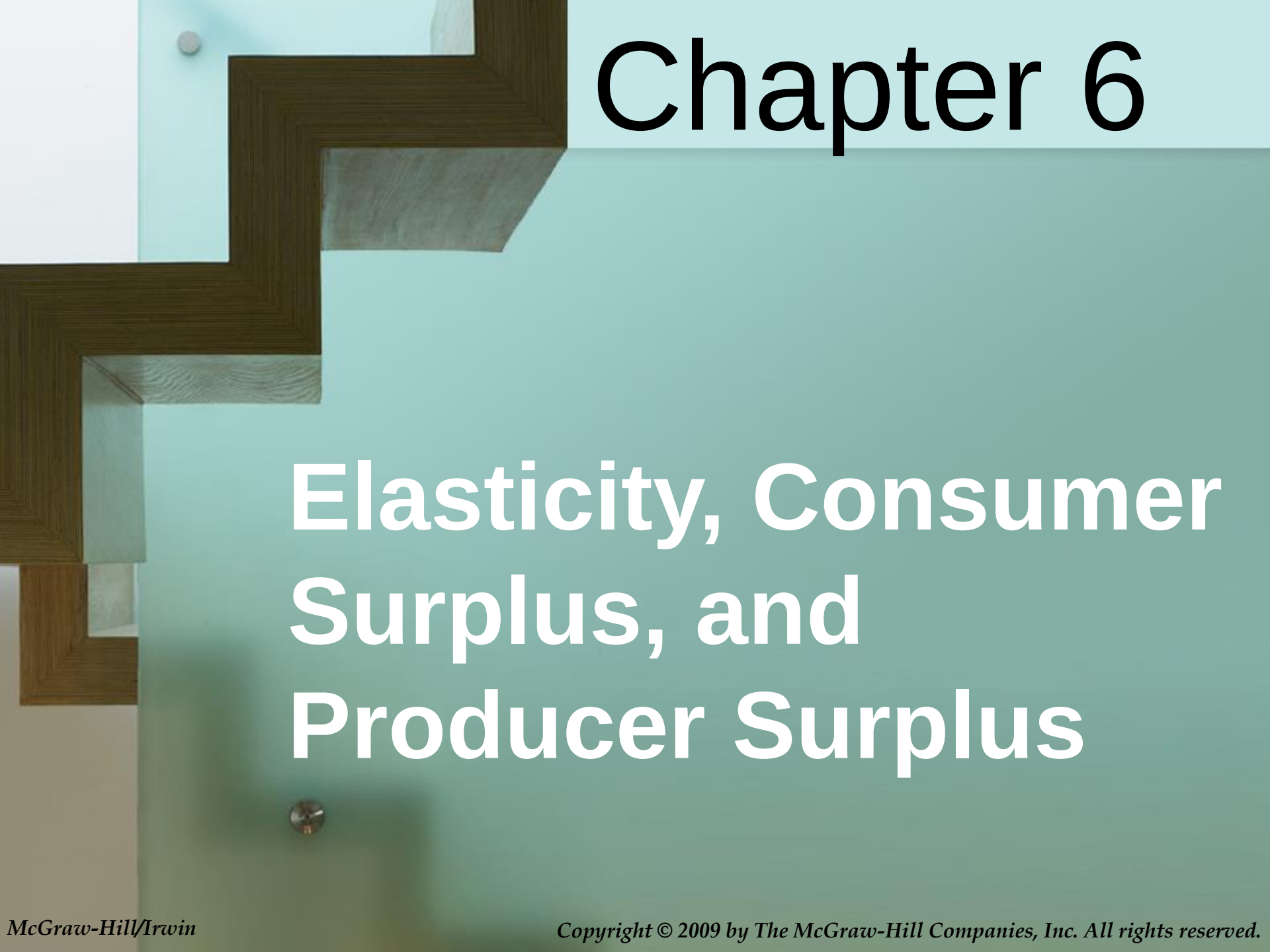
Key Terms

- multinational corporations
- comparative advantage
- terms of trade
- foreign exchange market
- exchange rates
- depreciation
- appreciation
- protective tariffs
- import quotas
- nontariff barriers
- export subsidies
- Smoot-Hawley Tariff Act
- Reciprocal Trade Agreements Act
- most-favored-nation clauses
- General Agreement on Tariffs and Trade (GATT)
- World Trade Organization (WTO)
- Doha Round
- European Union (EU)
- trade bloc
- euro
- North American Free Trade Agreement (NAFTA)

Next Chapter Preview…

Elasticity, Consumer Surplus, and Producer Surplus

Week: 09
Slides 104-119



Chapter 6

Elasticity, Consumer Surplus, and Producer Surplus

McGraw-Hill/Irwin

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Chapter Objectives

- Price elasticity of demand
- The total revenue test
- Price elasticity of supply
- Cross elasticity of demand
- Income elasticity of demand
- Consumer & producer surplus
- Efficiency losses

Price elasticity of demand

The law of demand tells us that, other things equal, consumers will buy more of a product when its price declines and less when its price increases.

But how much more or less will they buy?

The amount varies from product to product and over different price ranges for the same product. It also may vary over time. And such variations matter.

For example, a firm contemplating a price hike will want to know how consumers will respond.

If they remain highly loyal and continue to buy, the firm's revenue will rise. But if consumers defect en masse to other sellers or other products, the firm's revenue will tumble.

Price Elasticity of Demand

Price Elasticity of Demand:

Measures responsiveness of consumer to price changes.

For example, **Restaurant meals—**consumers are highly responsive to price changes.

Toothpaste— consumers pay much less attention to price changes.

- **Elastic demand**
  - Large change in quantity purchased for given price change
- **Inelastic demand**
  - Small change in quantity purchased for given price change

Price Elasticity of Demand

- Price-elasticity coefficient and formula

$$E_d = \frac{\text{Percentage Change in } \textbf{Quantity Demanded} \text{ of Product X}}{\text{Percentage Change in } \textbf{Price} \text{ of Product X}}$$

Price Elasticity of Demand

- Calculate percentage change
- Restate formula

$$E_d = \frac{\text{Change in Quantity Demanded of X}}{\text{Original Quantity Demanded of X}} \div \frac{\text{Change in Price of X}}{\text{Original Price of X}}$$

Price Elasticity of Demand

- Calculation problem
- Starting point matters
- Midpoint formula

$$E_d = \frac{\text{Change in Quantity}}{\text{Sum of Quantities/2}} \div \frac{\text{Change in Price}}{\text{Sum of Prices/2}}$$

Price Elasticity of Demand

A price change from, say, $4 to $5 along a demand curve and Quantity demanded changes from 20 to 10. Calculate the price elasticity of demand for that product.

$$Ed=\frac{10-20}{(10+20)/2} \div \frac{5-4}{(5+4)/2}=\frac{-10}{15} \div \frac{1}{4.5}=-3$$

(Approximately)

Price Elasticity of Demand

Elastic Demand Demand is **elastic** if a specific percentage change in price results in a larger percentage change in quantity demanded. Then *E d* will be greater than 1. Example: Suppose that a 2 percent decline in the price of cut flowers results in a 4 percent increase in quantity demanded.

Inelastic Demand If a specific percentage change in price produces a smaller percentage change in quantity demanded, demand is **inelastic.** Then *E d* will be less than 1. Example: Suppose that a 2 percent decline in the price of coffee leads to only a 1 percent increase in quantity demanded.

Unit Elasticity The case separating elastic and inelastic demands occurs where a percentage change in price and the resulting percentage change in quantity demanded are the same. Example: Suppose that a 2 percent drop in the price of chocolate causes a 2 percent increase in quantity demanded.

Interpretations of Elasticity

Elastic Demand:

$$E_d = \frac{.04}{.02} = 2$$

Inelastic Demand

$$E_d = \frac{.01}{.02} = .5$$

Unit Elasticity

$$E_d = \frac{.02}{.02} = 1$$

Price Elasticity of Demand

- Why use percentages?
  - Unit free measure
  - Compare responsiveness across products
- Elimination of the (-) sign
- Extreme cases
  - Perfectly inelastic demand
  - Perfectly elastic demand

The Total Revenue Test

- Total Revenue = TR = PxQ
- Inelastic demand

If demand is inelastic, a price decrease will reduce total revenue.

  - P and TR change in same direction

- Elastic demand

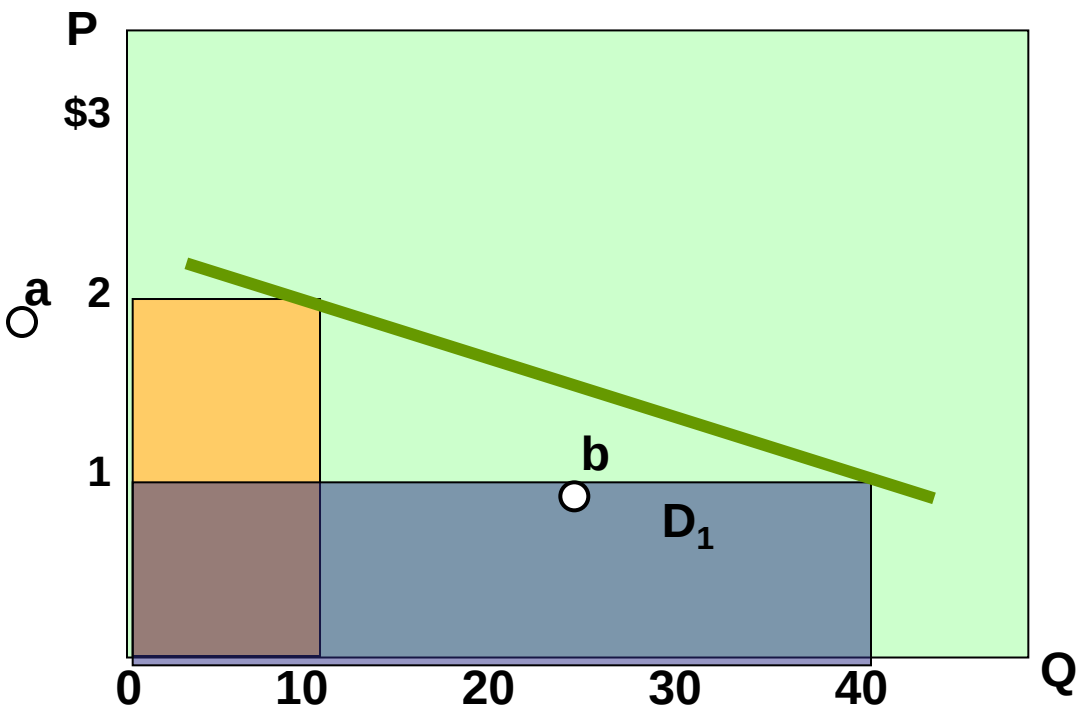
If demand is elastic, a decrease in price will increase total revenue.

  - P and TR change in opposite direction

The Total Revenue Test

- Lower price and elastic demand
  - –Blue gain exceeds gold loss

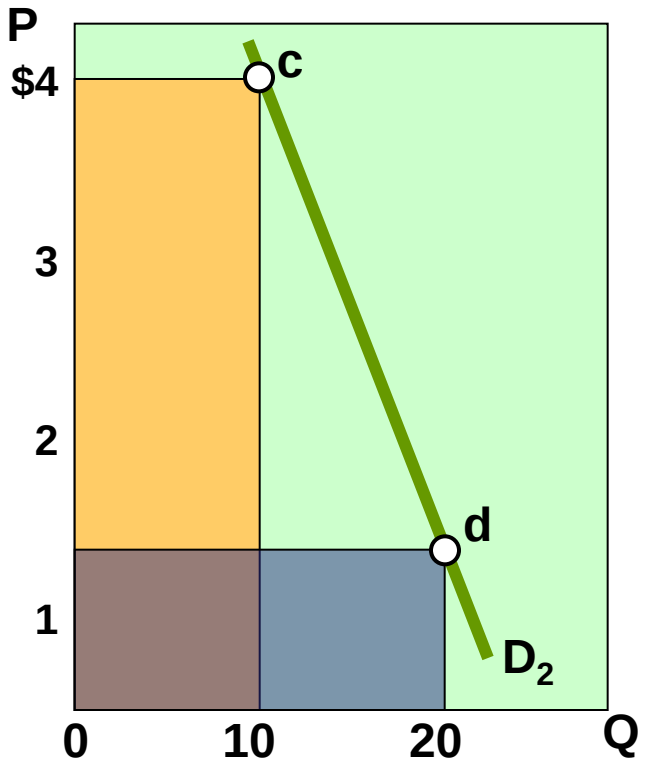
(a) Price declines from $2 to $1, and total revenue increases from $20 to $40. So demand is elastic. The gain in revenue (brown area) exceeds the loss of revenue (gold area).



The Total Revenue Test

- Lower price and inelastic demand
  - –Gold loss exceeds blue gain

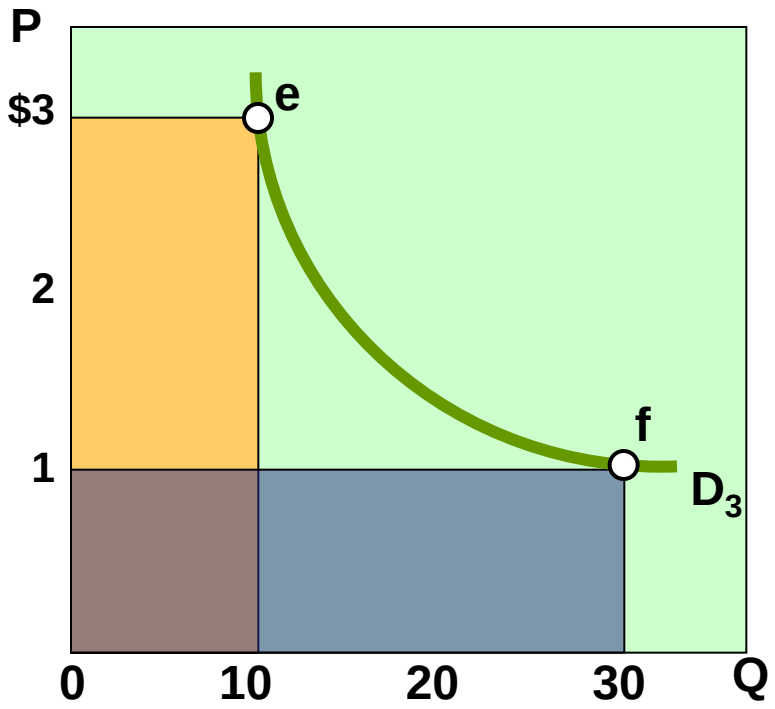
(b) Price declines from $4 to $1, and total revenue falls from $40 to $20. So, demand is inelastic. The gain in revenue (brown area) is less than the loss of revenue (gold area).



The Total Revenue Test

- Lower price and unit-elastic demand
  - Blue gain equals yellow loss

(c) Price declines from $3 to $1, and total revenue does not change. Demand is unit-elastic. The gain in revenue (brown area) equals the loss of revenue (gold area).

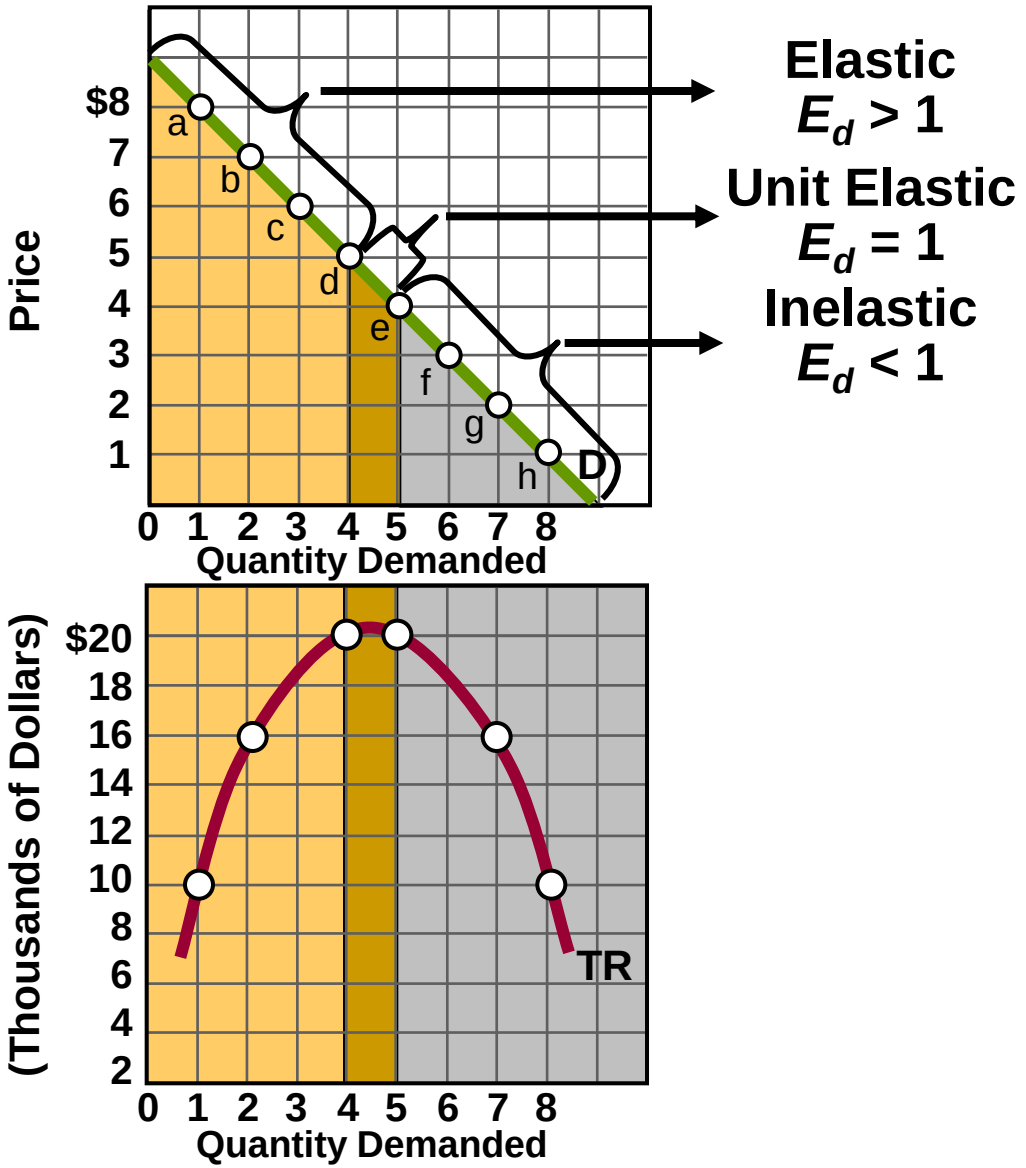


Week: 10
Slides 120-134

Elasticity on a Linear Demand Curve

(1) Total Quantity of Tickets Demanded Per Week, Thousands	(2) Price Per Ticket	(3) Elasticity Coefficient (E_d)	(4) Total Revenue (1) X (2)	(5) Total-Revenue Test
1	$8		$8,000	
		5.00		Elastic
2	7		14,000	
		2.60		Elastic
3	6		18,000	
		1.57		Elastic
4	5		20,000	
		1.00		Unit Elastic
5	4		20,000	
		0.64		Inelastic
6	3		18,000	
		0.38		Inelastic
7	2		14,000	
		0.20		Inelastic
8	1		8,000	

Elasticity and the TR Curve



Price Elasticity of Demand: A Summary

TABLE 6.2 Price Elasticity of Demand: A Summary

Absolute Value of Elasticity Coefficient	Demand Is:	Description	Impact on Total Revenue of a: Price Increase	Price Decrease
Greater than 1 ($E_d > 1$)	Elastic or relatively elastic	Quantity demanded changes by a larger percentage than does price	Total revenue decreases	Total revenue increases
Equal to 1 ($E_d = 1$)	Unit or unitary elastic	Quantity demanded changes by the same percentage as does price	Total revenue is unchanged	Total revenue is unchanged
Less than 1 ($E_d < 1$)	Inelastic or relatively inelastic	Quantity demanded changes by a smaller percentage than does price	Total revenue increases	Total revenue decreases

Determinants of Elasticity

- Substitutability

the larger the number of substitute goods that are available, the greater the price elasticity of demand.

  - More substitutes, more elastic demand
  - Various brands of candy bars for example.

- Proportion of income

The higher the price of a good relative to consumers' incomes, the greater the price elasticity of demand.

  - Price relative to income. A 10 percent increase in the price of low-priced pencils for example.

- Luxuries versus necessities

The more that a good is considered to be a "luxury" rather than a "necessity," the greater is the price elasticity of demand.

  - Luxuries are more elastic

- Time
  - More elastic in the long run

Applications of Elasticity

- Large crop yields

The demand for most farm products is highly inelastic

  - Inelastic demand

- Excise taxes

legislatures tend to seek out products that have inelastic demand when levying excises.

  - Inelastic demand

- Decriminalization of illegal drugs
  - Elastic or inelastic demand?

Price Elasticity of Supply

Measures the responsiveness to price changes by producers

-If the quantity supplied by producers is relatively responsive to price changes, supply is elastic.

-If it is relatively insensitive to price changes, supply is inelastic

$$E_s = \frac{\text{Percentage Change in } \textbf{Quantity Supplied} \text{ of Product X}}{\text{Percentage Change in } \textbf{Price} \text{ of Product X}}$$

Example

Suppose an increase in the price of a good from $4 to $6 increases the quantity supplied from 10 units to 14 units. The percentage change in price would be 2/5 , or 40 percent, and the percentage change in quantity would be 4/12, or 33 percent.

$Es=\frac{.33}{.40}=.83$

Price Elasticity of Supply

- Market period

The **market period** is the period that occurs when the time immediately after a change in market price is too short for producers to respond with a change in quantity

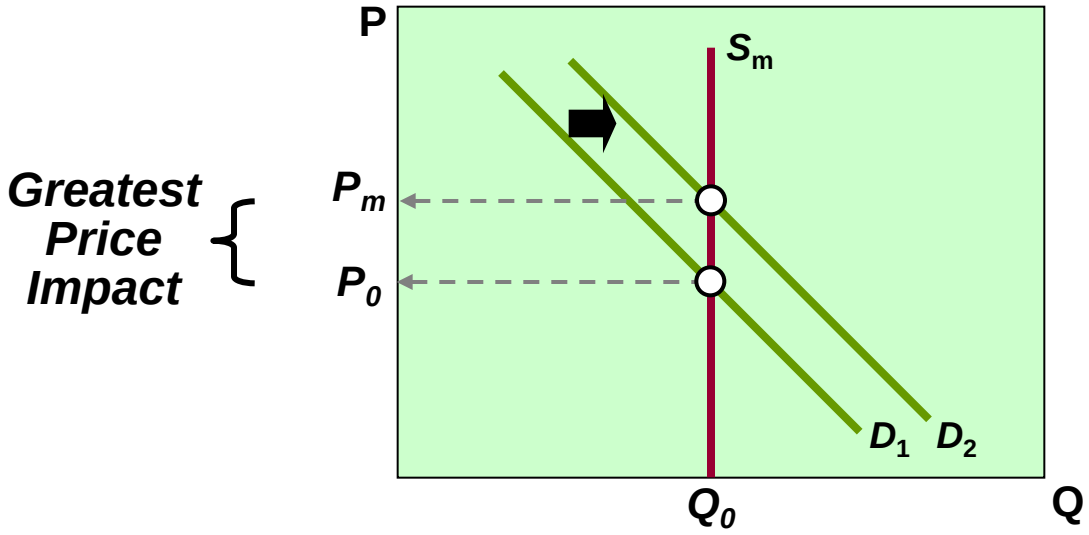
  - Perfectly inelastic supply
- Short run
  - Fixed plant size
- Long run
  - Adjustable plant size
  - Supply more elastic

Price Elasticity of Supply

The Market Period

- Perfectly inelastic supply

(a) there is insufficient time to
change output, and so supply is perfectly inelastic. In the short run

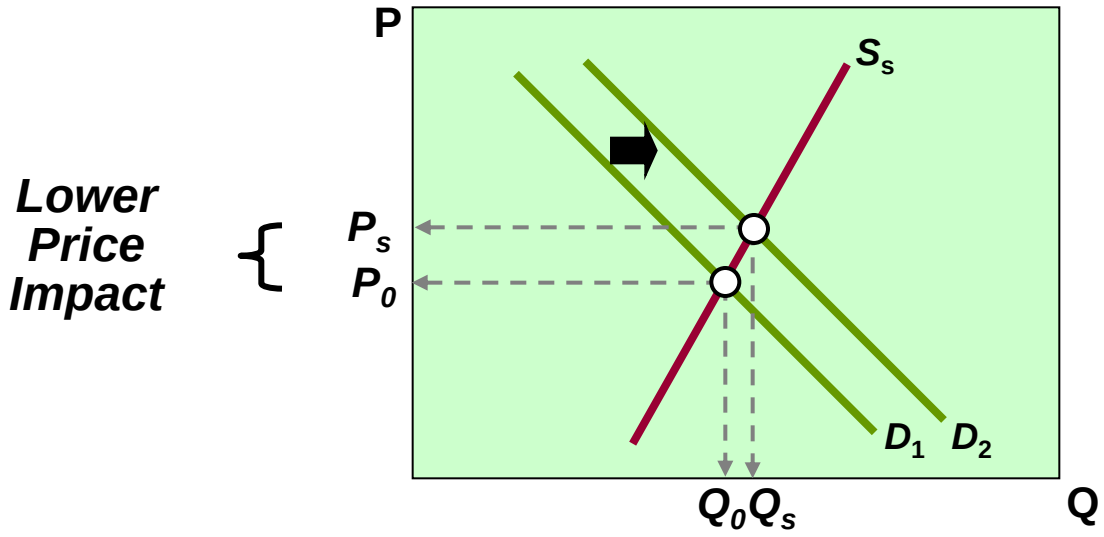


Price Elasticity of Supply

The Short Run

- Inelastic supply

b) plant capacity is fixed, but changing the intensity of its use can alter output; supply is therefore more elastic.

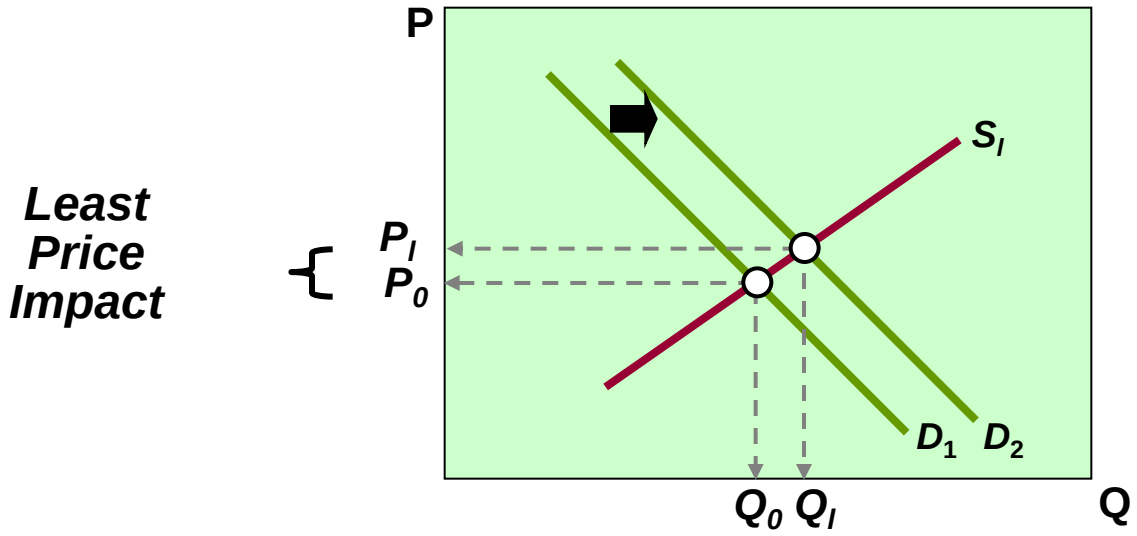


Price Elasticity of Supply

The Long Run

- Elastic supply

c) all desired adjustments, including changes in plant capacity, can be made, and supply becomes still more elastic.



Price Elasticity of Supply

- Applications
- Antiques and reproductions
  - Limited, inelastic supply
  - Strong demand
  - Resulting high price
- Volatile gold prices
  - Inelastic supply
  - Shifting demand

Cross Elasticity of Demand

- Responsiveness of sales to change in price of another good

$$E_{xy} = \frac{\text{Percentage Change in } \textbf{Quantity Demanded} \text{ of Product } \mathbf{X}}{\text{Percentage Change in } \textbf{Price} \text{ of Product } \mathbf{Y}}$$

Cross Elasticity of Demand

- Substitute goods (Tea vs Coffee)
  - Positive sign
- Complementary goods (Petrol vs Bike)
  - Negative sign
- Independent goods (Laptop vs Hair brush)
  - Zero

    - Business implication(Sprite vs Coke)
    - Government implication(Pepsi and Coke merger – reduce competition but merger between Coke and Shell won't reduce competition)

Week: 11
Slides 135-147

Example of Cross elasticity of Demand

Suppose,
Price of Coffee(Y) changes from $100 to $150 and Quantity demanded changes from 10 to 15 unit.

Percentage change quantity$=\frac{150-100}{(150+100)/2}=\frac{50}{125}$

Percentage change price$=\frac{15-10}{(15+10)/2}=\frac{5}{12.5}$

$E_{xy}=\frac{50/125}{5/12.5}=\frac{.4}{.4}=1$

Here, the value of E_{xy} indicates that Tea is a substitute for Coffee.

Income Elasticity of Demand

$$E_i = \frac{\text{Percentage Change in } \textbf{Quantity Demanded}}{\text{Percentage Change in } \textbf{Income}}$$

- Responsiveness of sales to change in income
- Normal goods(Brand new Bike) – positive sign (Demand increases when income increase)
- Inferior goods(used car)– negative sign (Decrease demand as income increase) .

Example of Income Elasticity of Demand

Suppose, Income of Mr. Xahid increases from $100 to $150 and his demand for Coffee increases from 20 to 25 units. So,

Percentage change income $= \frac{150-100}{(150+100)/2} = \frac{50}{125}$

$E_i = \frac{50/125}{5/22.5} = \frac{.4}{.22} = 1.8o$ (Approximately)

Percentage change quantity $= \frac{25-20}{(25+20)/2} = \frac{5}{2.5}$

Here, E_i indicates that demand for coffee is positive related with Mr. Xahid's income.

Cross and Income Elasticities of Demand

TABLE 6.4 Cross and Income Elasticities of Demand

Value of Coefficient	Description	Type of Good(s)
Cross elasticity:		
Positive ($E_{wz} > 0$)	Quantity demanded of W changes in same direction as change in price of Z	Substitutes
Negative ($E_{xy} < 0$)	Quantity demanded of X changes in opposite direction from change in price of Y	Complements
Income elasticity:		
Positive ($E_I > 0$)	Quantity demanded of the product changes in same direction as change in income	Normal or superior
Negative ($E_I < 0$)	Quantity demanded of the product changes in opposite direction from change in income	Inferior

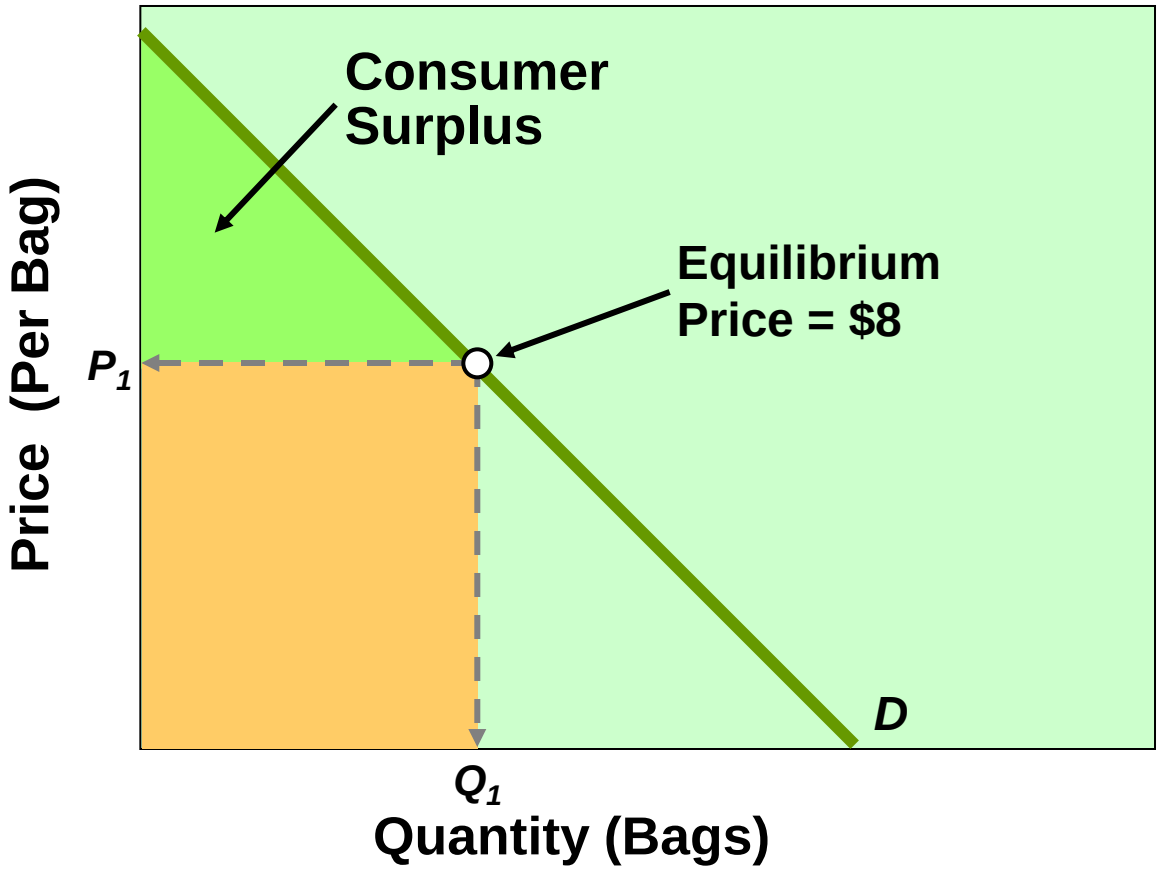
Consumer Surplus

- Benefit surplus

the difference between the maximum price a consumer is willing to pay for a product and the actual price.

Person	Max WTP	Actual Price	CS
Bob	$13	$8	$5
Barb	$12	$8	$4
Bill	$11	$8	$3
Bart	$10	$8	$2
Brent	$9	$8	$1
Betty	$8	$8	$0

Consumer Surplus

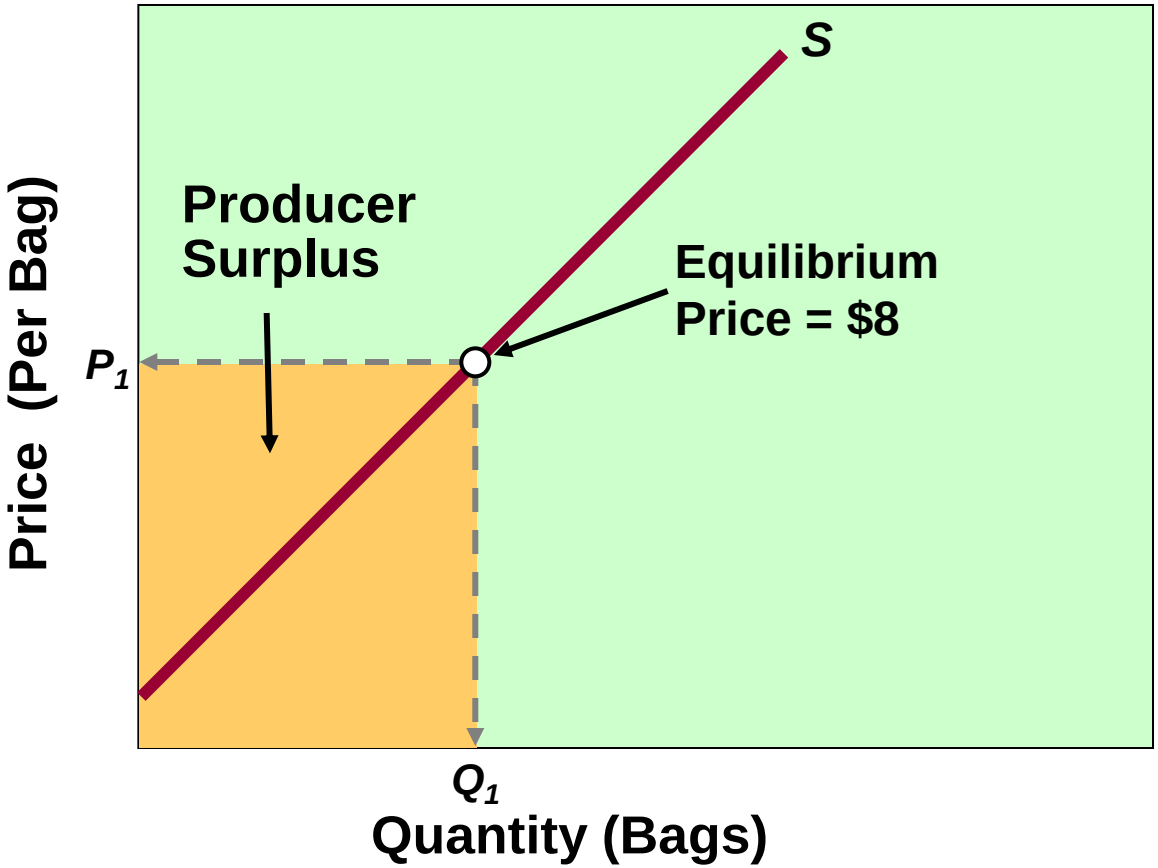


Producer Surplus

- Benefit surplus
- Actual price received more than minimum acceptable price (AP)

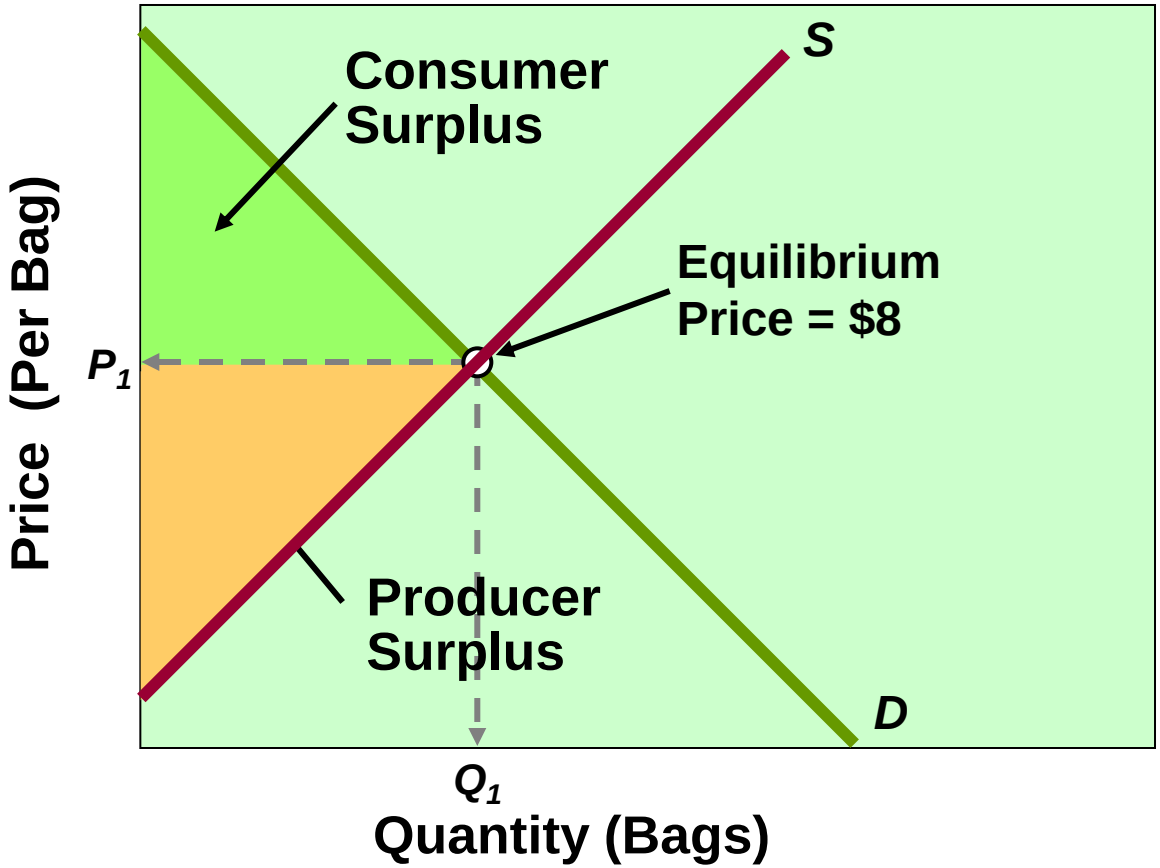
Person	Min AP	Actual Price	PS
Carlos	$3	$8	$5
Courtney	$4	$8	$4
Chuck	$5	$8	$3
Cindy	$6	$8	$2
Craig	$7	$8	$1
Chad	$8	$8	$0

Producer Surplus



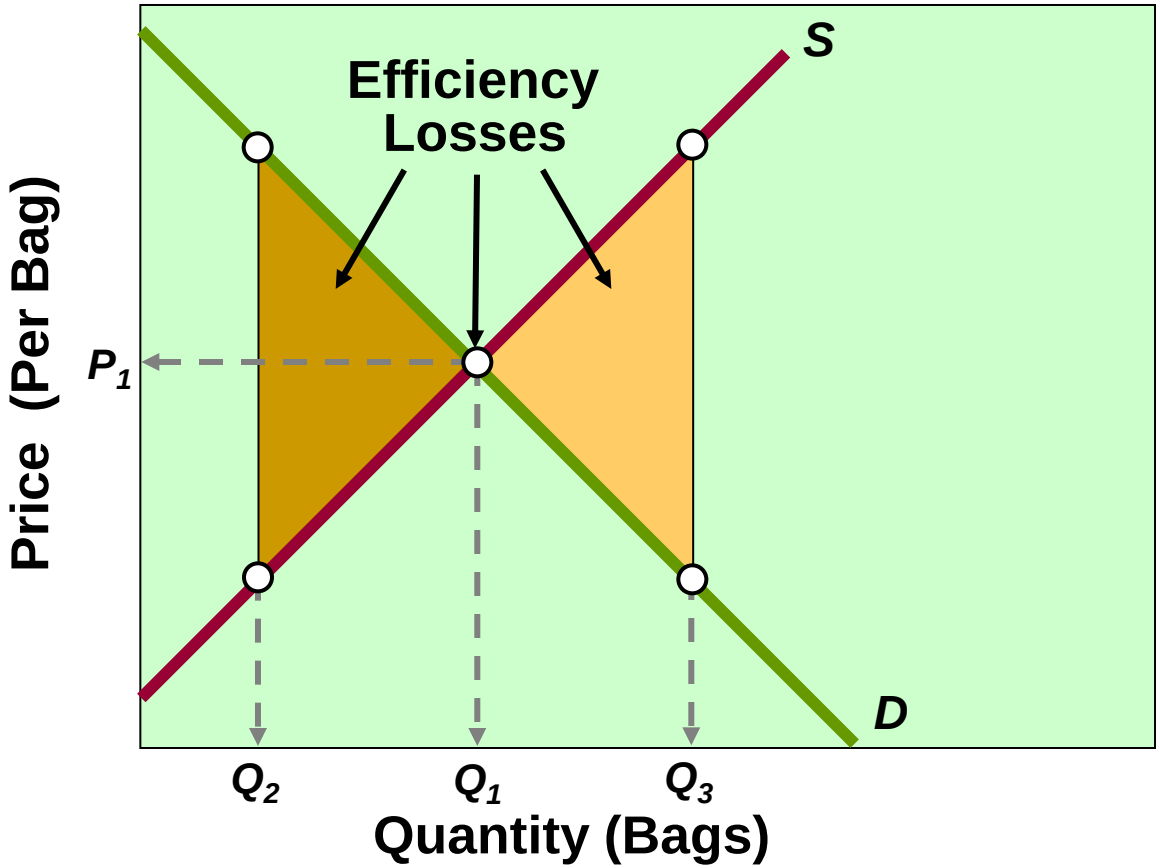
Efficiency Revisited

- Productive and allocative efficiency



Efficiency Loss

- Deadweight loss



Elasticity and Pricing Power

- Competitive markets
  - No pricing power
- Firms with market power
  - Charge different prices
- Differences in group elasticities
  - Business vs. leisure travelers
  - Discounting for children
  - College tuition

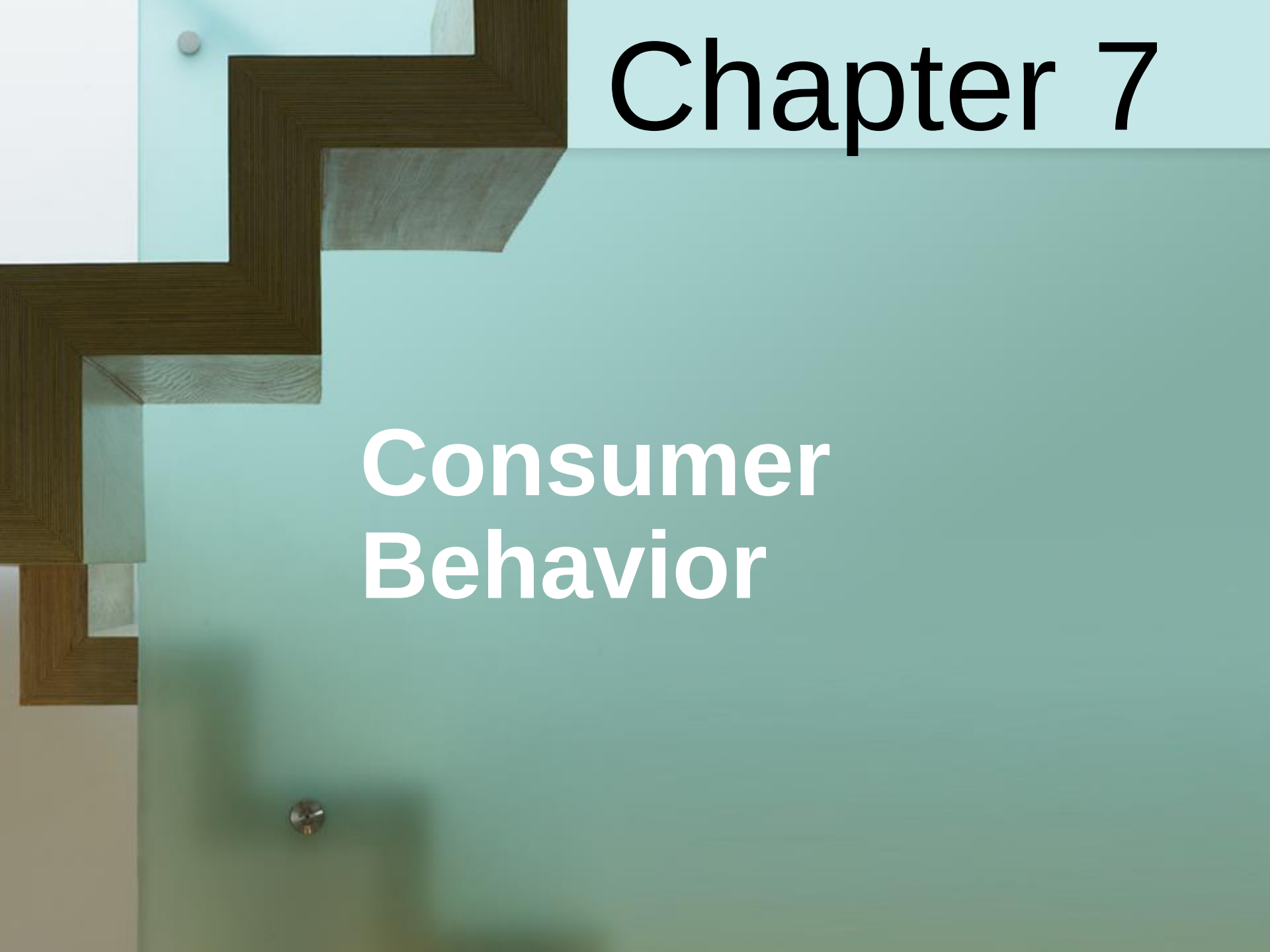
Key Terms

- price elasticity of demand
- midpoint formula
- elastic demand
- inelastic demand
- unit elasticity
- perfectly inelastic demand
- perfectly elastic demand
- total revenue (TR)
- total-revenue test
- price elasticity of supply
- market period
- short run
- long run
- cross elasticity of demand
- income elasticity of demand
- consumer surplus
- producer surplus
- efficiency losses (deadweight losses)

Week: 12
Slides 148-162

Next Chapter Preview…

Consumer Behavior



Chapter 7

Consumer Behavior

Chapter Objectives

- Total utility and marginal utility
- Law of diminishing marginal utility
- Marginal utility-to-price ratios
- Deriving the demand curve
- Income and substitution effects
- Appendix: the indifference curve model

Utility

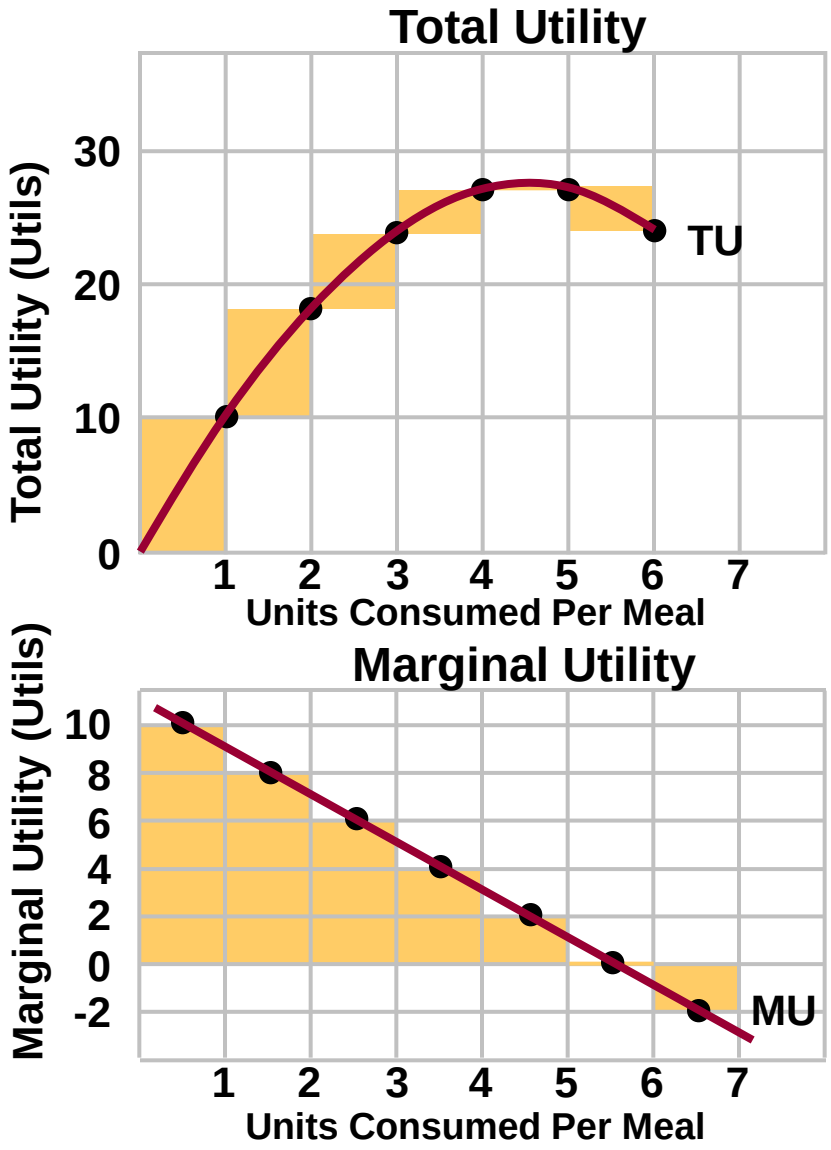
- Diminishing marginal utility (again)
- Satisfaction obtained from consumption
- Three characteristics
  - Differs from usefulness
  - Subjective
  - Difficult to quantify

Utility

- Total utility
  - Total satisfaction from a specific quantity
- Marginal utility
  - Extra satisfaction from an additional unit
- Law of diminishing marginal utility
  - Explains downward sloping demand

Utility Graphically

(1) Tacos Consumed Per Meal	(2) Total Utility, Utils	(3) Marginal Utility, Utils
0	0	
		10
1	10	
		8
2	18	
		6
3	24	
		4
4	28	
		2
5	30	
		0
6	30	
		-2
7	28	



QUICK REVIEW 7.1

- Utility is the benefit or satisfaction a person receives from consuming a good or a service.
- The law of diminishing marginal utility indicates that gains in satisfaction become smaller as successive units of a specific product are consumed.
- Diminishing marginal utility provides a simple rationale for the law of demand.

Theory of Consumer Behavior

- Key dimensions of the consumer problem
  - **Rational behavior**-consumers try to use income in a way that generates maximum satisfaction..
  - **Preferences**-consumers have clear preference for particular product and know how satisfaction to get from successive use of that product.
  - **Budget constraint**-consumers have limited income.
  - **Prices**-Goods are scarce relative to the demand for them, so every good carries a price tag.

Theory of Consumer Behavior

- Find utility maximizing combination of goods
- Utility maximizing rule
  - Allocate income
  - Last dollar spent on each good yields same marginal utility
  - Marginal utility per dollar

Numerical Example

Combinations of apples and oranges obtainable with an income of $10

(1) Unit of Product	(2) Apple (product A) Price = $1		(3) Orange (product B) Price = $2	
	(a) Marginal Utility, Utils	(b) Marginal Utility Per Dollar (MU/Price)	(a) Marginal Utility, Utils	(b) Marginal Utility Per Dollar (MU/Price)
First	10	10	24	12

Compare marginal utilities
Then compare per dollar - MU/Price
Choose the highest
Check budget - proceed to next item

Numerical Example

Combinations of apples and oranges obtainable with an income of $10

(1) Unit of Product	(2) Apple (product A) Price = $1 (a) Marginal Utility, Utils	(2) Apple (product A) Price = $1 (b) Marginal Utility Per Dollar (MU/Price)	(3) Orange (product B) Price = $2 (a) Marginal Utility, Utils	(3) Orange (product B) Price = $2 (b) Marginal Utility Per Dollar (MU/Price)
First	10	10 ✓	24	12
Second			20	10 ✓

Again, compare per dollar - MU/Price

Choose the highest

Buy one of each – budget has $5 left

Proceed to next item

Numerical Example

Combinations of apples and oranges obtainable with an income of $10

(1) Unit of Product	(2) Apple (product A) Price = $1		(3) Orange (product B) Price = $2	
	(a) Marginal Utility, Utils	(b) Marginal Utility Per Dollar (MU/Price)	(a) Marginal Utility, Utils	(b) Marginal Utility Per Dollar (MU/Price)
First	10	10 ✓	24	12
Second	8	8	20	10 ✓
Third			18	9 ✓

Again, compare per dollar - MU/Price

Buy one more orange – budget has $3 left

Proceed to next item

Numerical Example

Combinations of apples and oranges obtainable with an income of $10

(1) Unit of Product	(2) Apple (product A) Price = $1 (a) Marginal Utility, Utils	(2) Apple (product A) Price = $1 (b) Marginal Utility Per Dollar (MU/Price)	(3) Orange (product B) Price = $2 (a) Marginal Utility, Utils	(3) Orange (product B) Price = $2 (b) Marginal Utility Per Dollar (MU/Price)
First	10	10 ✓	24	12
Second	8	8 ✓	20	10 ✓
Third	7	7	18	9 ✓
Fourth			16	8 ✓

Again, compare per dollar - MU/Price

Buy one of each – budget exhausted

Numerical Example

Combinations of apples and oranges obtainable with an income of $10

(1) Unit of Product	(2) Apple (product A) Price = $1		(3) Orange (product B) Price = $2	
	(a) Marginal Utility, Utils	(b) Marginal Utility Per Dollar (MU/Price)	(a) Marginal Utility, Utils	(b) Marginal Utility Per Dollar (MU/Price)
First	10	10 ✓	24	12
Second	8	8 ✓	20	10 ✓
Third	7	7	18	9 ✓
Fourth			16	8 ✓

Final result – at these prices, purchase 2 apples and 4 oranges

Algebraic Generalization

$$\frac{\text{MU of product A}}{\text{price of A}} = \frac{\text{MU of product B}}{\text{price of B}}$$

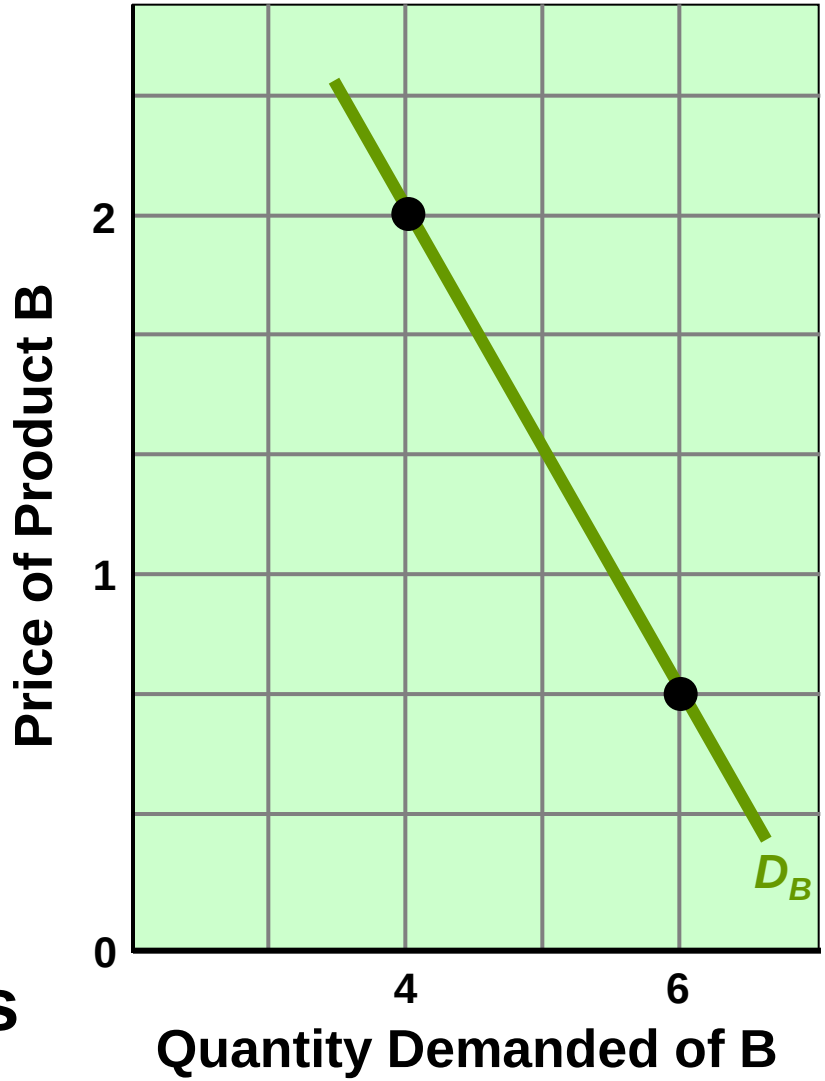
$$\frac{\text{8 Utils}}{\text{\$1}} = \frac{\text{16 Utils}}{\text{\$2}}$$

Optimum Achieved – Money income is allocated so that the last dollar spent on each product yields the same extra or marginal utility

Week: 13
Slides 164-176

Deriving the Demand Curve

Price Per Unit of B	Quantity Demanded
$2	4
1	6



Income Effects

Substitution Effects

QUICK REVIEW 7.2

- The theory of consumer behavior assumes that, with limited income and a set of product prices, consumers make rational choices on the basis of well-defined preferences.
- A consumer maximizes utility by allocating income so that the marginal utility per dollar spent is the same for every good purchased.
- A downward-sloping demand curve can be derived by changing the price of one product in the consumer-behavior model and noting the change in the utility-maximizing quantity of that product demanded.
- By providing insights on the income effect and substitution effects of a price decline, the utility-maximization model helps explain why demand curves are downsloping.

Applications and Extensions

- New products increase utility
  - iPods
- The diamond-water paradox
- The value of time
- Medical care purchases
- Cash and noncash gifts

Behavioral Economics

- Human instinct for variety
- Consume more when there is more variety
  - M&Ms
- Time inconsistency
  - Final exams
  - Retirement savings

Key Terms

- Law of diminishing marginal utility
- Utility
- Total utility
- Marginal utility
- Rational behavior
- Budget constraint
- Utility maximizing rule
- Income effect
- Substitution effect

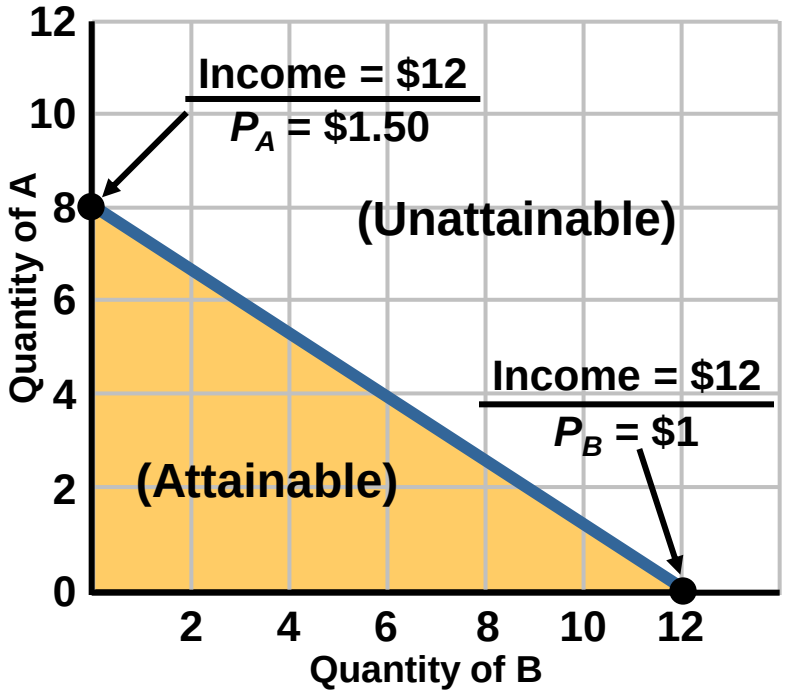
Next Chapter Preview…

The Costs of Production

The Budget Line

- Income changes
- Price changes

Units of A (Price = $1.50)	Units of B (Price = $1)	Total Expenditure
8	0	$12
6	3	12
4	6	12
2	9	12
0	12	12

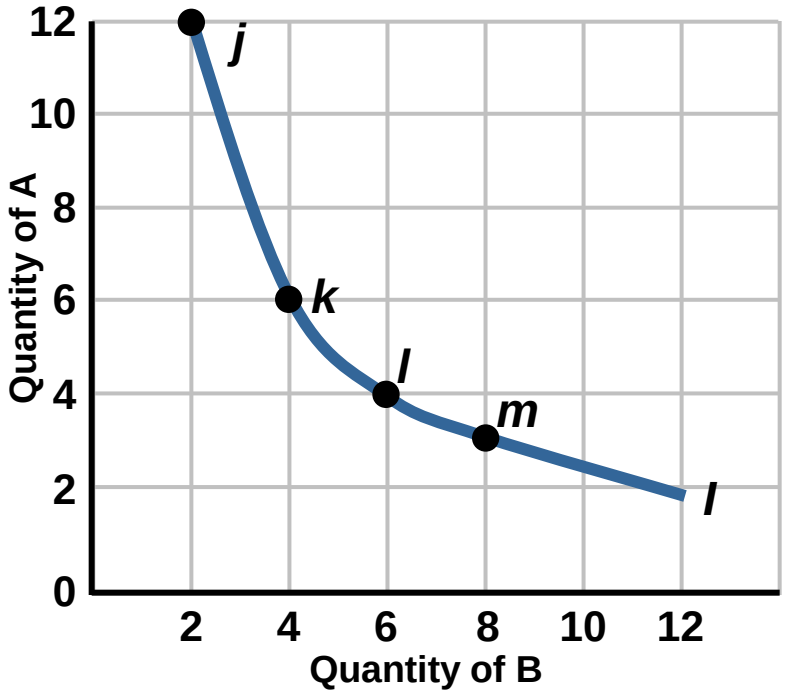


Indifference Curves

What is preferred

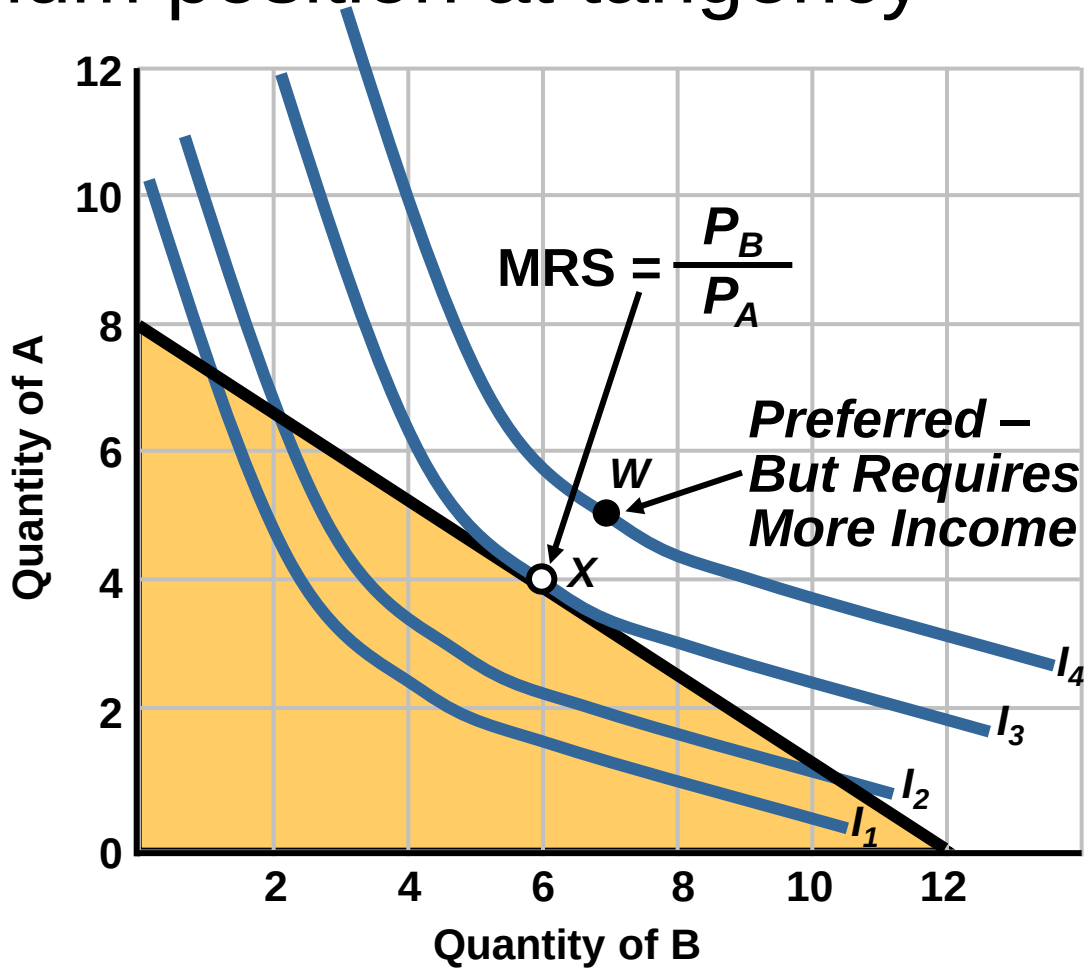
- Downsloping and convex
- Marginal rate of substitution

Combination	Units of A	Units of B
j	12	2
k	6	4
l	4	6
m	3	8

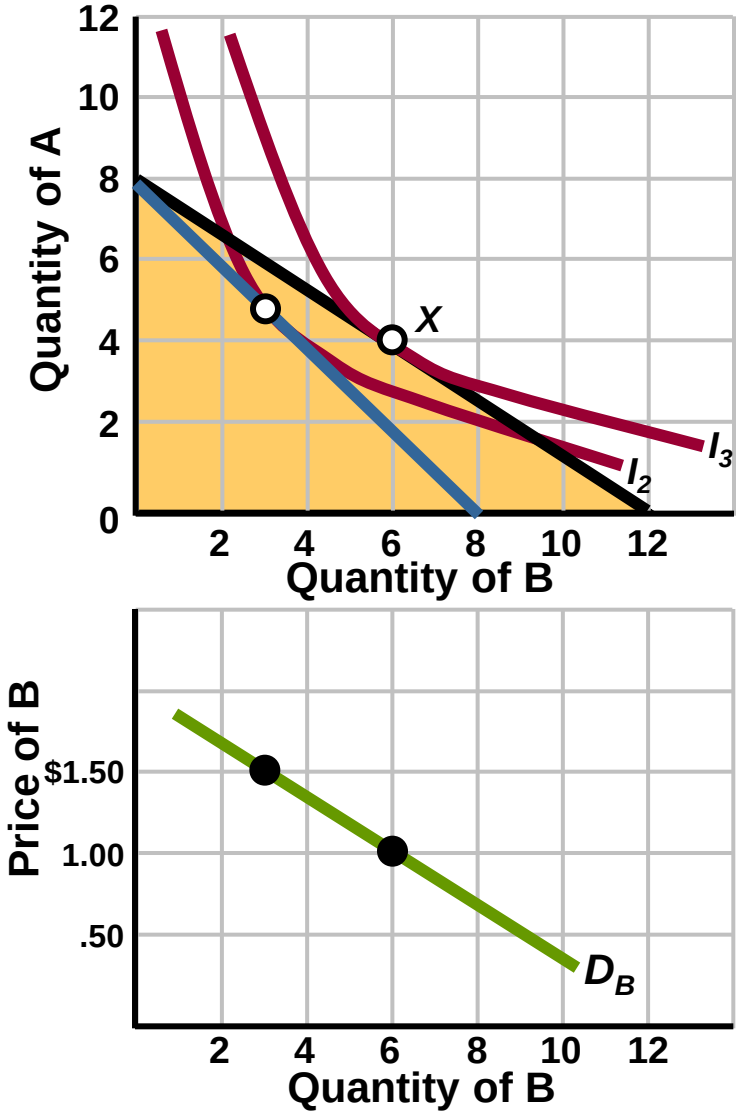


Indifference Curve Analysis

- The indifference map
- Equilibrium position at tangency



Demand Curve Derived



At $1 price for B, 6 units of B are purchased

Record the results

As price of B increases to $1.50, only 3 units of B are bought

Record the results

Connect the points to create the demand curve for B

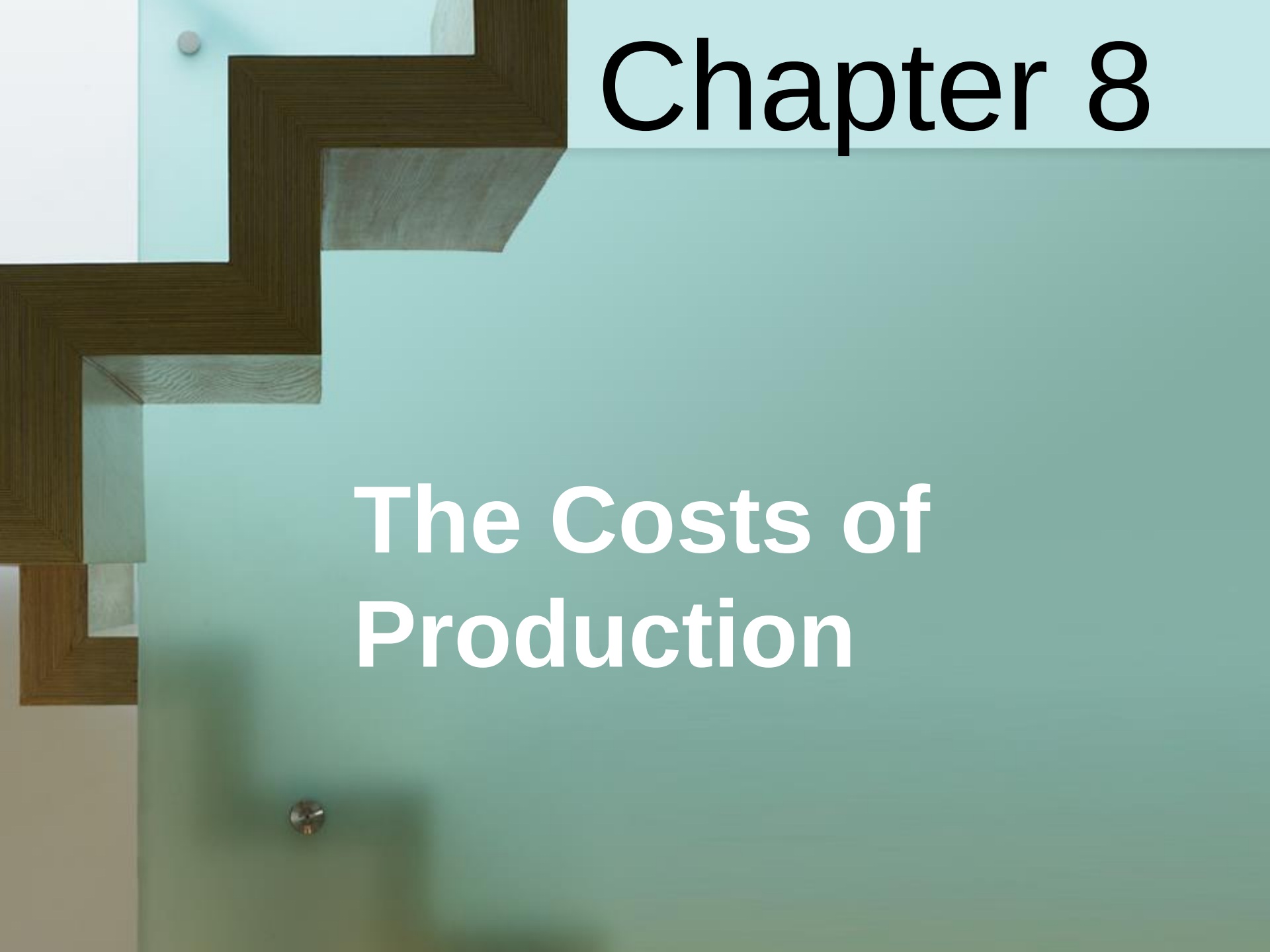
Appendix Key Terms

- Budget Line
- Indifference curve
- Marginal rate of substitution (MRS)
- Indifference map
- Equilibrium position

Next Chapter Preview…

The Costs of Production

Week: 14
Slides 177-187



Chapter 8

The Costs of Production

Chapter Objectives

- Explicit and implicit costs
- Law of diminishing returns
- Fixed and variable costs
- Total, average, and marginal costs
- The firm’s size in the long run

Economic Costs

Economic cost, or **opportunity cost:** the measure of the cost of any resource used to produce a good is the value or worth the resource would have in its best alternative use.

Economic cost =Explicit + implicit costs

Explicit costs

- Monetary payments to those who supply labor services, materials, fuel, transportation services, and the like.

Implicit costs

- Value of next best use
- Self-owned resources
- Self-employed resources

Example

Example: Suppose you are earning $22,000 a year as a sales representative for a T-shirt manufacturer. At some point you decide to open a retail store of your own to sell T-shirts. You invest $20,000 of savings that have been earning you $1000 per year. And you decide that your new firm will occupy a small store that you own and have been renting out for $5000 per year. You hire one clerk to help you in the store, paying her $18,000 annually.

Example

A year after you open the store, you total up your accounts and find the following:

Total sales revenue		$120,000
Cost of T-shirts	$40,000	
Clerk's salary	18,000	
Utilities	5000	
Total (explicit) costs		63,000
Accounting profit		57,000

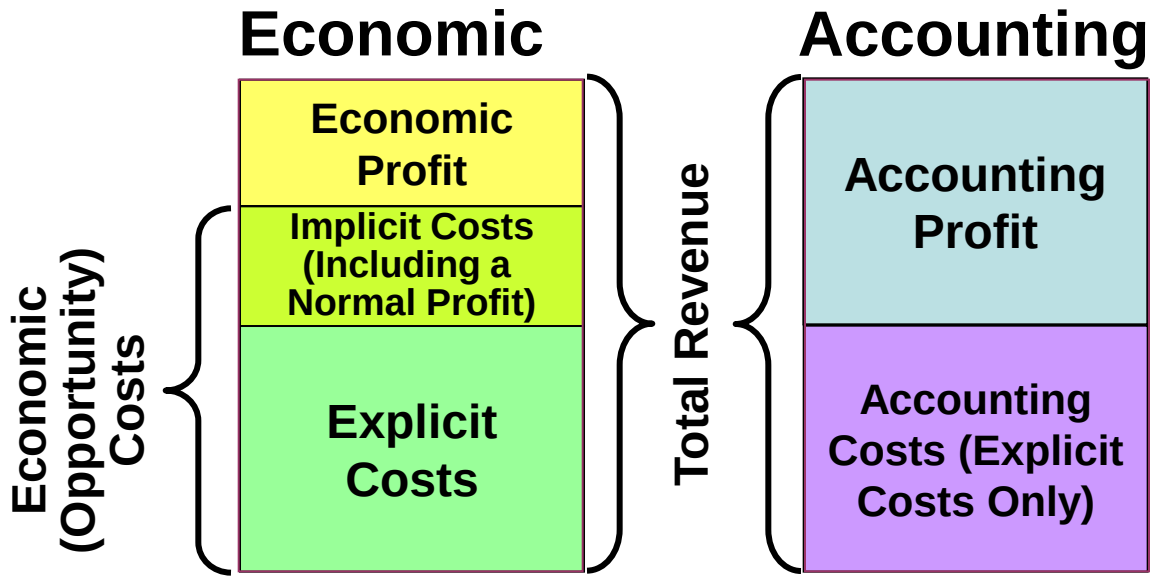
Looks good. You have an accounting profit of $57,000. A firm's accounting profit is what remains after it has paid individuals and other firms for the materials, capital, and labor they have supplied. But unfortunately your $57,000 accounting profit ignores your implicit costs and thus overstates the economic success of your venture. By providing your own financial capital, building, and labor, you incur implicit costs (forgone incomes) of $1000 of interest, $5000 of rent, and $22,000 of wages. If your entrepreneurial talent is worth, say, $5000 annually in other business endeavors of similar scope, you have also ignored that implicit cost. So:

Accounting profit		$57,000
Forgone interest	$ 1000	
Forgone rent	5000	
Forgone wages	22,000	
Forgone entrepreneurial income	5000	
Total implicit costs		33,000
Economic profit		24,000

Profit

- Accounting profit
  - Total revenue less explicit cost
- Normal profit
  - Equal to implicit cost (Here cost of doing business)
- Economic or pure profit
  - Total revenue less economic cost

Profits Compared



Short and Long Run

- The short run
  - Fixed plant capacity
  - Variable intensity of plant use
  - Variable output
- The long run
  - Variable plant capacity
  - Firms enter and exit

Quick Review

QUICK REVIEW 8.1

- Explicit costs are money payments a firm makes to outside suppliers of resources; implicit costs are the opportunity costs associated with a firm's use of resources it owns.
- Normal profit is the implicit cost of entrepreneurship. Economic profit is total revenue less all explicit and implicit costs, including normal profit.
- In the short run, a firm's plant capacity is fixed; in the long run, a firm can vary its plant size and firms can enter or leave the industry.

Production Relationships

- Total product (TP)
- Marginal product (MP)

$$\text{Marginal Product} = \frac{\text{Change in Total Product}}{\text{Change in Labor Input}}$$

- Average product (AP)

$$\text{Average Product} = \frac{\text{Total Product}}{\text{Units of Labor}}$$

Law of Diminishing Returns

Law of Diminishing Returns: describes what happens to output as a fixed plant is used more intensively. As successive units of a variable resource such as labor are added to a fixed plant, beyond some point the marginal product associated with each additional unit of a resource declines.

Week: 15
Slides 189-199

Law of Diminishing Returns

- Fixed technology
- Add variable resource to fixed resource
- Marginal product will decline
  - Beyond some point
- Rationale

Law of Diminishing Returns

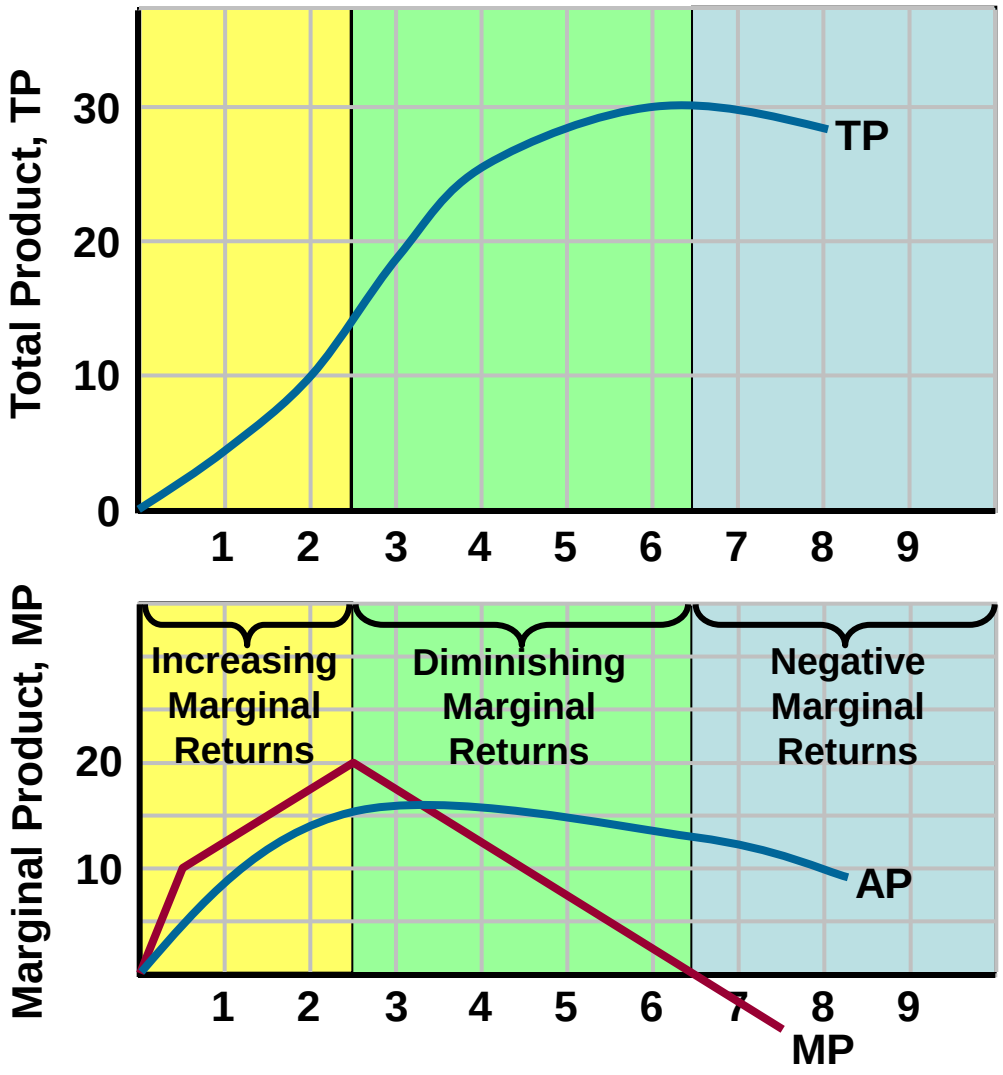
(1) Units of the Variable Resource (Labor)	(2) Total Product (TP)	(3) Marginal Product (MP), Change in (2)/ Change in (1)	(3) Average Product (AP), (2)/(1)
0	0		-
1	10	10	10.00
2	25	15	12.50
3	45	20	15.00
4	60	15	15.00
5	70	10	14.00
6	75	5	12.50
7	75	0	10.71
8	70	-5	8.75

Increasing Marginal Returns

Diminishing Marginal Returns

Negative Marginal Returns

Law of Diminishing Returns



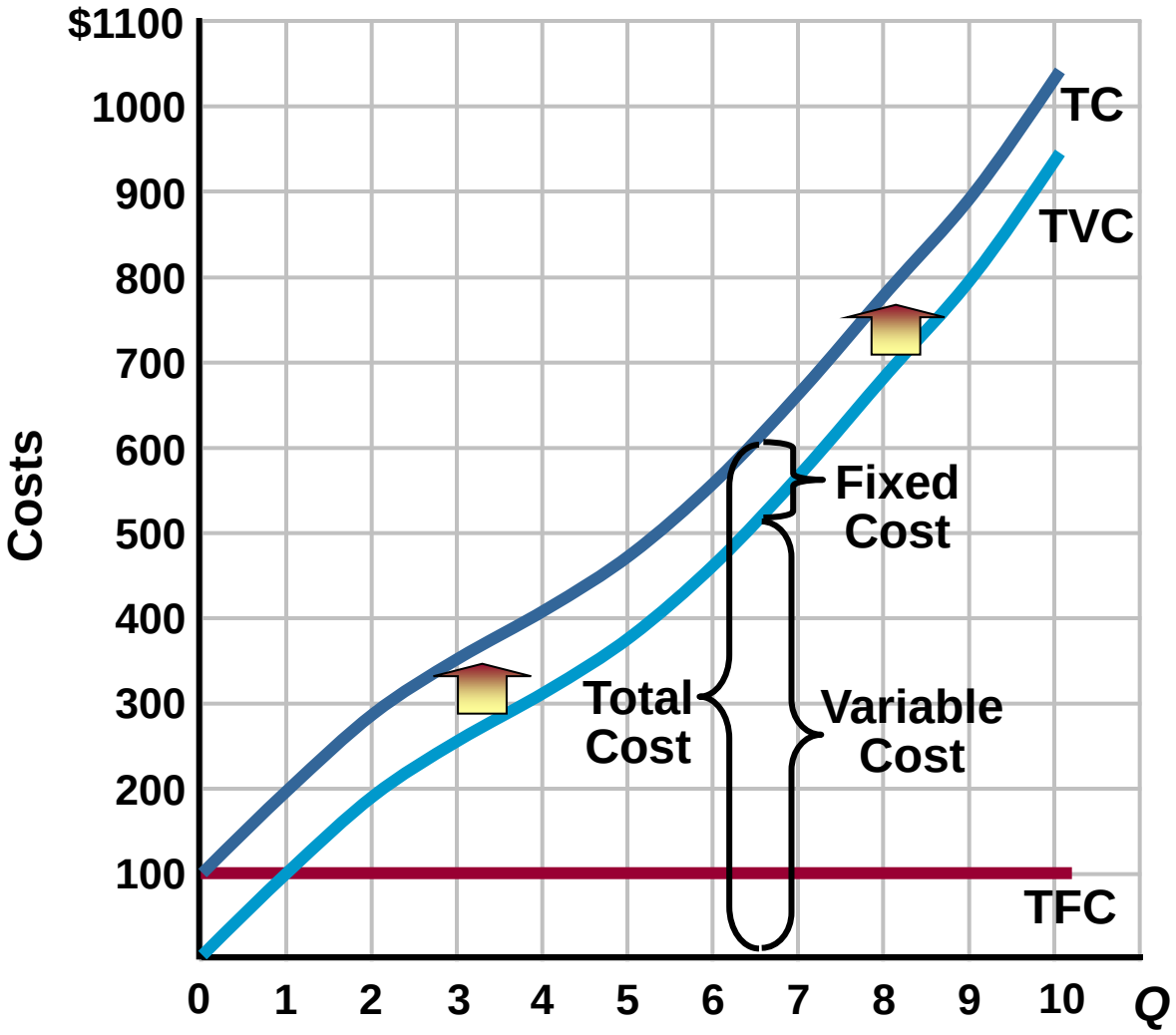
Short-Run Production Costs

- Fixed Costs
  - are those costs that in total do not vary with changes in output(Rental cost).
  - Variable Costs
  - are those costs that change with the level of output (Materials, most labor)
- Total Cost
  - TC = TFC + TVC

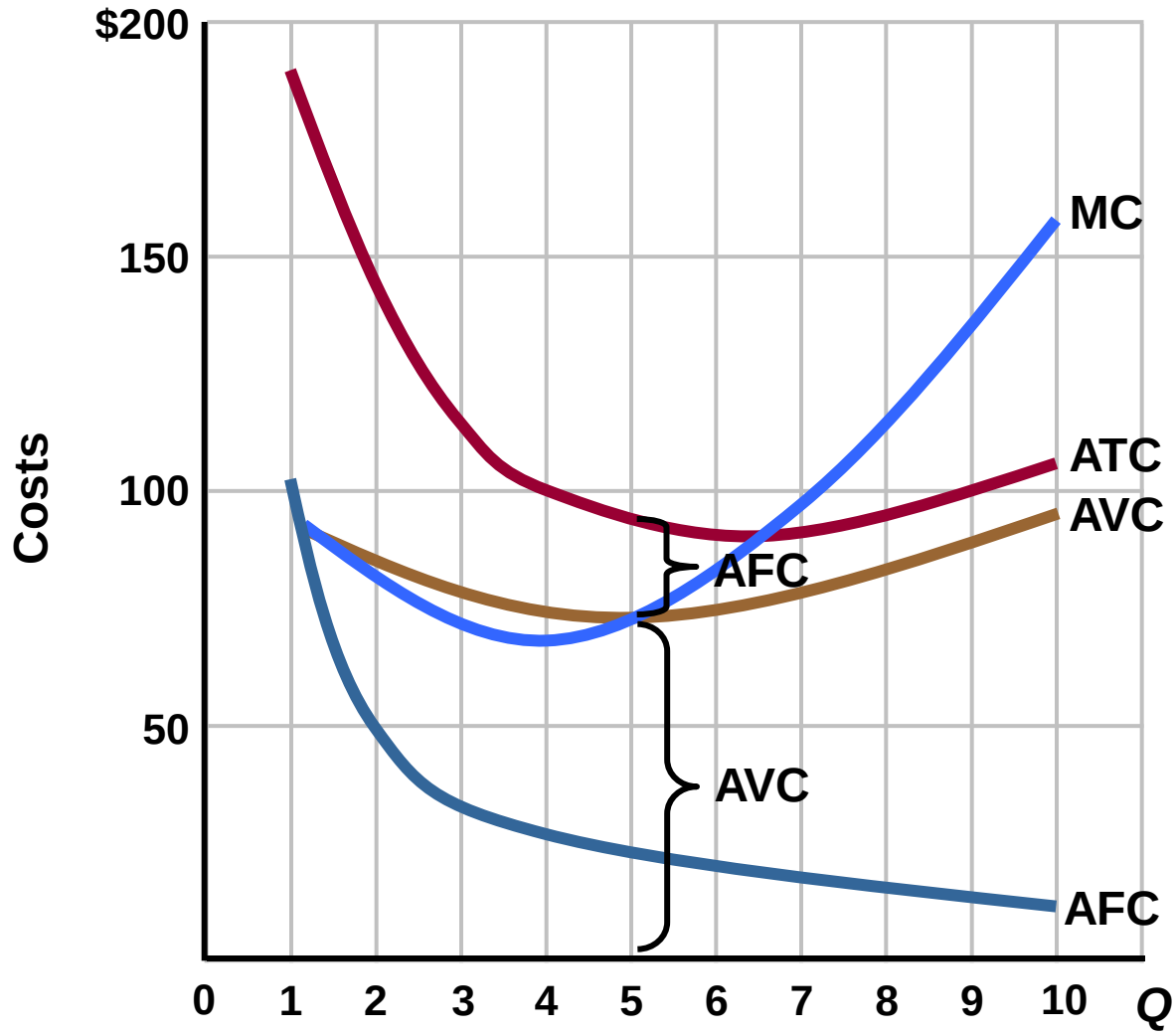
Per-Unit Production Costs

- Average fixed cost
  AFC = TFC/Q
- Average variable cost
  AVC = TVC/Q
- Average total cost
  ATC = TC/Q = TFC/Q + TVC/Q
  = AFC+AVC
- Marginal cost
  MC = change in TC/change in Q

Short-Run Production Costs



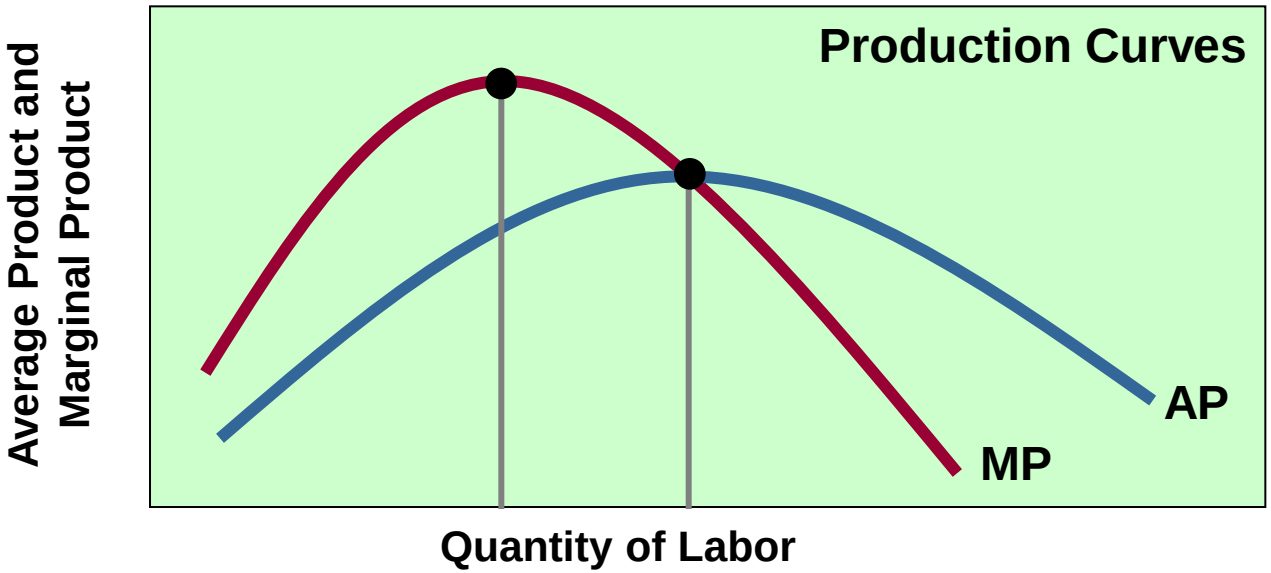
Short-Run Production Costs

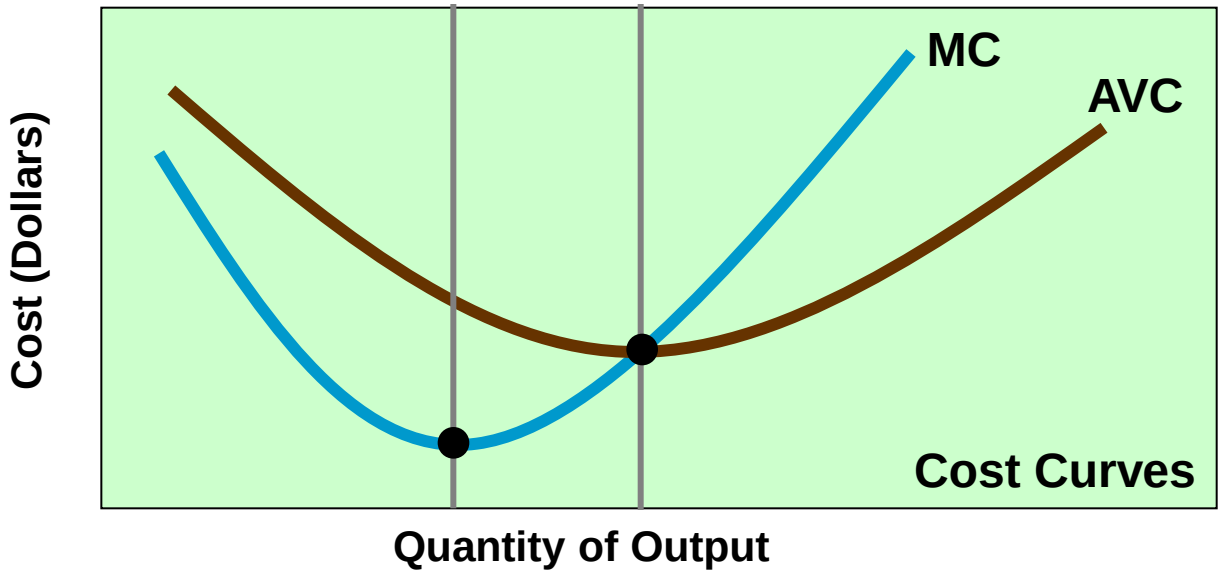


Production Relationships

- Marginal cost and diminishing returns
- Marginal cost and marginal product
- Marginal cost and average variable cost
- Marginal cost and average total cost
- Production curves and cost curves
- Shifts in cost curves

Graphical Relationships





Quick Review

QUICK REVIEW 8.2

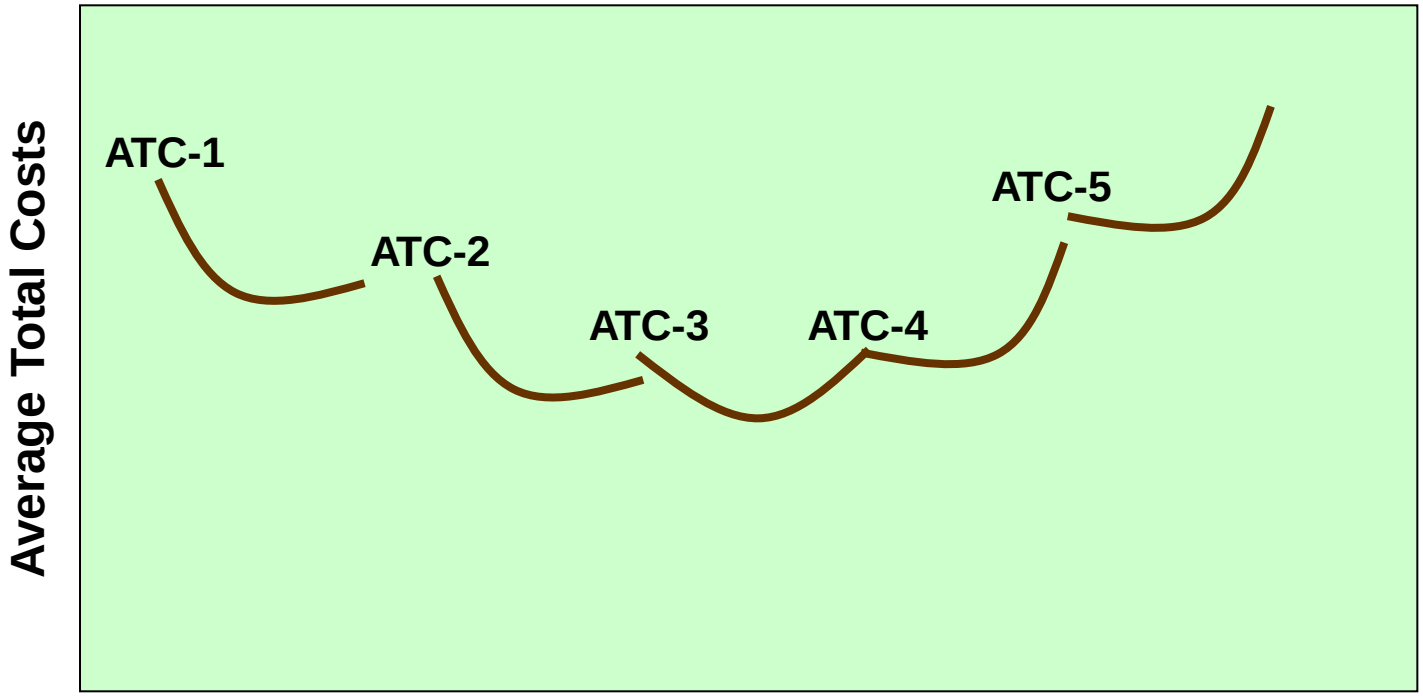
- The law of diminishing returns indicates that, beyond some point, output will increase by diminishing amounts as more units of a variable resource (labor) are added to a fixed resource (capital).
- In the short run, the total cost of any level of output is the sum of fixed and variable costs (TC = TFC + TVC).
- Average fixed, average variable, and average total costs are fixed, variable, and total costs per unit of output; marginal cost is the extra cost of producing one more unit of output.
- Average fixed cost declines continuously as output increases; average-variable-cost and average-total-cost curves are U-shaped, reflecting increasing and then diminishing returns; the marginal-cost curve falls but then rises, intersecting both the average-variable-cost curve and the average-total-cost curve at their minimum points.

Week: 16
Slides 200-204

Long-Run Production Costs

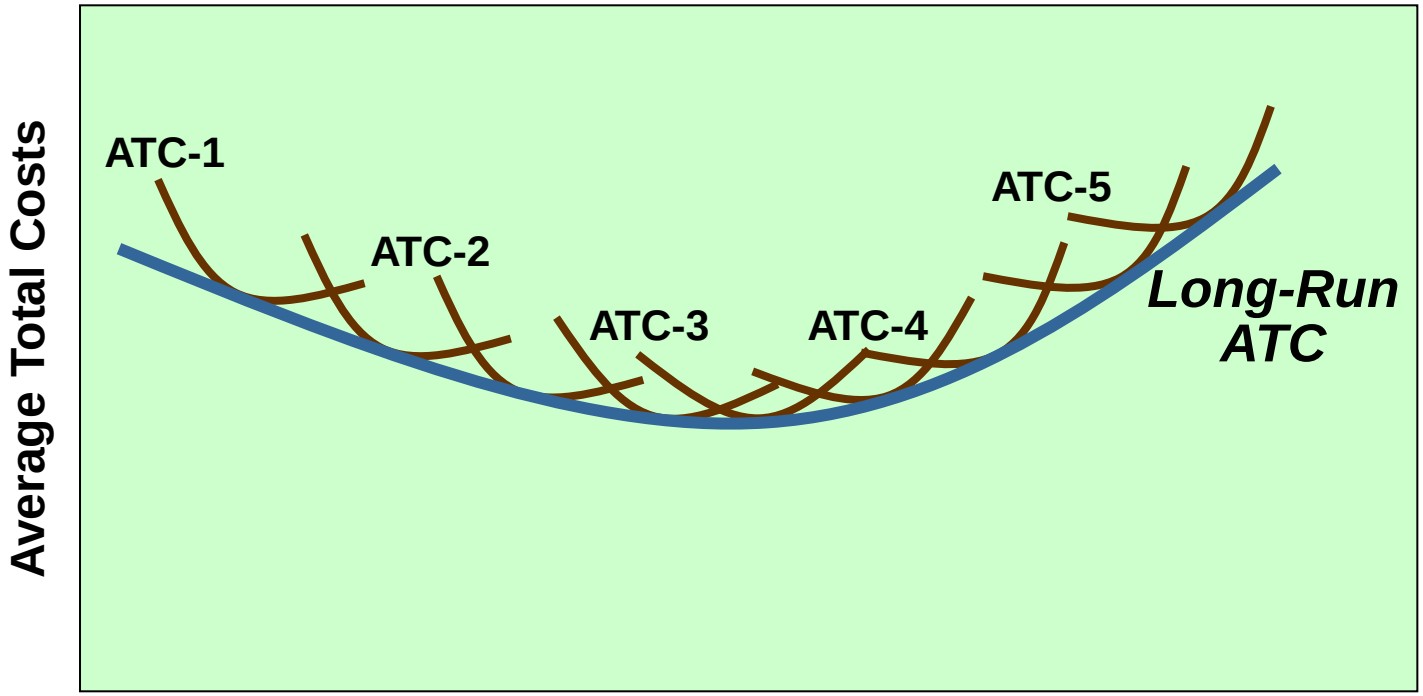
- Choose your plant size
- Minimize ATC
- Different ATC curves
  - Short run
- Long run ATC
  - Envelope of short run ATC

Long-Run ATC Curve



Any number of short-run optimum size cost curves can be constructed

Long-Run ATC Curve



The long-run ATC curve just "envelopes" the short run ATCs

Long Run Production Cost

- **Economies of Scale:** are the cost advantages that enterprises obtain due to their scale of operation

Factors contributing economies of scale;

- **Labor specialization**(More workers results in work division and specialization which lower production costs.
- **Managerial specialization** (A manager who can handle 20 employee is underused in small plant with 10 employee)
- **Efficient capital** (Small firms often can not afford the most efficient machineries)
- **Other factors**(Product design and development costs and these costs decreases as output increase.

Week: 17
Slides 205-213

Long Run Production Cost

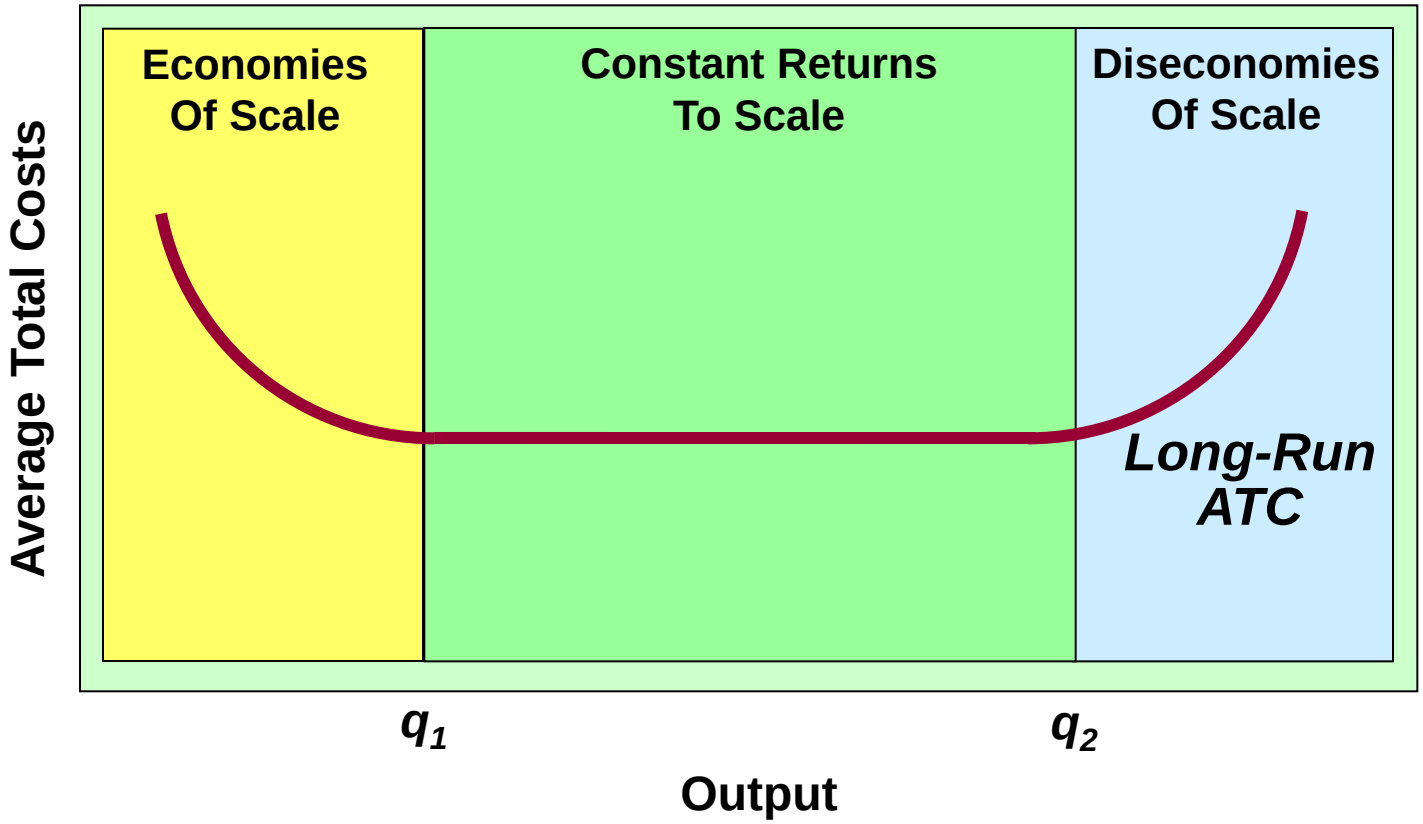
- Diseconomies of Scale: is the difficulty of efficiently controlling and coordinating a firm’s operations as it becomes a large-scale producer.
- Constant Returns to Scale : over which long-run average cost does not change.

Quick Review

QUICK REVIEW 8.3

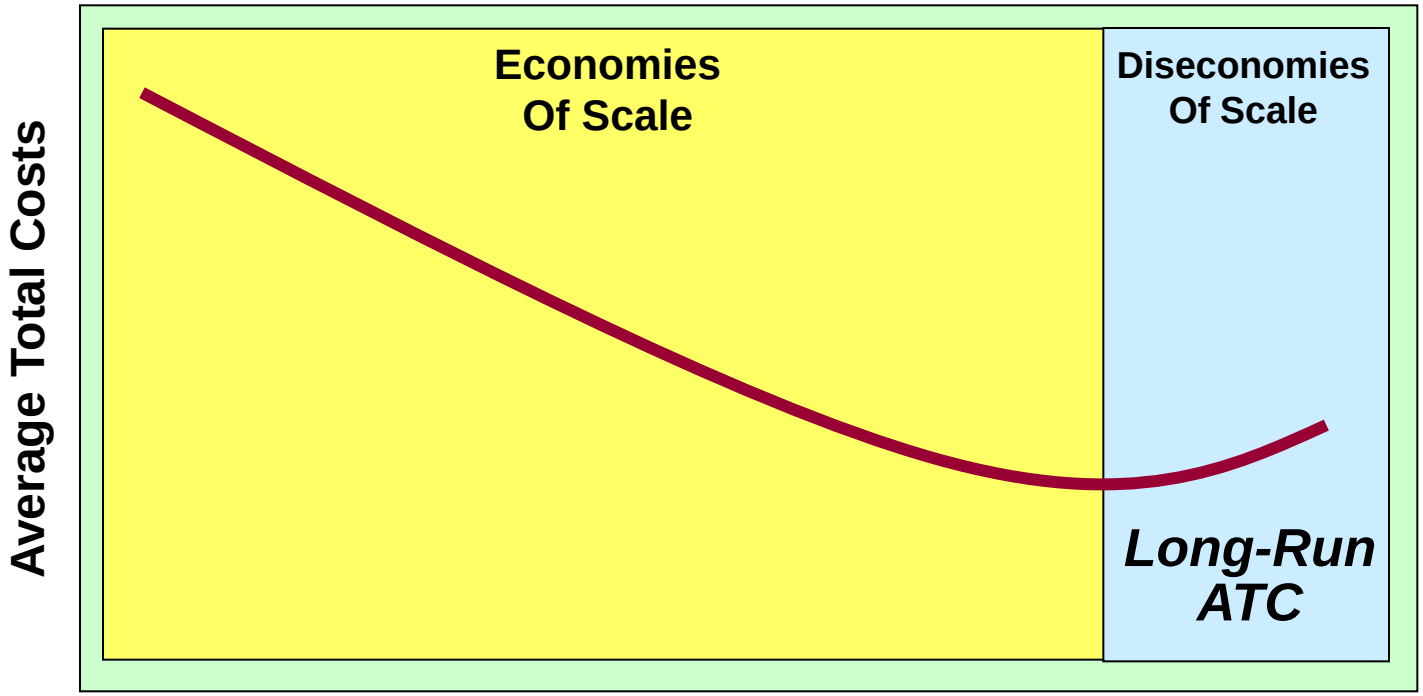
- Most firms have U-shaped long-run average-total-cost curves, reflecting economies and then diseconomies of scale.
- Economies of scale are the consequence of greater specialization of labor and management, more efficient capital equipment, and the spreading of start-up costs among more units of output.
- Diseconomies of scale are caused by the problems of coordination and communication that arise in large firms.
- Minimum efficient scale is the lowest level of output at which a firm's long-run average total cost is at a minimum.

Long-Run ATC Shapes



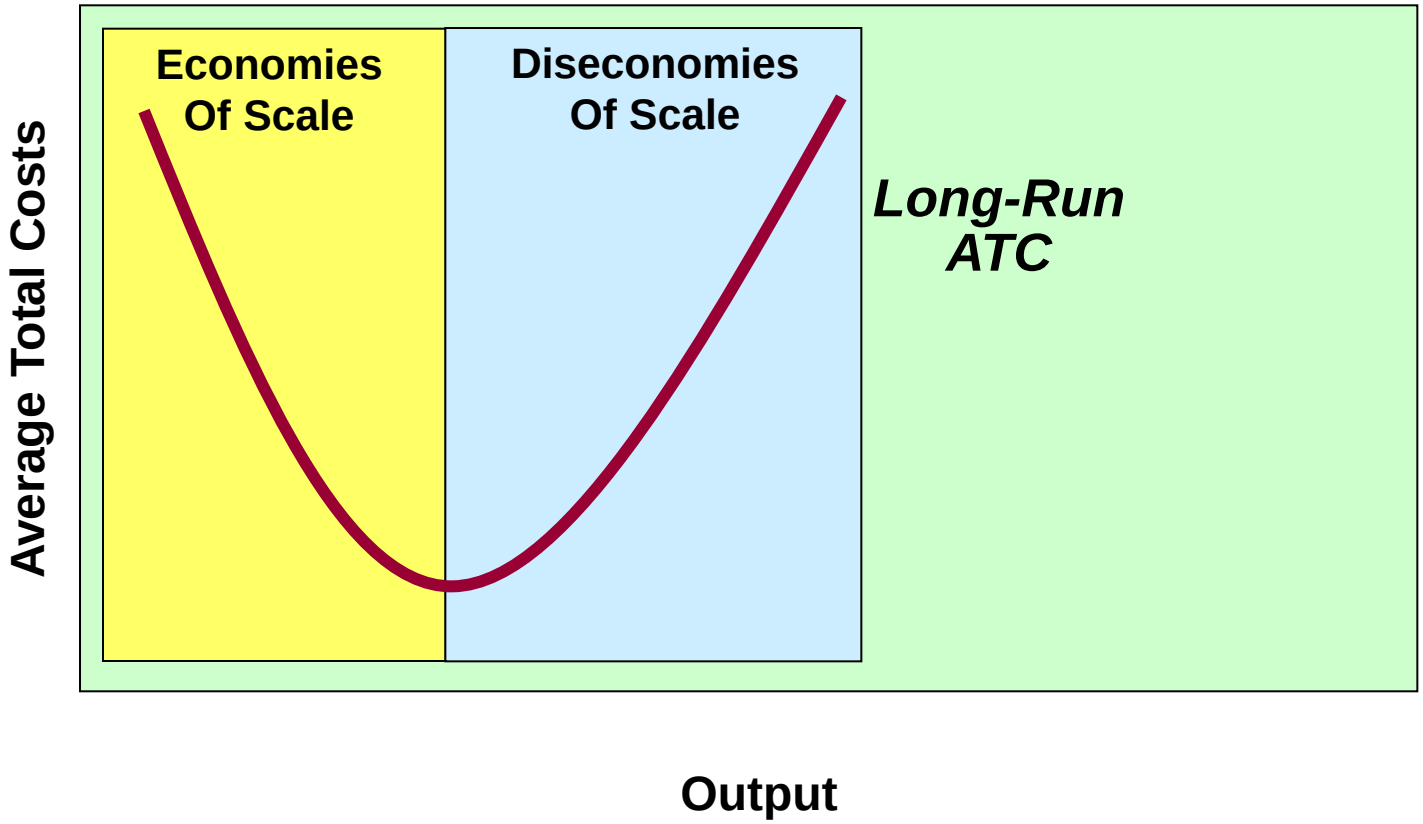
Long-run ATC curve where economies of scale exist

Long-Run ATC Shapes



Long-run ATC curve where costs are lowest only when large numbers are participating

Long-Run ATC Shapes



Long-run ATC curve where economies of scale exist, are exhausted quickly, and turn back up substantially

Industry Structure

- Minimum efficient scale (MES)
- Natural monopoly
- Applications and illustrations
  - Price of corn
  - Successful start-up firms
  - The Verson stamping machine
  - The daily newspaper
  - Aircraft and concrete plants

Sunk Costs

- Irrelevant in decision making
- Cannot be recovered
- Do not affect marginal benefit and marginal cost
- Firm example:
  - R&D costs

Key Terms

- economic (opportunity) cost
- explicit costs
- implicit costs
- normal profit
- economic profit
- short run
- long run
- total product (TP)
- marginal product (MP)
- average product (AP)
- law of diminishing returns
- fixed costs
- variable costs
- total cost
- average fixed cost (AFC)
- average variable cost (AVC)
- average total cost (ATC)
- marginal cost (MC)
- economies of scale
- diseconomies of scale
- constant returns to scale
- minimum efficient scale (MES)
- natural monopoly

Next Chapter Preview…

Pure Competition