

On Economics

Understanding Economics

Understanding and Mastering Economics ... is Imperative

- 1) Please define ECONOMICS. (ΟΙΚΟ+ΝΕΜΩ) – Διανέμω τα του Οίκου
- 2) There is no economics stand alone. It is POLITICAL ECONOMY
- 3) Economics is massively a SOCIAL ART & SCIENCE with strong doses of PSYCHOLOGY
- 4) *Experience shows that especially domestic economic policies could eradicate POVERTY, eliminate DISCRIMINATION, minimize INEQUALITIES and create a free and creative environment for all market participants*
- 5) **BUT** Economic policies **could** create POVERTY, provoke citizens, and promote inefficiencies and X-inefficiencies.
- 6) Worst of all, Inefficiencies & Waste, among others, could sustain and make poverty permanent.

Understanding and Mastering Economics ... is Imperative

1. Παρακαλώ ορίστε την ΟΙΚΟΝΟΜΙΑ. (ΟΙΚΟ+ΝΕΜΩ) – Διανέμω τα του Οίκου
2. Δεν υπάρχει οικονομία από μόνη της. Είναι ΠΟΛΙΤΙΚΗ ΟΙΚΟΝΟΜΙΑ
3. Η οικονομία είναι σε μεγάλο βαθμό μια ΚΟΙΝΩΝΙΚΗ ΤΕΧΝΗ & ΕΠΙΣΤΗΜΗ με ισχυρές δόσεις ΨΥΧΟΛΟΓΙΑΣ
4. Η εμπειρία δείχνει ότι ειδικά οι εγχώριες οικονομικές πολιτικές θα μπορούσαν να εξαλείψουν τη ΦΤΩΧΕΙΑ, να εξαλείψουν τις ΔΙΑΚΡΙΣΕΙΣ, να ελαχιστοποιήσουν τις ΑΝΙΣΟΤΗΤΕΣ και να δημιουργήσουν ένα ελεύθερο και δημιουργικό περιβάλλον για όλους τους συμμετέχοντες στην αγορά
5. ΑΛΛΑ οι οικονομικές πολιτικές θα μπορούσαν να δημιουργήσουν ΦΤΩΧΕΙΑ, να προκαλέσουν τους πολίτες και να προωθήσουν την αναποτελεσματικότητα και τις Χ-αναποτελεσματικότητες.
6. Το χειρότερο απ' όλα είναι ότι οι Αναποτελεσματικότητες & η Σπατάλη, μεταξύ άλλων, θα μπορούσαν να διατηρήσουν και να κάνουν τη φτώχεια μόνιμη.

A. Economics - Social Policy – Social Responsibility

Contents

- 1) *Demand & Supply* affect Social Policy & Social Responsibility
- 2) *Market Structure* influences Social Policy & Social Responsibility
- 3) *Macroeconomics & Government Policies* determine Social Policy & Social Responsibility
- 4) *Specific Government Tools* for Social Policy & Social Responsibility

1) Demand & Supply affect the
foundation and workings
of Social Policy *& Social Responsibility*

Demand Function.

2.1 $Q_{XD} = f(P_X, T, I, P_Y, P_Z, EXC, NC, \dots)$

where

Q_{XD} = quantity demanded of good X

P_X = price of good X

T = variables representing an individual's tastes and preferences

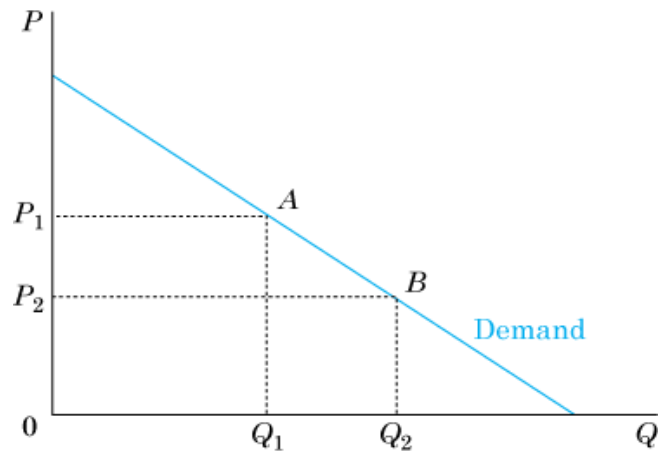
I = income

P_Y, P_Z = prices of goods Y and Z , which are related to the consumption of good X

EXC = consumer expectations about future prices

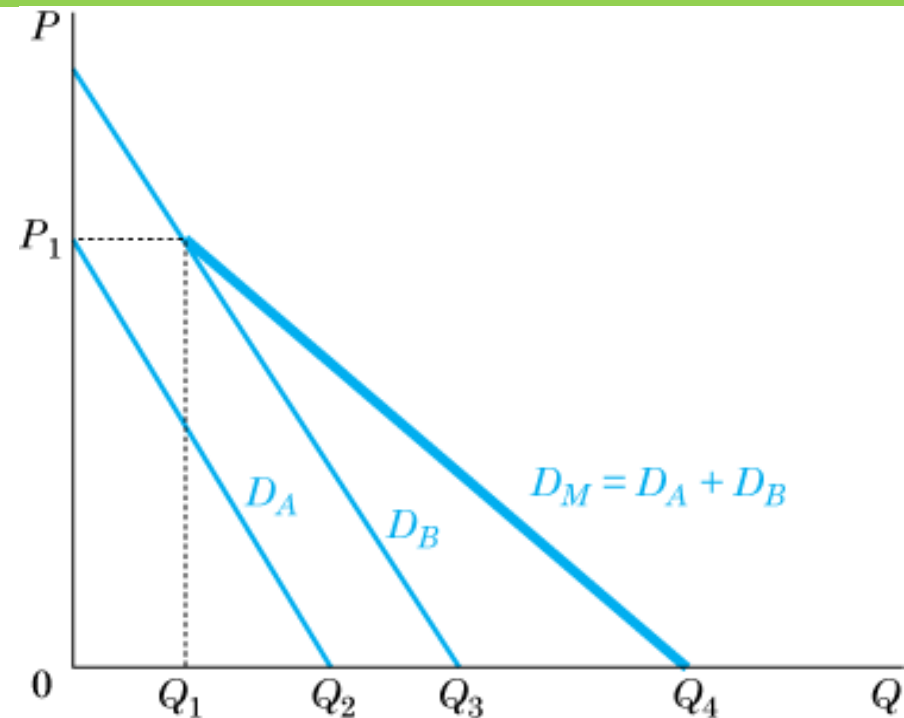
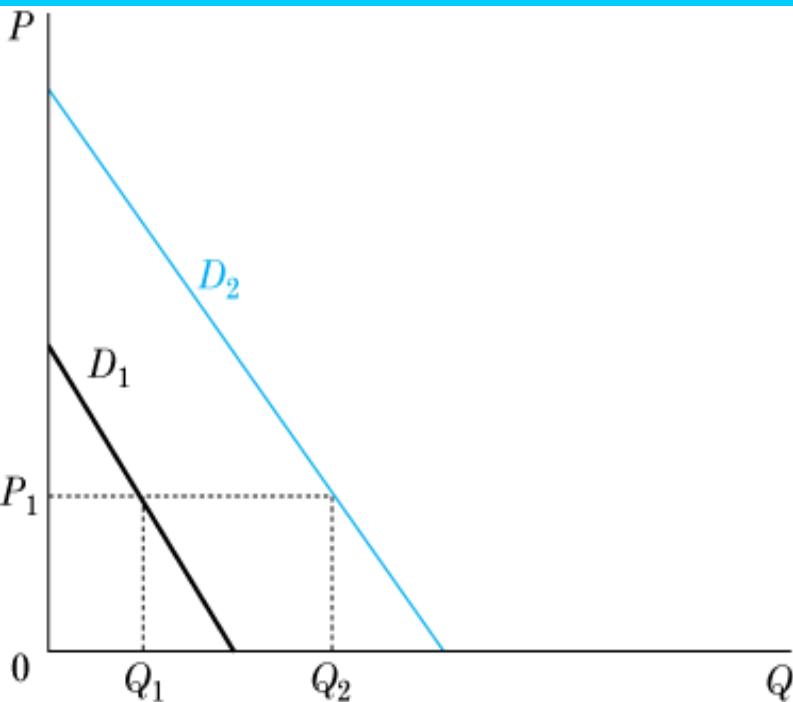
NC = number of consumers

The Demand Curve for a Product.



Change (Increase) in Demand

Individual Versus Market Demand Curve



Mathematical Example of a Demand Function.

2.2 $Q_D = 3 - 2P_C + 0.2I + 1.6TC + 0.04E$

where

Q_D = quantity demanded of copper (millions of pounds)

P_C = price of copper (\$ per pound)

I = consumer income index

TC = telecom index showing uses or tastes for copper in the telecommunications industry

E = expectations index representing purchasers' expectations of a lower price over the following six months

Mathematical Example of a Demand Function.

2.3 $Q_D = 3 - 2P_C + 0.2(20) + 1.6(2.5) + 0.04(100)$

or

$Q_D = 15 - 2P_C$ or $[P_C = 7.5 - 0.5Q_D]$

Supply Function.

2.4 $Q_{XS} = f(P_X, TX, P_I, P_A, P_B, EXP, NP, \dots)$

where

Q_{XS} = quantity supplied of good X

P_X = price of good X

TX = state of technology

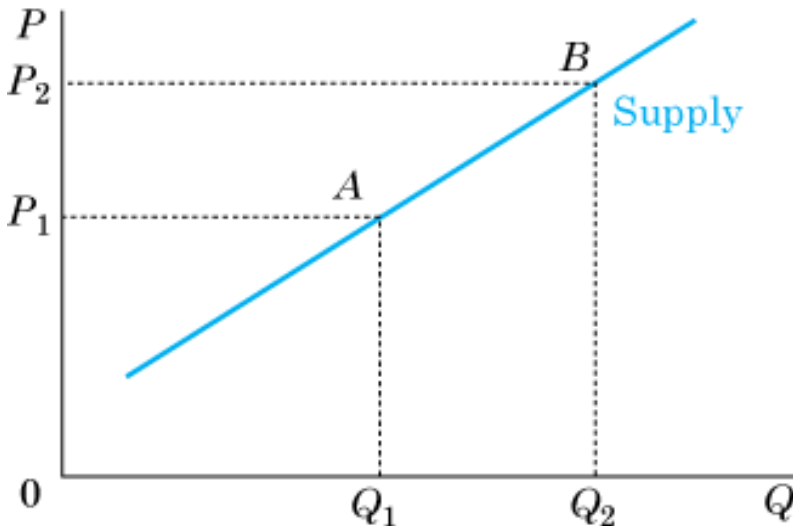
P_I = prices of the inputs of production

P_A, P_B = prices of goods A and B , which are related in production to good X

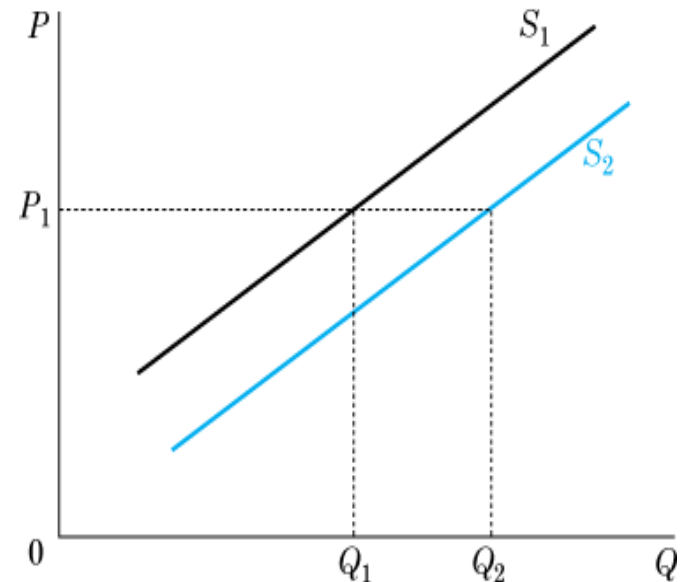
EXP = producer expectations about future prices

NP = number of producers

The Supply Curve for a Product



Change (Increase) in Supply



Mathematical Examples of a Supply Function

2.5 $Q_S = -5 + 8P_C - 0.5W + 0.4T + 0.5N$

where

Q_S = quantity supplied of copper (millions of pounds)

P_C = price of copper (\$ per pound)

W = an index of wage rates in the copper industry

T = technology index

N = number of active mines in the copper industry

2.6 $Q_S = -5 + 8P_C - 0.5(100) + 0.4(50) + 0.5(20)$

or

$$Q_S = -25 + 8P_C \text{ or } [P_C = 3.125 + 0.125Q_S]$$

Factors Influencing Market Demand and Supply

TABLE 2.1 Factors Influencing Market Demand and Supply

DEMAND

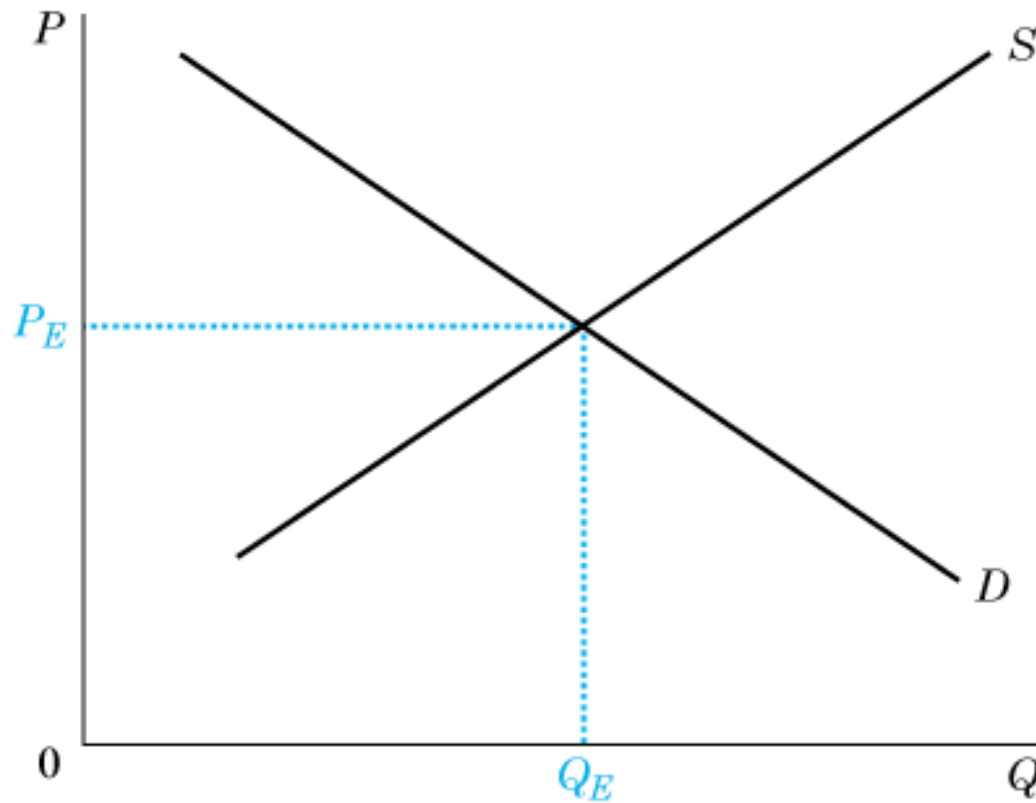
Price of the product
Consumer tastes and preferences
Consumer income:
 Normal goods
 Inferior goods
Price of goods related in consumption:
 Substitute goods
 Complementary goods
Future expectations
Number of consumers

SUPPLY

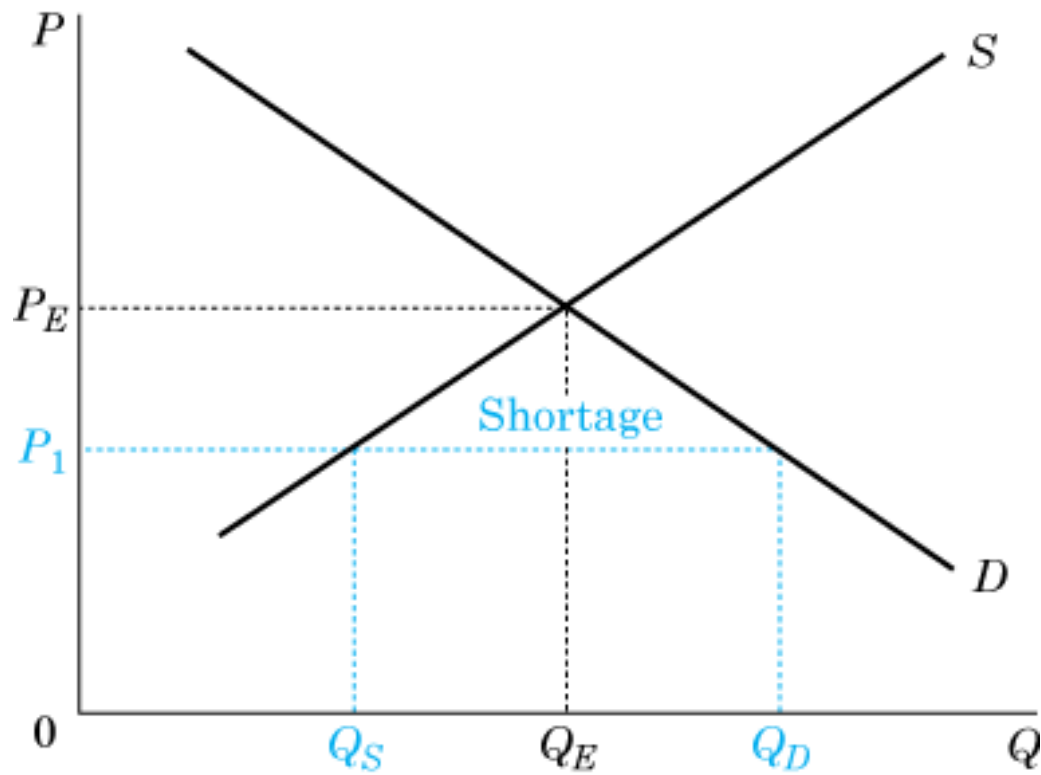
Price of the product
State of technology
Input prices

Prices of goods related in production
 Substitute goods
 Complementary goods
Future expectations
Number of producers

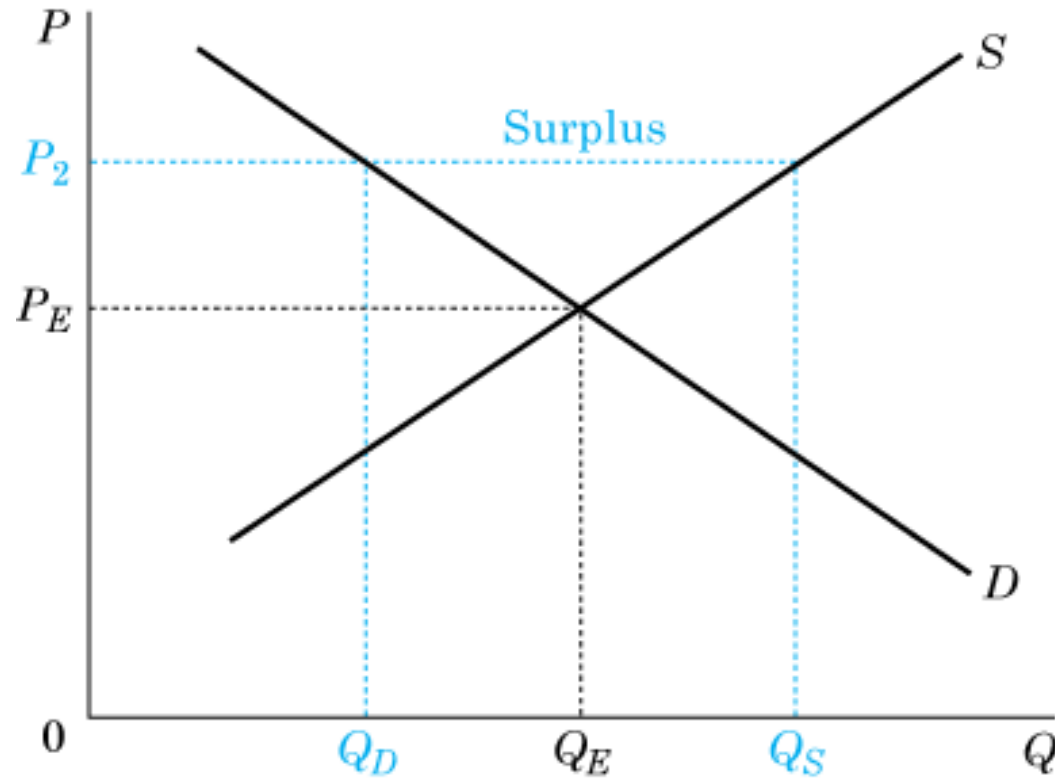
Market Equilibrium



A Lower-Than-Equilibrium Price



A Higher-Than-Equilibrium Price



$$\mathbf{2.3} \quad \mathbf{Q_D = 15 - 2P_C}$$

$$\mathbf{2.6} \quad \mathbf{Q_S = -25 + 8P_C}$$

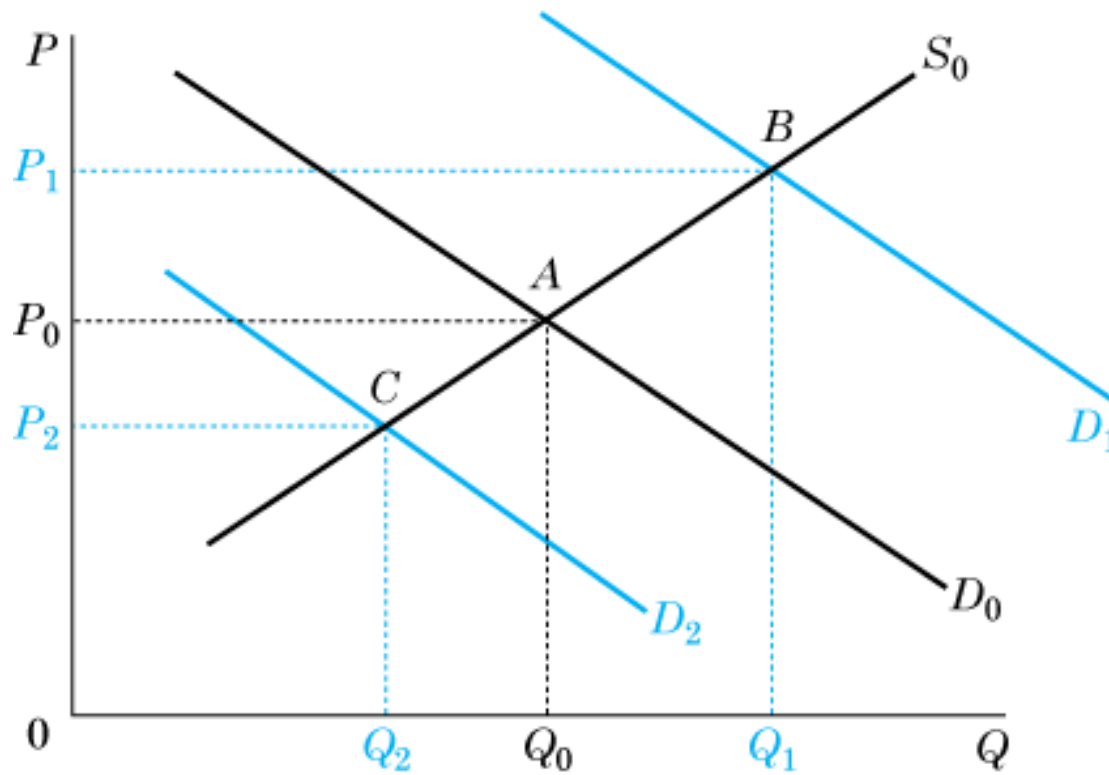
$$2.7 \quad Q_D = Q_S$$

$$15 - 2P_C = -25 + 8P_C$$

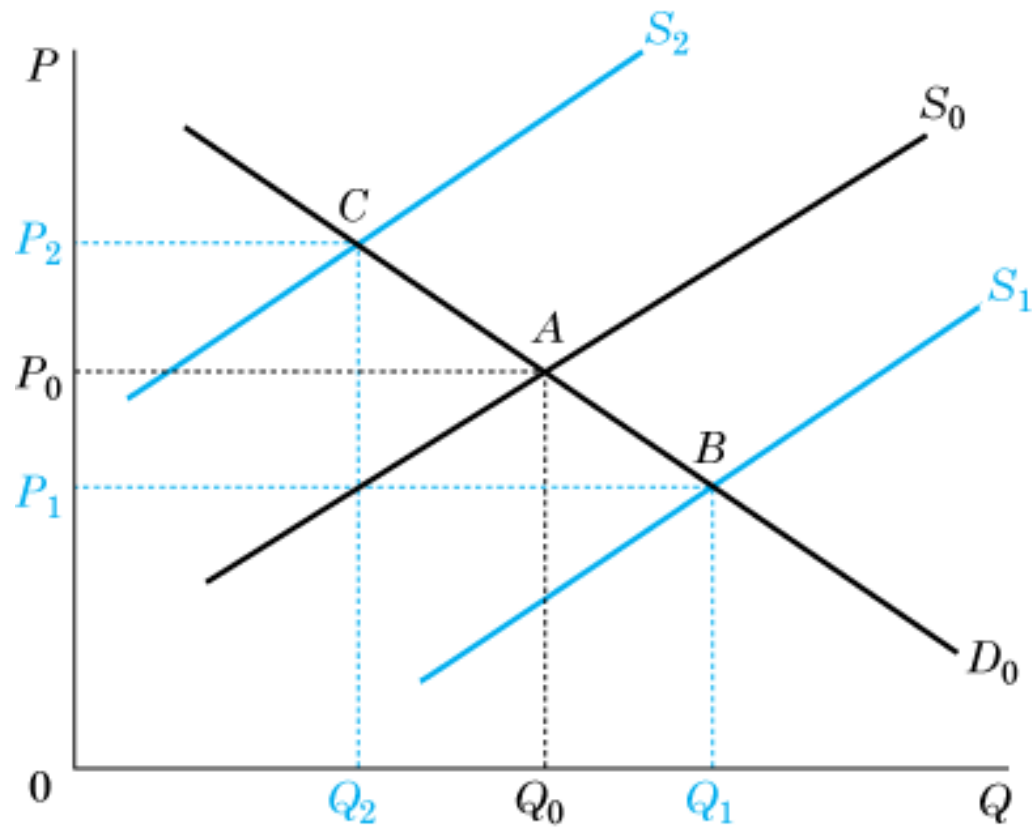
$$40 = 10P_C$$

$$P_C = P_E = \$4.00 \text{ and } Q_E = 7 \text{ (by substituting \$4.00 into either equation)}$$

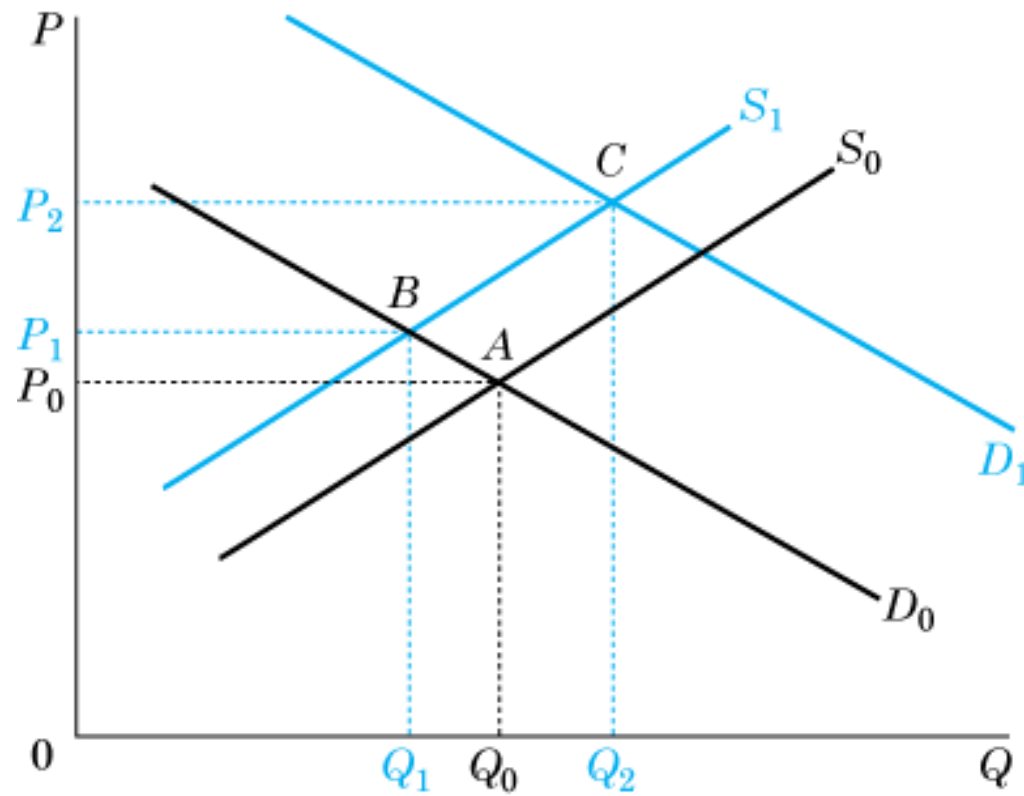
Change in Demand



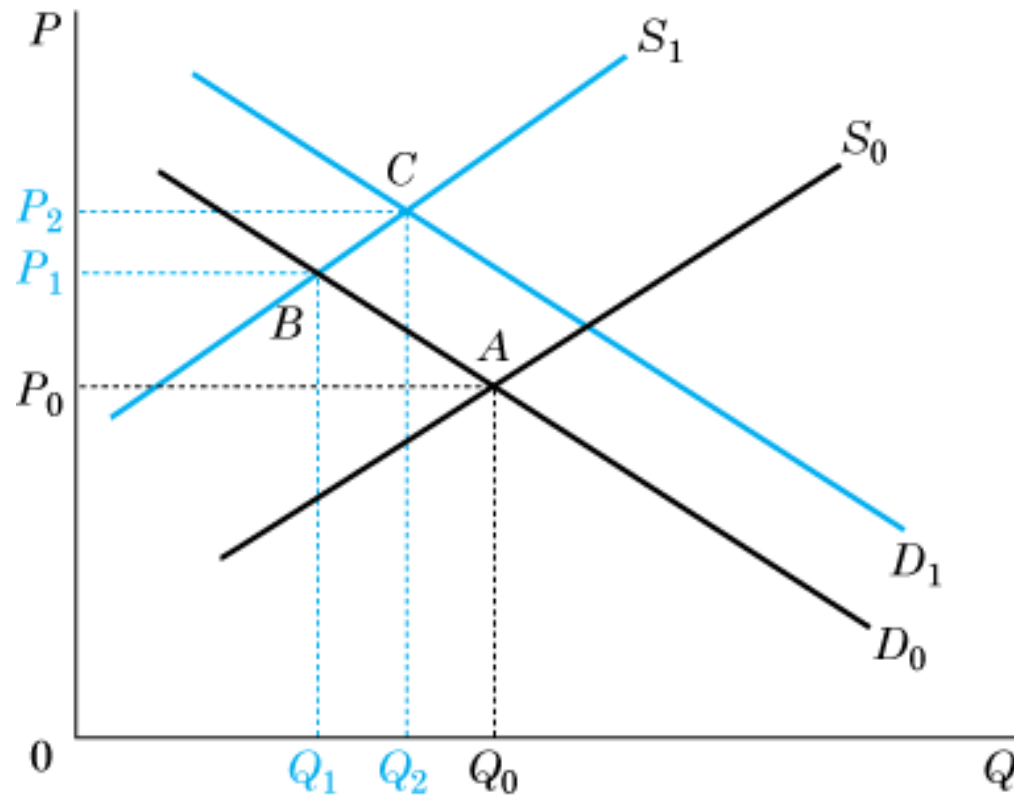
Change in Supply



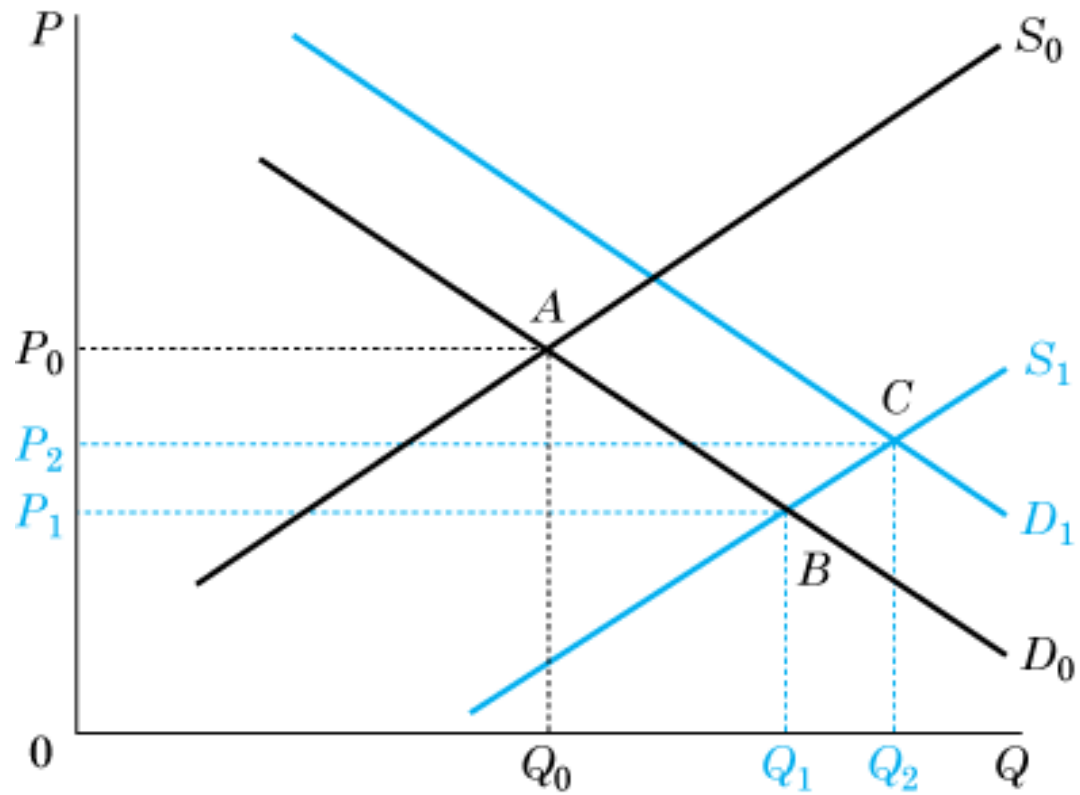
Decrease in Supply and Increase in Demand: Increase in Equilibrium Quantity



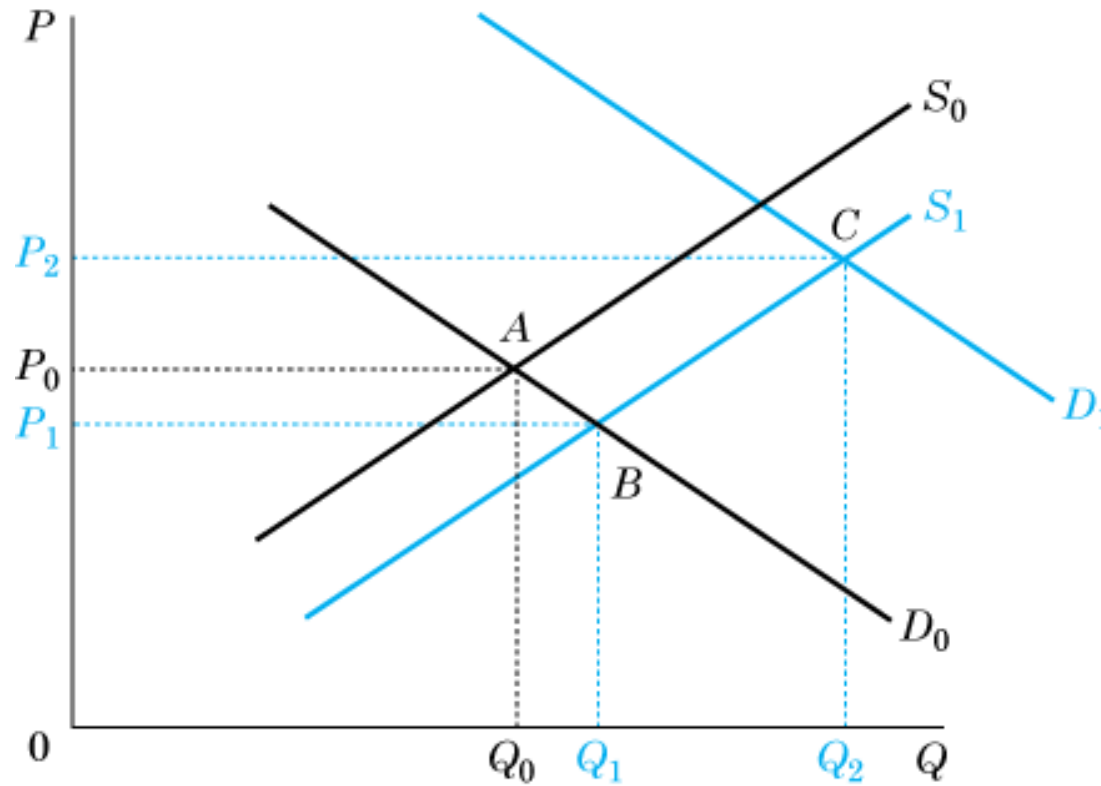
Decrease in Supply and Increase in Demand: Decrease in Equilibrium Quantity



Increase in Supply and Increase in Demand: Lower Equilibrium Price



Increase in Supply and Increase in Demand: Higher Equilibrium Price



$$\begin{aligned} 2.8 \quad Q_{D2} &= 3 - 2P_C + 0.2I + 1.6TC + 0.04E \\ &= 3 - 2P_C + 0.2(14) + 1.6(1.875) + 0.04(80) \\ &= 12 - 2P_C \text{ or } [P_C = 6 - 0.5Q_D] \end{aligned}$$

$$\begin{aligned} 2.9 \quad Q_{S2} &= -5 + 8P_C - 0.5W + 0.4T + 0.5N \\ &= -5 + 8P_C - 0.5(98) + 0.4(55) + 0.5(28) \\ &= -18 + 8P_C \text{ or } [P_C = 2.25 + 0.125Q_S] \end{aligned}$$

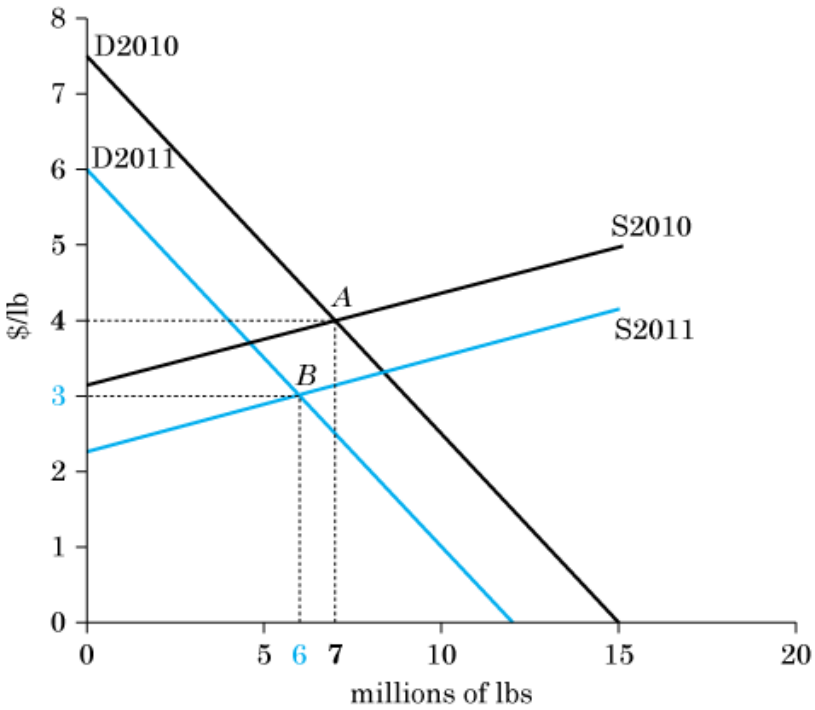
$$\mathbf{2.10} \qquad \mathbf{Q_{D2} = Q_{S2}}$$

$$\mathbf{12 - 2P_C = -18 + 8P_C}$$

$$\mathbf{30 = 10P_C}$$

$$\mathbf{P_C = P_E = \$3.00 \text{ and } Q_E = 6}$$

Copper Industry Example



Price elasticity of demand(e_P)

$$3.1 \quad e_P = \frac{\% \Delta Q_X}{\% \Delta P_X}$$

$$3.2 \quad e_P = \frac{\frac{\Delta Q_X}{Q_X}}{\frac{\Delta P_X}{P_X}} = \frac{\frac{Q_2 - Q_1}{Q_X}}{\frac{P_2 - P_1}{P_X}}$$

where

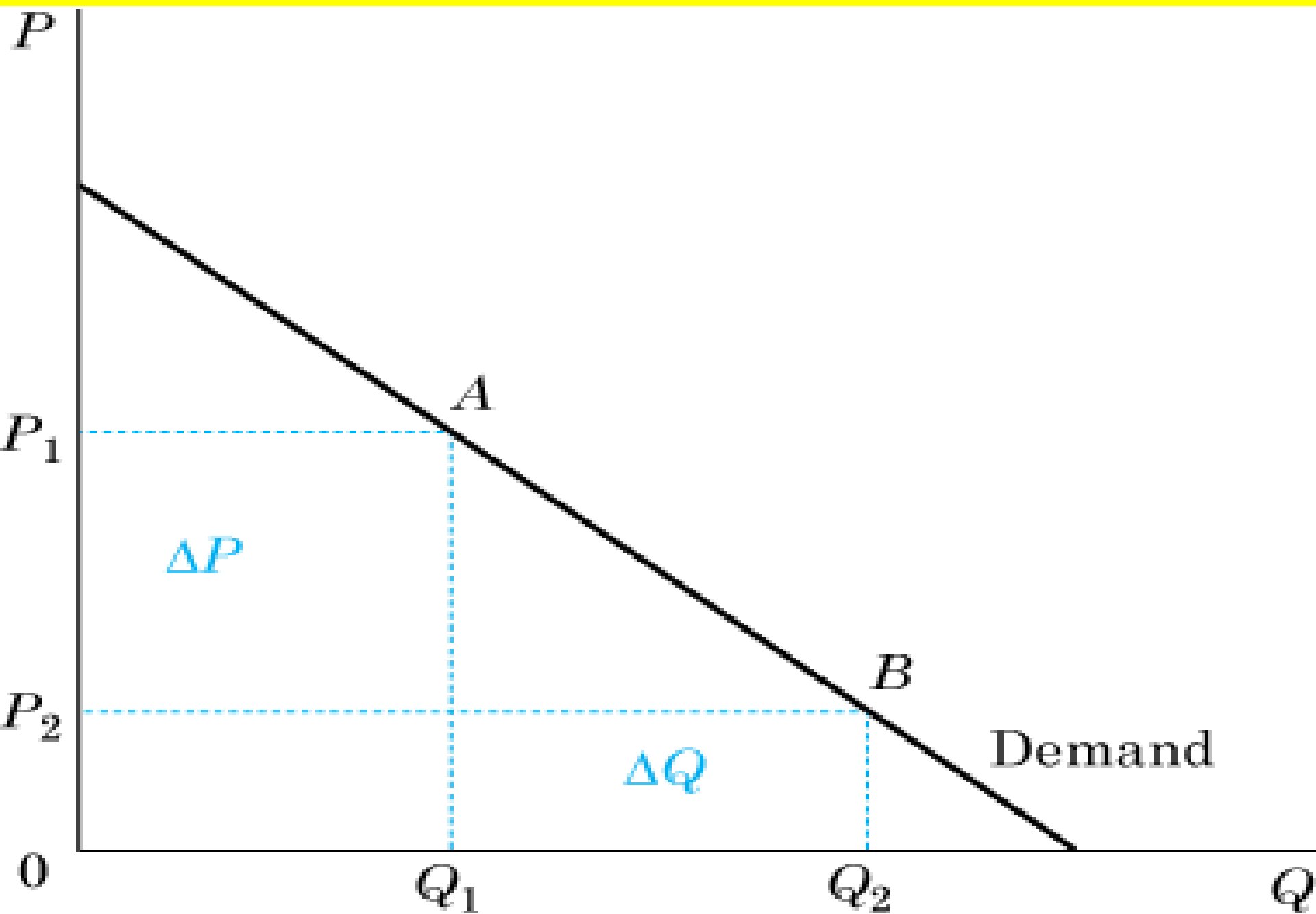
e_P = price elasticity of demand

Δ = the absolute change in the variable: $(Q_2 - Q_1)$ or $(P_2 - P_1)$

Q_X = the quantity demanded of good X

P_X = the price of good X

Price Elasticity and the Movement Along a Demand Curve

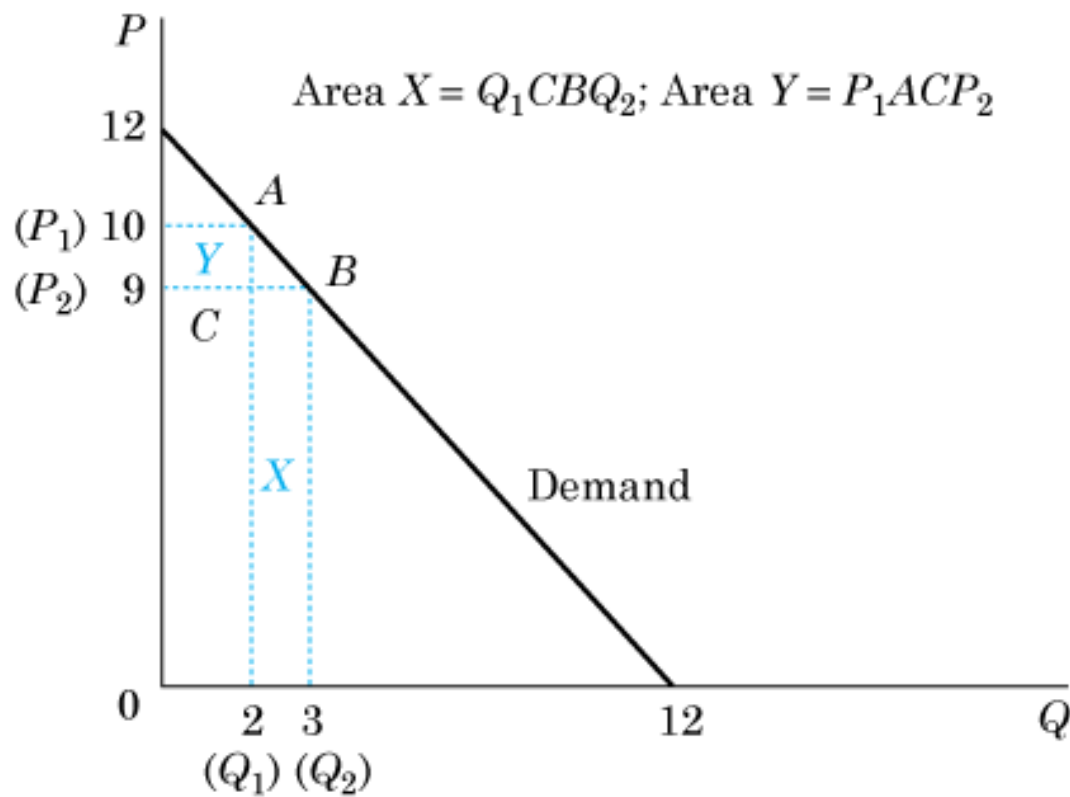


Values of Price Elasticity of Demand Coefficients

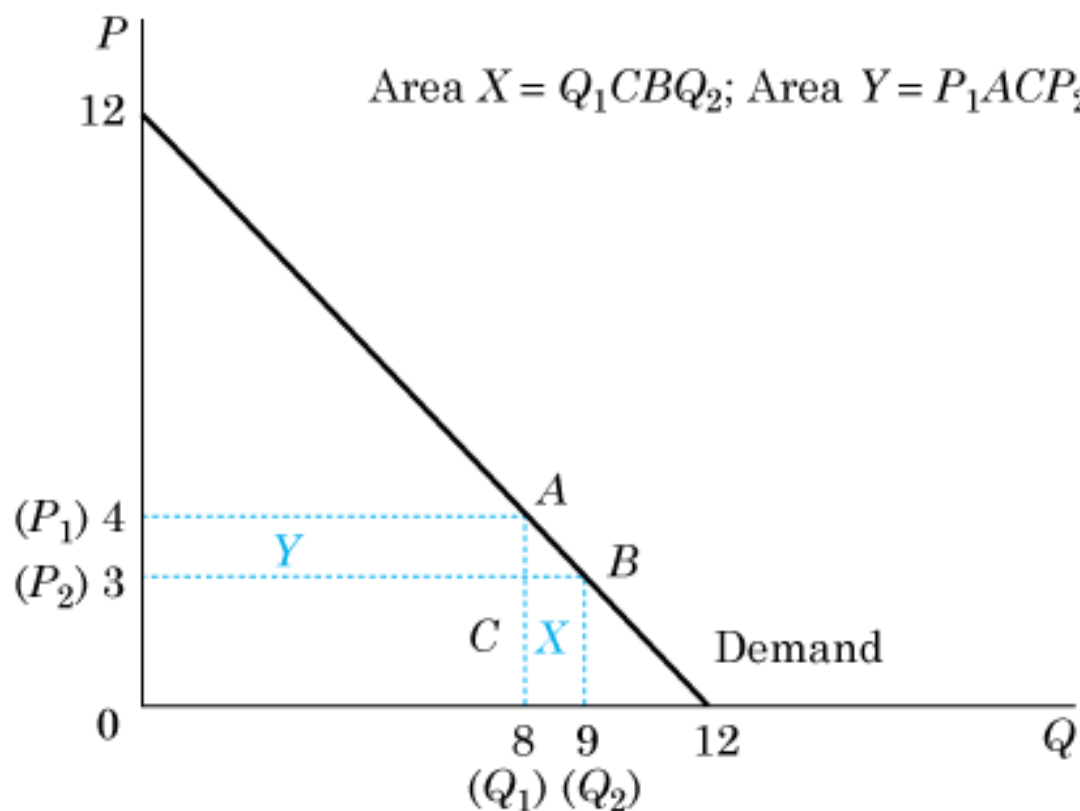
TABLE 3.1 Values of Price Elasticity of Demand Coefficients

VALUE OF ELASTICITY COEFFICIENT	ELASTICITY DEFINITION	RELATIONSHIP AMONG VARIABLES	IMPACT ON TOTAL REVENUE
$ e_p > 1$	Elastic demand	$\% \Delta Q_x > \% \Delta P_x$	Price increase results in lower total revenue. Price decrease results in higher total revenue.
$ e_p < 1$	Inelastic demand	$\% \Delta Q_x < \% \Delta P_x$	Price increase results in higher total revenue. Price decrease results in lower total revenue.
$ e_p = 1$	Unit elastic or unitary elasticity	$\% \Delta Q_x = \% \Delta P_x$	Price increase or decrease has no impact on total revenue.

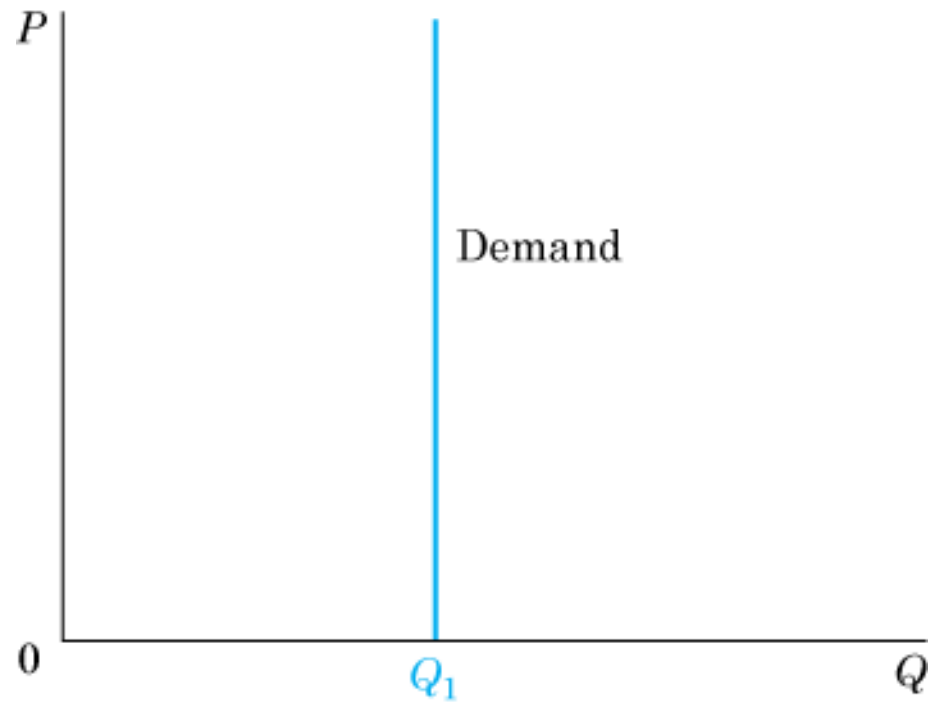
Elastic Demand and Total Revenue



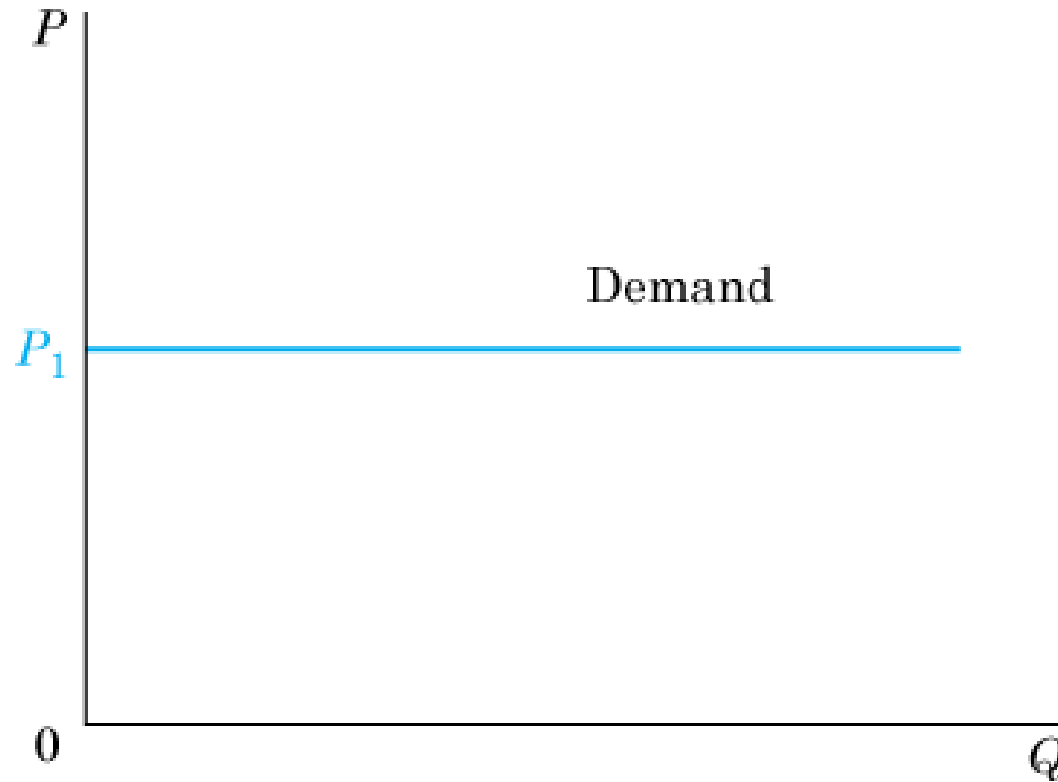
Inelastic Demand and Total Revenue



Vertical Demand Curve



Horizontal Demand Curve



Income Elasticity and Cross-Price Elasticity of Demand Coefficients

TABLE 3.6 Income Elasticity and Cross-Price Elasticity of Demand Coefficients

ELASTICITY NAME	ELASTICITY DEFINITION	VALUE OF ELASTICITY COEFFICIENT	IMPACT ON DEMAND
Income elasticity: e_I	$\frac{\% \Delta Q_X}{\% \Delta I} = \frac{\frac{\Delta Q_X}{Q_X}}{\frac{\Delta I}{I}}$	$e_I > 0$: Normal good	Increase in income results in increase in demand
		$0 < e_I < 1$: Necessity	Decrease in income results in decrease in demand
		$e_I > 1$: Luxury	
		$e_I < 0$: Inferior good	Increase in income results in decrease in demand Decrease in income results in increase in demand
Cross-price	$\frac{\% \Delta Q_X}{\% \Delta P_Y} = \frac{\frac{\Delta Q_X}{Q_X}}{\frac{\Delta P_Y}{P_Y}}$	$e_C > 0$: Substitute good	Increase in the price of good Y results in increase in the demand for good X Decrease in the price of good Y results in decrease in the demand for good X
		$e_C < 0$: Complementary good	Increase in the price of good Y results in decrease in the demand for good X Decrease in the price of good Y results in increase in the demand for good X
Elasticity: e_C			

Estimates of Demand Elasticities

TABLE 3.7 Estimates of Demand Elasticities

PRODUCT	PRICE ELASTICITY COEFFICIENT	INCOME ELASTICITY COEFFICIENT	CROSS-PRICE ELASTICITY COEFFICIENT
CHICKEN/AGRICULTURAL PRODUCTS/ OTHER FOOD			
Broiler chickens	−0.2 to −0.4	+1.0 (1950) +0.38 (1980s)	+0.20 (beef) +0.28 (pork)
Cabbage	−0.25	N.A.	
Potatoes	−0.27	+0.15	
Eggs	−0.43	+0.57	
Oranges	−0.62	+0.83	
Cream	−0.69	+1.72	
Apples	−1.27	+1.32	
Fresh tomatoes	−2.22	+0.24	
Lettuce	−2.58	+0.88	
Fresh peas	−2.83	+1.05	
Individual producer	−500 to −21,000		
Food away from home	−0.81		
Soft drinks	−0.79		
Juice	−0.76		
Cereals	−0.60		
Milk	−0.59		
Fish	−0.50		
Cheese	−0.44		
Sweets/sugars	−0.34		

(continued)

The Budget Constraint

$$I = P_X X + P_Y Y$$

where

I = level of consumer's income

P_X = price of good X

X = quantity of good X

P_Y = price of good Y

Y = quantity of good Y

Relationship Between
One Dependent and
One Independent Variable:
Simple Regression Analysis

$$Q = a - bP$$

where

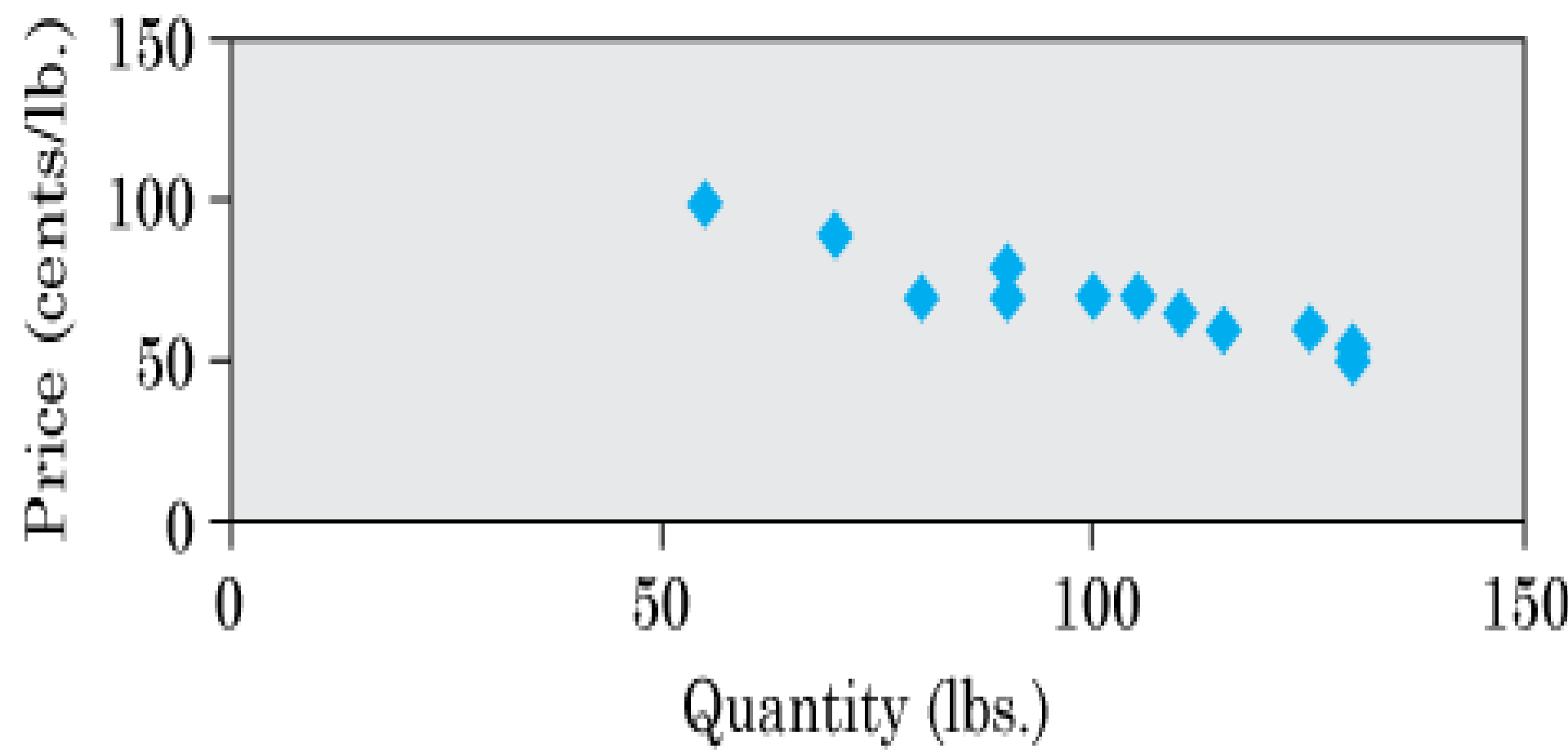
Q = quantity demanded

a = vertical intercept

b = slope of the line = $\Delta Q / \Delta P$

P = price

Hypothetical Demand for Oranges.



Supply-The Production Function

$$Q = f(L, K, M \dots)$$

where

Q = quantity of output

L = quantity of labor input

K = quantity of capital input

M = quantity of materials input

Model of a Short-Run Production Function

$$5.2 \quad TP \text{ or } Q = f(L, \bar{K})$$

where

TP or Q = total product or total quantity of output produced

L = quantity of labor input (variable)

$\bar{K}$ = quantity of capital input (fixed)

Average Product and Marginal Product

$$5.3 \quad AP = TP/L \text{ or } Q/L$$

where

AP = average product of labor

Average Product and Marginal Product

$$5.4 \quad MP = \Delta TP / \Delta L = \Delta Q / \Delta L$$

where

MP = marginal product of labor

Short-Run Cost Functions

TABLE 5.3 Short-Run Cost Functions (Based on the production function in Equation 5.2 and input prices P_L and P_K)

COST FUNCTION	DEFINITION
Total fixed cost	$TFC = (P_K)(\bar{K})$
Total variable cost	$TVC = (P_L)(L)$
Total cost	$TC = TFC + TVC$
Average fixed cost	$AFC = TFC/Q$
Average variable cost	$AVC = TVC/Q$
Average total cost	$ATC = TC/Q = AFC + AVC$
Marginal cost	$MC = \Delta TC/\Delta Q = \Delta TVC/\Delta Q$

Model of a Long-Run Production Function

6.1 $Q = f(L, K)$

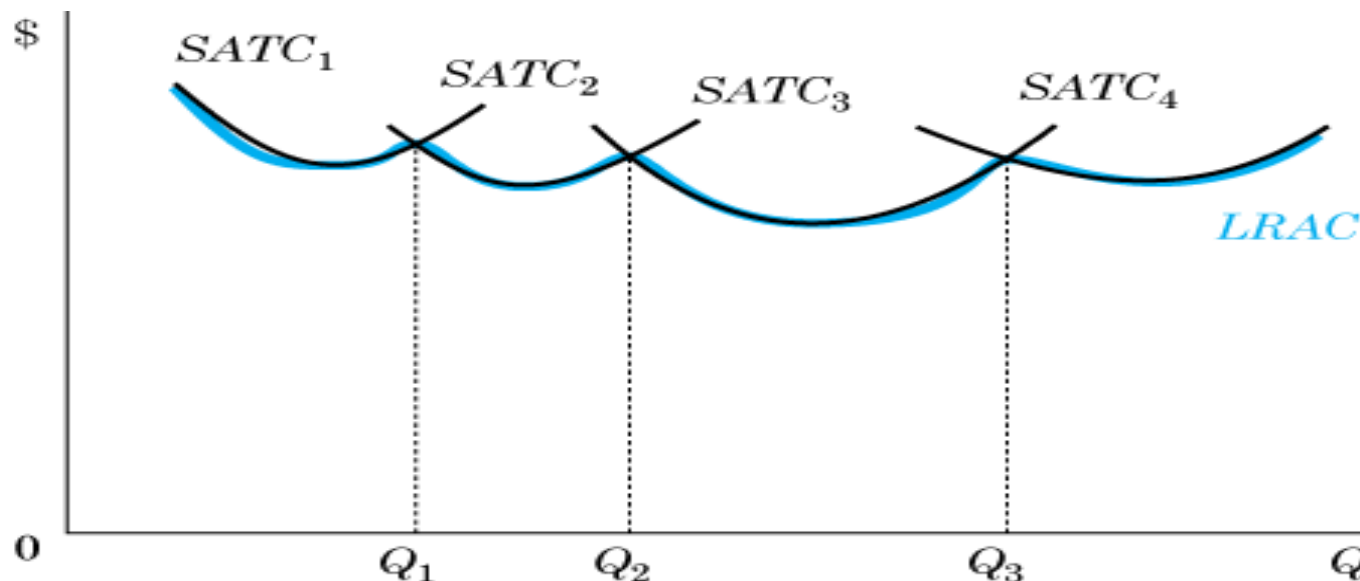
where

Q = quantity of output

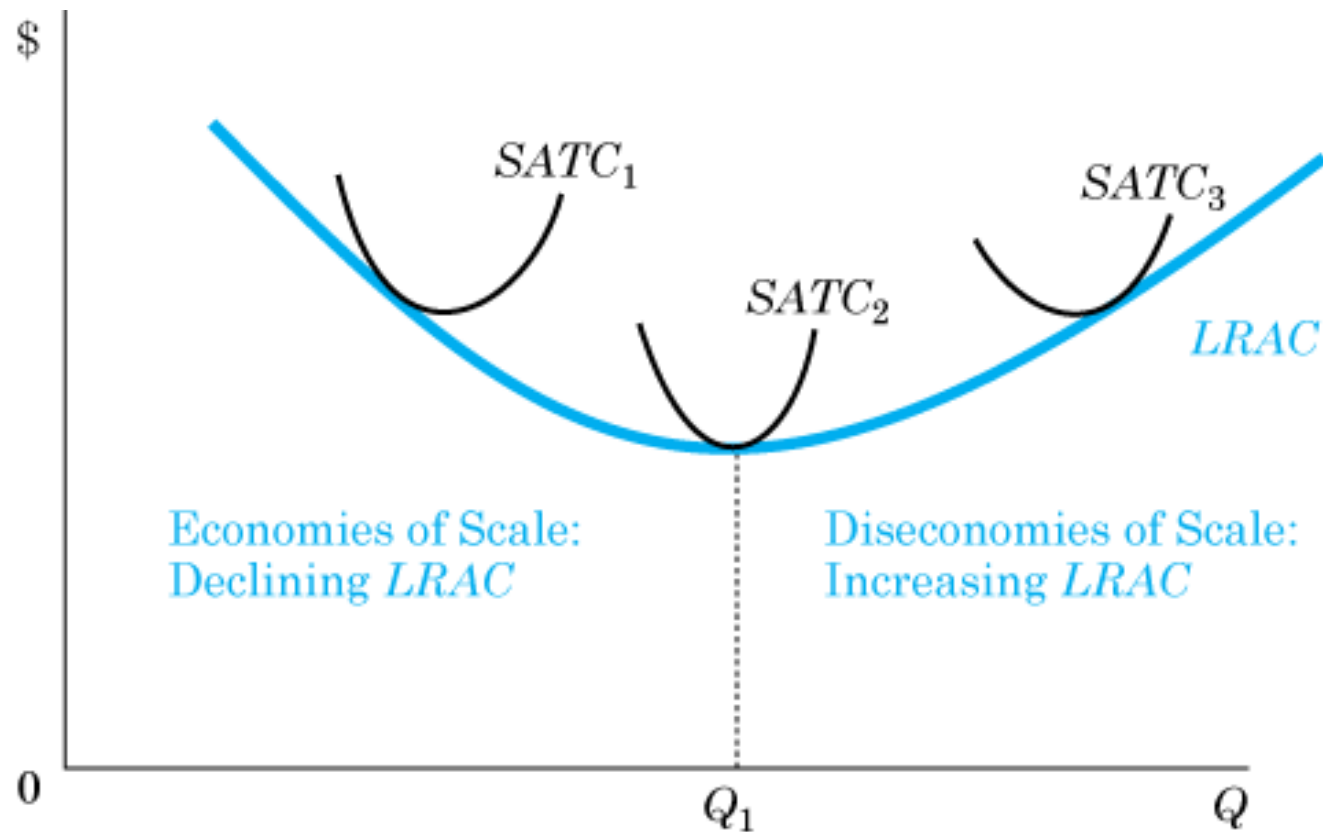
L = quantity of labor input (variable)

K = quantity of capital input (variable)

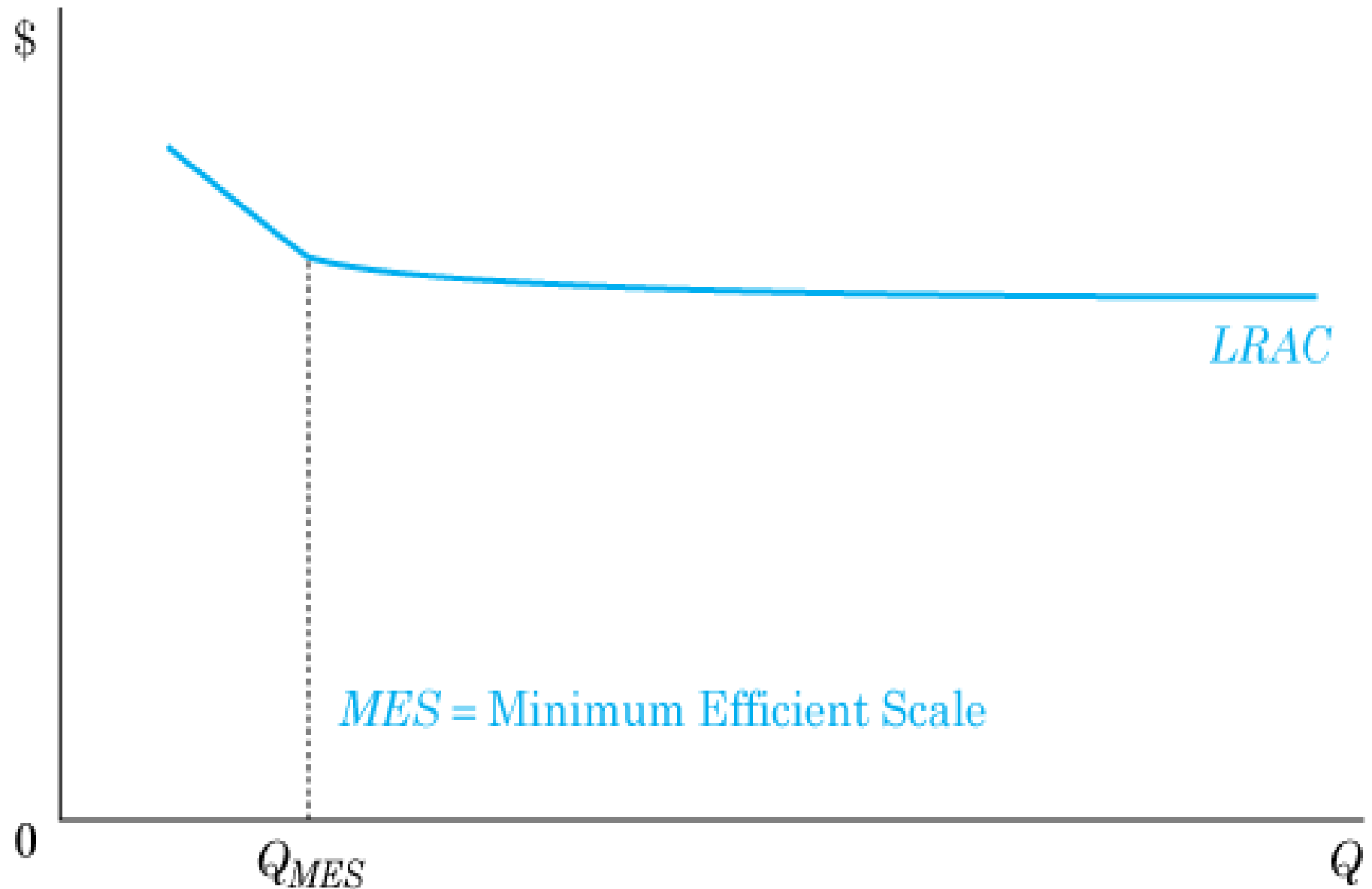
Derivation of the long-run average cost (LRAC) curve



The Standard Long-Run Average Cost Curve (LRAC)



Empirical Long-Run Average Cost (LRAC) Curve



2) Market Structure influences Social Policy & *Social Responsibility*

Large Number of Firms

Single Firm

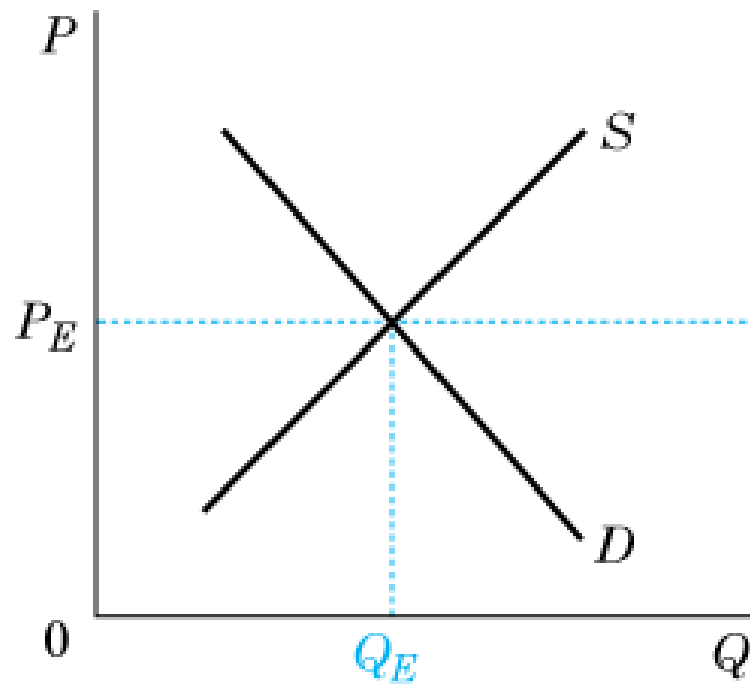
Perfect Competition-----Monopolistic Competition-----Oligopoly-----Monopoly

Market Structure.

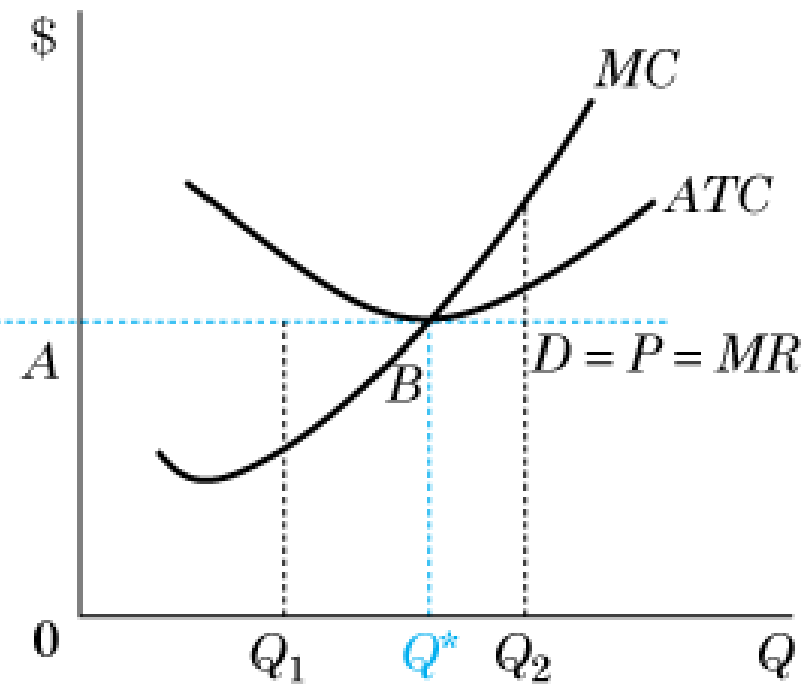
TABLE 7.1 Market Structure

CHARACTERISTIC	PERFECT COMPETITION	MONOPOLISTIC COMPETITION	OLIGOPOLY	MONOPOLY
Number of firms competing with each other	Large number	Large number	Small number	Single firm
Nature of the product	Undifferentiated	Differentiated	Undifferentiated or differentiated	Unique differentiated product with no close substitutes
Entry into the market	No barriers to entry	Few barriers to entry	Many barriers to entry	Many barriers to entry, often including legal restrictions
Availability of information to market participants	Complete information available	Relatively good information available	Information likely to be protected by patents, copyrights, and trade secrets	Information likely to be protected by patents, copyrights, and trade secrets
Firm's control over price	None	Some	Some, but limited by interdependent behavior	Substantial

The Model of Perfect Competition



(a) The Perfectly Competitive Industry or Market.



(b) The Perfectly Competitive Individual Firm.

Determining the Profit-Maximizing Level of Output

$$\mathbf{7.1 \quad \pi = TR - TC}$$

where

π = profit

TR = total revenue

TC = total cost

Determining the Profit-Maximizing Level of Output

$$\mathbf{7.2 \quad \text{Produce that level of output where } MR = MC}$$

where

MR = marginal revenue = $\Delta TR / \Delta Q$

MC = marginal cost = $\Delta TC / \Delta Q$

Numerical Example Illustrating the Perfectly Competitive Firm (Q measured in units; all costs, revenues, and profits measured in dollars)

TABLE 7.3 Numerical Example Illustrating the Perfectly Competitive Firm (Q measured in units; all costs, revenues, and profits measured in dollars)

Q (1)	AVC (2)	ATC (3)	MC (4)	P = MR (5)	TR = PQ (6)	TC (7)	TFC (8)	Π = TR – TC (9)	Π = (P – ATC)Q (10)
5	25	185	15	15	75	925	800	75 – 925 = –850 (Shutdown)	(15 – 185)5 = –850 (Shutdown)
6	24	157.33	24	24	144	944	800	144 – 944 = –800	(24 – 157.33)6 = –800
8	28	128	60	60	480	1,024	800	480 – 1,024 = –544	(60 – 128)8 = –544
10	40	120	120	120	1,200	1,200	800	1,200 – 1,200 = 0	(120 – 120)10 = 0
12	60	126.67	204	204	2,448	1,520	800	2,448 – 1,520 = 928	(204 – 126.67)12 = 928

Source: This example is based on the following cost functions derived and modified from Alpha C. Chiang, *Fundamental Methods of Mathematical Economics*, 3rd ed. (New York: McGraw-Hill, 1984). We have not analyzed specific mathematical cost functions in this text, but we have discussed general cost and revenue functions.

Total fixed cost: $TFC = 800$

Total variable cost: $TVC = Q^3 - 12Q^2 + 60Q$

Total cost: $TC = TFC + TVC = 800 + Q^3 - 12Q^2 + 60Q$

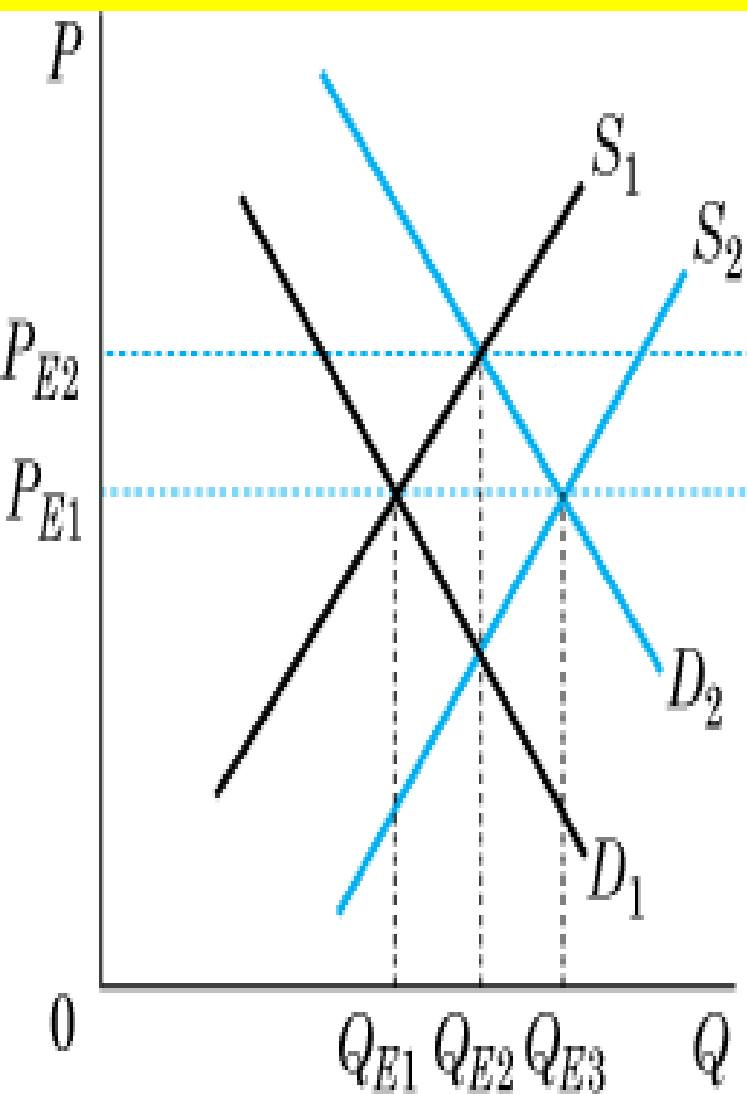
Average fixed cost: $AFC = 800/Q$

Average variable cost: $AVC = Q^2 - 12Q + 60$

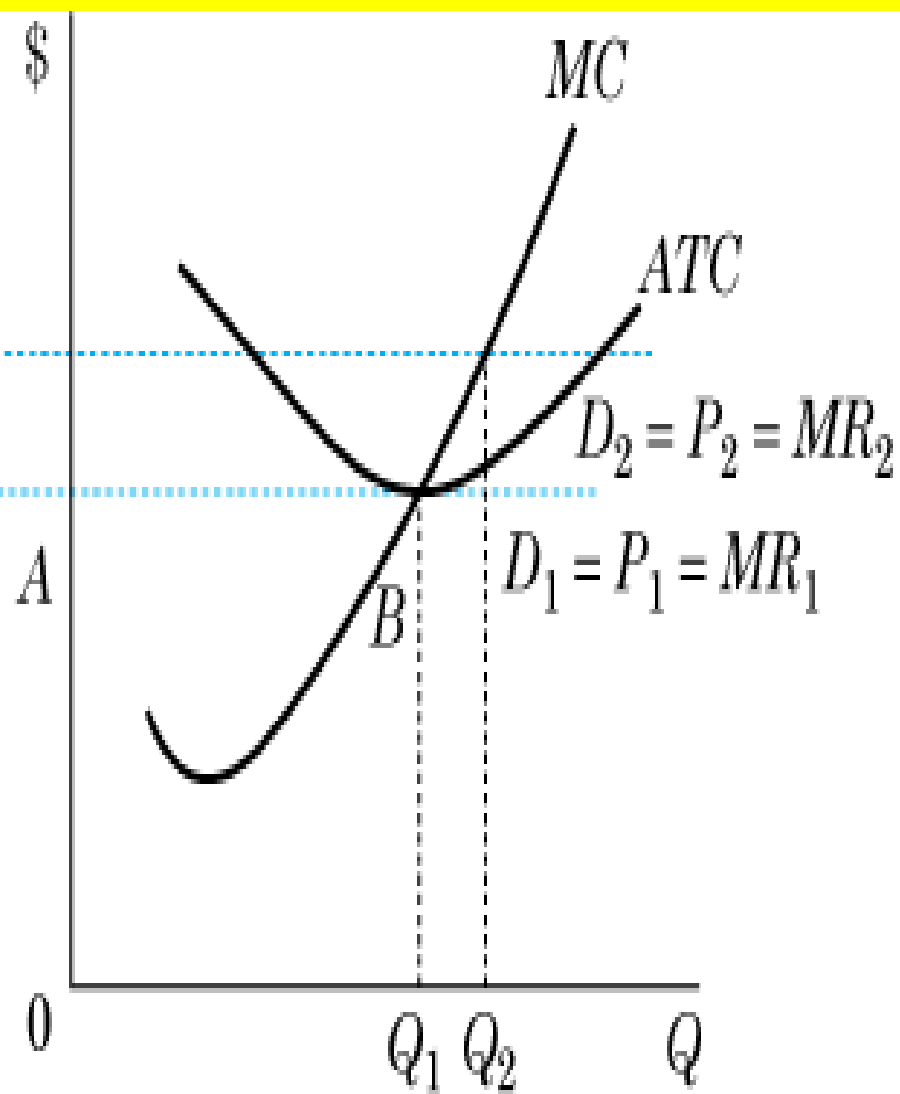
Average total cost: $ATC = TC/Q = AFC + AVC = (800/Q) + Q^2 - 12Q + 60$

Marginal cost: $MC = dTC/dQ = 3Q^2 - 24Q + 60$

Long-Run Adjustment in Perfect Competition: Entry and Exit

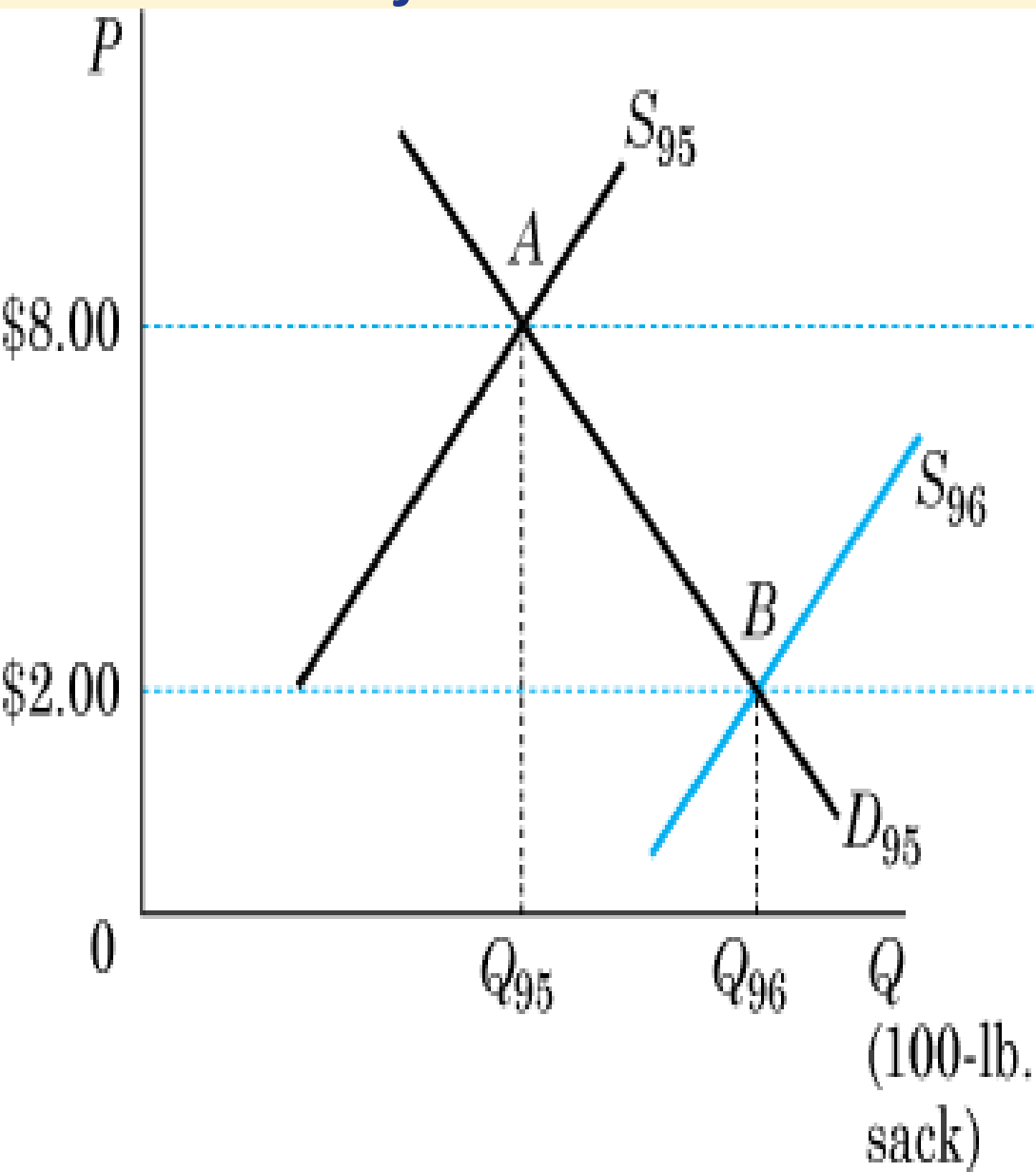


(a) Change in Demand in the Perfectly Competitive Industry or Market.

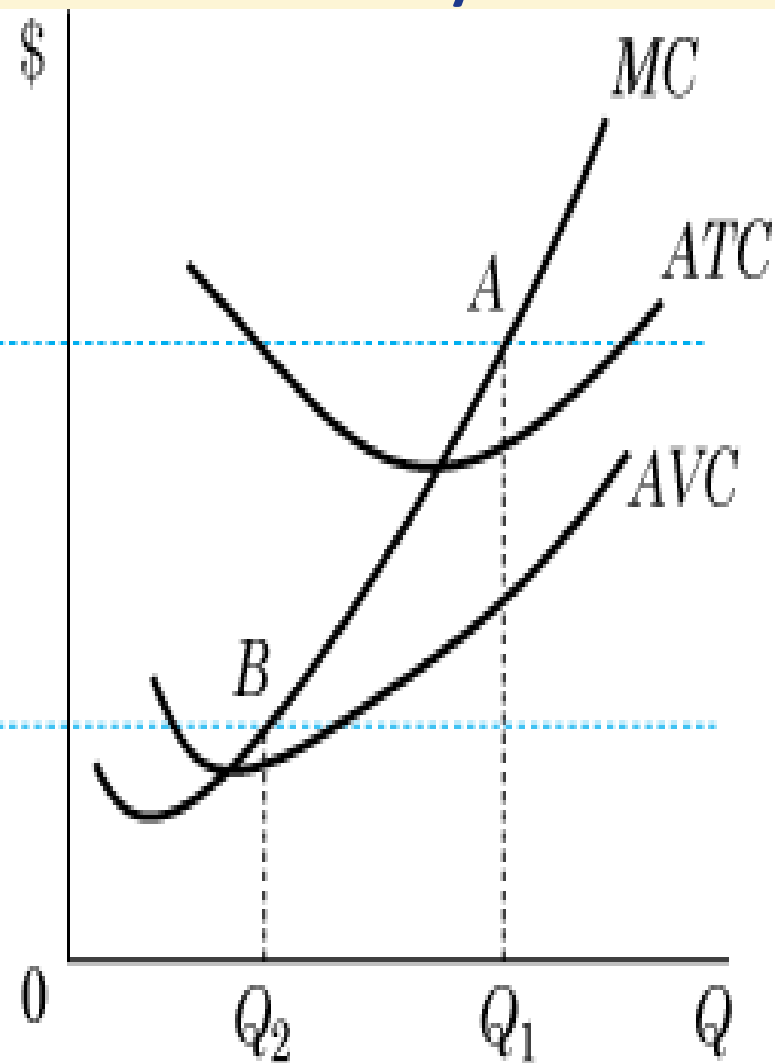


(b) Change in Demand for the Perfectly Competitive Individual Firm.

Adjustment in the Potato Industry

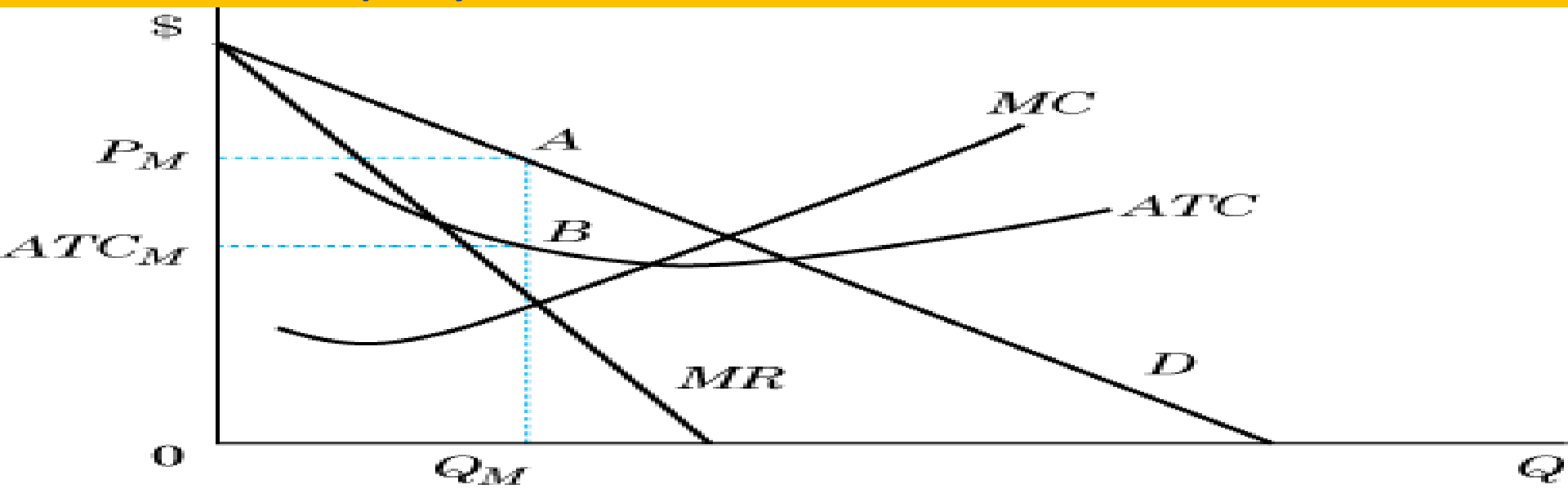


(a) Potato Industry

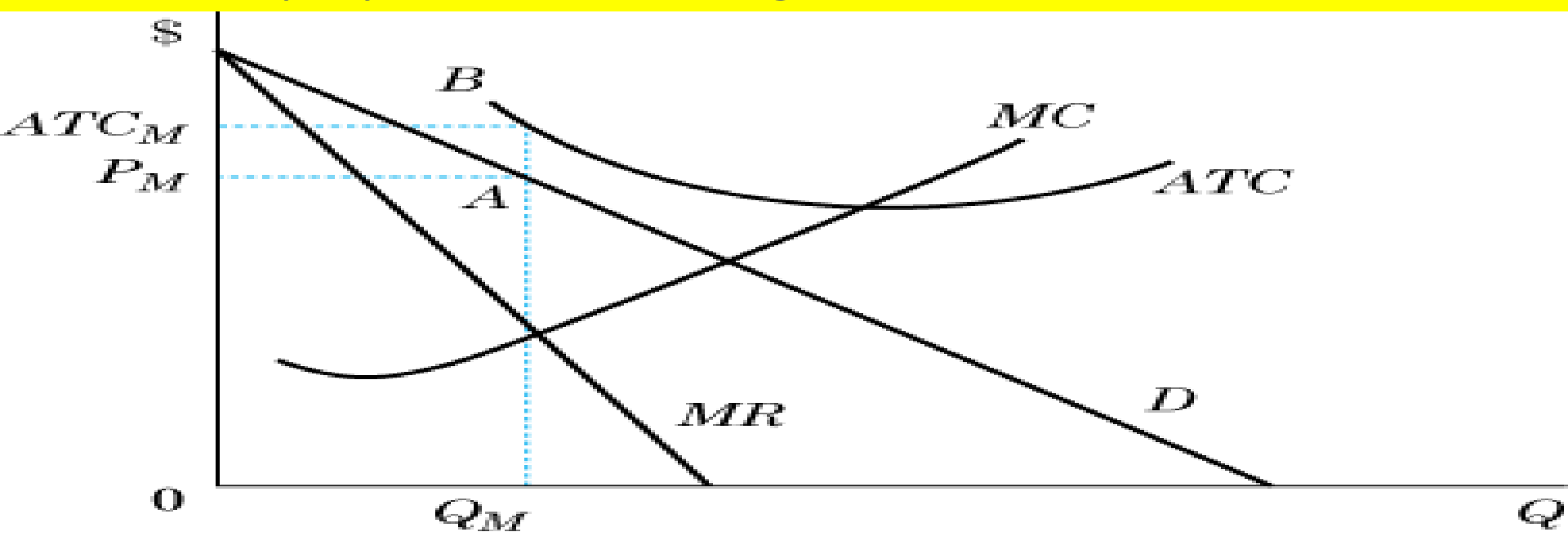


(b) Individual Producer

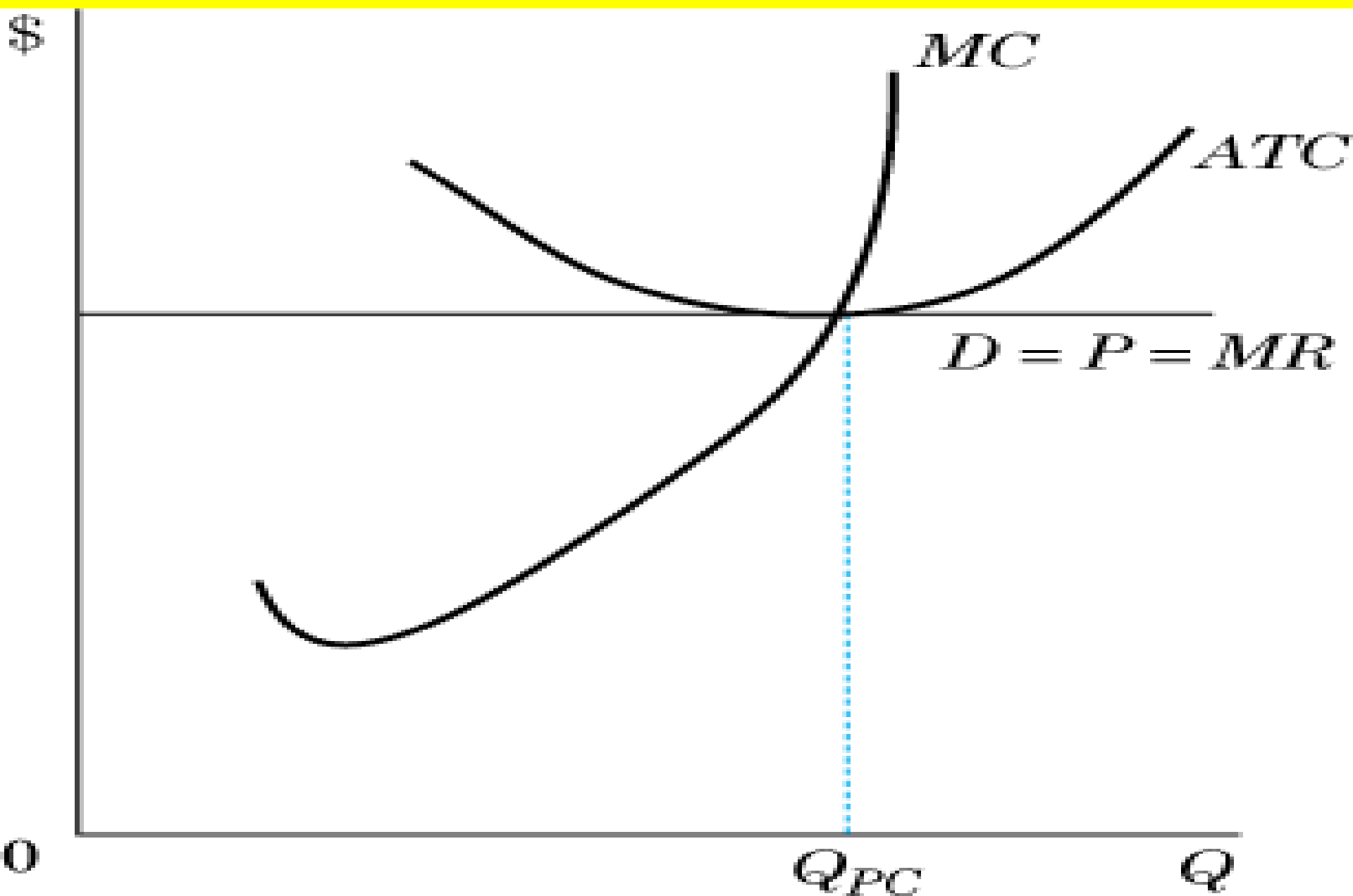
The Monopoly Model with Positive Economic Profit



The Monopoly Model with Negative Economic Profit or Losses



The Perfectly Competitive Firm



Measures of Market Power

TABLE 8.1 Measures of Market Power, Selected Manufacturing Industries (1997)

INDUSTRY	HHI		
	CR4	CR8	(50 LARGEST COMPANIES)
Meat products	35	48	393
Breakfast cereal	83	94	2,446
Cigarettes	99	N/A	N/A
Sawmills	15	20	87
Book printing	32	45	364
Household refrigerators/freezers	82	97	2,025
Motor vehicles/car bodies	87	94	N/A
Computers	40	68	658

Source: U.S. Department of Commerce, 1997 Economic Census: Concentration Ratios in Manufacturing (2001, Table 2), <http://www.census.gov/prod/ec97/m31s-cr.pdf>.

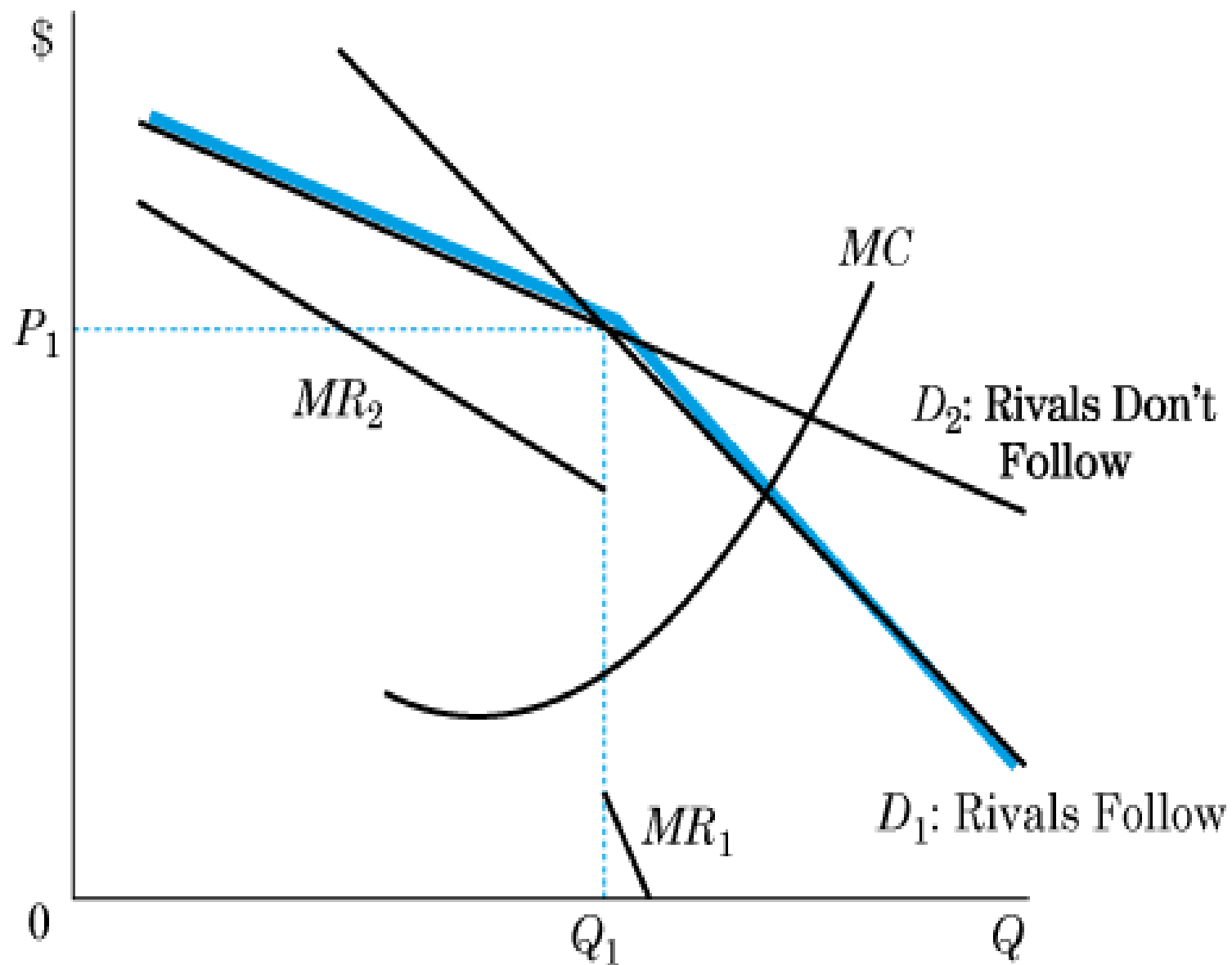
Oligopolistic Industries in the United States

TABLE 9.1 Oligopolistic Industries in the United States

INDUSTRY	NUMBER OF FIRMS	MARKET SHARE (PERCENT)
Carbonated soft drinks	3	80
Beer	3	80
Cigarettes	3	80
Recorded music	4	80
Railroad operations	4	100
Movies	6	85
Razors and razor blades	3	95
Cookies and crackers	2	80
Carpets	2	75
Breakfast cereals	4	80
Light bulbs	2	85
Consumer batteries	3	90

Source: Stephen G. Hannaford, *Market Domination! The Impact of Industry Consolidation on Competition, Innovation, and Consumer Choice* (Westport, CT: Praeger, 2007), 5. Reprinted by permission.

Kinked Demand Curve Model of Oligopoly



The Prisoner's Dilemma

TABLE 9.2 The Prisoner's Dilemma

		CLYDE	
		DON'T CONFESS	CONFESS
Bonnie	Don't Confess	2 years, 2 years	10 years, 0 years
	Confess	0 years, 10 years	5 years, 5 years

Cigarette Television Advertising

TABLE 9.3 Cigarette Television Advertising

		COMPANY B	
		DO NOT ADVERTISE	ADVERTISE
Company A	Do Not Advertise	50, 50	20, 60
	Advertise	60, 20	27, 27

Source: Roy Gardner, *Games for Business and Economics* (New York: John Wiley, 1995), 51–53. Copyright © 1995.
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Illustration of Unique Nash Equilibrium

TABLE 9.4 Illustration of Unique Nash Equilibrium

		FIRM 2		
		DO NOT EXPAND	SMALL EXPANSION	LARGE EXPANSION
Firm 1	Do Not Expand	18, 18	15, 20	9, 18
	Small Expansion	20, 15	16, 16	8, 12
	Large Expansion	18, 9	12, 8	0, 0

Source: David Besanko, David Dranove, and Mark Shanley, *Economics of Strategy*, 2nd ed. (New York: John Wiley, 2000), 37–40. Copyright © 2000. Reprinted by permission of John Wiley & Sons, Inc.

Equating Marginal Cost to Minimize Total Cost

TABLE 9.5 Equating Marginal Cost to Minimize Total Cost

FIRM 1			FIRM 2		
<i>Q</i>	<i>MC</i> (\$)	<i>TC</i> (\$)	<i>Q</i>	<i>MC</i> (\$)	<i>TC</i> (\$)
5	20	50	5	10	25
10	40	200	10	20	100
15	60	450	15	30	225
20	80	800	20	40	400

This simple example is based on the following equations and the assumption of zero fixed costs: $TC_1 = 2Q^2$, $MC_1 = 4Q$, $TC_2 = Q^2$, and $MC_2 = 2Q$.

To find the cost-minimizing method of producing a total of 20 units of output, solve the equations $MC_1 = MC_2$ and $Q_1 + Q_2 = 20$.

The solution is $Q_1 = 6.67$, $MC_1 = \$26.68$, $TC_1 = \$88.98$, $Q_2 = 13.33$, $MC_2 = \$26.66$, and $TC_2 = \$177.69$. $TC_1 + TC_2 = \$266.67$.

Marginal Revenue and the Price Elasticity of Demand

$$\mathbf{10.1} \quad \mathbf{MR} = \frac{(\Delta TR)}{\Delta Q}$$

$$\mathbf{10.2} \quad \Delta TR = (P) * (\Delta Q) + (Q) * (\Delta P)$$

$$\mathbf{10.3} \quad MR = P * \frac{\Delta Q}{\Delta Q} + Q * \frac{\Delta P}{\Delta Q}$$

$$\mathbf{10.4} \quad MR = P + Q * \frac{\Delta P}{\Delta Q}$$

$$\mathbf{10.5} \quad MR = \left[P + Q * \left(\frac{\Delta P}{\Delta Q} \right) \left(\frac{P}{P} \right) \right]$$

$$\mathbf{10.6} \quad MR = P \left(1 + \frac{\Delta P}{\Delta Q} * \frac{Q}{P} \right)$$

$$\mathbf{10.7} \quad MR = P \left(1 + \frac{1}{e_p} \right)$$

The Optimal Markup

TABLE 10.2 The Optimal Markup

$$m = \frac{-1}{(1 + e_p)}$$

ELASTICITY (e_p)	CALCULATION	MARKUP (PERCENT)
-2.0	$m = -[1/(1 - 2)] = + 1.00$	1.00 or 100
-5.0	$m = -[1/(1 - 5)] = + 0.25$	0.25 or 25
-11.0	$m = -[1/(1 - 11)] = + 0.10$	0.10 or 10
∞	$m = -[1/(1 - \infty)] = 0$	0.00 (no markup)

Individual Demand for Oranges (Hypothetical)

TABLE 10.3 Individual Demand for Oranges (Hypothetical)

PRICE	QUANTITY DEMANDED
\$0.25	4
\$0.50	3
\$0.75	2
\$1.00	1

Types of Price Discrimination

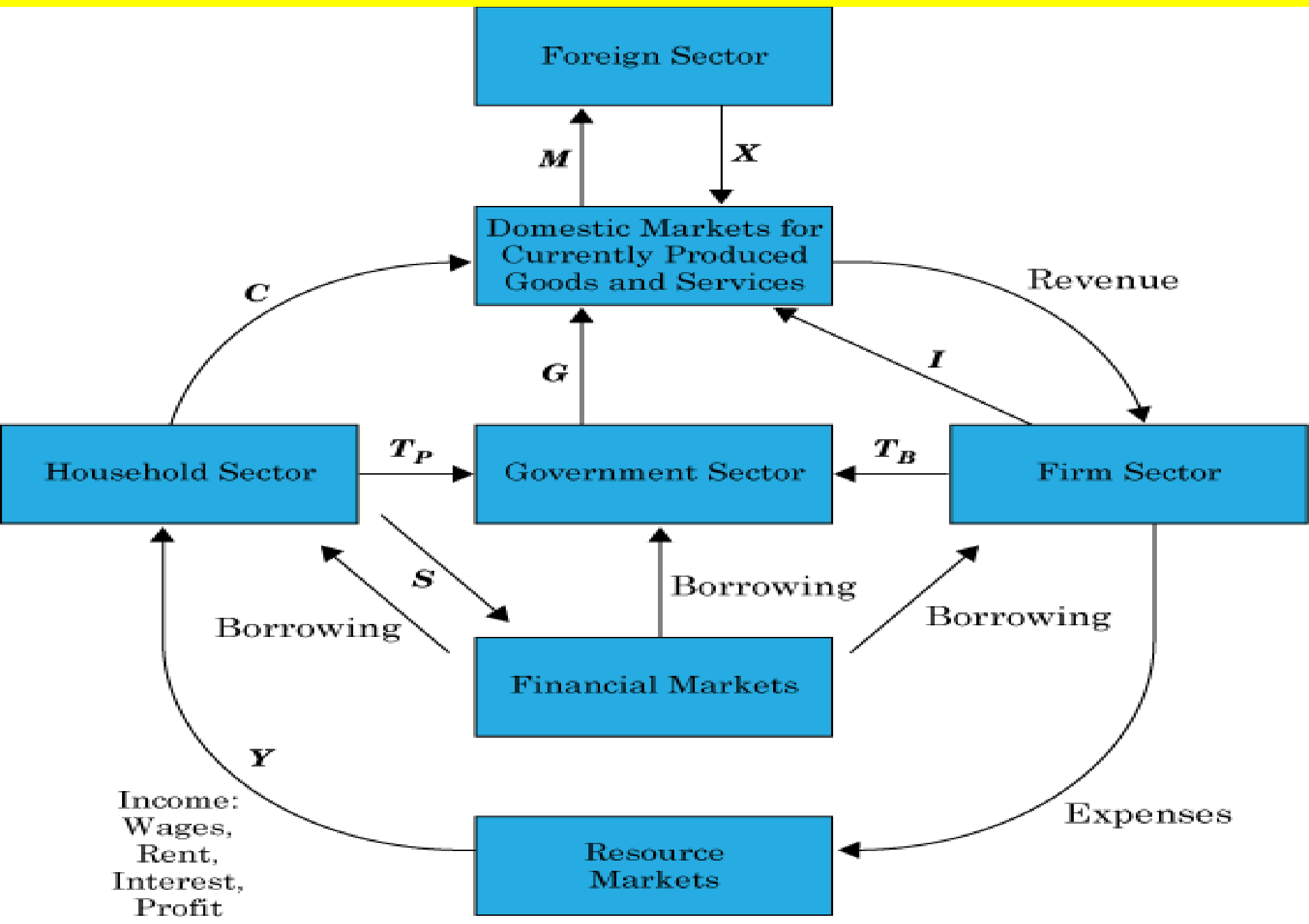
TABLE 10.7 Types of Price Discrimination

TYPE	DESCRIPTION
First-degree or personalized pricing	Charging each individual the maximum amount he or she is willing to pay for each unit of the product.
Second-degree	Charging the maximum price consumers are willing to pay for different blocks of output.
Third-degree or group pricing	Separating the markets into different groups of consumers and charging a higher price (relative to cost) in the market with the more inelastic demand. Sometimes called zone pricing.
Versioning	Offering different versions of a product to different groups of customers at various prices, each designed to meet the needs of the specific groups.
Bundling	Selling products separately, but also as a bundle, where the price of the bundle is less than the sum of the prices of the individual products.
Promotional pricing	Using coupons and sales to lower the price to customers with more elastic demands, but also imposing costs on these customers.
Two-part pricing	Charging consumers a fixed fee for the right to purchase a product and then a variable fee that is a function of the number of units purchased.

**3) MACROECONOMICS &
GOVERNMENT INTERVENTION
DETERMINE
SOCIAL POLICY & *Social Responsibility***

The Macroeconomic Circular Flow

Circular Flow



Macroeconomics happens to us all

Everyone is affected by macroeconomics:

- *Job loss due to recessions*
- *Stock market gains and losses*
- *Obtaining loans*

Misperceptions about macroeconomics are common in the general public:

- *What causes inflation? "Corporate greed!"*
- *How would an increase in inflation affect wages and salaries?
..... "No effect!"*
- *What causes recessions? "Government mistakes!"*
- *How do foreign imports affect unemployment rates?
"Permanent increase!"*

Macroeconomics happens to us all

Όλοι επηρεάζονται από τη μακροοικονομία:

- Απώλεια θέσεων εργασίας λόγω υφέσεων
- Κέρδη και ζημίες στην αγορά μετοχών
- Λήψη δανείων

Οι λανθασμένες αντιλήψεις σχετικά με τη μακροοικονομία είναι συχνές στο ευρύ κοινό:

- Τι προκαλεί τον πληθωρισμό;«Εταιρική απληστία!»
- Πώς θα επηρέαζε μια αύξηση του πληθωρισμού τους μισθούς και τα ημερομίσθια;«Καμία επίδραση!»
- Τι προκαλεί υφέσεις;«Κυβερνητικά λάθη!»
- Πώς επηρεάζουν οι ξένες εισαγωγές τα ποσοστά ανεργίας; «Μόνιμη αύξηση!»

What is the best way to analyze macroeconomic issues?

Economists study economic problems systematically.

- *Gather data relevant to the problem.*
- *Form models capable of analyzing data.*

Could inflation be caused by corporate greed?

- *Inflation has varied a great deal since 1775.*
- *Most recent 50 years inflation was below 3% in the 1950s and 1960s and well above 10% in the late 1970s and early 1980s.*
- *If corporate greed were the cause, greed would have to fluctuate over time.*

Just inspecting data can give misleading results.

Rather than rejecting an **explanation**, it is useful to provide an **alternative explanation**.

What is the best way to analyze macroeconomic issues?

Οι οικονομολόγοι μελετούν συστηματικά τα οικονομικά προβλήματα.

- Συγκεντρώνουν δεδομένα σχετικά με το πρόβλημα.
- Σχηματίζουν μοντέλα ικανά να αναλύσουν δεδομένα.

Θα μπορούσε ο πληθωρισμός να προκληθεί από την εταιρική απληστία;

- Ο πληθωρισμός έχει παρουσιάσει μεγάλες διακυμάνσεις από το 1775.
- Τα τελευταία 50 χρόνια, ο πληθωρισμός ήταν κάτω από 3% στις δεκαετίες του 1950 και του 1960 και πολύ πάνω από 10% στα τέλη της δεκαετίας του 1970 και στις αρχές της δεκαετίας του 1980.
- Εάν η εταιρική απληστία ήταν η αιτία, η απληστία θα έπρεπε να παρουσιάζει διακυμάνσεις με την πάροδο του χρόνου.

Η απλή επιθεώρηση δεδομένων μπορεί να δώσει παραπλανητικά αποτελέσματα.

Αντί να απορρίπτουμε μια εξήγηση, είναι χρήσιμο να παρέχουμε μια εναλλακτική εξήγηση.

Macroeconomic models

Macroeconomic models are useful simplifications of reality

- *Economists typically assume that consumers buy goods and services that maximize their well-being or utility.*
- *Firms are often assumed to maximize profits.*
- *Abstraction from reality, since we do not describe the motives of all consumers and firms.*

Reminders

Models and Theories

- *Used to analyze real-world issues.*
- *Model and theory will be used interchangeably.*
- *Models use assumptions to simplify reality by focusing on a few key variables.*

Macroeconomic models

Τα μακροοικονομικά μοντέλα είναι χρήσιμες απλουστεύσεις της πραγματικότητας

- Οι οικονομολόγοι συνήθως υποθέτουν ότι οι καταναλωτές αγοράζουν αγαθά και υπηρεσίες που μεγιστοποιούν την ευημερία ή τη χρησιμότητά τους.
- Συχνά θεωρείται ότι οι επιχειρήσεις μεγιστοποιούν τα κέρδη.
- Αφαίρεση από την πραγματικότητα, καθώς δεν περιγράφουμε τα κίνητρα όλων των καταναλωτών και των επιχειρήσεων.

Υπενθυμίσεις

- Μοντέλα και Θεωρίες
- Χρησιμοποιείται για την ανάλυση ζητημάτων του πραγματικού κόσμου.
- Το μοντέλο και η θεωρία θα χρησιμοποιούνται εναλλακτικά.
- Τα μοντέλα χρησιμοποιούν υποθέσεις για να απλοποιήσουν την πραγματικότητα εστιάζοντας σε μερικές βασικές μεταβλητές.

Macroeconomic models

Endogenous and Exogenous in a Model

Endogenous variable A variable that is explained by an economic model.

Exogenous variable A variable that is taken as given and is not explained by an economic model.

*If we assume the Central Bank or Federal Reserve determines the **supply of money**, then the money supply is exogenous.*

***Inflation** would then be considered endogenous because we are attempting to explain how the Federal Reserve can control inflation.*

Economic Variables

Something measureable that can have different values, like the rate of inflation.

Macroeconomic models

Ενδογενής και Εξωγενής σε ένα Μοντέλο

Ενδογενής μεταβλητή Μια μεταβλητή που εξηγείται από ένα οικονομικό μοντέλο.

Εξωγενής μεταβλητή Μια μεταβλητή που λαμβάνεται ως δεδομένη και δεν εξηγείται από ένα οικονομικό μοντέλο.

Αν υποθέσουμε ότι η Κεντρική Τράπεζα ή η Ομοσπονδιακή Τράπεζα των ΗΠΑ καθορίζουν την προσφορά χρήματος, τότε η προσφορά χρήματος είναι εξωγενής.

Ο πληθωρισμός θα θεωρούνταν τότε ενδογενής επειδή προσπαθούμε να εξηγήσουμε πώς η Ομοσπονδιακή Τράπεζα των ΗΠΑ μπορεί να ελέγξει τον πληθωρισμό.

Οικονομικές Μεταβλητές

Κάτι μετρήσιμο που μπορεί να έχει διαφορετικές τιμές, όπως ο ρυθμός πληθωρισμού.

Macroeconomic models

Decide on assumptions to be used in developing the model. Decide on *endogenous* and *exogenous* variables.



Formulate a testable hypothesis.



Use economic data to test the hypothesis.



Revise the model if it fails to explain the economic data well.



Retain the revised model to help answer similar economic questions in the future.

Formulating and testing hypotheses in economic models

Hypothesis A statement that may be either correct or incorrect.

Example: "Higher marginal tax rates on income lead to higher rates of unemployment."

How to evaluate? Idea: collect data on unemployment and tax rates for several countries.

Causation vs. Correlation

- Economic hypotheses are usually about **causal relationships**, showing that changes in one variable cause changes in another variable.
- Proving **correlation**, that two variables are related, is much easier than causation.
- Confounding variables may be related to both exogenous and endogenous variables

Example: Stringent labor laws limiting the firing of workers might be positively correlated with both high tax and high unemployment countries.

Formulating and testing hypotheses in economic models

Υπόθεση Μια δήλωση που μπορεί να είναι είτε σωστή είτε λανθασμένη.

Παράδειγμα: «Οι υψηλότεροι οριακοί φορολογικοί συντελεστές επί του εισοδήματος οδηγούν σε υψηλότερα ποσοστά ανεργίας».

Πώς να αξιολογήσετε; Ιδέα: συλλογή δεδομένων για την ανεργία και τους φορολογικούς συντελεστές για διάφορες χώρες.

Αιτιότητα έναντι Συσχέτισης

Οι οικονομικές υποθέσεις αφορούν συνήθως αιτιώδεις σχέσεις, δείχνοντας ότι οι αλλαγές σε μια μεταβλητή προκαλούν αλλαγές σε μια άλλη μεταβλητή. Η απόδειξη της συσχέτισης, ότι δύο μεταβλητές σχετίζονται, είναι πολύ πιο εύκολη από την αιτιότητα.

Οι συγχυτικές μεταβλητές μπορεί να σχετίζονται τόσο με εξωγενείς όσο και με ενδογενείς μεταβλητές

Παράδειγμα: Οι αυστηροί εργατικοί νόμοι που περιορίζουν τις απολύσεις εργαζομένων μπορεί να συσχετίζονται θετικά τόσο με χώρες με υψηλή φορολογία όσο και με χώρες με υψηλή ανεργία.

Formulating and testing hypotheses in economic models

Positive analysis Analysis concerned with “**what is**”.

Examining the world from an objective point of view.

Measuring the costs and benefits of different courses of action.

Economics is about positive analysis.

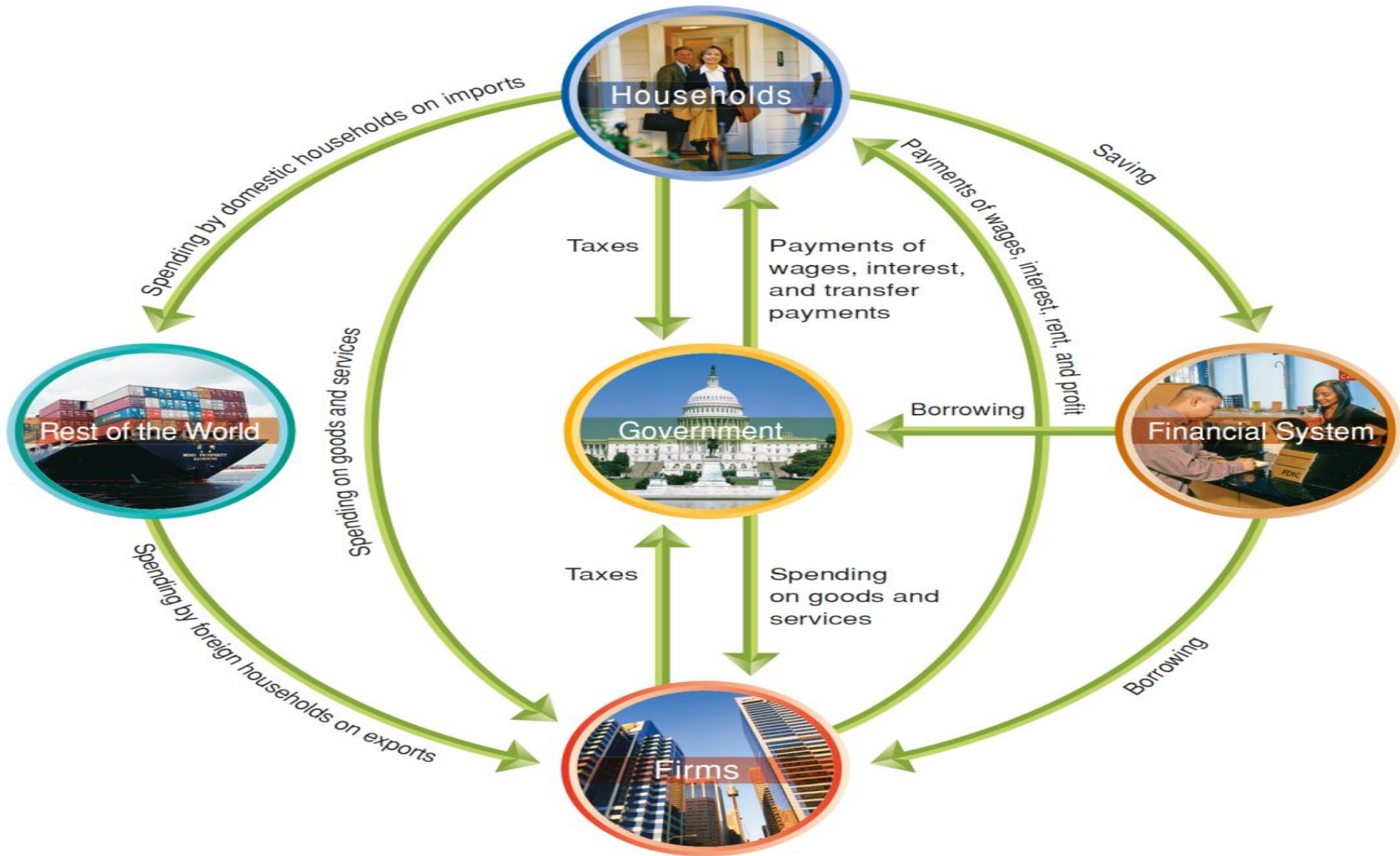
Normative analysis Analysis concerned with
“**what ought to be**”.

Formulating and testing hypotheses in economic models

- **Θετική ανάλυση** Ανάλυση που ασχολείται με το «τι είναι».
 - *Εξέταση του κόσμου από αντικειμενική άποψη.*
 - *Μέτρηση του κόστους και των οφελών διαφορετικών τρόπων δράσης.*
 - *Τα οικονομικά αφορούν τη θετική ανάλυση.*
- **Κανονιστική ανάλυση** Ανάλυση που ασχολείται με το «τι θα έπρεπε να είναι».

The circular flow of income

GDP can be measured by total wages, interest, rent, and profits received by households.



GDP can be measured by total expenditures on goods and services by households, firms, government, and the rest of the world.

The circular flow of income

The circular-flow diagram shows how

the flow of spending and money in the economy
equals
the total value of income

Income is divided into four categories:

1. **Wages:** *paid to households in exchange for labor.*
2. **Interest:** *paid for the use of capital.*
3. **Rent:** *paid for the use of natural resources.*
4. **Profit:** *return to entrepreneurs for organizing factors of production and reward for bearing the risk of production.*

The circular flow of income

Factors of production are usually divided into three categories.

- 1. Labor**
- 2. Capital**
- 3. Natural resources**

Which one is the most important?

Factor of production Any input used to produce goods and services.

Capital Goods, such as machine tools, computers, factories, and office buildings, that are used to produce other goods and services.

The circular flow of income

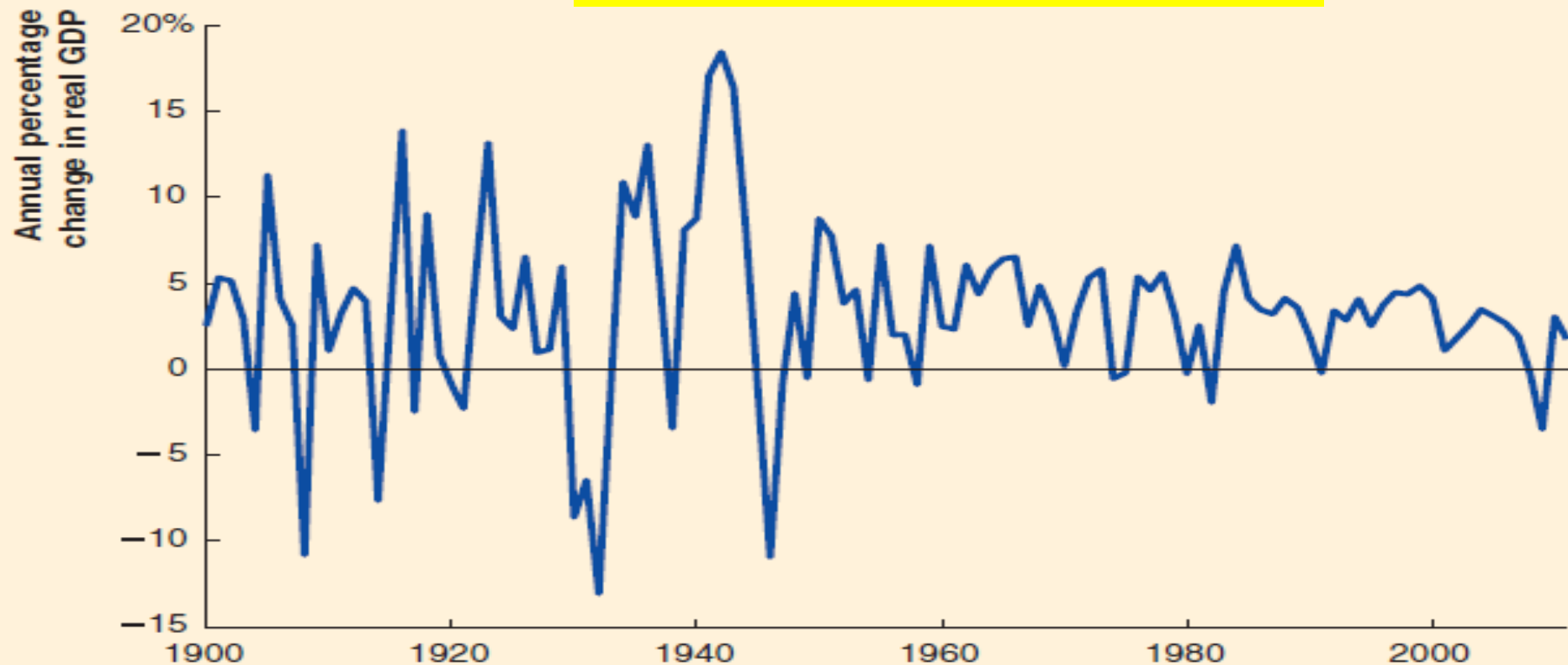
Firms sell goods to domestic households, foreign firms and households, and the government.

Financial system The financial intermediaries and financial markets that together facilitate the flow of funds from lenders to borrowers.

Economic policy can stabilize the economy

- High unemployment is associated with economic downturns.
- Expansions have become longer and recessions shorter since 1950.
- Recessions accompanied by financial crises are particularly deep and prolonged

Fluctuations in U.S. real GDP, 1900-2011



Economic policy can stabilize the economy

The two types of government policy used to stabilize the economy are:

1. **Monetary policy** The actions that central banks take to manage the money supply and interest rates to pursue macroeconomic policy objectives.
2. **Fiscal policy** Changes in government taxes and purchases that are intended to achieve macroeconomic policy objectives.

Economic policy can stabilize the economy

Οι δύο τύποι κυβερνητικής πολιτικής που χρησιμοποιούνται για τη σταθεροποίηση της οικονομίας είναι:

Νομισματική πολιτική Οι ενέργειες που αναλαμβάνουν οι κεντρικές τράπεζες για τη διαχείριση της προσφοράς χρήματος και των επιτοκίων για την επιδίωξη στόχων μακροοικονομικής πολιτικής.

Δημοσιονομική πολιτική Αλλαγές στους κρατικούς φόρους και τις αγορές που αποσκοπούν στην επίτευξη στόχων μακροοικονομικής πολιτικής.

Uncontrollable Factors that affect the Economy and the ability of the Government to implement Social Policy

Business Cycles

Short Run

Business cycle Alternating periods of economic expansion and economic recession.

Long Run

Long-run economic growth The process by which increasing productivity raises the average standard of living.

Ανεξέλεγκτοι Παράγοντες που επηρεάζουν την
Οικονομία και την ικανότητα της Κυβέρνησης να
εφαρμόσει Κοινωνική Πολιτική

Business Cycles

Βραχυπρόθεσμος
Οικονομικός κύκλος Εναλλασσόμενες περίοδοι οικονομικής
επέκτασης και οικονομικής ύφεσης.

Μακροπρόθεσμος
Μακροπρόθεσμη οικονομική ανάπτυξη Η διαδικασία με την
οποία η αύξηση της παραγωγικότητας αυξάνει το μέσο
βιοτικό επίπεδο.

Business Cycles & Financial Crisis

**The two types of policy,
FISCAL & MONETARY
play an important role in stabilizing the economy.**

The severe recession of 2007-2009 showed this and kept people afloat and avoided a major *financial crisis*.

Financial crisis involves a significant disruption in the flow of funds from lenders to borrowers.

Estimating how Economics influence
Social Policies
Social Upgrading
Social Improvements
Social Coherence

Three major Domestic Tools

Three important tools and measures of macroeconomic performance that lead to social improvement...

- 1. Gross Domestic Product (GDP)*
- 2. The Unemployment Rate*
- 3. The Inflation Rate*

Macroeconomics is about describing not just what has happened, but also about building models to understand why macroeconomic events like recessions and high inflation, and other macroeconomic events, have happened.

1. GDP (Gross Domestic Product)

GDP: Measuring total production and total income

Real gross domestic product (GDP) The value of final goods and services adjusted for changes in the price level.

Long-run economic growth is often better measured by real gross domestic product *per person*.

- *Long-run growth between 1900 and 2012 improved the U.S. standard of living in many ways.*
- *3% of homes had electricity in 1900 versus nearly all today.*
- *Average consumption of water increased from 5 to 150 gallons/day.*
- *Most homes used coal to heat and cook.*
 - *Seven tons per family per year on average.*
 - *Led to high levels of pollution.*
- *Lack of modern items like TV, radio, computers, air conditioners.*
- *Life expectancy increased from 47 to 78 years.*

GDP: Measuring total production and total income

Gross domestic product (GDP) The market value of all final goods and services produced in a country during a period of time.

Final good or service A good or service purchased by a final user.

Intermediate good or service A good or service that is an input into another good or service such as a tire on a truck.

- *GDP data is collected by the Bureau of Economic Analysis (BEA).*
- *Reports on GDP and related statistics released every three months.*

Production and income

National income accounting The rules used in calculating GDP and related measures of total production and total income.

- Total production = Total income.
- *That is that the value of total production in an economy is equal to the value of total income.*
- All expenditures are someone else's income.

How the government calculates GDP

- 1. GDP is measured using market values, not quantities.**
GDP is the total value in dollars of all goods and services produced.
- 2. GDP includes only the market values of final goods.**
Only counting final goods and services avoids *double counting*.
- 3. GDP measures production *within* a country regardless of who does the production.**
- 4. GDP includes some imputed values.**
For example, police services are estimated to provide value at cost.
- 5. The BEA does not count some types of production.**
Underground and home production are excluded from GDP.
- 6. GDP includes only current production.**
GDP measures an amount of production during a time period.

National income identities and the components of GDP

$$Y = C + I + G + NX$$

We divide GDP into four major categories of expenditures, which combine into the *national income identity*, where Y is total GDP.

- 1) Consumption (C)** The purchase of new goods and services by households.
- 2) Investment (I)** Spending by firms on new factories, office buildings, machinery, and additions to inventories plus spending by households and firms on new houses.
- 3) Government purchases (G)** Spending by federal, state, and local governments on goods and services.
- 4) Net exports (NX)** The value of all exports minus the value of all imports.

Example: USA GDP in 2011

Gross Domestic Product in 2011

Table 2.1 GDP in 2011

	Billions of dollars		Percentage of GDP	
Consumption	\$10,726.0		71.1%	
Durable goods	1,162.9		7.7	
Nondurable goods	2,483.7		16.5	
Services	7,079.4		46.9	
Investment	1,916.2		12.7	
Business fixed investment	1,532.5		10.2	
Structures	409.5		2.7	
Equipment and software	1,123.0		7.4	
Residential investment	337.5		2.2	
Changes in business inventories	46.3		0.3	
Government purchases	3,030.6		20.1	
Federal	1,232.9		8.2	
National defense	824.9		5.5	
Nondefense	407.9		2.7	
State and local	1,797.7		11.9	
Net exports	−578.7		−3.8	
Exports	2,085.5		13.8	
Imports	2,664.2		17.7	
Gross domestic product	\$15,094.0		100.0%	

Source: U.S. Bureau of Economic Analysis.

The components of GDP: **1) Consumption, 2) Investment**

- 1) **Consumption** is broken down into three more refined categories.
 1. **Durable goods** are tangible goods with an average life of three years or more.
 2. **Nondurable goods** are shorter-lived goods such as food and clothing.
 3. **Services** are consumed at the time and place of purchase, such as haircuts, food, and clothing.

- 2) **Investment** is divided further into three categories and adds to the stock of capital goods that exist.
 1. **Fixed investment** is spending by firms on new factories, office buildings, and machinery used to produce other goods.
 2. **Residential investment** is spending by households or firms on new single-family and multi-family homes.
 3. **Inventories** are goods that have been produced and not yet sold. Any goods produced during a given period but not sold are counted towards GDP in the period in which they were produced.

The components of GDP: **3) Government Purchases**

3) Government purchases are made at the federal, state, and local levels.

Government purchases occur when paying salaries of government workers like teachers, police officers, or FBI agents.

Government investment occurs when the government purchases new structures or equipment allowing for the future provision of services.

Government purchases *do not include transfer payments.*

Transfer payments Payments by the government to individuals for which the government does not receive a good or service in return.

- Examples of transfer payments include

- Social Security payments** to those who are retired and disabled.

- Unemployment insurance payments** to qualifying individuals.

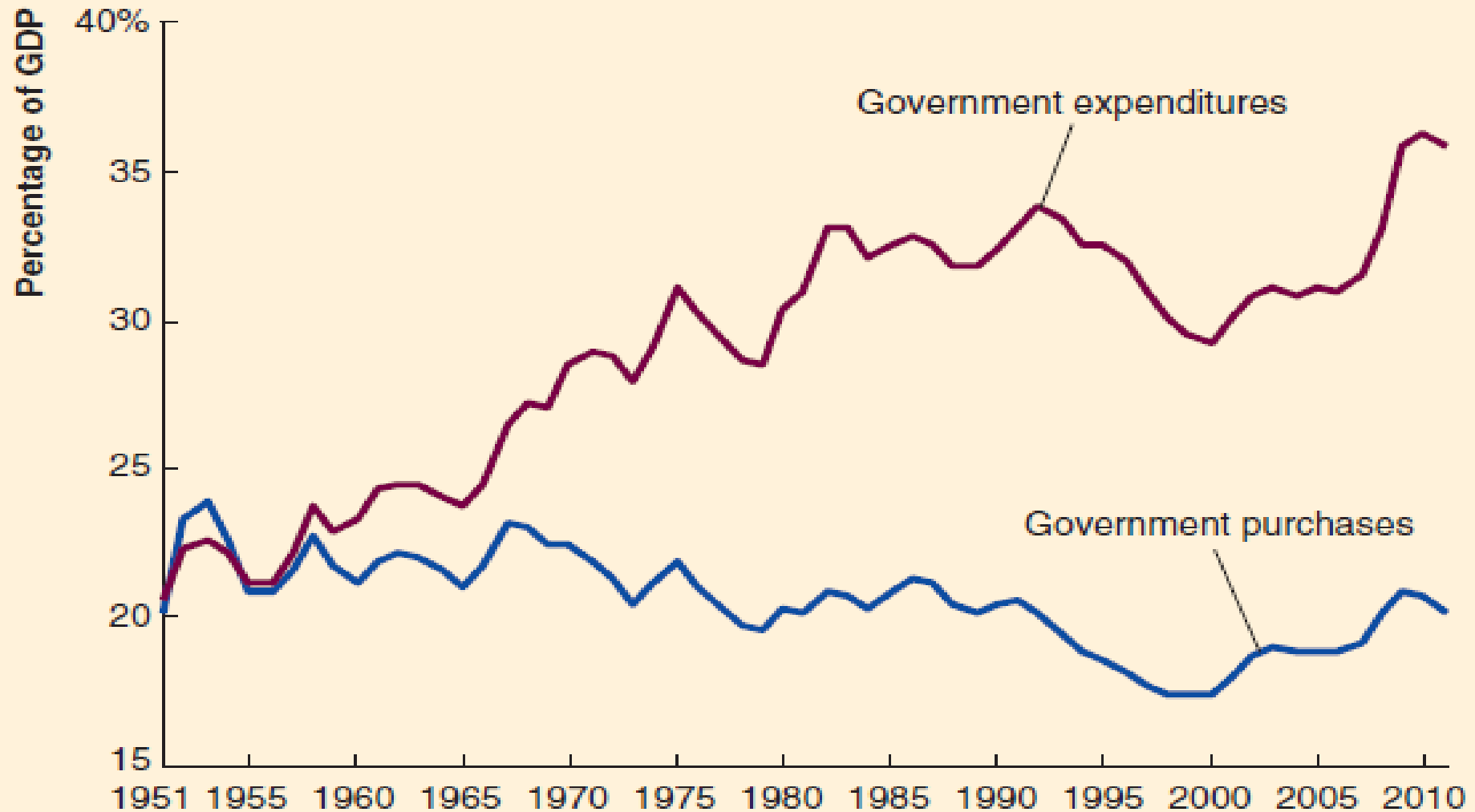
- Medicare payments** to provide healthcare services to those over 65

- *Government purchases* are distinguished from *government expenditures* in that expenditures include all purchases plus government transfers and also interest payments on the debt.

Government purchases and government expenditures

Transfer payments made up an increasing fraction of government expenditures, including spending on Social Security, Medicare, and state and local spending on public pensions.

As a percentage of GDP, government purchases in 2011 were the same as in 1951. Government expenditures were 75% greater in 2011 than in 1951.



The components of GDP: 4) Net Exports

Net exports display the trade balance of a country.

Trade deficits are observed when imports are greater than exports, yielding a negative value for net exports.

Trade surpluses are observed when imports are less than exports, yielding a positive value for net exports.

If exports equal imports, net exports are zero and we have *balanced trade*.

When someone purchases an imported good like a Nintendo Wii, U.S. consumption rises, net exports fall by the same amount, and GDP is left unchanged.

Clarifying & Understanding the Terminology

GDP and GNP

Gross national product (GNP) The value of final goods and services produced by residents of a country, even if the production takes place outside the country.

$$\text{GDP} = \text{GNP} + \text{Net factor payments}$$

For example, a factor payment to another country from the U.S. would be the profit received by the Japanese owners of a Toyota factory based in the U.S.

Net factor payments are the difference between factor payments from other countries and factor payments to other countries.

GDP versus GDI

The circular flow diagram implies two ways to measure national income:

The Expenditure Approach

- Calculate the value of total expenditure on final goods and services
- BEA uses this method to calculate GDP

The Income Approach

- Calculate the value of total income
- BEA uses this method to calculate *Gross Domestic Income (GDI)*

In theory, these should be the same. They are not, due to *statistical discrepancy*, arising from using different data sources.

Which is better?

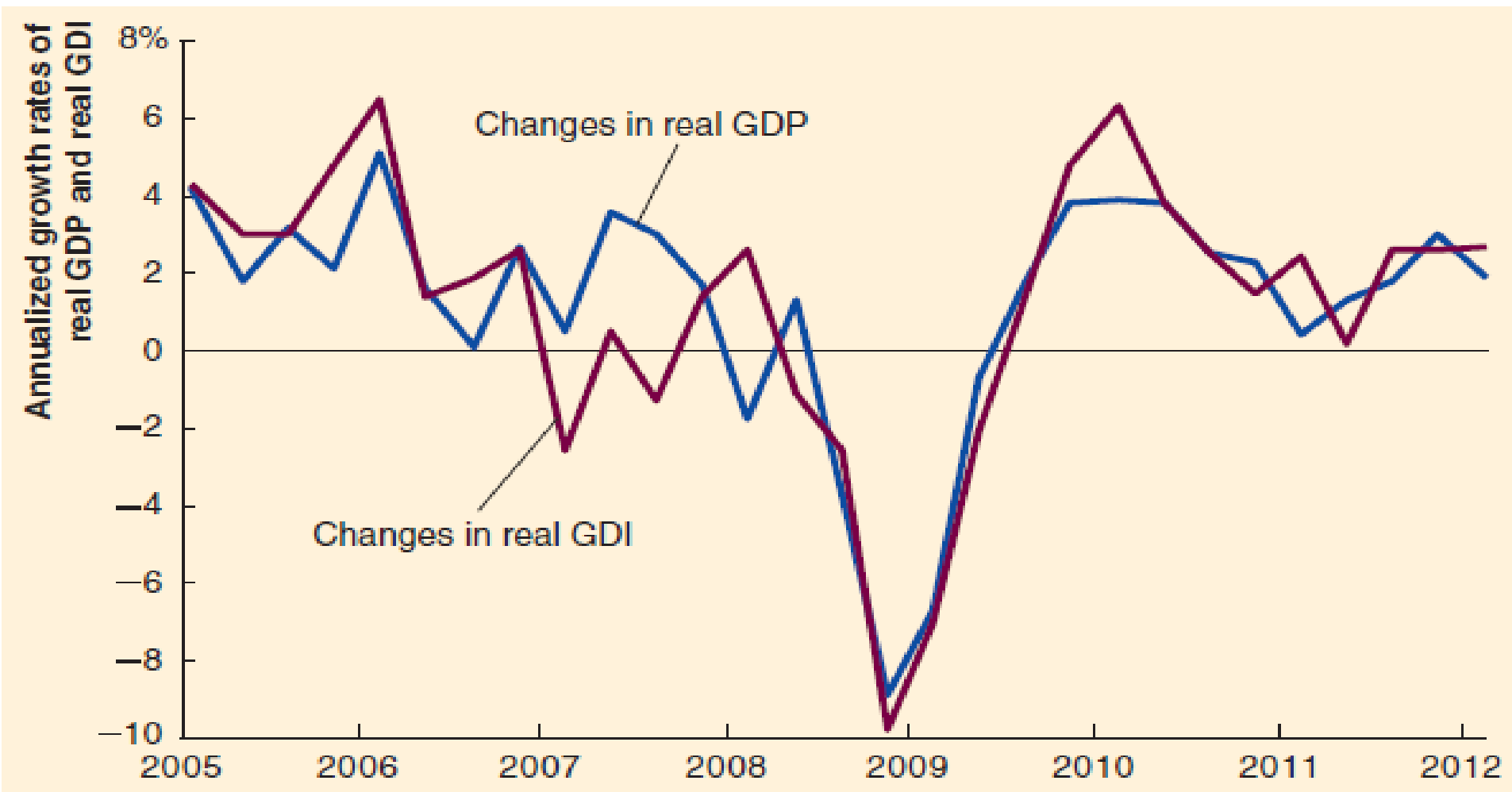
GDI seems to correlate more closely with other *business cycle indicators*;

but GDP is available 1-2 months earlier than GDI.

Real GDP and Real GDI

The discrepancy between real GDP and real GDI was largest during the recession of 2007-2009.

GDI indicated the recession sooner than GDP.



Movements in Real GDP and Real GDI, 2005-2012

GDP and National Income

Government Statistics publishes several other measures of total income:

$$\text{National Income} = \text{GDP} - \text{Depreciation}$$

- Depreciation represents the value of worn-out or obsolete capital.
- The BEA refers to depreciation as consumption of fixed capital.

$$\text{Personal Income} = \text{National Income} - \text{Retained Earnings} + \text{Transfer Payments} + \text{Interest on Government Bonds}$$

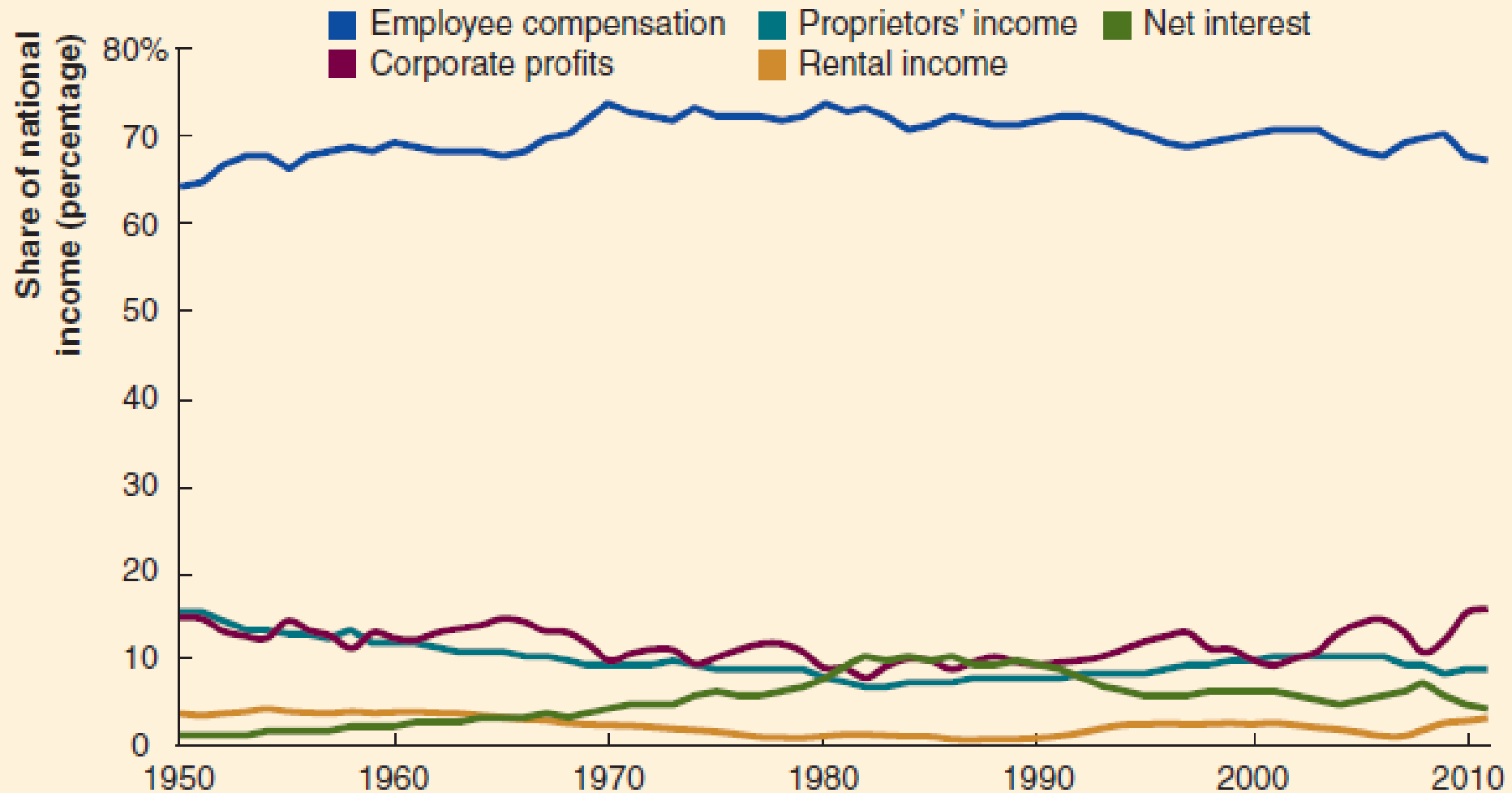
- *Retained earnings are profits reinvested by firms.*

$$\text{Disposable Personal Income} = \text{Personal Income} - \text{Personal Taxes}$$

- *This is the best measure of what households have available to spend.*

Components of national income-Tools of Social Policy

- Employee compensation is by far the largest component of national income, averaging 70%; corporate profits have averaged less than 12%.
- Opinion polls suggest the public believe corporate profits average 40%!



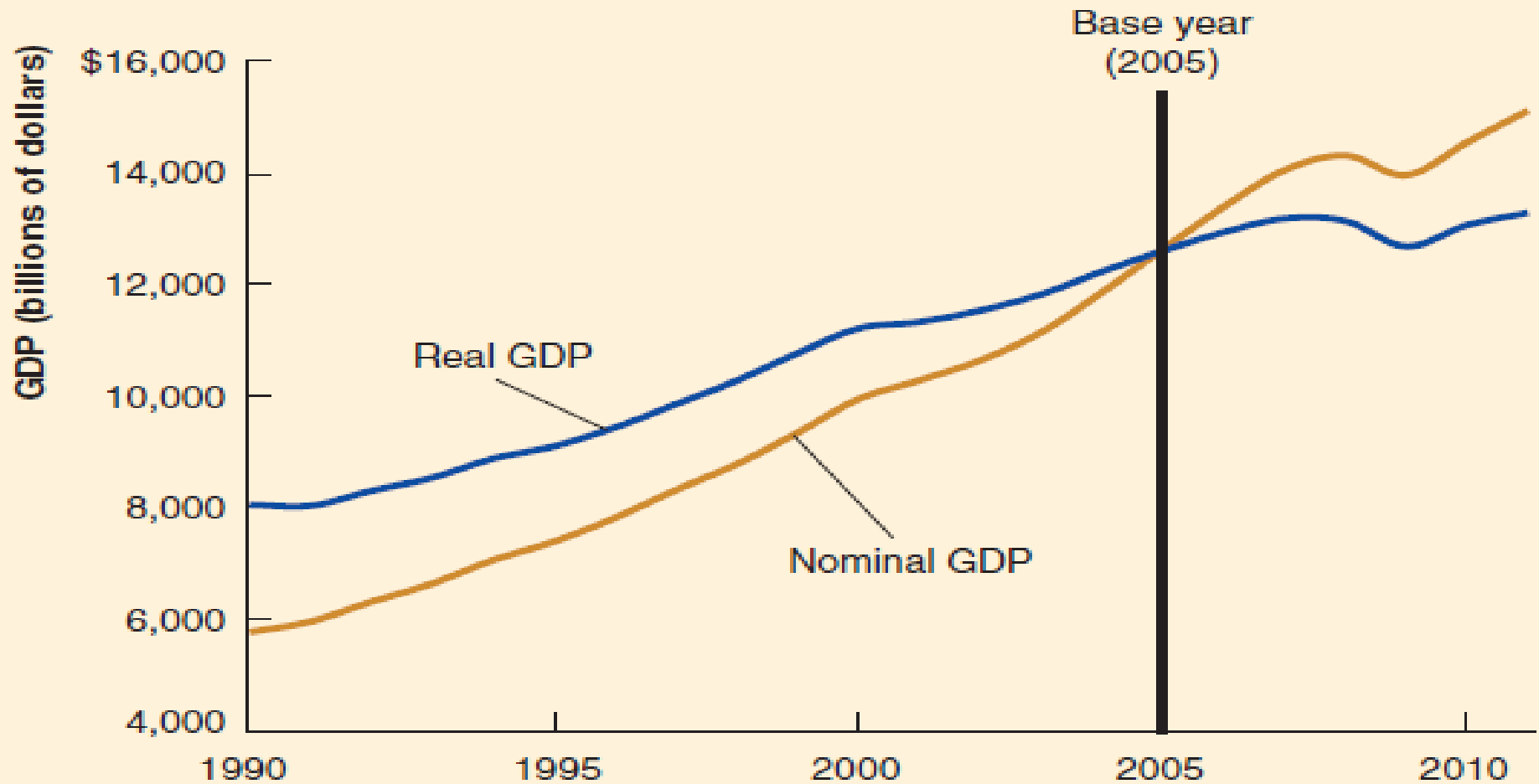
Shares of national income in the United States, 1950-2011

Real GDP and nominal GDP

Nominal GDP The value of final goods and services calculated using current-year prices.

Real GDP The value of final goods and services using base-year prices.

Choice of base year is arbitrary; current “official” base year is 2005.

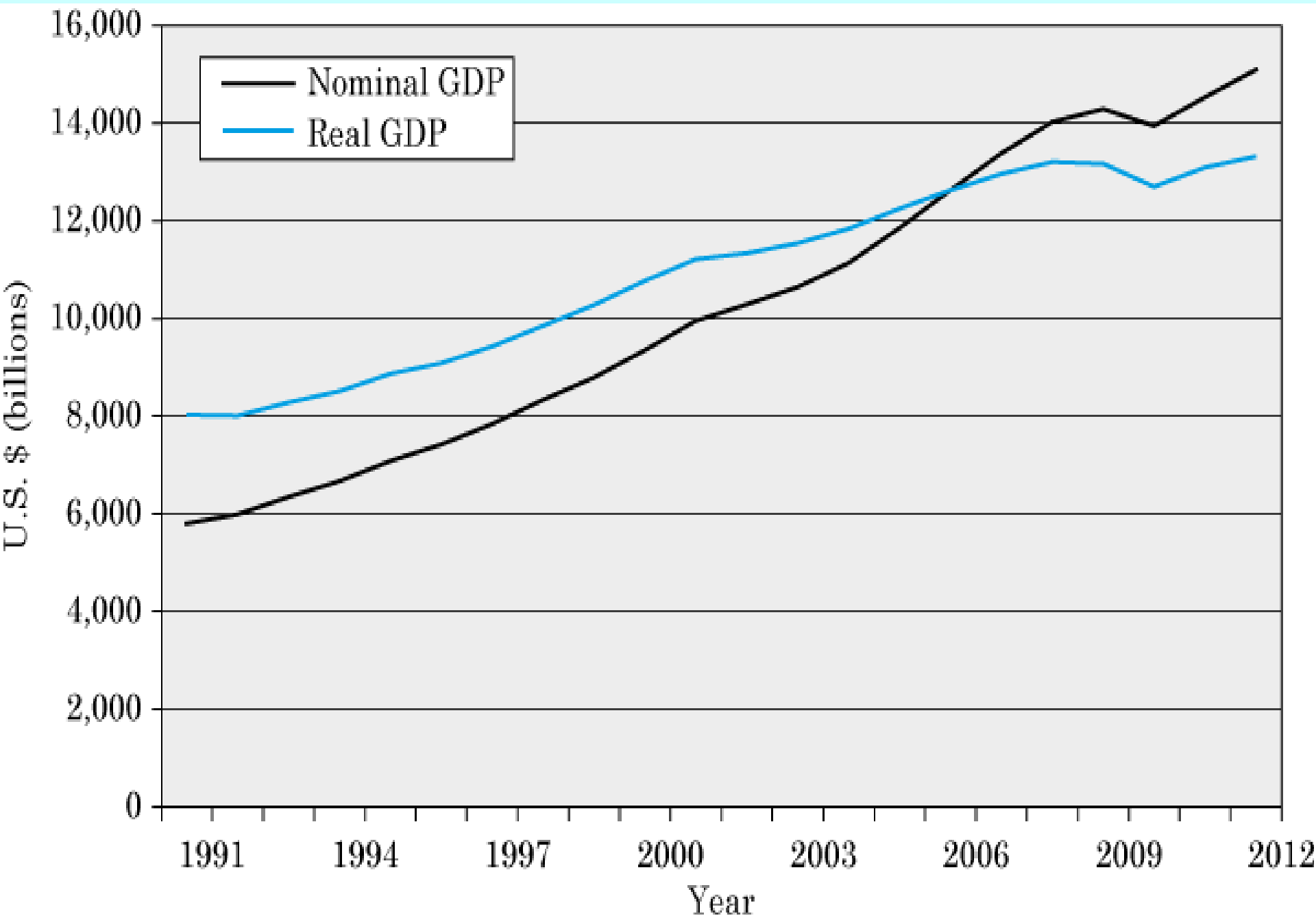


Nominal Versus Real GDP

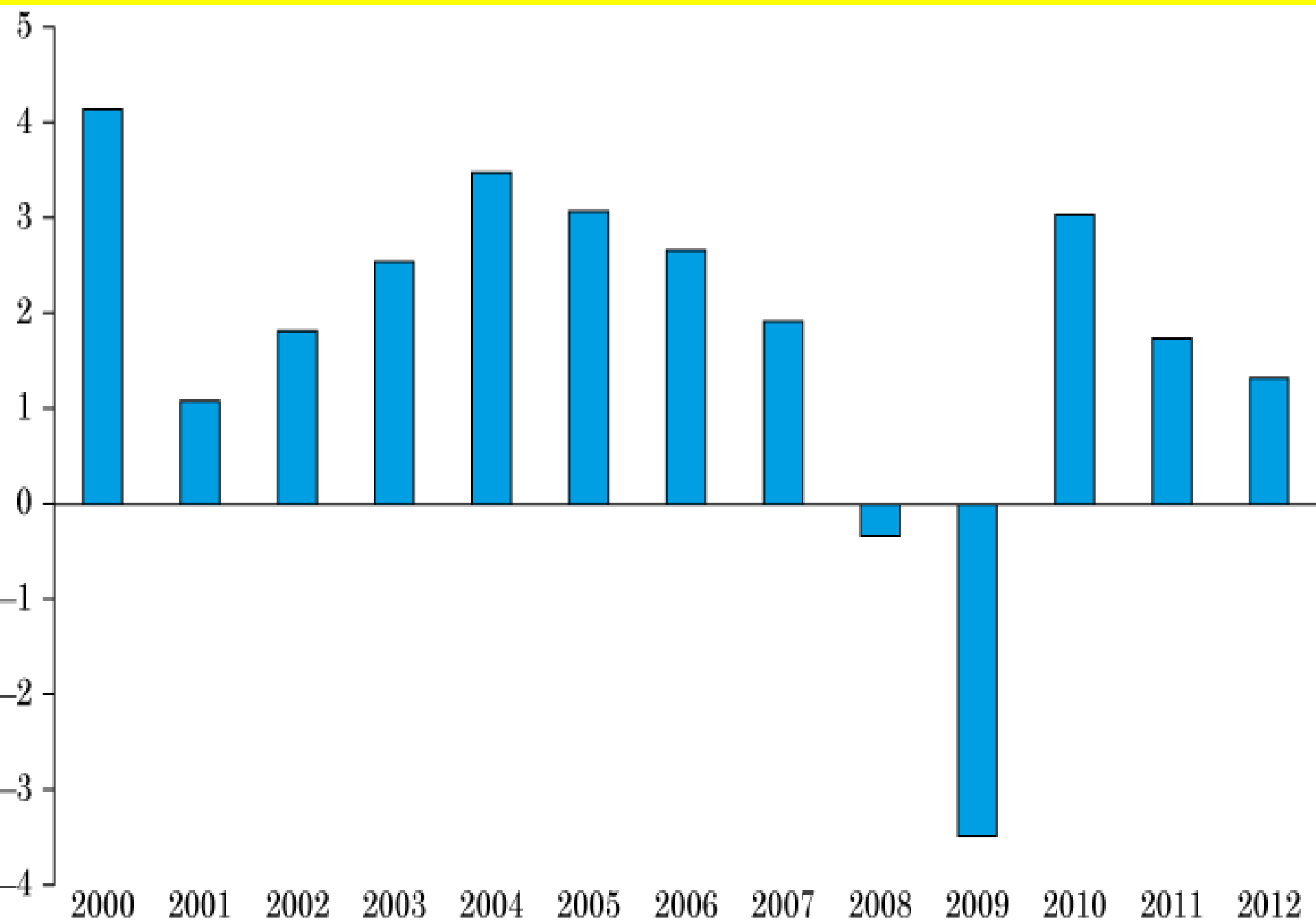
TABLE 11.1 **Nominal Versus Real GDP**

VARIABLE	2005	2006
Nominal GDP	\$12,623.0 billion	\$13,377.2 billion
Percent change		5.97
Real GDP	\$12,623.0 billion	\$12,958.5 billion
Percent change		2.66
GDP deflator (price changes)	100	103.23
Percent change		3.23

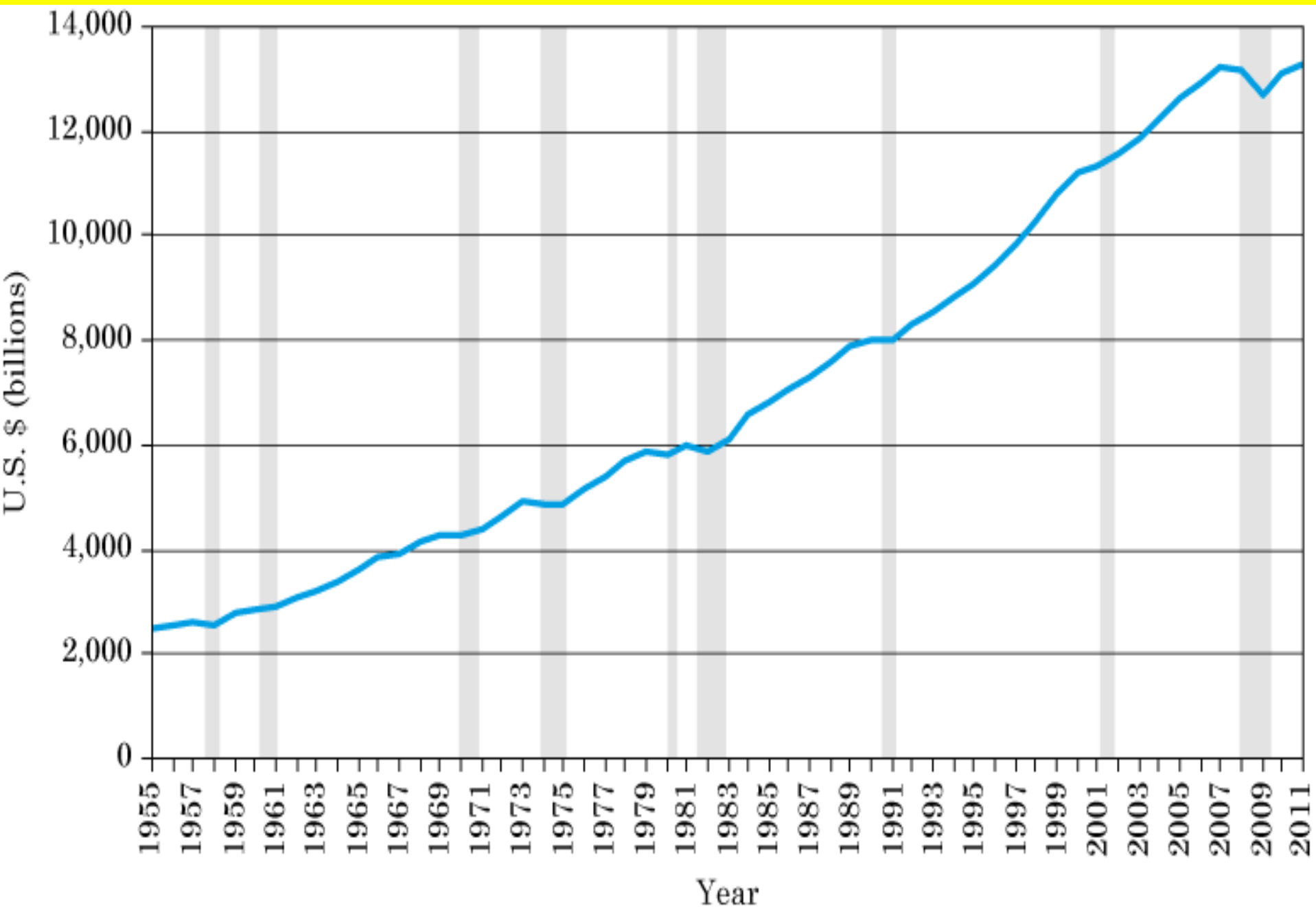
U.S. Nominal vs. Real GDP(2005 =100)



Real GDP Growth—2000 to 2012.1 (annual growth rates in percent)



U.S. Real GDP and Recessions



Gross Domestic Product and Its Components, 2011 Expenditure or Output Measurement

TABLE 11.2 **Gross Domestic Product and Its Components, 2011 Expenditure or Output Measurement**

COMPONENT	VALUE IN BILLIONS OF DOLLARS (PERCENT OF GDP)
GROSS DOMESTIC PRODUCT (GDP)	15,094.0
PERSONAL CONSUMPTION EXPENDITURES (C)	10,726.0 (71.1)
Durable goods	1,162.9
Nondurable goods	2,483.7
Services	7,079.4
GROSS PRIVATE DOMESTIC INVESTMENT (I)	1,916.2 (13.0)
Fixed investment	1,870.0
Nonresidential	1,532.5
Structures	409.5
Equipment and software	1,123.0
Residential	337.5
Change in inventories	46.3
GOVERNMENT CONSUMPTION EXPENDITURES AND GROSS INVESTMENT (G)	3,030.6 (20.1)
Federal	1,232.9
National defense	824.9
Nondefense	407.9
State and local	1,797.7
NET EXPORTS OF GOODS AND SERVICES (F)	-578.7 (-3.8)
Exports (X)	2,085.5 (13.8)
Goods	1,473.4
Services	612.1
Imports (M)	2,664.2 (17.7)
Goods	2,237.9
Services	426.3

Source: U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Account Tables*, Table 1.1.5, Gross Domestic Product. Available at www.bea.gov/bea/national.

Alternative Measures of GDP

$$11.1 \quad Y_d = Y - T_p$$

where

Y_d = disposable income

Y = personal income

T_p = personal taxes, primarily the federal income tax

Alternative Measures of GDP

$$11.2 \quad Y_d = C + S$$

where

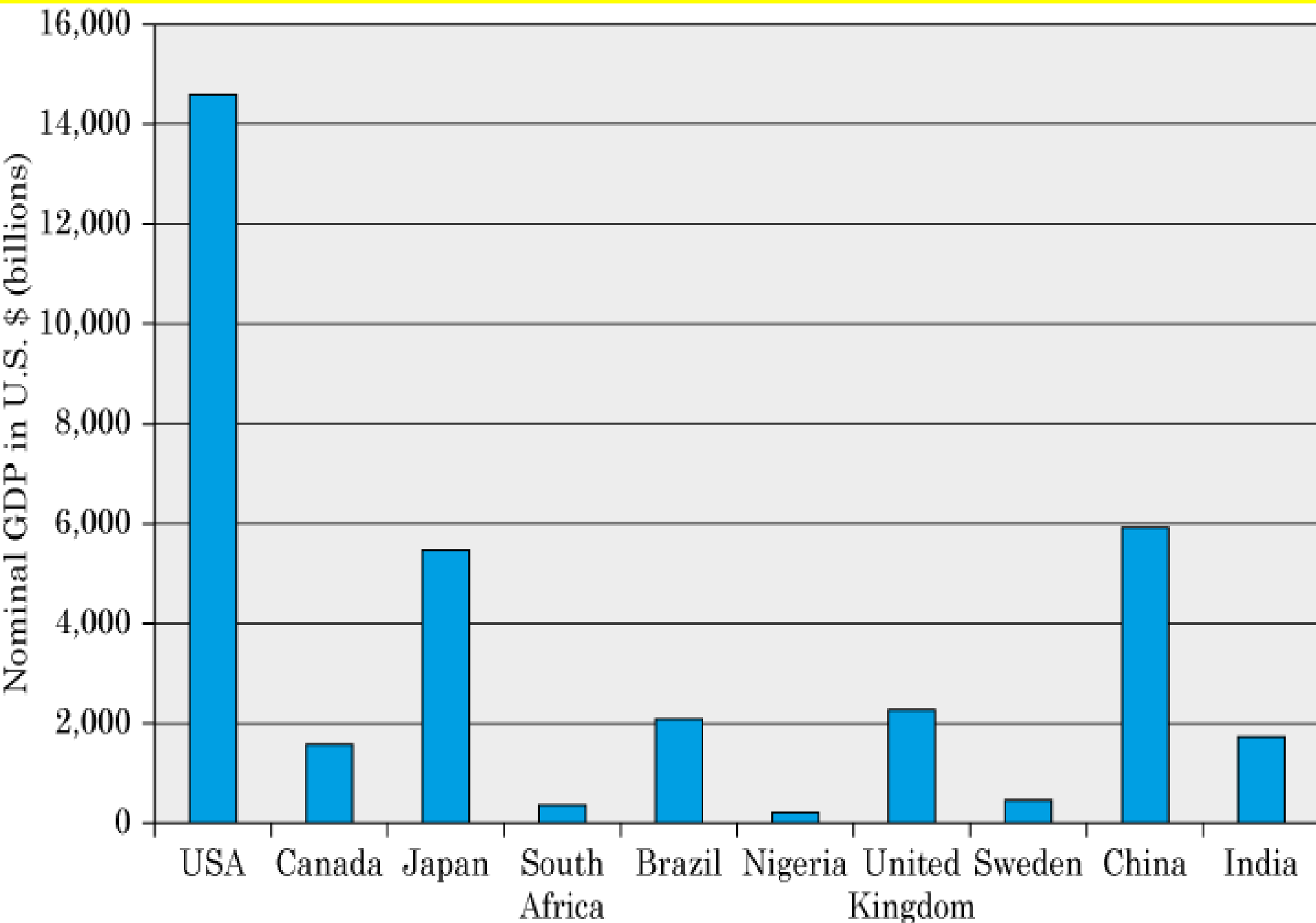
Y_d = disposable income

C = personal consumption expenditures

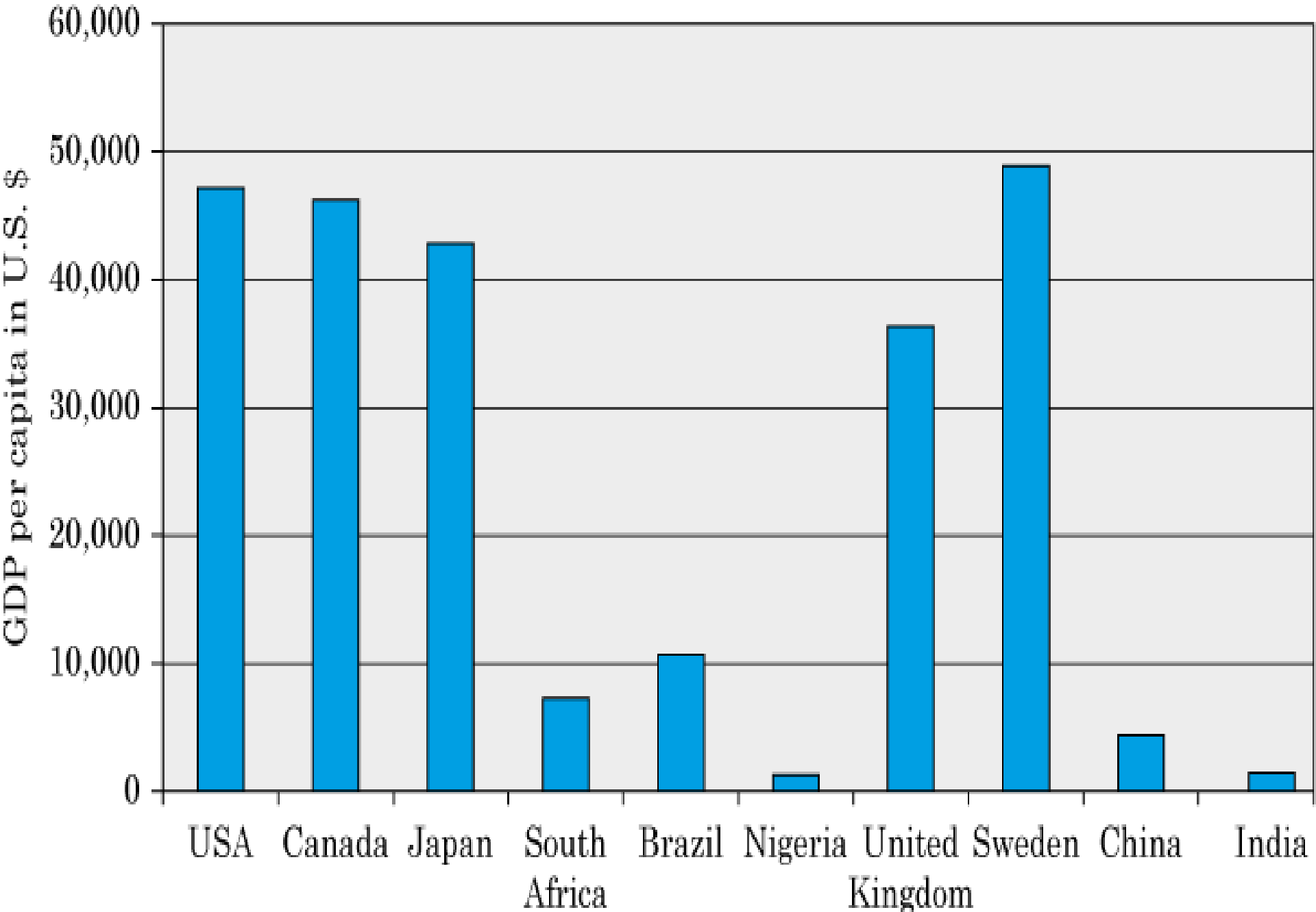
S = saving

**Comparing Countries
to identify who is
more competitive**

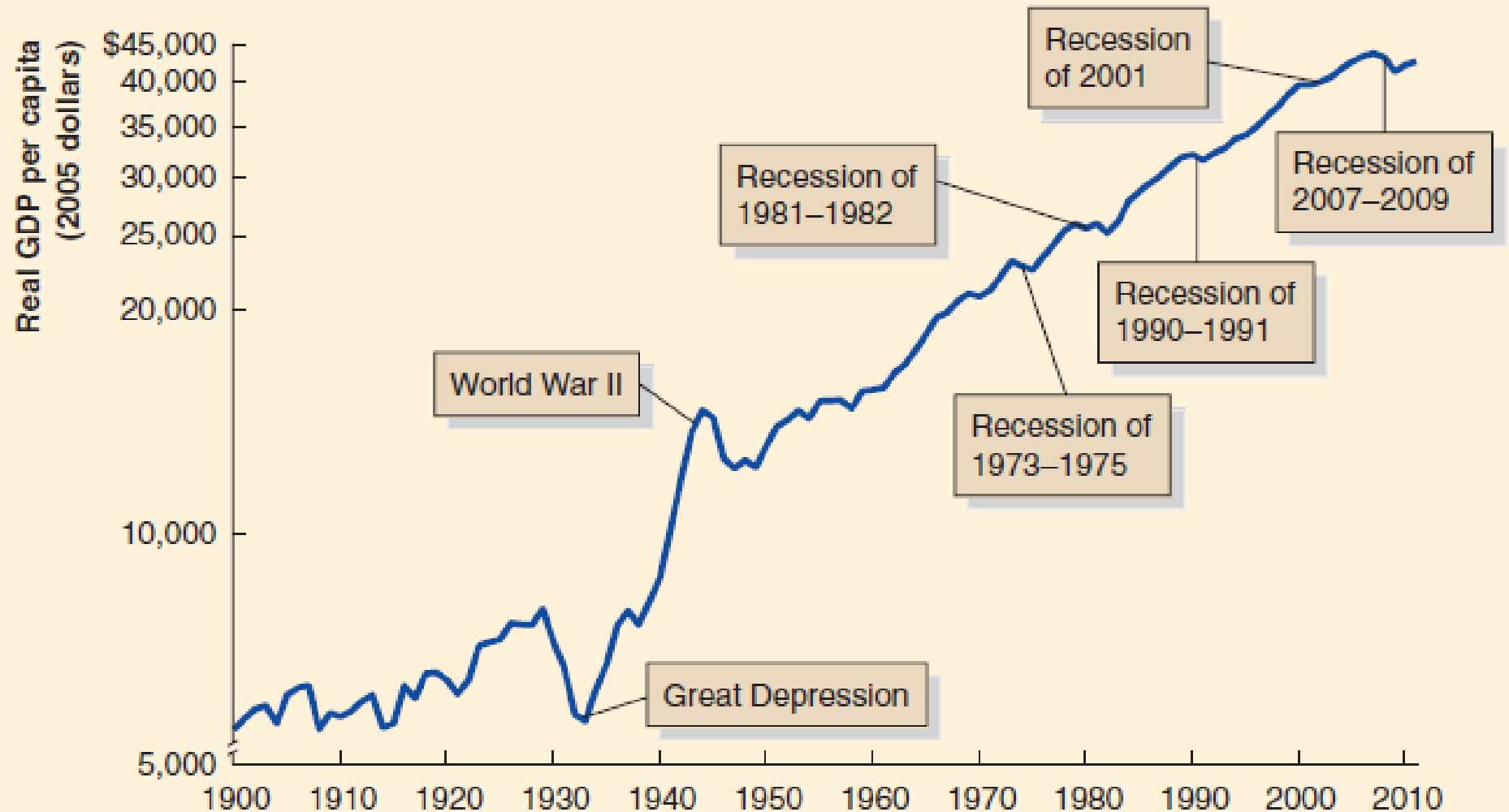
2010 Nominal Gross Domestic Product (GDP) for Selected Countries



2010 Nominal Gross Domestic Product (GDP) per Capita for Selected Countries



The growth in real **GDP per capita**



By 2011, the average American was able to buy approximately eight times what they would have been able to buy in 1900.

The growth in real GDP per capita, 1900-2011

Some countries have experienced less long-run growth



Differing levels of long-run economic growth have resulted in countries today having very different levels of GDP per capita.

Differing levels of GDP per capita, 2011

Comparing GDP across countries

Cross-country comparisons of GDP are difficult because each measure is estimated in the local currency.

2011 GDP Estimates

China 47.2 trillion yuan
Japan 468.4 trillion yen
U.S. 15.1 trillion dollars

Using exchange rates, we can translate our estimates into a single currency.

e.g., if Japanese GDP were ¥500 trillion with an exchange rate
 $\text{¥100} = \$1$, Japanese GDP in U.S. dollars = $\text{¥500} / (\text{¥100} / \$1) =$
\$5 trillion U.S. dollars.

However, exchange rates can change dramatically during a short period. An alternative is to consider Purchasing Power Parity.

Purchasing power parity (PPP) is the number of units of a country's currency required to buy the same amount of goods and services in the country as one U.S. dollar would buy in the United States.

2. The Unemployment Rate, plus...

UNEMPLOYMENT means **NO Income** - **Poverty** and **Waste** for the economy of - **Idle resources**

Long-run economic growth The process by which increasing productivity raises the average standard of living.

Labor productivity The quantity of goods and services that can be produced by one worker or by one hour of work.

- *One important determinant of growth is the ability of firms to expand and fund their operations; for this, a healthy financial system is critical.*

Measuring employment and unemployment

Labor force The sum of employed and unemployed workers in the economy.

Unemployment rate The percentage of the labor force that is unemployed.

$$\text{Unemployment rate} = \left(\frac{\text{Number of unemployed}}{\text{Labor force}} \right) \times 100$$

Employed If a person worked in the week before the survey or was temporarily away from his or her job due to illness, vacation, strike, or another reason.

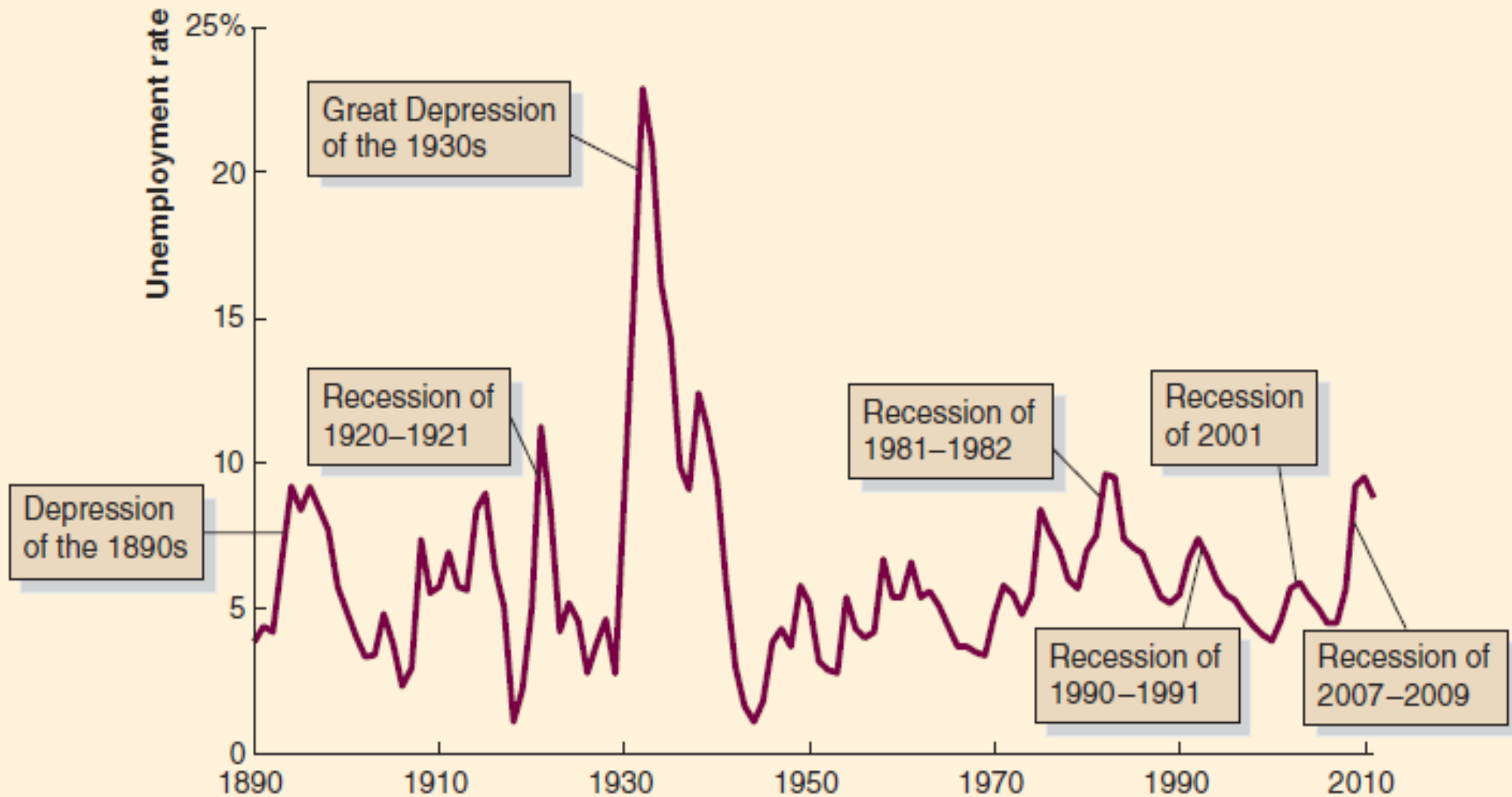
Unemployed If a person did not work in the previous week but had actively looked for work in the previous four weeks.

Unemployment in the United States

Labor force The sum of employed and unemployed workers in the economy.

Unemployment rate The percentage of the labor force that is unemployed.

Unemployment rises and falls with the business cycle.



Unemployment rate in the United States, 1890-2011

Measuring employment and unemployment

In September 2012, there were approximately 12,088,000 unemployed workers out of a labor force of 155,063,000. The unemployment rate was calculated as:

$$\left(\frac{12,088,000}{155,063,000} \right) \times 100 = 7.8\%$$

Unemployed workers are often difficult to differentiate from those who are not in the labor force.

Discouraged workers have given up looking for a job.

Including discouraged workers with the unemployed raises the previously estimated unemployment rate to 8.3%.

Part-time workers are considered employed, when they might prefer to be working full time.

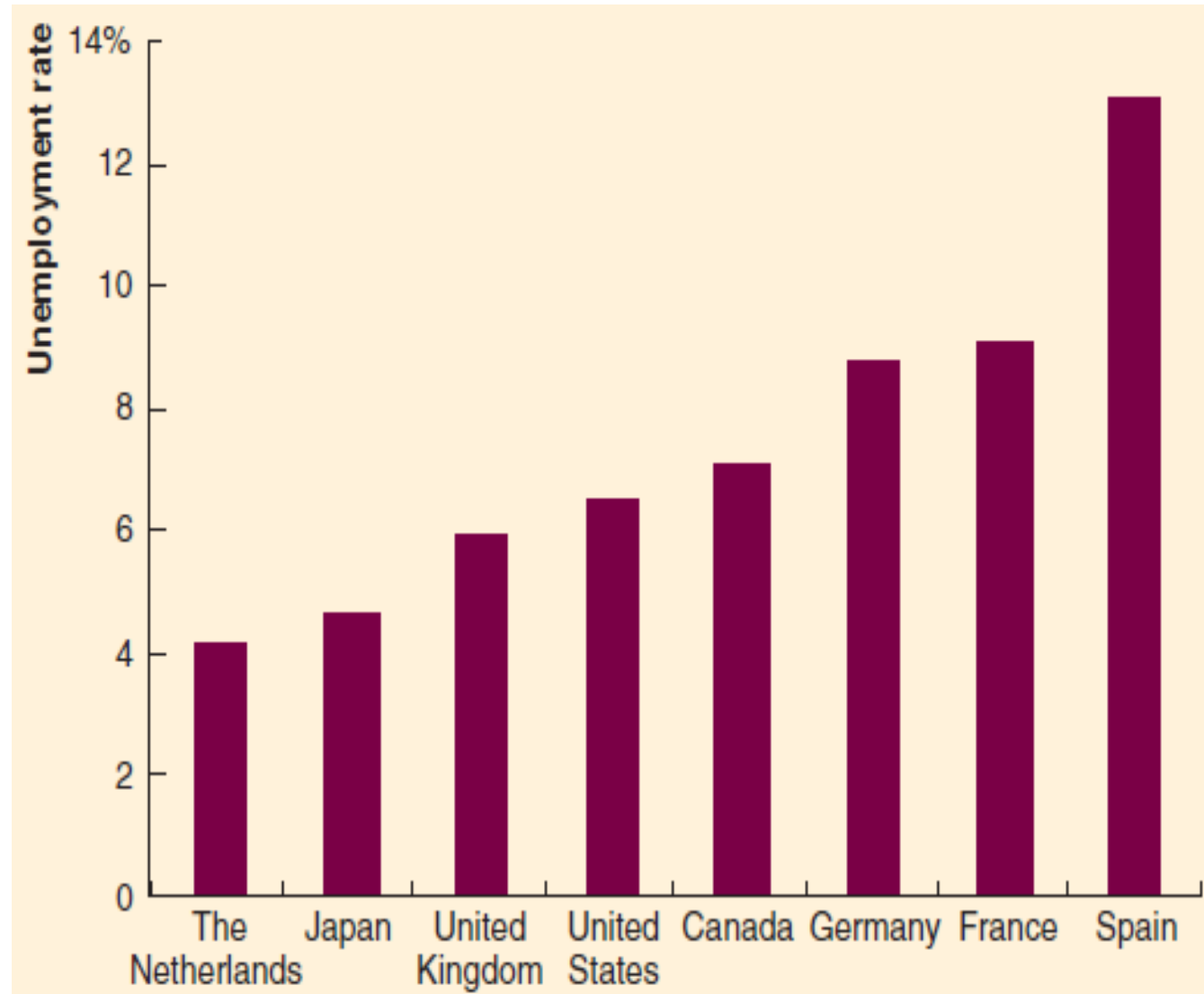
Including both discouraged workers and involuntary part-time workers would raise the previous estimate to 14.7%

Unemployment rates differ across developed countries

Government policy and structural differences can lead to persistently higher unemployment rates across developed countries.

Between 2001 and 2010, unemployment rates were on average much higher in developed countries like France, Germany, and Spain compared to the U.S.

The reasons for widely varying levels of unemployment is not entirely clear.

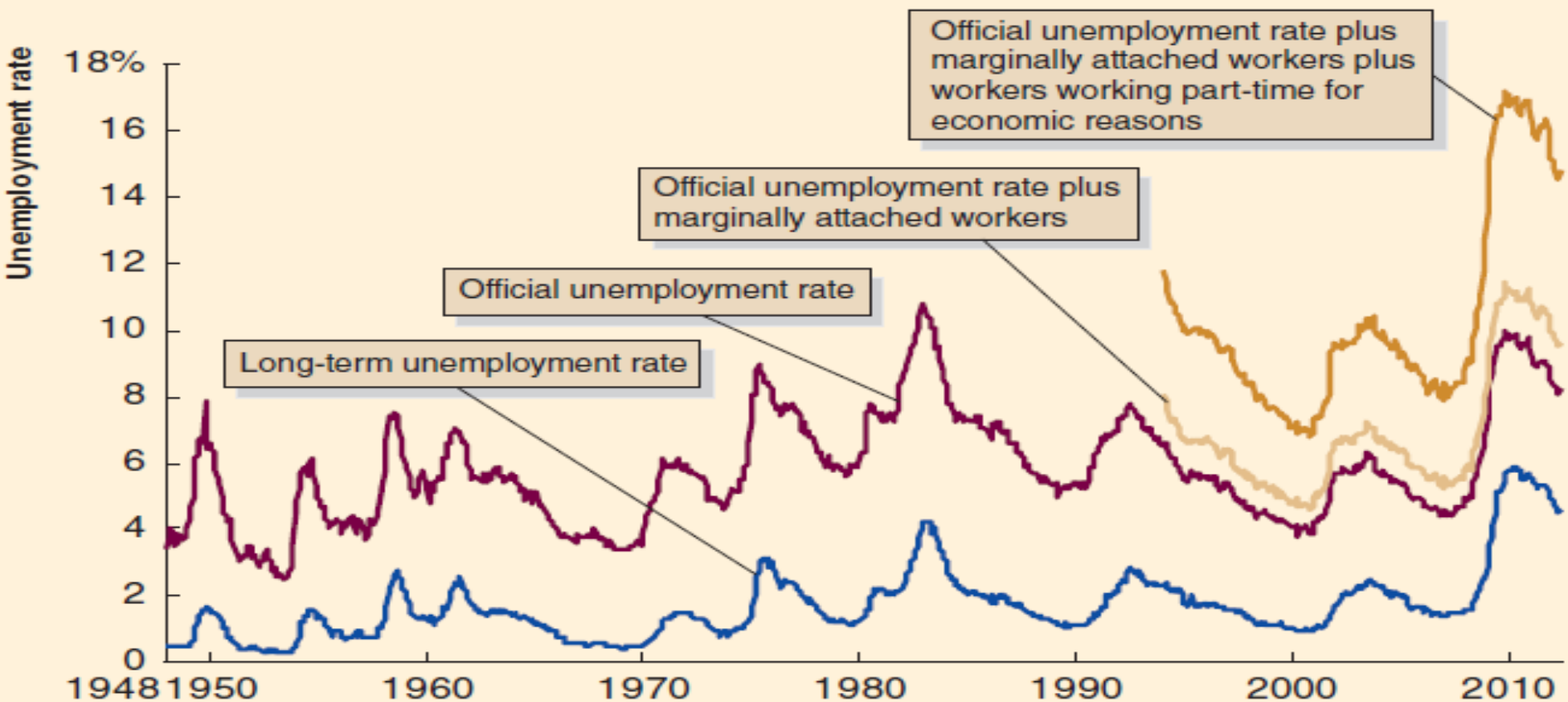


Average unemployment rates in the United States and other high-income countries, 2002-2011

Alternative measures of the unemployment rate

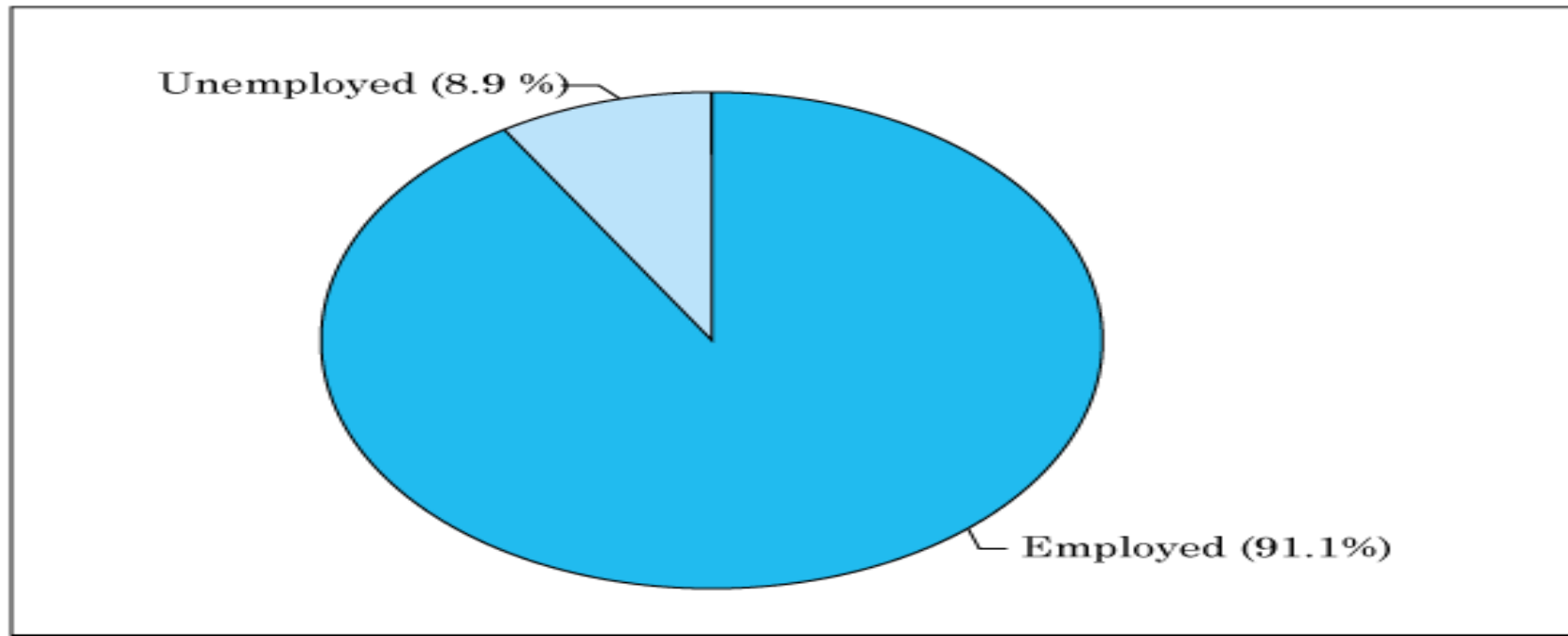
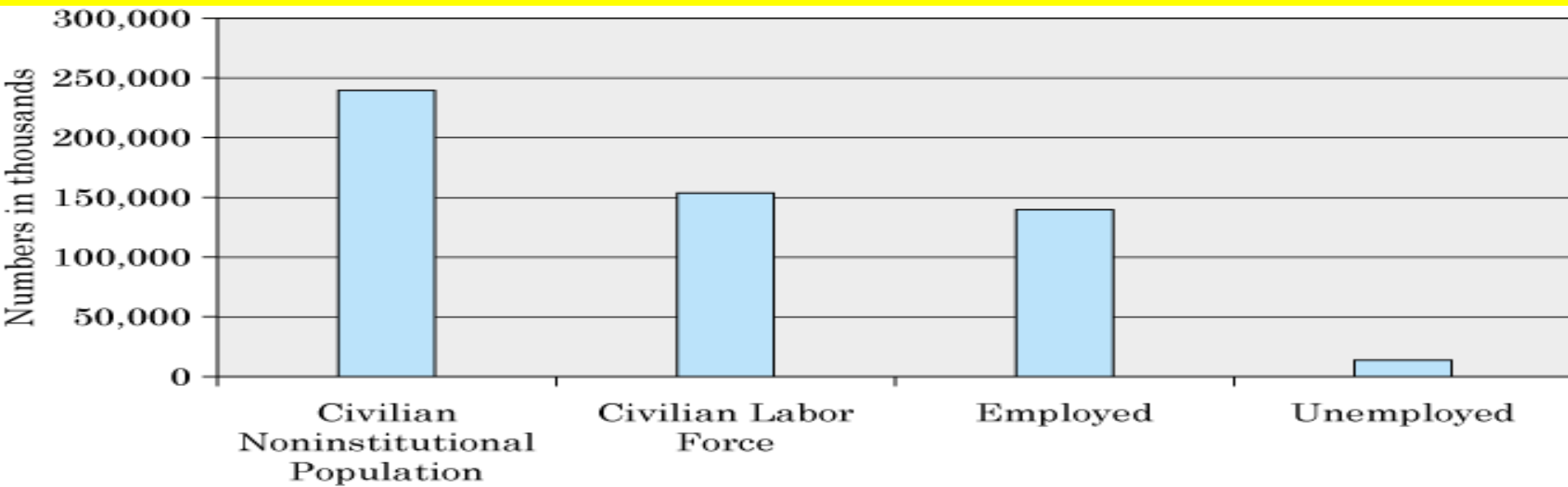
The BLS estimates a number of different unemployment rates, both including and excluding **discouraged workers** and **involuntary part-time workers**.

The long-term unemployment rate is only for those workers who have been unemployed for 15 weeks or more.



Alternative measures of the unemployment rate, 1948-2012

Labor Force Characteristics, 2011



Issue: Measures of Employment and Unemployment

"How accurately does the government measure the unemployment rate?"

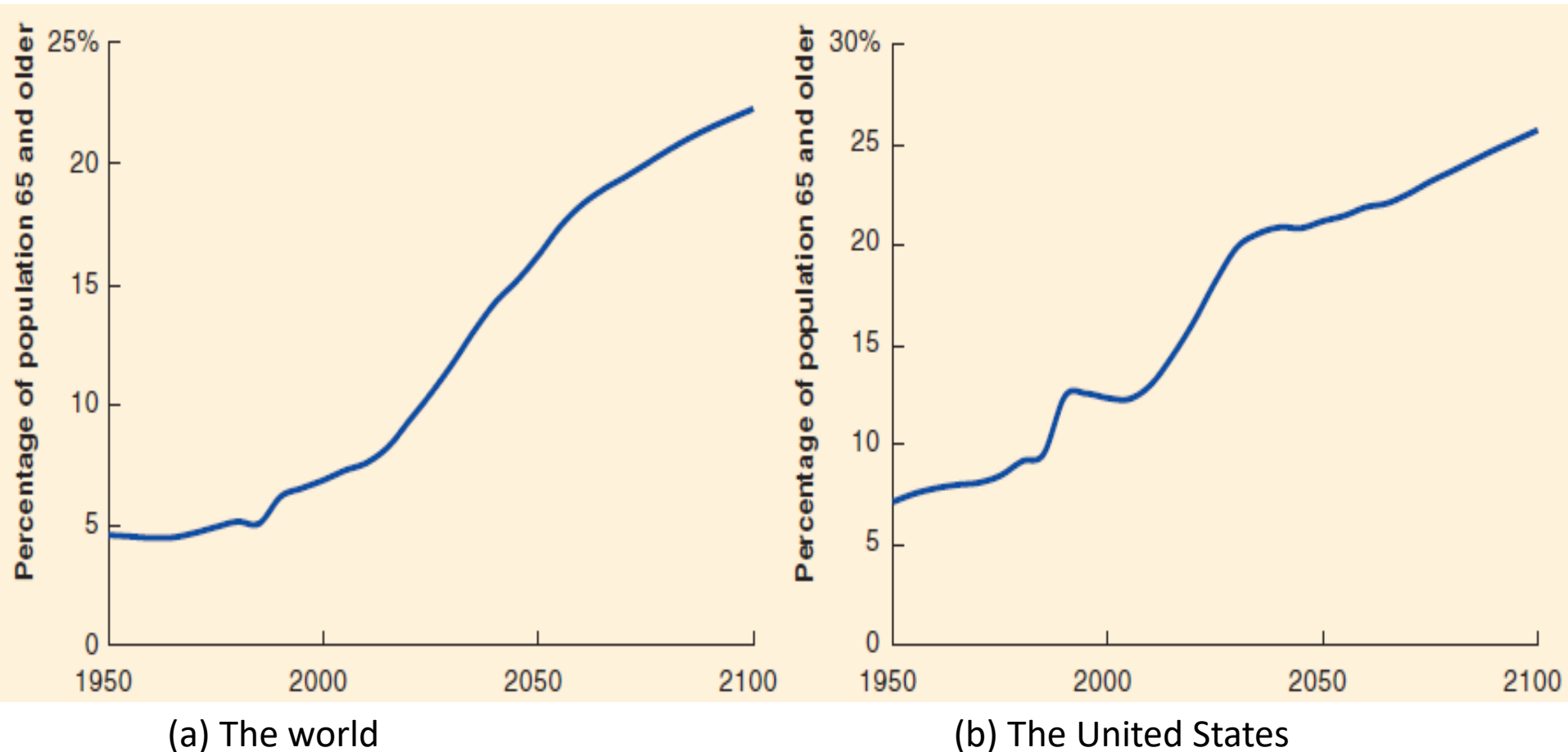
Trying to hit a moving target: forecasting

Answer:
The unemployment rate provides useful information, but it is far from an exact measure of joblessness in the economy.

Issue: Aging populations pose a challenge

Lower birthrates and increases in lifespans have resulted in aging populations; this trend is projected to continue.

Government spending on programs like Social Security, Medicare, and Medicaid is projected to grow to about 20% of GDP by 2050, which would be about the same size as the entire government today.



3. The Inflation Rate

Price indexes and the GDP deflator

GDP deflator A measure of the price level, calculated by dividing nominal GDP by real GDP and multiplying by 100; also called the GDP implicit price deflator.

$$\text{GDP deflator} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$$

We can use the GDP implicit price deflator to estimate inflation rates between two points in time. By calculating the GDP deflator for two consecutive years ($t-1$ and t), we obtain a measure of the inflation rate in the second year, which is a percentage increase in the price level from the first year to the next.

$$\text{Inflation rate} = \pi_t = \frac{P_t - P_{t-1}}{P_{t-1}} \times 100$$

The chain-weighted measure of real GDP

Over time, prices change relative to each other, such as the price of cell phones falling relative to the value of milk.

Goods and services change over time. Prices from 2005 may not reflect goods sold in 2011.

- *For example, what was the value of an Apple iPad 2 in 2005?*
- *Since the iPad did not exist in 2005, we do not have a direct measure of its price in that year.*

In 1996, the USA BEA switched to using chain-weighted prices.

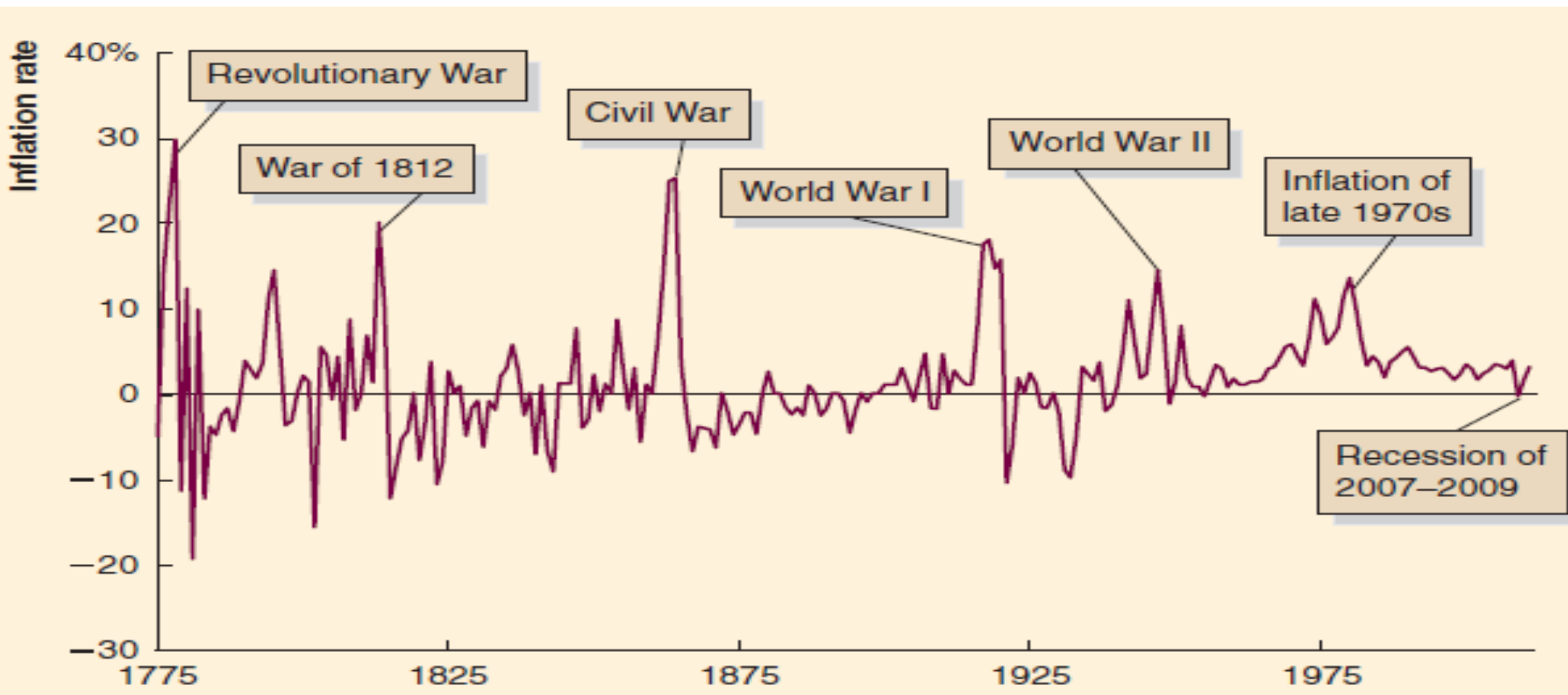
- *Beginning in the base year, the BEA takes an average of prices in that year, and prices in the following year.*
- *Using average prices, real GDP is calculated in the year after the base year.*
- *For the year two years after the base year, real GDP is calculated using an average of prices in that year and the previous year.*

Inflation rates fluctuate over time

- *Inflation rates have tended to peak during wartime, with the 1970s being a notable exception.*
- *Deflation occurred in 2009 for the first time in 50 years.*
- *Inflation rates have averaged below 5% annually since the mid 1980s.*

Inflation rate The percentage increase in the price level from one year to the next.

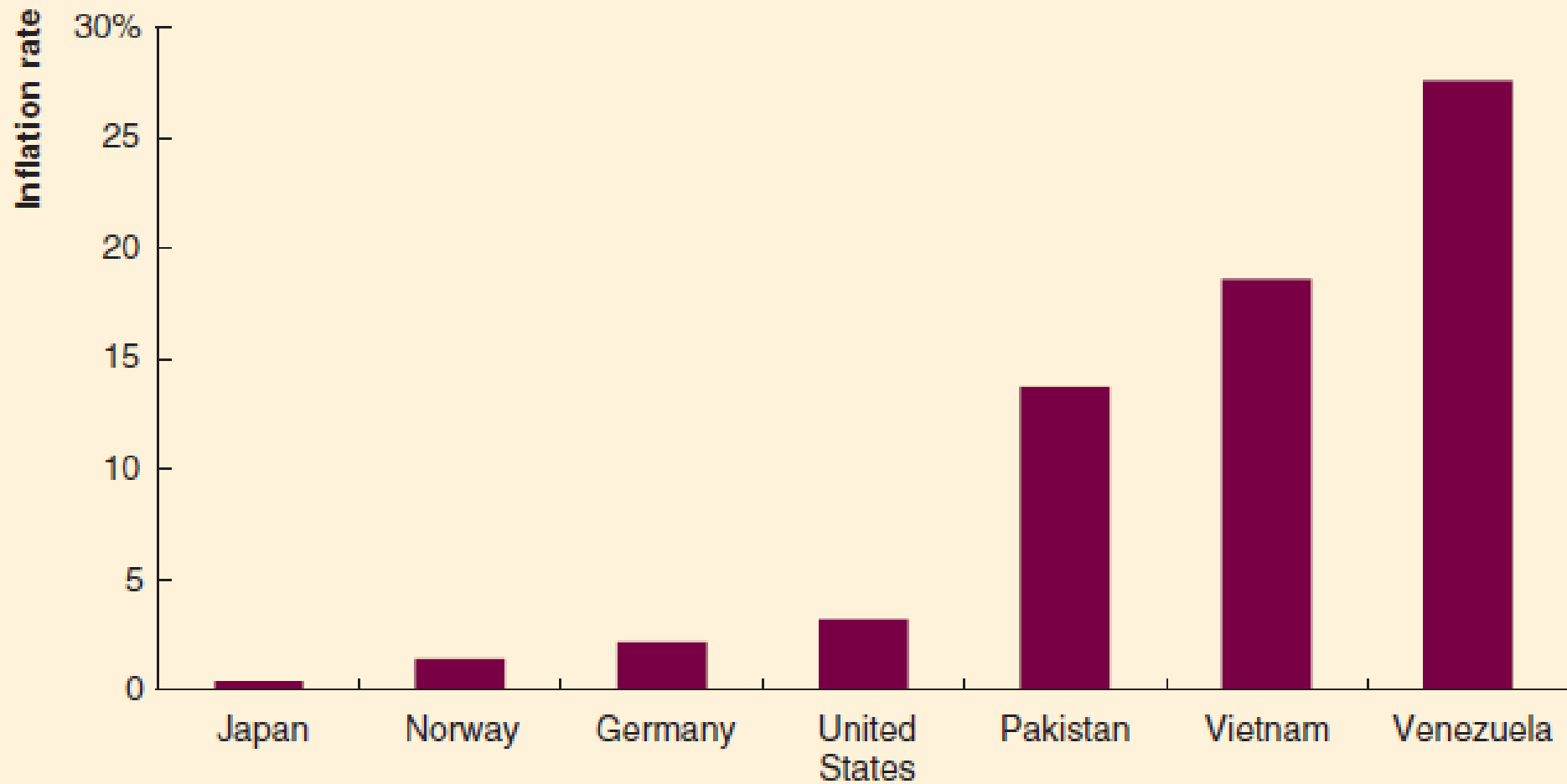
Deflation A sustained decrease in the price level.



Inflation in the United States, 1775-2011

Inflation rates vary across countries

- Different countries experience widely different inflation rates.
- Some countries like Ireland and Norway are experiencing mild inflation, while others face high inflation.
- Extreme example: in 2008, Zimbabwe experienced 15 billion percent inflation.

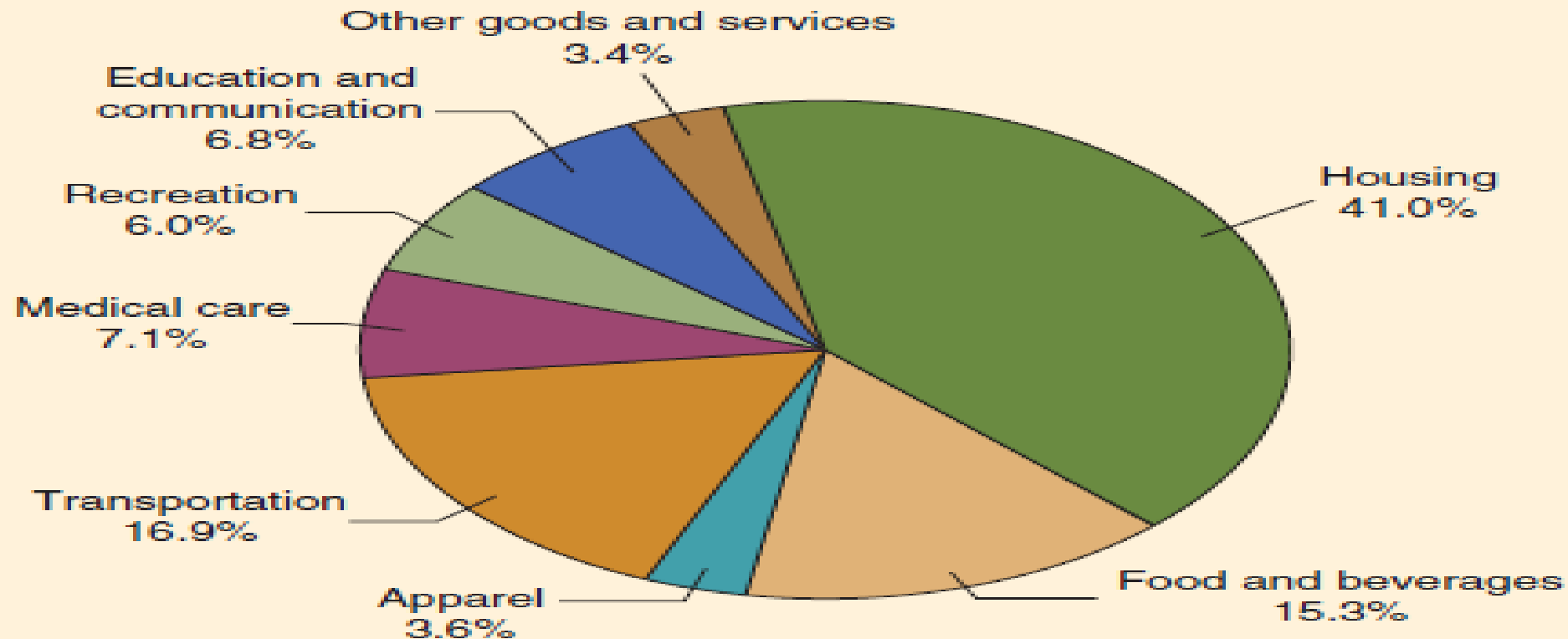


Inflation rates around the world, 2011

The consumer price index

Consumer price index (CPI) An average of the prices of the goods and services purchased by the typical urban family of four.

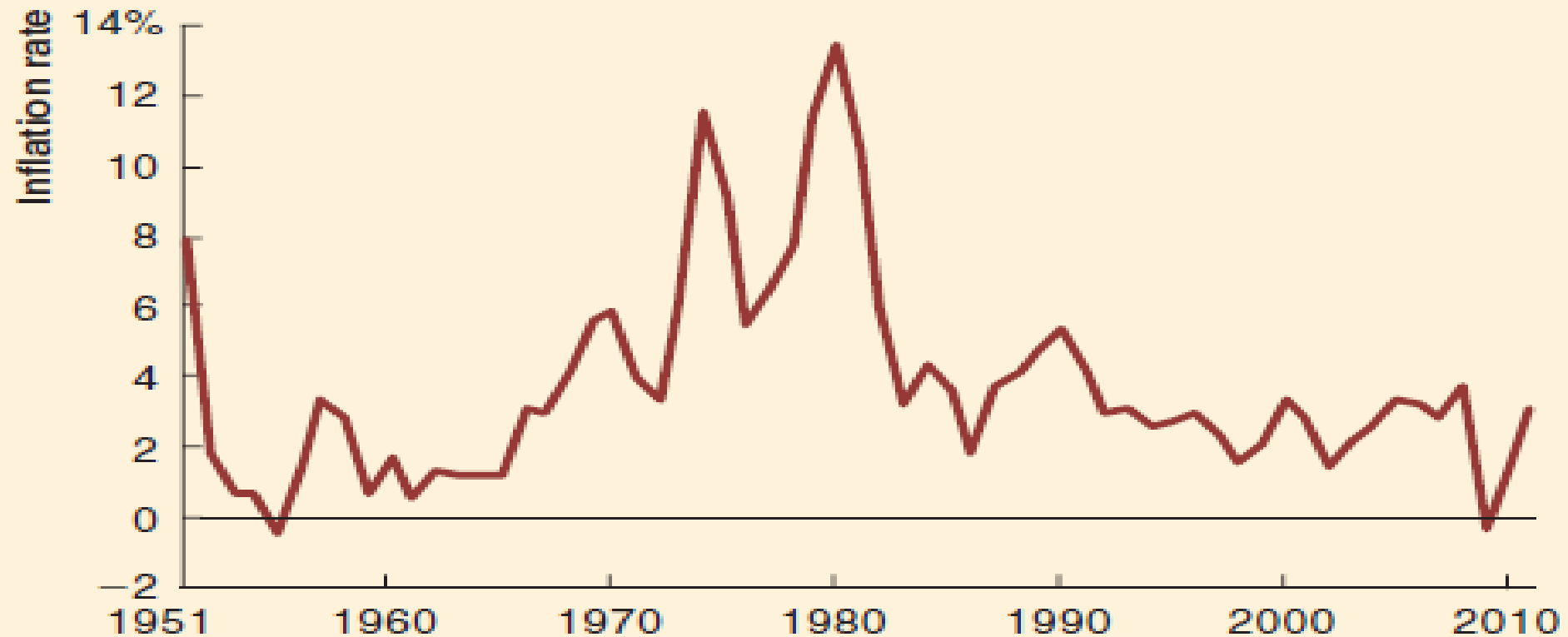
- The U.S. Bureau of Labor Statistics (BLS) surveys 30,000 households to determine spending habits.
- From the survey, the BLS creates a basket of 211 goods in eight categories. About 75% of the basket is housing, food, and transportation.



(a) The market basket for the CPI

The consumer price index

- Annual CPI inflation has varied from above 10% in the late 1970s and early 1980s, to an average below 5% since the 1980s.
- The U.S. experienced deflation during the 2007-2009 recession.



(b) Inflation as measured by the CPI

CPI versus GDP Deflator

The CPI does a better job than the GDP deflator at estimating the changes in the cost of living for a typical household.

- The **GDP deflator** calculates the price level using all goods produced,
 - but **the CPI** estimates the price level for goods actually purchased by consumers.
- **The CPI** weights all components in the representative basket according to the average expenditure on those goods and services.
- Over 23,000 stores in 87 cities are surveyed monthly to determine the price level of the representative basket.*
- ❑ **The CPI** is widely used in indexing to protect dollar values against inflation.
 - ❑ **Social Security, tax brackets, and some union wage contracts** are typically increased by the annual rate of increase in prices as measured by the CPI.
 - ❑ Indexing is done to keep the real value of a payment consistent.

Does the CPI measure inflation well for everyone?

CPI measures inflation for an average urban family of four.

- *For example, weight placed on college tuition is 1.7%.*

What about a family of four with a college student?

- That family likely spends much more than 1.7% of their income on college tuition.

From the CPI's "base year" of 1982-1984, to 2011, college tuition rose about 500%, while the overall CPI rose about 125%.

- So families with college students have experienced more inflation than average.

How accurate is the CPI?

Most economists believe the CPI overstates the true rate of inflation

Substitution bias assumes consumers purchase the same bundle of goods every month, when it is more likely they substitute towards products whose prices have increased at a slower rate.

The *introduction of new goods* is important to the possible overstatement of inflation since the basket is only updated every two years. The prices of new goods, like Blu-ray players, often decrease significantly but may not be in the market basket or therefore the CPI.

The *quality of goods and services* is not controlled for over time. If prices remain constant, but goods improve in quality, there may be an upward bias in the CPI measured rate of inflation.

Outlet bias results from the BLS only collecting data from traditional retailers while ignoring outlets like discount stores and the Internet.

It is believed the CPI overstates inflation by 0.5% to 1.0% annually. Since many wages are tied to the CPI, this has important consequences.

Inflation's child: **Interest rates**

Interest rate The cost of borrowing funds, usually expressed as a percentage of the amount borrowed.

Nominal interest rate The stated interest rate on a loan.

Real interest rate The nominal interest rate adjusted for the effects of inflation.

**Actual real interest rates equal
nominal interest rates minus the actual inflation rates**

- For outstanding loans, higher inflation rates than expected can benefit borrowers in real terms because the actual real rate of borrowing is lower than expected.
- If actual inflation is lower than expected, the actual real interest rate will be higher and lenders benefit in real terms.

Example: Interest rates

If you borrow \$100 for a year and have to repay \$105 at the end of the year, you pay \$5 interest, yielding an interest rate of:

$$(\$5/\$100) \times 100 = 5\%$$

Nominal interest reflects returns in terms of the actual dollar amount, while real interest accounts for the change in purchasing power over time as measured by the rate of inflation.

If a person buys a \$1,000 bond that pays \$50 interest each year for five years, the purchasing power declines since the \$50 each year in the future is worth less since prices are higher.

Interest rates

Since borrowers do not know the rate of inflation in the future, we measure real interest rates using expected future rates of inflation (π^e).

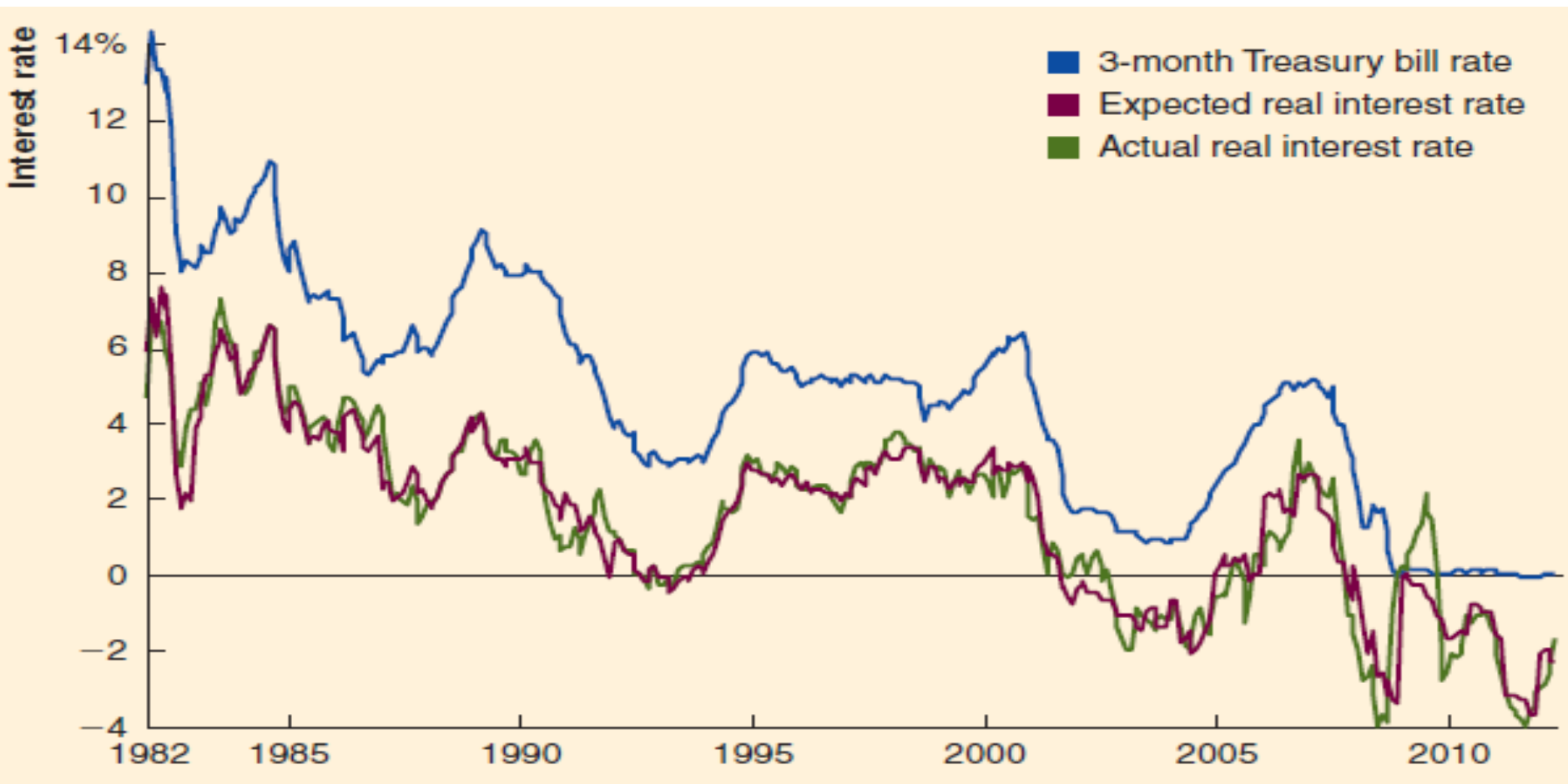
$$r = i - \pi^e \quad \text{or} \quad i = r + \pi^e$$

This equation implies that nominal interest rates reflect expected real interest rates and expected rates of inflation.

Both the real interest rate and expected inflation rate are unknown when nominal interest rates are determined. If you borrow money at 5%, expecting inflation to be 2%, you are paying a 3% real cost to borrow money. If inflation turns out to be higher at 4%, your real cost of borrowing is only 1%.

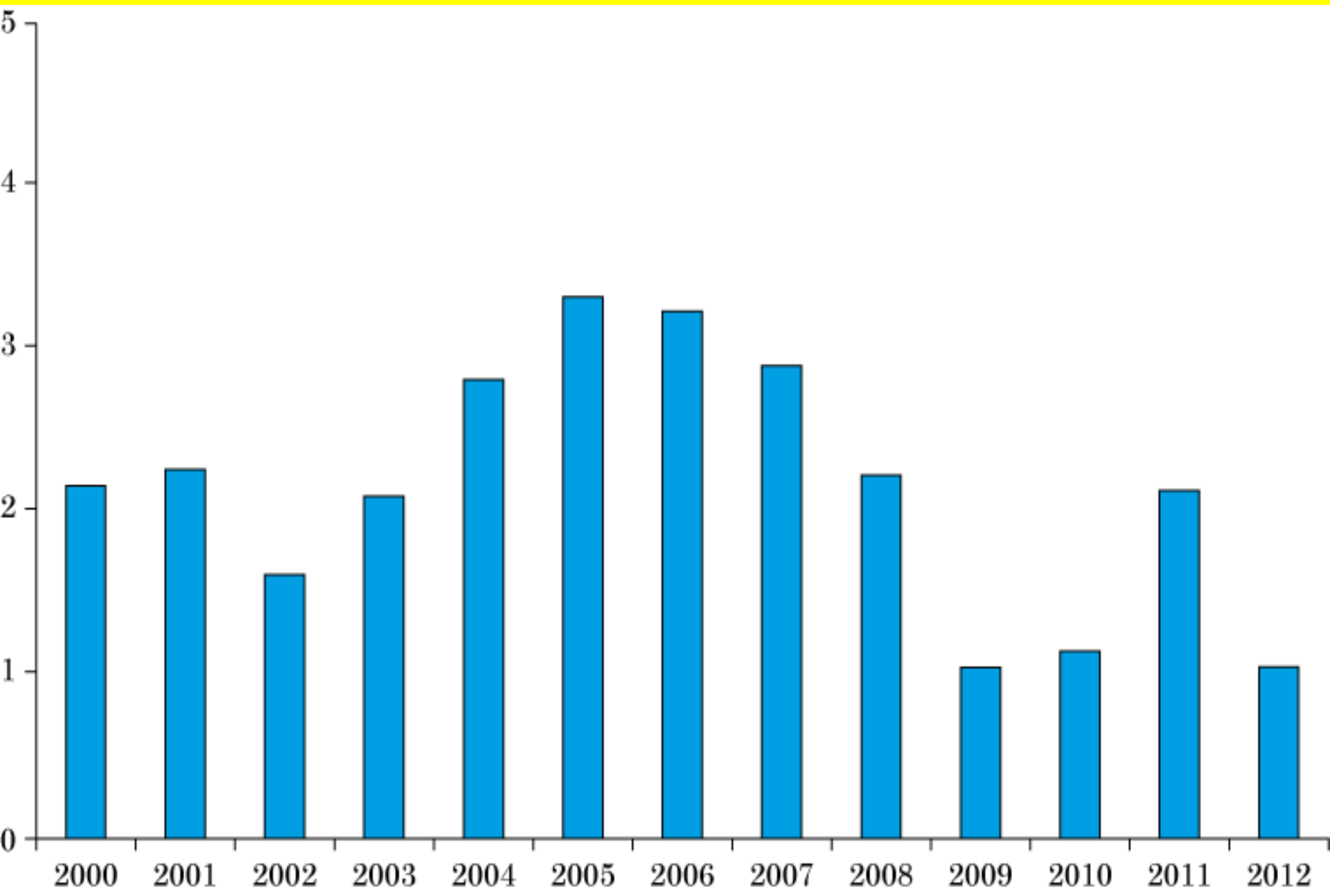
Nominal and real interest rates

- The nominal interest rate is often measured by economists as the interest rate on U.S. Treasury bills maturing in three months. Real rates are calculated here using the CPI inflation rate.
- Note that nominal and real interest rates tend to rise and fall together.
- Nominal rates can be lower than real rates if experiencing deflation.



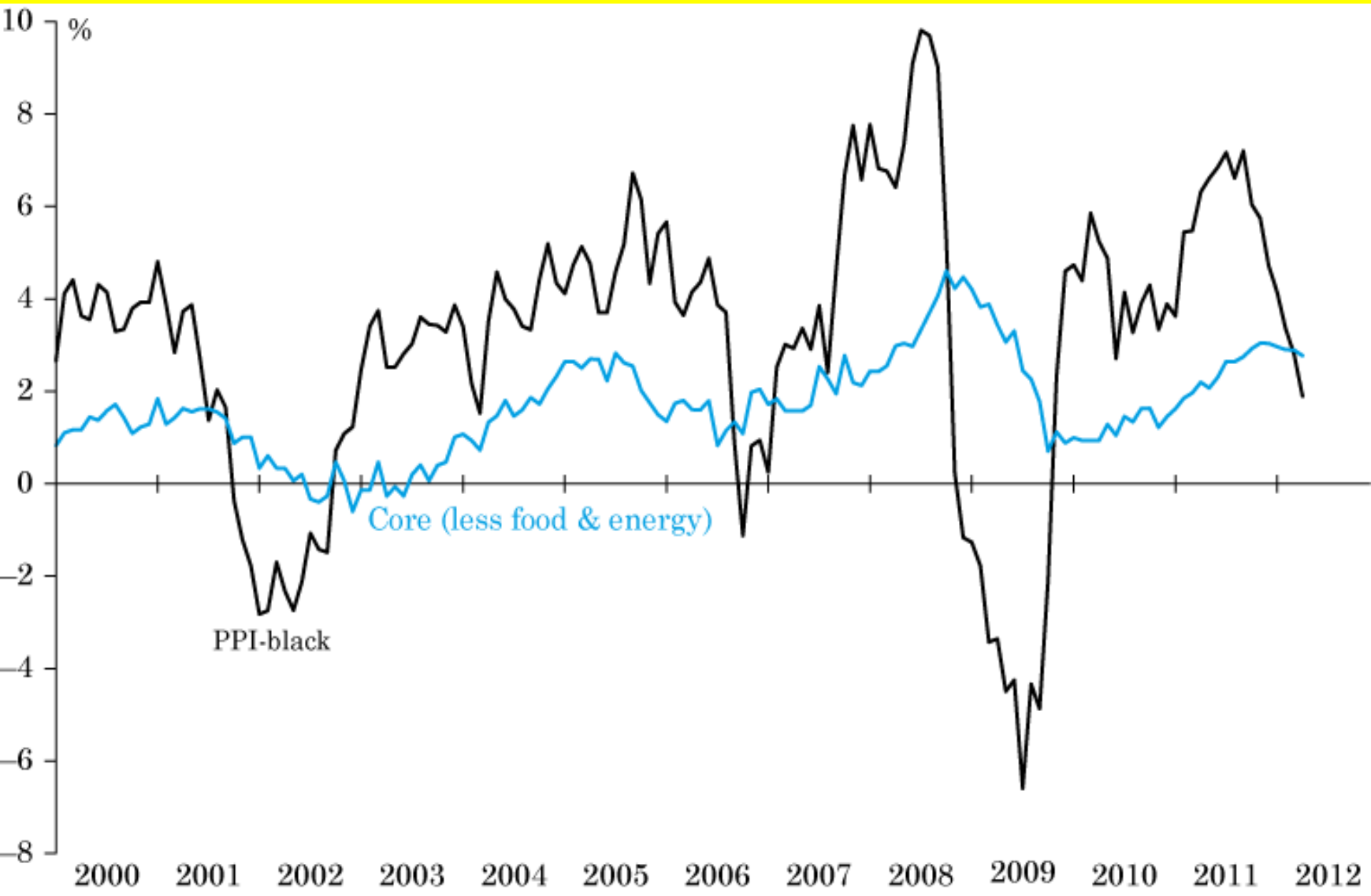
Nominal and real interest rates, 1982-2012

Annual Percentage Change in the GDP Deflator
(ratio of current \$ to chained 2005 \$ = 100)

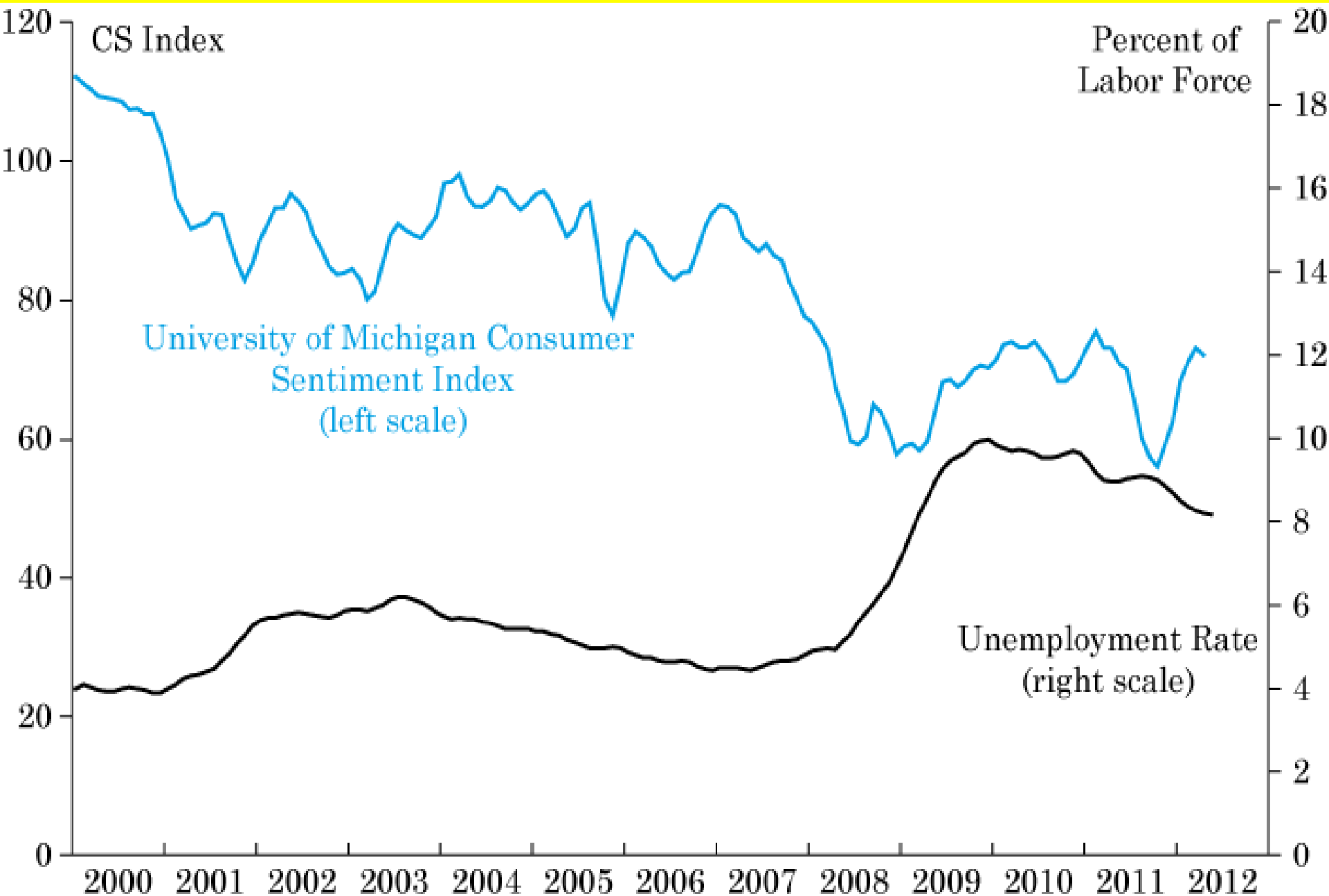


Trends in Wholesale Inflation Rates

(annual percent changes of monthly data using the PPI)



Consumer Sentiment and the Unemployment Rate



The Components of Aggregate Expenditure

$$12.1 \quad C = f(Y, T_p, r, CC, W, CR, D)$$

(+)(-)(-)(+) (+) (+)(-)

where

C = personal consumption expenditure

Y = personal income

T_p = personal taxes

r = real interest rate

CC = consumer confidence

W = consumer wealth

CR = available consumer credit

D = consumer debt

The Components of Aggregate Expenditure

$$12.2 \quad C = C_0 + c_1 Y$$

where

C_0 = autonomous consumption expenditures

c_1 = marginal propensity to consume

Y = personal income

$$12.3 \quad I = f(Y, r, T_B, PR, CU)$$

(+)(-)(-)(+)(+)

where

I = investment spending

Y = real income

r = real interest rate

T_B = business taxes

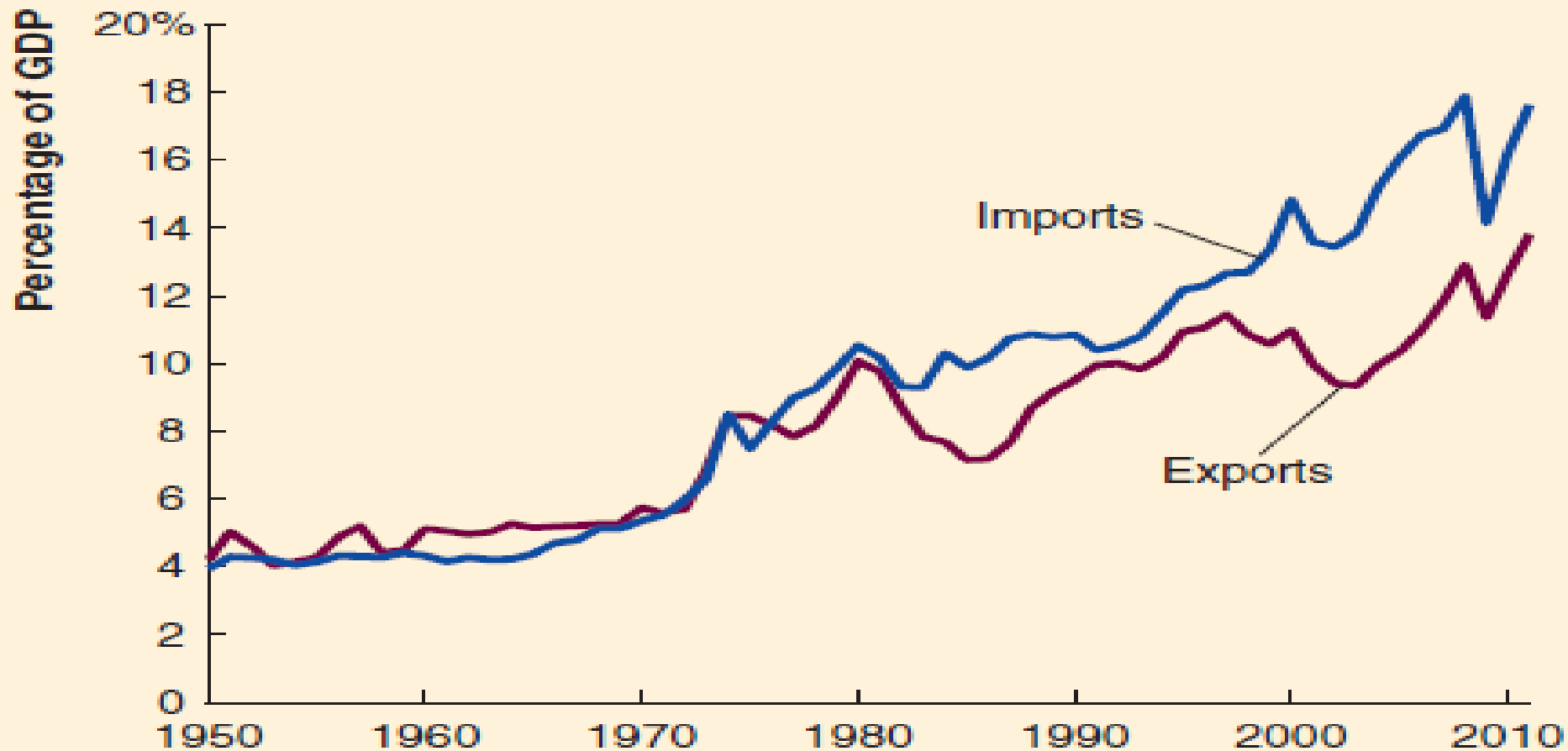
PR = expected profits and business confidence

CU = capacity utilization

4. The Global Economy, Players and conditions affect Domestic Social Policy and are Uncontrollable Factors

International factors have become more important

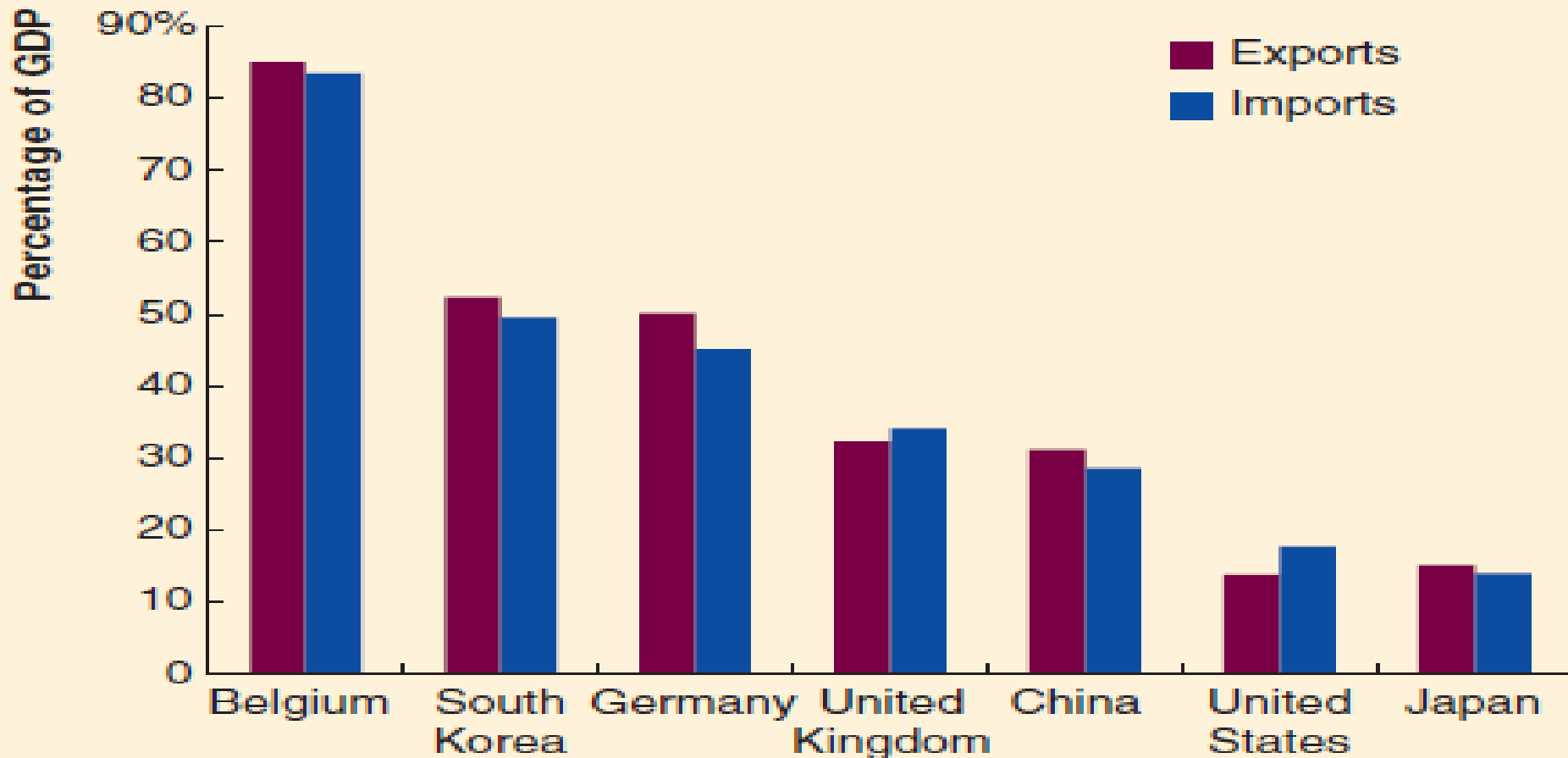
- International factors have become more important in explaining macroeconomic events.
- Example: Fed Chairman Ben Bernanke spoke of a “global savings glut” that had driven down U.S. interest rates.
- International trade has been becoming more and more significant for the United States.



International trade is of increasing importance to the United States

International factors have become more important

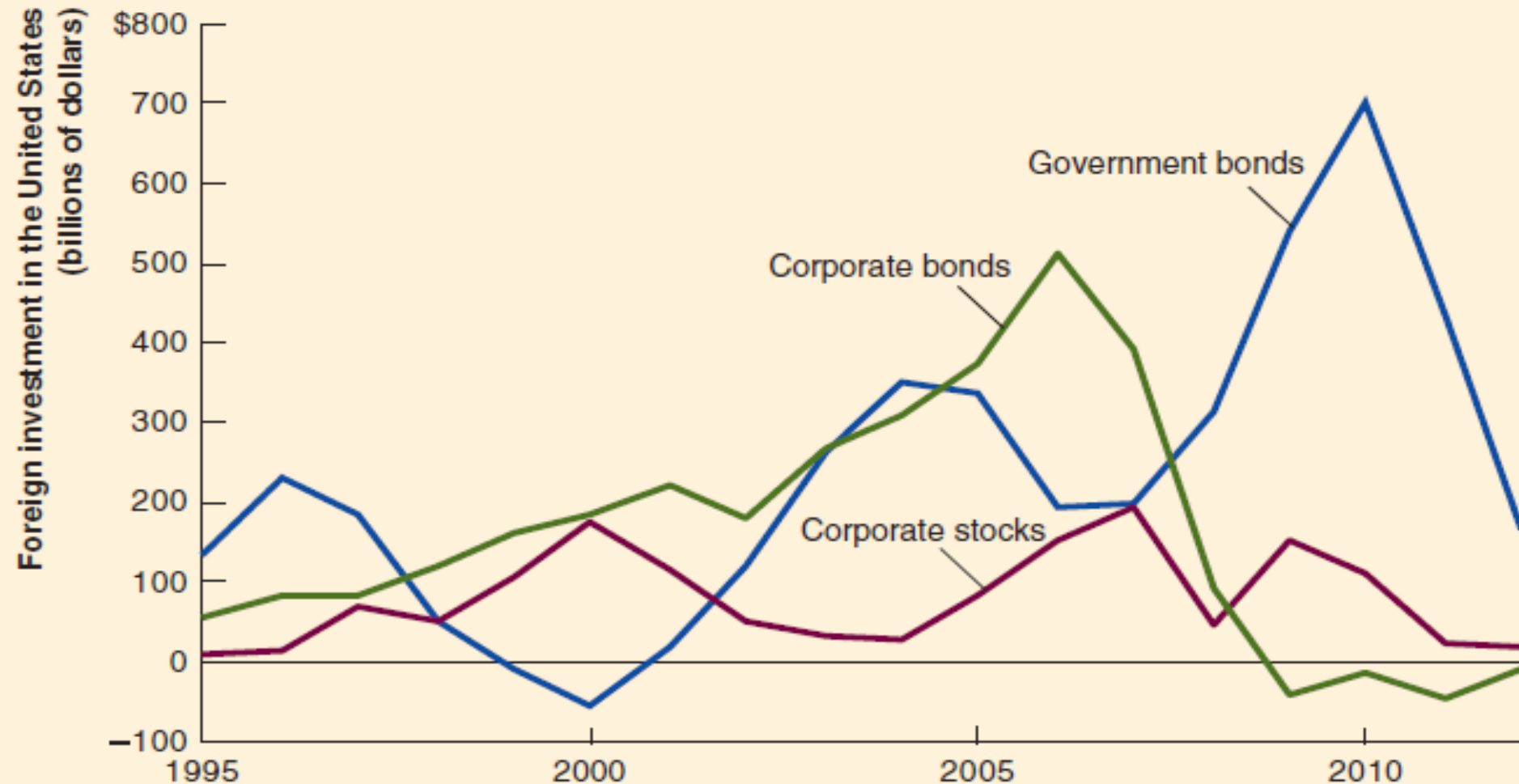
- International trade is even more important for many other—especially smaller—countries.
- Economic openness has increased in the U.S. and other developed countries.
- Countries like S. Korea and Germany are highly dependent on trade.
- China has dramatically increased its openness in the past few decades.



International trade as a percentage of GDP for several countries, 2011

The increasing importance of global financial markets

- Just as markets for goods and services have become more open, so have global financial markets.
- Foreigners now invest more in the United States; and U.S. investors invest more overseas also.
- Markets affect one another; the recession of 2007-2009 reduced Chinese exports, and the Greek debt crisis caused worldwide stock market declines.



Growth of foreign financial investment in the United States

Why should the U.S. worry about the Euro crisis?

Euro zone: 17 member states of the European Union that adopted the euro as their currency.

- *Monetary policy conducted by European Central Bank.*
- *Recession beginning 2007 worsened debt problems of several euro-zone members.*
- *Austerity policies (economic reforms, spending cuts, tax increases) became common.*

Effect on the U.S. economy?

- *Decreased exports to Europe.*
- *U.S. banks hold European debt.*
- *"A lack of confidence can be very contagious."*
 - *Shawn DuBravac, Chief Economist, Consumer Electronics Association*

Rising imports and U.S. employment

Do rising imports lead to a permanent reduction in U.S. employment?

- *Opinion polls show that many people believe that imports of foreign goods lead to a reduction in employment in the United States.*
- *On the surface, this claim may seem plausible: If U.S. automobile firms use more imported steel, production at U.S. steel firms declines, and U.S. steel firms will lay off workers.*
- *Briefly describe how you might evaluate the claim that employment in the United States has been reduced as a result of imports.*

Case Exercise

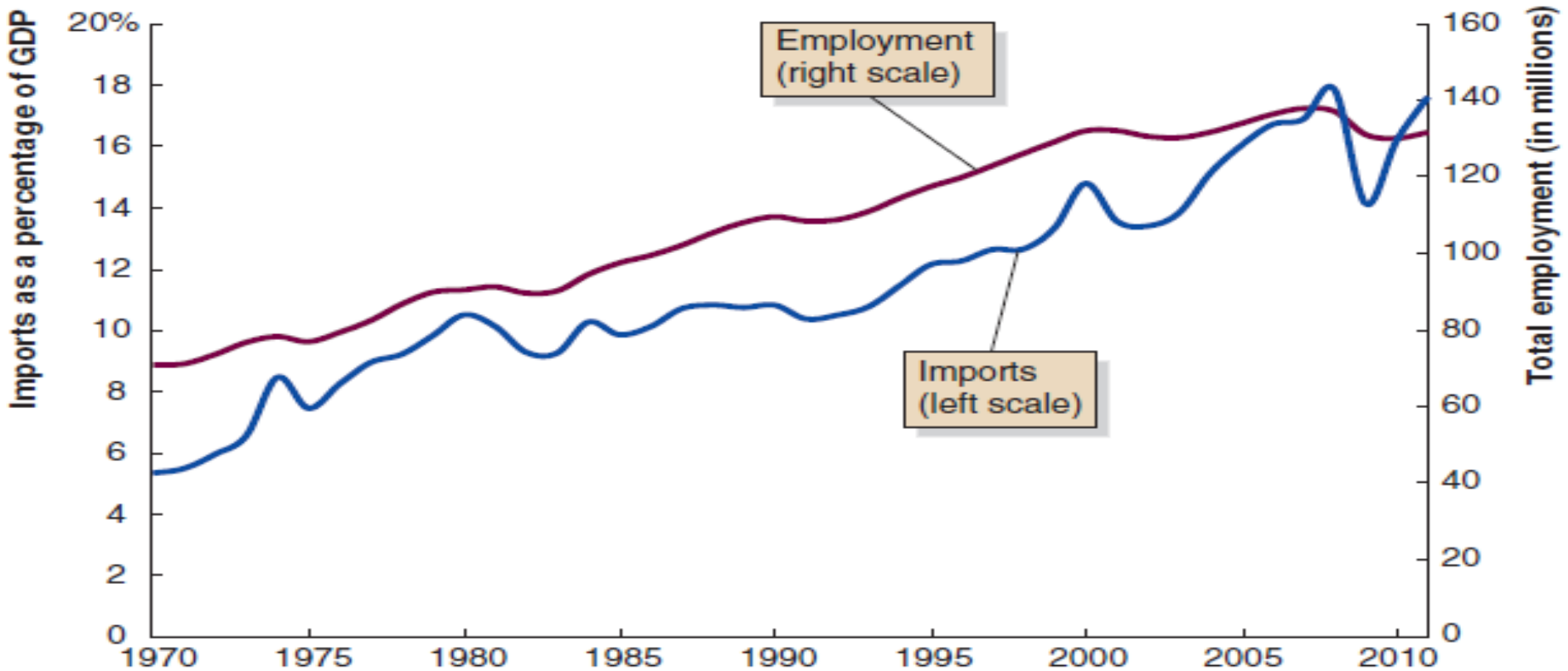
Rising imports and CYPRUS employment?

Do rising imports lead to a permanent reduction in CYPRUS employment?

- Step 1** **Review the material**
- Step 2** **Discuss what data you might use in evaluating this claim. Statistical Service Cyprus at <http://www.cystat.gov.cy> collects data on GDP, trade and employment data.**
- Step 3** **You could draw a graph that shows total employment and imports as a percentage of GDP in Cyprus.**
- Step 4** **Think and elaborate what you found?**

Demo-Example for the USA imports and Employment

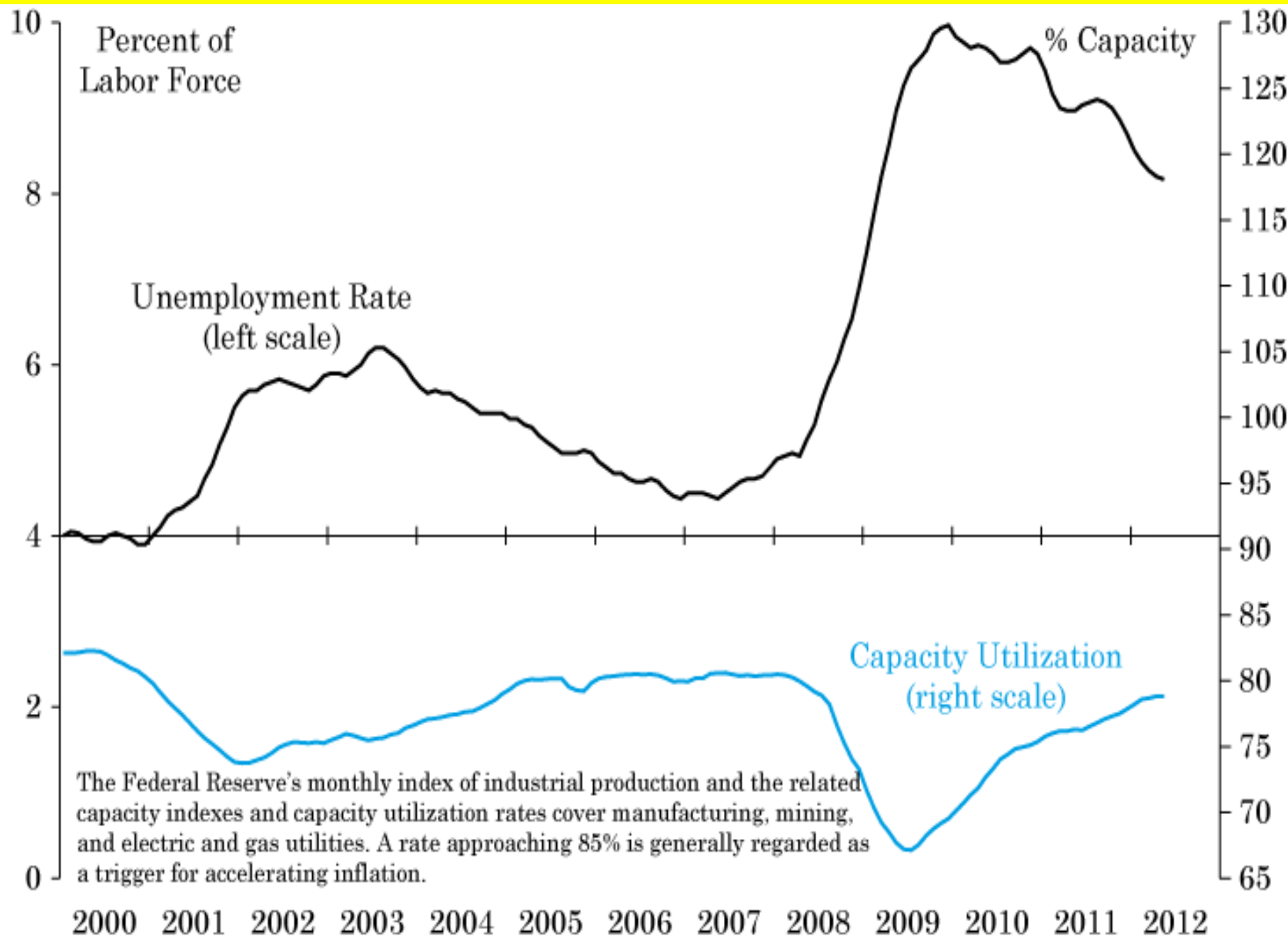
- Economists typically inspect data as only the first step in evaluating a claim about a macroeconomic event.
- By examining the data for the USA, it appears that over the past 40 years, both imports and employment have risen.
- Thus, it seems unlikely that rising imports have led to reduced employment.
- However, employment might have risen faster if imports did not rise so much.



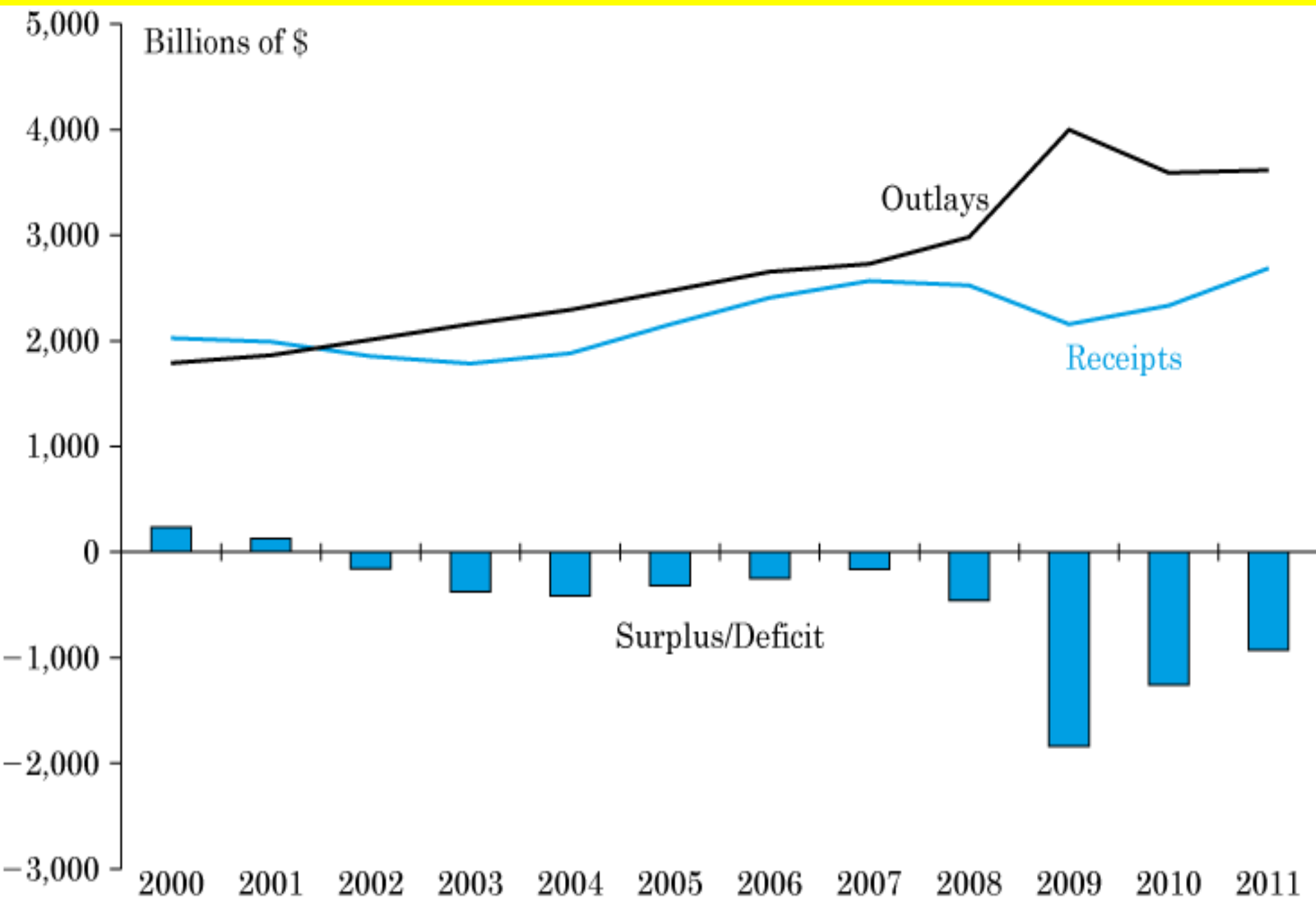
4) SPECIFIC GOVERNEMENT TOOLS & CHALLENGES for SOCIAL POLICY & *Social Responsibility*

ΒΑΣΙΚΑ ΕΡΓΑΛΕΙΑ ΤΩΝ ΚΥΒΕΡΝΗΣΕΩΝ

1) Resource Utilization



2) Federal Government Budget



3) Government Expenditure

$$12.5 \quad G = f(Y, Policy)$$

(0) (+)

where

G = government spending

Y = real income

Policy = institutional policy decisions at all levels of government

Aggregate Expenditure

$$12.11 \quad E = C + I + G + X - M$$

where

E = aggregate expenditure

C = consumption expenditure

I = investment expenditure

G = government expenditure

X = export spending

M = import spending

Aggregate Expenditure

$$12.12 \quad E = f(Y, T_P, r, CC, W, CR, D, T_B, PR, CU, G, Y^*, R)$$

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where

E = aggregate expenditure

Y = real income

T_P = personal taxes

r = real interest rate

CC = consumer confidence

W = consumer wealth

CR = consumer credit

D = consumer debt

T_B = business taxes

PR = expected profits

CU = capacity utilization

G = government spending

Y^* = foreign GDP or real income

R = currency exchange rate

4) Equilibrium Level of Income and Output

$$12.15 \quad E = E_0 + c_1 Y$$

where

E = aggregate expenditure

E_0 = sum of all autonomous expenditure components

c_1 = marginal propensity to consume

Y = real income

Equilibrium Level of Income and Output

$$12.20 \quad m = \frac{1}{1 - (c_1 + i_1 - m_1)} = \frac{1}{1 - c_1 - i_1 + m_1}$$

where

m = multiplier

c_1 = marginal propensity to consume

i_1 = marginal propensity to invest

m_1 = marginal propensity to import

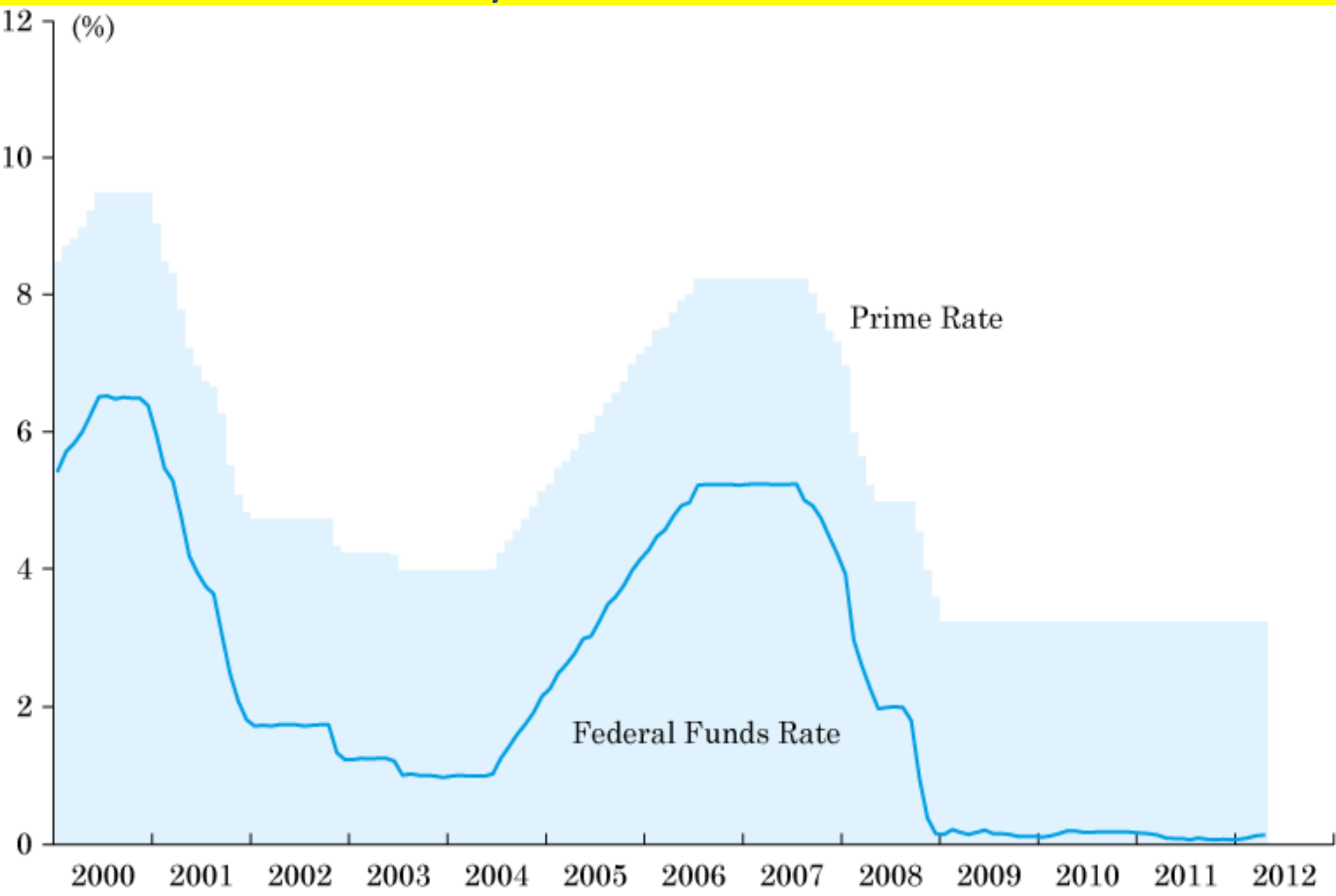
a) Money Supply

TABLE 13.1 Measures of the U.S. Money Supply

MEASURE	DESCRIPTION	VALUE (JUNE 2012) SEASONALLY ADJUSTED (BILLIONS \$)
C: CURRENCY	Coins held outside the Treasury, the Federal Reserve banks, and depository institutions, as well as paper money—Federal Reserve notes	1,045.2
M1: C PLUS:		
Checkable deposits	Deposits in checking accounts (demand deposits)	784.6
Travelers' checks	Checks that can be used as cash issued by nondepository institutions such as American Express	4.0
Other checkable deposits	Negotiable orders of withdrawal (NOWs) and automatic transfer service (ATS) account balances	422.3
Total M1		2,256.1
M2: M1 PLUS:		
Money market mutual fund shares	Shares of funds that invest in short-term financial assets and have check-writing privileges	640.9
Savings accounts	Interest-bearing accounts with no checking privileges	6,347.8
Small time deposits	Accounts of less than \$100,000, such as certificates of deposit, that have fixed maturities and penalties for early withdrawal	699.7
Total M2		9,944.5

Sources: Board of Governors of the Federal Reserve System. *The Federal Reserve System: Purposes and Functions*, 9th ed. (Washington, DC: Board of Governors, 2005). Available at www.federalreserve.gov; Federal Reserve Statistical Release, Tables 1, 3, and 4, Money Stock Measures, H.6 (508), available at www.federalreserve.gov.

b) Interest Rates



c) Exchange Rates

TABLE 15.1 Exchange Rates

CURRENCY	R (UNITS OF FOREIGN CURRENCY PER \$)		1/R (\$ PER UNIT OF FOREIGN CURRENCY)	
	January 2009	June 2009	January 2009	June 2009
Euro (E)	0.76	0.71	1.32	1.40
Japanese yen (¥) (\$/100¥)	90	97	1.11	1.03
Trade-weighted \$ (\$/100 units)	109	105	0.92	0.95
	January 2008	January 2009	January 2008	January 2009
Euro (E)	0.68	0.76	1.47	1.32
Japanese yen (¥) (\$/100¥)	108	90	0.93	1.11
Trade-weighted \$ (\$/100 units)	99	109	1.01	0.92

Source: Federal Reserve Statistical Release, *Foreign Exchange Rates (Monthly)*. Available at www.federalreserve.gov/releases/g5.

d) Dollar Appreciation and Depreciation

TABLE 15.2 Effect of Dollar Appreciation and Depreciation on U.S. Exports and Imports

$R = ¥/\$$	DOMESTIC PRICE	JAN 09: $R = 90$	JUNE 09: $R = 97$	EFFECT ON EXPORTS (X) AND IMPORTS (M)
U.S. exports: Computers	\$10,000	¥900,000	¥970,000	X decreases
U.S. imports: Japanese cars	¥2,000,000	≈ \$22,200	≈ \$20,600	M increases
		JAN 08: $R = 108$	JAN 09: $R = 90$	
U.S. exports: Computers	\$10,000	¥1,080,000	¥900,000	X increases
U.S. imports: Japanese cars	¥2,000,000	≈ \$18,500	≈ \$22,200	M decreases

5) Some Additional Considerations...

Aggregate Demand

$$14.1 \quad AD : Y = f(P, T_p, CC, W, CR, D, T_B, PR, CU, G, Y^*, R, M_S)$$

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where

Y = real income

P = price level

T_p = personal taxes

CC = consumer confidence

W = consumer wealth

CR = consumer credit

D = consumer debt

T_B = business taxes

PR = expected profits and business confidence

CU = capacity utilization

G = government spending

Y^* = foreign GDP or real income

R = currency exchange rate (foreign currency per dollar)

M_S = nominal money supply (influenced by Federal Reserve policy)

Factors Causing Shifts in the AD Curve

TABLE 14.1 Factors Causing Shifts in the AD Curve

AD CURVE SHIFTS OUT TO THE RIGHT

HOUSEHOLD CONSUMPTION SPENDING (C)

- Decrease in personal taxes (T_p)
- Increase in consumer confidence (CC)
- Increase in consumer wealth (W)
- Increase in consumer credit (CR)
- Decrease in consumer debt (D)

BUSINESS INVESTMENT SPENDING (I)

- Decrease in business taxes (TB)
- Increase in expected profits and business confidence (PR)
- Increase in capacity utilization (CU)

GOVERNMENT SPENDING (G)

- Increase in government spending (G)

FOREIGN SECTOR SPENDING (X, M)

- Increase in the level of foreign GDP or real income (Y^*)
- Decrease in the currency exchange rate (R)

FEDERAL RESERVE POLICY

- Increase in the nominal money supply

AD CURVE SHIFTS BACK TO THE LEFT

HOUSEHOLD CONSUMPTION SPENDING (C)

- Increase in personal taxes (T_p)
- Decrease in consumer confidence (CC)
- Decrease in consumer wealth (W)
- Decrease in consumer credit (CR)
- Increase in consumer debt (D)

BUSINESS INVESTMENT SPENDING (I)

- Increase in business taxes (TB)
- Decrease in expected profits and business confidence (PR)
- Decrease in capacity utilization (CU)

GOVERNMENT SPENDING (G)

- Decrease in government spending (G)

FOREIGN SECTOR SPENDING (X, M)

- Decrease in the level of foreign GDP or real income (Y^*)
- Increase in the currency exchange rate (R)

FEDERAL RESERVE POLICY

- Decrease in the nominal money supply

The Aggregate Supply Curve

$$14.3 \quad \text{Long-run AS: } Y_f = f(P, \text{Resources}, \text{Efficiency}, \text{Technology})$$

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where

Y_f = full-employment or potential output

P = price level

Resources = amount of inputs in the economy used to produce final goods and services

Efficiency = means by which resources are combined to minimize the cost of production

Technology = state of knowledge in the economy on how to produce goods and services

Impact of Changes in the Aggregate Model

TABLE 14.2 Impact of Changes in the Aggregate Model

CURVE	VARIABLE	SPENDING COMPONENT(S)	SHIFT OF CURVE
AD₀₈	1. Housing wealth decreases	1. Consumption decreases	1. Left
	2. Confidence decreases	2. Consumption and investment decrease	2. Left
	3. Credit crisis in financial markets	3. Residential investment decreases	3. Left
	4. Government spending slows	4. Government spending slows	4. Left
	5. MS increases	5. Lower interest rates increase consumption/investment	5. Right
	6. Dollar decreases in value	6. Exports increase; imports decrease	6. Right
	7. Foreign GDP increases	7. Exports increase	7. Right
AS₀₈	8. Employment costs increase	8. —	8. Short-run up
	9. Energy/commodity prices increase	9. —	9. Short-run up
	10. Productivity increases	10. —	10. Long-run right
AD₁₂	11. Housing wealth increases slowly	11. Consumption increases	11. Right
	12. Confidence increases from lows, but uneven changes; business caution	12. Consumption and investment increase	12. Right
	13. Increase in credit, but tight lending conditions	13. Residential investment increases slowly	13. Right
	14. Government spending decreases	14. Government spending decreases	14. Left
	15. MS increases (almost zero federal funds rate and asset purchases)	15. Lower interest rates but tight mortgage lending standards	15. Right
	16. Dollar increases in value	16. Exports decrease; imports increase	16. Left
	17. Some foreign GDP increases (Canada, Mexico); Europe flat or decreasing	17. Exports increase	17. Right
AS₁₂	18. Employment costs slight increase	18. —	18. Short run: negligible impact
	19. Energy/commodity prices increase, then decrease	19. —	19. Short run: negligible impact
	20. Small productivity increases	20. —	20. Long run: right

Leading, Coincident, and Lagging Economic Indicators

TABLE 14.3 **Leading, Coincident, and Lagging Economic Indicators**

Leading indicators	1. Average weekly hours, manufacturing 2. Average weekly initial claims for unemployment 3. Manufacturers' new orders, consumer goods, and materials 4. ISM index of new orders 5. Manufacturers' new orders, nondefense capital goods 6. Building permits, new private housing units 7. Stock prices, 500 common stocks 8. Leading credit index 9. Interest rate spread, 10-year Treasury bonds less federal funds 10. Average consumer expectations for business conditions
Coincident indicators	1. Employees on nonagricultural payrolls 2. Personal income less transfer payments (constant dollars) 3. Industrial production 4. Manufacturing and trade sales (constant dollars)
Lagging indicators	1. Average duration of unemployment 2. Inventories to sales ratio, manufacturing and trade (constant dollars) 3. Labor cost per unit of output, manufacturing (monthly change) 4. Average prime rate charged by banks 5. Commercial and industrial loans outstanding (constant dollars) 6. Consumer installment credit outstanding to personal income ratio 7. Consumer price index for services (monthly change)

Source: Bernard Baumohl, *The Secrets of Economic Indicators*, 3rd ed. (Upper Saddle River, NJ: FT Press, 2013), 196–203; U.S. Business Cycle Indicators, www.conference-board.org.

Thank You ...