Chapter 1

The Science of Macroeconomics

Macroeconomics
N. GREGORY MANKIW

Learning Objectives

This chapter introduces you to

- the issues macroeconomists study

- the tools macroeconomists use

- some important concepts in macroeconomic analysis

Important issues in macroeconomics

Macroeconomics, the study of the economy as a whole, addresses many topical issues:

- Why does the cost of living keep rising?

- Why are millions of people unemployed, even when the economy is booming?

- What causes recessions?
  Can the government do anything to combat recessions? Should it?
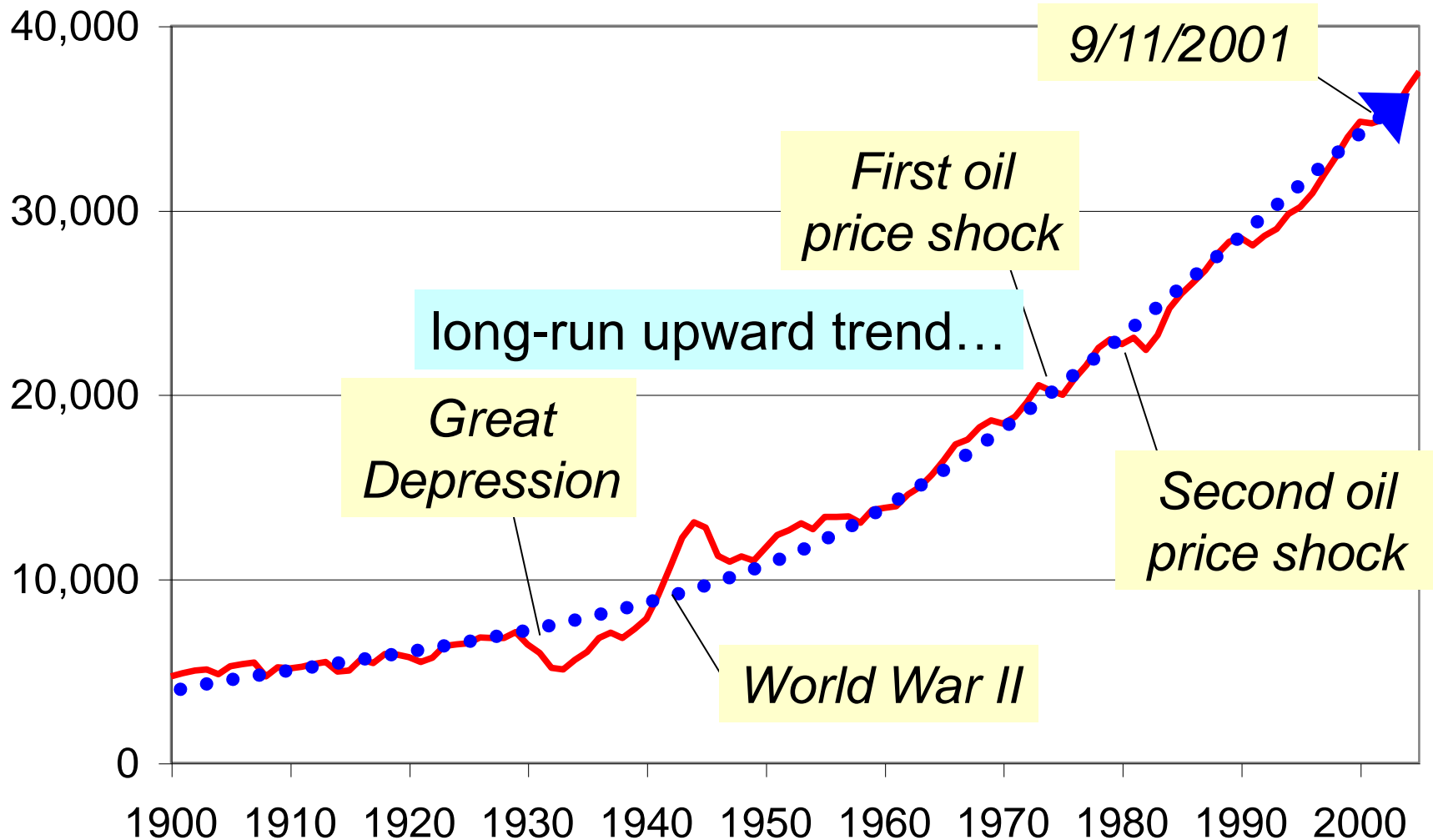
Important issues in macroeconomics

Macroeconomics, the study of the economy as a whole, addresses many topical issues:

- What is the government budget deficit? How does it affect the economy?

- Why are so many countries poor? What policies might help them grow out of poverty?
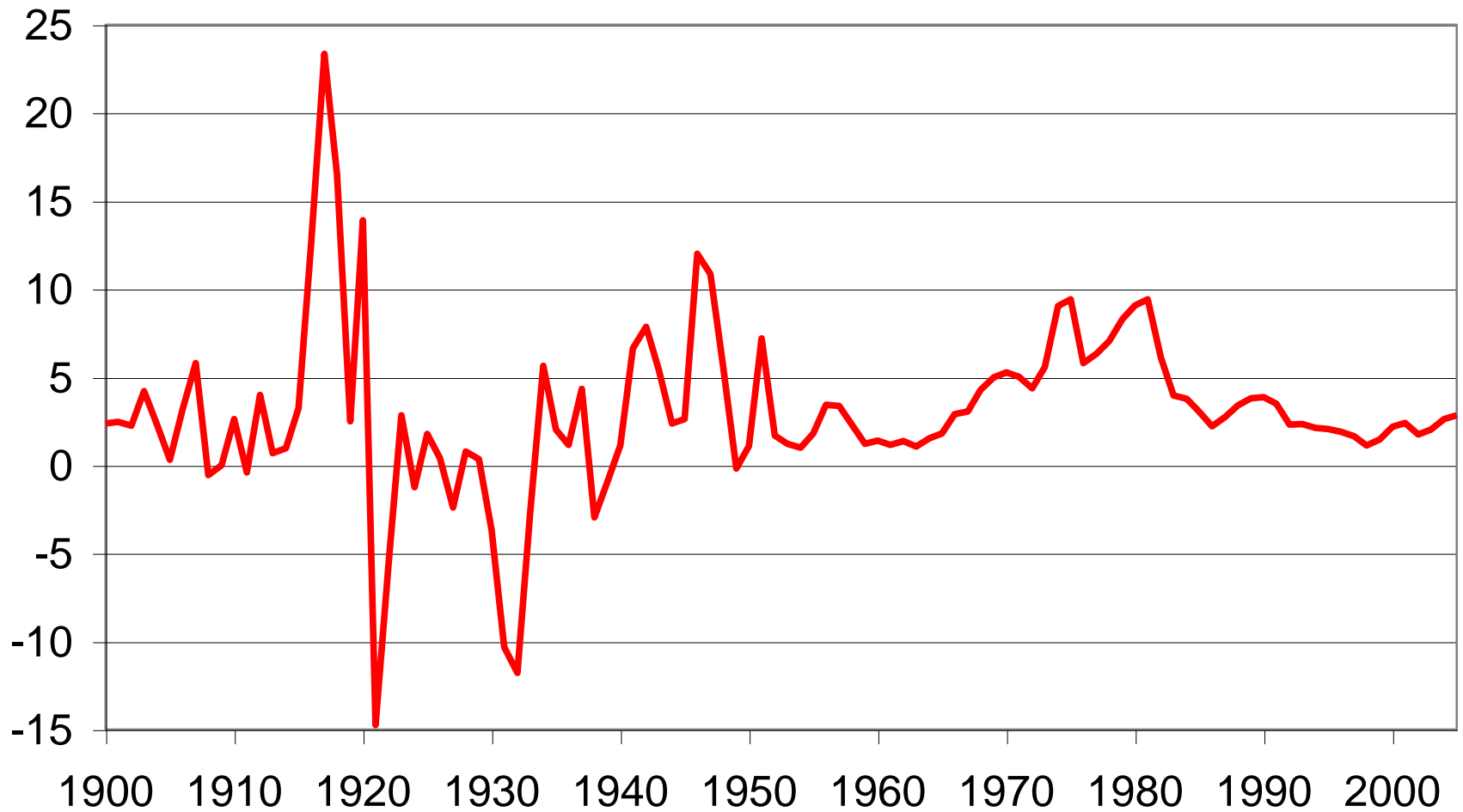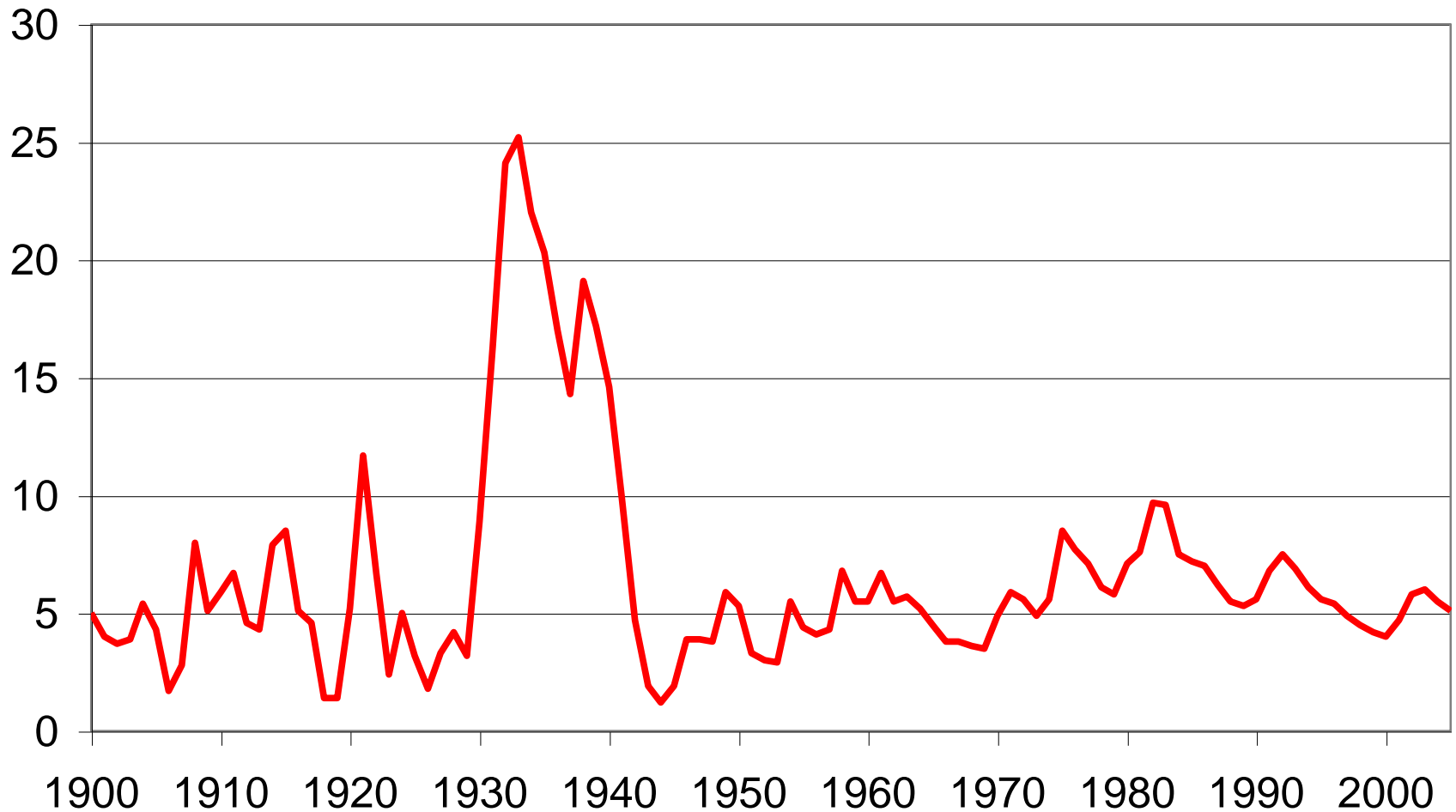
U.S. Real GDP per capita
(2000 dollars)

slide 4

U.S. inflation rate
(% per year)

U.S. unemployment rate
(% of labor force)

Why learn macroeconomics?

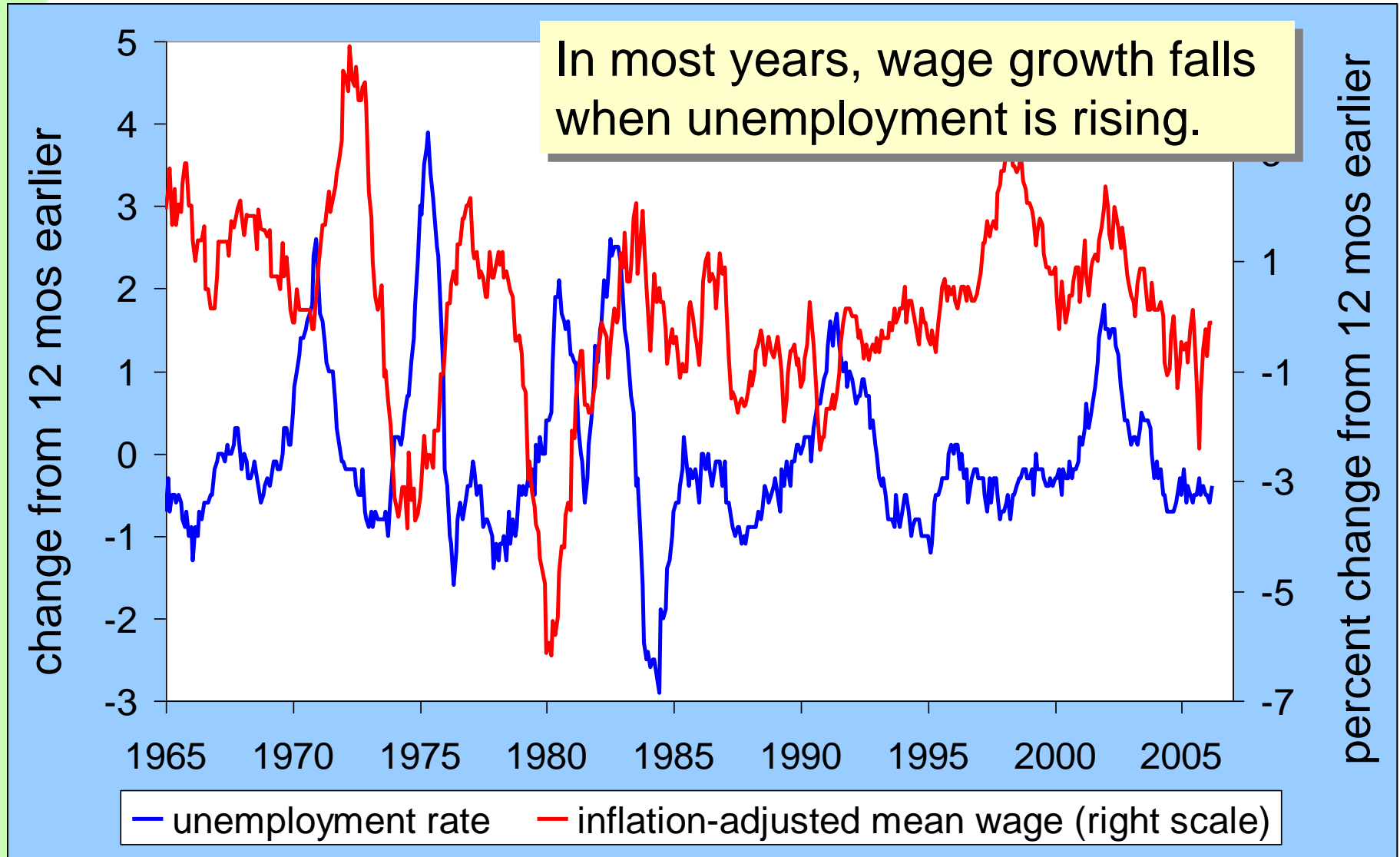**1.** The macroeconomy affects society's well-being.

Each one-point increase in the unemployment rate is associated with:

- 920 more suicides
- 650 more homicides
- 4000 more people admitted to state mental institutions
- 3300 more people sent to state prisons
- 37,000 more deaths
- increases in domestic violence and homelessness

Why learn macroeconomics?

2. The macroeconomy affects <u>your</u> well-being.

In most years, wage growth falls when unemployment is rising.

change from 12 mos earlier (left axis)
percent change from 12 mos earlier (right axis)

— unemployment rate   — inflation-adjusted mean wage (right scale)

Why learn macroeconomics?

3. The macroeconomy affects politics.

Unemployment & inflation in election years

year	U rate	inflation rate	elec. outcome
1976	7.7%	5.8%	Carter (D)
1980	7.1%	13.5%	Reagan (R)
1984	7.5%	4.3%	Reagan (R)
1988	5.5%	4.1%	Bush I (R)
1992	7.5%	3.0%	Clinton (D)
1996	5.4%	3.3%	Clinton (D)
2000	4.0%	3.4%	Bush II (R)
2004	5.5%	3.3%	Bush II (R)

Example of a model:
Supply & demand for new cars

- shows how various events affect price and quantity of cars

- assumes the market is **competitive**: each buyer and seller is too small to affect the market price

- Variables:

  Q^d = quantity of cars that buyers demand

  Q^s = quantity that producers supply

  P = price of new cars

  Y = aggregate income

  P_s = price of steel (an input)

The demand for cars

demand equation: $Q^d = D(P, Y)$

- shows that the quantity of cars consumers demand is related to the price of cars and aggregate income
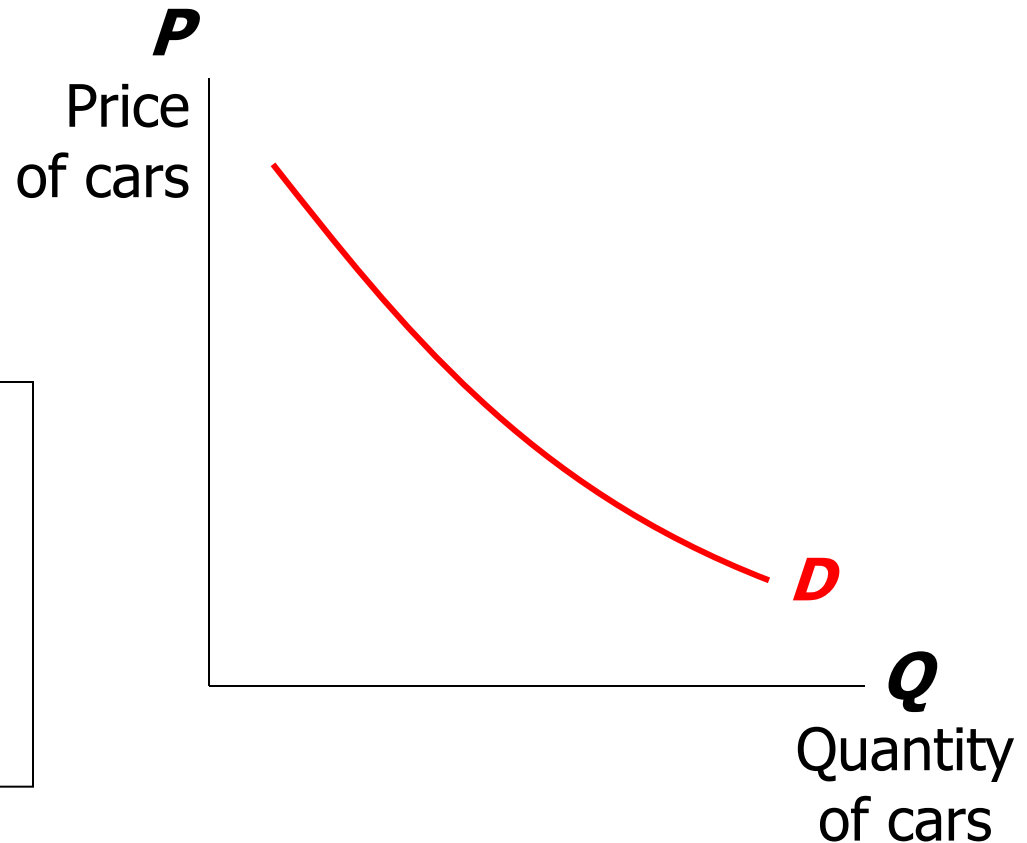
The market for cars: Demand

demand equation:

$$Q^d = D(P, Y)$$

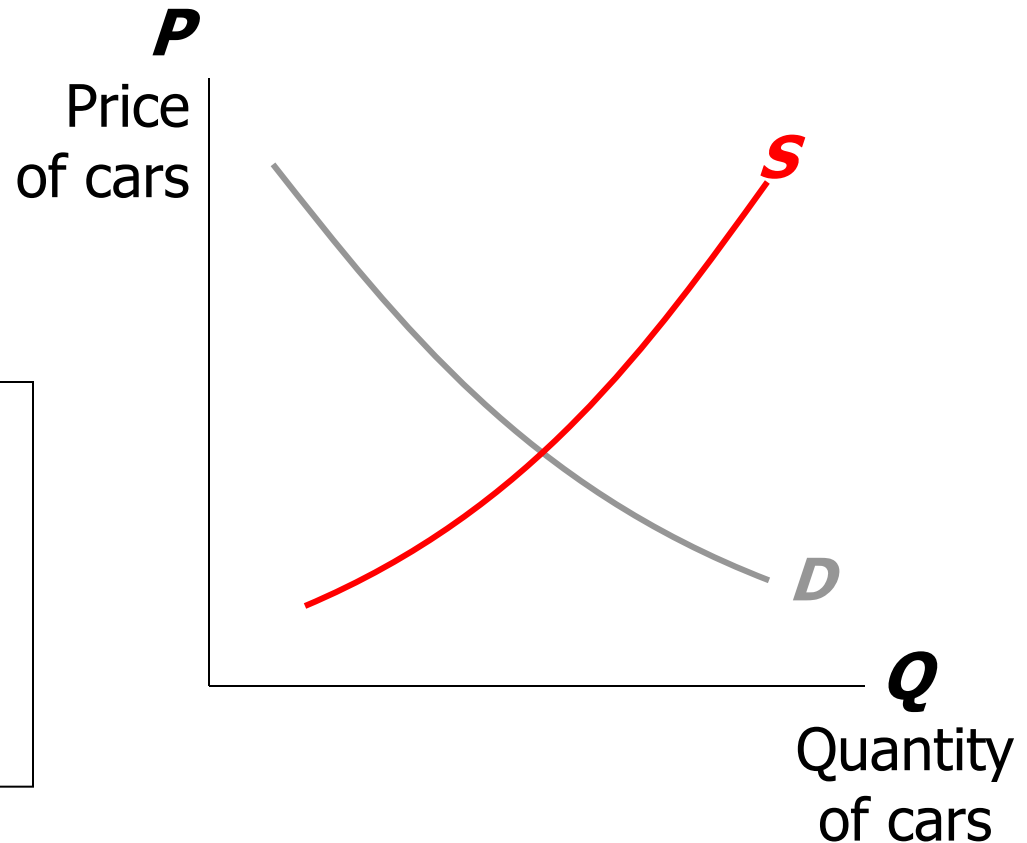The **demand curve** shows the relationship between quantity demanded and price, other things equal.

P
Price of cars

Q
Quantity of cars

D

The market for cars: Supply

supply equation:

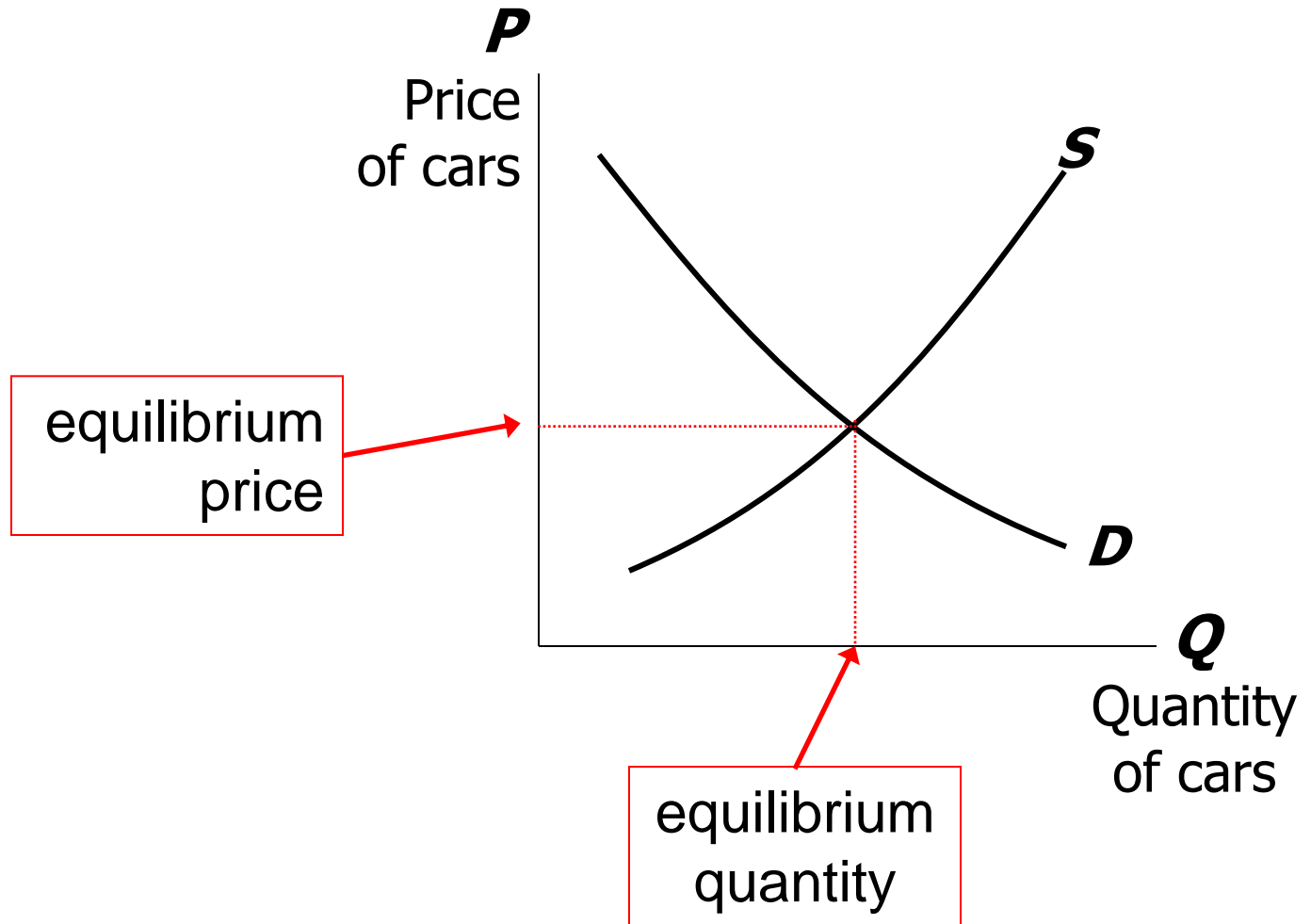$$Q^s = S(P, P_s)$$

The **supply curve** shows the relationship between quantity supplied and price, other things equal.

P
Price of cars

S

D

Q
Quantity of cars

The market for cars: Equilibrium

P
Price of cars

S

equilibrium price

D

Q
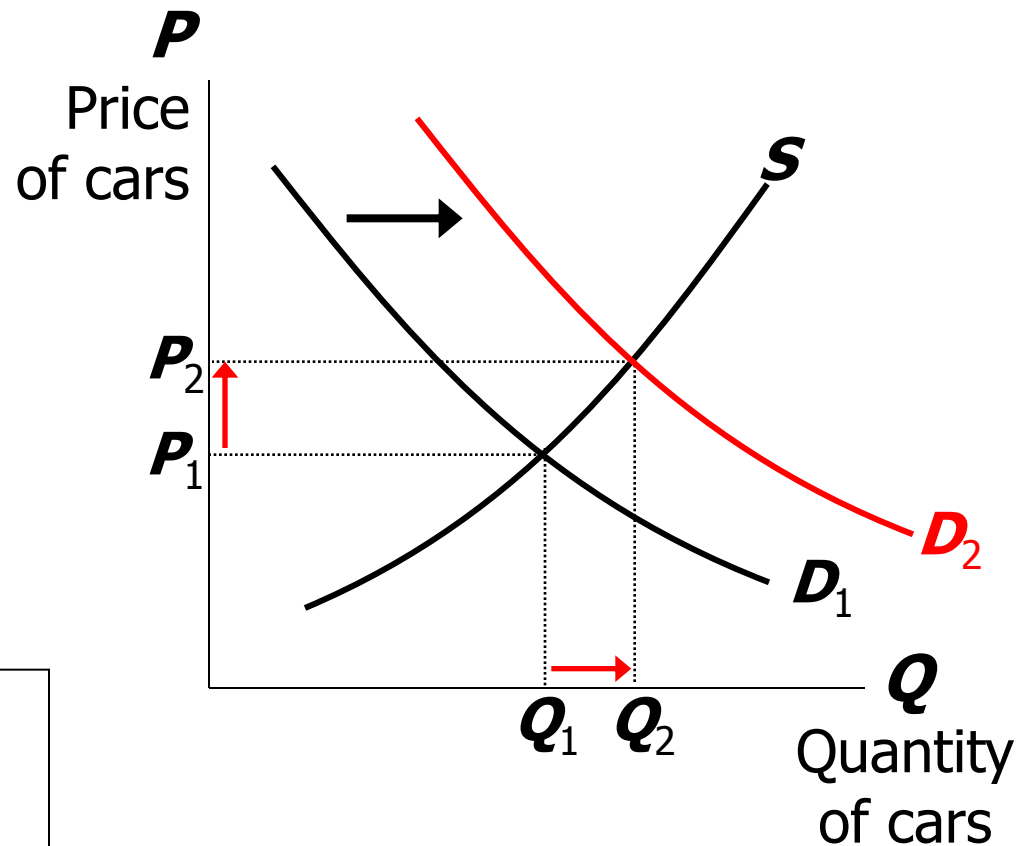Quantity of cars

equilibrium quantity

The effects of an increase in income

demand equation:

$$Q^d = D(P, Y)$$

An increase in income increases the quantity of cars consumers demand at each price…

…which increases the equilibrium price and quantity.

P
Price of cars

P_2
P_1

S

D_2

D_1
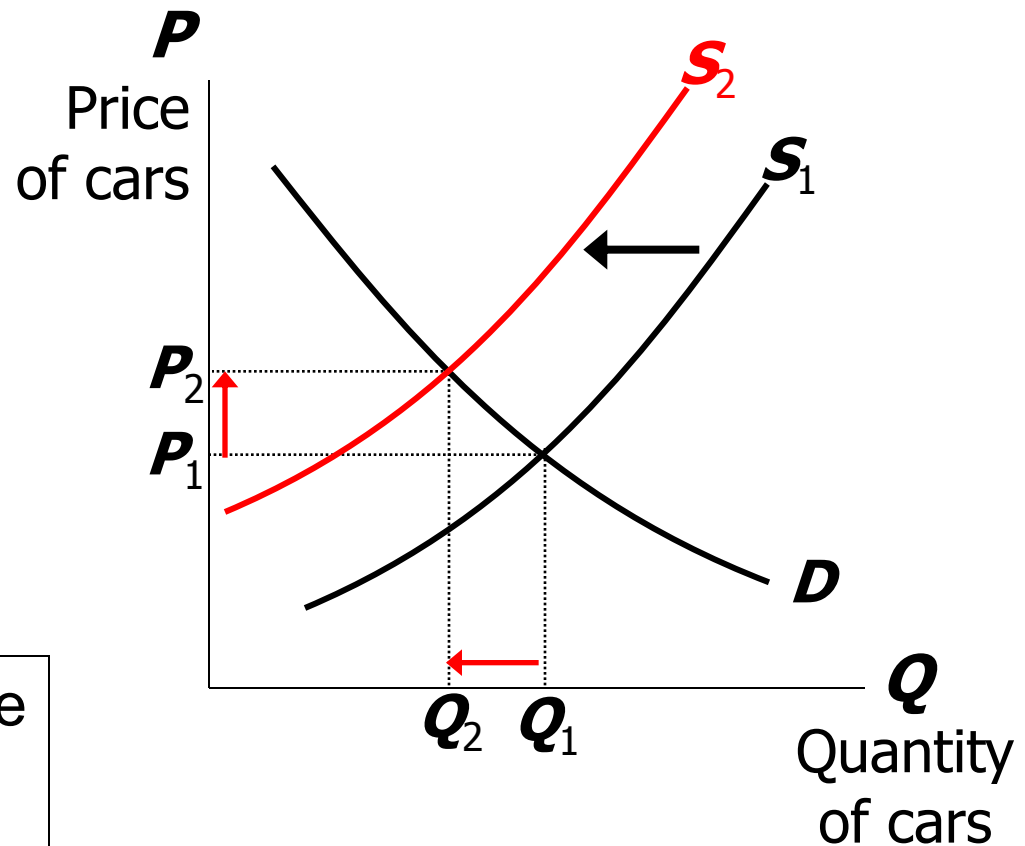
Q_1 Q_2

Q
Quantity of cars

The effects of a steel price increase

supply equation:

$$Q^s = S(P, P_s)$$

An increase in P_s reduces the quantity of cars producers supply at each price…

…which increases the market price and reduces the quantity.

P

Price of cars

S_2

S_1

P_2

P_1

D

Q

Q_2 Q_1

Quantity of cars

Endogenous vs. exogenous variables

- The values of **endogenous** variables are determined in the model.

- The values of **exogenous** variables are determined outside the model: the model takes their values & behavior as given.

- In the model of supply & demand for cars,

  endogenous: P, Q^d, Q^s

  exogenous: Y, P_s

A multitude of models

- No one model can address all the issues we care about.

- *e.g.,* our supply-demand model of the car market…

  - <u>can</u> tell us how a fall in aggregate income affects price & quantity of cars.

  - <u>cannot</u> tell us *why* aggregate income falls.

A multitude of models

- So we will learn different models for studying different issues (*e.g.*, unemployment, inflation, long-run growth).

- For each new model, you should keep track of
  - its assumptions
  - which variables are endogenous, which are exogenous
 - the questions it can help us understand, and those it cannot

Prices: flexible vs. sticky

- **Market clearing**: An assumption that prices are flexible, adjust to equate supply and demand.

- In the short run, many prices are **sticky** – adjust sluggishly in response to changes in supply or demand.   For example,

  - many labor contracts fix the nominal wage for a year or longer

 - many magazine publishers change prices only once every 3-4 years

Prices: flexible vs. sticky

- The economy's behavior depends partly on whether prices are sticky or flexible:

- If prices are sticky, then demand won't always equal supply. This helps explain
  - unemployment (excess supply of labor)
  - why firms cannot always sell all the goods they produce

- Long run: prices flexible, markets clear, economy behaves very differently
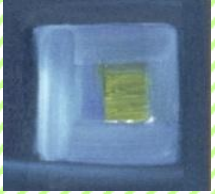
Chapter Summary

- Macroeconomics is the study of the economy as a whole, including
    - growth in incomes,
    - changes in the overall level of prices,
    - the unemployment rate.

- Macroeconomists attempt to explain the economy and to devise policies to improve its performance.
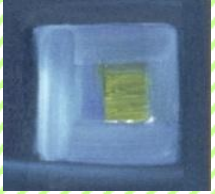
Chapter Summary

- Economists use different models to examine different issues.

- Models with flexible prices describe the economy in the long run; models with sticky prices describe the economy in the short run.

- Macroeconomic events and performance arise from many microeconomic transactions, so macroeconomics uses many of the tools of microeconomics.