

# Chapter 1: The Science of Macroeconomics\*

MACROECONOMICS

Seventh Edition

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\* Slides based on Ron Cronovich's slides, adjusted for course in Macroeconomics at the Wang Yanan Institute for Studies in Economics at Xiamen University.

# Learning Objectives

This chapter introduces you to

- The issues macroeconomists study ←
- The tools macroeconomists use for analysis

# 1.1) What Macroeconomists Study

**Macroeconomics**, the study of the economy as a whole (as opposed to Microeconomics studying individual economic decision-making), 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?

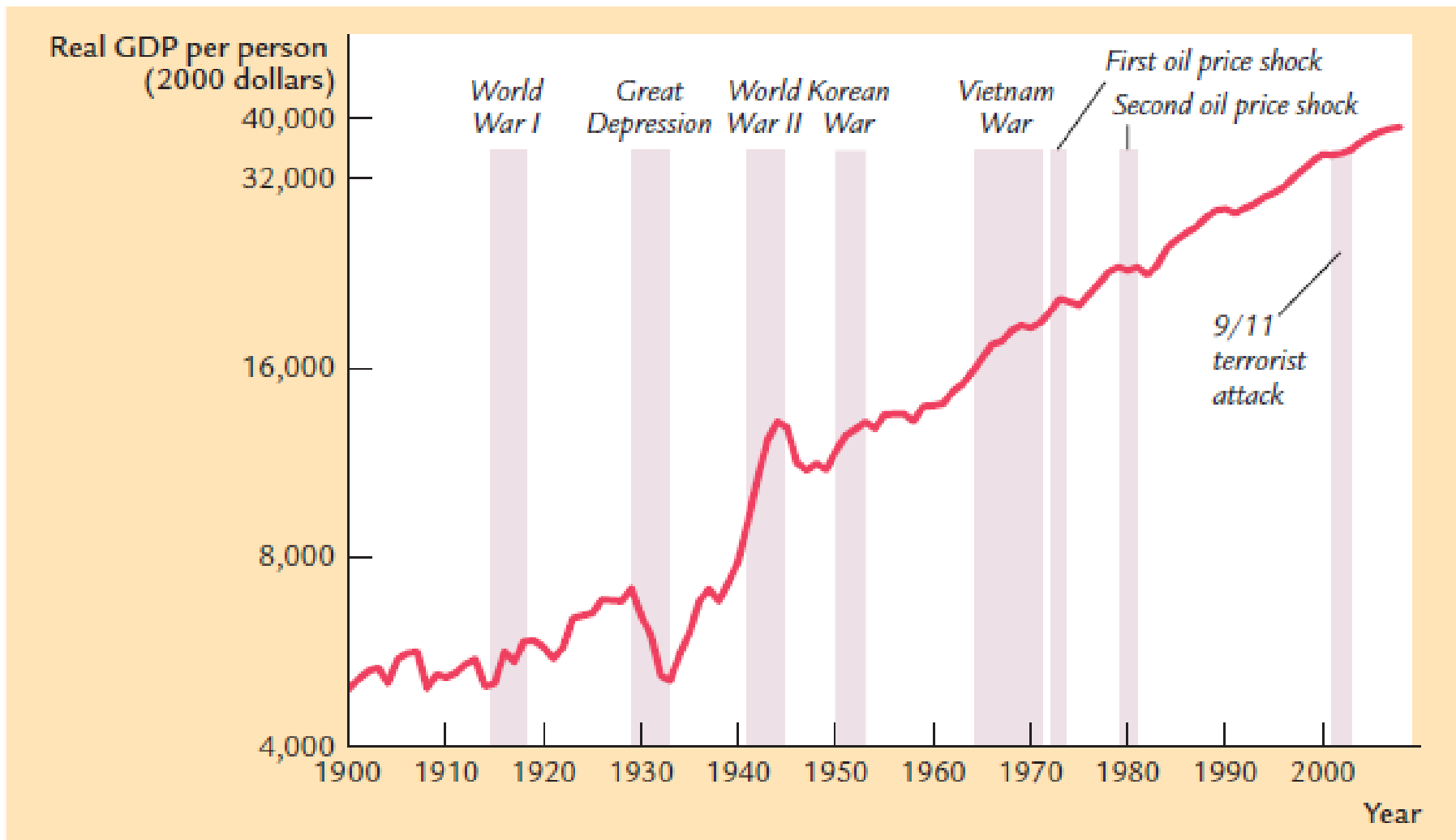
# 1.1) What Macroeconomists Study

**Macroeconomics**, the study of the economy as a whole (as opposed to Microeconomics studying individual economic decision-making), addresses many topical issues:

- What is the government budget deficit?  
How does it affect the economy?
- Why does the U.S. have such a huge trade deficit?
- Why are so many countries poor?  
What policies might help them grow out of poverty?

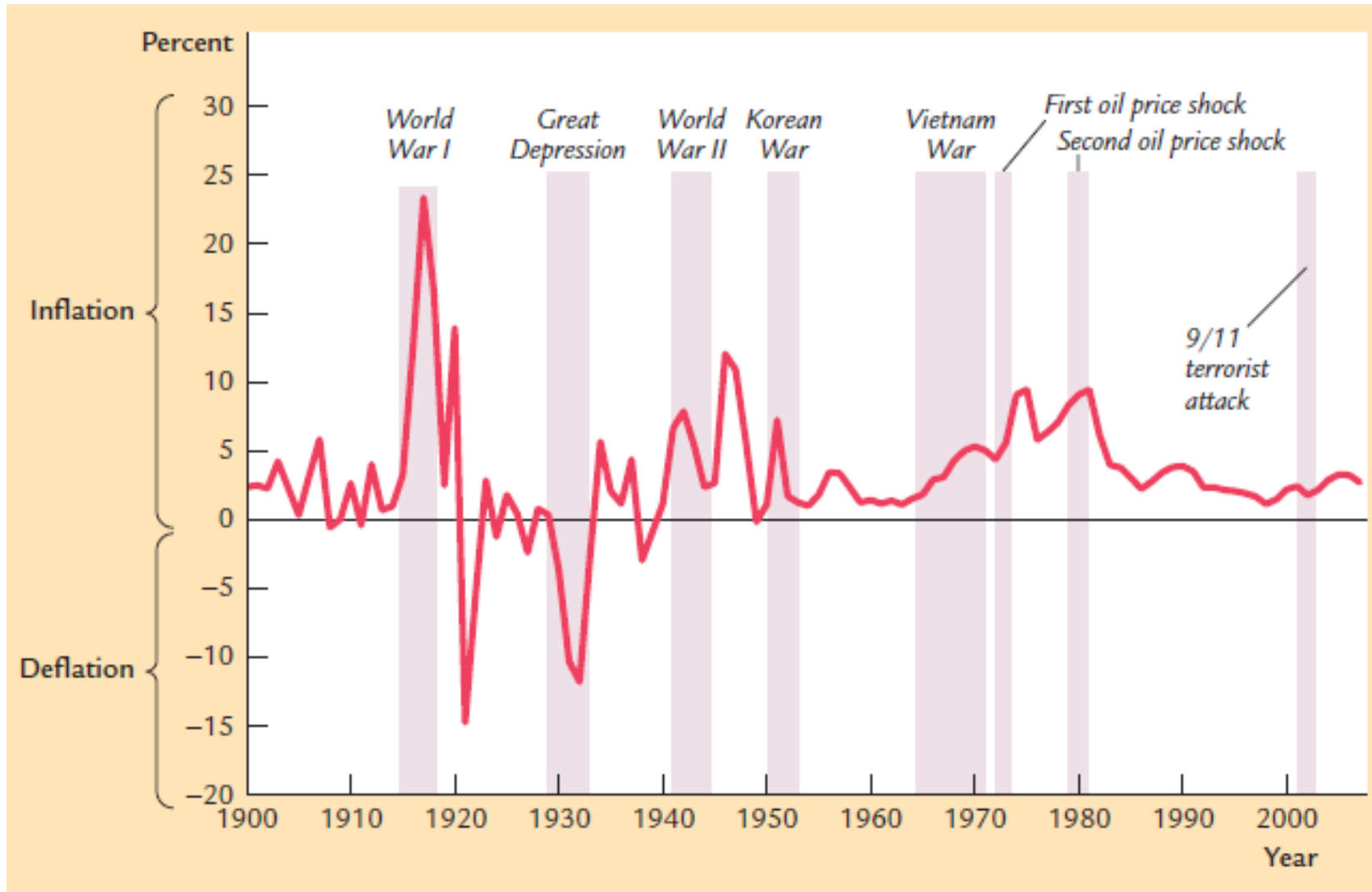
# 1.1) What Macroeconomists Study

→ U.S. Real GDP per Capita (2000 dollars)



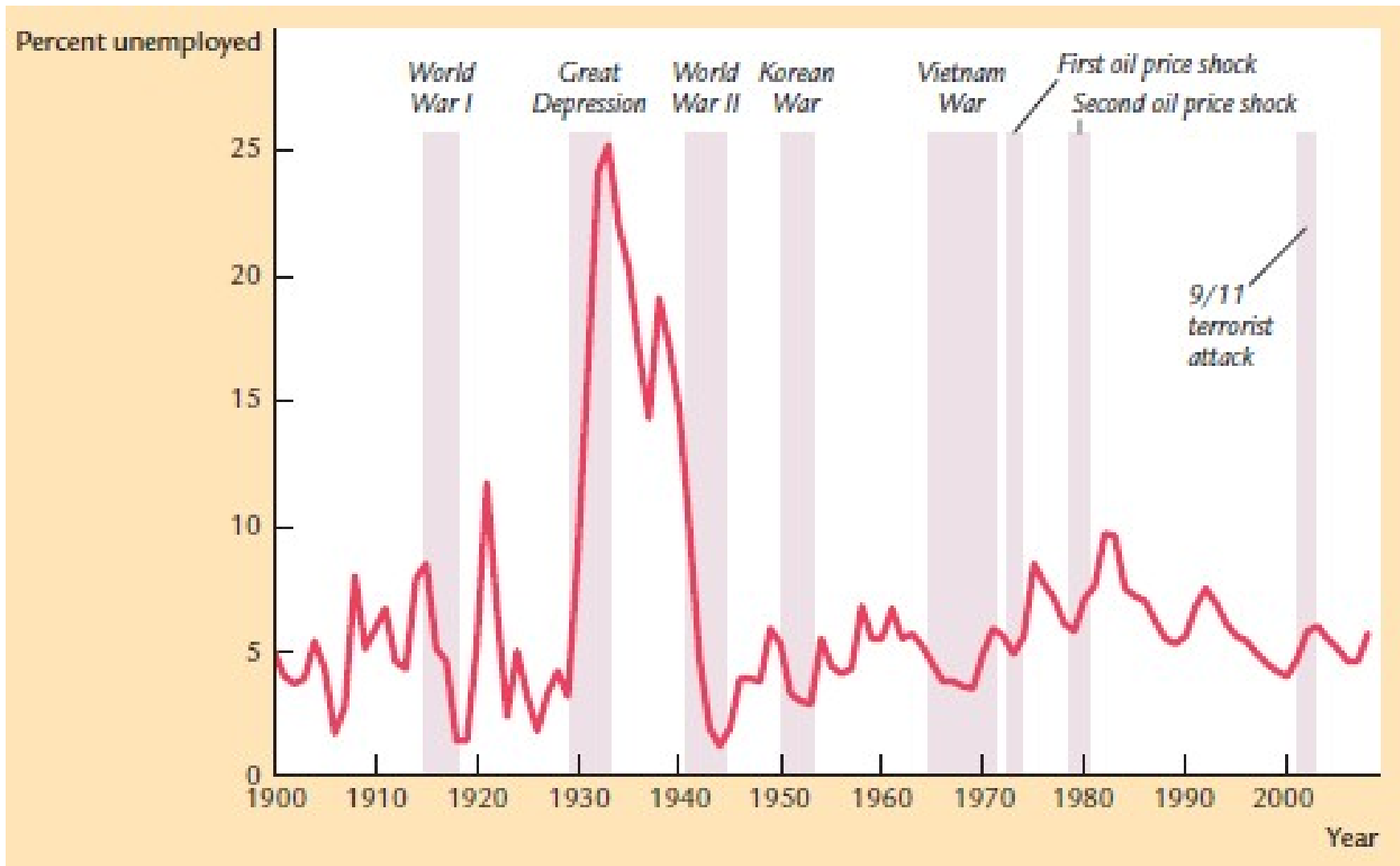
# 1.1) What Macroeconomists Study

→ U.S. Inflation Rate (% per Year)



# 1.1) What Macroeconomists Study

→ U.S. Unemployment Rate (% of Labor Force)



# Economic Text:

## → The Economist, Measuring What Matters

Please prepare to answer the following discussion questions based on the text “Measuring what matters”:

- 1) Which aspects does GDP omit in capturing the well-being of a country's inhabitants? Why are these features difficult to include?
- 2) What are the main critiques of the commission mentioned in the text as regards measuring a country's well-being with the concept of GDP?
- 3) How does the commission suggest to measure quality of life?
- 4) Should one include a measure of a society's future well-being to gauge how well off a society is?
- 5) Which problems come up when broadening the measure of a country's well-being to include, for example, happiness?



# Learning Objectives

This chapter introduces you to

- The issues macroeconomists study ✓
- How economists think ←

# 1.2) How Economists Think

Economic models...

...are simplified versions of a more complex reality

- irrelevant details are stripped away

...are used to

- show relationships between variables
- explain the economy's behavior
- devise policies to improve economic performance

# 1.2) How Economists Think

## → Example Model: Supply and Demand for 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

$P_m$  = price of steel (an input)

# 1.2) How Economists Think

## → 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 example model of supply & demand for cars,

exogenous:  $Y$ ,  $P_m$

endogenous:  $P$ ,  $Q^d$ ,  $Q^s$

# 1.2) How Economists Think

→ Example Model: 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.

# 1.2) How Economists Think

## → Digression: Functional Notation

**General functional notation** shows only that variables are related.

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



A list of  
variables  
that affect  $Q^d$

A **specific functional form** shows the precise quantitative relationship. Example:

$$D(P, Y) = 60 - 10P + 2Y$$

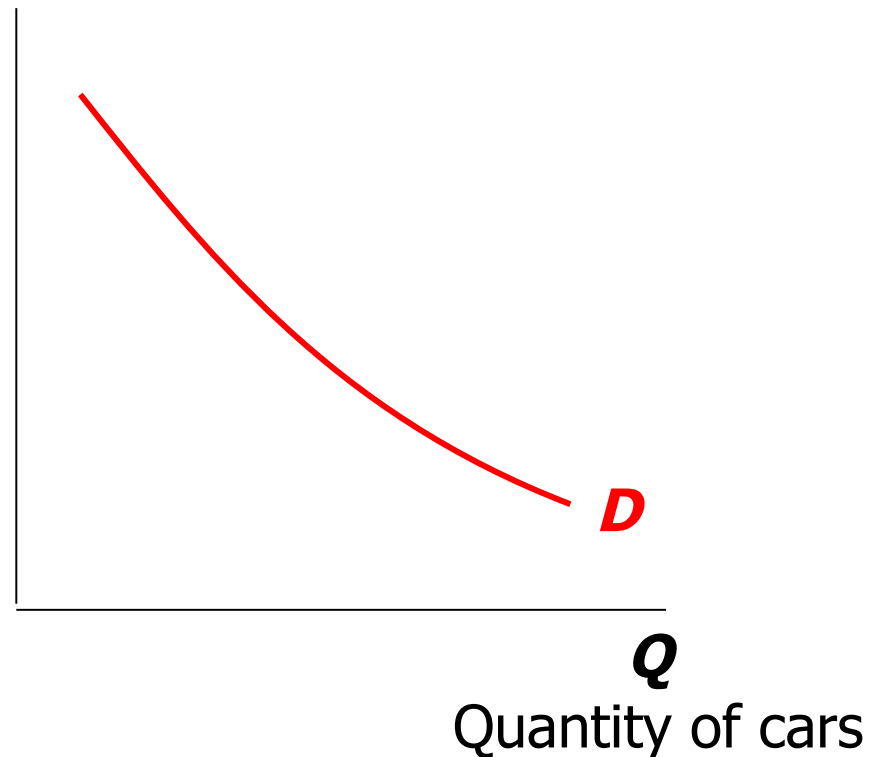
# 1.2) How Economists Think

→ Example Model: Demand on the Car Market

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

$P$   
Price  
of cars

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



# 1.2) How Economists Think

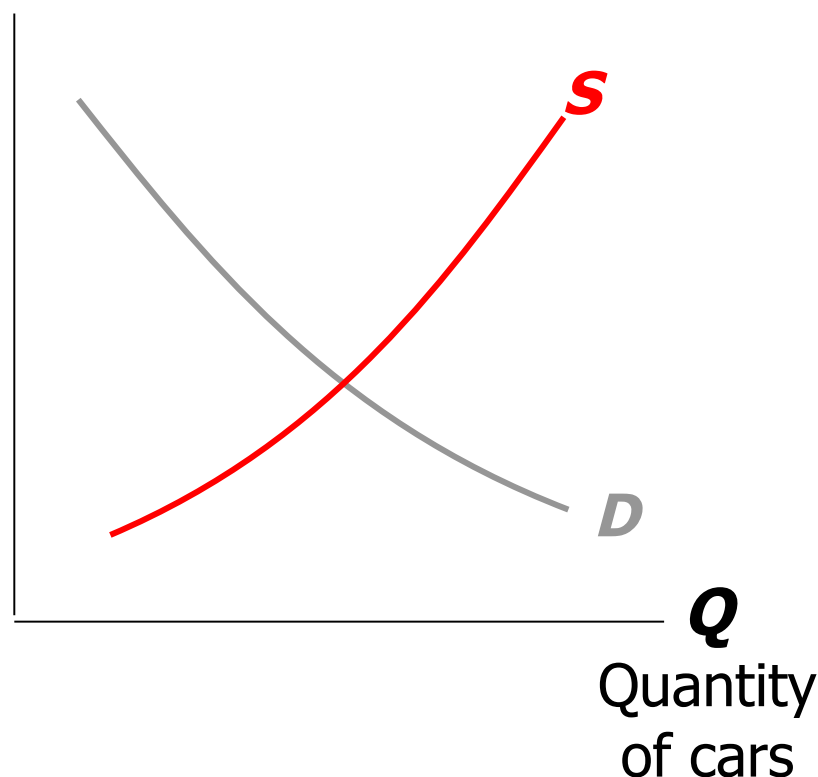
## → Example Model: Supply on the Car Market

Supply equation:

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

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

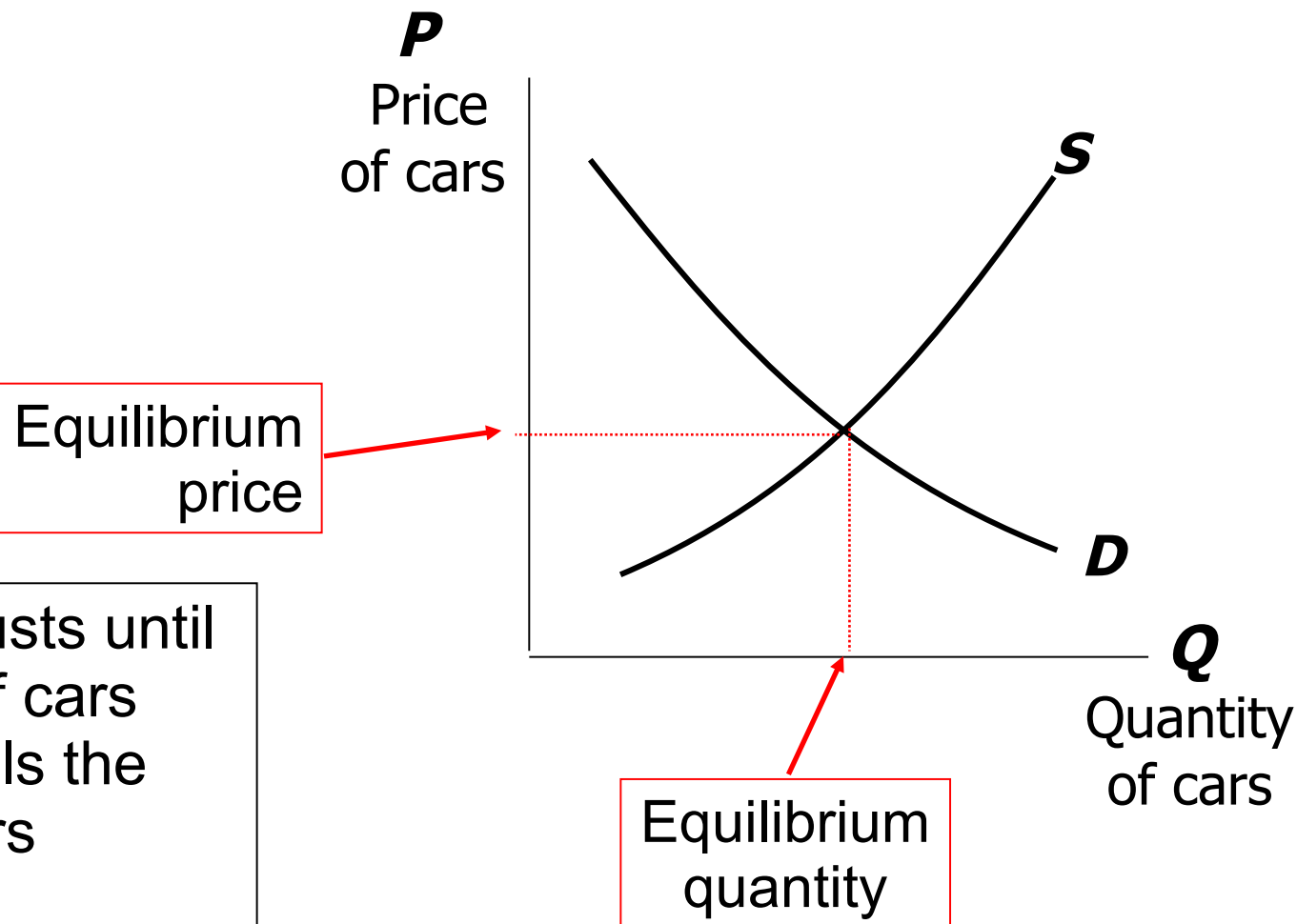
**P**  
Price  
of cars





# 1.2) How Economists Think

→ Example Model: Equilibrium on the Car Market



The price adjusts until the quantity of cars supplied equals the quantity of cars demanded.

# 1.2) How Economists Think

→ Example Model: Effect of Increase in Income

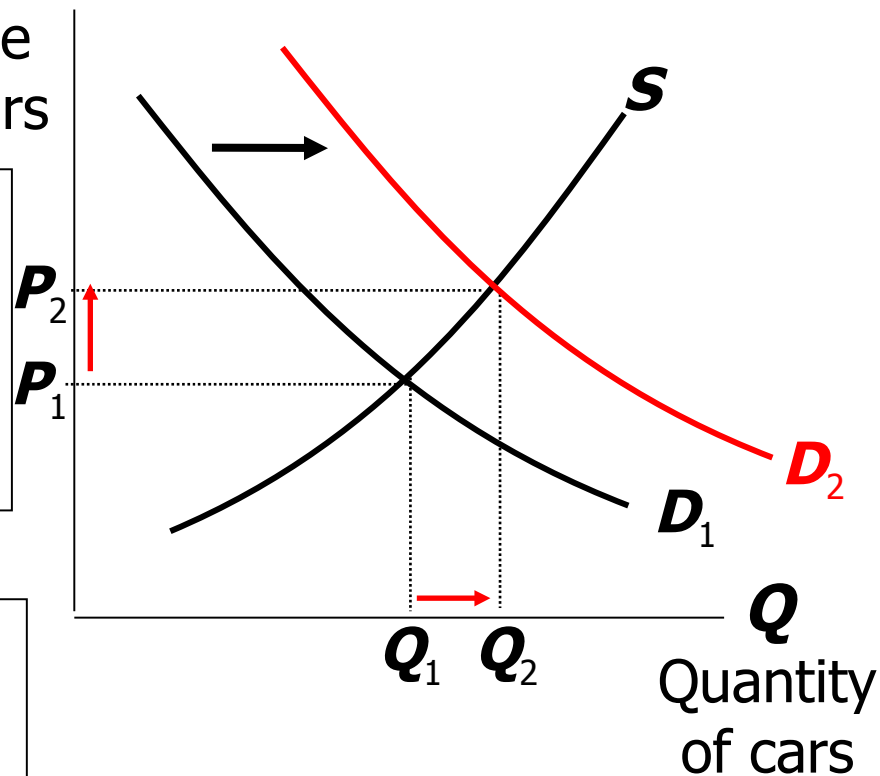
Demand equation:

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

$P$   
Price  
of cars

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

...which increases the equilibrium price and quantity.



# 1.2) How Economists Think

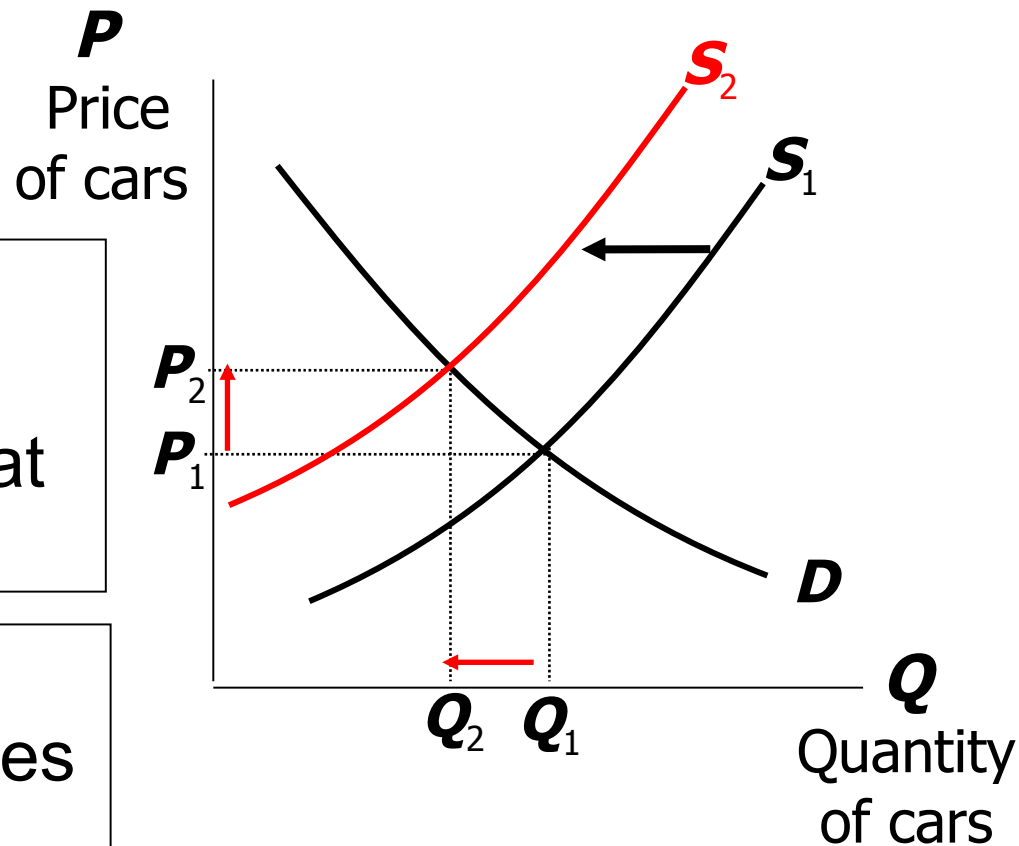
→ Example Model: Effect of Steel Price Increase

Supply equation:

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

An increase in  $P_m$  reduces the quantity of cars producers supply at each price...

...which increases the market price and reduces the quantity.



# 1.2) How Economists Think

→ 该你们了

1. Write down demand and supply equations for wireless phones; include two exogenous variables in each equation.
2. Draw a supply-demand graph for wireless phones.
3. Use your graph to show how a change in one of your exogenous variables affects the model's endogenous variables.



# 1.2) How Economists Think

## → A Multitude of Models

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

For example, our supply-demand model of the car market...

- can tell us how a fall in aggregate income affects price & quantity of cars.
- cannot tell us why aggregate income falls.

# 1.2) How Economists Think

## → A Multitude of Models

So we will learn different models for studying different issues (for example, 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

# 1.2) How Economists Think

## → 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

# 1.2) How Economists Think

## → Prices: Flexible vs. Sticky

The economy's (and model's) behavior depends partly on whether prices are sticky or flexible:

Short run: Prices are sticky, 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 are flexible, markets clear, economy behaves very differently



# Outline of This Course

Introductory Material (Ch. 1 & 2)

Classical Theory (Ch. 3-6)

How the economy works in the long run, when prices are flexible

Growth Theory (Ch. 7-8)

The standard of living and its growth rate over the very long run

Business Cycle Theory (Ch. 9-11)

How the economy works in the short run, when prices are sticky

# Summary of Chapter 1

Macroeconomics is the study of the economy as a whole, including

- growth in output
- changes in the overall level of prices
- the unemployment rate

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

# Summary of Chapter 1 (ctd.)

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.