

# **FIN204: Macroeconomics**

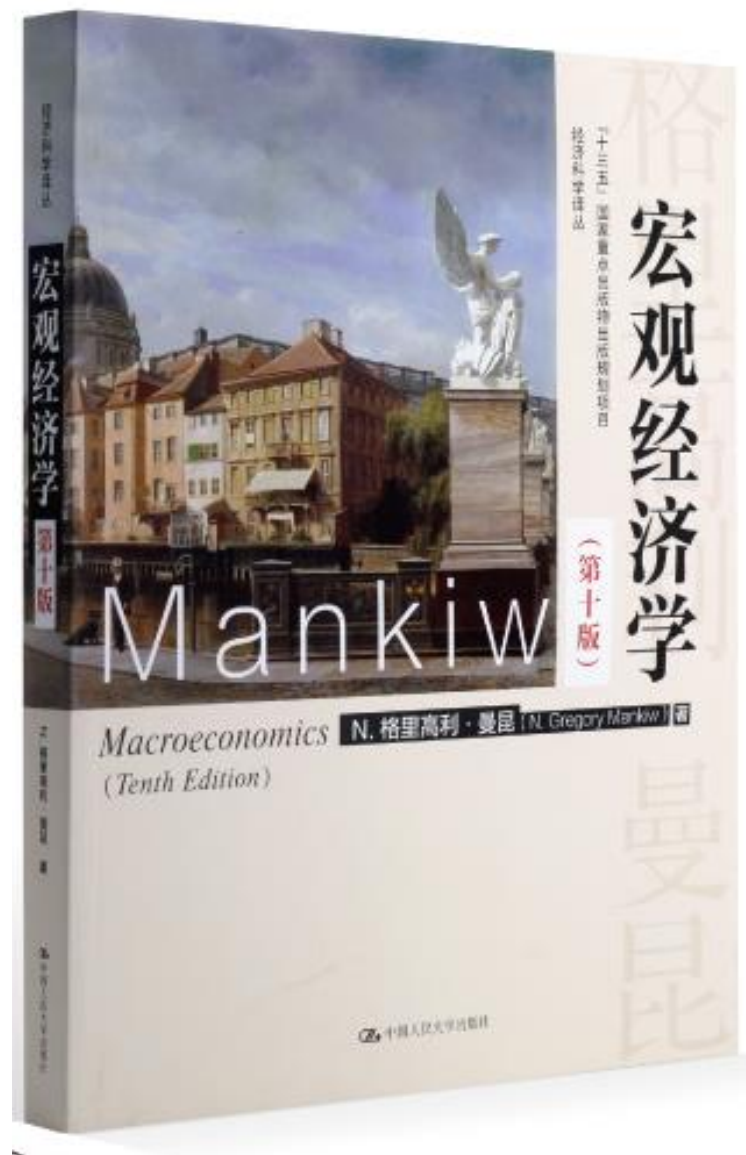
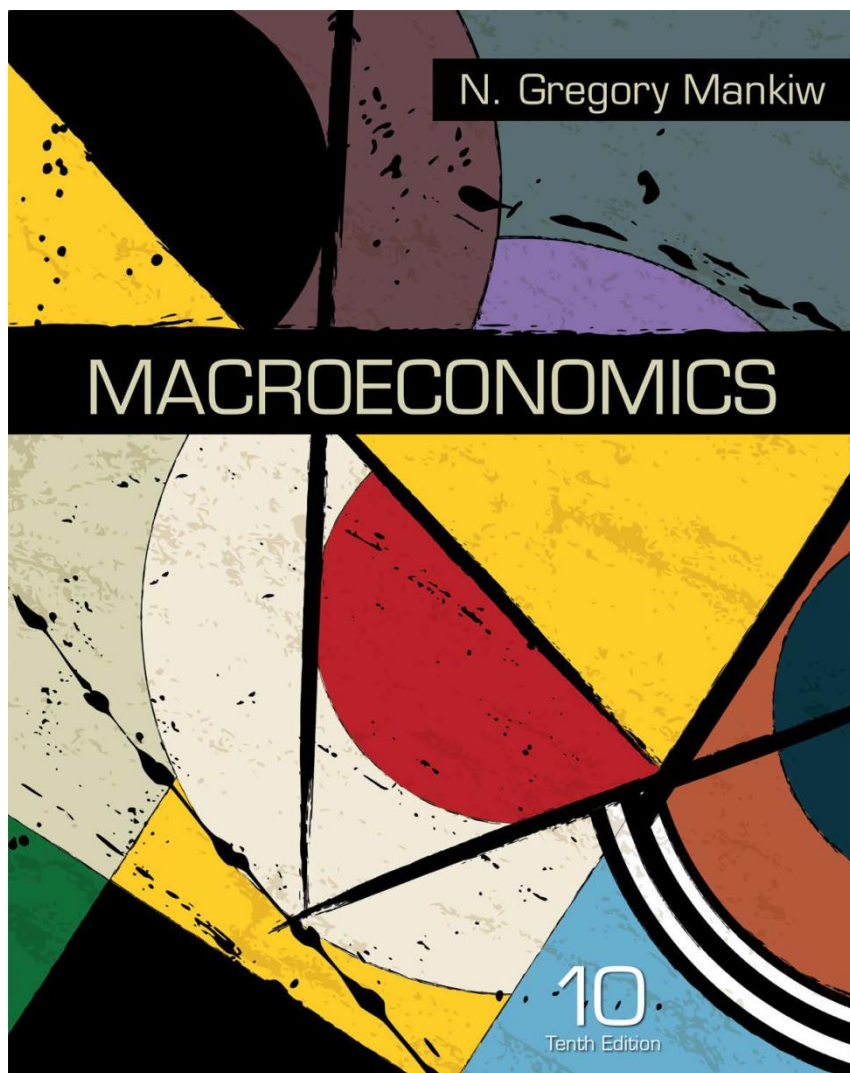
**Spring 2023**

# About this course

- Instructor: Dr. SUN Bianxia (孙便霞) ,  
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- TA: Mr. CHEN Junzhe (陈钧哲),  
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- All course resources are on BlackBoard
- Office hour: Wednesday 3:00 pm-5:00 pm,  
Room 513, School of Business

# Textbook

- N. Gregory Mankiw, Macroeconomics (10th Edition), Worth Publishers, 2019.
- N·格里高利·曼昆, 宏观经济学 (第十版) , 中国人民大学出版社, 2020.



## CHAPTER 1 The Science of Macroeconomics

# Grading

- Class Attendance: 10%
- Final Project: 10%
- Homework: 10%
- Midterm Exam: 30%
- Final Exam: 40%

# Course Plan

- Part 1: Introduction, 4 hours

---the science and data of macroeconomics

- Part 2: Classical Theory: The Economy in the Long Run, 12 hours

---national income, monetary system, inflation, the open economy, unemployment and the labor market

- Part 3: Growth Theory: The Economy in the Very Long Run, 6 hours

---capital accumulation and population growth, technology, empirics, and policy

# Course Plan

- Midterm review and exam (April 10)
- Part 4: Business Cycle Theory: The Economy in the Short Run, 16 hours  
---economic fluctuations,  $IS-LM$  model, the exchange-rate regime, aggregate supply
- Part 5: Taylor Rule, Stabilization policy, 4 hours
- Team presentation, final review and exam

# **Part I Introduction**

## **Chapter 1**

### **The Science of Macroeconomics**

**N. Gregory Mankiw, Macroeconomics (10e)**



# IN THIS CHAPTER, YOU WILL LEARN:

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- About the issues macroeconomists study
- About the tools macroeconomists use
- Some important concepts in macroeconomic analysis

# **1.1 What Macroeconomists Study**

# Important issues in macroeconomics

**Macroeconomics**—the study of the economy as a whole—addresses many topical issues, *e.g.*:

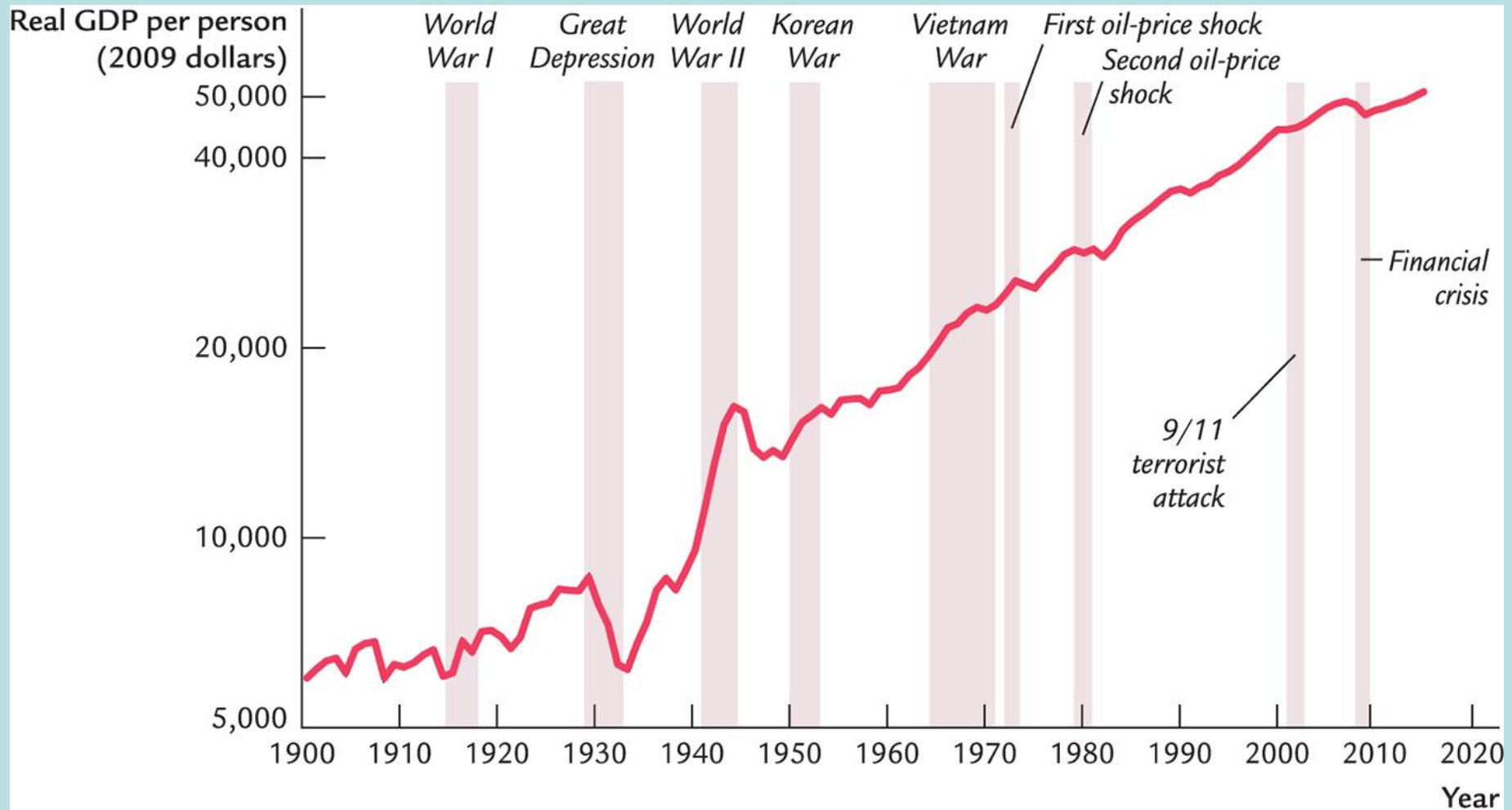
- What causes recessions? What is “government stimulus” and why might it help?
- How can problems in the housing market spread to the rest of the economy?
- What is the government budget deficit? How does it affect workers, consumers, businesses, and taxpayers?

# Important issues in macroeconomics

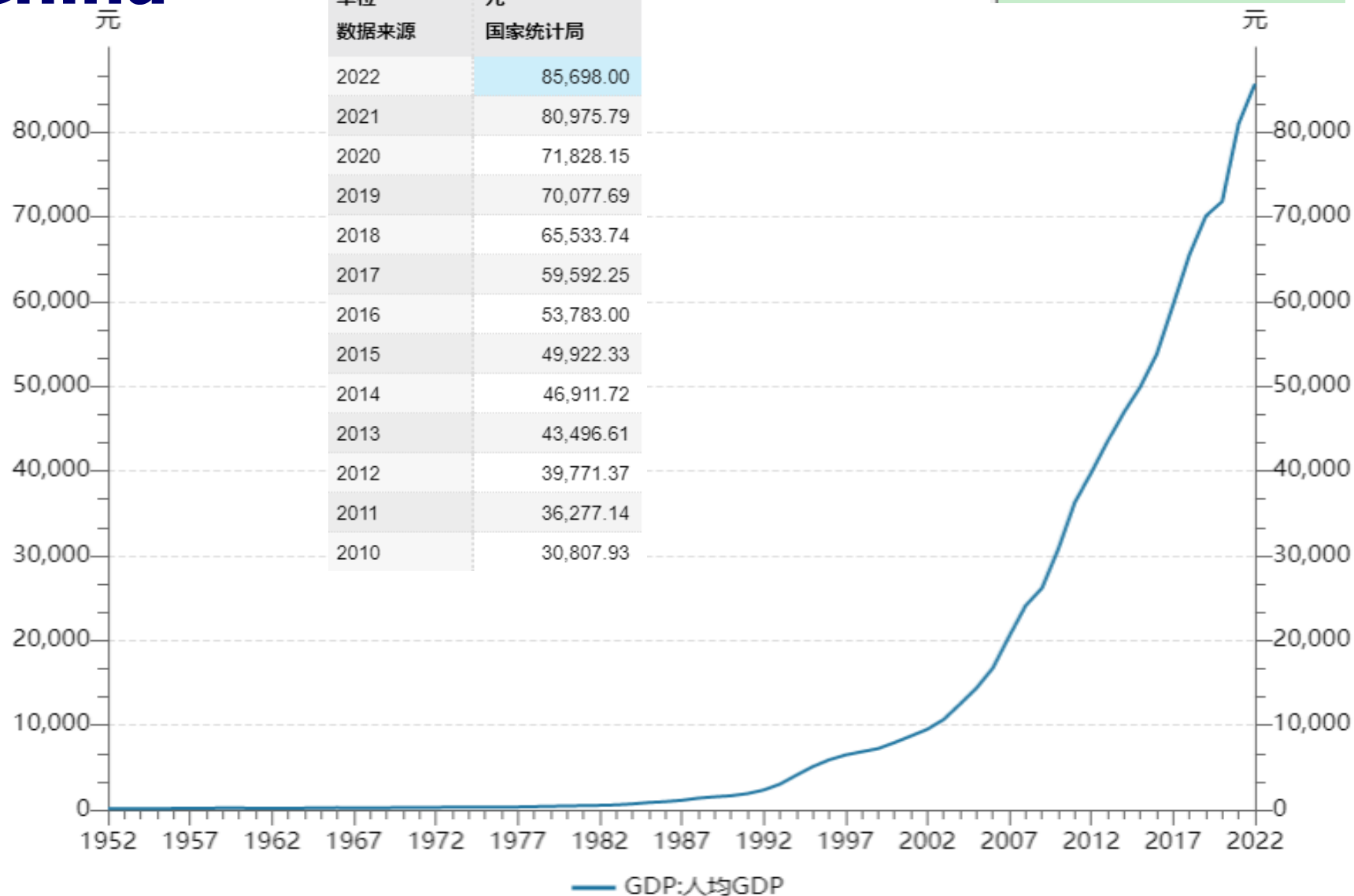
**Macroeconomics**—the study of the economy as a whole—addresses many topical issues, *e.g.*:

- Why does the cost of living keep rising?
- Why are so many countries poor? What policies might help them grow out of poverty?
- What is the trade deficit? How does it affect a country's well-being?

# U.S. Real GDP per capita (2009 dollars)

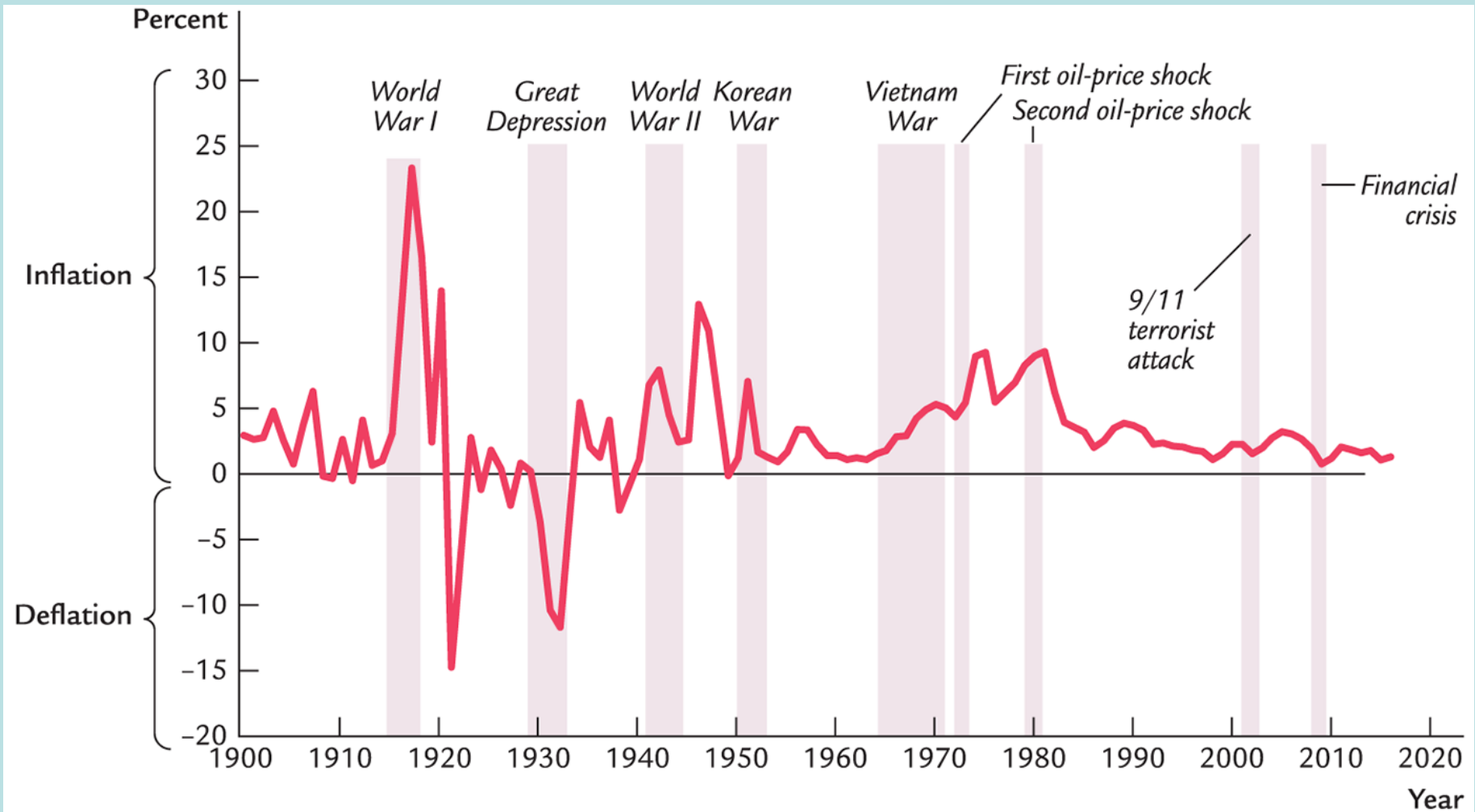


# China

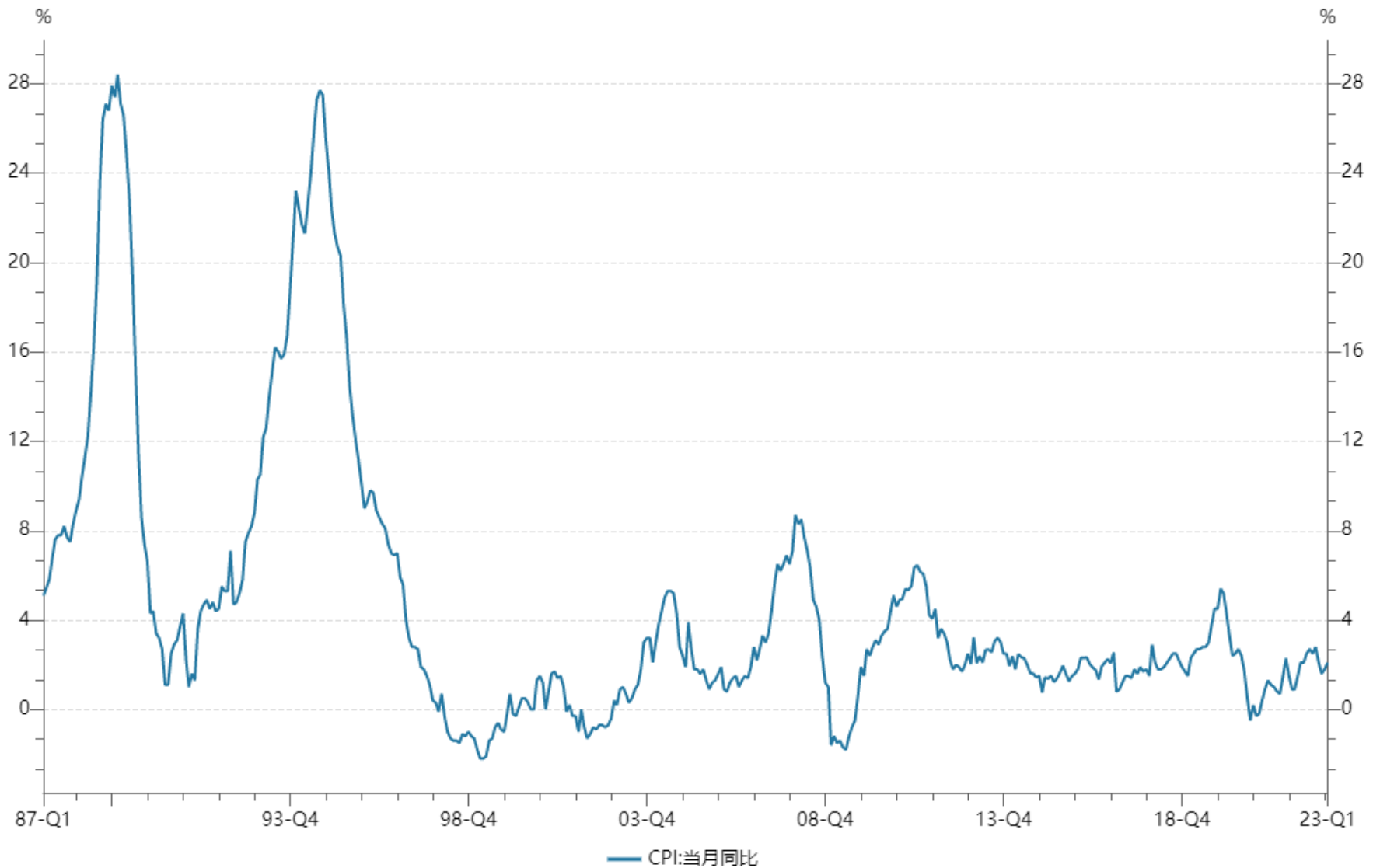


数据来源：Wind

# U.S. Inflation Rate (% per year)



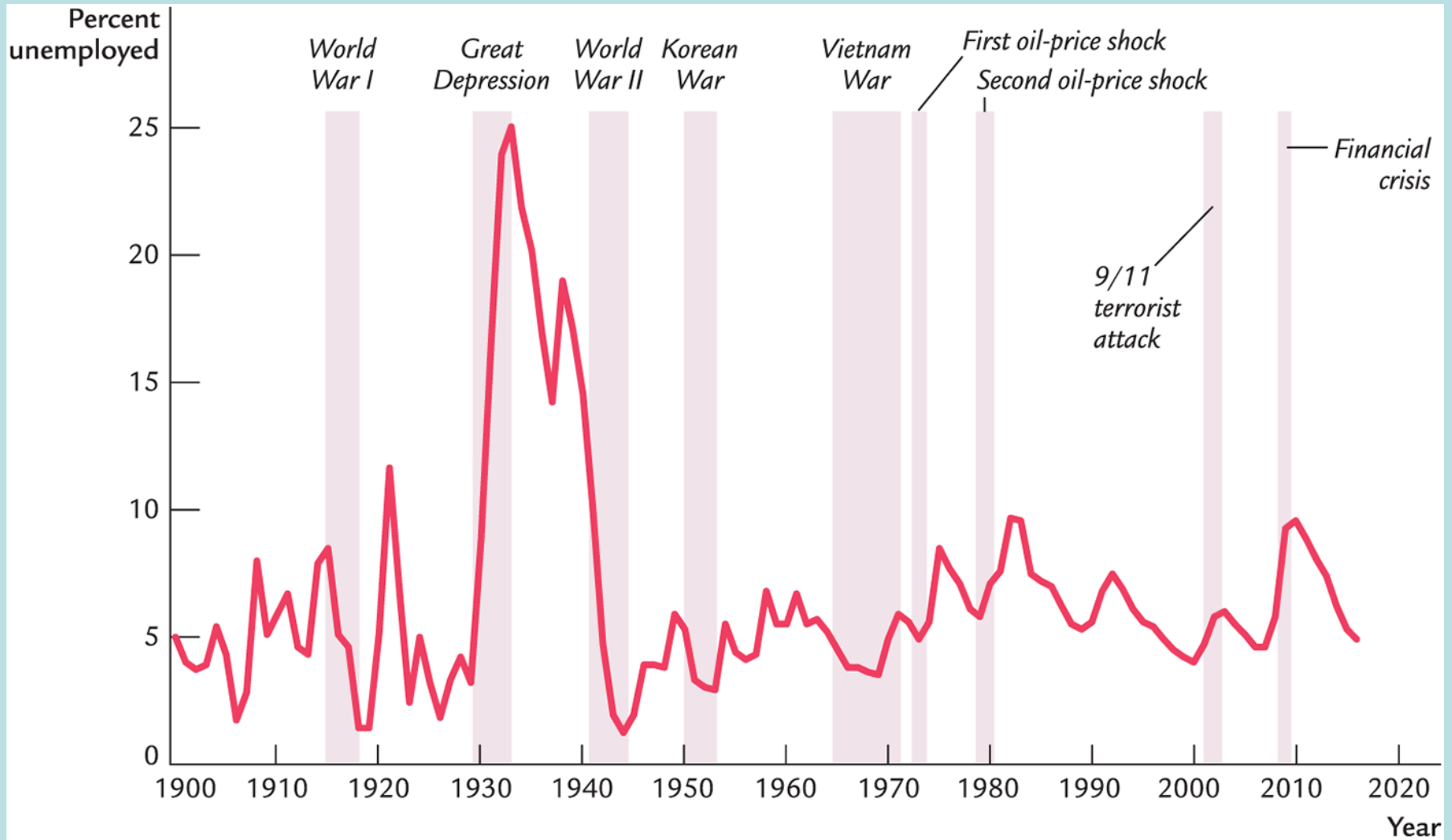
# China



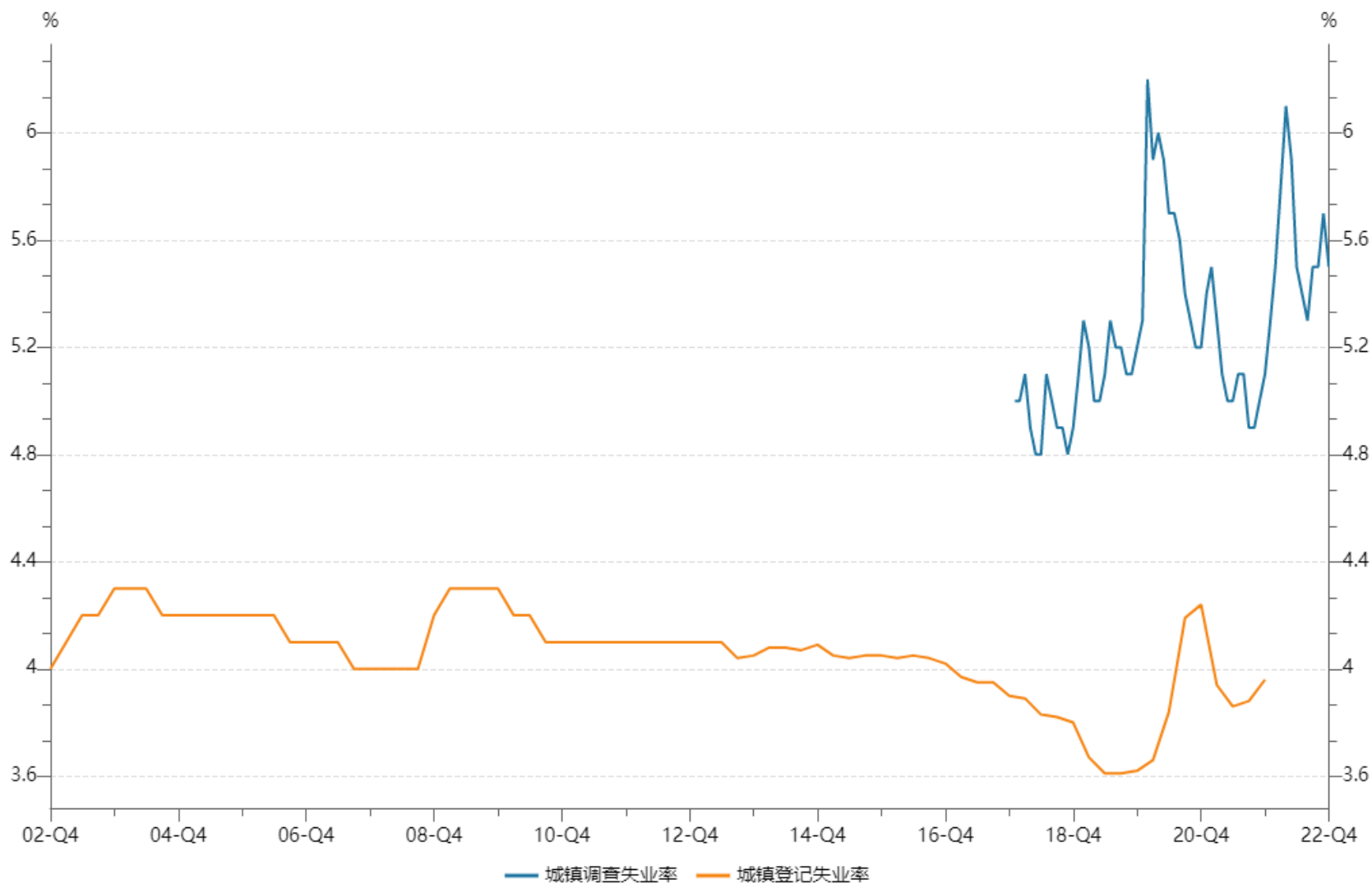
数据来源: Wind



# U.S. Unemployment Rate (% of labor force)



# China



数据来源: Wind

## 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

# 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 and behavior as given.



Mankiw, *Macroeconomics*, 10e, © 2019 Worth Publishers

# Example of a model:

## Supply & demand for pizzas

- Shows how various events affect price and quantity of pizzas
- Assumes the market is competitive: each buyer and seller is too small to affect the market price

### Variables

$Q^d$  = quantity of pizzas that buyers demand

$Q^s$  = quantity that producers supply

$P$  = price of pizzas

$Y$  = aggregate income

$P_m$  = price of raw material (an input)

# The demand for pizzas

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

- Shows that the quantity of pizzas consumers demand is related to the price of pizzas and aggregate income

# Digression: functional notation

- **General functional notation**

shows only that the variables are related.

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


A list of the  
variables  
that affect  $Q^d$

- A **specific functional form** shows the precise quantitative relationship.

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



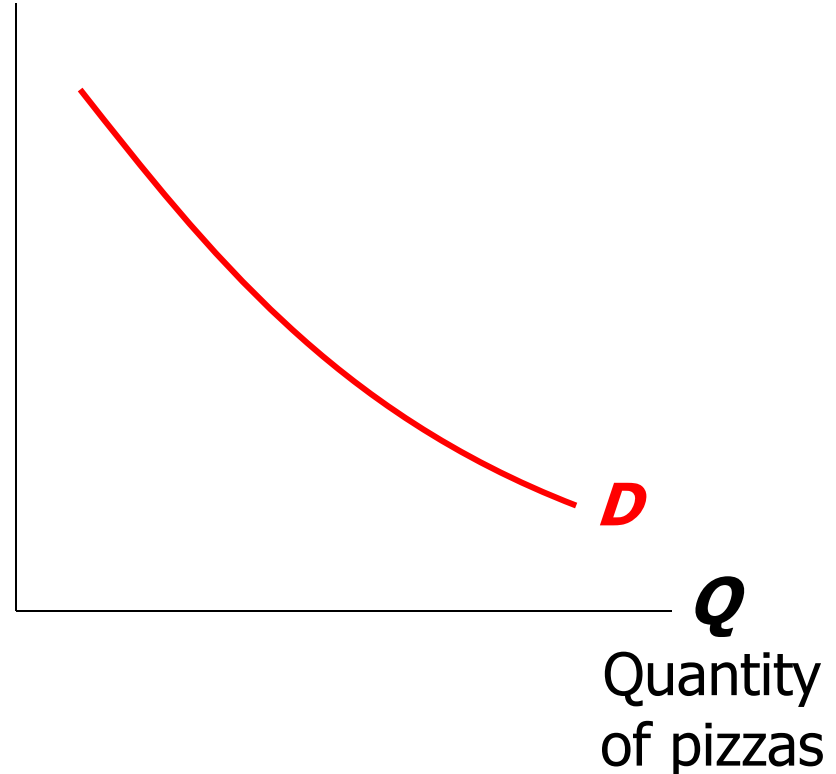
# The market for pizzas: Demand

Demand equation:

$$Q^d = D(P, \underline{Y})$$

$P$   
Price  
of pizzas

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

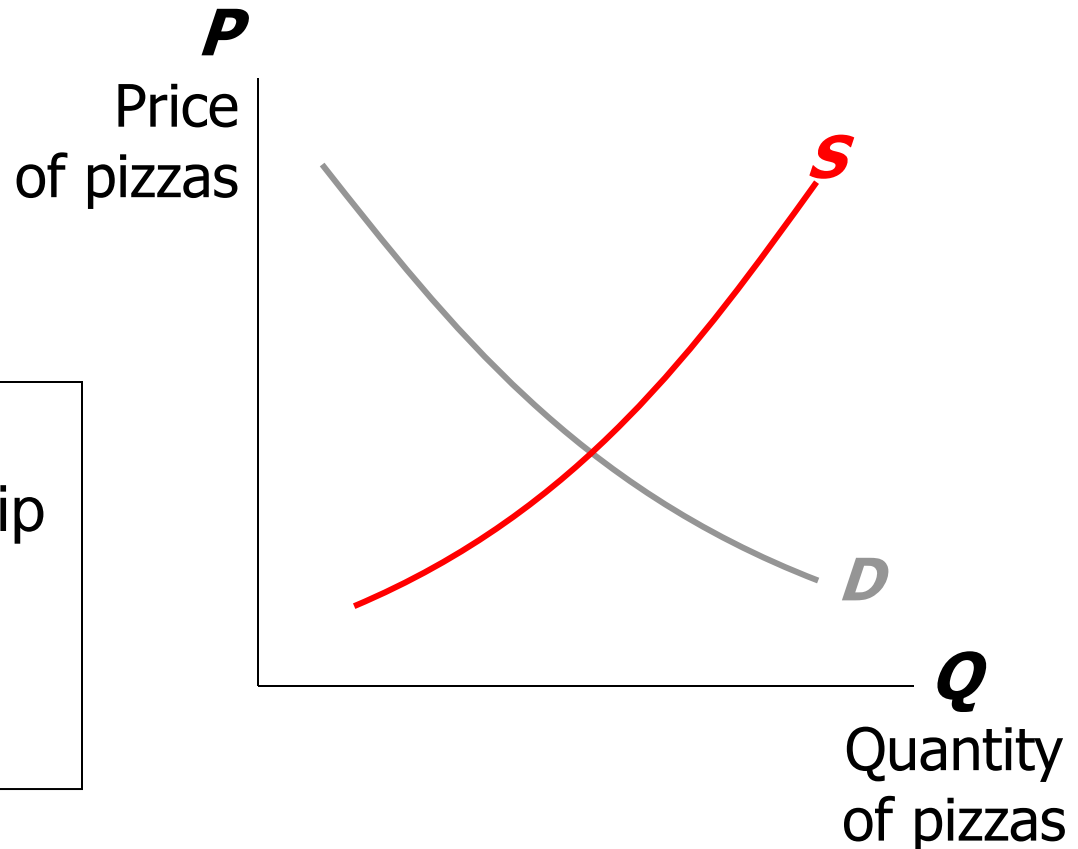


# The market for pizzas: **Supply**

Supply equation:

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

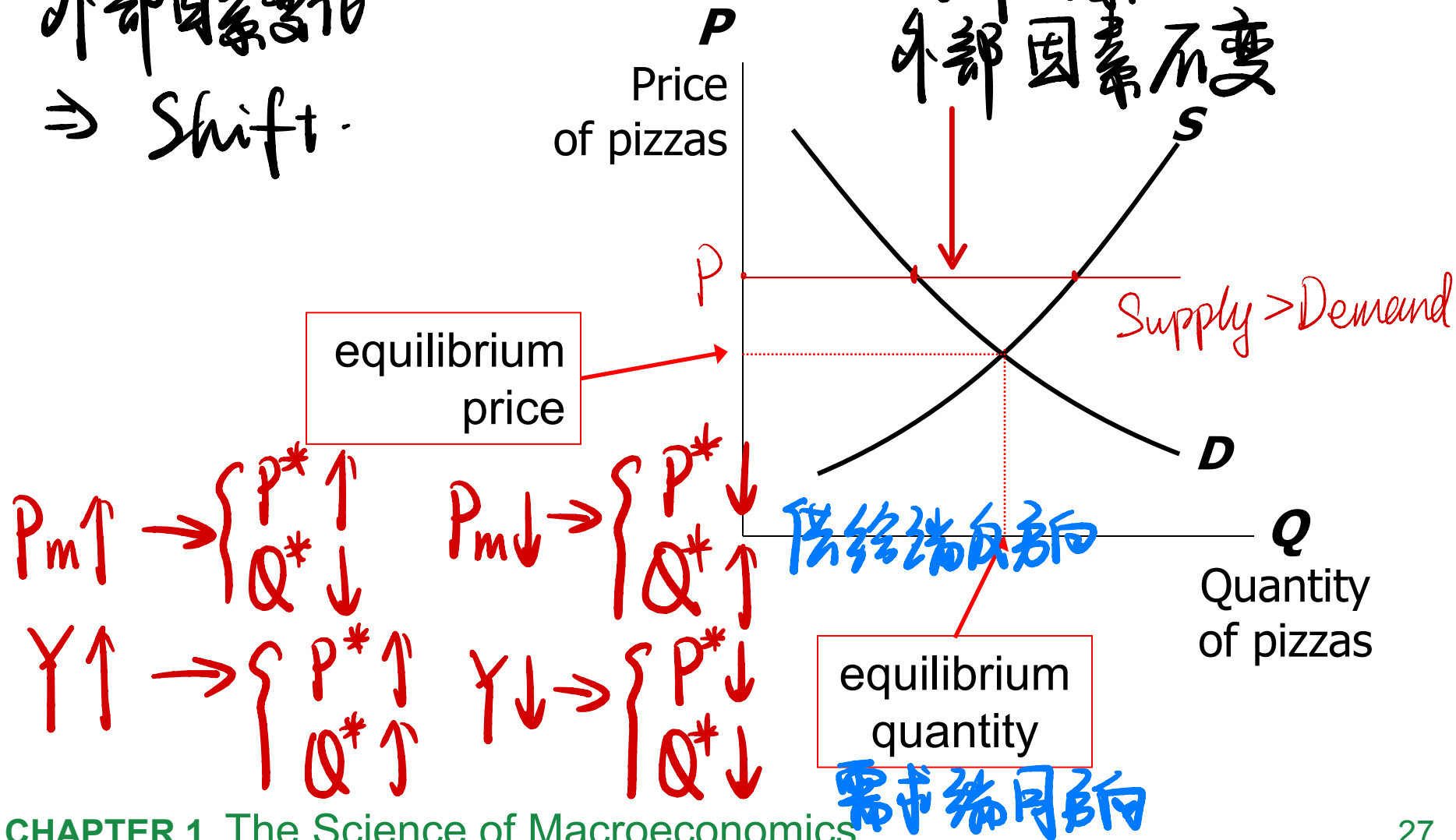
The **supply curve** shows the relationship between quantity supplied and price, other things equal.



# The market for pizzas: **Equilibrium**

外部因素变化  
⇒ Shift.

内部因素变化  
外部因素不变



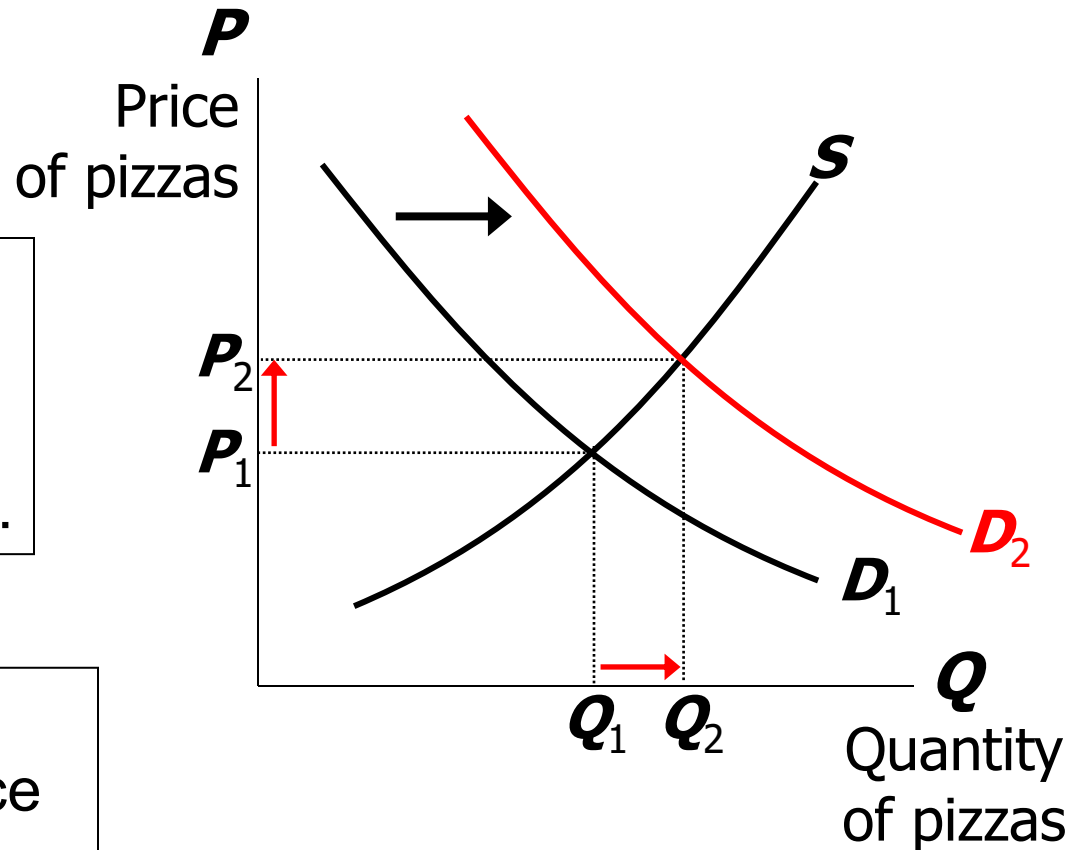
# The effects of an increase in income

Demand equation:

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

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

...which increases the equilibrium price and quantity.



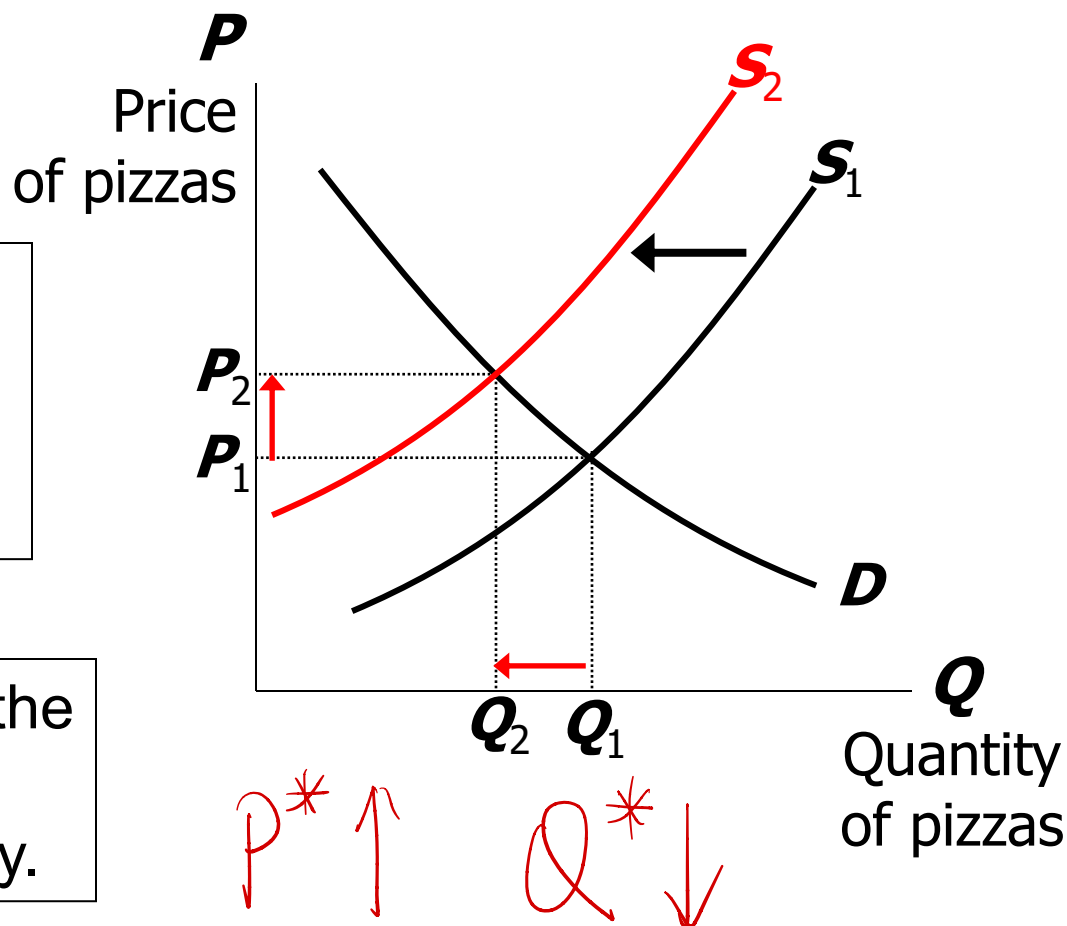
# The effects of material price increase

Supply equation:

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

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

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



# Endogenous vs. exogenous variables

- In the model of supply & demand for pizzas,

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

exogenous:  $Y, P_m$

## NOW YOU TRY

# Supply and Demand

$$Q^s = D(P, P_m, T)$$

$$Q^d = D(P, Y, \text{oil price})$$

1. Write down demand and supply equations for new energy vehicles, include two exogenous variables in each equation.
2. Draw a supply–demand graph for new energy vehicles.
3. Use your graph to show how a change in one of your exogenous variables affects the model's endogenous variables.

# The use of multiple models

- No one model can address all the issues we care about.
- *E.g.*, our supply–demand model of the pizza market...
  - *can* tell us how a fall in aggregate income affects price & quantity of pizzas.
  - *cannot* tell us *why* aggregate income falls.



# The use of multiple 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, 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 to 4 years

# Prices: flexible vs. sticky

- The economy's behavior depends partly on whether prices are sticky or flexible:
  - If prices are sticky (short run), demand may not equal supply, which explains:
    - unemployment (excess supply of labor)
    - why firms cannot always sell all the goods they produce
  - If prices are flexible (long run), markets clear and economy behaves very differently.

# Microeconomic thinking and macroeconomic models

- Microeconomics is the study of how households and firms make decisions and how these decision makers interact in the marketplace.
- A central principle of microeconomics is that households and firms *optimize*.
- Because economy-wide events arise from the interaction of many households and firms, macroeconomics and microeconomics are inextricably linked, and **macroeconomic theory rests on a microeconomic foundation**.

## **1.3 How This Book Proceeds**

# Outline of this book:

- Introductory material (Chaps. 1, 2)
- Classical Theory (Chaps. 3–7)  
How the economy works **in the long run**, when prices are flexible
- Growth Theory (Chaps. 8, 9)  
The standard of living and its growth rate **over the very long run**
- Business Cycle Theory (Chaps. 10–14)  
How the economy works **in the short run**, when prices are sticky

# Outline of this book:

- Macroeconomic theory and policy (Chaps. 15, 16–19)  
Macroeconomic dynamics, Stabilization policy, government debt and deficits, financial system, the microfoundations of consumption and investment

# CHAPTER SUMMARY

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- 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

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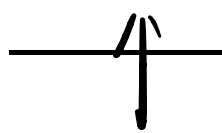
- Economists use different models to examine different issues.
- Models with flexible prices describe the economy in the long run; models with sticky prices describe the economy in the short run.
- Macroeconomic events and performance arise from many microeconomic transactions, so macroeconomics uses many of the tools of microeconomics.

# Quick Questions

- 1. When studying the short-run behavior of the economy, an assumption of \_\_\_\_\_ is more plausible, in contrast to studying the long-run equilibrium behavior of an economy, when an assumption of \_\_\_\_\_ is more plausible.

- A. inflation; unemployment
- B. unemployment; inflation
- C. flexible prices; sticky prices
- D. sticky prices; flexible prices

*sticky prices*



*flexible prices*

*D*

# Quick Questions

- 2. Which of the following is the best example of a sticky price?

- A. the price of a barrel of oil
  - B. the price of the U.S. dollar in terms of euros
  - C. the price of a share of stock
  - D. the price of a soda in a vending machine
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