



The Science of Macroeconomics

MACROECONOMICS

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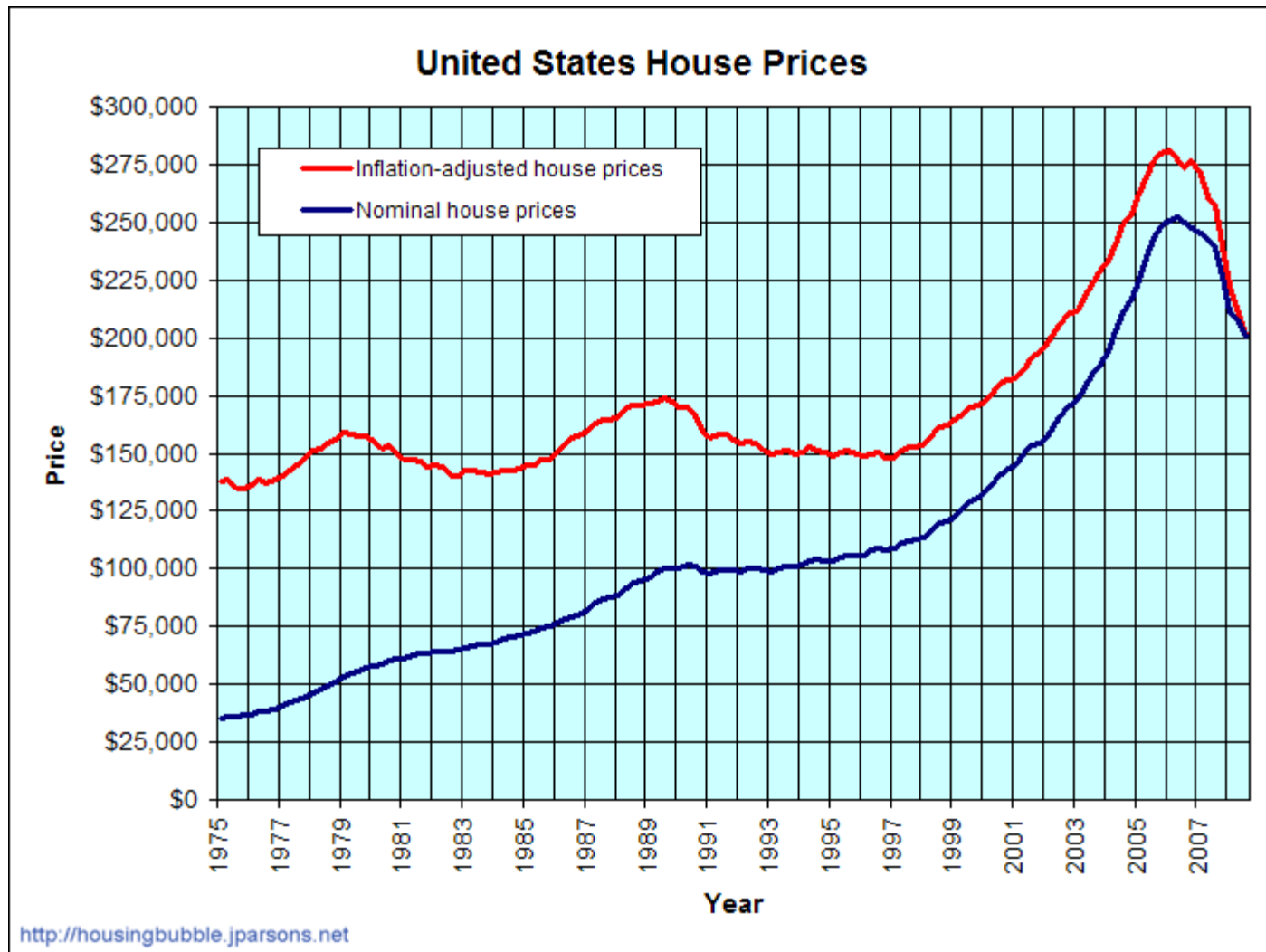
IN THIS CHAPTER, YOU WILL LEARN:

- about the issues macroeconomists study
- about 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, 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?



Housing Bubble

Timeline of the Recent Financial Crisis

Bear Stearns failure...
Fed authorizes lending
assistance and
orchestrates the
purchase by JP Morgan

IndyMac Bank
fails... placed
into FDIC
conservatorship

Treasury takes
over Fannie Mae
and Freddie Mac

Congress passes legislation
allowing the Treasury more
authority to regulate Fannie
Mae and Freddie Mac

Lehman
Brothers
files for
bankruptcy

Merrill Lynch
purchased by
Bank of America

Fed authorizes \$85
billion loan to AIG in
return for 80% stake

Goldman Sachs and
Morgan Stanley change
their status to bank
holding companies

Washington
Mutual fails...
banking assets sold
to JP Morgan

Citigroup submits
proposal to purchase
Wachovia's banking
division

Wells Fargo
announces desire
to purchase
Wachovia

President
Bush signs
Emergency
Economic
Stabilization
Act

Fed authorizes an
additional \$37.8
billion loan to AIG

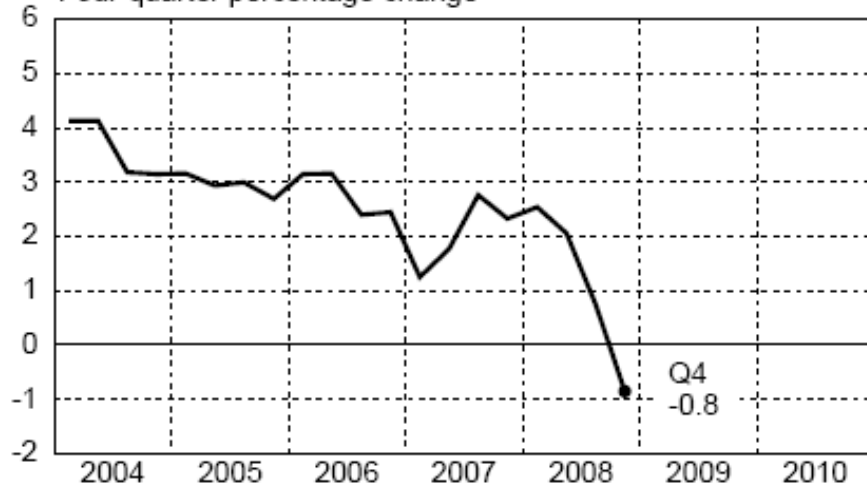
Fed approves Wells
Fargo's application
to purchase
Wachovia Corp. and
its subsidiaries

March '08 April – June '08 July '08 August '08 September '08 October '08

US Summary Indicators

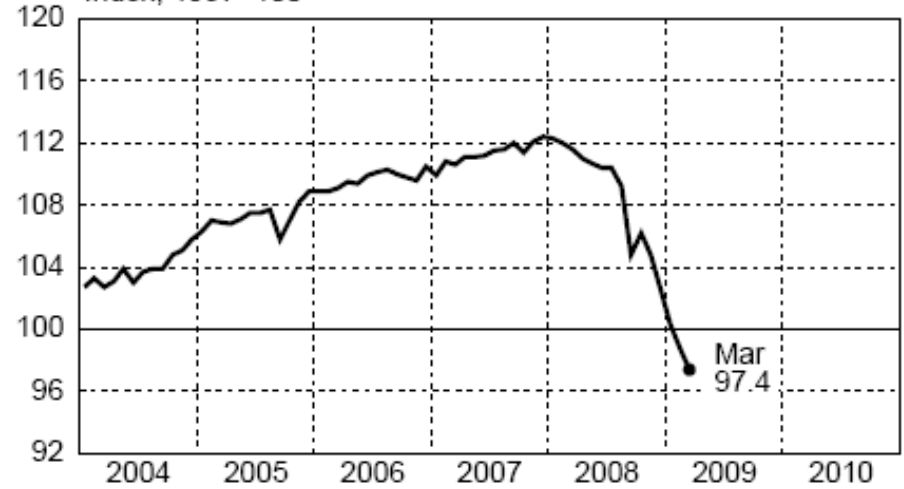
Gross Domestic Product

Four-quarter percentage change



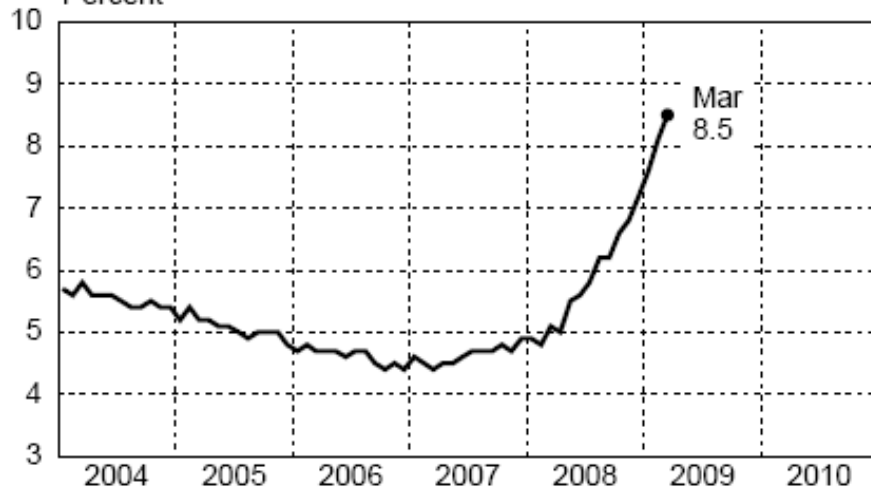
Industrial Production

Index, 1997=100



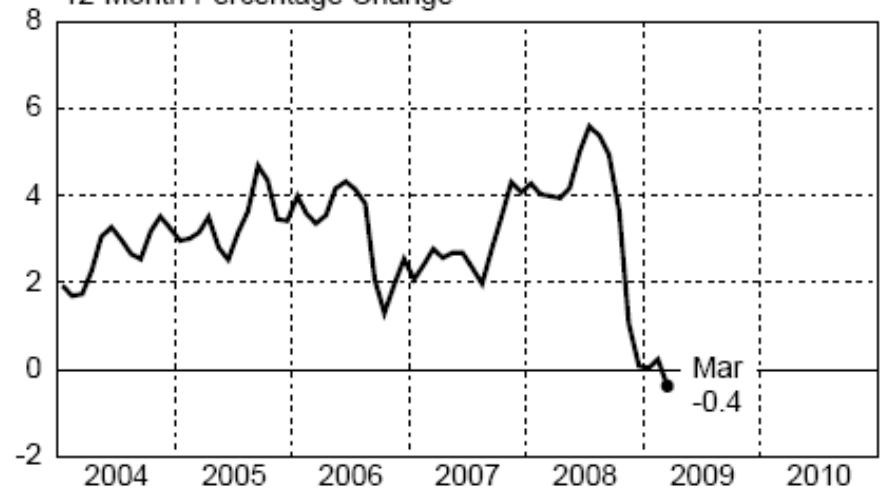
Unemployment Rate

Percent

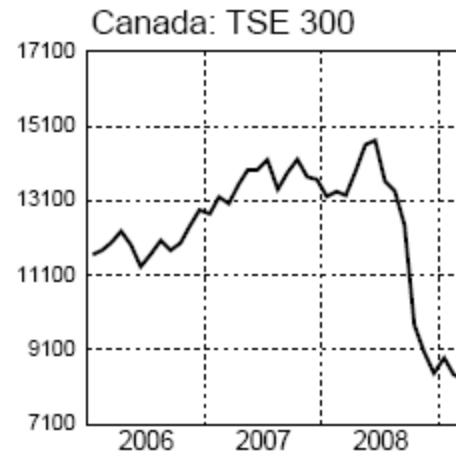
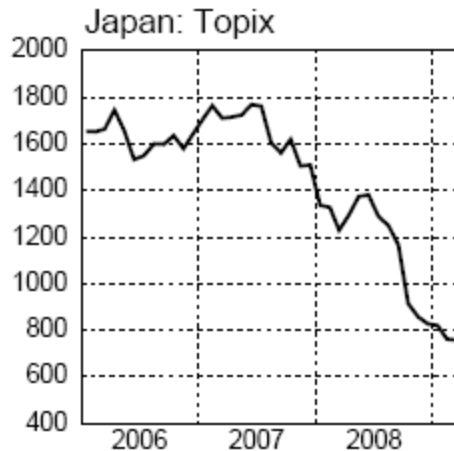


Consumer Price Index

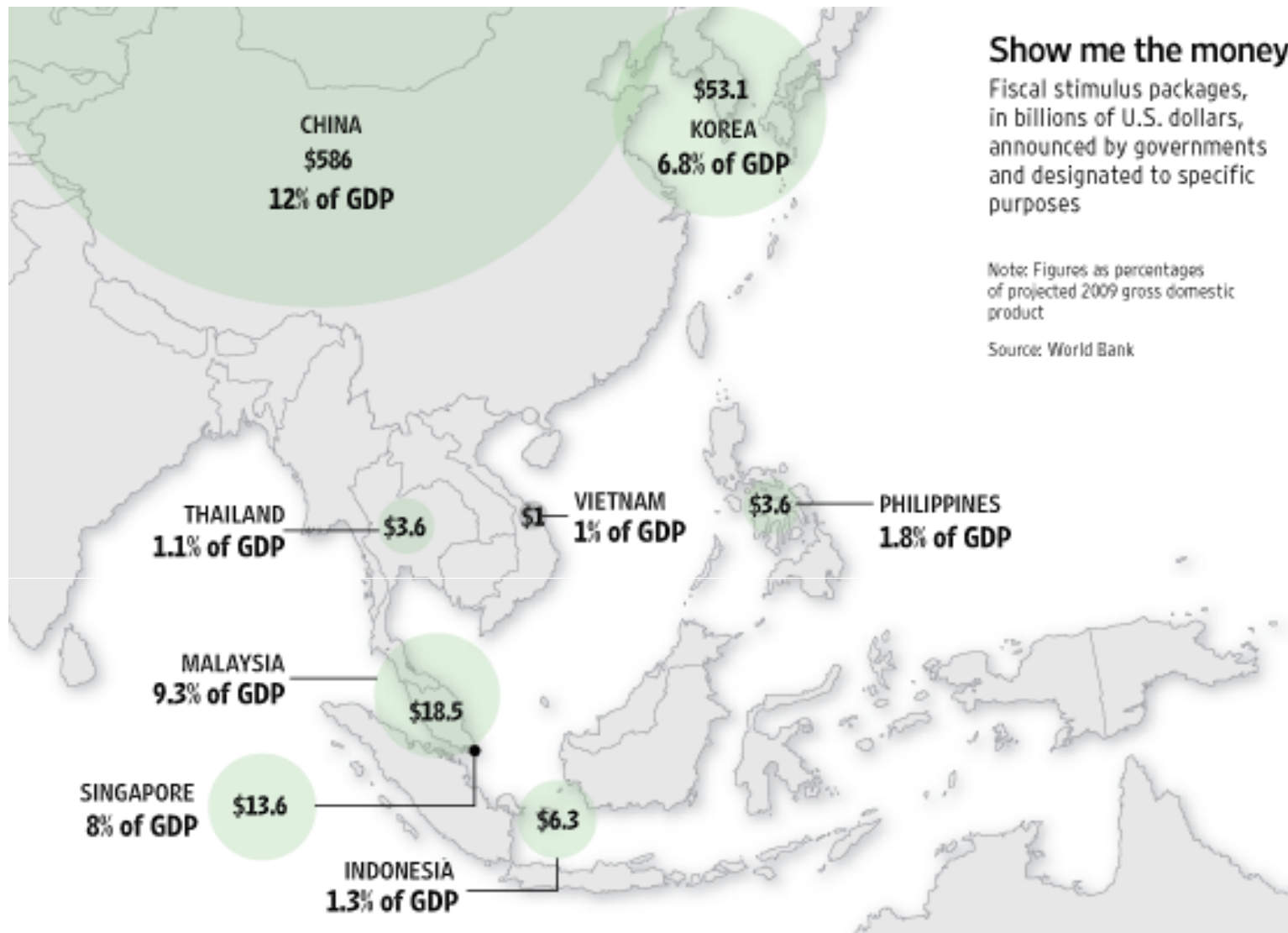
12-Month Percentage Change



The global impacts



2009-The global impacts

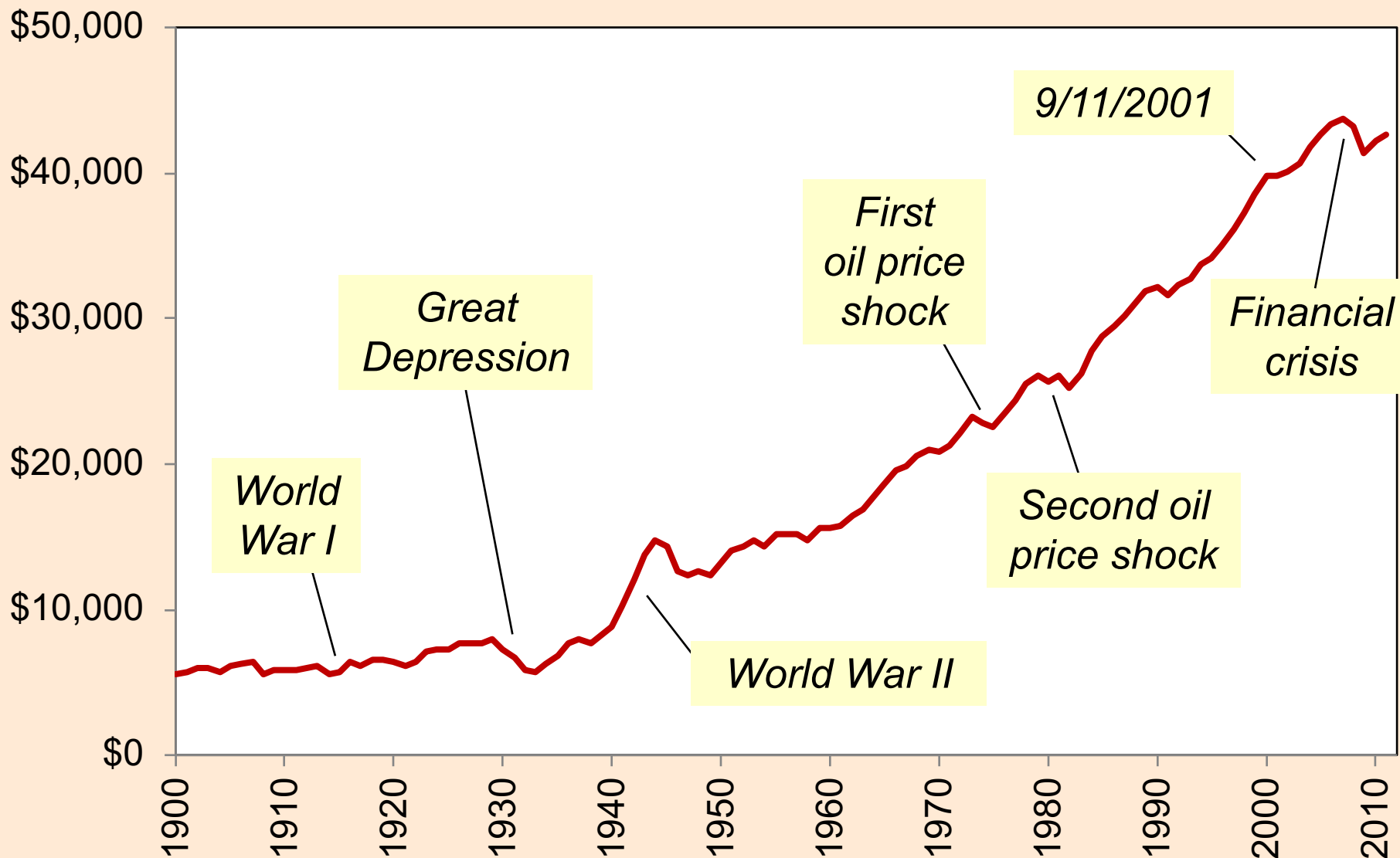


Important issues in macroeconomics

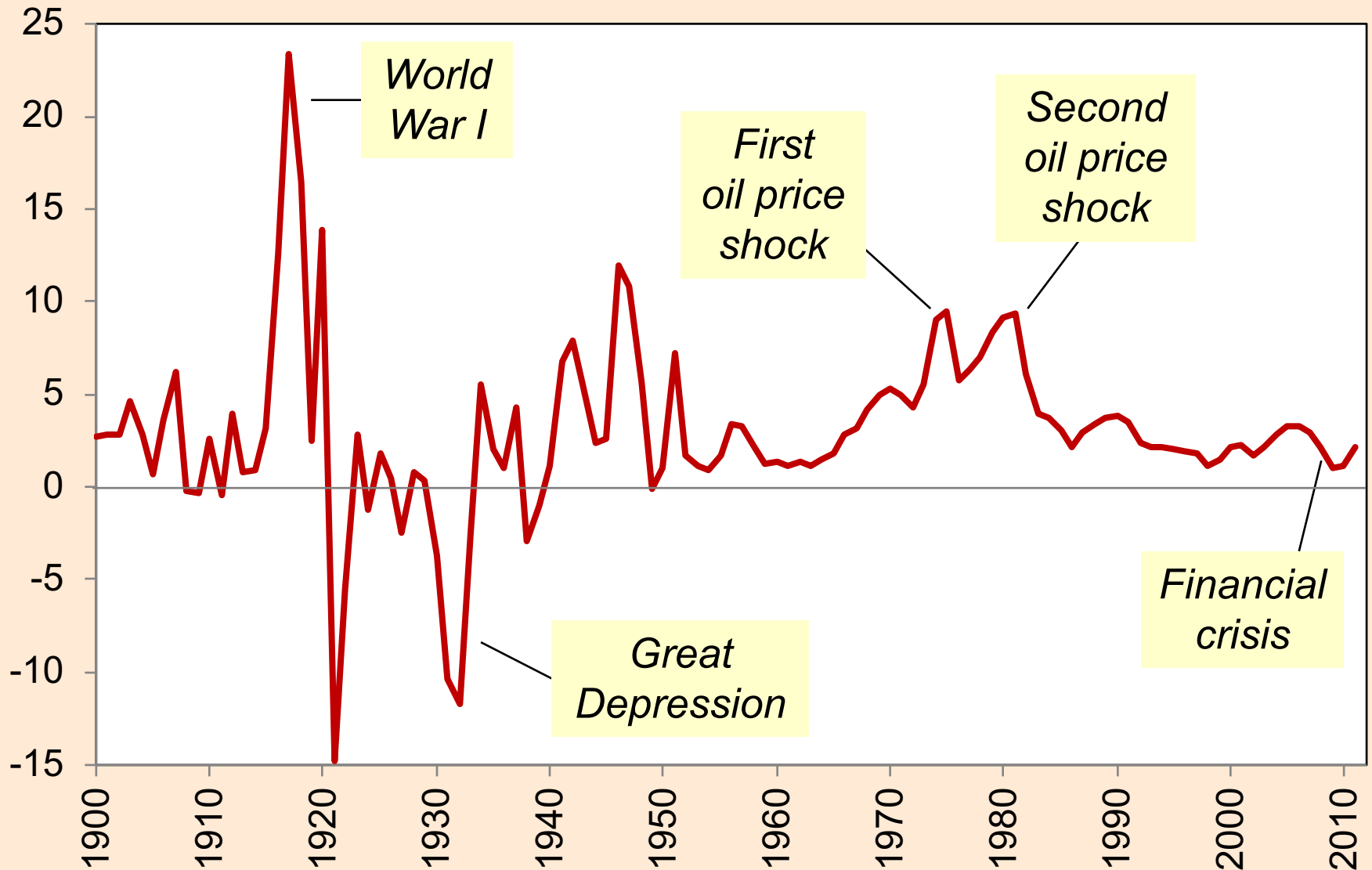
Macroeconomics, the study of the economy as a whole, addresses many topical issues, e.g.:

- 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 the country's well-being?

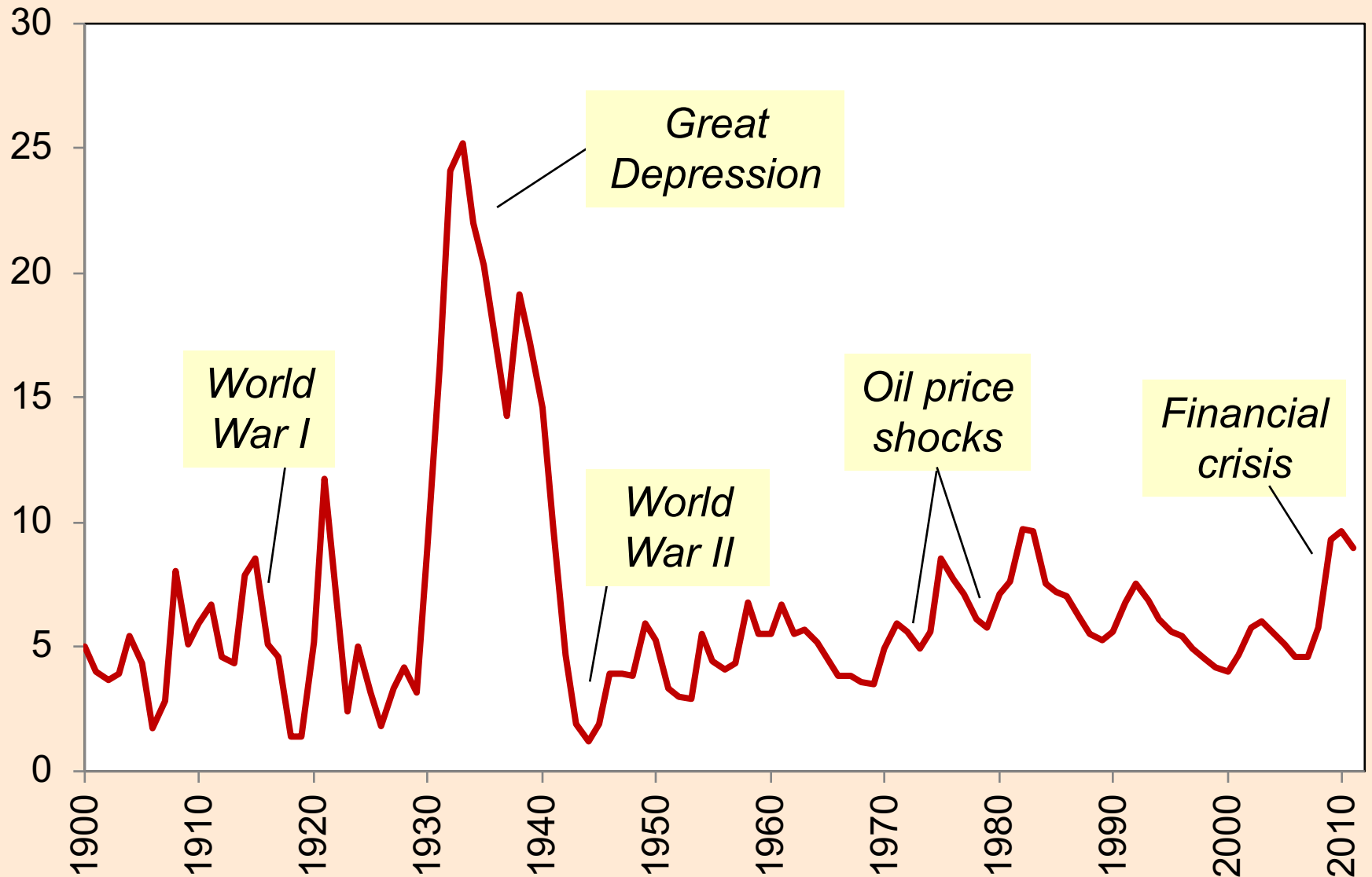
U.S. Real GDP per capita (2005 dollars)



U.S. Inflation Rate (% per year)



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



Methodology in economics

Economic theory is an effort to **generalize** about relationships that occur regularly, not just coincidental happenings.

- If a certain relationship between certain variables is observed, a theory will be set up.
- If the theory is tested and accepted, something similar happen again in the future is predictable.

Observe certain
Phenomena



Set up or Formulate
a Theory



Collect the Data



Use the data to implement
Statistical test



If the empirical result approves the theory,
Accept the economic theory. O.W., reject the theory

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

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

Digression: functional notation

- **General functional notation**

shows only that the variables are related.

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

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

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

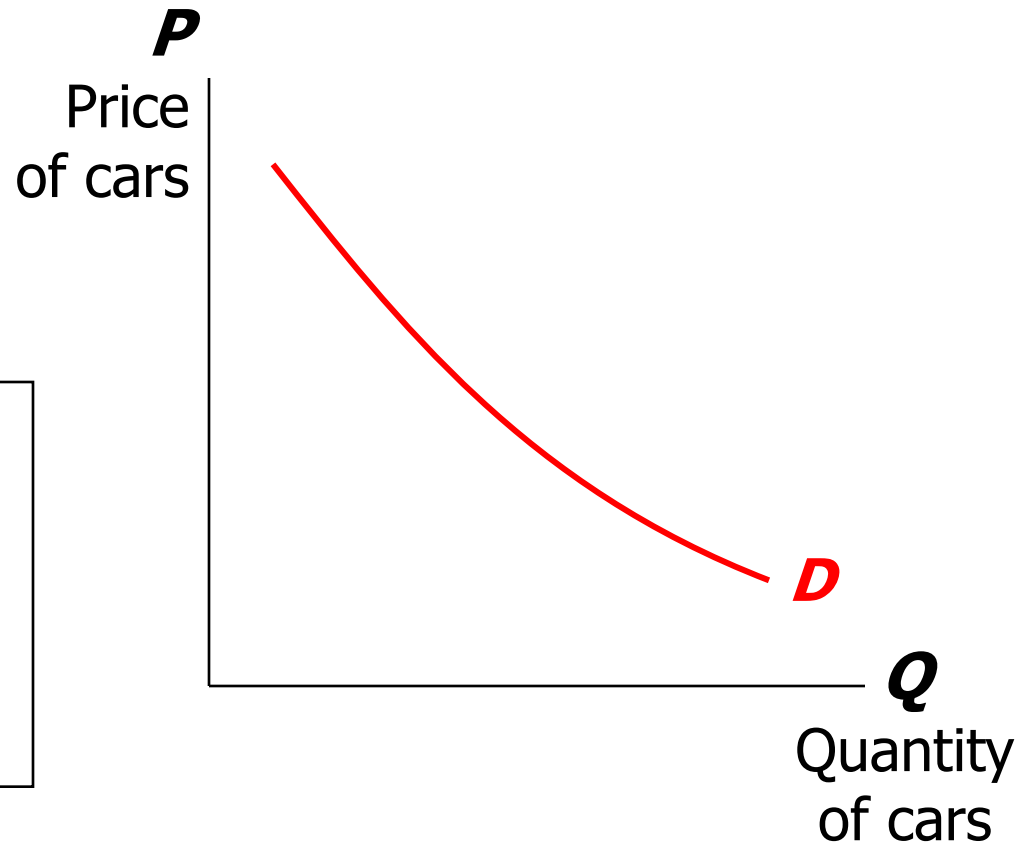
A list of the variables that affect Q^d

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.

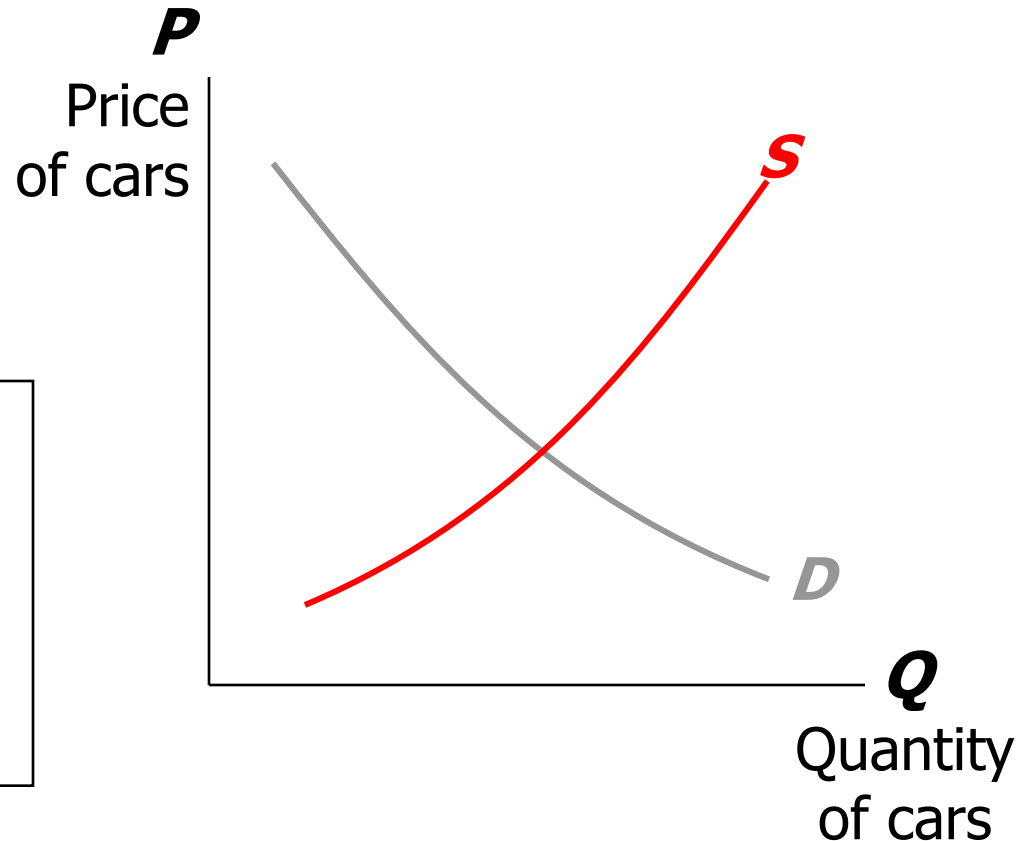


The market for cars: **Supply**

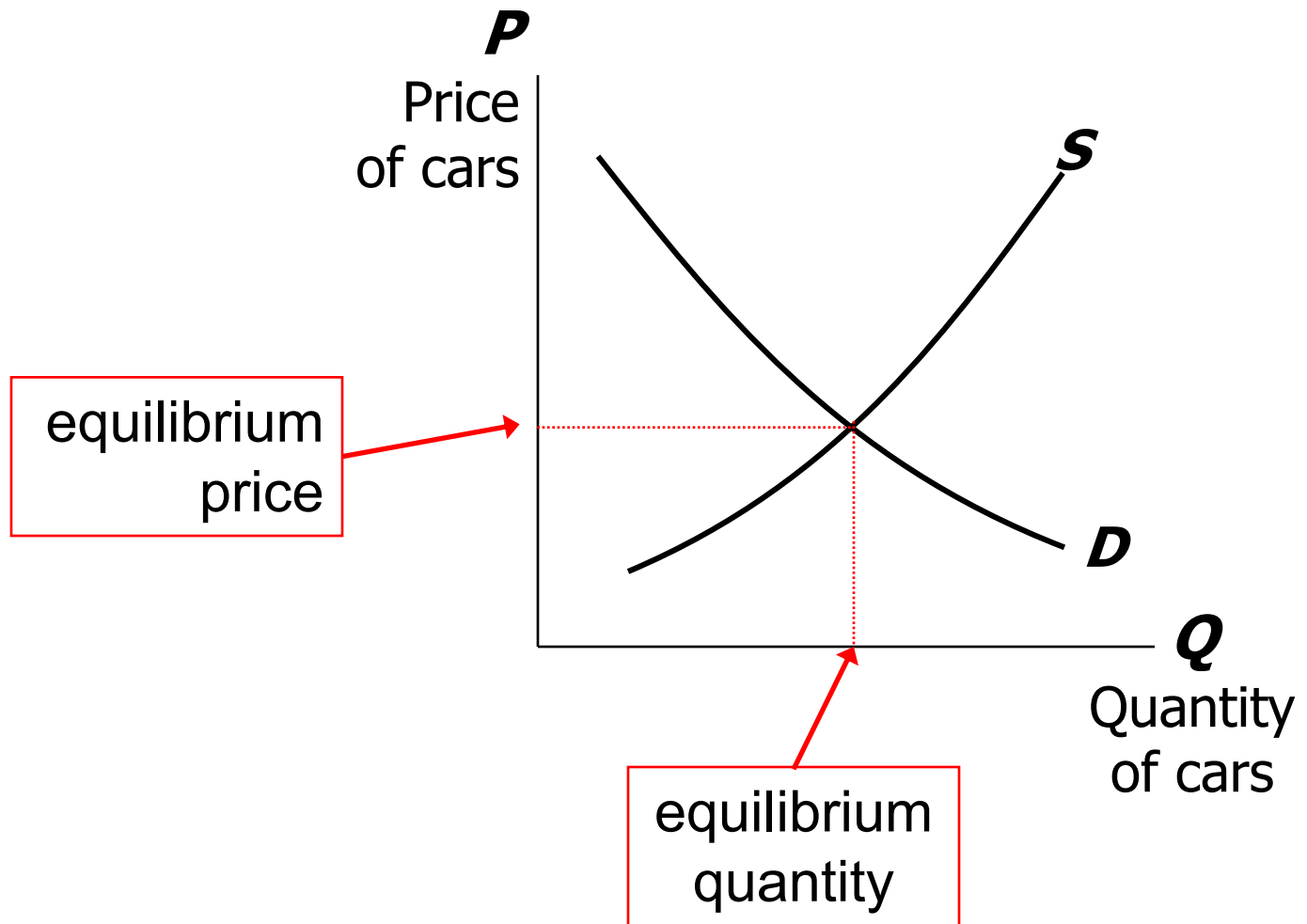
supply equation:

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

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



The market for cars: **Equilibrium**



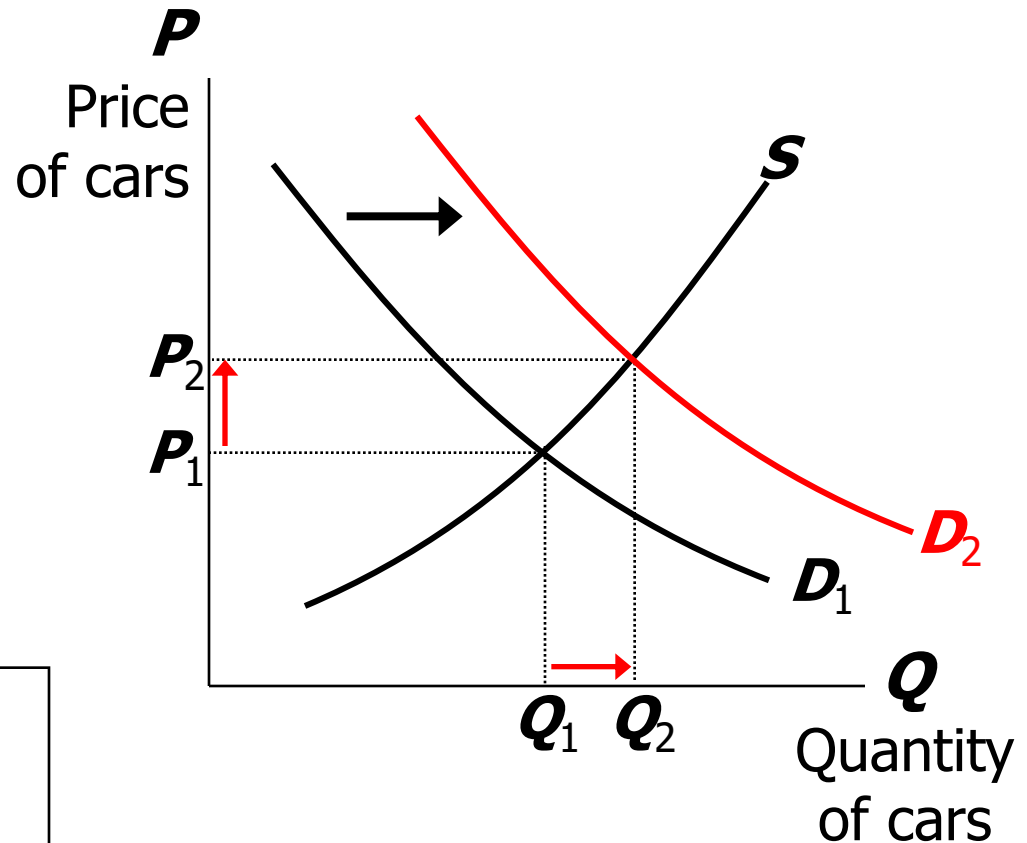
The effects of an increase in income

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.



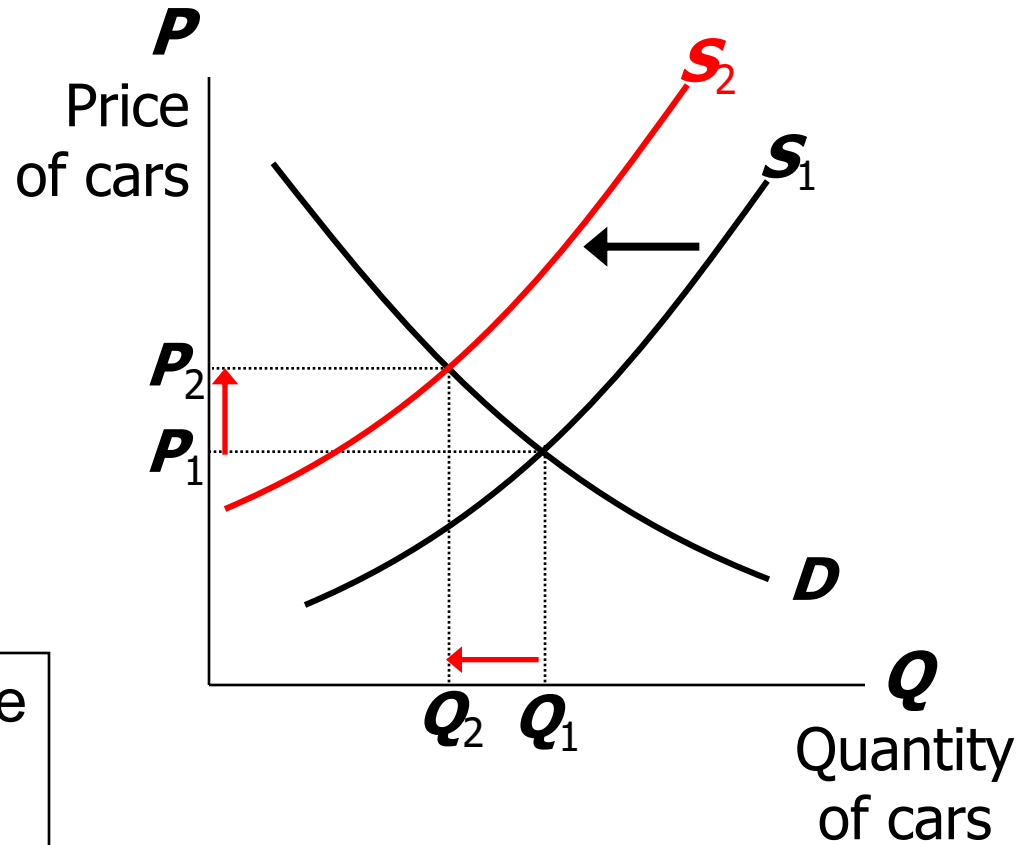
The effects of a steel price increase

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.



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.
- In the model of supply & demand for cars,
endogenous: P, Q^d, Q^s
exogenous: Y, P_s

The use of multiple models

- **No one model** can address all the issues we care about.
- *E.g.*, 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.

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

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.