CHAPTER 1

The Science of Macroeconomics

1-1 What Macroeconomists Study
1-2 How Economists Think
1-3 How this Course Proceeds

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:

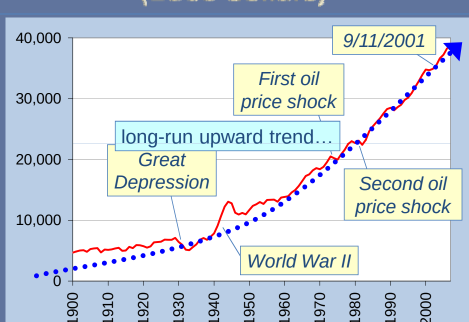
- Why does the cost of living keep rising?
- Why are millions of people unemployed, even when the economy is booming?
- What causes recessions?
- Can the government do anything to combat recessions? Should it?

Important Issues in Macroeconomics

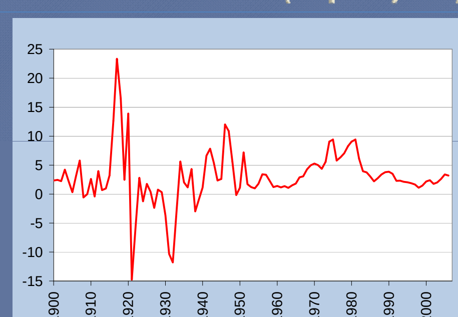
Macroeconomics, the study of the economy as a whole, addresses many topical issues:

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

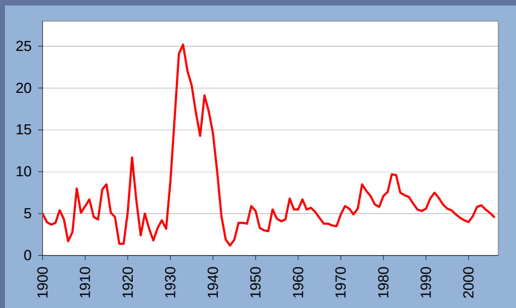
U.S. Real GDP per capita (2000 dollars)



U.S. inflation rate (% per year)

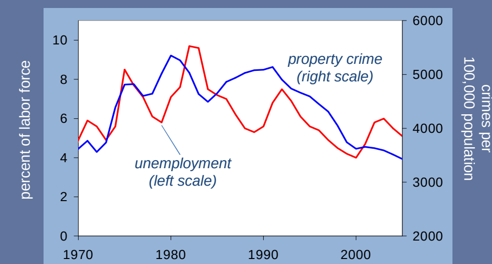


U.S. unemployment rate (% of labor force)



Why Learn Macroeconomics?

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



Why Learn Macroeconomics?

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

Why Learn Macroeconomics?

- 3. The macroeconomy affects politics.

<u>Unemployment & inflation in election years</u>

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)

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

Theory as Model Building: 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 (P) and
  - aggregate income (Y)

Digression: functional notation

- General functional notation shows only that the variables are related.
- $Q^d = D(P, Y)$
- A specific functional form shows the ... ...tative relationship.
  - Ex... D (... 2Y

A list of the variables that affect Q^d

The market for cars: Demand

demand equation:

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

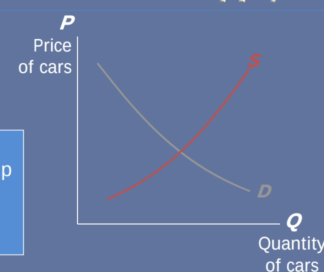
The demand curve shows the relationship between quantity demanded and price, other things equal.

The market for cars: Supply

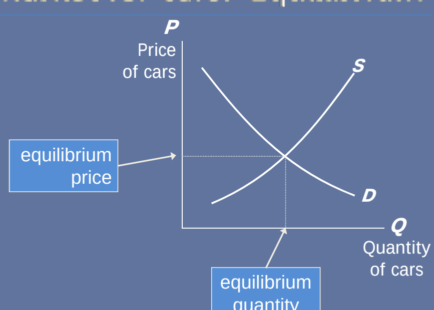
supply equation:

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

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



The market for cars: Equilibrium

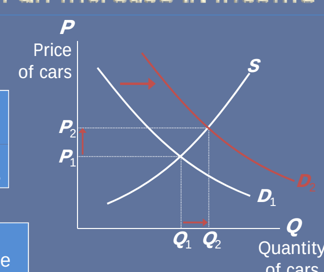


The effects of an increase in income

demand equation:

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

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



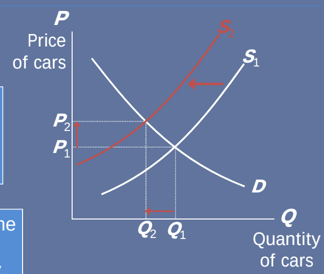
…which increases the equilibrium price and quantity.

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 & behavior as given.
- In the model of supply & demand for cars,

endogenous: P, Q^d, Q^s

exogenous: Y, P_s

Classroom Example

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

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…
  - can tell us how a fall in aggregate income affects price and quantity of cars.
  - cannot 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:
  - assumptions
  - which variables are endogenous, and 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

Microeconomic Thinking & Macroeconomic Models

- Microeconomics is the study of how individual households and firms make decisions.
  - Households maximize utility
  - Firms maximize profit.
- Modern macroeconomic theory is typically based on microfoundations of macroeconomic behavior.
  - Sometimes these microfoundations are implicit, other times they are explicit in the models used.

Outline of this Course

- Introduction to Macroeconomic Data & Analysis (Ch. 1-2)
  - How macroeconomists think and how we measure key macroeconomic variables.
- Classical and Growth Theory (Ch. 2-8)
  - How the economy works in the long run, when prices are flexible.
  - The standard of living and its growth rate over the very long run.

Outline of this Course

- Business Cycle Theory (Romer, Ch. 1-3; Ch. 13)
  - How the economy works in the short run, when prices are sticky.
- Policy debates (Ch. 14 & 19)
  - Should the government try to smooth business cycle fluctuations?
  - Which macro models are "best"?
- Microeconomic foundations (Ch. 16)
  - Insights from looking at the behavior of consumers, from a microeconomic perspective.

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.