

# **CHAPTER 1**

## **The Science of Macroeconomics**

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## **Learning Objectives**

This chapter introduces you to

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

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## **Important Issues in Macroeconomics**

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

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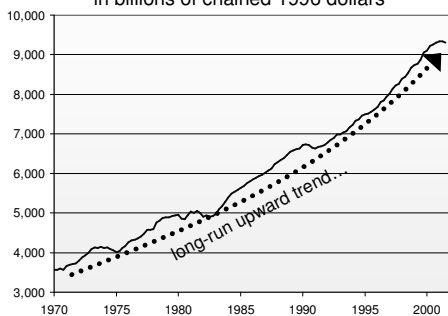
## **Important Issues in Macroeconomics**

- 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?

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### U.S. Gross Domestic Product

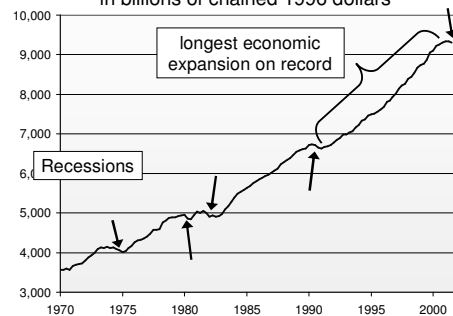
in billions of chained 1996 dollars



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### U.S. Gross Domestic Product

in billions of chained 1996 dollars



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## Why Learn Macroeconomics?

1. The macroeconomy affects society's well-being.
  - *example:*  
Unemployment and social problems

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## Unemployment and Social Problems

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

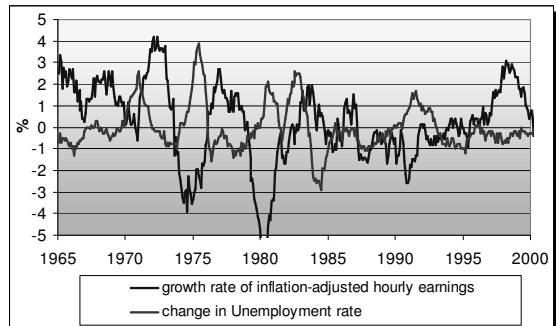
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## Why Learn Macroeconomics?

1. The macroeconomy affects society's well-being.
  - *example:*  
Unemployment and social problems
2. The macroeconomy affects your well-being.
  - *example:*  
Unemployment and earnings growth

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## Unemployment and Earnings Growth



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## Why Learn Macroeconomics?

1. The macroeconomy affects society's well-being.
  - *example:*  
Unemployment and social problems
2. The macroeconomy affects your well-being.
  - *example:*  
Unemployment and earnings growth
3. The macroeconomy affects politics & current events.
  - *example:*  
Inflation and unemployment in election years

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## Inflation and Unemployment 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)

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## Economic Models

...are simplified versions of a more complex reality

- irrelevant details are stripped away

Used to

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

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## The Supply & Demand for New Cars

- explains the factors that determine the price of cars and the quantity sold.
- 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)

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## Digression: Functional Notation

- **General functional notation** shows only that the variables are related:

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

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

Examples:

$$1) \quad Q^d = D(P, Y) = 60 - 10P + 2Y$$

$$2) \quad Q^d = D(P, Y) = \frac{0.3Y}{P}$$

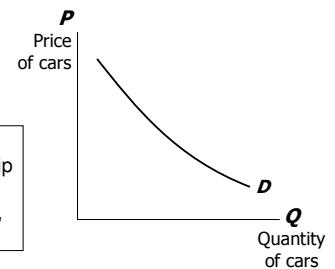
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## The market for cars: demand

demand equation:

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

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



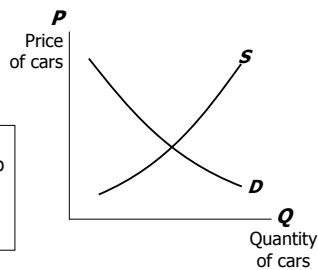
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## The market for cars: supply

supply equation:

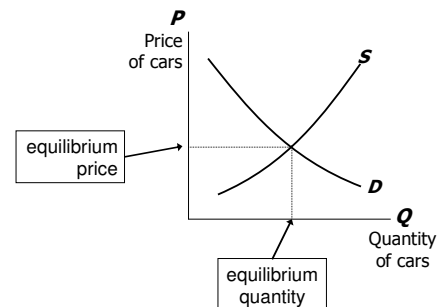
$$Q^s = S(P, P_s)$$

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



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## The market for cars: equilibrium



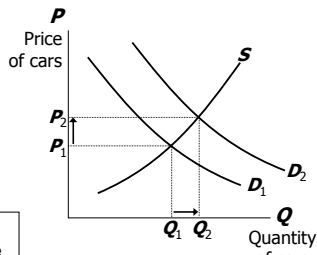
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### The effects of an increase in income:

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.



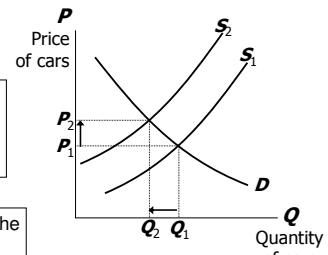
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### The effects of a steel price increase:

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.



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### 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:  $Y, P_s$

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### A Multitude of Models

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

- If we want to know how a fall in aggregate income affects new car prices, we can use the S/D model for new cars.
- But if we want to know why aggregate income falls, we need a different model.

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### 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 of its variables are endogenous and which are exogenous,
  - the questions it can help us understand,
  - and those it cannot.

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### Prices: Flexible versus Sticky

- **Market clearing:** an assumption that prices are flexible and adjust to equate supply and demand.
- In the short run, many prices are **sticky**--- they adjust only sluggishly in response to supply/demand imbalances.
  - For example,
    - labor contracts that fix the nominal wage for a year or longer
    - magazine prices that publishers change only once every 3-4 years

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## **Prices: Flexible versus 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)
  - the occasional inability of firms to sell what they produce
- Long run: prices flexible, markets clear, economy behaves very differently.

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## **Chapter Summary**

1. Macroeconomics is the study of the economy as a whole, including
  - growth in incomes
  - changes in the overall level of prices
  - the unemployment rate
2. Macroeconomists attempt to explain the economy and to devise policies to improve its performance.

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## **Chapter Summary**

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

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