



The Data of Macroeconomics

MACROECONOMICS

IN THIS CHAPTER, YOU WILL LEARN:

...the meaning and measurement of the most important macroeconomic statistics:

- gross domestic product (GDP)
- the consumer price index (CPI)
- the unemployment rate

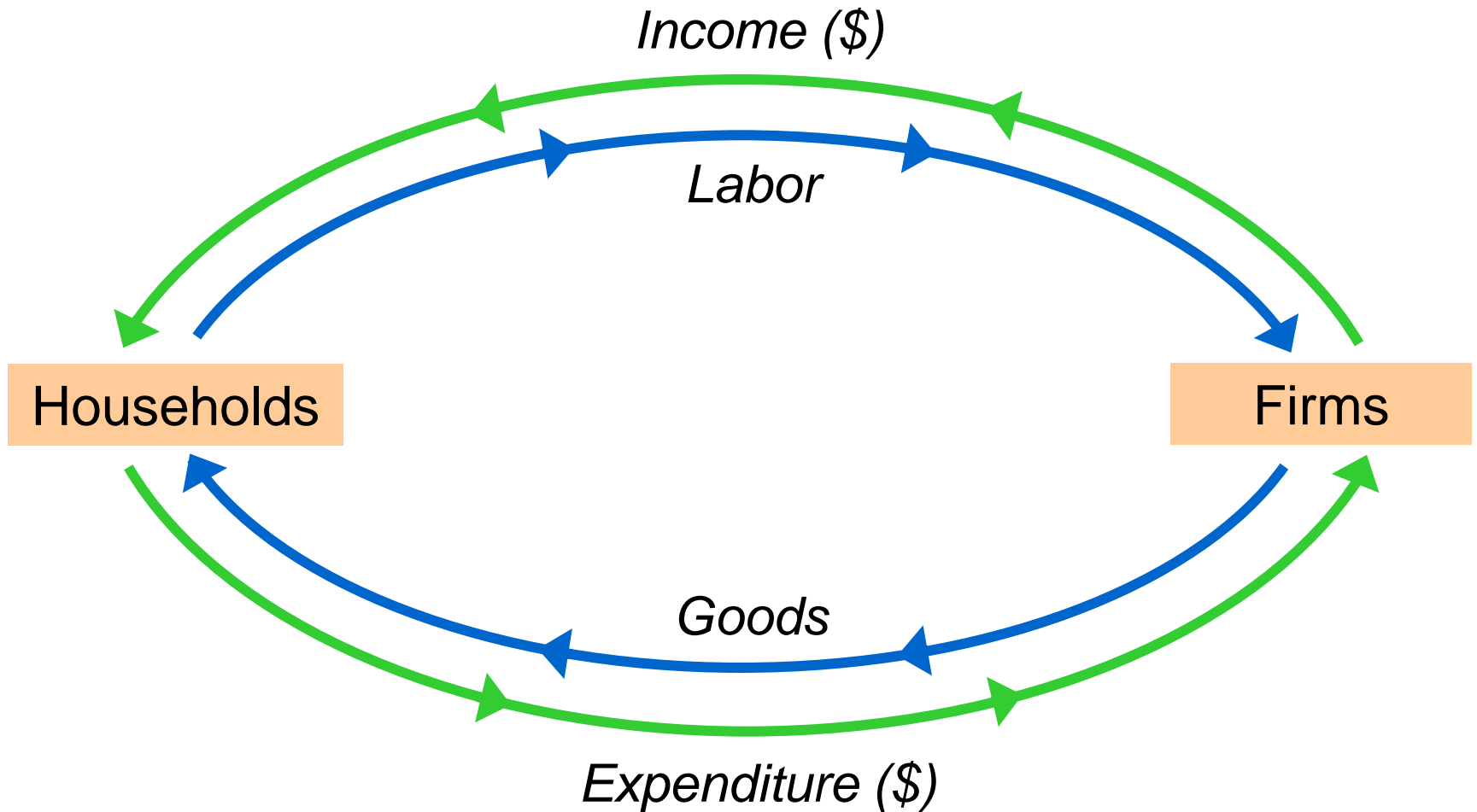
Gross Domestic Product: Expenditure and Income

Two definitions:

- Total expenditure (spending) on domestically-produced final goods and services.
- Total income earned by domestically-located factors of production.

Spending equals income because every dollar a buyer spends becomes income to the seller.

The Circular Flow



Final goods, value added, and GDP

- GDP = value of final goods produced
= sum of value added at all stages
of production.
- The value of the final goods already includes the value of the intermediate goods, so including intermediate *and* final goods in GDP would be double counting.

The expenditure components of GDP

- consumption, ***C***
- investment, ***I***
- government spending, ***G***
- net exports, ***NX***

An important identity:

$$Y = C + I + G + NX$$

*value of
total output*

*aggregate
expenditure*

U.S. GDP components

Consumption (C)
Durable
Nondurable
Services

Investment (I)
Business, fixed
Residential
Inventories

Government Spending (G)
Federal
Non-Defense
Defense
State & Local

Net Exports (NX)
Exports
Goods
Services
Imports
Goods
Services

Stocks vs. Flows

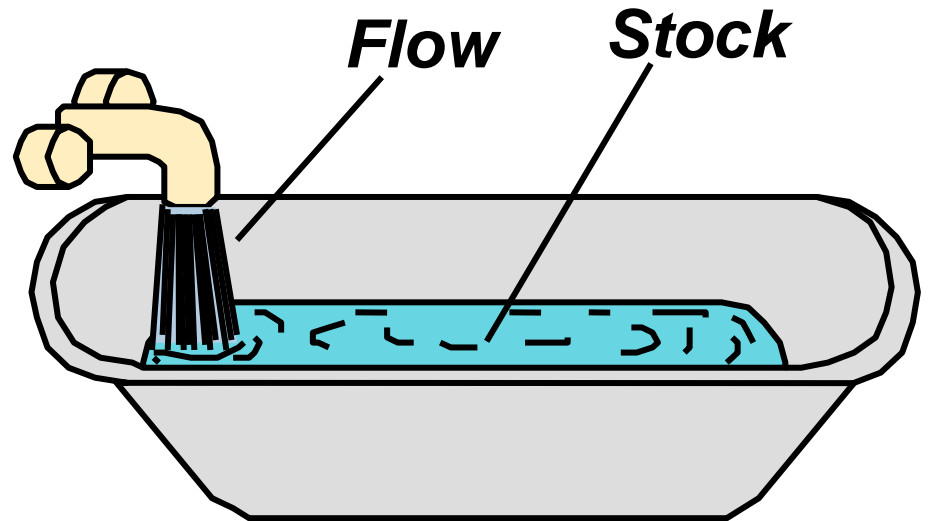
A **stock** is a quantity measured at a point in time.

E.g.,

“The U.S. capital stock was \$50 trillion on January 1, 2015.”

A **flow** is a quantity measured per unit of time.

E.g., “U.S. investment was \$3.3 trillion during 2017.”



Stocks vs. Flows - examples

<i>stock</i>	<i>flow</i>
a person's wealth	a person's annual saving
# of people with college degrees	# of new college graduates this year
the govt debt	the govt budget deficit

GDP:

An important and versatile concept


We have now seen that GDP measures:

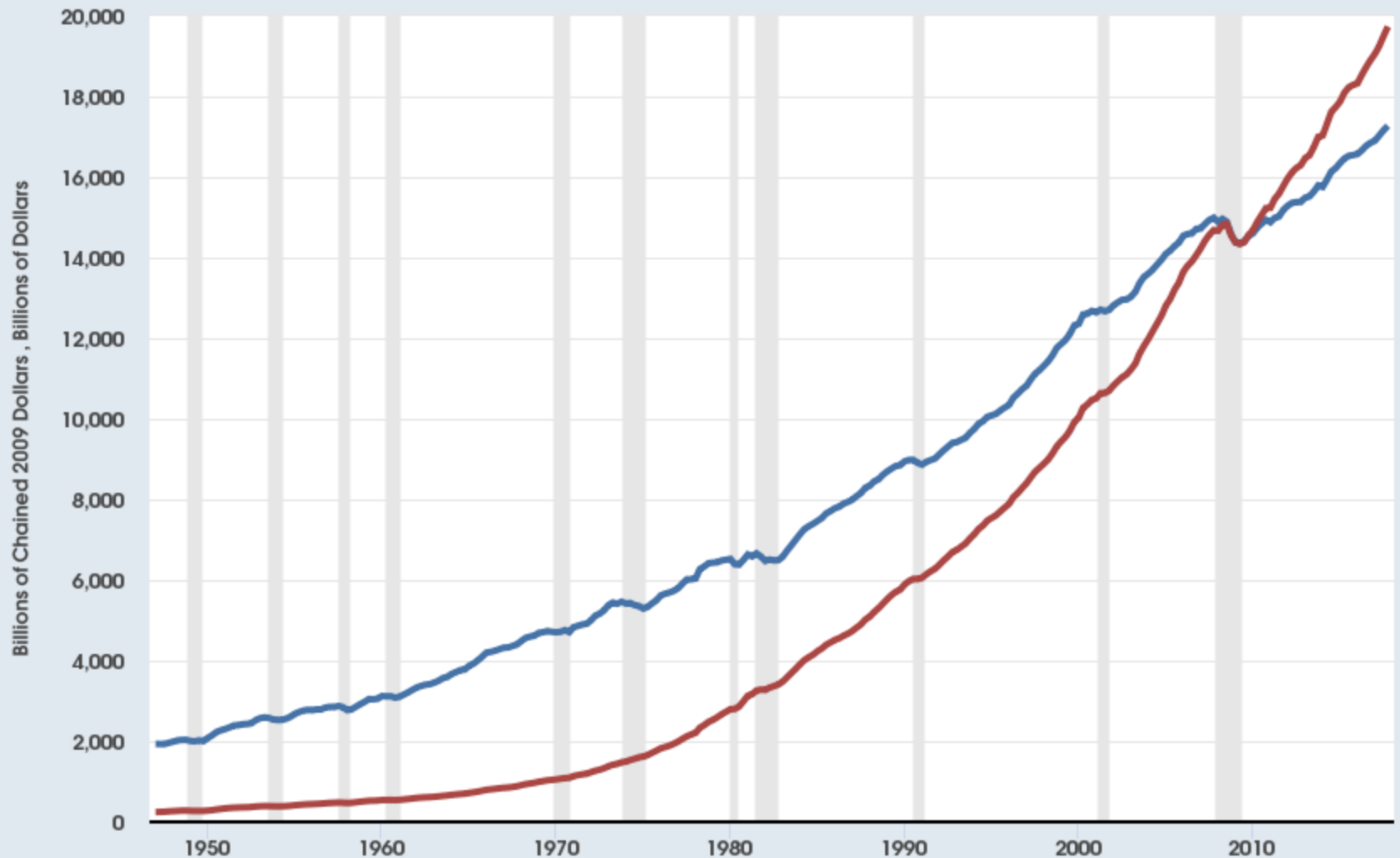
- total income
- total output
- total expenditure (spending)
- the sum of value added at all stages in the production of final goods

Real vs. nominal GDP

- GDP is the *value* of all final goods and services produced.
- **Nominal GDP** measures these values using current prices.
- **Real GDP** measure these values using the prices of a base year.

U.S. Nominal and Real GDP, 1947-2018

FRED  — Real Gross Domestic Product
— Gross Domestic Product



Shaded areas indicate U.S. recessions

Source: U.S. Bureau of Economic Analysis

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GDP Deflator

- **Inflation rate**: the percentage change in the overall level of prices
- One measure of the price level: **GDP deflator**

Definition:

$$\text{GDP deflator} = 100 \times \frac{\text{Nominal GDP}}{\text{Real GDP}}$$

Two arithmetic tricks for working with percentage changes

1. For any variables X and Y ,
percentage change in $(X \times Y)$
 \approx percentage change in X
+ percentage change in Y

2. percentage change in (X/Y)
 \approx percentage change in X
– percentage change in Y

Consumer Price Index (CPI)

- A measure of the overall level of prices
- Published by the Bureau of Labor Statistics (BLS)
- Uses:
 - tracks changes in the typical household's cost of living
 - adjusts many contracts for inflation (“COLAs”)
 - allows comparisons of dollar amounts over time

How the BLS constructs the CPI

1. Survey consumers to determine composition of the typical consumer's "basket" of goods
2. Every month, collect data on prices of all items in the basket; compute cost of basket
3. CPI in any month equals

$$100 \times \frac{\text{Cost of basket in that month}}{\text{Cost of basket in base period}}$$

CPI vs. GDP Deflator

Prices of capital goods:

- included in GDP deflator (if produced domestically)
- excluded from CPI

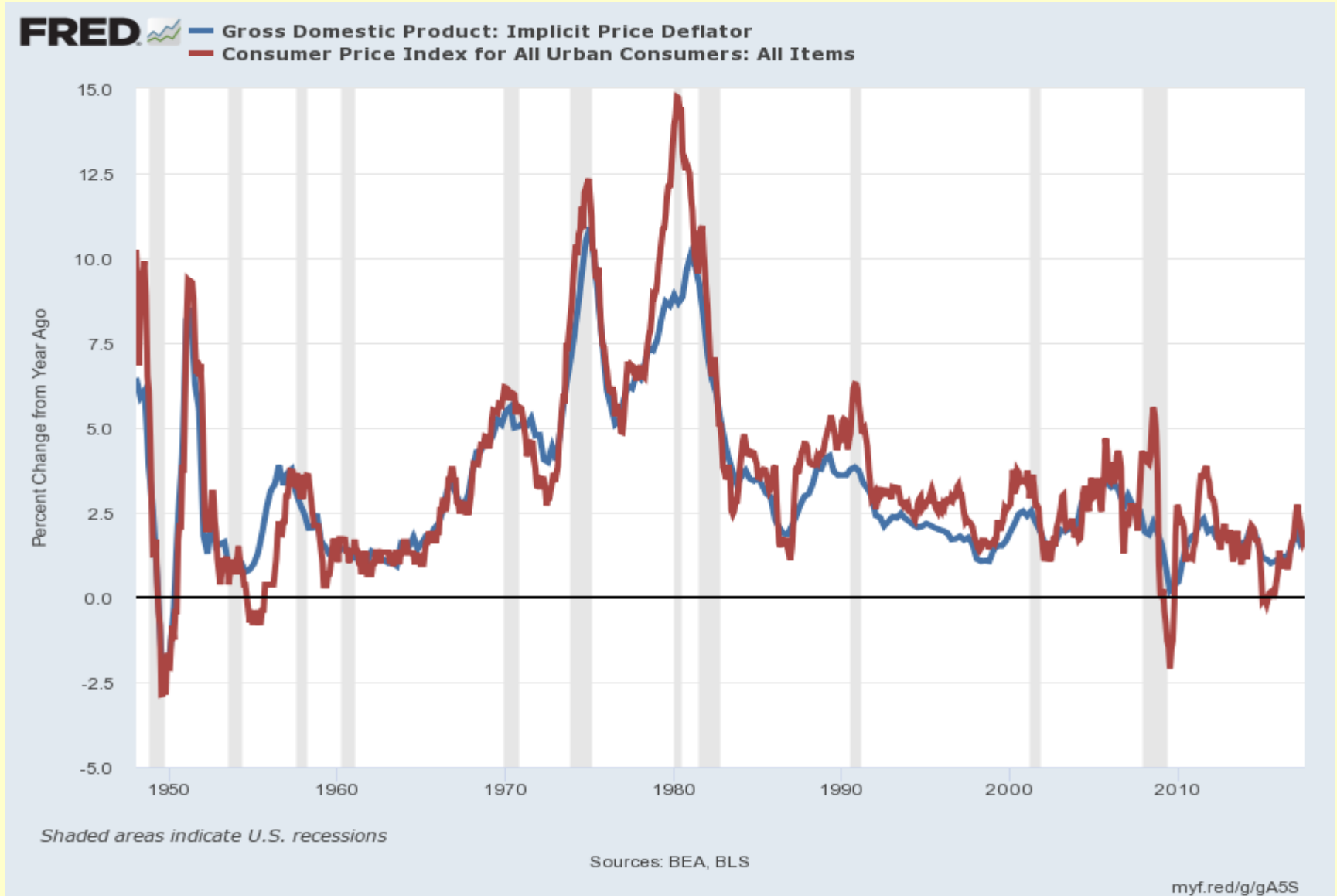
Prices of imported consumer goods:

- included in CPI
- excluded from GDP deflator

The basket of goods (different weights):

- CPI: fixed
- GDP deflator: changes every year

Two measures of inflation in the U.S., 1948-2017



Categories of the population

- **employed**
working at a paid job
- **unemployed**
not employed but looking for a job
- **labor force**
the amount of labor available for producing goods and services; all employed plus unemployed persons
- **not in the labor force**
not employed, not looking for work

Two important labor force concepts

- **unemployment rate**

percentage of the labor force that is unemployed

- **labor force participation rate**

the fraction of the adult population that “participates” in the labor force, *i.e.* is working or looking for work