Principles of Macroeconomics: GDP

Class 1

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Administration

Syllabus

- Syllabus is on Canvas/my website (read it)
- Readings: textbook and journal articles
- Grades: Homework + Attendance + Presentation + Midterm + Final
- Schedule

Course Materials

- Register for Macmillan Achieve (online homework) using the link on Canvas
- Includes E-textbook: Macroeconomics (7th edition) by Krugman and Wells
- These are both provided on the Canvas page already (no need to buy a separate textbook/homework pass)
- Subscriptions to the WSJ, NYT, and Financial Times – through the Hesburgh Library
- Sign up for iClicker and download app on your phone

None – outside of iClicker use or tablet for notes

This Course

► Why is the average American 10 times richer today than 100 years ago?

► Why is income per person in South Korea 5 times higher than in Thailand? Why is Norway 100 times richer than Malawi?

► What determines inflation?

► What determines unemployment?

► Why do recessions happen?
  • Why did the Great Depression happen?
  • Why has there only been one "Great Depression?"

► Can the government help in recessions? In booms?

► What are the costs/benefits of trade?
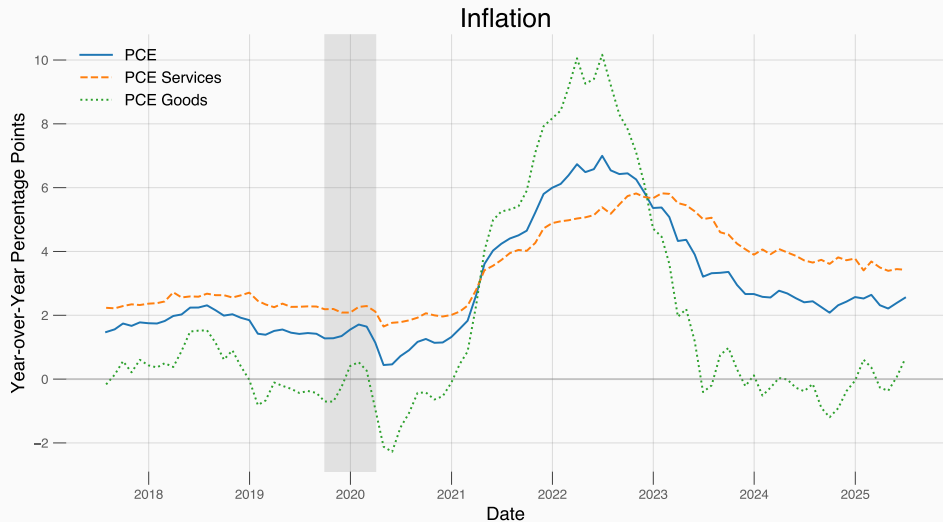
- ▶ By economists:
  - Loose monetary policy (Fed kept rates too low)
  - Lots of government spending
  - Lots of government debt ← ——————— My research!
  - Supply chain disruptions
  - Labor market shortages
- ▶ Outside the field (generally):
  - "Greedflation"
  - Corporate collusion
  - "Shrinkflation"

- ▶ Break problems down into their core concepts/ideas
- ▶ Keep it simple (but complete)
- ▶ Explicate economic logic using stories

- ▶ We will use math to *clarify* the ideas, not to create ideas
- ▶ The best economists use math, which introduces logical rigor, to tell their stories

- ▶ See Robert Lucas's commencement address for a very good example of story-telling

Course Outline

- ▶ The Long Run
  - Economic Growth
  - Income Differences between Countries
  - Capital Markets
  - Labor Markets
  - International Trade

- ▶ The Short/Medium Run
  - Aggregate Demand/Supply
  - Fiscal and Monetary Policy
  - Inflation and Unemployment
  - Exchange Rates

- ▶ Analyze and interpret economic data
- ▶ Apply models to think about growth and business cycles
- ▶ Critically think about current events and economic news

This Class

Overview

- ▶ Announcements:
  - Make sure you can access the Canvas page
  - Sign up for Achieve and iClicker
- ▶ Topics:
  - Introduction to the course
  - The National Accounts
  - Gross Domestic Product (GDP)
- ▶ Readings:
  - Chapter 7.1 (National Accounts), chapter 7.2 (Real GDP), chapter 7.3 (Price Indices)

National Accounting

▶ We want to track how the economy is doing. How do we do this?

1. Production (GDP):
   - How much does the whole US produce each year?
   - Two ways to measure: final expenditure vs. value added
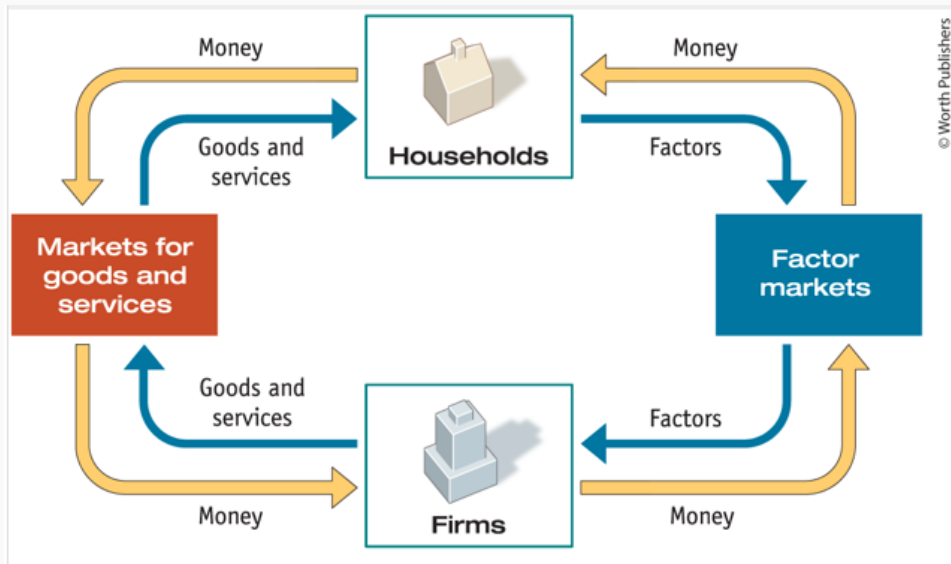2. Expenditure:
   - How much is spent on domestically produced goods each year?
   - Four buyers: consumers, firms, the government, and foreigners
3. Income:
   - How much income is generated by production and spending?
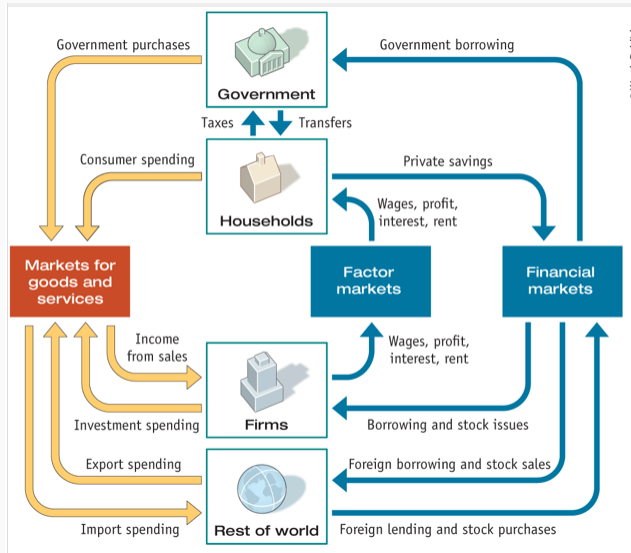   - Where does that income go?

▶ At the end of the day: GDP = Expenditure = Income

- ▶ Firms produce everything that households consume (production)
- ▶ But consumers must purchase everything that firms produce (expenditure)
- ▶ But firms pay out wages/rent land from households (income)
- ▶ Of course, this is an extremely simple economy

GDP

▶ Now that we have the idea – everything that is produced must be bought – we can use math to formalize the idea

$$Y = C + I + G + (x - i)$$

▶ $Y \equiv$ production, aka GDP
▶ $C \equiv$ consumption by households (domestic and imported goods)
▶ $I \equiv$ investment
  • Firm and household spending on capital goods
  • Capital goods include factories, machines, housing, etc.
▶ $G \equiv$ government expenditure
  • Government consumption of goods and investment
  • Does NOT include transfer payments (like COVID stimulus checks)
▶ $x \equiv$ exports, $i \equiv$ imports
  • We call $x - i$ the trade balance

- ▶ GDP = Value Added
  - Value Added is the value of output sold minus the cost of inputs used in production
  - Can compute value added firm-by-firm, then add that up across all firms
- ▶ Value Added = Income
  - Firms hire workers $\longrightarrow$ wages
  - Firms use capital $\longleftarrow$ rent, interest payments, profits (owners of firms)
  - As above, net of intermediate inputs
- ▶ Income = Expenditure
  - Government, firms, and households use income to purchase goods, services, or investment
- ▶ In practice, the BEA uses expenditure data from business surveys, the Census, the BLS, US Customs, and the Treasury to calculate GDP (with statistical adjustments)

> **2. Aggregate spending on domestically produced final goods and services = $21,500**

	National Ore, Inc.	National Steel, Inc.	National Motors, Inc.	Total factor income
Value of sales	$4,200 (iron ore)	$9,000 (steel)	$21,500 (car)	
Intermediate goods	0	4,200 (iron ore)	9,000 (steel)	
Wages	2,000	3,700	10,000	$15,700
Interest payments	1,000	600	1,000	2,600
Rent	200	300	500	1,000
Profit	1,000	200	1,000	2,200
Total expenditure by firm	4,200	9,000	21,500	
Value added per firm = Value of sales − Cost of intermediate goods	4,200	4,800	12,500	

> **3. Total payments to factors = $21,500**

> **1. Value of production of final goods and services, sum of value added = $21,500**

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Calculating GDP — 2025Q1
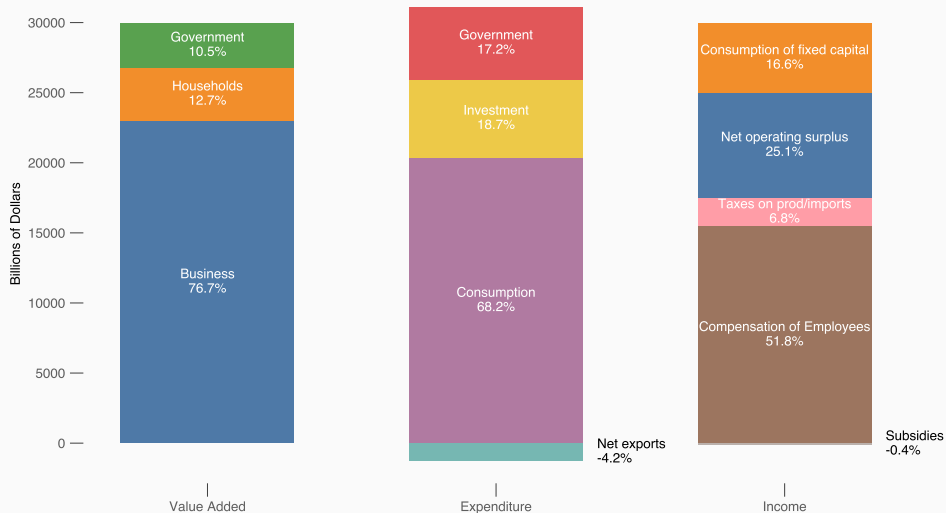
- Know that GDP = Expenditure = Income
- Next Class: Read chapters 7.2 (Real GDP) and 7.3 (Price Indices)