

Macroeconomics | Lectures 1–2

Reading the Economy: Measurement as an Economic Choice

Group Activity - 1 -

· SJTU Summer School · Fatih Kansoy

How this block runs. You work in your home group of three or four, textbook open. Roles rotate: **Scribe**, **Reporter**, **Sceptic**, **Timekeeper**. Money is in US dollars (\$); China figures are in yuan (¥) or per cent.

- **Phase 1, Concept checks (~10 min).** Each group votes together, argues for 90 seconds, then settles on one answer.
- **Phase 2, Desk problem (~20 min).** One two-good economy, measured every way, part by part.
- **Phase 3, Case (~25 min).** One real story, ending hidden. Your group commits a prediction, then we reveal what happened.

Word list. **GDP** is the value of final goods and services produced inside a country; the identity is $Y = C + I + G + NX$. A **nominal** figure uses current prices; a **real** figure holds prices fixed. A **Laspeyres** index uses base-year prices, a **Paasche** index uses final-year prices, and **chain weighting** averages the two. The **GDP deflator** is nominal divided by real GDP. **Purchasing power parity (PPP)** compares countries at common prices. The **Rule of 70** says a quantity growing at g per cent a year doubles in about $70/g$ years, and **per-capita** growth is GDP growth minus population growth.

Phase 1 – Concept checks

~10 MIN

ConceptTest 1. Which of the following adds to this year's GDP?

- (a) The government raises the state pension and pays it out to retirees.
- (b) You buy 200 shares in a listed company.
- (c) A construction firm builds a new flat this year and sells it.
- (d) A dealer buys a five-year-old car for \$8,000 and resells it for \$9,000.

ConceptTest 2. A country's nominal GDP grows 10% and its real GDP grows 4% in one year. Inflation is

- (a) exactly 6%, because inflation is nominal growth minus real growth, by definition.
- (b) about 6%; it is an approximation, since nominal growth roughly equals inflation plus real growth.
- (c) exactly 2.5%, because $10/4 = 2.5$.
- (d) impossible to say without the population growth rate.

ConceptTest 3. In a two-good economy the *quantities* produced are the same in both years, but all *prices* have risen. Measured in the most recent year, real GDP is largest when you use

- (a) the Laspeyres index (base-year prices).

- (b) the Paasche index (final-year prices).
- (c) the chain-weighted (Fisher) index.
- (d) none of these: all three give the same real GDP.

ConceptTest 4. We compare GDP per person in a poorer country and the United States two ways: first by converting at the market exchange rate, then by adjusting for price differences (PPP). Switching from the exchange rate to PPP makes the poorer country look

- (a) richer, because its low local prices are corrected for.
- (b) poorer, because its currency is weak.
- (c) exactly the same, because GDP is GDP.
- (d) richer only if it runs a trade surplus.

Phase 2 – The desk problem

~20 MIN

One economy, measured every way

A small economy produces two goods, **rice** and **laptops**. The prices and quantities in 2025 and 2026 are:

	2025		2026	
	Price	Quantity	Price	Quantity
Rice (per bag)	\$2	300	\$3	330
Laptops (each)	\$1,000	4	\$1,000	5

(a) Nominal GDP (worked for you). Add up each year at that year's own prices:

$$2025 = \$2 \times 300 + \$1,000 \times 4 = \$4,600, \quad 2026 = \$3 \times 330 + \$1,000 \times 5 = \$5,990.$$

So nominal GDP grew $(5990 - 4600)/4600 = 30.2\%$. How much of that is more goods, and how much is just higher prices?

(b) Real growth, two ways. Hold prices fixed and recompute.

- (i) Using **2025 prices** (Laspeyres), find real GDP in 2026, then its growth from \$4,600.
- (ii) Using **2026 prices** (Paasche), find real GDP in 2025, then 2026's growth from it.
- (iii) You will get two different answers. In one sentence, why do they differ?

(c) Chain weighting and inflation.

- (i) Chain-weight by averaging your two growth rates from (b). This is real GDP growth.
- (ii) Inflation is roughly nominal growth minus real growth. Compute it. Is it positive, and does that make sense given the table?

(d) From output to living standards. Suppose this economy's population grew 2% over the year.

- (i) Using per-capita growth = real GDP growth – population growth, find growth per person.

- (ii) A one-year jump like this is unusual. If the economy instead grew a steady 5% per person each year, use the Rule of 70 to find how long living standards take to double.
- (iii) One sentence: when you care about how well-off people are, do you watch total GDP or GDP per person?

Phase 3 – The case

~25 MIN

The world's largest economy

How to run this. Read the story with your group. The ending is hidden on purpose. Do the calculation, commit a written prediction to question 3 before the reveal, and do not search the internet.

The story. It is 2019. A newspaper asks a simple question: *which is the world's largest economy, the United States or China?* The national accounts say U.S. GDP was \$20.6 trillion. China's GDP was ¥95.1 trillion yuan. The market exchange rate that year was about ¥6.91 yuan per U.S. dollar. On those numbers, China looks clearly smaller, and most headlines say so.

But there is a second fact in the footnotes. The same basket of goods, on average, cost only about 0.684 of the U.S. price inside China: a haircut, a meal, a bus ride, all cheaper there.

The story stops here.

Four questions (commit your answer to question 3 in writing before the reveal):

1. Convert China's GDP to dollars at the exchange rate. What share of U.S. GDP is it? In words, how much "smaller" does China look?
2. The exchange-rate comparison values Chinese output at Chinese prices, then converts. What does it miss, and which good in the story shows the problem most clearly?
3. **Predict.** Now correct for the price difference (divide by 0.684). Does China move up or down, and to roughly what share of the United States? Write your number down.
4. Suppose your group's answer is that the two economies are about the same size. China has about four times the population of the United States. Does that make the average Chinese citizen about as rich as the average American? Why or why not?

End of activity handout. Solutions are distributed after the block.