Nominal Vs. Real Variables

A Review of the Terms and a Discussion of How We Measure Progress

Quick Announcement

- If you want to go over your previous quizzes, to ensure you fully understand the material covered in this course, I encourage you to attend my office hours
- My Office Hours from **10:30 am -12 pm M&W** in **Buchanan 150**, at the 4 tables in the econ department
- There is **no shame** in coming to office hours, as my students, I am here to **help** you, especially with things relating to Macroeconomics.

Real Vs. Nominal

Nominal Variables- Measured in current dollars or market prices, which include the effects of inflation.

A company's nominal revenue for a year

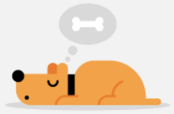
The nominal interest on a loan

Real Variables- Adjusted for inflation to reflect changes in purchasing power over time.

Real GDP- Gross Domestic Product adjusted for inflation to show the actual increase in goods and services produced.

Real Wage- The nominal wage divided by a price index, showing how much the wage can actually buy.

WHAT IS GDP?



<u>Gross Domestic Product (GDP)</u>: The market value of all finished goods and services produced **WITHIN** a country in a year.

<u>GDP per capita</u>: GDP divided by the population.

Real GDP per capita is a rough measure of a country's standard of living.

GDP IS THE MARKET VALUE…

- An economy's output includes millions of different goods and services
- Some goods are more valuable than others, so we cannot simply add up the quantities.
- Because of this, GDP uses market value to determine how much each good or service is worth and then sums the total.

…OF ALL FINISHED…

- GDP is an economy-wide measure and thus measures **all** activity in the economy.

- Intermediate Goods: goods that are sold to firms and then bundled or processed with other goods or services for sale at a later stage.

- Finished Goods: goods that are sold to final users and then consumed or held in private inventories

- To avoid double counting, only finished goods are included in GDP.
  - However, machinery and equipment used to produce other goods are included in GDP.

...GOODS AND SERVICES...

- The output of an economy includes both goods and services.

- Goods are tangible items
  - Ex: food, clothing, computers, cars

- Services are intangible, but also have value
  - Ex: haircuts, medical care, transportation

- Today, most of GDP is services (Nearly 80% in the US)

…WITHIN A COUNTRY…

- GDP includes goods and services produced by labor and capital **located in** the country.
  - The nationality of the workers or property owners does NOT matter.

- <u>Gross National Product(GNP)</u>: the value of all finished goods and services produced by a country's permanent residents, wherever they are located, in a year.

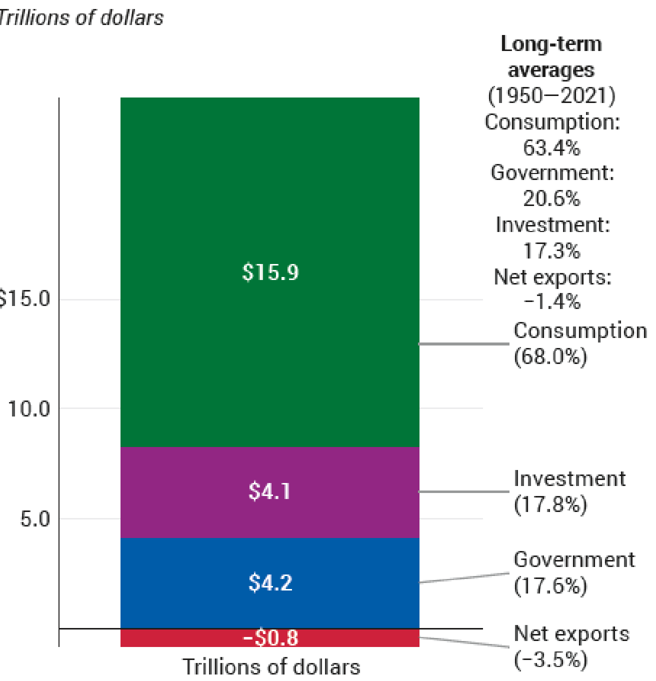
- Simple way to remember the difference:
  - GDP: location of production is what matters
  - GNP: who is doing the producing is what matters

…IN A YEAR

- GDP is measured on an annual basis.
- In other words, it tells us how much a country has produced in a year, not how much it has accumulated in its entire history.
- GDP is calculated by the Bureau of Economic Analysis (BEA), which is part of the Department of Commerce.

Gross domestic product 2024

Ranking	*Economy*	*(millions of US dollars)*
1	United States	29,184,890
2	China	18,743,803
3	Germany	4,659,929
4	Japan	4,026,211
5	India	3,912,686
6	United Kingdom	3,643,834
7	France	3,162,079
8	Italy	2,372,775
9	Canada	2,241,253
10	Brazil	2,179,412



.S. GDP and Its Components, 2021

ata from: Bureau of Economic Analysis.

NATIONAL SPENDING APPROACH

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

Y	**Nominal GDP**	**The market value of all finished goods and services.**
C	Consumption	Private spending on finished goods and services.
I	Investment	Private spending on tools, plant, and equipment used to produce future output.
G	Government purchases	Spending by all levels of government on finished goods and services. Transfers are not included in government purchases.
NX	Net exports	The value of exports minus the value of imports.

GNP vs. GDP

GNP defines the total value of goods and services that the residents of a country produce, irrespective of where they reside. On the other hand GDP defines the total value of the goods and services that a country produces, irrespective with the citizenship of the producers.

Image by Adrian Mangel © The Balance 2019

Points	GNP	GDP
Meaning	Total of all economic activities by citizens of the country, irrespective of the country they are living in.	Total production and output taking place within the country, irrespective with who makes it.
Fundamentals	Citizenship	Location/Country
Includes	Production and services by citizens of a country.	All economic activities inside the country by nationals and foreigners.
Excludes	Economic activities by foreigners within the country.	Economic activities of the citizens outside the country.
Calculation	GDP + Net Income Property from abroad	Private Consumption Gross Investment (C) + Government Investment (I) + Government Spending (G) + (Exports (X) –Imports (M))
Context of calculation	To gauge the contribution by the residents of the country.	To understand the overall economic health of the country.
Application	Reflects the overall economic strength of the country.	To measure the size of the local economy.
Exports	Increase in exports leads increase in GNP But; depends upon the nationality of the company.	Increase in exports leads increase in GDP.

Toyoda Examples

Mr. Jones Example Question

- Suppose Mr. Jones is a US Citizen, he works a job in Canada to earn his income. This gets counted towards which country's

- GDP?
- GNP?

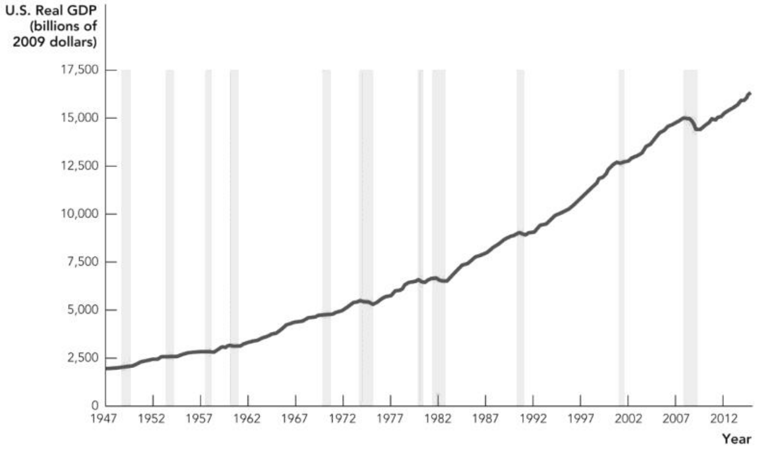
Real vs Nominal questions

- Suppose the nominal GDP growth for 2024 for China was 10%
    - What would be the real gdp growth if inflation that year was
        - 1%
        - 5%
        - 10%
        - 15%

- Suppose that in America, Real GDP Growth was 2%
    - what would be the nominal GDP growth if inflation was?
        - 1%
        - 2%
        - 3%

Why Does This Matter?

- Because students often mess up nominal vs real numbers, and therefore miss questions on exams
- Additionally, politicians will **purposefully** misuse nominal or real numbers to manipulate voters



CYCLICAL AND SHORT RUN CHANGES

- <u>Business Cycle (Business fluctuation)</u>: Short-run movements in real GDP around its long-term trend.

- <u>Recession</u>: A significant, widespread decline in real GDP and employment.
  - NBER defines it as "*a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production, and wholesale–retail sales.*"