Introduction to Macroeconomics and GDP

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ECO 304L: Intro to Macroeconomics

February 12, 2024

Big Questions

1. How is macroeconomics different from microeconomics?
2. How is GDP computed?
3. What does GDP tell us about the economy?
4. What are some shortcomings of GDP data?

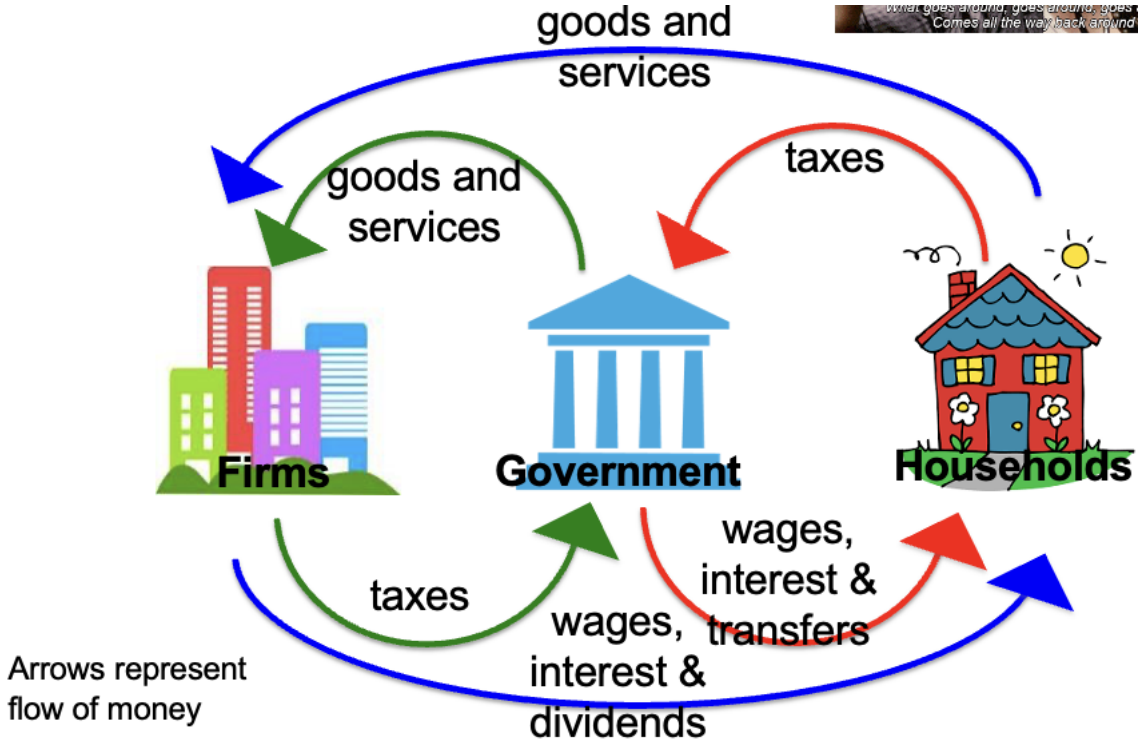
1 Macroeconomics vs. Microeconomics

Macroeconomics is the study of the economy as a whole. For exmaple, economic growth, unemployment, inflation, and etc.
Microeconomics is the study of decision-making by individuals and firms along how the government influences those decisions.

2 GDP measures total production

- Gross Domestic Product is the market value of all final goods and services produced within a country during a specified period of time.
- It is the sum of the output from all (legal) economic activity.

3 Circular Flow



4 What GDP measures

4.1 Gross Domestic Product

- The market value of all final goods and services produced in a country during a specific period of time.

Important notes

- Includes only final goods and services
- Includes only current production
- Does not include transfer payments

Counts in the market value

- Suppose the country of Gondor produces the following: 10 oranges, 15 cloaks, and 6 swords
- Would it make sense to add them up to get output?
- Need market value: $Q \times P$

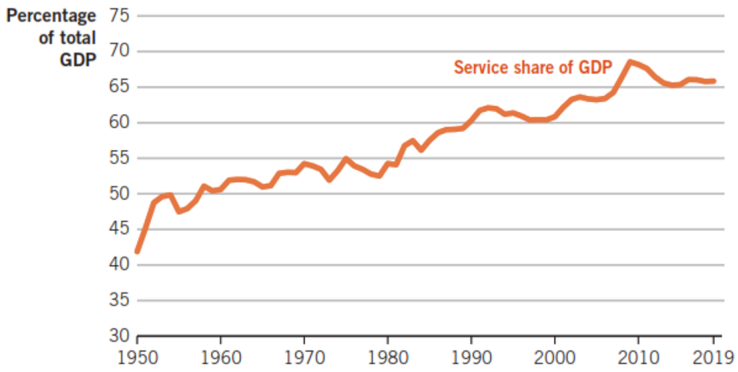
Includes goods and services

Goods

- tangibles

Services

- intangibles
- And shift from manufacturing to services



Includes goods produced with a nation

Gross National Product (GNP)

Output produced by workers and resources owned by residents of the nation

- *Nike shoes made in Thailand would count toward U.S's GNP but toward Thailand's GDP*

5 Four components of GDP

The Bureau of Economic Analysis (BEA) is the U.S government agency that tallies GDP data, a task called national income accounting.

$$Y = C + I + G + NX \tag{1}$$

Y	Output
C	Consumption
I	Investment
G	Government Purchase
NX	Net Export

Three types of investment is

1. Investment
2. Government Spending

3. Net Exports

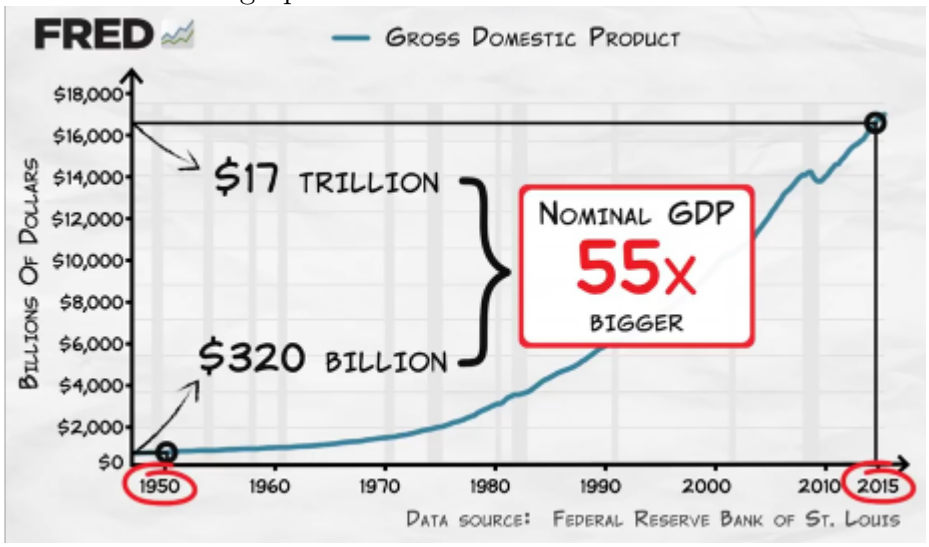
Durable and non-durable goods; here are some examples.

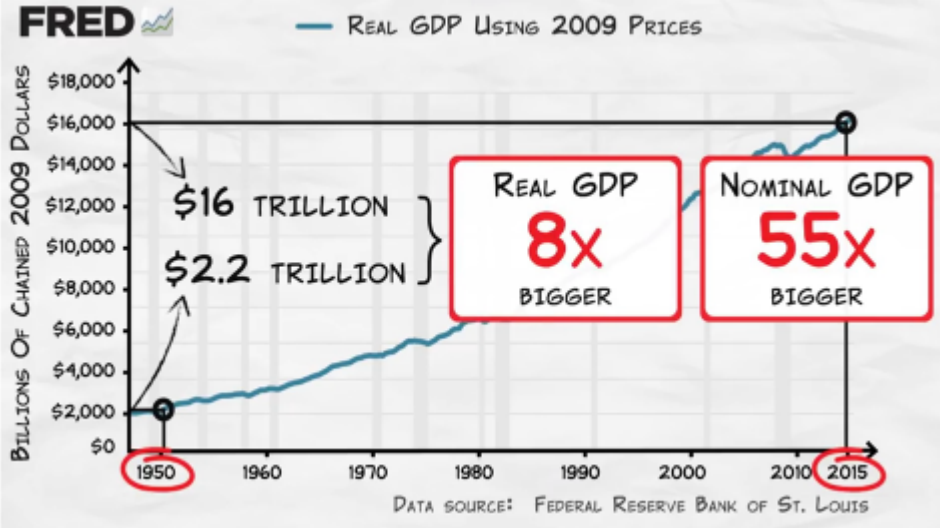
- Refrigerator
- Ice cream
- Shovel

5.1 U.S GDP & it's components (Example)

6 Calculating Real GDP

- Consider these 2 graphs.





- **Nominal GDP**

  Can Δ when PΔ, QΔ, or both Δ

- **Real GDP**

  Can only Δ when QΔ

6.1 Nominal v. Real GDP

- Nominal GDP

  Value of the goods and services produced **current** prices

- Real GDP

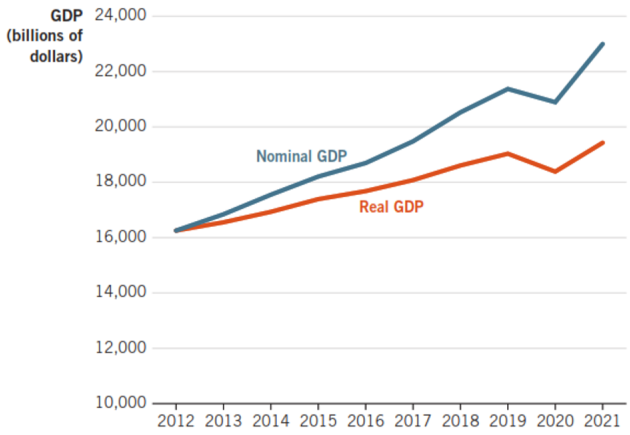
  Value of goods and services produced at **constant** prices

  Adjusted for inflation

Calculations

Year	Price of a Cup of Coffee	Quantity (Cups) of Coffee	Price of Cupcakes	Quantity of Cupcakes
2020	$2.00	400	$1.00	200
2021	$3.00	600	$1.50	300
2022	$4.00	800	$2.00	400
Nominal GDP Calculation:				
2020:	$2.00 * 400 cups of coffee + $1.00 * 200 cupcakes = $1,000			
2021:	$3.00 * 600 cups of coffee + $1.50 * 300 cupcakes = $2,250			
2022:	$4.00 * 800 cups of coffee + $2.00 * 400 cupcakes = **$4,000**			
Real GDP Calculation:				
2020:	$2.00 * 400 cups of coffee + $1.00 * 200 cupcakes = $1,000			
2021:	$2.00 * 600 cups of coffee + $1.00 * 300 cupcakes = $1,500			
2022:	$2.00 * 800 cups of coffee + $1.00 * 400 cupcakes = **$2,000**			

U.S Nominal & Real GDP



Computing Real GDP

Two steps:

1. Divide to filter out current prices.
2. Multiply to input base-period prices.

$$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{Price Level}} \times 100 \tag{2}$$

TABLE 6.5

U.S. Nominal GDP and Price Level, 2009–2021

Year	Nominal GDP (billions of dollars)	Price Level (GDP deflator)
2009	$14,478.1	95
2010	15,049.0	96
2011	15,599.7	98
2012	16,254.0	100
2013	16,843.2	102
2014	17,550.7	104
2015	18,206.0	105
2016	18,695.1	106
2017	19,479.6	108
2018	20,527.2	110
2019	21,372.6	112
2020	20,893.7	114
2021	22,997.5	118

Source: Bureau of Economic Analysis.

Compute 2021 real GDP in 2012 dollars for this graph.

$$\text{Real GDP} = \frac{22998}{118} \times 100 = \$19,490 \text{ billion}$$

6.2 Three uses of GDP data

6.2.1 Growth Rates and Nominal GDP Growth Rate

- GDP data can also be used to measure economic growth over time or changes in average living standards.

- Economic growth - percentage change in real per capita GDP.
- Have to adjust GDP for inflation.
- The rate of change of nominal GDP from one year to the next $(\frac{\text{Value}_t - \text{Value}_{t-1}}{\text{Value}_{t-1}}) \times 100$
- Where t is the current period value, and t-1 is the previous period value.
- Can use this to calculate % change in nominal GDP, price level, & real GDP

6.2.2 Measuring living standards

- GDP offers us a way of estimating living standards across both time and place.
- Does not take into account the population size of a country.
- Have to adjust for population difference.
- What is more desirable, a bigger GDP or a bigger GDP per capita.
- **Per Capita GDP**

  GDP per person
- Measure of average living standards in a nation. per capita GDP $= \frac{\text{GDP}}{\text{Population}}$

GDP does not fully account for:

- Nonmarket goods
- Underground economy
- Quality of life
- Leisure time
- Distribution of income

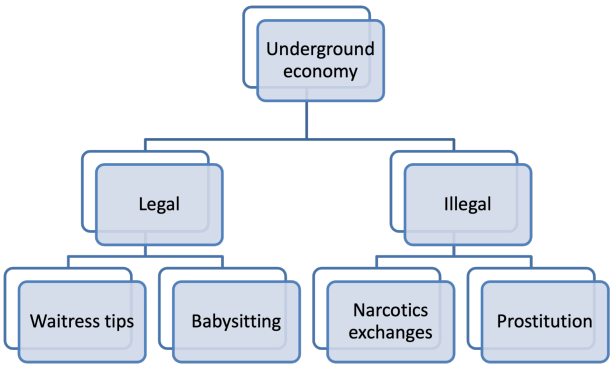
6.3 Shortcomings of GDP

- Underground economy

    Size of underground economy?

    Percent of GDP (estimated) in United States

    Percent in developing countries

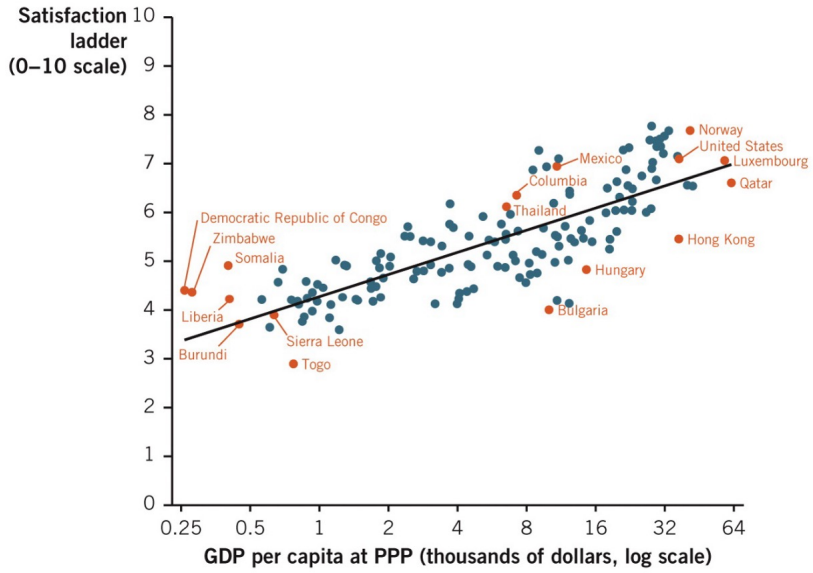


6.4 GDP and the environment

- When a factory sells goods, we count the goods in GDP.
- When the factory hires a company to clean up the *blank* it creates, we also count that in GDP.
- GDP *blank* the true value created.

7 GDP = Happiness???

- Life satisfaction is in nations with higher incomes.



In conclusion, higher income presents opportunities to pursue happiness.