ECON 2123 Fall 2021
Macroeconomics

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Chapter 01 & 02 **Basics**

1 Overall introduction

How can we describe an economy?

- Output
- Unemployment rate
- Inflation rate

How the crisis happened?

- Housing market → whole financial system. How such a small part of financial system affected an entirely system? Nearly the whole US finance.
- How from financial sector → real-side economy?
- How from US domestic *rar* world-wide crisis? The great depression confined in US, but why 2008 crisis affected all over the world?

Why China *seemed* to be intact in 2008 Financial Crisis?

The adverse effect on demand was nearly fully offset by a major fiscal expansion by Chinese government. (a major increase in public investment)

2 GDP: "Aggregate Output"

2.1 Measure GDP

GDP: Gross **D**omestic **P**roduct

- Gross: we care about the whole, total, aggregate value, not individually.
- Domestic: as long as in the region, no matter who produce, differ from "GNP"
- Product: care about output.

How to measure? By **national income and product accounts**, which is an accounting system to measure aggregate economic activity.

Example:

Steel Company (Firm 1)			Car Company (Firm 2)		
Revenues from sales		$100	Revenues from sales		$200
Expenses		$80	Expenses		$170
Wages	$80		Wages	$70	
			Steel Purchases	$100	
Profit		$20	Profit		$30

How to calculate GDP? $300 = 100 + 200$? This double counts **intermediate** goods. $50 = 20 + 30$? This is profit income, not total output, which underestimate the total output.

- Only care about value of **final goods.** Just the revenues of the car: 200. Final goods aim for **final consumption.**
- Value **added** in the company.(like contributions) $100 + (200 - 100) = 200$, since in company 2, it add 100 to make steel into cars.
- Income side: income for workers(labor income) + income for company(profit income). $80 + 20 + 70 + 30 = 200$.

Someone buy a piece of fish for eat, the fish is a **final good**, but if he cook it and sell it to his neighbor, then it will become an **intermediate** good.

In summary, we can calculate GDP from two sides, in three ways:

Production side:

- the value of the **final** goods and services produced in the economy during a given period.
- the sum of **value added** in the economy during a given period.

Income side:

- the sum of **incomes** in the economy during a given period.

During a given period, **aggregate production = aggregate income.**

Quiz: A firm's value added equals *its revenue minus its cost of intermediate goods.* A firm's profit equals *its revenue minus its costs.*

2.2 nominal & real GDP

nominal: in current price, **real:** in a fixed price, more like in quantity.

Nominal GDP not only captures the changes in **product capacity**, but also captures the changes in **prices**(inflation).

Year	Quantity of Cars	Price of cars	Nominal GDP	Real GDP (in 2005 dollars)
2004	10	$20,000	$200,000	$240,000
2005	12	$24,000	$288,000	$288,000
2006	13	$26,000	$338,000	$312,000

However, real GDP doesn't show us the improvement of quality: a 1990 car has the same price as a latest car. To account for that, we use "Hedonic pricing", where instead of focusing on the car as a whole, we break it into parts and evaluate the improvements individually. (refer to ch2 focus box)

Another problem: why do we use real GDP, rather then directly use the quantity of things we make as the GDP number? For example, economy A produces 100 planes and 1 car, while B produces 1 plane and 100 cars. Which one is more powerful? $P \times Q$ suggests that country that makes more planes are more powerful than the one makes more cars.

More than one good, real GDP is a **weighted average** of the output of all final goods, and **relative prices** determine the weights, which change over time! So this weights actually reflect relative prices and **changes over time.** The measure is called **real GDP in chained(2005) dollars.** (refer to ch2 appendix)

2.3 GDP level & growth rate

- **the level of real GDP:** gives the economic size of a country.
- **real GDP per person:** standard of living of the country.
- **GDP growth:** $\frac{Y_t - Y_{t-1}}{Y_{t-1}}$ for **real** GDP.

Periods of negative GDP growth are called **recessions**, positive growth are called **expansions.**

2.4 useful?

What can be measured in GDP?

- Goods and services available for consumption
- Consumers' **valuation** on these items.
- *A good measure of the material life??*

What cannot be measured in GDP?

- Goods and services without **market prices**: government services, owner-occupied housing etc.
- Goods and services **not traded** in markets: leisure, housework
- depletion of natural and environmental resources.

3 Unemployment Rate

- **employment:**(N) the number of people who have a job
- **unemployment:**(U) the number of people who do not have a job but **are looking for one.** (those who do not have a job and are not looking for one are counted as **not in the labor force**)
- **labor force:**(L) sum of employment and unemployment.
- **unemployment rate:** $u = \dfrac{U}{L}$

However, this number is hard to calculate, since it's difficult to decide whether someone is "looking for a job". US uses a survey called Current Population Survey (CPS) and classify a person as "unemployed" if he or she does not have a job and *has been looking for a job in the last four weeks.*

When the economy slows down, we typically observe both an **increase in unemployment** and an **increase in the number of people who drop out of the labor force(lower participation rate)**.

Why unemployment rate is important?

- has direct effect on the welfare of the unemployed: if unemployment increases, it becomes more **widespread** and more **painful**
- it provides a signal that the economy may not be using some of its resources efficiently

4 Inflation Rate

- **inflation**: a sustained rise in the general level of **prices**
- **deflation**: a sustained decline in the price level
- **inflation rate**: the rate at which the price level increases.

Usually there are two measures of price level: (**two price indexes**)

- the **GDP deflator**
- the **Consumer Price Index**

4.1 GDP deflator

If we see nominal GDP increase faster than real GDP, the difference must come from an **increase in prices.** This motivates the definition of the GDP deflator.

$$P_t = \frac{\text{Nominal GDP}_t}{\text{Real GDP}_t} = \frac{\$P_t}{P_t}$$

The GDP deflator is called an **index number**. Its level has no economic interpretation. But its rate of change, $\pi_t = \frac{P_t - P_{t-1}}{P_{t-1}}$, has a clear economic interpretation: It gives the rate at which the general level of prices increases over time: i.e., **the rate of inflation.**

Moreover, this also implies a simple relation among nominal GDP, real GDP, and the GDP deflator:

$$Y_t = P_t \cdot Y_t$$

Thus, the **rate of growth of nominal GDP** is equal to the **rate of inflation** plus the **rate of growth of real GDP**.

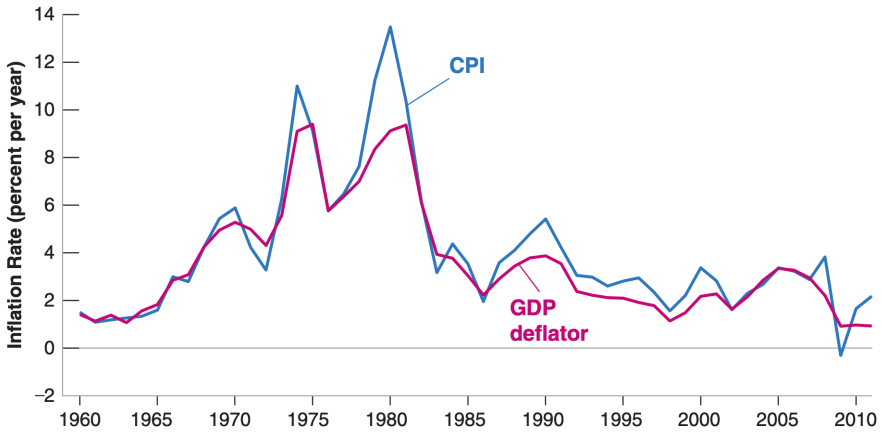
4.2 Consumer Price Index

The GDP deflator gives the average price of **output**: the final goods produced in the economy. But consumers care about the average price of **consumption**: the goods they consume. The two prices need not be the same: The set of goods produced is not the same as the set of goods purchased by consumers:

- Some goods in GDP are sold not to consumers but to firms/government/foreigners.

- Some goods bought by consumers are imported from abroad.

To measure the average price of **consumption**, or, equivalently, the **cost of living**, we look at **the Consumer Price Index(CPI)**.



- The CPI and the GDP deflator **move together** most of the time.
- Exceptions: GDP deflator is the price of goods *produced*, whereas the CPI is the price of goods *consumed*.

Why inflation rate is important?

If a higher inflation rate meant just a faster but **proportional** increase in all prices and wages(pure inflation), inflation would be only a minor inconvenience, as **relative prices would be unaffected**.

However, this is not the case:

- not all prices and wages rise proportionately. e.g. retirees.
- inflation leads to other distortions. e.g. firms more uncertain about future investment; bracket creep: higher tax.