

Introduction to Economics

Topic 6 (Macroeconomics):

Measuring aggregate production and income

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Overview



1. Basic macroeconomic concepts
2. Fluctuations and economic cycles

Goal: An overview of macroeconomics, the study of the economic as a whole, and how it differs from microeconomics. In particular, how economists use aggregate measures to track the performance of the economy; and the importance of the business cycle.

1. Basic macroeconomic concepts and macro-magnitudes

Economic aggregates



Economic aggregates are economic measures that summarize data across different markets for goods, services, workers and assets.

Aggregate output is the economy's total production of final goods and services for a given time period.

Goals:

- What gross domestic product (GDP) is and the three ways of calculating it.
- The difference between real GDP and nominal GDP and why real GDP is the appropriate measure of real economy activity.
- What a price index is and how it is used to calculate the inflation rate.

Gross Domestic Product (GDP)



Gross domestic product (GDP) is the total value of all final goods and services produced in the economy during a given year.

You must take into account...

- It is a value
- "final goods and services" (are goods and services sold to the final, or end, user; when intermediate goods and services – bought from one firm by another firm – that are inputs for production of final goods and services)
- "produced" (produced to sell in the market, this excludes production for own use)
- "in the economy" (inside an economic area)
- "during a given year" (flow)

[1] Measuring GDP as aggregate spending



Aggregate spending is the sum of consumer spending, investment spending, government purchases, and exports minus imports, is the total spending on domestically produced final goods and services in the economy.

We count only the value sales to final buyers, such as consumers, firms that purchase investment goods, the government, or foreign buyers.

(1) Consumer spending (C) – it does not include used goods.

(2) Investment spending (I) = Purchase of inputs (EI) + Purchase of capital goods (KI). So, $I = EI + KI$

Taking into account depreciation (D): $NI = I - D$

[1] Measuring GDP as aggregate spending



- (3) Government purchases of goods and service (G).
- (4) Net exports, which are the difference between the value of exports and the value of imports:
 - Sales to foreigners – that is, exports – (X)
 - Spending on imports – not all of the final spending goes toward domestically produced good and services – (IM)

Putting this all together:

$$\mathbf{GDP = C + I + G + X - IM}$$

[2] Measuring GDP as the value of production of final goods and services



An alternative method for calculating GDP is to add up each producer's value added.

The **value added** of a producer is the value of its sales minus the value of the purchase of inputs.

*Lets see an example of how to calculate GDP:
[The production of 30 baguettes]*

[2] Measuring GDP as the value of production of final goods and services

	Inputs (value)	Output (value)	Value added
Farmer		50	50
Flour producer			
Baker			
Seller			
Total			

[2] Measuring GDP as the value of production of final goods and services

	Inputs (value)	Output (value)	Value added
Farmer		50	50
Flour producer	50	100	50
Baker			
Seller			
Total			

[2] Measuring GDP as the value of production of final goods and services

	Inputs (value)	Output (value)	Value added
Farmer		50	50
Flour producer	50	100	50
Baker	100	175	75
Seller			
Total			

[2] Measuring GDP as the value of production of final goods and services

	Inputs (value)	Output (value)	Value added
Farmer		50	50
Flour producer	50	100	50
Baker	100	175	75
Seller	175	275	100
Total			

[2] Measuring GDP as the value of production of final goods and services

	Inputs (value)	Output (value)	Value added
Farmer		50	50
Flour producer	50	100	50
Baker	100	175	75
Seller	175	275	100
Total			275

From GDP to Disposable Personal Income



- **GDP = C + I + G + X - IM**
 - Indirect Taxes (Ti)
 - + Subventions (Sb)
- **GDP at factor prices**
 - + Net factor earnings from abroad =
 - Foreign factors earnings from the economy (FFE)
 - + National factors earnings from abroad (NFE)
- **GNP at factor prices**
 - Depreciation (D)
- **NNP at factor prices = NI** (National Income: Factor income earned from firms in the economy)
- **NI = Wages earned by labor + Interest earned by those who lend their savings to firms and the government + Rent earned by those who lease their land or structures to firms + Profit earned by the shareholders**
 - Part of profit which is paid off
 - Social Security contributions
 - Tax on profit
 - + Government transfers to household (TR)
- **Personal Income**
 - Personal income taxes (Td)
- **Disposable personal income = Consumption + Household savings**

$$DPI = C + S$$

Calculating real GDP



Nominal GDP is the value of all final goods and services produced in the economy during a given year, calculated using the prices current in the year, in which the output is produced.

Real GDP is the value of all final goods and services produced in the economy during a given year, calculated using the prices of a selected base year.

Calculating real GDP



In economics, the **GDP deflator** (implicit price deflator for GDP) is a measure of the level of prices of all new, domestically produced, final goods and services in an economy. GDP stands for gross domestic product, the total value of all final goods and services produced within that economy during a specified period.

$$\text{GDP deflator} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$$

The Consumer Price Index (CPI)



The consumer price index, or CPI, measures the cost of the market basket of typical Spanish family.

Where a market basket is a hypothetical set of consumer purchases of goods and service (A price index measures the cost of purchasing a given market basket in a given year).

The inflation rate is the percent change per year in a price index – typically the CPI:

$$\text{inflation rate} = \frac{P_0 - P_{-1}}{P_{-1}} \times 100\%$$

2. Fluctuations and economic cycles

The business cycle

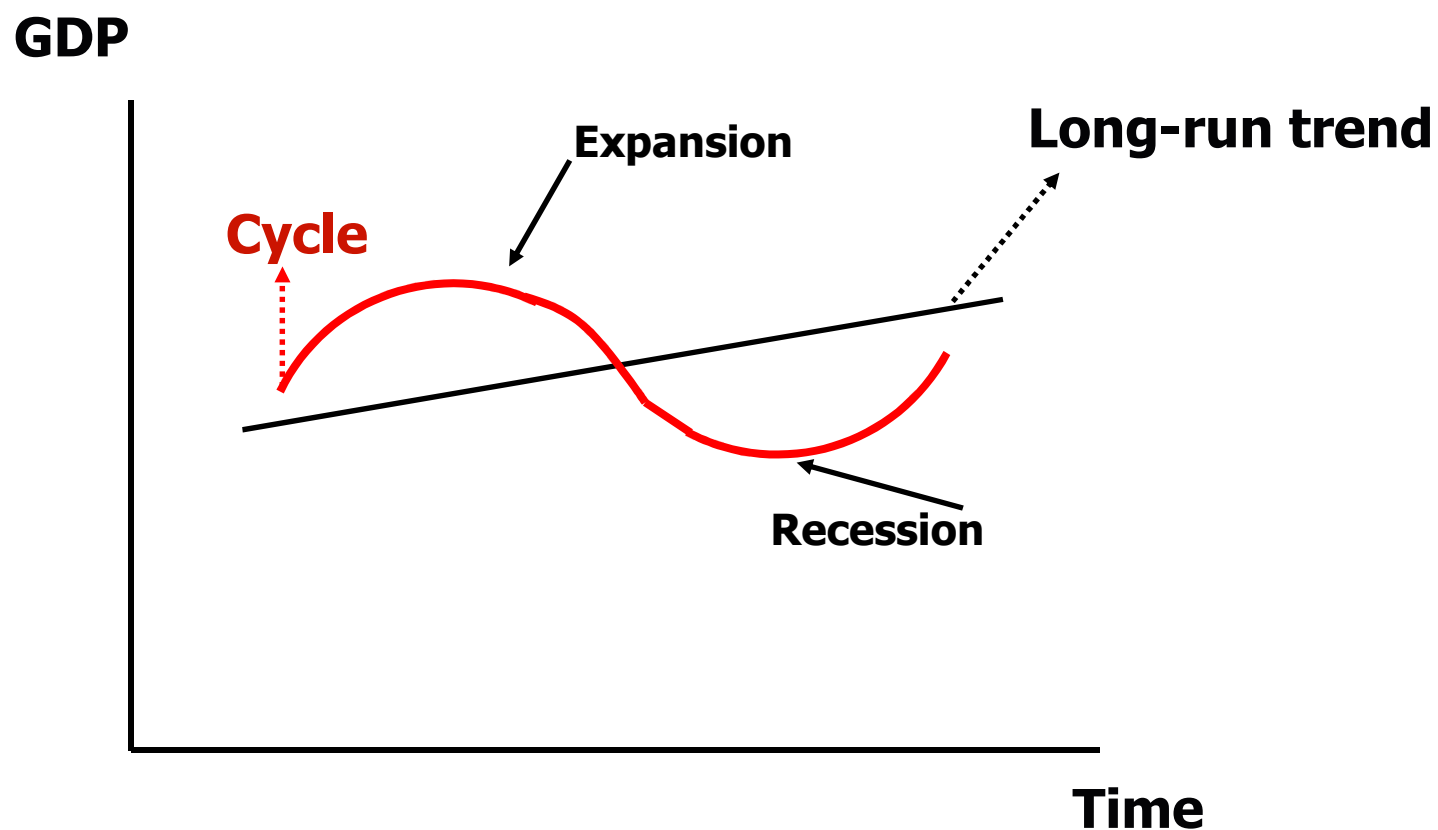


The business cycle is the short-run alternation between economic downturns, known as recessions and economic upturns, known as expansions. These fluctuations are often measured using the growth rate of real gross domestic product and they occur around a long-term growth trend.

Some definitions...

- A **depression** is a very deep and prolonged downturn.
- **Recessions** are periods of economic downturns when output and employment are falling.
- **Expansions**, or recoveries, are periods of economic upturns when output and employment are rising.

The business cycle



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