



Macroeconomics

L3. MEASURING THE ECONOMY
APRIL 17TH, 2023

Agenda

- ▶ Finish GDP and National Accounting
 - ▶ GDP Deflator
- ▶ CPI: Price Levels and Inflation
- ▶ Other Measures of the Macroeconomy
- ▶ Macroeconomics Timeline
- ▶ Aggregate Supply and Aggregate Demand Model



Finish GDP and National Accounting

- ▶ Calculations
 - ▶ Real versus Nominal GDP
 - ▶ Calculating Change in GDP over time
 - ▶ Deflators

GDP Deflator

- ▶ Definition:
 - ▶ A measure of the price level of all domestically produced final goods and services in an economy
- ▶ Purpose:
 - ▶ To convert Nominal GDP into Real GDP and measure inflation
- ▶ Formula:
 - ▶ $\text{GDP Deflator} = (\text{Nominal GDP} / \text{Real GDP}) * 100$

Sample Deflator Problem

Calculating the GDP Deflator

- ▶ Given that
 - ▶ Nominal GDP = \$20,000; Real GDP = \$18,000
 - ▶ GDP Deflator = (Nominal GDP / Real GDP) * 100
 - ▶ GDP Deflator = (\$20,000 / \$18,000) * 100
- ▶ GDP Deflator = 111.11

CPI: Price Levels and Inflation

- ▶ Definitions
- ▶ Calculating the Price Level
- ▶ How good is a Basket anyway?
 - ▶ Representation changes over time
 - ▶ Develop your own CPI basket

Definition of CPI

A MEASURE OF THE OVERALL COST OF THE GOODS
AND SERVICES
BOUGHT BY A TYPICAL CONSUMER.

[HTTPS://WWW.BLS.GOV/CPI/](https://www.bls.gov/cpi/)

How do we calculate CPI?

- ▶ Fix the Basket of Goods
- ▶ Find the Prices of the Goods
- ▶ Compute the Cost of the Basket
- ▶ Choose a Base Year and Compute the Index
- ▶ Compute the Inflation Rate

Item	Quantity	2021 Price	2022 Price
Bread	10	\$2.50	\$2.75
Milk	5	\$3.50	\$3.75
Ground Beef	2	\$5.00	\$5.50
Eggs	2 dozen	\$2.00	\$2.25
Apples	4 pounds	\$1.50	\$1.75

Example CPI Calculation

CALCULATE THE CPI FOR 2022 USING 2021 AS THE BASE YEAR.

Example (continued)

- ▶ Calculate the CPI for 2022 using 2021 as the base year:
 - ▶ Calculate the total cost of the market basket in 2021:
 - ▶ Total cost in 2021 =
 - ▶ $(10 \times \$2.50) + (5 \times \$3.50) + (2 \times \$5.00) + (2 \times \$2.00) + (4 \times \$1.50) = \62.00
 - ▶ Calculate the total cost of the market basket in 2022:
 - ▶ Total cost in 2022 =
 - ▶ $(10 \times \$2.75) + (5 \times \$3.75) + (2 \times \$5.50) + (2 \times \$2.25) + (4 \times \$1.75) = \69.75
 - ▶ Calculate the CPI for 2022 using 2021 as the base year:
 - ▶ CPI for 2022 =
 - ▶ $(\text{Total cost in 2022} / \text{Total cost in 2021}) \times 100$
- ▶ $= 112.10$

Calculate the GDP Deflator

- ▶ To calculate the GDP deflator for 2020, we need to follow these steps:
- ▶ 1. Calculate the real GDP for 2020 using the 2019 CPI as the base year:
 - ▶ Real GDP in 2020 = (Nominal GDP in 2020 / CPI in 2020) x 100
 - ▶ = (\$10 trillion / 210) x 100
 - ▶ = \$4.76 trillion
- ▶ 2. Calculate the GDP deflator for 2020:
 - ▶ GDP deflator for 2020 = (Nominal GDP in 2020 / Real GDP in 2020) x 100
 - ▶ = (\$10 trillion / \$4.76 trillion) x 100
 - ▶ = 210.08