UNIT 2

Economic Indicators and the Business Cycle

Measuring the macroeconomy: GDP, unemployment, inflation, and the rhythm of expansion and recession

12–17%	9–11	7
EXAM WEIGHTING	CLASS PERIODS	TOPICS IN UNIT

Teacher presentation · Aligned to the College Board Course and Exam Description

What This Unit Covers

TOPICS IN THIS UNIT

- 2.1 The Circular Flow and GDP
- 2.2 Limitations of GDP
- 2.3 Unemployment
- 2.4 Price Indices and Inflation
- 2.5 Costs of Inflation
- 2.6 Real vs. Nominal GDP
- 2.7 Business Cycles

BIG IDEAS

- MEA — Economic Measurements: How is one person's spending another's income?
- How do we know whether an economy is doing well or poorly?

WHY IT MATTERS

An economy's performance is measured by indicators — GDP, the inflation rate, and the unemployment rate. The economy fluctuates between expansion and contraction in the short run, even as it can grow in the long run. These measures are the vocabulary of every model that follows.

12–17% of the AP Exam multiple-choice and free-response score

TOPIC 2.1

The Circular Flow and Gross Domestic Product

Enduring Understanding MEA-1 — An economy's performance can be measured by indicators such as GDP, the inflation rate, and the unemployment rate.

LEARNING OBJECTIVES: MEA-1.A — Define how GDP is measured and its components; calculate nominal GDP.

The Circular Flow Model

The circular flow model represents GDP as a continuous loop of income and expenditure between households and firms.

- Households supply factors of production (land, labor, capital) and receive income (wages, rent, interest, profit).
- Firms produce goods and services and receive revenue from household spending.
- Every dollar of spending becomes a dollar of income — so total expenditure equals total income.
- This is why GDP can be measured as total spending OR total income.

KEY TAKEAWAY

The economy is a closed loop: spending = income = the value of output. All three are GDP.

Defining and Measuring GDP

GDP is the market value of all FINAL goods and services produced WITHIN a country's borders in a given time period.

1 Expenditures Approach

Add up all spending on final output: GDP = C + I + G + Xn (consumption + investment + government purchases + net exports). The most-used approach.

2 Income Approach

Add up all income earned producing that output: wages + rent + interest + profit. Spending and income are two sides of the same transaction.

3 Value-Added Approach

Sum the value added at each stage of production. This avoids double-counting intermediate goods by counting only the value created at each step.

The Expenditures Approach — Components of GDP

GDP = C + I + G + Xn. Know exactly what belongs in each component.

CONSUMPTION (C)

household spending

Spending by households on goods and services — durable goods, nondurables, and services. The largest component of U.S. GDP.

INVESTMENT (I)

I = business + residential + Δ inventory

Business fixed investment (machines, factories), new residential construction, and changes in inventories. NOT the purchase of stocks or bonds.

GOVERNMENT (G)

government purchases

Government spending on goods and services. EXCLUDES transfer payments (Social Security, unemployment benefits) — those are not payment for current production.

NET EXPORTS (XN)

Xn = Exports - Imports

Exports add to GDP; imports are subtracted because they were not produced domestically. Xn can be positive or negative.

TOPIC 2.2

Limitations of GDP

GDP is a powerful indicator — but it does not measure everything that matters.

LEARNING OBJECTIVES: MEA-1.B — Define the limitations of GDP.

What GDP Leaves Out

GDP is a useful measure of economic performance, but it has real limitations as a measure of well-being.

Nonmarket Transactions

Unpaid household production — childcare by a parent, home cooking, volunteer work — is not counted because no market transaction occurs.

The Underground Economy

Cash-only, informal, and illegal activity goes unrecorded, so GDP understates total production.

Leisure & Quality of Life

GDP ignores the value of leisure time, and rising GDP may come at the cost of longer hours or worse working conditions.

Externalities & Environment

GDP does not subtract pollution, resource depletion, or environmental damage caused by production.

Income Distribution

GDP (and GDP per capita) is an average — it says nothing about how output and income are distributed across the population.

Composition of Output

GDP counts a dollar of weapons the same as a dollar of education — it measures quantity of production, not its social value.

TOPIC 2.3

Unemployment

Measuring the labor market — and understanding why some unemployment always exists.

LEARNING OBJECTIVES: MEA-1.C — Define & calculate the labor force, unemployment rate, and LFPR. MEA-1.D — Limitations. MEA-1.E — Types & the natural rate.

How the Labor Force Is Measured

Before you can measure unemployment, you must define who is in the labor force.

- ADULT POPULATION = civilian, non-institutionalized, age 16+. Excludes those in the military, prison, or institutions.
- LABOR FORCE = the employed PLUS the unemployed (those without a job who are actively seeking work).
- To be counted UNEMPLOYED you must be jobless AND actively searching.
- People not working and not looking — students, retirees, discouraged workers — are NOT in the labor force.

KEY TAKEAWAY

Labor force = employed + unemployed. 'Actively seeking work' is the key phrase — without it, a jobless person is simply 'not in the labor force.'

Calculating Unemployment

Two rates, two denominators — keep them straight.

UNEMPLOYMENT RATE

U-rate = (Unemployed / Labor Force) x 100

The percentage of the LABOR FORCE that is jobless and actively seeking work. Example: 8 million unemployed in a 160-million labor force = 5.0%.

LABOR FORCE PARTICIPATION RATE

LFPR = (Labor Force / Adult Population) x 100

The percentage of the ADULT POPULATION that is in the labor force. Note the different denominator — the adult population, not the labor force.

The Three Types of Unemployment

Economists distinguish three types — and only one of them disappears at full employment.

F Frictional

Short-term unemployment from the normal process of matching workers to jobs — new graduates searching, people between jobs. Always exists; even healthy economies have it.

S Structural

A mismatch between workers' skills or locations and available jobs — caused by technological change, automation, or shifts in the economy. Often longer-lasting.

C Cyclical

Unemployment caused by a downturn in the business cycle — falling aggregate demand during a recession. This is the type policy tries to eliminate.

The Natural Rate & Limitations of the Unemployment Rate

Natural Rate of Unemployment (NRU)

NRU = frictional + structural unemployment. It is the unemployment rate that exists when the economy produces full-employment output. Full employment does NOT mean zero unemployment.

Cyclical Unemployment

Cyclical unemployment = actual unemployment rate − natural rate. When the economy is at full employment, cyclical unemployment is zero. The NRU itself can drift over time as labor force characteristics change.

The Rate UNDERSTATES Joblessness

DISCOURAGED WORKERS who give up the search are not counted as unemployed. Involuntary PART-TIME workers who want full-time work are counted as fully employed. Both make the official rate look better than reality.

Unemployment in the U.S., 2000–2025

Real U.S. unemployment data shows cyclical unemployment clearly: the rate rises sharply in recessions and returns toward the natural rate during recoveries.

- In normal times the rate hovers near the natural rate of roughly 4–5%.
- The 2008–09 financial crisis pushed the rate near 10% — a large cyclical component.
- The 2020 COVID shock caused an unprecedented, sudden spike in unemployment (near 15%), followed by a rapid recovery.
- The rate essentially never reaches zero — frictional and structural unemployment always remain.

KEY TAKEAWAY

Recessions add cyclical unemployment on top of the natural rate. The gap between the actual rate in a recession and the ~4.5% natural rate IS cyclical unemployment.

TOPIC 2.4

Price Indices and Inflation

How a price index turns thousands of prices into a single number — and how we measure inflation.

LEARNING OBJECTIVES: MEA-1.F — Define & calculate the CPI and the inflation rate. MEA-1.G — Shortcomings of the CPI.

Key Inflation Vocabulary

Consumer Price Index (CPI)

Measures the cost of a fixed market basket of goods and services in a given year relative to a base year. It tracks the change in income a consumer needs to maintain the same standard of living.

Inflation / Deflation / Disinflation

INFLATION = a rising general price level. DEFLATION = a falling price level (negative inflation). DISINFLATION = inflation that is still positive but slowing down.

The Inflation Rate

The percentage change in a price index (such as the CPI or the GDP deflator) from one period to the next.

Real vs. Nominal Variables

A NOMINAL variable is measured in current dollars. A REAL variable is adjusted for the price level — nominal deflated by a price index — so it reflects true purchasing power.

Calculating the CPI and the Inflation Rate

CONSUMER PRICE INDEX

CPI = (basket cost now / basket cost base yr) x 100

Price the same fixed basket in both years. The base year always has a CPI of 100. A CPI of 115 means the basket costs 15% more than in the base year.

INFLATION RATE

Inflation = (CPI new - CPI old) / CPI old x 100

The percentage change in the index between two periods. Example: CPI rises from 200 to 210, inflation = 10/200 = 5%.

Why the CPI Overstates True Inflation

The CPI uses a FIXED basket — and that fixed basket creates three biases, all pushing the measured rate too high.

1 Substitution Bias

When a good's price rises, consumers buy cheaper substitutes. A fixed basket cannot capture this, so it overstates the rising cost of living.

2 New-Product Bias

New goods enter the market faster than the fixed basket is updated, so the index misses the benefit of new and improved choices.

3 Quality-Change Bias

When a product improves, part of a price increase pays for added quality — but the index may count the whole increase as inflation.

Inflation in the U.S., 2000–2025

Real CPI data shows inflation is usually low and positive — but not always.

- For most of this period inflation stayed near the Federal Reserve's informal 2% target.
- 2009 saw brief DEFLATION (a negative rate) during the financial crisis.
- 2021–2022 brought the sharpest inflation surge in four decades, peaking near 8% in 2022.
- The 2023–2025 decline from 8% toward roughly 3% is DISINFLATION — prices still rose, just more slowly.

KEY TAKEAWAY

Drill the vocabulary with recent U.S. history: 2009 = deflation; the 2022 peak = high inflation; the post-2022 decline = disinflation (not deflation).

TOPIC 2.5

The Costs of Inflation

Why inflation — especially when unexpected — imposes real costs on individuals and the economy.

LEARNING OBJECTIVES: MEA-1.H — Explain the costs that unexpected inflation (or deflation) imposes.

The Costs of Inflation

Redistribution of Wealth

Unexpected inflation arbitrarily transfers wealth between groups — most importantly from lenders to borrowers, because loans are repaid in dollars worth less than expected.

Eroded Purchasing Power

People on fixed incomes — retirees, workers with fixed nominal wages — lose real purchasing power when prices rise faster than their income.

Menu & Shoe-Leather Costs

Firms bear MENU costs of constantly re-pricing. People bear SHOE-LEATHER costs from managing cash more actively to avoid holding money that is losing value.

Uncertainty & Distorted Decisions

Volatile or unexpected inflation makes long-term planning, saving, and investment riskier — distorting economic decision-making.

Winners and Losers from UNEXPECTED Inflation

When inflation is higher than people expected, wealth shifts — predictably.

WINNERS

- **Borrowers / debtors**
- They repay fixed-rate loans with dollars that are worth less than when they borrowed.
- **Anyone owing money at a fixed nominal rate**
- The real value of their debt shrinks.
- The government, as a large borrower, can benefit similarly.

LOSERS

- **Lenders / creditors / savers**
- They are repaid in dollars with less purchasing power than expected.
- **Workers with fixed nominal wages**
- Their real wage falls as prices rise.
- People on fixed incomes, such as some retirees.

TOPIC 2.6

Real vs. Nominal GDP

Separating genuine changes in production from mere changes in prices.

LEARNING OBJECTIVES: MEA-1.I — Define nominal and real GDP. MEA-1.J — Calculate real GDP and the GDP deflator.

Nominal GDP vs. Real GDP

The difference is whether prices are allowed to change — and it determines what the number actually tells you.

NOMINAL GDP

- **Output valued at CURRENT-year prices.**
- Measures how much is SPENT on output.
- Rises when prices rise, when output rises, or both — so it mixes the two together.
- Can overstate growth: an economy can show rising nominal GDP while producing nothing extra.

REAL GDP

- **Output valued at CONSTANT base-year prices.**
- Measures how much is PRODUCED.
- Removes the effect of price-level changes, isolating the change in output.
- The honest measure of growth — and the basis of the business cycle and growth analysis.

The GDP Deflator and Converting Nominal to Real

GDP DEFLATOR

Deflator = (Nominal GDP / Real GDP) x 100

A price index covering ALL goods in GDP (unlike the CPI's fixed consumer basket). In the base year, nominal = real, so the deflator is 100.

REAL GDP FROM NOMINAL

Real GDP = (Nominal GDP / Deflator) x 100

Deflating nominal GDP by the price index strips out inflation and leaves the true volume of output.

TOPIC 2.7

The Business Cycle

The short-run rhythm of expansion and contraction around the economy's long-run growth path.

LEARNING OBJECTIVES: MEA-2.A — Define and explain the turning points and phases of the business cycle.

Phases and Turning Points of the Business Cycle

Business cycles are fluctuations in aggregate output and employment caused by changes in aggregate demand and/or aggregate supply.

- EXPANSION — real GDP is rising; unemployment falls.
- PEAK — the turning point where expansion ends and output is at its highest.
- CONTRACTION (RECESSION) — real GDP is falling; unemployment rises.
- TROUGH — the turning point where contraction ends and recovery begins.
- POTENTIAL (full-employment) real GDP is the long-run trend; actual GDP fluctuates above and below it.

KEY TAKEAWAY

Two phases (expansion, contraction) and two turning points (peak, trough). The economy cycles around — not along — its long-run potential.

Potential Output and the Output Gap

Potential (Full-Employment) Output

The level of real GDP the economy produces when unemployment equals the natural rate. It is the economy's sustainable capacity — and corresponds to a point ON the production possibilities curve.

The Output Gap

Output gap = actual real GDP − potential real GDP. It measures how far the economy is operating from its full-employment level.

Recessionary vs. Inflationary Gaps

RECESSIONARY (negative) gap: actual < potential — high cyclical unemployment. INFLATIONARY (positive) gap: actual > potential — the economy is overheating with upward price pressure.

Common Pitfalls & Exam Tips

Explain, don't just define

For each indicator, be ready to say what it measures, how it is calculated, and its limitations — the College Board expects full explanations.

Watch GDP exclusions

Transfer payments, used goods, intermediate goods, and purely financial transactions are NOT in GDP. Inventory changes ARE.

Jobless ≠ unemployed

To be unemployed you must be actively seeking work. Discouraged workers leave the labor force and are not counted.

Full employment isn't 0%

Full employment means the natural rate (frictional + structural). Cyclical unemployment = actual rate − natural rate.

Disinflation ≠ deflation

Disinflation = inflation slowing but still positive. Deflation = a falling price level (negative inflation rate).

Real vs. nominal denominators

Real GDP and real values strip out price changes. Use the right denominator for the U-rate (labor force) vs. the LFPR (adult population).

Unit 2 — Key Takeaways

1. GDP is the market value of all final goods and services produced within a country in a period — measurable by spending (C+I+G+Xn), income, or value added.

2. GDP has real limitations: it misses nonmarket production, the underground economy, leisure, externalities, and distribution.

3. Unemployment requires being jobless AND actively seeking; the rate understates true joblessness.

4. Unemployment is frictional, structural, or cyclical; the natural rate (frictional + structural) defines full employment.

5. Inflation is measured by the % change in a price index; the CPI's fixed basket tends to overstate it; unexpected inflation redistributes wealth.

6. Real GDP holds prices constant to measure true output; the economy cycles between expansion and contraction around potential GDP.