The Ultimate AP® Macroeconomics Unit 2 Cheat Sheet

2.1 Circular Flow & GDP

Circular Flow

Product market: households buy goods & services from firms. **Factor market**: firms buy land, labor, capital.

Flows: money (spending, income) runs 1 way; real flows (goods, resources) run the opposite way around.

Leakages (saving, taxes, imports) vs. **injections** (investment, govt spending, exports) in the full model.

GDP

GDP = market value of all FINAL goods & services produced within a country's borders in a given year.

Counted	NOT counted
New final goods	Intermediate goods
Services	Used goods resold
New homes (I)	Stocks, bonds
Govt purchases	Transfer payments
Foreign firm here	US firm abroad

Expenditure Approach

GDP = C + I + G + X_n: consumption + gross private investment + govt purchases + net exports (X − M).

Investment (I) = new capital, new housing & inventory change; NOT buying stocks or bonds (that's saving).

Income approach: GDP also = total income earned (wages + rent + interest + profit); spending = income.

Value added: sum the added value at each production stage = final price; avoids double counting.

Inventory: unsold output counts in I this year.

⚠ Transfer payments (Social Security, unemployment benefits) are NOT part of G; nothing new is produced.

✓ Classify by WHO buys it: household → C; firm's new capital → I; govt → G; foreigner → exports in X_n.

2.2 Limitations of GDP

What GDP Misses

Left out	Example
Nonmarket work	Cooking at home
Underground economy	Cash jobs, illegal
Leisure	Shorter work weeks
Environment	Pollution costs
Distribution	Who gets income
Quality changes	Better phones

GDP ≠ well-being: it measures market output, not happiness, health, equality or sustainability of growth.

Bad things can raise GDP: cleanup after a disaster or extra spending on crime prevention adds to GDP.

Better Comparisons

Real GDP per capita = real GDP ÷ population; best simple measure of average living standards over time.

Across countries: compare real GDP per capita, not total GDP; a big population can hide low incomes.

GDP vs. GNP

GDP = produced inside the borders (by anyone). **GNP** = produced by a nation's citizens (anywhere).

Ex: Toyota's plant in Kentucky counts in US GDP but in Japan's GNP; a US firm in Mexico → US GNP.

Exam Logic

MCQ: "Which is NOT included in GDP?" → look for used goods, financial assets, transfers or intermediates.

Hidden costs: GDP ignores depletion of resources.

Ex: 2 nations w/ equal GDP; the one w/ half the population has double the GDP per capita, so higher living standards.

⚠ A used car sale isn't in GDP, but the dealer's service (commission) IS; it's new output produced this year.

✓ Ask 2 Qs: Was it produced THIS year? Is it a FINAL good bought by its end user? Both yes → counts.

2.3 Unemployment

Measuring It

Labor force = employed + unemployed (16+, actively seeking work in the past 4 weeks, available to work).

Unemployment rate = unemployed ÷ labor force × 100. **LFPR** = labor force ÷ working-age pop × 100.

Ex: 180 employed, 20 unemployed → labor force 200 → rate = 20 ÷ 200 = 10%. Retirees aren't in it.

Not in labor force: students, retirees, stay-at-home parents & **discouraged workers** who quit looking.

Ex LFPR: 200 in labor force, 250 working-age → LFPR = 200 ÷ 250 = 80%; the other 50 aren't looking.

Types of Unemployment

Type	Cause	Example
Frictional	Job search	New grad looking
Structural	Skills mismatch	Typist → software
Seasonal	Time of year	Ski instructor
Cyclical	Recession	Layoffs in a slump

Natural Rate

Natural rate = frictional + structural (≈ 4–5% in the US); the rate at full employment w/ no cyclical.

Full employment ≠ 0% unemployment; cyclical = 0 & actual rate = natural rate at potential output.

Cyclical = actual rate − natural rate; ex: 7% actual − 5% natural = 2% cyclical unemployment now.

Flaws in the Rate

Understates b/c discouraged workers drop out & **underemployed** part-timers count as employed.

Overstates it too: some people who report searching aren't seriously looking for work at all right now.

⚠ Discouraged workers leaving the labor force LOWER the unemployment rate, even though no one found a job.

✓ FRQ calc: write the formula, plug in, show the %; always find the labor force (E + U) first, then divide.

2.4 Price Indices & Inflation

Consumer Price Index (CPI)

CPI = (cost of market basket in current year ÷ cost of same basket in base year) × 100; base year = 100.

Fixed basket: CPI tracks the SAME goods each year (≈ urban consumer purchases), so only prices change.

Year	Basket cost	CPI
2020 (base)	$200	100
2021	$210	105
2022	$231	115.5

Inflation rate = (CPI_{new} − CPI_{old}) ÷ CPI_{old} × 100. 2021→2022: (115.5 − 105) ÷ 105 = 10% inflation that year.

Other Price Measures

GDP deflator = (nominal GDP ÷ real GDP) × 100; covers ALL goods in GDP, not just a consumer basket.

Core inflation: excludes volatile food & energy prices to show the underlying inflation trend over time.

Inflation Basics

Inflation = a rising general price level → each dollar buys less (purchasing power falls) as time goes on.

Deflation = falling price level. **Disinflation** = inflation still positive but slowing down (5% → 2%).

Ex: CPI 150 in 2025 & base year 2010 → prices are 50% higher than 2010; $1 now buys what $0.67 did then.

CPI Biases (Overstates Inflation)

Substitution bias (people switch to cheaper goods), **new goods** & **quality improvements** are missed.

Other uses: CPI adjusts Social Security payments & tax brackets for inflation (indexing) each year.

⚠ Disinflation ≠ deflation: prices still RISE under disinflation, just more slowly than they did before.

✓ Base year CPI is always 100; a CPI of 120 means prices are 20% higher than in the base year.

2.5 Costs of Inflation

Winners & Losers (Unanticipated)

Hurt by inflation	Helped by inflation
Lenders (creditors)	Borrowers (debtors)
Savers	Holders of fixed-rate debt
Fixed-income earners	Those w/ rising wages
Holders of cash	Owners of real assets

Why: borrowers repay w/ dollars worth less than the ones they borrowed; lenders lose purchasing power.

Anticipated inflation does less harm: lenders build expected inflation into the nominal interest rate.

Real vs. Nominal Interest

Real interest rate = nominal rate − inflation rate. Ex: 7% loan − 3% inflation = 4% real return to the lender.

Unexpected inflation ↑ → real rate ↓ → borrowers gain & lenders lose relative to what they planned.

Expected real rate = nominal − expected inflation; if actual inflation turns out higher, the actual real rate falls.

Other Costs

Shoe-leather costs: time & effort spent avoiding cash holdings. **Menu costs**: re-pricing goods.

Uncertainty: firms delay investment; **arbitrary redistribution** of wealth between borrowers & lenders.

Deflation reverses it: real debt burdens rise, so borrowers lose & lenders gain; spending may be delayed.

Real vs. Nominal Income

Real income = nominal income ÷ (price index ÷ 100). If wages ↑ 3% & prices ↑ 5%, real wages FALL ≈ 2%.

Hyperinflation: extreme inflation (e.g., Zimbabwe 2008) destroys savings & trust in the currency.

⚠ Fixed-rate borrowers WIN from unexpected inflation; lenders & savers LOSE. Don't flip these on the FRQ.

✓ Percent change in real ≈ % change nominal − inflation rate; quick check for wage & interest questions.

2.6 Real vs. Nominal GDP

Definitions

Nominal GDP = output × current-year prices; rises w/ more output OR higher prices (or both at once).

Real GDP = output × base-year prices; changes only when the actual production of goods & services changes.

Formulas

Find	Formula
Real GDP	Nominal ÷ deflator × 100
Deflator	Nominal ÷ real × 100
Nominal GDP	Real × deflator ÷ 100
Growth rate	(new − old) ÷ old × 100

Worked Example

Base 2020: 10 pizzas at $10 → nominal = real = $100. **2021**: 12 pizzas at $12 → nominal GDP = $144.

2021 real GDP = 12 × $10 (base-year price) = $120. **Deflator** = 144 ÷ 120 × 100 = 120 → prices ↑ 20%.

Real growth = (120 − 100) ÷ 100 = 20% more output; nominal growth (44%) mixes output & price changes.

Ex: nominal GDP $500B, deflator 125 → real GDP = 500 ÷ 125 × 100 = $400B in base-year dollars (prices ↑ 25%).

Reading Data

In the base year, nominal GDP = real GDP & the deflator = 100. After it, they diverge w/ inflation.

Before the base year: deflator < 100, so real GDP > nominal GDP b/c prices were lower back then.

Nominal ↑ but real flat → all growth came from higher prices, not from producing any more goods.

Growth rate of real GDP is the headline number for how fast an economy is expanding or shrinking.

⚠ Use real GDP to compare output across years; nominal GDP can rise in a recession if prices rise fast.

✓ Deflator > 100 → price level is above the base year, so real GDP < nominal GDP in that year.

2.7 The Business Cycle

Phases

Phase	Real GDP	Unemployment
Expansion	Rising	Falling
Peak	At max	Low, < natural
Contraction	Falling	Rising
Trough	At min	High, > natural

Recession ≈ 2+ quarters of falling real GDP; a long, deep one is a **depression** (e.g., the 1930s in the US).

Long-run trend: real GDP grows over time despite cycles, driven by more resources & better technology.

Output Gaps

Potential (full-employment) output: real GDP when unemployment = natural rate & cyclical = 0.

Recessionary (negative) gap: actual < potential → cyclical unemployment > 0, inflation pressure ↓.

Inflationary (positive) gap: actual > potential → unemployment < natural rate, price level rising.

Linking Indicators

Okun's idea: when real GDP falls below potential, unemployment rises; output & jobs move together.

Inflation tends to rise near the peak (strong demand) & ease in the trough (weak demand, idle capacity).

Graph It

Business cycle graph: y = real GDP, x = time; wave around an upward-sloping long-run growth trend line.

Causes: shifts in spending (AD) or supply shocks.

Leading indicators (stock prices, new orders) hint at turns.

⚠ At the peak, unemployment can be BELOW the natural rate; that's an inflationary gap, not "perfect."

✓ Unit 3 links these gaps to AD-AS; here, just match each phase to GDP, jobs & price pressure.

Unit 2 on the Exam

Must-Know Formulas

Measure	Formula
GDP	C + I + G + X_n
Unemp. rate	U ÷ LF × 100
CPI	Basket now ÷ base × 100
Inflation	ΔCPI ÷ old CPI × 100
Real GDP	Nominal ÷ deflator × 100
Real interest	Nominal − inflation

Common MCQ Traps

GDP inclusion: used goods, stocks, transfers & intermediate goods are out; new final output is in GDP.

Unemployment type: tech replaces a worker = structural; a layoff during a recession = cyclical type.

Rate effects: discouraged workers ↓ the unemployment rate; new graduates searching ↑ frictional.

FRQ Moves

Show work: write the formula, substitute the numbers, give units or a % & round only at the very end.

Explain direction: "Unexpected inflation ↑ → real interest rate ↓ → borrowers better off." Use arrows.

Label precisely: say "real GDP" or "nominal GDP," never just "GDP," when the difference matters for a Q.

Exam Weight

Unit 2 = 12–17% of the AP Macro exam: 60 MCQs (70 min) + 3 FRQs (60 min); MC = 66%, FRQ = 33%.

CPI vs. deflator: CPI = consumer basket only.

⚠ Investment in macro = NEW physical capital, never stocks or bonds; this trap appears every year.

✓ Many Unit 2 FRQ parts are 1-step calcs or 1-word answers; read each part's exact verb (calculate, identify).