Ready For Boards
10th & 12th Exam Prep

CHAPTER 2

National Income Accounting

CBSE Class 12 · Macroeconomics · Chapter 2

CBSE · Macroeconomics · Class 12

WHAT THIS CHAPTER DOES

Boards prep that builds confidence, not anxiety.

TODAY'S MISSION

Today's mission

WHY THIS MATTERS

Why this chapter matters

TOPIC

A

The 8 aggregates — names and the magic-square structure

TOPIC

Four base aggregates of domestic production

GDP AT MP

Gross Domestic Product at Market Prices — the total value of all final goods and services produced within India's geographical boundary during one year, valued at the prices buyers actually pay (inclusive of indirect taxes, net of subsidies). This is the figure quoted in newspaper headlines and the CSO's quarterly GDP releases

GDP AT FC

Gross Domestic Product at Factor Cost — the value of domestic production valued at what producers actually received (excluding indirect taxes, including subsidies that producers received). The bridge: GDP at FC = GDP at MP − NIT, where NIT = Indirect Taxes − Subsidies. Factor cost focuses on the cost of factors of production

NDP AT MP

Net Domestic Product at Market Prices = GDP at MP − Depreciation. The 'Net' qualifier means depreciation of fixed capital (machinery wear-and-tear, building decay, technological obsolescence) has been subtracted to reflect the net addition to the economy's productive capacity. Depreciation in India's

NDP AT FC

Net Domestic Product at Factor Cost = NDP at MP − NIT = GDP at FC − Depreciation. NDP at FC is the single most pivotal aggregate because adding NFIA gives National Income (NNP at FC). It represents the actual factor income earned within India's geographical boundary after wear-and-tear is accounted for. The double-

TOPIC

Four national aggregates — add NFIA to the corresponding domestic measure

GNP AT MP

Gross National Product at Market Prices = GDP at MP + NFIA, where NFIA = Net Factor Income from Abroad = (factor income received from non-residents) minus (factor income paid to non-residents). India's NFIA has typically been NEGATIVE in recent decades because foreign direct investors repatriate more profit from India than Indian residents

GNP AT FC

Gross National Product at Factor Cost = GDP at FC + NFIA = GNP at MP − NIT. The 'National' prefix means we measure income earned by India's RESIDENTS regardless of where the production happened. An Infosys engineer working in Bengaluru contributes to GDP and to GNP; an Indian doctor working in Dubai contributes to GNP but NOT

NNP AT MP

Net National Product at Market Prices = GNP at MP − Depreciation = NDP at MP + NFIA. Same two-route logic as NDP at MP, but starting from the national base. NNP at MP is the value of FINAL output produced by residents, AFTER wear-and-tear, valued at market prices including NIT. It is less commonly used in CBSE

NNP AT FC = NATIONAL INCOME

Net National Product at Factor Cost is what India officially calls NATIONAL INCOME (NI). Computed in two equivalent ways: (a) NDP at FC + NFIA, or (b) NNP at MP − NIT. This is the single most-tested aggregate in CBSE Class 12 Macro — every Expenditure-Method and Income-Method numerical

THEOREM · LOAD-BEARING RESULT

The Magic-Square Identity

> *The 8 aggregates of national income form a 2×2×2 cube along three orthogonal dimensions: Gross/Net (Depreciation axis), Market Price/Factor Cost (NIT axis), and Domestic/National (NFIA axis). Any aggregate can be converted to any other by applying the relevant identities in any order.*

STATEMENT

Conversion identities (each applied to or removed from the relevant variant): Gross → Net by SUBTRACTING Depreciation. Market Price → Factor Cost by SUBTRACTING NIT (= Indirect Taxes − Subsidies). Domestic →

WHY THIS MATTERS

- This algebraic structure is what makes the chapter manageable: instead of memorising 8 separate definitions, memorise FOUR things (4 base names + 3 conversions)
- Every CBSE numerical asks you to start at one corner of the cube and reach National Income (NNP at FC) at the opposite corner via the relevant

WATCH OUT FOR

NOTE Students often subtract NIT when they should add (NFIA), or vice versa. The fix: write the THREE conversion arrows in a corner of your rough sheet at the start of every numerical: 'Gross → Net: −D' · 'MP → FC: −NIT' · 'Dom → Nat: +NFIA'. Use this as your checklist.

TOPIC

B

Three methods of computing National Income

TOPIC

Value-Added (Production / Output) Method — measure what was produced

CORE IDEA

Sum the VALUE ADDED at every production stage across every sector of the economy, then aggregate. Value Added at MP for a single firm = Value of Output (Sales + Change in Stock) − Value of Intermediate Consumption (purchase of inputs). Aggregating across all firms gives GDP at MP. CBSE 4-mark long-answers must

WHY 'VALUE ADDED' AND NOT 'OUTPUT'

If you simply summed the value of OUTPUT across all firms, you would DOUBLE-COUNT because the wheat sold by the farmer to the miller is then counted again inside the price of flour sold to the baker, and again inside the bread sold to the consumer. Subtracting intermediate consumption at each stage isolates only

SECTOR DECOMPOSITION

GDP at MP is conventionally broken into three sectors: Primary (agriculture, forestry, fishing, mining), Secondary (manufacturing, electricity, gas, construction), Tertiary (services — trade, transport, banking, IT). India's tertiary share is roughly 55%, secondary 25%, primary 20% in 2024-25 — note the

REACHING NATIONAL INCOME

From GDP at MP via Value-Added: subtract Depreciation to get NDP at MP, subtract NIT to get NDP at FC, add NFIA to reach NNP at FC = National Income. Final formula: NI = GDP at MP − Depreciation − NIT + NFIA. Memorise this canonical route — it is the model answer to 6-mark Value-Added numericals.

TOPIC

Income Method — measure factor incomes

CORE IDEA

Sum the FACTOR INCOMES paid to all factors of production within India during the year — wages and salaries for labour, rent and royalty for land, interest for capital, profit for entrepreneurship. The result is NDP at FC (it is already at FC because factor incomes exclude indirect taxes; it is already Net because it counts only

THE THREE COMPONENT BUCKETS

Per the 2008 SNA convention CBSE follows: (1) COMPENSATION OF EMPLOYEES = Wages and Salaries in cash + in kind + Employers' contribution to PF and Social Security + Pensions paid by employer. (2) OPERATING SURPLUS = Rent + Royalty + Interest + Profit (before tax). (3) MIXED INCOME OF SELF-

WHAT GETS EXCLUDED

Transfer payments (government pensions, scholarships, unemployment benefits, foreign gifts) are NOT factor incomes and are NOT included. Capital gains from selling shares or property are NOT factor incomes. Income from sale of OLD/ SECOND-HAND goods is NOT current-year production — only the

REACHING NATIONAL INCOME

From NDP at FC via Income Method, the conversion is simple: add NFIA to reach NNP at FC = National Income. Formula: NI = Compensation of Employees + Operating Surplus + Mixed Income + NFIA. No NIT adjustment needed because Income Method stays at FC throughout. No Depreciation subtraction

TOPIC

Expenditure Method — measure final spending

CORE IDEA

Sum the value of FINAL EXPENDITURES on goods and services across all spending agents — households, firms, government, foreigners (via net exports). This gives GDP at MP. The mnemonic is C + I + G + (X − M): Consumption + Investment + Government spending + Net Exports. This expenditure-flow

THE FOUR SPENDING COMPONENTS

(1) PFCE = Private Final Consumption Expenditure (households on food, clothing, durables, services). (2) GDCF = Gross Domestic Capital Formation = Gross Fixed Capital Formation (new plants, machinery, buildings, roads) + Change in Stocks + Net Acquisition of Valuables. (3) GFCE = Government Final

WHAT GETS EXCLUDED

Intermediate goods (inputs purchased by firms) — already covered by the value of final goods. Transfer payments from government to households — they are not purchases of goods/services. Purchase of OLD goods/ houses/cars — production happened in earlier years. Purchase of FINANCIAL ASSETS (shares, bonds) —

REACHING NATIONAL INCOME

From GDP at MP via Expenditure Method, three conversions to reach National Income: NI = GDP at MP + NFIA − Depreciation − NIT. The canonical CBSE mnemonic order is C + I + G + (X − M) + NFIA − Dep − NIT. Memorise this 8-term formula in EXACTLY this order — examiners check the order step by step in 6-

WORKED EXAMPLE

Calculate NI by Expenditure Method

1. DATA (₹ crore): PFCE = 1200, GFCE = 300, GFCF = 500, Change in stocks = 50, Exports = 200, Imports = 250, NFIA = −30, Depreciation = 80, NIT = 120.
2. Step 1 — GDCF = GFCF + Change in stocks = 500 + 50 = 550 (Net Exports = 200 − 250 = −50).
3. Step 2 — GDP at MP = PFCE + GFCE + GDCF + Net Exports = 1200 + 300 + 550 + (−50) = ₹2,000 crore.
4. Step 3 — Apply conversions: +NFIA gives GNP at MP = 2000 + (−30) = 1970. −Depreciation gives NNP at MP = 1970 − 80 = 1890. −NIT gives NNP at FC = 1890 − 120 = ₹1,770 crore.
5. FINAL: National Income = NNP at FC = ₹1,770 crore. Quote units explicitly.

WORKED EXAMPLE

Calculate NI by Income Method

1. DATA (₹ crore): Wages & Salaries 800, Employers' Contribution to PF 50, Rent 100, Royalty 30, Interest 80, Profit 200, Mixed Income of self-employed 250, NFIA −30, Indirect Taxes 100, Subsidies 30.
2. Step 1 — Compensation of Employees = Wages & Salaries + Employers' PF Contribution = 800 + 50 = 850.
3. Step 2 — Operating Surplus = Rent + Royalty + Interest + Profit = 100 + 30 + 80 + 200 = 410.
4. Step 3 — NDP at FC = CoE + OS + Mixed Income = 850 + 410 + 250 = ₹1,510 crore.
5. Step 4 — National Income = NDP at FC + NFIA = 1510 + (−30) = ₹1,480 crore. (Indirect Taxes and Subsidies data is NOT used in the Income Method route — they are only relevant if you are crossing the MP/FC bridge, which the Income Method does not do.)

TOPIC

C

Real vs Nominal GDP

THEOREM · LOAD-BEARING RESULT

Real vs Nominal GDP and the GDP Deflator

> *NOMINAL GDP measures the value of current-year production at CURRENT-YEAR PRICES. REAL GDP measures the value of current-year production at BASE-YEAR PRICES. The difference between the two is purely the effect of inflation (or deflation).*

STATEMENT

Nominal GDP for year t = Σ (Quantity in year t) × (Price in year t). Real GDP for year t = Σ (Quantity in year t) × (Price in BASE year). India's current base year (set by CSO) is 2011-12. GDP Deflator = (Nominal GDP / Real

WHY THIS MATTERS

- Only Real GDP measures genuine economic growth
- If a country's Nominal GDP doubled in 5 years entirely due to inflation, no real production growth occurred
- CBSE asks students to compute Real GDP and the Deflator on 3-4 mark questions in nearly every paper

WATCH OUT FOR

NOTE Memorise that BASE-YEAR prices are used for Real GDP. The most common error is using current-year prices and calling it Real. Also: GDP Deflator and CPI are NOT the same — Deflator covers all GDP components, CPI covers only a basket of consumer goods. CBSE 1-mark MCQs occasionally test this distinction.

WORKED EXAMPLE

Compute Real GDP and the GDP Deflator

1. Suppose in 2020 (base year): Apple price ₹50/kg, Quantity 100 kg; Bread price ₹40/kg, Quantity 200 kg. Nominal GDP 2020 = 50×100 + 40×200 = 5000 + 8000 = ₹13,000.
2. In 2024: Apple price ₹80/kg, Quantity 120 kg; Bread price ₹60/kg, Quantity 240 kg. Nominal GDP 2024 = 80×120 + 60×240 = 9600 + 14400 = ₹24,000.
3. Real GDP 2024 (at 2020 prices) = 50×120 + 40×240 = 6000 + 9600 = ₹15,600.
4. GDP Deflator 2024 = (Nominal/Real) × 100 = (24000/15600) × 100 ≈ 153.85. Interpretation: the price level in 2024 is 54% higher than in the 2020 base year.
5. Real GDP growth 2020→2024 = (15600 − 13000)/13000 × 100 = 20% (genuine growth). Nominal GDP grew 84.6% — most of it was just inflation.

TOPIC

D

GDP and welfare — what GDP gets wrong

TOPIC

5 reasons GDP is not a complete welfare measure

DISTRIBUTION OF INCOME

GDP is an aggregate — it sums all incomes without saying how they are distributed across the population. Two countries with identical GDP per capita can have vastly different welfare if one is highly unequal and the other is broadly distributed. India's Gini coefficient (~0.35-0.40 for consumption) is moderate;

NON-MARKET ACTIVITIES

GDP captures only goods and services that pass through markets. Housework, child-rearing, subsistence farming, voluntary work, and the underground economy are not measured. Estimates suggest unpaid domestic work would add 15-25% to India's GDP if monetised. This omission systematically undervalues

EXTERNALITIES (ESPECIALLY POLLUTION)

GDP counts the gross output of a polluting factory but does NOT subtract the environmental damage caused by its emissions. A factory producing ₹100 crore of output and causing ₹40 crore of pollution damage adds ₹100 crore to GDP, not ₹60 crore. India's Green GDP (which would adjust for environmental

COMPOSITION OF OUTPUT

GDP treats every rupee of output as equivalent regardless of social value. ₹100 crore of cigarette production counts the same as ₹100 crore of education or healthcare. A country whose GDP grows mostly through arms manufacturing and tobacco delivers far less welfare than one whose GDP grows through education and rural

TOPIC

E

Other income concepts on the CBSE syllabus

TOPIC

Personal Income, Personal Disposable Income, Private Income

PERSONAL INCOME (PI)

Personal Income = National Income − Undistributed Corporate Profits − Corporate Tax − Net Interest paid by Households − Contributions to Social Security + Transfer Payments. Roughly: PI is the income actually received by households (whether earned or transferred). CBSE 3-mark answers should write the

PERSONAL DISPOSABLE INCOME (PDI)

PDI = Personal Income − Direct (Personal) Taxes − Miscellaneous receipts of government administrative departments (fines, fees). This is the income households can actually SPEND or SAVE. PDI = Consumption + Saving (by identity). India's household savings rate (PDI − Consumption / PDI) has

PRIVATE INCOME

Private Income = Income earned by the private sector + transfers to households. Conceptually narrower than National Income (excludes income earned by the public-sector enterprises) but broader than Personal Income (includes corporate profits before distribution). Used in CBSE marking schemes for specific 3-mark differentiation

PER CAPITA INCOME

Per Capita Income = National Income / Total Population. India's PCI in FY 2024-25 (nominal) was approximately ₹2.1 lakh; PCI in PPP terms (purchasing power parity) was about $9,000-10,000. PCI is the simplest cross-country welfare comparator but inherits all of GDP's distribution / composition / externality blind spots

PYQ PATTERNS

Top 5 PYQ patterns to drill

MARKS DISTRIBUTION

Where to spend your revision time

TOPIC

Transfer payments — included in national income?

TRAP → TRUTH

✗ **MISTAKE** Government pensions, scholarships, unemployment benefits, foreign gifts are all part of national income because they raise people's incomes.

✓ **CORRECT** Transfer payments are NOT included in national income because they are not payments for any productive activity in the current year — no factor service is provided in exchange. Only factor incomes (wages, rent, interest, profit) qualify. Including transfers double-counts because the donor's income was already counted when first earned.

TOPIC

Intermediate vs final goods — what enters GDP?

TRAP → TRUTH

× **MISTAKE** All sales of all goods enter GDP, intermediate goods included.

✓ **CORRECT** ONLY final goods enter GDP. Including intermediate goods would DOUBLE-COUNT because the value of the wheat sold to the miller is already embedded in the price of flour sold by the miller to the baker, and then in the bread sold to the consumer. The value-added method avoids this by summing only the value ADDED at each stage.

TOPIC

NFIA — Net Factor Income from Abroad

TRAP → TRUTH

× **MISTAKE** NFIA is always positive because countries earn from their citizens working abroad.

✓ **CORRECT** NFIA can be POSITIVE (factor earnings from abroad exceed payments to foreigners — typical for labour-exporting economies like Philippines) OR NEGATIVE (factor payments to foreigners exceed earnings from abroad — typical for capital-importing developing economies like India in most years, where foreign direct investors repatriate profits). India's NFIA has been negative in most recent years.

TOPIC

Depreciation — what is it?

TRAP → TRUTH

× **MISTAKE** Depreciation is the opportunity cost of using a machine — the foregone earnings from not renting it out.

✓ **CORRECT** Depreciation (also called Consumption of Fixed Capital, CFC) is the actual WEAR AND TEAR + obsolescence on capital assets during the year. It is NOT opportunity cost. The bridge from Gross to Net is subtracting depreciation: Net = Gross − Depreciation. This applies to GDP, NDP, GNP, NNP uniformly.

TOPIC

Real vs Nominal GDP

TRAP → TRUTH

× **MISTAKE** Real GDP uses current-year prices because we want the real, latest measurement.

✓ **CORRECT** It is the OPPOSITE: Real GDP uses BASE-YEAR prices (India's CSO currently uses 2011-12 base year) to isolate volume changes from price changes. Nominal GDP uses current-year prices and reflects both volume and price changes. The GDP Deflator = (Nominal/Real) × 100 measures the price-change component.

TOPIC

Net Indirect Taxes (NIT)

TRAP → TRUTH

× **MISTAKE** NIT is simply the total of all indirect taxes the government collects.

✓ **CORRECT** NIT = Indirect Taxes − Subsidies. Subsidies are negative indirect taxes (the government pays the producer, reducing market price below factor cost). The MP→FC bridge is: Factor Cost = Market Price − NIT = Market Price − Indirect Taxes + Subsidies. Forgetting the subsidy subtraction loses half a mark on NIT calculations.

TOPIC

Sale of old / second-hand goods

TRAP → TRUTH

× **MISTAKE** All sales count in GDP because all transactions are productive activity.

✓ **CORRECT** Sale of OLD/SECOND-HAND goods is NOT counted in current year GDP because the production occurred in a PREVIOUS year — it was counted then. Only the BROKER'S COMMISSION (current-year service) enters GDP. Same logic for sale of old shares, old houses, old cars.

TOPPER TEMPLATE · MARK-BY-MARK

6-mark question: Calculate National Income by Expenditure Method from given data

1	**IDENTIFY FINAL-EXPENDITURE COMPONENTS FROM THE DATA** 1 m	From the given items, pick: Private Final Consumption Expenditure (PFCE), Government Final Consumption Expenditure (GFCE), Gross Domestic Capital Formation (GDCF = Gross Fixed Capital Formation + Change in Stocks + Net Acquisition of Valuables), Net Exports (X − M). Ignore transfer payments, intermediate consumption, depreciation handled separately.
2	**COMPUTE GDP AT MP** 2 m	GDP at MP = PFCE + GFCE + GDCF + (X − M). Show the addition explicitly. Example: 800 + 200 + 300 + 50 = ₹1,350 crore.
3	**APPLY THE THREE CONVERSIONS: GROSS→NET, MP→FC, DOMESTIC→NATIONAL** 2 m	Step (a) Gross→Net: NDP at MP = GDP at MP − Depreciation = 1350 − 80 = 1270. Step (b) MP→FC: NDP at FC = NDP at MP − NIT = 1270 − 100 = 1170. Step (c) Domestic→National: NNP at FC = NDP at FC + NFIA = 1170 + (−20) = 1150.
4	**STATE THE FINAL ANSWER WITH UNITS** 1 m	National Income (NNP at FC) = ₹1,150 crore. Always quote units (₹ crore / ₹ lakh) — examiners deduct half a mark if missing.

TOPPER TEMPLATE · MARK-BY-MARK

6-mark question: Calculate National Income by Income Method from given data

1	**IDENTIFY THE FACTOR-INCOME COMPONENTS** 1 m	Pick from data: Compensation of Employees (Wages + Salaries in cash and kind + Employers' contribution to PF/SS + Pensions paid by employer), Operating Surplus (Rent + Royalty + Interest + Profit before tax), Mixed Income of Self-Employed (income of farmers, shopkeepers, doctors that mixes wage + profit + rent + interest).
2	**SUM TO GET NDP AT FC** 2 m	NDP at FC = Compensation of Employees + Operating Surplus + Mixed Income of Self-Employed. Example: 600 + 400 + 200 = ₹1,200 crore.
3	**CONVERT NDP AT FC → NNP AT FC BY ADDING NFIA** 2 m	NNP at FC = NDP at FC + NFIA. If NFIA = −30, then NNP at FC = 1200 + (−30) = ₹1,170 crore.
4	**DECLARE THE FINAL NATIONAL INCOME FIGURE** 1 m	National Income = NNP at FC = ₹1,170 crore. (Income method gives NI directly at factor cost; no NIT adjustment needed if you stay at FC throughout.)

TOPPER TEMPLATE · MARK-BY-MARK

5-mark question: Calculate National Income by Value-Added (Product) Method

1	**COMPUTE GVA AT MP FOR EACH PRODUCTION UNIT** 1 m	GVA at MP per unit = Value of Output (Sales + Change in stock) − Value of Intermediate Consumption (purchase of inputs). Example for Firm A: Sales 500 + Change in Stock 50 − Intermediate consumption 200 = GVA at MP of 350.
2	**AGGREGATE ACROSS SECTORS → GDP AT MP** 1 m	GDP at MP = Σ GVA at MP across all production units (primary, secondary, tertiary sectors). Example: 350 + 800 + 600 = ₹1,750 crore.
3	**APPLY THE CONVERSIONS TO REACH NNP AT FC** 2 m	NDP at MP = GDP at MP − Depreciation = 1750 − 100 = 1650. NDP at FC = NDP at MP − NIT = 1650 − 150 = 1500. NNP at FC = NDP at FC + NFIA = 1500 + 20 = ₹1,520 crore.
4	**FINAL NATIONAL INCOME STATEMENT** 1 m	National Income = NNP at FC = ₹1,520 crore.

PYQ PATTERNS

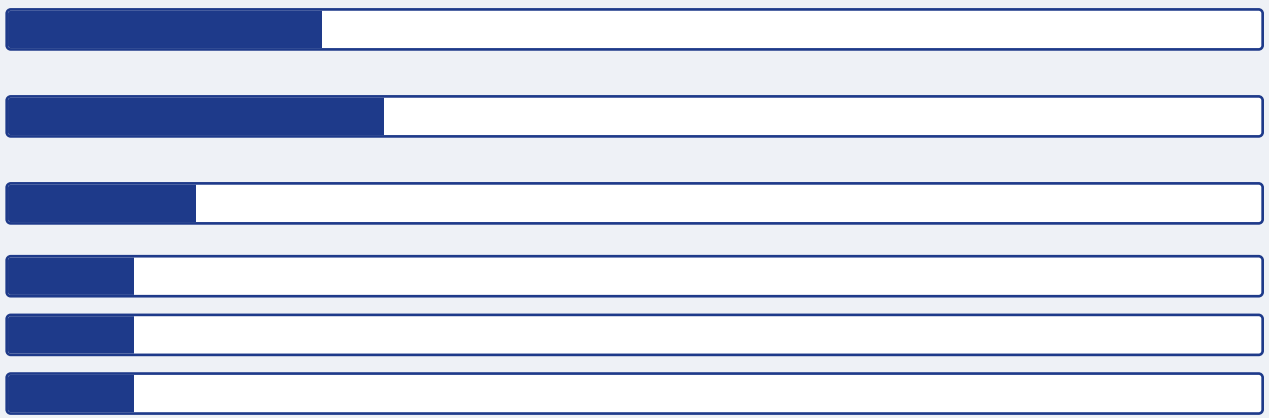
Top PYQ patterns to drill

#1	Calculate NI by Expenditure Method from 8-12 line items (6 marks)	90%
#2	Define GDP at MP vs GDP at FC (3 marks)	95%
#3	Differentiate GDP and GNP (3 marks)	70%
#4	Include or not include	list of items with rationale (3 marks) — 85%
#5	Real vs Nominal GDP	compute GDP Deflator (3 marks) — 60%

MARKS DISTRIBUTION

10-year marks distribution

10-YEAR PYQ MARKS DISTRIBUTION



RECAP · MEMORISE THESE

5-line revision (memorise these)

1 8 aggregates — GDP/NDP/GNP/NNP at MP/FC — three orthogonal dimensions (Gross-Net / MP-FC / Domestic-National) connected by three identities (−Depreciation, −NIT, +NFIA).

2 National Income — NI = NNP at FC = NDP at FC + NFIA = GDP at MP − Depreciation − NIT + NFIA. The single most-tested aggregate.

3 Three methods — Value-Added: sum of GVA at MP across firms; Income: CoE + OS + MI + NFIA; Expenditure: C + I + G + (X−M) + NFIA − Dep − NIT. All three give the same NI.

4 Real vs Nominal — Real GDP uses BASE-YEAR

5 GDP ≠ welfare — GDP misses distribution, non-

WHAT'S NEXT

Coming up next

→ Chapter 3 — Money and Banking (builds directly on the circular flow + the role of investment in NI you just learned).

→ Quick check: can you write the Expenditure-Method formula in EXACTLY 8 terms without notes? If yes, you are ready for Ch 3.

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Practise — drill, board paper, take the CBT

15-MCQ Quick Drill (20 min) → 30-mark Board Paper (60 min) → 20-MCQ Chapter CBT with timer + scorecard. All on the Chapter Notes page.

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