Class 12 - Macroeconomics

Chapter 1

National Income Accounting

Handwritten Notes - 2026-27

What you will learn :

* Circular flow of income (2 + 4 sector)
* Three methods of measuring NI
* GDP, NDP, NNP, NI, PI, PDI chain
* Real vs Nominal GDP & GDP deflator

CBSE 2026 weightage : 10 marks

(Unit : Introductory Macroeconomics)

Key words : GDP , NNP , Deflator , Value-added , Transfer payment , NFIA .

What is Macroeconomics ?

Macroeconomics studies the economy as a whole - not single firms or households.
It looks at ~~micro~~ AGGREGATES : output, employment, price level, growth, inflation.

Aggregate output = sum of all final goods

<- only final,
<- not intermediat

Why study National Income ?

(1) Measures economic performance.
(2) Compares living standards across years.
(3) Basis for policy - fiscal & monetary.
(4) Used by RBI, Finance ministry, IMF.

4 Sectors of the Economy

(i) Households - supply factors, consume
(ii) Firms - produce goods & services
(iii) Government - taxes, transfer, spend
(iv) External sector - exports, imports

<- open economy
<- = 4 sectors

Closed economy = no external sector (only 3 sectors).

Factors of Production

Inputs used by firms to produce output.

Each factor earns a particular factor income :

Land	->	Rent
Labour	->	Wages / Salary
Capital	->	Interest
Entrepreneur	->	Profit

Sum of all factor incomes = NI	<-Income method

Stocks vs Flows

Stock : measured at a point of time .

eg. capital , wealth , ~~income~~ ~~money~~ ~~savings~~ ~~supply~~ .

Flow : measured over a period of time .

eg. income , GDP , savings , exports .

Tip :

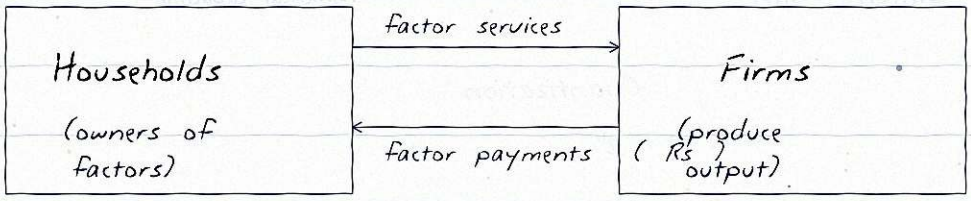
~~Water in a tank~~ = STOCK ,

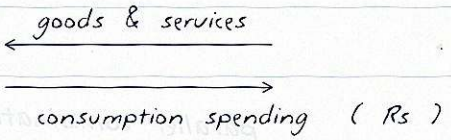
water flowing in per minute = FLOW .

Circular Flow of Income

Real flow = factors & goods.

Money flow = factor payments & consumption.





Total factor income = Total spending

<- income = output

Three identical ways to measure NI :

(a) Production (b) Income (c) Spending

All three give the SAME NI (in theory).

4-Sector Circular Flow

Add Gout. + Foreign sector to the 2-sector model.
Now we have LEAKAGES and INJECTIONS.

Leakages (out of flow)

(1) Savings (S)
(2) Taxes (T)
(3) Imports (M)

Injections (into flow)

(1) Investment (I)
(2) Gout. spending (G)
(3) Exports (X)

$$S + T + M = I + G + X$$

* - equilibrium <- condition

If leakages > injections - income falls.

If injections > leakages - income rises.

Mnemonic : Save Tax & iMport (leak) vs

Invest Gout eXport (inject) = S T M v/s I G X.

Three Methods of Measuring NI

Same NI obtained from 3 different angles :

Method	Adds up	Avoids
PRODUCT	Value-added	Double counting
INCOME	Factor incomes	Transfer payment
EXPENDITURE	Final spending	Intermediate buys

Identity that links them

Output = Income = Expenditure

<- triple identity

Use the method whose ~~data is missing~~ data is best .

eg. Agriculture - Product method works .

Service sector - Income method better .

All 3 must be done at Market Price first ,

then we adjust to get NI at factor cost .

(see chain of aggregates - later pages.)

(1) Product (Value-Added) Method

GVA = Value of output - Intermediate consumption

Sum of GVA across all firms = ~~GDP at MP~~ GDP at MP

GVA = Output - Intermediate Cost

<- no double counting

Worked example

Wheat farmer sells wheat for Rs 100 to miller.

Miller produces flour worth Rs 180.

Baker buys flour, sells bread worth Rs 250.

Stage	Output	Intermediate	GVA
Farmer	100	0	100
Miller	180	100	80
Baker	250	180	70

Sum of GVA = 100 + 80 + 70 = Rs 250.

Equals final value of bread - no double count !

Note : add change in stock to output if any.

(2) Income Method

Add all factor incomes generated within the domestic territory during the year.

$$NDP(FC) = COE + OS + MI$$ <- FC = factor cost

Components

COE = Compensation of Employees

(wages , salary , social security , bonus)

OS = Operating Surplus

(rent + interest + profit of enterprises)

MI = Mixed Income of self-employed

(farmer , shopkeeper , doctor in clinic)

Worked example

Item	Rs Cr
Wages & Salary	1200
Rent	200
Interest	150
Profit	450
Mixed Income	300

$NDP(FC) = 1200 + 200 + 150 + 450 + 300 =$

(3) Expenditure Method

Add all FINAL expenditures on goods & services produced in the domestic territory.

$$GDP(MP) = C + I + G + (X - M) = NX$$

famous identity !

Each component

C = Private final consumption expenditure

I = Gross domestic capital formation

(business investment + change in stock)

G = Govt. final consumption expenditure

X = Exports M = Imports M = NX

Worked example

Item		Rs Cr
C	consumption	1500
I	investment	600
G	govt spending	400
X	exports	250
M	imports	300

GDP(MP) = 1500+600+400+(250-300) = Rs 2450 Cr

Chain of Aggregates - Part I

Two adjustments turn GDP(MP) into NI :

(a) subtract Depreciation - to make it NET

(b) subtract Net Indirect Tax - to go MP -> FC

Definitions

Depreciation = fall in value of fixed capital

due to wear & tear, obsolescence.

NIT = Indirect Taxes - Subsidies

(GST, excise, VAT * food/fertilizer subsidy)

$$NDP = GDP - Depreciation$$ <- Net <-(deduct. CFC)

$$X(FC) = X(MP) - NIT$$ <- FC = MP - NIT

Putting it together

GDP(MP) - Dep = NDP(MP)

NDP(MP) - NIT = NDP(FC) <- domestic NI

Be careful : do not subtract ~~Depreciation~~ NIT first and then depreciation - result is same, but exam likes the order : Net first, then FC.

Chain of Aggregates - Part II

Now we move from Domestic to National :

NFIA = Factor income from abroad - to abroad	<- +ve or

GNP(MP) = GDP(MP) + NFIA

NNP(MP) = GNP(MP) - Depreciation

NNP(FC) = NNP(MP) - NIT = National Income

NI = NNP(FC) - the official NI of India .

Personal & Disposable Income

PI = NI - (Undist. Profit + Corp. Tax
+ Net interest paid by household)
+ Transfer payments

PDI = PI - Direct Tax	<- take-home money

PDI = C + S (used or saved)

Memory : GDP -> NDP -> NNP -> NI -> PI -> PD

Domestic vs National Concept

Domestic = produced WITHIN the country

(by residents + non-residents)

National = produced BY residents

(inside or outside the country)

National = Domestic + NFIA	<-+ NFIA always

Components of NFIA

(1) Net Compensation of Employees

(2) Net Income from property & enterpr.

(3) Net Retained Earnings of resident cos.

NFIA can be ~~only positive~~ positive or negative .

India has NEGATIVE NFIA (sends > receives).

Quick examples

* Indian techie working in USA - income in Indian NATIONAL but US DOMESTIC.
* Toyota factory in Bengaluru - output in Indian DOMESTIC but Japan NATIONAL.
* Indian embassy in Tokyo - Indian both.

Real vs Nominal GDP

Nominal GDP = output valued at CURRENT year prices (includes inflation)

Real GDP = output valued at BASE year prices (inflation removed)

Real GDP = sum of (Q_t * P_{base}) <- constant <- prices

Nominal GDP = sum of (Q_t * P_t) - current <- prices

Why two ?

Real GDP - shows REAL change in output.

Nominal - shows money value (may rise even if output is the same).

If Nominal > Real ~~always~~ in inflation years .

Mini sum : Wheat output = 100 kg .

Base price (2011) = Rs 20 . Now price = Rs 30 .

Nominal = 100 x 30 = Rs 3000 .

Real = 100 x 20 = Rs 2000 .

GDP Deflator

A price-index that captures the overall price level using GDP data.

Deflator = (Nominal GDP / Real GDP) x 100

base = 100

Interpretation

If Deflator > 100 - prices have risen vs base.

If Deflator < 100 - prices fell vs base year.

If Deflator = 100 - same as base year.

Worked example

From last page : Nom = 3000, Real = 2000.

Deflator = 3000 / 2000 x 100 = 150.

Means prices rose by 50 percent since base year.

Deflator vs CPI

	Deflator	CPI
Basket	All final goods	Fixed consumer basket
Updates	Each year (auto)	Periodic revision
Used by	MOSPI for GDP	RBI for inflation

Savings-Investment Identity

From 4-sector circular flow we know :

Leakages = Injections in equilibrium.

$$S + T + M = I + G + X$$ <- leak = inject

Rearrange (shift terms to one side) :

$$(I - S) + (G - T) + (X - M) = 0$$ <- the SIM <- identity

Reading the identity

$(I - S)$ = Private Investment - Saving GAP

$(G - T)$ = Gout. Fiscal deficit ($G > T$)

$(X - M)$ = Foreign Net exports (CAB sign)

If $(I - S) + (G - T) > 0$, then $(X - M) < 0$.

i.e. Twin deficit = fiscal + ~~trade~~ current account .

Memory : $IS + GT + XM = 0$. Always sums to zero - whatever one sector borrows another sector must lend .

Limitations of GDP

GDP measures OUTPUT, not WELFARE. Why?

(1) Non-monetised activities

Housework, kitchen gardening, barter trade are NOT in GDP though they add to welfare.

(2) Externalities

Pollution from a factory raises GDP but harms health - welfare actually falls.

(3) Distribution

Per-capita GDP can rise even if poor get poorer - ~~equal~~ inequality is hidden.

(4) Composition of output

Defence, liquor, cigarettes count in GDP but contribute little to well-being.

(5) Leisure & quality

Working 70 hr/week may raise GDP but cuts leisure and life satisfaction.

Alternatives : HDI, Green GDP, GNH.

(HDI used by UNDP since 1990.)

Beyond GDP - Better Measures

Human Development Index (HDI)

Composite index of 3 dimensions :

(i) Health - life expectancy

(ii) Education - schooling years

(iii) Standard of living - GNI per capita

* HDI = (Health x Edu x Income) (1/3) <- geometric <- mean

Green GDP

GDP adjusted for environmental damage and resource depletion (oil, forest, coal).

Green GDP = GDP - Env. cost.

Gross National Happiness

Bhutan's measure - 4 pillars :

good governance, sustainable growth, cultural preservation, environmental conservation.

GDP shows ~~everything~~ production, not happiness.

Common Mistakes - Part I

(1) Transfer payments

Pensions , scholarship , unemployment dole are NOT ~~counted~~ included in NI .

(No new production took place .)

(2) Second-hand sale

Selling a 5-yr-old car does NOT add to GDP.

Only the broker's commission does .

(3) Capital gains

Gain on shares , gold , land = financial gain ,

not ~~real income~~ production . NOT in GDP .

(4) Bonus / Windfalls

Lottery win , Diwali bonus from family =

transfer payment , not factor income .

(5) Imputed rent

Rent of self-occupied house IS included .

Equivalent market rent is imputed (estimated).

(6) Free services of housewife

∴ NOT in GDP - no market transaction .

(Still adds to welfare though.)

Common Mistakes - Part II

(7) Subsidies & Indirect tax

Market price = Factor cost + NIT .

NIT = Indirect Tax ~~plus~~ MINUS subsidies .

(8) Net vs Gross

Net = Gross - Depreciation . Always !

Common error : forgetting depreciation .

(9) Production for self-consumption

Farmer keeping wheat for family - IS in GDP (value is imputed). Counted via product method.

(10) Intermediate goods

Steel sold to ~~consumer~~ a car maker = intermediate .

Steel sold to a household = *final good .

(11) Change in stock

Unsold goods at year end = part of GDP (as inventory investment).

(12) Sign of NFIA for India

India : NFIA is usually NEGATIVE .

So GDP > GNP for India most years .

Formula Sheet - Appendix

GVA	=	Output - Intermediate Cost
GDP(MP)	=	C + I + G + (X - M)
NDP(MP)	=	GDP(MP) - Depreciation
NDP(FC)	=	NDP(MP) - NIT
GNP(MP)	=	GDP(MP) + NFIA
NNP(MP)	=	GNP(MP) - Depreciation
NI	=	NNP(FC) = NNP(MP) - NIT
PI	=	NI - Undist. Profit - CT - Net Int (HH) + Transfer
PDI	=	PI - Direct Tax
PDI	=	C + S
Deflator	=	(Nominal / Real) x 100
(I - S) + (G - T) + (X - M)	=	0

PYQ Trend - Last 5 Years

What CBSE has asked from Ch. 1 :

Year	Topic asked	Marks
2025	GDP Deflator numerical	3
2024	NFIA + GNP from given data	4
2023	Real vs Nominal GDP (MCQ + 3M)	1+3
2022	Income method numerical	6
2021	Limitations of GDP as welfare	4
2020	Value-added method (Wheat-Bread)	4

Most-repeated

* Value-added method (5 of last 8 years)
* GDP Deflator + Real GDP (4 of last 6 years)
* Limitations of GDP (theory question)

Likely 2026 picks

(i) Mixed sum on 3 methods (6 mark)

(ii) PDI calculation given NI table (4 mark)

(iii) Deflator calculation (3 mark)

<- topics

Mnemonics & Quick Recall

(1) CIGXM - Expenditure

C Consumption I Investment

G Govt. spending X Exports

M Imports (minus)

(2) COE + OS + MI - Income

Compensation + Operating Surplus

+ Mixed Income .

(3) STM ∪ IGX - Circular flow

Leakages S T M (Save Tax iMport)

Injections I G X (Invest Govt eXport)

(4) Aggregate Chain

GDP -> NDP -> NNP -> NI -> PI -> PDI

the road map

(5) 3 ways same answer

Product = Income = Expenditure .

(triple identity)

(6) GDP deflator

(Nom / Real) x 100 . Base = 100 .

Numerical Practice

Q1 Find NI from data

Item	Rs Cr
GDP(MP)	5000
Depreciation	400
Net Indirect Tax	300
NFIA	(-)50

Solution

NDP(MP) = 5000 - 400 = 4600

NNP(MP) = NDP(MP) + NFIA = 4600 - 50 = 4550

NNP(FC) = 4550 - 300 = ~~4500~~ 4250

NI = Rs 4250 Crore <-Answer

Q2 Deflator

Nominal GDP = 6000 , Real GDP = 4800 .

Deflator = (6000 / 4800) x 100 = 125

Means prices rose by 25 percent since base.

Practice 10+ such sums for the exam .

(Refer NCERT Ex. 1.1 to 1.5)

Chapter 1 - Cheat Sheet

Key terms

Final good , Intermediate good , Value-added ,

Stock , Flow , NFIA , Deflator , NIT , CFC ,

Transfer payment , Imputed value .

Three methods one-liner

Product : Sum GVA . Avoid double counting.

Income : COE + OS + MI . No transfers.

Spending : C + I + G + (X - M) . Only final.

Aggregate chain

GDP(MP) -Dep-> NDP(MP) -NIT-> NDP(FC)

+NFIA-> GNP/NNP/NI -> PI -> PDI

Real vs Nominal

Real - base year prices - removes inflation.

Nom. - current year prices - has inflation.

Deflator = Nom / Real x 100 .

GDP & Welfare

GDP is INCOMPLETE - ignores distribution ,

externalities , leisure , non-market work.

Use HDI / Green GDP / GNH for welfare.

All the best - revise and ace the exam !