

Unofficial revision resource. This is not an official IB formula sheet. **IB Economics exams do not provide formula sheets.** This resource is for revision purposes only; students must be familiar with all required formulas before the exam.

Unit 1: Introduction to economics

Opportunity cost of 1 unit of X
Opportunity cost of 1 unit of X = $\frac{\text{Units of Y forgone}}{\text{Units of X gained}}$

Unit 2: Microeconomics

Competitive markets

Allocative efficiency
MSB = MSC
Where: • MSC = MPC + MEC: marginal social, private and external cost. • MSB = MPB + MEB: marginal social, private and external benefit.
Social cost
Private cost + External cost
Social benefit
Private benefit + External benefit
Area of a triangle
$A = \frac{1}{2}bh$
Where: • b = base • h = perpendicular height

Elasticities

Price elasticity of demand
$PED = \frac{\% \Delta \text{ Quantity demanded}}{\% \Delta \text{ Price}}$
Price elasticity of supply
$PES = \frac{\% \Delta \text{ Quantity supplied}}{\% \Delta \text{ Price}}$
Income elasticity of demand
$YED = \frac{\% \Delta \text{ Quantity demanded}}{\% \Delta \text{ Income}}$
Percentage change
$\frac{\text{New value} - \text{Original value}}{\text{Original value}} \times 100$
Total revenue
TR = Price × Quantity

Market structures [HL]

Average cost
$AC = \frac{\text{Total cost}}{\text{Quantity}}$

Market structures [HL] (continued)

Marginal cost
$MC = \frac{\Delta \text{ Total cost}}{\Delta \text{ Quantity}}$
Total revenue
TR = Price × Quantity
Average revenue
$AR = \frac{\text{Total revenue}}{\text{Quantity}} = \text{Price}$
Marginal revenue
$MR = \frac{\Delta \text{ Total revenue}}{\Delta \text{ Quantity}}$
Profit
Total revenue – Total cost
Where: • Total cost includes opportunity cost.
Abnormal profit
AR > AC
Normal profit
AR = AC
Loss
AR < AC
Profit maximisation
MR = MC

Unit 3: Macroeconomics

National accounting

GDP
Expenditure approach
$C + I + G + (X - M)$
Where: • C = consumption; I = investment; G = government spending. • X = exports; M = imports
Income approach
Wages and salaries + Rent + Interest + Profit
Output approach
Sum of all goods and services produced in an economy
Nominal GDP
Quantity of goods and services produced × Current prices

National accounting (continued)

Real GDP
Quantity produced × constant prices
Or
$\frac{\text{Nominal GDP}}{\text{Price index}^*} \times 100$
Any price index: CPI, GDP deflator
GDP deflator
$\frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$
GNI
GNI = GDP + Net factor income
Real GNI
$\frac{\text{Nominal GNI}}{\text{Price deflator}} \times 100$
GDP per capita
$\frac{\text{GDP}}{\text{Total population}}$
GNI per capita
$\frac{\text{GNI}}{\text{Total population}}$
Aggregate demand
$C + I + G + (X - M)$
Where: • C = consumption; I = investment; G = government spending. • X = exports; M = imports;

Growth employment prices and inequality

Economic growth rate
$\frac{\text{New real GDP} - \text{Old real GDP}}{\text{Old real GDP}} \times 100$
Unemployment rate
$\frac{\text{Unemployed}}{\text{Labour force}} \times 100$
Where: • Labour force = employed + unemployed actively seeking work.
Index number
$\frac{\text{Current value}}{\text{Base-year value}} \times 100$
Inflation rate
$\frac{\text{New CPI} - \text{Old CPI}}{\text{Old CPI}} \times 100$
Where: • CPI = consumer price index.

Growth employment prices and inequality (continued)

Gini coefficient
$\frac{A}{A + B}$
Where: • A = area between equality line and Lorenz curve; • B = area below Lorenz curve. • Coefficient: 0 to 1. Index: coefficient × 100.
Real interest rate (approx.)
Nominal rate – Inflation rate

Weighted price indices [HL]

Weighted average of item price indices
$\frac{\text{Weighted price index}}{\text{Total of (each item's price index} \times \text{its weight)}} = \frac{\text{Total weights}}{\text{Total weights}}$
Use the expenditure weights or spending shares provided; do not multiply by 100 again.
Item price index
$\frac{\text{Item price index}}{\text{Current price of the item}} = \frac{\text{Base-year price of the item}}{\text{Base-year price of the item}} \times 100$
The base-year index is 100.
CPI using a fixed basket
$\frac{\text{CPI}}{\text{Cost of the fixed basket at current prices}} = \frac{\text{Cost of the same basket at base-year prices}}{\text{Cost of the same basket at base-year prices}} \times 100$
Keep quantities fixed; each basket cost is the total of each item's price × its quantity.

Taxation [HL]

Indirect tax paid
Tax-exclusive* expenditure
$\text{Tax} = E \times t$
Tax-inclusive* expenditure
$\text{Tax} = E \times \frac{t}{1 + t}$
Where: • E = expenditure; t = tax rate as a decimal (20% = 0.20).
* Tax-exclusive: expenditure excludes tax. Tax-inclusive: expenditure already includes tax.
Taxable income
Total income – Tax-free allowance
Total income tax
$\Sigma (\text{Income in each band} \times \text{Band rate})$
Where: • Σ = sum. Apply each rate only within its band; a tax-free band has rate 0%.

Taxation [HL] (continued)

Average tax rate
$\frac{\text{Total income tax paid}}{\text{Total income}} \times 100$
Marginal tax rate
$\frac{\Delta \text{ Total income tax paid}}{\Delta \text{ Total income}} \times 100$

Keynesian multiplier [HL]

Multiplier
$k = \frac{1}{1 - \text{MPC}} = \frac{1}{\text{MPW}}$
MPW = MPS + MPT + MPM
Where: • MPC = marginal propensity to consume; MPW = marginal propensity to withdraw. • MPS, MPT, MPM = marginal propensities to save, tax and import.
Change in GDP
$\Delta Y = k \times \Delta J$
Where: • Y = GDP; J = autonomous injection (I, G or X).
Marginal propensity
$\text{MPZ} = \frac{\Delta Z}{\Delta Y}$
Where: • Z = C, S, T or M: consumption, saving, tax or imports; Y = income.

Other relationships [HL]

Debt to GDP ratio
$\frac{\text{Government debt}}{\text{GDP}} \times 100$

Unit 4: The Global Economy

Exchange rates

Currency conversion
Amount B = Amount A × e
Where • e = units of currency B per 1 unit of A.
Currency change
$\frac{E_t - E_{t-1}}{E_{t-1}} \times 100$
Where: • t = current period; t–1 = previous period.
A rise in this quote means A appreciates; a fall means A depreciates.

The Global Economy (continued)

Balance of payments
Trade balance
Exports – Imports
Current account
Goods balance + Services balance + Net income + Net current transfers
Account balance
Credits – Debits
Capital account
Net capital transfers + Net non-produced asset transactions
Financial account
Net FDI + Net portfolio investment + Net reserves + Net borrowing
Payments identity
CA + KA + FA + EO = 0
where • CA = current account • KA = capital account • FA = Financial account • EO = errors/omissions.

Trade relationships [HL]

Marshall Lerner condition
$ \text{PED}_X + \text{PED}_M > 1$
Where: • PED_x = PED of exports • PED_M = PED of imports
Depreciation improves the trade balance if this holds, other things equal.
Opportunity cost of X
$\frac{\text{Units of Y forgone}}{\text{Units of X gained}}$
For the same resources; lower opportunity cost gives comparative advantage.

Development Economics

Happy Planet Index
$\text{HPI} \approx \frac{\text{Wellbeing} \times \text{Life expectancy}}{\text{Ecological footprint}}$