

H2 Economics (9570)

Theme 3: The National and International Economy

Crash-Course Lecture Notes – A-Level 2027 Syllabus

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3.1 Introduction to Macroeconomics

The Big Picture: Why Macroeconomics?

Microeconomics studies individual markets. Macroeconomics studies the economy as a whole – total output, the general price level, total employment, and trade with other countries. The core question: **How can governments manage the national economy to improve living standards?**

The key framework is the **AD-AS model** (Aggregate Demand – Aggregate Supply), which determines the equilibrium level of national output (real GDP) and the general price level.

3.1.1 Circular Flow of Income

The circular flow shows how income, output, and expenditure circulate between economic agents.

Definition Circular Flow of Income

A model showing the flow of goods and services, factors of production, and payments between households, firms, government, and the foreign sector.

Key insight: National Income = National Output = National Expenditure.

In a closed economy with no government:

- Households supply factors of production (labour, capital) to firms → receive factor income (wages, rent, interest, profit).
- Firms produce goods and services → sold to households → households pay consumption expenditure.

Injections (J): Spending that does not come from households' consumption:

- Investment (I) – spending by firms on capital goods
- Government Spending (G) – purchases of goods/services by government
- Exports (X) – spending by foreigners on domestic goods

Withdrawals / Leakages (W): Income not spent on domestic consumption:

- Savings (S) – income not spent
- Taxes (T) – income taken by government
- Imports (M) – spending on foreign goods

Definition Equilibrium in the Circular Flow

The economy is in equilibrium when total injections = total withdrawals:

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

If $J > W$, national income rises. If $J < W$, national income falls.

3.1.2 Aggregate Demand (AD)

Definition Aggregate Demand

The total planned spending on goods and services produced within an economy at a given general price level in a time period.

$$AD = C + I + G + (X - M)$$

Consumption (C) – largest component of AD

Determinants of consumption:

- **Disposable income** ($Y_d = Y - T$): Higher disposable income → higher consumption (positive relationship).
- **Wealth effect**: Rising asset prices (housing, stocks) increase household wealth → higher consumption.
- **Consumer confidence / expectations**: Optimism about future income → spend more; pessimism → save more.
- **Interest rates**: Higher rates → cost of borrowing rises, saving more attractive → lower consumption.
- **Availability of credit**: Tight lending standards → lower consumption.

Investment (I) – most volatile component

Determinants of investment:

- **Interest rates**: Higher rates → cost of borrowing rises → lower investment (negative relationship).
- **Business expectations / confidence**: Optimism about future profits → more investment.
- **Technological change**: New technology creates investment opportunities.
- **Corporate taxes**: Higher taxes reduce post-tax returns → lower investment.
- **Capacity utilisation**: Near-full capacity → firms invest to expand.

Exam Tip Investment volatility

Investment is the most volatile AD component because it depends on future expectations and can be postponed. A small change in interest rates can have a large effect through firms' sensitivity to borrowing costs.

Government Spending (G)

Government spending on goods and services (infrastructure, defence, education, healthcare). This is an **exogenous** policy variable – governments can choose to increase or decrease G.

Note: Transfer payments (welfare, pensions) are NOT part of G because they are transfers of income, not purchases of goods/services.

Net Exports (X - M)

Determinants of net exports:

- **Foreign income**: Higher income in trading partners → more exports.
- **Domestic income**: Higher domestic income → more imports.
- **Exchange rate**: Appreciation (stronger currency) → exports more expensive, imports cheaper → net exports fall.
- **Relative inflation**: Higher domestic inflation → exports less competitive, imports more attractive → net exports fall.

- **Trade barriers:** Tariffs, quotas reduce trade volumes.

Warning

Do NOT confuse AD with microeconomic demand. AD is total spending across the entire economy, not spending on one good. The AD curve slopes downward for different reasons (real balance effect, interest rate effect, international substitution effect).

3.1.3 Why AD Slopes Downward

The AD curve shows the relationship between the general price level and real GDP demanded.

1. **Real balance effect (Pigou effect):** Lower price level → real value of money balances rises → people feel wealthier → consumption rises.
2. **Interest rate effect (Keynes effect):** Lower price level → households need less money for transactions → interest rates fall → investment and consumption rise.
3. **International substitution effect:** Lower domestic price level → exports cheaper, imports relatively more expensive → net exports rise.

3.1.4 Aggregate Supply (AS)

Definition Aggregate Supply

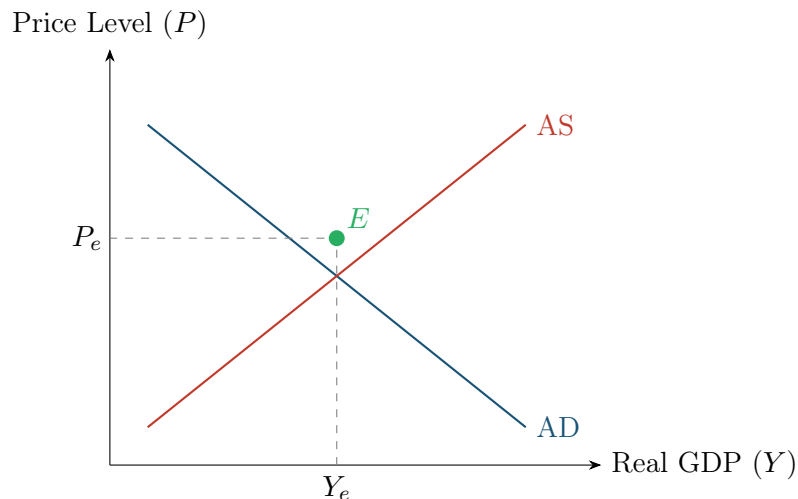
The total quantity of goods and services that all firms in an economy are willing and able to produce at a given general price level.

The H2 syllabus expects an understanding that AS can shift due to its determinants, without requiring the detailed SRAS/LRAS distinction. Focus on:

Determinants of AS:

- **Cost of production:** Rising wages, raw material costs, energy prices → AS decreases (shifts left).
- **Productivity:** Improved technology, better education, more efficient processes → AS increases (shifts right).
- **Quantity and quality of factors of production:** More labour, capital, natural resources, or better-educated workforce → AS increases.
- **Government regulations / taxes:** Higher compliance costs, higher corporate taxes → AS decreases.

3.1.5 AD-AS Equilibrium



- Equilibrium real GDP (Y_e) and general price level (P_e) occur where $AD = AS$.
- A **deflationary gap** (recessionary gap) occurs when equilibrium output is below the full-employment level of output.
- An **inflationary gap** occurs when equilibrium output is above the full-employment level, putting upward pressure on prices.

3.1.6 Shifts in AD and AS

AD increases (shifts right):

- Rise in C, I, G, or X-M (due to the determinants above)
- Effect: Higher real GDP and higher price level (if AS is upward-sloping)

AD decreases (shifts left):

- Fall in C, I, G, or X-M
- Effect: Lower real GDP and lower price level

AS increases (shifts right):

- Lower costs of production, higher productivity, more/better factors
- Effect: Higher real GDP and lower price level (economic growth without inflation)

AS decreases (shifts left):

- Supply shocks (oil price hikes, natural disasters), rising costs
- Effect: Lower real GDP and higher price level – this is **stagflation**

3.1.7 The Multiplier Effect

Definition Multiplier Effect

The process by which an initial change in autonomous expenditure (C, I, G, X) leads to a larger final change in national income.

Intuition: When the government spends \$1 billion on infrastructure, that money becomes income for construction workers. They spend some of it (their MPC), which becomes income for shopkeepers, who then spend some of it, and so on. Each round is smaller because some income leaks into savings, taxes, and imports.

Derivation Multiplier Formula

Let the marginal propensities be:

- MPC = Marginal Propensity to Consume
- MPS = Marginal Propensity to Save
- MPT = Marginal Propensity to Tax
- MPM = Marginal Propensity to Import

In each round, the proportion of income that leaks out is $MPS + MPT + MPM$. The proportion passed on is $MPC = 1 - MPS - MPT - MPM$.

The multiplier k is:

$$k = \frac{1}{1 - MPC} = \frac{1}{MPS + MPT + MPM}$$

Change in national income: $\Delta Y = k \times \Delta J$ (where ΔJ is the initial change in autonomous expenditure/injection).

Exam Tip

A larger multiplier means fiscal policy is more powerful. The multiplier is larger when MPC is high (consumption culture, low savings) and when MPT and MPM are low (low tax rates, closed economy). Singapore has a relatively small multiplier because it is a very open economy (high MPM).

3.2 Macroeconomic Objectives and Policies

3.2.1 Standard of Living and Macroeconomic Indicators

Standard of Living

Definition Standard of Living

The level of material and non-material well-being of people in an economy. It involves two aspects:

- **Material well-being:** Access to goods and services – measured by real GDP/GNI per capita.
- **Non-material well-being:** Quality of life factors – leisure time, environmental quality, health, education, political freedom, crime rates.

Key macroeconomic objectives that determine standard of living:

1. **Sustainable economic growth** – growth that can be maintained without depleting resources for future generations
2. **Inclusive economic growth** – growth that benefits all segments of society, not just the rich
3. **Low unemployment** – near full employment
4. **Price stability** – low and stable inflation
5. **Favourable balance of trade** – sustainable BOT position

Key Indicators

Definition GDP and GNI

- **GDP:** Total value of all final goods and services produced within an economy's borders in a given period.
- **GNI:** GDP + net factor income from abroad (e.g. Singaporeans working overseas send remittances back).
- **Real GDP:** GDP adjusted for inflation ($\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{GDP Deflator}} \times 100$).

Definition CPI and HDI

- **CPI (Consumer Price Index):** Measures the average change in prices of a fixed basket of goods and services consumed by households. Used to measure inflation.
- **HDI (Human Development Index):** Composite index of life expectancy, education (years of schooling), and income (GNI per capita, PPP). Ranges from 0 to 1. A broader measure of living standards than GDP alone.

Definition Gini Coefficient

A measure of income inequality ranging from 0 (perfect equality – everyone has the same income) to 1 (perfect inequality – one person has all the income). Visualised using the Lorenz curve.

Warning

GDP per capita has limitations as a welfare measure:

- Does not account for income distribution (high GDP per capita can coexist with high inequality)
- Ignores non-market activities (household work, volunteer work)
- Does not subtract negative externalities (pollution, crime)
- Does not capture leisure time, quality of life

This is why HDI and other indicators complement GDP.

3.2.2 Macroeconomic Issues**Economic Growth****Definition Economic Growth**

An increase in the productive capacity of the economy (potential growth) or an increase in real GDP (actual growth).

- **Actual growth:** Increase in real GDP – shown by AD shifting right.
- **Potential growth:** Increase in the economy's capacity to produce – shown by AS shifting right.
- **Sustainable growth:** Growth that meets present needs without compromising future generations' ability to meet theirs.
- **Inclusive growth:** Growth that creates opportunities for all and distributes benefits equitably.

Causes of undesirable growth:

- **Persistently low or negative growth:** Low AD (recession), supply-side constraints (low productivity, poor infrastructure).
- **Unsustainable growth:** Over-exploitation of resources, environmental degradation, asset bubbles.
- **Non-inclusive growth:** Only benefits the wealthy, widening income inequality.

Consequences of low/negative growth:

- Lower material living standards (less goods/services per person)
- Higher unemployment (derived demand for labour falls)
- Lower government tax revenue, higher welfare spending → budget deficit
- Lower business profits, reduced investment

Unemployment

Definition Types of Unemployment

1. **Demand-deficient (cyclical) unemployment:** Occurs when AD is insufficient to employ all willing workers. Linked to economic recession.
2. **Structural unemployment:** Mismatch between workers' skills and available jobs. Caused by technological change, changes in consumer demand, globalisation.
3. **Frictional unemployment:** Temporary unemployment as workers move between jobs. Always present to some degree.

Causes:

- Demand-deficient: Fall in AD components (C, I, G, X-M)
- Structural: Automation, decline of industries, geographic immobility
- Frictional: Information asymmetry about job availability, search time

Consequences of unemployment:

- Lost output (economy operating below potential – inside PPC)
- Loss of skills (human capital depreciation) – hysteresis
- Lower income → lower consumption → lower living standards
- Increased government spending on benefits, lower tax revenue
- Social costs: poverty, crime, mental health issues

Price Instability: Inflation and Deflation

Definition Inflation and Deflation

- **Inflation:** A sustained increase in the general price level.
- **Deflation:** A sustained decrease in the general price level.
- Measured by the **Consumer Price Index (CPI)**.

Types of inflation:

1. **Demand-pull inflation:** Excess AD pulling up prices. "Too much money chasing too few goods." Causes: strong consumption, investment, government spending, or export demand; loose monetary/fiscal policy.
2. **Cost-push inflation:** Rising costs of production pushing up prices. Causes: higher wages, raw material prices, energy costs, import prices (due to currency depreciation); supply shocks (e.g. oil price spike).

Consequences of inflation:

- Reduces real income (purchasing power erodes) – especially hurts fixed-income earners and savers
- Menu costs (frequent price list updates)
- Shoe-leather costs (more frequent trips to bank to minimise money holdings)

- Uncertainty → lower investment → lower growth
- Exports become less competitive → BOT worsens
- Borrowers gain, lenders lose (real value of debt falls)

Consequences of deflation:

- Consumers delay purchases (waiting for lower prices) → AD falls further
- Real value of debt rises → debt burden increases → defaults rise
- Business profits fall → wage cuts, layoffs
- Deflationary spiral: falling prices → falling AD → falling output → more falling prices

Exam Tip

Deflation is generally worse than moderate inflation. The deflationary spiral is very difficult to escape – Japan’s experience in the 1990s and 2000s is a classic example.

Balance of Trade (BOT)

Definition Balance of Trade

The difference between the value of exports and the value of imports of goods and services.

$$\text{BOT} = X - M$$

- **Surplus:** Exports > Imports
- **Deficit:** Imports > Exports

Causes of persistent BOT deficit:

- Low international competitiveness (high costs, poor quality, weak productivity)
- Strong currency (exports expensive, imports cheap)
- High domestic income → high imports
- Structural factors (e.g. resource-poor countries must import raw materials)

Causes of persistent BOT surplus:

- High international competitiveness
- Weak currency
- Protectionist policies abroad

3.2.3 Macroeconomic Policies

Fiscal Policy

Definition Fiscal Policy

The use of government spending (G) and taxation (T) to influence the level of economic activity and achieve macroeconomic objectives.

Expansionary fiscal policy (to boost AD during a recession):

- Increase G (infrastructure projects, defence, education)
- Cut taxes (lower income tax, corporate tax, GST)
- Effect: AD shifts right → higher GDP, lower unemployment, possible inflation

Contractionary fiscal policy (to cool an overheated economy / curb inflation):

- Decrease G
- Raise taxes
- Effect: AD shifts left → lower GDP, lower inflation

Transfer payments (welfare, pensions, subsidies) improve income distribution and help achieve inclusive growth. They are NOT counted in G but redistribute income.

Definition Government Budget

$$\text{Budget} = \text{Tax Revenue} - \text{Government Spending}$$

- **Budget surplus:** $T > G$ – contractionary
- **Budget deficit:** $T < G$ – expansionary

Effectiveness of fiscal policy:

- **Strengths:** Targeted (can direct spending at specific sectors/regions); can address both AD and AS (supply-side fiscal policies like infrastructure, education)
- **Limitations:** Time lags (recognition, decision, implementation); political constraints (tax cuts popular, spending cuts unpopular); crowding out (government borrowing raises interest rates, reducing private investment); if economy is at full employment, fiscal expansion only causes inflation
- **Fiscal sustainability:** Governments should maintain fiscal sustainability over the long run – running persistent deficits leads to rising national debt, which burdens future generations.

Monetary Policy

Definition Monetary Policy

The use of interest rates (in most economies) and/or exchange rate management (case of Singapore) to influence the level of economic activity.

Singapore's Monetary Policy (unique approach): Unlike most central banks that manage interest rates, the **Monetary Authority of Singapore (MAS)** manages the **exchange rate** as the primary instrument. This is because:

- Singapore is a small, open economy with high import dependence
- The exchange rate is the most effective channel for influencing both inflation and economic activity
- Interest rates are largely determined by external financial conditions

MAS manages the Singapore dollar against a basket of currencies of major trading partners, within an undisclosed policy band.

Monetary policy stances in Singapore:

- **Appreciation bias** (strong SGD): Raises import prices → reduces imported inflation; makes exports more expensive → dampens AD. Used during high inflation.
- **Depreciation bias** (weak SGD): Boosts export competitiveness → increases AD; raises import prices → may increase inflation. Used during recession.
- **Neutral stance**: Maintain current path.

Interest rate channel (general):

- Lower interest rates → cheaper borrowing → higher C and I → AD rises → growth, possible inflation
- Higher interest rates → more expensive borrowing → lower C and I → AD falls → lower inflation, possible unemployment

Effectiveness of monetary policy:

- **Strengths**: Quick to implement (no legislative delay); independent central bank insulates from politics; fine-tuning possible (small adjustments)
- **Limitations**: Limited impact during deep recession (liquidity trap – low rates fail to stimulate borrowing); time lags (6-18 months for full effect); global financial integration reduces effectiveness for small open economies; conflict with exchange rate objectives

Supply-Side Policies

Definition Supply-Side Policies

Policies aimed at improving the quantity (productive capacity), quality (productivity), and mobility (flexibility) of factors of production to increase an economy's potential output.

Types of supply-side policies:

- **Improving labour quality**: Education and training (human capital investment)
- **Improving labour mobility**: Retraining schemes, housing policies, information about job vacancies
- **Improving capital stock**: Investment incentives (tax breaks for R&D, infrastructure spending)
- **Improving efficiency of markets**: Deregulation, privatisation, competition policy, trade liberalisation
- **Labour market reforms**: Reducing minimum wage rigidity, reforming unemployment benefits to reduce disincentives to work

Effectiveness of supply-side policies:

- **Strengths**: Address root causes of low growth (not just symptoms); can simultaneously reduce inflation (AS shifts right → lower prices) and increase output; improve long-term potential without causing inflation; no conflict with other objectives
- **Limitations**: Long time lags (education takes years); may worsen inequality (skill-biased technical change benefits high-skill workers); political difficulty; uncertain impact

3.2.4 Conflicts Between Macroeconomic Objectives

Governments face trade-offs. Achieving one objective may worsen another.

Conflict	Explanation
Growth vs. Inflation Growth vs. BOT	Expansionary policies boost growth but cause demand-pull inflation. Strong growth \uparrow imports \uparrow BOT deficit; high growth may attract capital inflows \uparrow currency appreciation \downarrow exports.
Inflation vs. Unemployment	Inverse relationship (Phillips Curve). Low unemployment \rightarrow wage pressure \rightarrow inflation. Low inflation may require reducing AD \rightarrow unemployment.
Growth vs. Equity	Rapid growth may benefit capital owners more than workers, widening inequality.
Growth vs. Sustainability	High growth may deplete resources, damage environment.

Exam Tip

For evaluation in essays, ALWAYS discuss policy conflicts. Show awareness that there is no magic bullet – every policy choice involves trade-offs. Use phrases like "However, pursuing this objective may come at the expense of..."

3.3 Globalisation and the International Economy

3.3.1 Globalisation

Definition Globalisation

The increasing integration of economies through the cross-border movement of goods, services, capital, labour, technology, and information.

Factors driving globalisation:

- **Technological advances:** Cheaper and faster transport, communications (internet), logistics
- **Trade liberalisation:** Reduction in tariffs and non-tariff barriers through WTO agreements, free trade agreements
- **Liberalisation of capital flows:** Removal of restrictions on cross-border investment
- **Global supply chains:** Production fragmented across countries to exploit cost differences
- **Migration:** Increased labour mobility

3.3.2 Free Trade and Comparative Advantage

Definition Theory of Comparative Advantage

Countries specialise in producing goods where they have a lower opportunity cost, then trade to mutual benefit. Even if one country is more efficient at producing everything (absolute advantage), both gain from trade if each specialises in what it does relatively best.

Key insight: The basis of trade is comparative advantage (lower opportunity cost), not absolute advantage (absolute cost advantage).

Benefits of free trade:

- **Consumers:** Lower prices (produced where cheapest), greater choice/variety of goods, better quality due to competition
- **Producers:** Access to larger markets → economies of scale; access to cheaper inputs → lower costs; technology transfer and innovation spillovers
- **Government:** Higher growth (from specialisation and efficiency), more jobs in export sectors, higher tax revenue

Costs of free trade:

- **Consumers:** May lose domestic variety if local firms are driven out
- **Producers:** Domestic firms face competition and may shut down; job losses in import-competing sectors
- **Government:** Loss of tariff revenue; may need to fund retraining for displaced workers
- **Other:** Increased inequality (gains go to capital owners, losses concentrated among low-skill workers); environmental costs from increased production and transport; loss of cultural identity

3.3.3 Protectionism

Definition Protectionism

Government policies that restrict international trade to protect domestic industries from foreign competition.

Forms of protectionism:

- **Tariffs:** Taxes on imported goods. Raise price of imports, making domestic goods more competitive.
- **Non-tariff measures:** Quotas (quantity limits), subsidies to domestic producers, bureaucratic red tape (licensing, standards), voluntary export restraints, health/safety regulations used as barriers

Diagrammatic analysis of tariffs (shown in textbook):

- A tariff shifts the world supply curve upward by the amount of the tariff
- Domestic price rises above world price
- Domestic production increases (producer surplus rises)
- Consumer surplus falls (consumers pay more)
- Government gains tariff revenue
- Overall: Deadweight loss from overproduction and underconsumption – net welfare loss

Benefits of protectionism:

- Protect infant industries until they become competitive
- Protect strategic industries (defence, food security)
- Prevent dumping (selling below cost to destroy domestic competitors)
- Protect domestic jobs
- Correct trade deficits
- Counteract unfair trade practices

Costs of protectionism:

- Higher prices for consumers
- Less choice for consumers
- Inefficient domestic producers have no incentive to improve
- Retaliation from trading partners (trade wars)
- Higher costs for domestic firms using imported inputs

3.3.4 Economic Co-operation and Trade Agreements

Governments may engage in economic co-operation through:

- **Bilateral trade agreements:** Between two countries
- **Regional trade agreements:** Between multiple countries in a region (e.g. ASEAN, EU, USMCA)
- **Multilateral agreements:** Through WTO framework (most comprehensive)

Why governments pursue economic co-operation:

- Access to larger markets
- Attract foreign direct investment (FDI)
- Technology transfer
- Economies of scale for domestic firms
- Collective bargaining power

Why governments may choose protectionism (reject co-operation):

- Protect sensitive sectors (agriculture, manufacturing)
- National security concerns
- Political pressure from domestic interest groups
- To maintain policy autonomy

Quick Reference: Key Formulae and Concepts

Concept	Formula / Description
AD	$AD = C + I + G + (X - M)$
Circular flow equilibrium	$I + G + X = S + T + M$
Multiplier	$k = \frac{1}{1-MPC} = \frac{1}{MPS+MPT+MPM}$
Change in Y	$\Delta Y = k \times \Delta J$
GDP	Total final output within borders
GNI	GDP + net factor income from abroad
Real GDP	Nominal GDP / GDP Deflator $\times 100$
CPI	Measures average price level of household basket
Unemployment rate	$U/\text{Labour Force} \times 100\%$
Inflation rate	$\Delta\text{CPI}/\text{CPI}_{\text{previous}} \times 100\%$
BOT	Exports – Imports
Gini coefficient	0 = perfect equality, 1 = perfect inequality
HDI	Composite of health, education, income (0–1)
Fiscal policy	G and T to influence AD
Monetary policy (SG)	MAS manages exchange rate
Supply-side	Improve quantity/quality/mobility of factors