AQA A Level Economics

Your notes

10. How the Macroeconomy Works

Contents

The Circular Flow of Income

Your notes

National Income

- **National income** is the total value of the **new output** of an economy over a period of time
  - The output is produced by the **physical (machinery) and human capital** in the economy
- Income is a **flow** in the economy, whereas **wealth** is a **stock of assets** that can be used to **generate income**
- **Nominal and real GDP** are often used to measure national income
  - **Nominal GDP** is the actual value of all **goods and services** produced in an economy in a one-year period
    - There has been **no adjustment** to the amount based on the increase in general price levels (inflation)
    - The word **nominal** refers to the fact that the metric has **not been adjusted for inflation**
- **Real GDP** is the value of all goods and services produced in an economy in a one-year period, **adjusted for inflation**
  - E.g. If nominal GDP is £100bn and inflation is 10%, then real GDP is £90bn

Real national income is an indicator of economic performance

- If real income is rising, then the economic performance of the country is improving
  - It is also very likely that the **standard of living** in the economy is also improving
- If **real income falls** during a period of **recession**, it is likely that there will be a fall in the standard of living of individuals in the economy
- The **rate** of change of national income measures the change in **economic growth** in an economy
- Both the level and rate of change in national income are valuable for **cross-country comparisons**

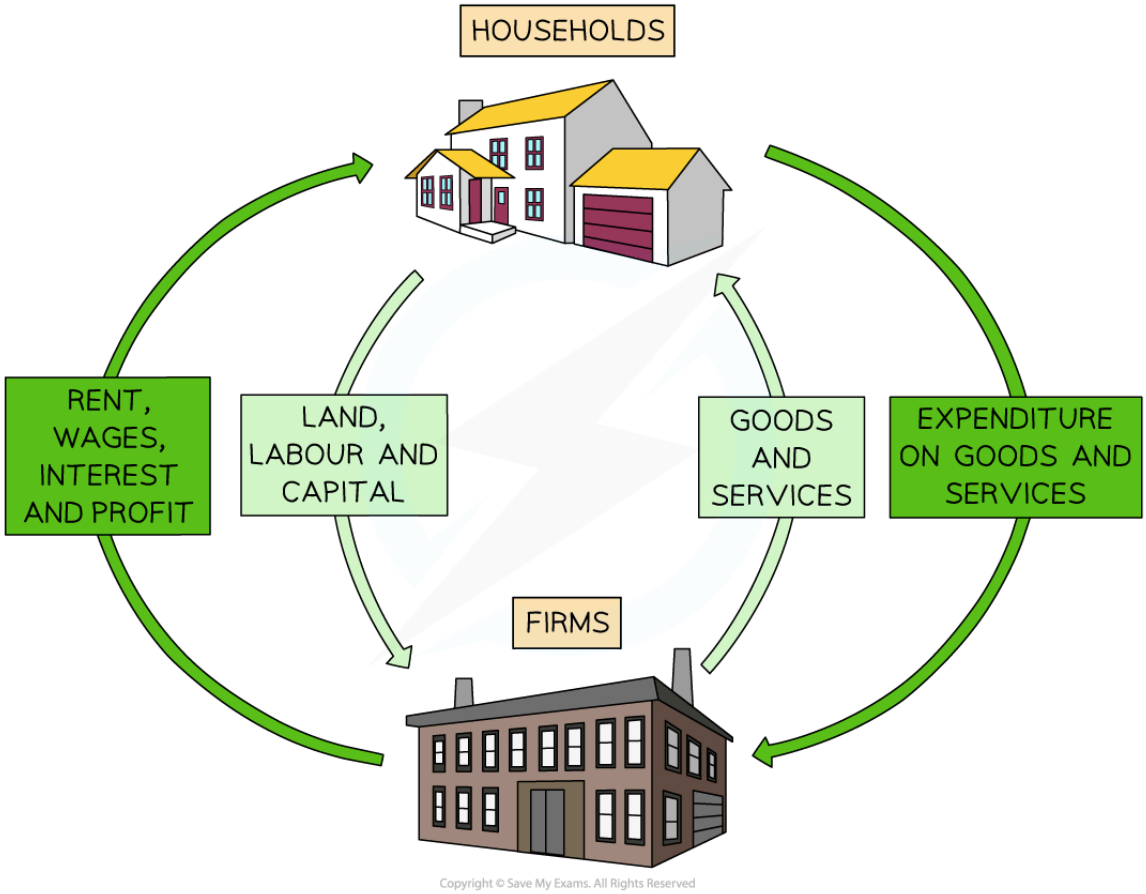
The Closed Circular Flow of Income Model

- The **circular flow of income model** is used to illustrate **national income** and the flow of money, resources and goods in an economy
  - There is a simple model which shows the money flows in a 'closed economy'

- This shows **money flows** between **households** and **firms**
- There is a **more complex model** which adds in other economic agents, including the **government**, **financial sector** and **foreign trade** (net exports)

Your notes

Diagram: Circular flow in a Closed Economy



The circular flow of income between households and firms in a closed economy

Diagram analysis

- **Households** own the **wealth** in the economy
  - These are the **factors of production**
- **Households supply** their factors of production to firms and **receive income** as a reward
  - They receive **rent** for land, **wages** for labour, **interest** for capital, and **profit** for enterprise
  - With this income, they purchase goods and services from firms

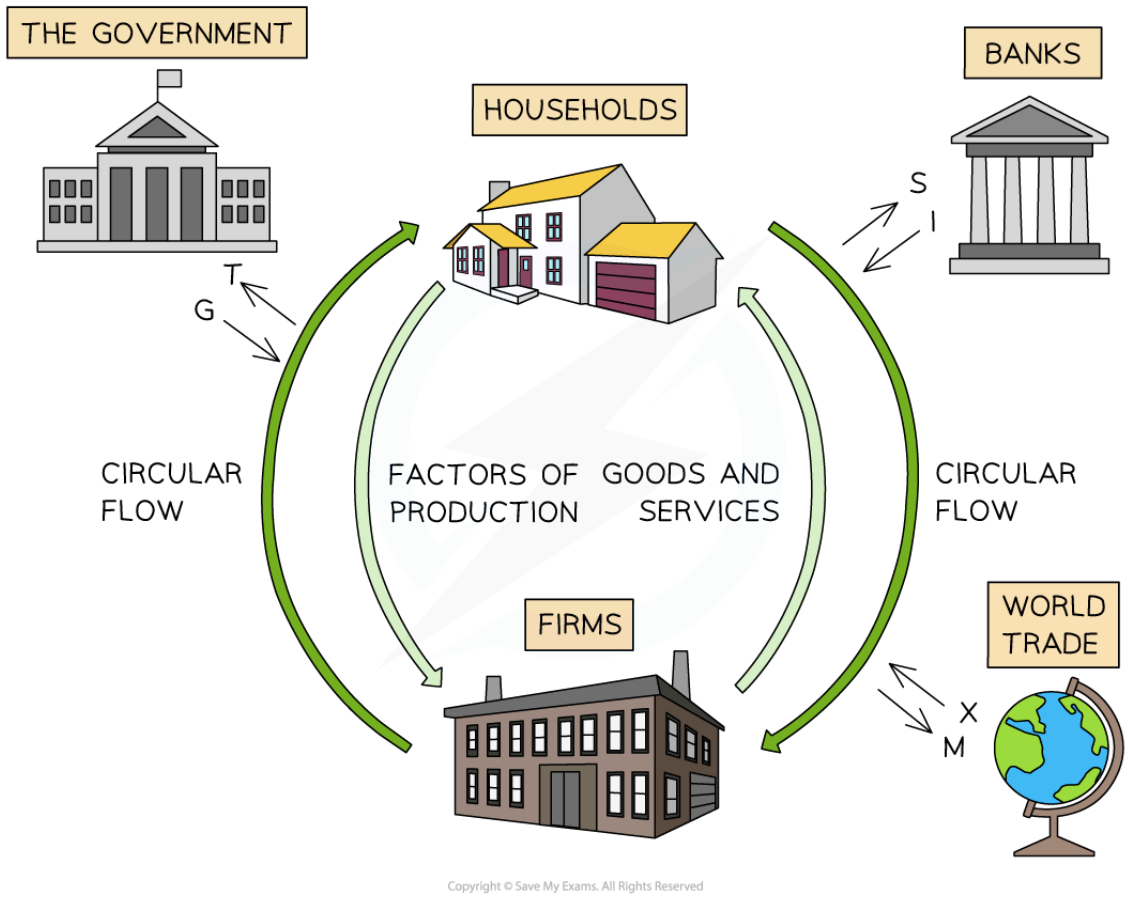
- **Firms** purchase factors of production from households
  - They use these resources to **produce goods and services**
  - They **sell the goods and services** to households and receive **sales revenue**

Your notes

The Open Circular Flow of Income Model

- An **open circular flow of income** demonstrates the relationship between all of the economic agents that interact in a global world
- There are high levels of **interdependence** between households, firms, the government, the financial sector, and the foreign sector (foreign firms and households)

Diagram: Circular flow in an open Economy



An open economy is one that trades with the world. North Korea is a closed economy

Diagram analysis

- **Households and firms** have been explained in the closed circular flow of income model above
- **Government:** The government influences the size of the circular flow through its taxation (T) and spending policies (G)
- **Financial sector:** The financial sector influences the size of the circular flow by providing funds for Investment (I) and a safe place for households and firms to store their savings (S)
- **Foreign sector:** Globalisation means that the level of exports (X) and imports (M) significantly affects the size of the circular flow of income in most countries


Your notes

Income = Output = Expenditure

- With reference to the **circular flow of income model**, national income can be calculated using three possible approaches

1. **The expenditure approach**
    - This approach adds up the value of all the expenditures in the economy in a year and includes consumption (C), government spending (G), investment (I) by firms and net exports (X - M)
    - **Nominal GDP = C + I + G + (X–M)**
2. **The income approach**
    - This approach adds up the payments (rewards) for the factors of production in a year and includes the wages from labour (W), rent from land (R), interest from capital (I) and profit from entrepreneurship (P)
    - **National Income = W + R + I + P**
3. **The output approach**
    - This approach adds up the value of all **finished goods/services** produced within the economy each year (national output)

- All approaches should provide the **same figure**
    - One agent's **expenditure** is another agent's **income**
    - The value of finished goods ready for sale is equal to the expenditure paid to acquire them
- The **value of GDP** is different to the **volume of GDP**
    - The value is the **monetary worth**
    - The volume is the **physical number**

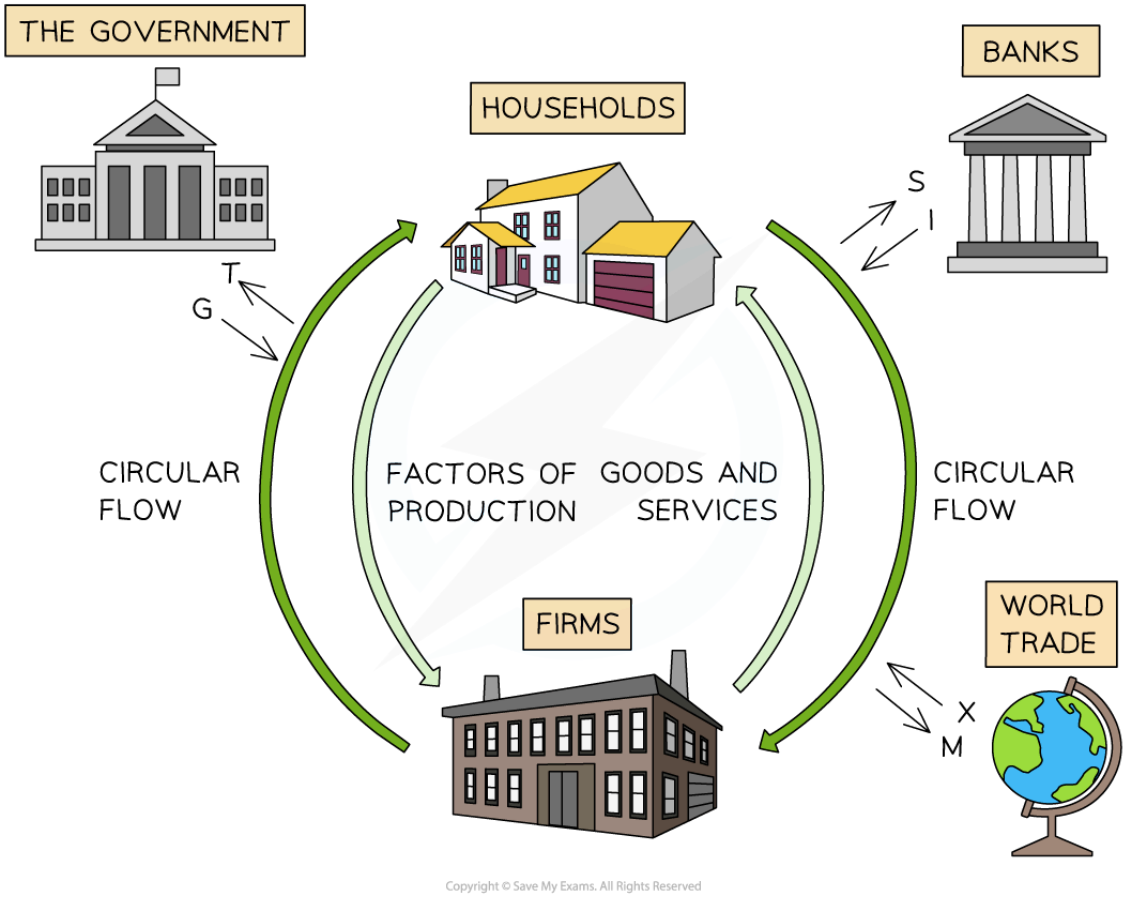
Your notes

The Effect of Changes in Injections & Withdrawals on National Income

- **Money** can **enter or leave** the circular flow of income in an economy
  - Injections represent **new income** in the economy
  - Withdrawals are the **leakage** of money from the economy
- **Injections** add **money** to the circular flow of income and **increase its size**
  - Increased government spending **(G)**
  - Increased investment **(I)**
  - Increased exports **(X)**
- **Leakages** (withdrawals) remove **money** from the circular flow of income and **reduce its size**
  - Increased savings by households **(S)**
  - Increased taxation by the government **(T)**
  - Increased import purchases **(M)**
- There are high levels of **interdependence** between households, firms, the government, the financial sector, and the foreign sector (foreign firms and households)

Diagram: Injections & Leakages

Your notes



If the injections > leakages, national income will increase and the economy will grow

Diagram analysis

- **Government:** Government spending (G) is an injection and taxation (T) is a leakage
- **Financial sector:** Investment (I) is an injection and savings (S) is a leakage
- **Foreign sector:** Exports (X) is an injection and imports (M) is a leakage
- The relative **size of the injections and withdrawals** impacts the size of the economy
  - Injections > withdrawals = economic growth and increase in national income
  - Withdrawals > injections = economic decline and a fall in national income
- **Changes to any of the factors** that influence government spending, investment, consumption and net exports will increase or decrease the relative size of the circular flow of income

- E.g. An increase in **interest rates** will increase savings (withdrawal) and **reduce consumption** and investment


Your notes

Examiner Tips and Tricks

Remember to consider the net effect and proportionality of the injections and withdrawals. For example, if the size of government spending is large, it is likely to completely outweigh the combined withdrawals of savings and imports.

The size of the multiplier is dependent on the marginal propensity to consume (MPC), the marginal propensity to save (MPS), the marginal propensity to import (MPM), and the marginal propensity to be taxed (MPT).

The Determinants of Savings

- The determinants of savings refers to the factors that influence an individual (**household**) decision to save money **rather than consume** it immediately
- Disposable income can either be saved or spent on goods/services (consumption)
  - When **savings decrease**, **consumption usually increases**
  - When **savings increase**, **consumption usually decreases**
- The **household savings ratio** calculates household savings as a proportion of household income
  - This percentage is often low when an economy is booming and full of confidence - and vice versa
  - During **lockdown in 2020** this ratio reached a record high in the UK of around **25%**
- The difference between savings and investment is:
  - **Savings** is the portion of income by households that is not spent / consumed
  - **Investment** is expenditure by firms on **capital goods** eg. machinery and equipment. The spending is geared toward enhancing productivity
    - Firms can also save profits, without spending them

Equilibrium National Income & Full Employment

- The equilibrium national income level is where withdrawals are equal to injections
  - This is also where **aggregate demand** is equal to **aggregate supply**
- **Full employment** is the level of income at which an economy is operating at full capacity

- It is operating on its production possibility frontier with no spare capacity


Your notes

Worked Example

An economy is in a state of macroeconomic equilibrium. The levels of investment, savings, exports and imports are shown below

Injections into and withdrawals from the circular flow of income	
Savings	£300 bn
Investment	£200 bn
Imports	£200 bn
Exports	£200 bn

It can be inferred from the data in the table above that

A: The government is running a budget surplus

B: The injections are greater than the withdrawals

C: Government spending is higher than the value of taxes

D: The withdrawals are greater than the injections

Step 1: Identify what it means when an economy is in 'macroeconomic equilibrium'

Injections = withdrawals

Step 2: Add injections and withdrawals from the table

Injections = Investment (£200 bn) + Exports (£200 bn) = £400 bn

Withdrawals = Savings (£300 bn) = Imports (£200 bn) = £500 bn

Step 3: Identify the missing injections and withdrawals from the table

Government spending (injection)

Government taxation (withdrawal)

Step 4: identify the most true statement from the options

C - The government spending (injection) has to be higher than the taxation (withdrawal), as the withdrawals in the table are already greater than the injections **[1]**

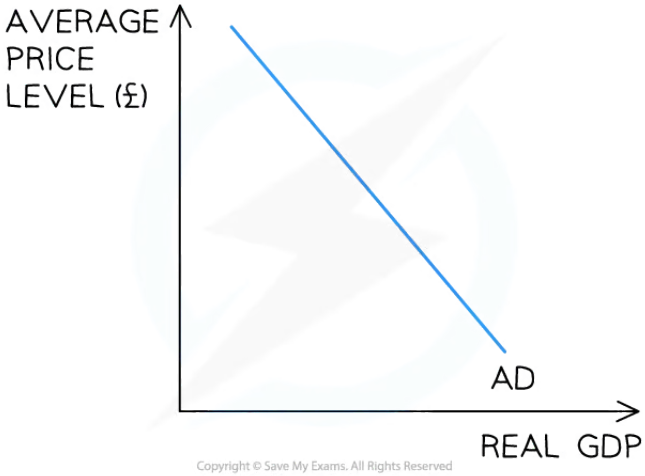
Aggregate Demand (AD)

Your notes

An Introduction to Aggregate Demand

- **Aggregate demand (AD)** is the **total demand** for all goods and services in an economy at any given **average price level**
- Its value is often calculated using the **expenditure approach**
  - AD = Consumption (C) + Investment (I) + Government spending (G) + (Exports-Imports) (X-M)
  - **AD = C + I + G + (X–M)**
- **Consumption** is the total spending on goods and services by consumers (households) in an economy
- **Investment** is the total spending on capital goods by firms
- **Government spending** is the total spending by the government in the economy
  - Includes public sector salaries, payments for provision of merit and public goods etc.
  - It does not include **transfer payments**
- **Net exports** are the difference between the revenue gained from selling goods or services abroad and the expenditure on goods or services from abroad
  - Individuals, firms and governments export and import
- The relationship between the **average price level** and the **total output** in an economy is shown with an aggregate demand (AD) curve

Diagram: Aggregate Demand (AD) Curve for an Economy



Average Price Level on the Y axis and Real GDP or Real National Output on the X axis

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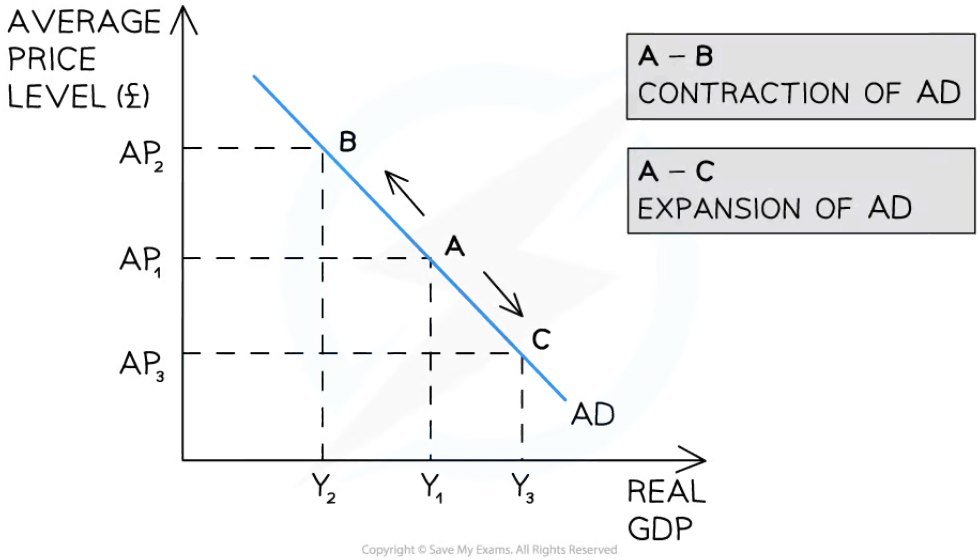
Movements Along the Aggregate Demand Curve

- Whenever there is a change in the **average price level** (AP) in an economy, there is a **movement along** the aggregate demand (AD) curve

Diagram: An Increase & Decrease in the Average Price Level (AP)



A change in AP causes a movement along the aggregate demand (AD) curve, leading to a contraction or expansion of AD

Your notes

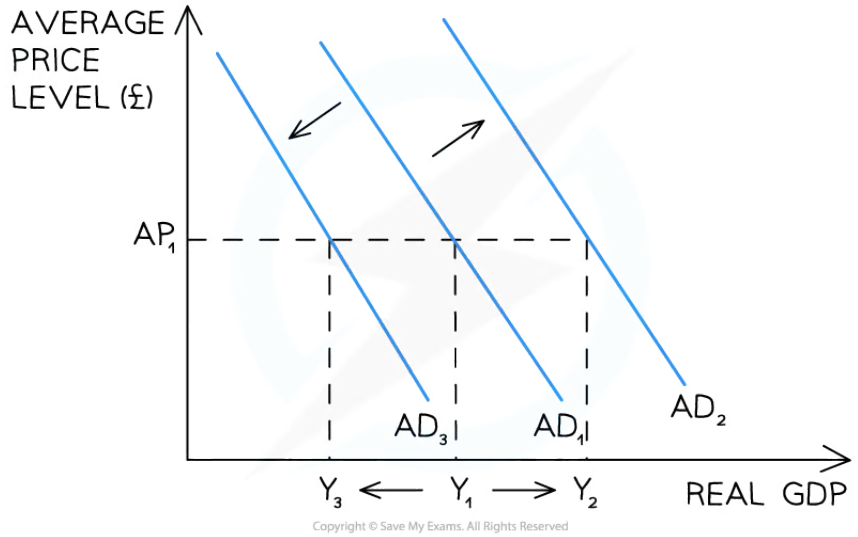
Diagram Analysis

- An **increase** in the AP (ceteris paribus) from $AP_1 \rightarrow AP_2$ leads to a movement along the AD curve from A → B
  - There is a **contraction** of real GDP from $Y_1 \rightarrow Y_2$
- A **decrease** in the AP (ceteris paribus) from $AP_1 \rightarrow AP_3$ leads to a movement along the AD curve from A → C
  - There is an **expansion** of real GDP (output) from $Y_1 \rightarrow Y_3$

Factors that Cause the Entire AD Curve to Shift

- Whenever there is a change in any of the **determinants of aggregate demand** (AD) in an economy, there is a **shift** of the entire AD curve

Diagram: Shift in Aggregate Demand (AD)



An increase in any of the determinants of AD will cause the AD curve to shift right – and vice versa

Diagram analysis

- An **increase** in any one of the determinants of aggregate demand (AD) results in a shift **right** of the entire curve from **$AD_1 \rightarrow AD_2$**
  - At every price level, real GDP has **increased** from $Y_1 \rightarrow Y_2$

- A **decrease** in any one of the determinants of AD results in a shift **left** of the entire curve from $\mathbf{AD_1 \rightarrow AD_3}$
  - At every price level, real GDP has **decreased** from $Y_1 \rightarrow Y_3$

Your notes

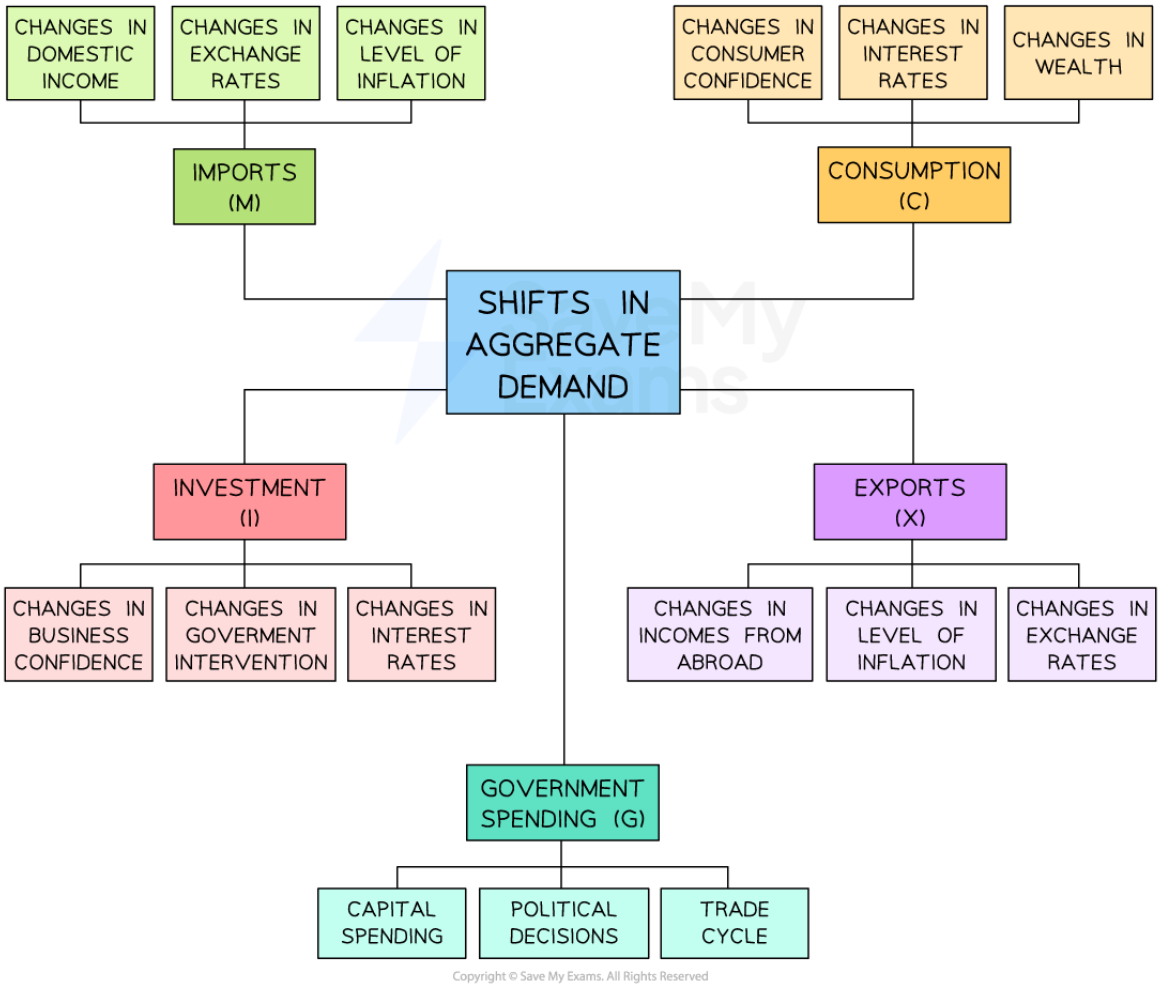
The Determinants of Aggregate Demand

- **AD = Consumption (C)** + **investment (I)** + **Government Spending (G)** + (Exports **(X)** - Imports **(M)**)

- Each of these components are influenced by a range of factors and any change to one of them has the potential to shift the aggregate demand curve

- If numerous factors change at the same time, the net effect will determine which way—and how far—the aggregate demand shifts

Diagram: Factors that Affect each Determinant



When multiple factors change at the same time, the net effect will determine which way the AD curve shifts—and how far. It is easier to analyse the impact of a single change

Your notes

The determinants of consumption

- **Consumption is the total spending on goods and services by consumers (households) in an economy**
- The level of **disposable income** that households have impacts the level of consumption
  - Consumption increases as disposable income increases
  - Consumption decreases as disposable income decreases

Factors that Cause a Change in the Level of Consumption

Factor	Explanation

Changes in interest rates	▪ **Interest rates** are set by the government's **Central Bank**
	  ▪ Changes to the base rate cause commercial banks to change the **lending** and **saving rates** they offer customers
	▪ A change in interest rates will change the level of **consumer spending** and **savings**
	  ▪ If interest rates **increase** there is a greater incentive to save
	  ▪ More saving = less consumption
	  ▪ If interest rates i**ncrease,** the monthly repayment on any loan or mortgage increases
	  ▪ Higher loan repayments = less consumption

Changes in consumer confidence	▪ The **stronger the economy**, the higher **consumer confidence**
	  ▪ Consumers feel secure in their jobs and are confident of receiving regular salary payments
	  ▪ **Consumption increases and saving decreases**
	▪ In a weakening or **recessionary economy,** consumer confidence **falls**

	▪ Consumers feel less secure in their jobs ▪ Consumption decreases and saving increases
Changes in wealth	▪ If consumer **wealth increases**, then consumption usually increases ▪ **Rising property price**s or share prices give consumers confidence to borrow more money ▪ Increased borrowing = increased consumption

Your notes

The determinants of investment

- **Investment is the total spending on capital goods by firms**
- Investment helps to **increase the capacity** (production possibilities) of an economy
  - Increased capacity = increased potential economic growth

The Factors that cause a Change in the Level of Consumption

Factor	Explanation
Business confidence	▪ The longer the period of economic growth, the **higher** the business confidence will be ▪ If growth slows, future expectations of profits will decrease, and investment decisions will become harder
Changes in government intervention	▪ Government intervention can increase **investment e.g. subsidies** ▪ Government regulation can decrease investment (it **raises costs of production** for firms and can lower profits)
Changes in interest rates	▪ Most investment by firms is financed through business loans ▪ Decreasing interest rates **encourage investment** ▪ There is a mostly **inverse relationship** between investment and interest rates
Demand for exports	▪ If demand for exports increases, firms will likely **invest to meet the global demand**

	▪ **Demand for exports can increase** if the exchange rate depreciates as goods/services now seem cheaper to foreigners

Your notes

The determinants of government spending

- The level of government spending is influenced by the **economic cycle**, the political agenda, and the planned level of capital spending

The Factors that Influence Government Spending

Factor	Explanation
Economic cycle	▪ Governments will spend more in a **recession** to stimulate the economy and less during times of **inflation** ▪ Unemployment decreases with a booming economy, leading to a lower level of means-tested benefit payments, and vice versa ▪ Tax revenue increases with a booming economy and can be used to pay back government debt or increase expenditure on public/merit goods - and vice versa
Political decisions	▪ **Political decisions** made to gain popularity often involve increasing spending to secure votes
Capital spending	▪ National **capital investments** such as building roads and railways ▪ Government expenditure can happen on a **local level** (e.g., Kent County Council) or a national level (central government)

The determinants of net exports

- The net trade balance is the difference between the value of the **exports and imports (X-M)**
- The net trade balance is influenced by changes to **real income**, **exchange rates,** and the degree of **protectionism**

Factors Impacting Exports & Imports

Factor	Explanation

Exports levels	▪ The higher the incomes **abroad**, the higher the demand for exports ▪ If i**nflation rate** of UK is lower relative to trading partners, the higher the demand for UK exports ▪ If UK sterling **depreciates** in value, exports are less expensive for foreigners; **exports increase** ▪ An i**ncrease in protectionism** (regulation, tariffs) would lead to retaliation from other countries and demand for **exports would fall**
Import levels	▪ **Level of income** of UK residents increases, demand for imports increases ▪ If **inflation rate** of UK is lower relative to trading partners, the lower the demand for UK imports ▪ If sterling appreciates in value, then consumers' income goes further abroad and demand for imports increases ▪ An **increase in protectionism** (regulation, tariffs), would lead to decreased demand for imports as they are **more expensive**


Your notes

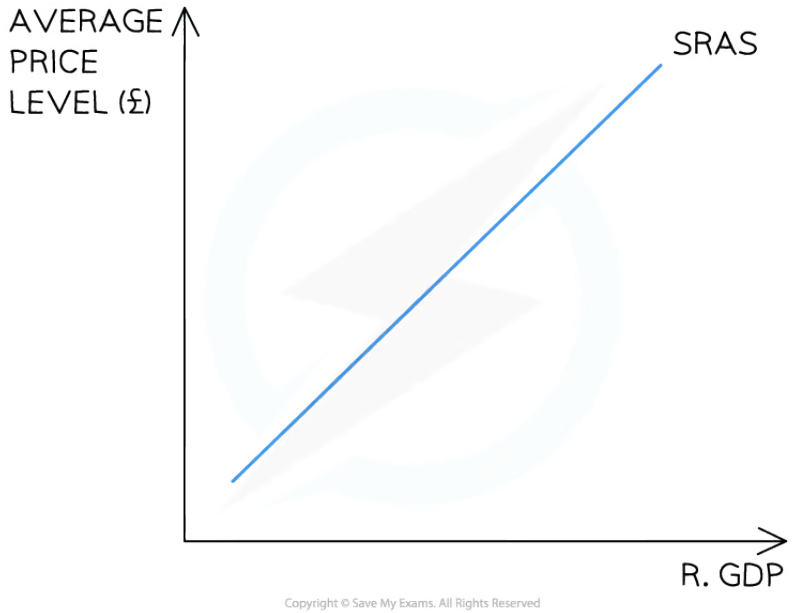
Short-run Aggregate Supply (SRAS)

Your notes

An Introduction to Short-run Aggregate Supply (SRAS)

- Aggregate supply is the **total supply of goods/services** produced within an economy at a specific price level at a given time

Diagram: Short-run Aggregate Supply (SRAS) Curve



The SRAS is upward-sloping. As price levels rise, firms are incentivised to supply more

Diagram analysis

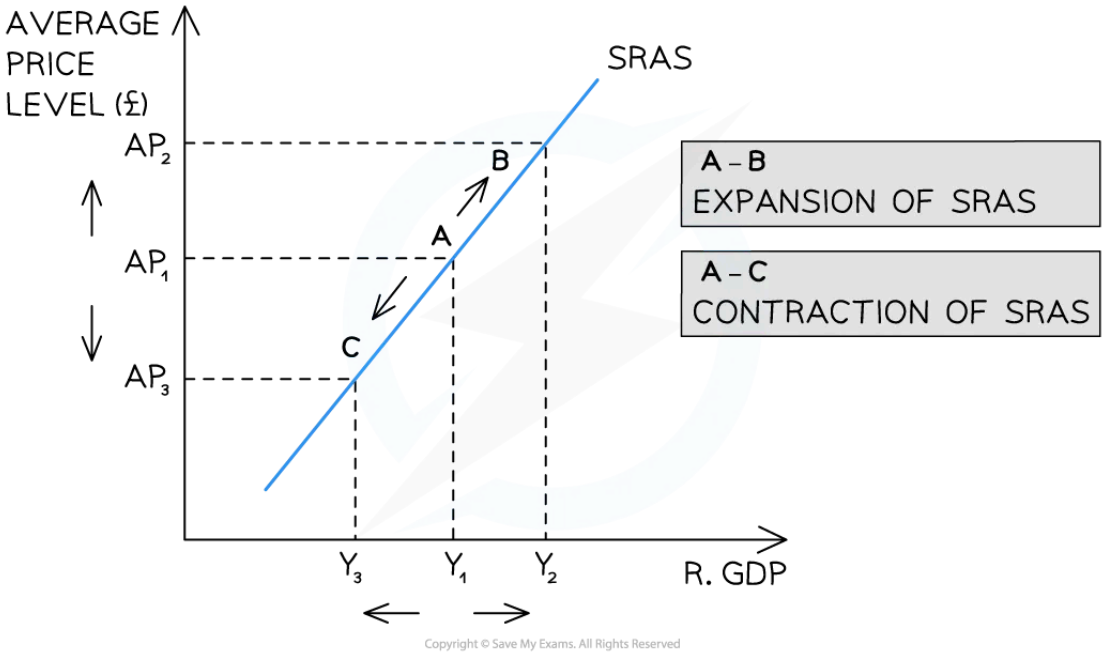
- The SRAS curve is **upward-sloping** due to two reasons
  - The aggregate supply is the **combined supply** of all individual supply curves in an economy which are also upward-sloping
  - As **real output increases**, firms have to **spend more** to increase production e.g. wage bills will increase
    - Increased costs result in higher average prices

A Movement Along the SRAS Curve

Your notes

- Whenever there is a change in the average price level (AP) in an economy, there is a **movement along** the **short-run aggregate supply** (SRAS) curve

Diagram: A Movement Along the SRAS Curve



An increase or decrease in the average price level (AP) causes a movement along the short-run aggregate supply (SRAS) curve, leading to a contraction or expansion of SRAS

Diagram analysis

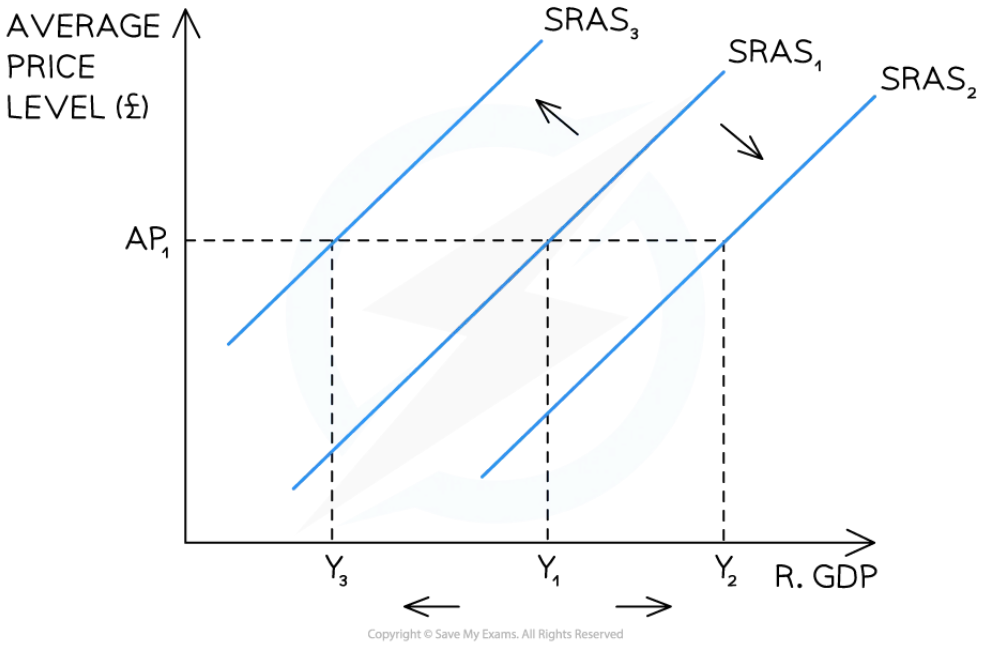
- An **increase** in the AP (ceteris paribus) from $AP_1 \rightarrow AP_2$ leads to a **movement along** the SRAS curve from $A \rightarrow B$
  - There is an **expansion** of real GDP from $Y_1 \rightarrow Y_2$
- A **decrease** in the AP (ceteris paribus) from $AP_1 \rightarrow AP_3$ leads to a **movement along** the SRAS curve from $A \rightarrow C$
  - There is a **contraction** of real GDP (output) from $Y_1 \rightarrow Y_3$

Factors that Cause the Entire SRAS Curve to Shift

Your notes

- Shifts in SRAS are caused by changes in conditions of supply in an economy; this usually means **changes in the costs of production**
  - Changes in the cost of raw materials and energy
  - Changes in exchange rates (E/R)
  - Changes in tax rates

Diagram: A Shift in the SRAS Curve



The shift of the entire short-run aggregate supply (SRAS) curve is due to a change in one of the determinants of aggregate supply

Diagram analysis

- A **decrease in costs** or **increase in productivity** results in a **shift right** of the entire curve from $SRAS_1 \rightarrow SRAS_2$
  - At every price level, output and real GDP have increased from $Y_1 \rightarrow Y_2$
- An **increase in costs** or **decrease in productivity** results in a **shift left** of the entire curve from $SRAS_1 \rightarrow SRAS_3$
  - At every price level, output and real GDP have decreased from $Y_1 \rightarrow Y_3$

The Determinants of Short-run Aggregate Supply


Your notes

- Whenever there is a change in the **conditions of supply** in an economy (e.g. costs of production or productivity changes), there is a shift of the entire SRAS curve
- There are multiple factors that can influence the short-run aggregate supply (SRAS). These include:
  - Changes in costs of raw materials and energy
  - Changes in wage rates
  - Changes in tax rates

The Influences on Short-Run Aggregate Supply (SRAS)

Factor	Explanation	Impact on SRAS
Increase in the cost of raw materials and energy	▪ As the price of input costs rises, **fewer goods and services** can be produced with the same amount of money	▪ SRAS decreases - curve shifts left
Decrease in costs of raw materials/energy	▪ As the price of input costs decrease, **more goods/services** can be produced with the same amount of money	▪ SRAS increases - curve shifts right
Increase in wage rates	▪ Increases in wages **increases the cost of production** ▪ Higher costs = lower output	▪ SRAS decreases - curve shifts Left
Decrease in wage rates	▪ Decrease in wages **decreases the cost of production** ▪ Lower costs = higher output	▪ SRAS Increases - curve shifts right
Decrease in tax rates	▪ Taxes represent an **additional cost for firms** ▪ Decreasing taxes = decrease in costs ▪ Lower costs = more output	▪ SRAS increases - curve shifts right

Increase in tax rates	▪ Taxes represent an **additional cost for firms** ▪ Increasing taxes = increase in costs ▪ Higher costs = less output	▪ SRAS decreases - curve shifts left


Your notes

Long-run Aggregate Supply (LRAS)

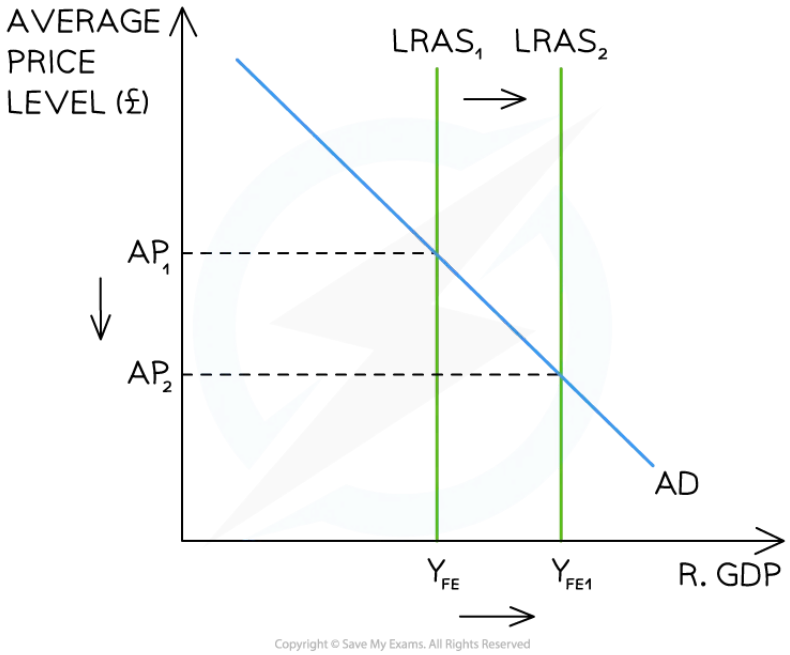
Your notes

An Introduction to Long-run Aggregate Supply (LRAS)

- The long-run aggregate supply (LRAS) represents the **potential capacity** of an economy's **factors of production**

- Any factor that changes the **quantity or quality** of a factor of production will impact the long-run aggregate supply (LRAS) of an economy
  - This corresponds to an **outward or inward shift** of the potential output of an economy on the production possibilities diagram

Diagram: Shift in the Long-run Aggregate Supply (LRAS)



A shift is caused by a change in one of the factors that determine the long-run aggregate supply (LRAS)

- The diagram above represents the **Classical Economics** view of the long-run aggregate supply
  - The **Keynesian view** is contrasted further down the page

Diagram analysis

- Using **all available factors of production**, the long-term output of this economy **(LRAS) occurs at Y_{FE}**
  - At Y_{FE}, **a**ll of the resources available in the economy are fully employed (utilised)
  - At Y_{FE}, **t**he position of the vertical long-run AS curve represents the **normal capacity level** of output in the economy
- The economy is initially in **equilibrium** at the intersection of **AD and $LRAS_1$ (AP_1, Y_{FE})**
- An **outward shift** of a country's LRAS curve means that its **productive capacity** has increased
  - This fundamental expansion of the economy can be seen in the shift from $LRAS_1 \rightarrow LRAS_2$
  - **Underlying economic growth** is represented by a rightward shift in the long-run AS curve
- The following factors will shift the entire LRAS curve outward and increase the potential output of the economy
  - An improvement in the **quality** of the factors of production
    - E.g. An increase in productivity (output per unit of input)
  - An increase in the **quantity** of the factors of production

Your notes

The Determinants of Long-run Aggregate Supply

- Any factor that changes the quantity or quality of a **factor of production** will impact the **long-run aggregate supply (LRAS)** of an economy:
  - This corresponds to an **outward or inward shift** of the potential output of an economy on the **production possibilities diagram**
- The following factors will shift the entire LRAS curve outward and increase the potential output of the economy

1. **Technological advances**: these often improve the quality of the factors of production, e.g. development of metal alloys
2. **Changes in relative productivity**: process innovation often results in **productivity improvements,** e.g. moving from labour-intensive car production to automated car production
3. **Changes in education and skills:** over time, this increases the **quality of labou**r in an economy
4. **Changes in government regulations:** these can improve the **quantity of the factors of production**. e.g. deregulation of fracking (extracting oil from shale deposits) increased oil reserves
5. **Demographic changes and migration:** a positive **net birth rate** or positive **net migration rate** will increase the quantity of labour available

6. **Competition policy:** regulating industries so as to **prevent monopoly power** results in more firms supplying goods/services in an economy and this **increases the potential output** of an economy
7. The **institutional structure of the economy:** Good contract laws and an efficient banking system help the economy run smoothly, promoting long-term growth, and pushing the production possibilities and LRAS curve to the right.
    - During the financial crisis starting in 2007, banks' inability to support businesses shifted LRAS to the left, making the 2008–2009 recession worse and longer


Your notes

Improving the Quality and Quantity of Factors of Production

Factor of Production	Increase in Quality	Increase in Quantity
Land	▪ The quality of land can increase productivity through ▪ **Irrigation schemes** ▪ Use of **fertilisers** ▪ Genetic modification of crops	▪ Land can increase in quantity due to ▪ Discovery of **new resources,** eg. oil reserves ▪ **Land reclamation**, eg. The Netherlands reclaiming land from the North Sea
Labour	▪ A well-educated **workforce** increases overall productivity and can be achieved through: ▪ **Apprenticeship programmes** ▪ Job-related **training**	▪ The quantity of labour can increase due to ▪ Increased **immigration** ▪ Increase in **birth rates** ▪ **Fringe benefits**, eg. free child care, encourages people at home to work
Capital	▪ **Technological advances,** eg. a new machine can increase output per unit and reduce cost ▪ Research and development (**R&D**) can lead to more innovative processes and efficiency	▪ Increased investment in **capital goods** can lead to overall increase in productive capacity ▪ Investment into infrastructure: roads, airports, technology

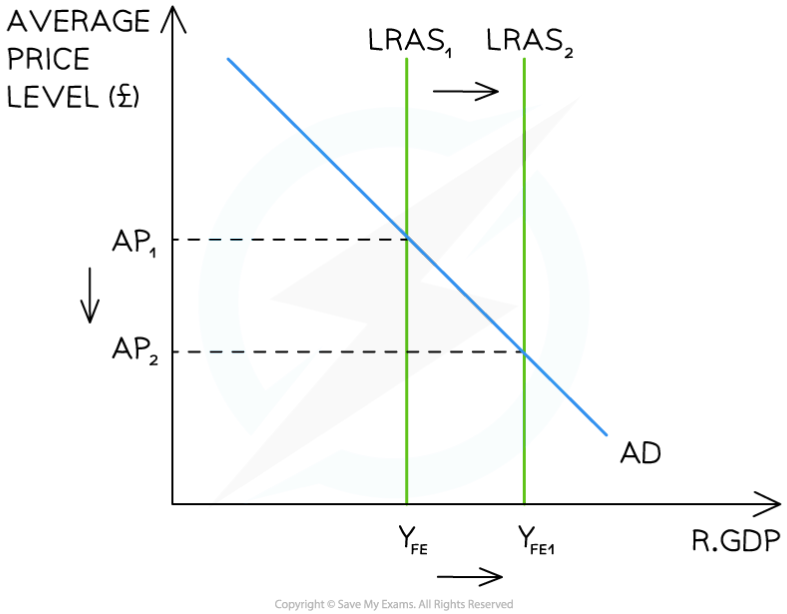
Your notes

Examiner Tips and Tricks

You will frequently be examined on your understanding of factors that shift the **short-run aggregate supply (SRAS)** curve and **long-run aggregate supply (LRAS)** curve.

Make sure you know the difference and remember that **LRAS factors will shift the entire LRAS curve to the right,** representing an increase in the potential output of the economy. Changes to SRAS do not change the potential output of the economy.

This is the impact a long-run shift will have:



A diagram illustrating long-run economic growth through a change in one of the factors that shift the long-run aggregate supply (LRAS) of the economy

Institutional Factors & Long-run Aggregate Supply

- **Institutional structures refer to the established frameworks, organisations, regulations, norms, and practices within a society that govern the behaviour of economic agents**
  - These structures encompass formal institutions, such as government bodies, legal systems, and regulatory agencies (e.g Competition & Markets Authority), as well as informal institutions (e.g. Confederation of British Industry)


Your notes

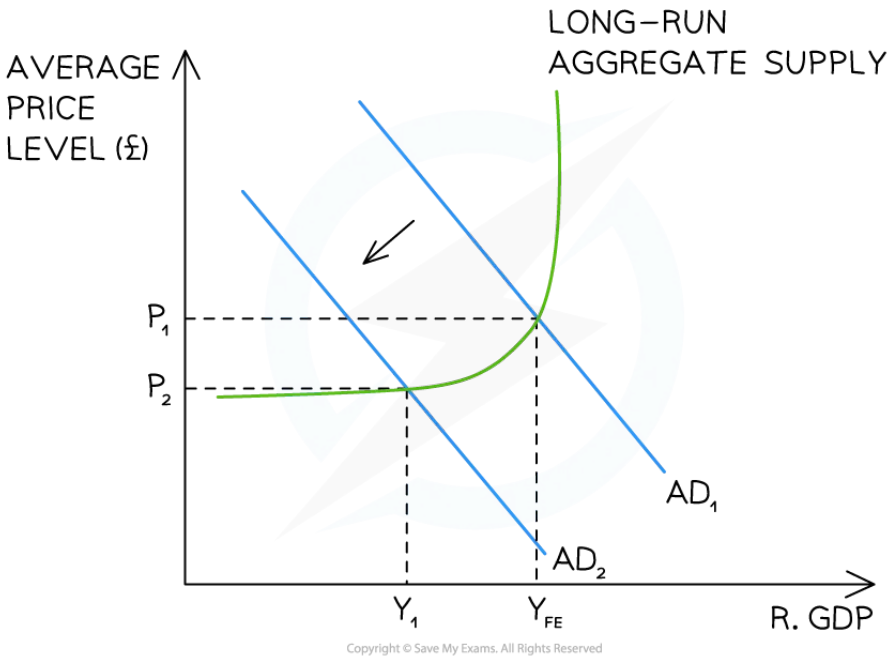
- They **provide the framework within which economic activities take place**, allocate resources, and govern the distribution of wealth and opportunities within a society
- They **define the rules of the game,** establish property rights, enforce contracts, and provide the necessary infrastructure for economic growth

- Institutional structures **exert a significant influence on long-run aggregate supply** by shaping the economy's productive capacity, technological progress, and efficiency
  - Policies that **promote labour market flexibility**, financial stability, property rights protection, education, infrastructure development, and innovation **are essential for expanding LRAS**
  - By addressing institutional weaknesses and **implementing reforms** that support a conducive environment for investment, entrepreneurship, and productivity enhancement, policymakers can contribute to sustainable LRAS growth

The Keynesian Aggregate Supply Curve

- Keynes believed that the long-run aggregate supply curve (LRAS) was more **L shaped**
  - Supply is **elastic at lower levels of output** as there is a lot of spare production capacity in the economy
    - Struggling firms will increase output without raising prices
  - Supply is **perfectly inelastic (vertical)** at a point of **full employment (Y_{FE})** of all available resources
    - The closer the economy gets to this point the more price inflation will occur as firms compete for scarce resources
- The Keynesian view believes that an economy will **not always self-correct** and return to the full employment level of output (YFE)
  - It can get stuck at an equilibrium well below the full employment level of output e.g. Great Depression
- The Keynesian view believes that there is **role for the government** to increase its expenditure so as to shift aggregate demand and change the negative 'animal spirits' (emotions) in the economy

Your notes



A diagram that shows the Keynesian View of long-run aggregate supply (LRAS) with a vertical aggregate supply curve at the full employment level of output (YFE) becoming more elastic at lower levels of output

Diagram analysis

- Using **all available factors of production**, the long-term output of this economy (LRAS) occurs at $\mathbf{Y_{FE}}$
- The economy is initially in **equilibrium** at the intersection of **$\mathbf{AD_1}$ and LRAS** (P_1, Y_{FE})
- A slowdown reduces output from $AD_1 \rightarrow AD_2$ and creates a **recessionary gap $\mathbf{Y_1}$-$\mathbf{Y_{FE}}$**
  - The economy may reach a point where average prices stop falling (P2), but output continues to fall
  - This economy may **not self-correct** to Y_{FE} for years
  - The low output leads to high unemployment and low confidence in the economy
    - This stops further investment and further reduces consumption
- Keynes argued that this was where **governments needed to intervene** with significant expenditures, e.g. Roosevelt's New Deal; and the response to the financial crisis of 2008; and the response to Covid in 2020

The Relationship Between Short-run & Long-run AS

- **Short run aggregate supply (SRAS)** is influenced by changes in the costs of production or productivity
  - Short run refers to the time period where at least one factor of production is fixed
- **Long run aggregate supply (LRAS)** is influenced by a change in the productive capacity of the economy
  - Productive capacity is changed by changes to the quantity or quality of the factors of production
    - When production capacity changes, it is equivalent to a shift inwards/outwards of the production possibilities frontier (PPF)
- Long term economic growth requires the productive capacity to increase


Your notes

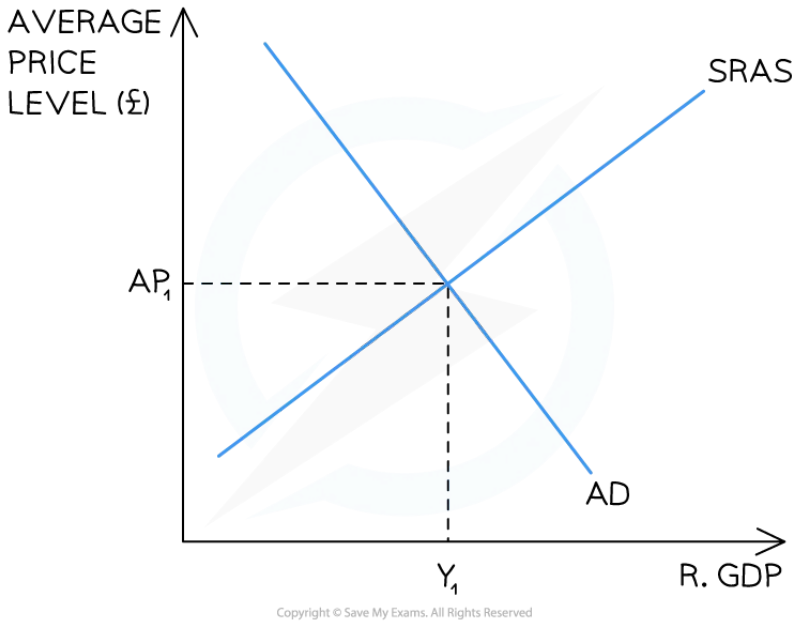
Macroeconomic Equilibrium

Your notes

Short-run Macroeconomic Equilibrium

- Real national output equilibrium occurs where **aggregate demand** (AD) intersects with **short-run aggregate supply** (SRAS)

Diagram: Classical Short-run Equilibrium



Aggregate demand and aggregate supply work together in an economy to create an equilibrium price of AP1 and real output of Y1

Diagram analysis

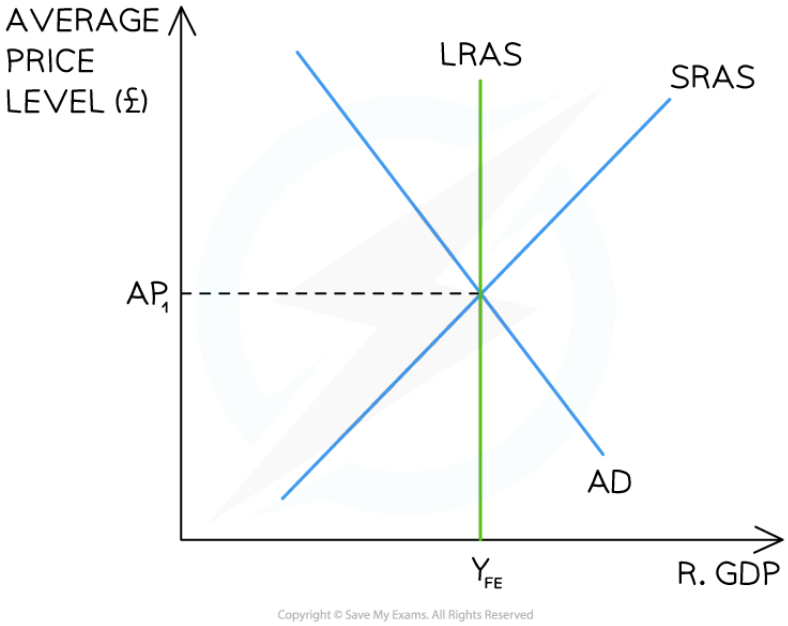
- This economy is in **short run equilibrium** at AP_1Y_1
- Any changes to the components of AD will cause the AD curve to shift left or right, creating a **new short-run equilibrium**
- Any changes to the determinants of SRAS will shift the SRAS curve left or right, creating a **new short-run equilibrium**

Long-run Macroeconomic Equilibrium

Your notes

- **Free market economists** believe that the economy will **always return to its normal capacity level of output**
  - In the short-run, there will be fluctuations around this capacity level of output
  - In the long-run, the economy will return to this normal capacity level of output, but perhaps at a different **average price level**
- It is important to understand the long-run macroeconomic equilibrium as it is used to identify **positive** and **negative** output gaps in an economy (this is covered in more detail in Section 11)

Diagram: Long-run Macroeconomic Equilibrium



A diagram that shows the free market view of long-run equilibrium which occurs at the intersection of long-run aggregate supply (LRAS), short-run aggregate supply (SRAS) & aggregate demand (AD)

Diagram analysis

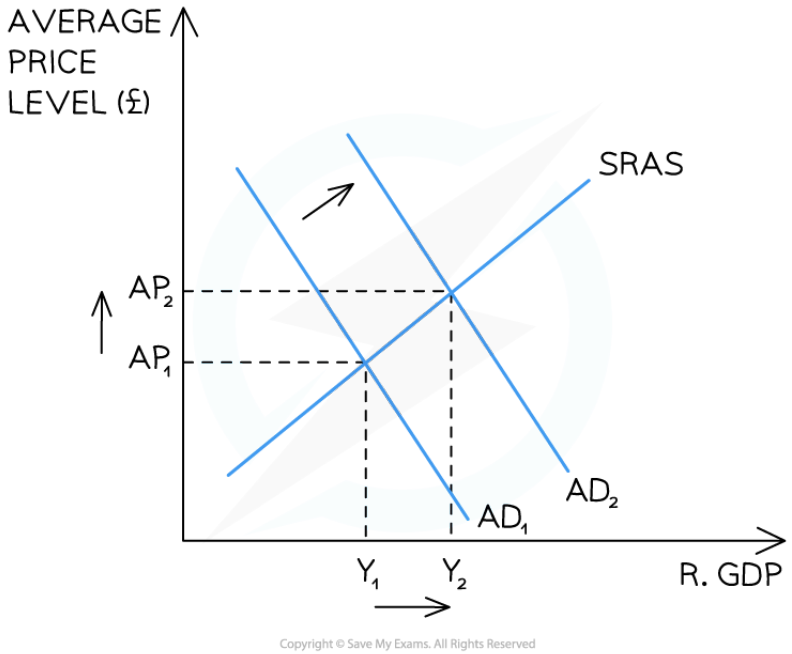
- The **LRAS** curve demonstrates the **normal capacity level of output** of the economy using all of its **scarce resources**
- The **SRAS intersects with AD** at the LRAS curve
- This economy is producing at the **full employment level** of output (Y_{FE})
- The **average price level** at Y_{FE} is AP_1

Aggregate Demand & Supply Analysis

Your notes

1. An Increase in Aggregate Demand (AD)

Diagram: The Impact of Increasing AD



An increase in aggregate demand (AD) leads to higher output and higher prices in the economy

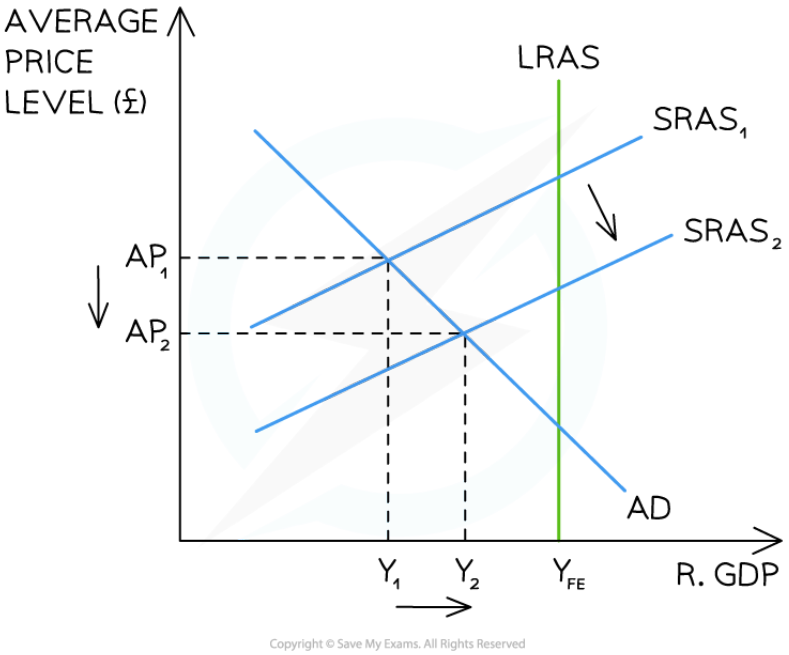
Diagram analysis

- The **initial equilibrium** level of output was at **AP_1Y_1**
- An **increase** in one of the components of **AD** (e.g. consumption) causes the AD to **increase $AD_1 \rightarrow AD_2$**
- **Average prices** in the economy rise to **AP_2** and the real level of **output increases to Y_2**
- The new **short-run equilibrium** is at AP_2Y_2

2. An increase in short run aggregate supply (SRAS)

Diagram: The Impact of Increasing SRAS

Your notes



An increase in the short-run aggregate supply (SRAS) causes higher outputs and lower prices

Diagram analysis

- The **initial equilibrium** level of output was at **AP_1Y_1**
  - This equilibrium represents a negative output gap equal to **Y_1Y_{FE}**
- An **increase** in one of the determinants of **SRAS** (e.g. productivity) causes the SRAS to **increase** **$SRAS_1 \rightarrow SRAS_2$**
- **Average prices** in the economy fall to **AP_2** and the real level of **output increases to Y_2**
- The new **short-run equilibrium** is at **AP_2Y_2**
- There is still a **negative output gap** but it is smaller **(Y_2Y_{FE})**

Impact of Demand Side & Supply Side Shocks

- An economic shock is an **unpredictable event** that has macroeconomic consequences
  - They can have widespread positive or negative impacts on **economic growth**, **inflation rate**, **unemployment levels**
- The type of shock is classified by the sector it originates from

- **Demand side shock:** typically involves a sudden change in the levels of private spending, as seen in shifts in consumer spending or business investment
- **Supply side shock:** When production across an economy is made more difficult
- **Both demand and supply side**: the economy faces challenges on both the consumption and production fronts


Your notes

A Table of Explaining Macroeconomic Shocks in the UK Economy

Macroeconomic Shock	Impacts on the UK Economy
Financial crisis 2007–2012	▪ **Banking instability** led to a credit crunch as banks were reluctant to lend money. ▪ This resulted in **reduced borrowing** and, consequently, less investment and consumer spending. ▪ The outcome was a **fall in aggregate demand,** leading to a recession (economic contraction). ▪ Additionally, this situation contributed to increased **unemployment**
Pandemic 2020	▪ The pandemic restrictions reduced **consumer spending** ▪ Businesses **reduced investment** as they adapt to pandemic-related challenges ▪ **Supply chain disruptions** affected the production and distribution of goods and services ▪ These disruptions, coupled with heightened demand for certain products, contributed to **price fluctuations**
Geopolitical tensions (Ukraine–Russia War)	▪ **Supply chain disruptions** result in increased energy and food prices ▪ Increased costs of production leads to increased **inflation rates** ▪ Bank of England responded to increased inflation by increasing **interest rates** (monetary policy) ▪ Uncertainty about future has impacted **consumer and business confidence**

	▪ Has led to reduced consumer spending and delayed business investments


Your notes

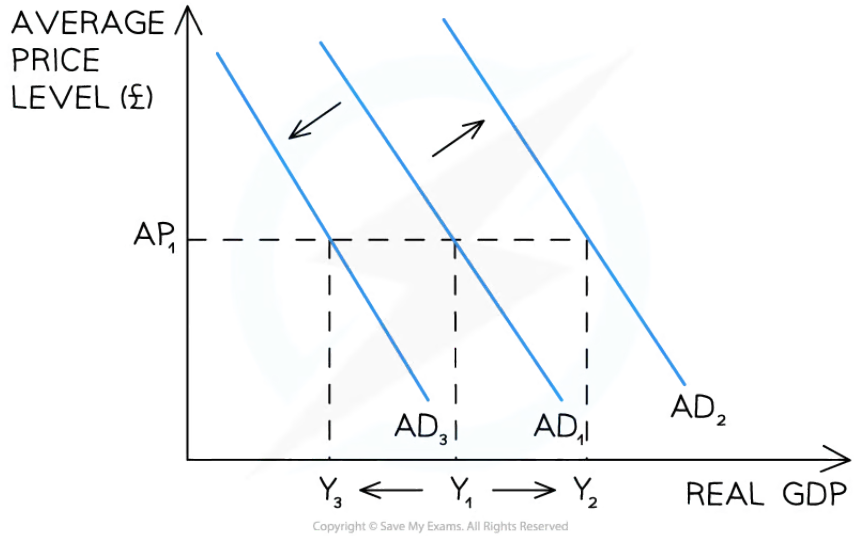
The Multiplier & Basic Accelerator Process

Your notes

The Influence of AD on the Level of Economic Activity

- **Aggregate demand** (AD) is a major determinant of overall level of output **(GDP)** and employment in the economy

Diagram: The Influence of AD on Real GDP



A change to any determinant of AD will have an impact on the level of real GDP in the economy

Diagram analysis

- When an **injection** occurs in the economy, such as through increased **government spending** or **investment,** the AD curve will shift to the **right** (AD_1 to AD_2)
  - This increases the overall level of real output
  - When **real output increases,** firms typically need to hire **additional workers** to meet the higher demand for goods/services
  - The **increased employment** is linked to an increase in **economic growth**
- When a withdrawal occurs in the economy, such as through more **taxes** or **spending on imports,** the AD curve will shift to the **left** (AD_1 to AD_3)
  - This decreases the overall level of real output

- When **real output decreases,** firms typically reduce their workforce to align with reduced demand for goods/services
- The **decreased employment** is linked to a decrease in **economic growth**

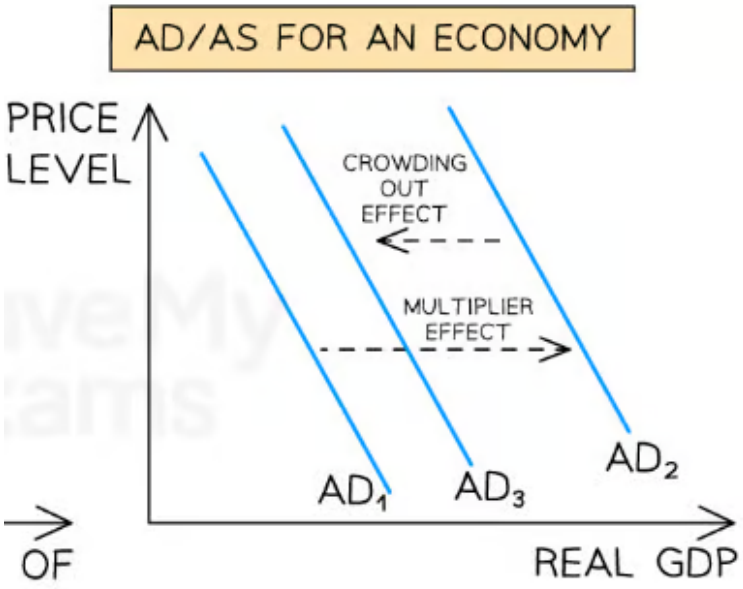
Your notes

The Multiplier

- **The multiplier states that any injection in the economy leads to a greater impact on the economy than the value of the initial injection**
  - E.g. If the Brazilian government injected an additional 5bn Brazilian real (BZL) into the economy through government spending, it may lead to an increase in real income of 15bn BZL
    - In this example, the value of the multiplier would be 3
- The **multiplier process** is based on the idea that one individual's **spending** is another individual's **income**
  - An increase in consumption immediately increases AD
    - Store owners who have benefited from the **extra consumption** now have **extra income**
    - They **spend some** of that income on goods and services
    - Their **expenditure** on goods and services is **now income** for the next tier of individuals
- Due to the successive rounds of spending, the final **increase** in **national income** is **much larger** than the initial injection
- The size of the multiplier is influenced by the size of **leakages** that occur during the process
  - The higher the leakages, the smaller **the marginal propensity to consume (MPC)**
  - The **higher the marginal propensity to consume**, the lower the leakages and the **greater the multiplier will be**
- **The marginal propensity to consume (MPC) is the proportion of additional income that is spent on consumption (C)**

Diagram: The Effect of the Multiplier

Your notes



The initial injection shifts the AD curve from AD1 to AD3, after which the multiplier causes a secondary movement to AD2

Diagram analysis

- The **initial injection shifts AD** to the right, **from AD_1 to AD_3**
- The **result** of the multiplier process is that there is then a **secondary movement of AD** to the right, **from AD3 to AD2**
  - If the multiplier were 2, this would **double** the initial movement
- The **multiplier** can also **work in reverse** when **injections are reduced** (downward multiplier effect)

Calculating MPC & The Multiplier

- Marginal Propensity to Consume (**MPC**) is the proportion of additional income that is spent on **consumption (C)**
  - It can be viewed as how many pence is spent by households on consumption from every additional £1 of income
  - It can be calculated using the formula

$$\text{MPC} = \frac{\Delta \text{ Consumption}}{\Delta \text{ Income}}$$

- The value of the multiplier can be calculated by using the formula

$$\text{The Multiplier} = \frac{1}{1 - \text{MPC}}$$

Your notes

- The **greater the MPC**, the higher the value of the multiplier, and vice versa
- Any change in one of the factors that impacts on **disposable income** will change the multiplier
  - If **taxes increase,** the value of the **multiplier reduces**
  - If **interest rates increase**, savings increase, consumption decreases and the **multiplier reduces**
  - If **exchange rates appreciate,** the level of imports will increase and the multiplier decreases
  - If confidence in the economy increases **consumption** increases and the **multiplier increases**
- It is extremely useful for the Government to know the **value of the multiplier**
  - They can use it to judge the likely **economic growth** caused by **increased spending**
  - The bigger the MPC, the greater the multiplier effect will be
- There is a **time lag** as it takes time for the successive rounds of income to work through the economy

Worked Example

An economy has a Marginal Propensity to Consume (MPC) of 0.75

(a)Calculate the multiplier [2]

(b)If the Government increases their infrastructure spending by £60 million, calculate the total increase in GDP, assuming all other things remain equal [2]

Step 1: Insert the values into the multiplier formula

$$\text{Multiplier} = \frac{1}{1 - \text{MPC}}$$

$$= \frac{1}{(1 - 0.75)} \quad \textbf{[1]}$$

$$= 4 \quad \textbf{[1]}$$

Step 2: Multiply the injection by the multiplier

Impact on GDP = Injection x multiplier

= £60m x 4 **[1]**

= £240m **[1]**

Your notes

Worked Example

Calculate the amount of government spending required to restore an economy's macroeconomic equilibrium if the economy faces a $22 billion output gap and its MPC is 0.6

[2 Marks]

Step 1: Calculate the multiplier

$$\text{Multiplier} = \frac{1}{1 - \text{MPC}}$$

$$= \frac{1}{1 - 0.6}$$ **[1]**

$$= 2$$

Step 2: Calculate the value of government spending required

$$G = \frac{\$\,22\,\text{bn}}{2.5}$$ **[1]**

$$= \$\,8.80\ \text{billion}$$

The Basic Accelerator Process

- The **accelerator process** suggests that changes in the **level of investment** from firms (into **capital goods** such as machinery, factories, etc) are necessary to meet the changes in the overall **level of economic activity**
  - As economy **expands,** firms invest **more** into capital goods
  - As economy **contracts**, firms invest **less** into capital goods
- The accelerator process highlights the cyclical relationship between **investment** and the [popover id="DB2eSi2-4aBs15y~" label="economic cycle"]


Your notes

- The **multiplier** and the **accelerator process** work together
  - As the demand for **goods and services** increase, **AD** increases
  - As a result, firms invest more (or make an **accelerated investment**) into **capital goods** to meet demand for products in the hope of making a **profit**
  - This leads to a **further increase** in AD
  - This increase in AD is then multiplied, making growth in **national income** more rapid
  - Which leads to an even **more accelerated investment** into capital goods by firms
- The accelerator process and multiplier effect can also occur in the opposite direction
  - If the economy **contracts** (during a recession), demand for goods and services will fall
  - Firms invest less in capital goods
  - Which then leads to a **negative multiplier effect**