Circular Flow of Income

MACROECONOMICS

Main Characters

1. **Households** → Provide factors of production
2. **Firms** → Supply and provide goods/services, demand for the FOP.
3. **Government** → To correct market failures, promote economic growth, employment and maintain price levels.
4. **Foreign Sector** → In charge of bringing in/out imports and exports.

Withdrawals vs Injections

Withdrawals

- When money is 'taken out' of the economy.
- Savings, Taxes, Imports

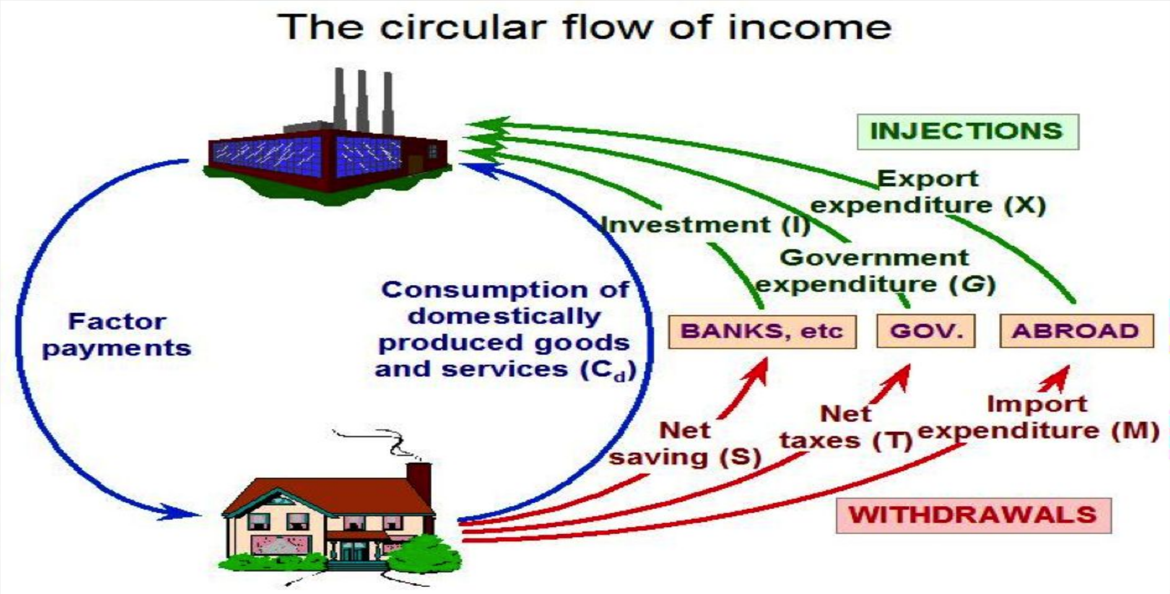
Injections

- When money is put into an economy to finance it.
- Investment, Government Spending, Exports

National Income Identity

National Output = National Income = National Expenditure

The Circular Flow of Income



Circular Flow of Income Equilibrium levels

1. Withdrawals = Injections (NY at equilibrium)

2. Withdrawals > Injections (NY will fall)

3. Withdrawals < Injections (NY will increase)

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Aggregate Demand

MACROECONOMICS

Definition

- Demand for domestic goods/services and combined demand by all economic agents.
- The planned total of specinding by the 4 different sectors in the economic at a given price level.

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

Consumption Expenditure: Desired spending by households on domestic consumer g/s.

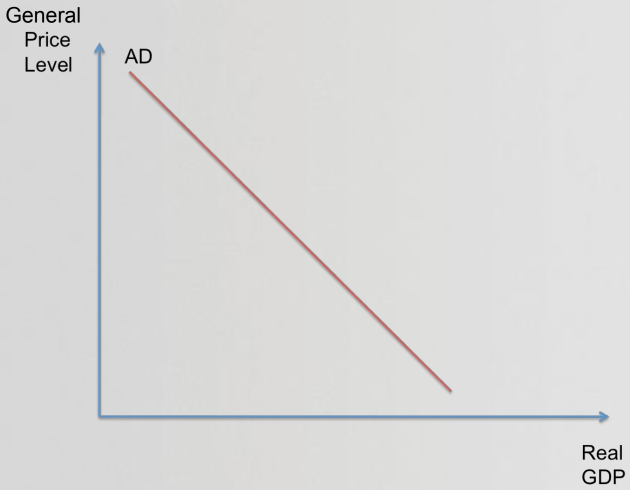
Investment Expenditure: Planned net spending by firms on producer goods.

Government Expenditure**:** Purchase of g/s and investment goods by the government.

(E)**X**port Earnings**:** Expenditure by foreigners on domestically produced goods.

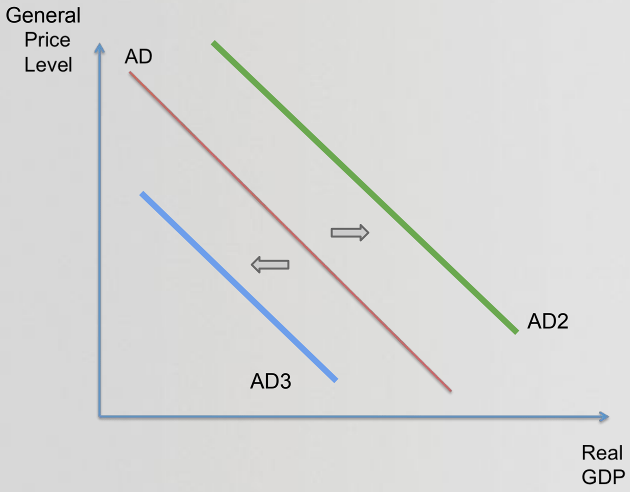
(I)**M**port Expenditure**:** Expenditure on foreign-produced g/s by households, firms and government.

AD Diagram



When GPL increases → At the same Y level → Same income can buy less g/s (fall in purchasing power) → Real income falls → Shows the inverse relationship between GPL and Real GDP.

Shifts in AD curve



Increase in AD: Shift in entire curve from AD to AD2

Fall in AD: Shift in entire curve from AD to AD3

Components of AD [**<u>SHIFTS</u>** AD curve]

<u>Consumption Expenditure</u>

1. **Consumer Expectation about the future**
   - Consumers anticipate rising future income and promotions → More confident and optimistic → Increase in current C → Increase in AD.
   - Pessimistic outlook of future → Fall in current C and increase in savings → Increase in AD.

2. **Interest Rates [cost of borrowing]**
   - Lower interest rates → Cheaper to buy on credit, esp big-ticket items → Lower COB → Rise in C of these big-ticket items (cars, tour packages)
   - Lower interest rates → Fall in returns to savings → Less opp cost of consuming → Increase in C → Increase in AD.

Components of AD [**SHIFTS** AD curve]

Investment Expenditure

1. **Business Expectations**
   - Increased optimism and confidence → Expected returns on investment will increase → At the same interest rates → Previously unprofitable investments are now profitable → Increase in volume of investment → Increase AD.

2. **Interest Rates [cost of borrowing]**
   - Lower interest rates → Borrowing money to acquire capital goods for production would be at a lower interest on the loans → Lower COB → At same expected rates of return on investment → Profitability increases → Increase volume of investments → Increase AD.

Components of AD [**<u>SHIFTS</u>** AD curve]

<u>**Government Expenditure**</u>

1. **Objectives of the Government**
   - If government aims to reduce the government debt → May cut on government spending → Fall in G → Fall in AD. [*otherwise known as austerity measures*]

2. **State of the Economy**
   - When economy is in a recession → Fall in C and I due to pessimism → A falls → In order to prevent further fall in AD → Government can increase G → Stabilise fall in AD.

Components of AD [**SHIFTS** AD curve]

Export Earnings

1. **Level of National Income of major trading partners**
   - When foreigners earn more, they are able to consume more g/s from abroad, such as g/s from Singapore → Increase Singapore X → Increase in AD.

2. **Exchange Rates**
   - Rate at which one currency can be exchange for another.
   - Need to observe the difference in exchange rate. E.g. SGD$1:RM3 → Require more ringgit to change for one SGD.
     - Malaysians will find it more expensive to buy SG g/s → purchase lesser qty of SG exports → Fall in X → Fall in AD.

Components of AD [**SHIFTS** AD curve]

Import Expenditure

1. **Income level of Singaporeans**
   - When income level of Singaporeans increase → SG will purchase more of both domestically and foreign produced g/s → Increase in M → Fall in AD

2. **Exchange Rates**
   - When USD appreciates in relation to SGD → SG will find it more expensive to purchase US g/s → If SG demand for US imports are price elastic → Qty of imports will fall more than proportionately than the rise in price of imports → Since M = PxQ → Fall in M → Increase in AD.

TAKE NOTE!!

- AD tends to affect the Real GDP and GPL of an economy in the **SHORT-RUN**.
- Whenever there is a change in AD, look at the **state of the economy**, if it is below/near/at full employment as this would affect the impact the change in AD has on real GDP and GPL.

Exam Requirements

- Be able to explain the various factors affecting AD (C, I, G, X, M) in detail.
- Discuss (if required) how the various factors impact real GDP and GPL, along with any changes in AS.

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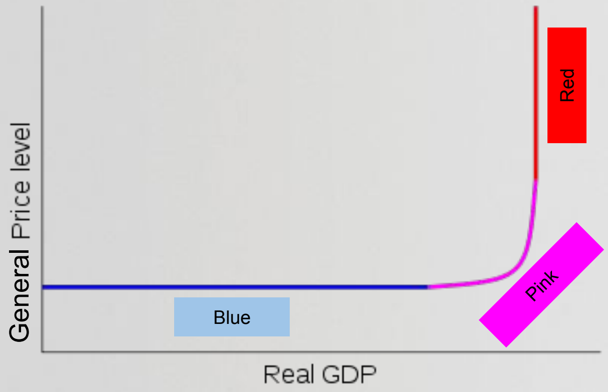
Aggregate Supply

MACROECONOMICS

Definition

- Aggregate Supply (AS) measures the volume of goods and services produced within an economy at a given price level.
- Represent the ability of an economy to produce goods and services in the short-run and long-run.
- Also a reflection of productive capacity of an economy.
    - *Productive capacity is the maximum possible output of an economy*

AS Diagram



Different sections of the AS curve

Blue: Initially, AS is horizontal as the economy has unemployed resources → MC does not rise with higher output. Increasingly, as we move closer to the bend → FIrms hire unemployed workers at low wage rates → Willing to produce more output, but at a low price.

Pink: For producers to continue increasing output, they need to hire increasingly scarce FOP → Increase COP → Increase in prices.

Red: Finally, it reaches Yf → Full employment when all FOP are employed → Firms cannot increase production further beyond Yf.

Shifts in AS curve

1. Increase in AS (increase prod cap): Outward Shift in entire curve from AS to AS2

2. Fall in AS (increase COP): Inward shift in entire curve from AS to AS3

3. Outward Increase in AS (fall in COP and increase prod cap): Outward shift of entire curve.

Factors affecting **AS**

Changes in cost of production [FOPs] in the economy

- Increases in labour, raw material costs → Increase the total/overall COP for firms → E.g. oil prices increase → Increase in COP → Increase in prices to produce same amount of goods → SRAS shifts upwards.

Factors affecting **AS**

<u>Changes to producer taxes and subsidies (government policies)</u>

- Introduction of taxes on production → increases COP → Fall in SRAS.
- Issuance of subsidies → Reduces COP → Increase in SRAS.

Factors affecting **AS**

Quantity of FOP (LLEC) available

- The larger the quantity of FOP → The more output the economy can produce → Leads to a rightward shift of AS → Increase in productive capacity.

Factors affecting **AS**

Quality of FOP (LLEC) and Improvements in technology

- Improvement in quality of factors of production and technology → Fall in COP → Increase in long-run productive capacity → Increase LRAS (parallel shift).

TAKE NOTE!!

- AS can change in the short-run and long-run. You need to be clear in which is changing. Usually long-run AS shifts when there is a change in productive capacity.
- Increase in investments such as plants affect both SRAS and LRAS.

Exam Requirements

- Be able to explain the various factors affecting AS in detail.
- Discuss (if required) how the various factors impact real GDP and GPL, along with any changes in AD.

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Equilibrium of AD/AS

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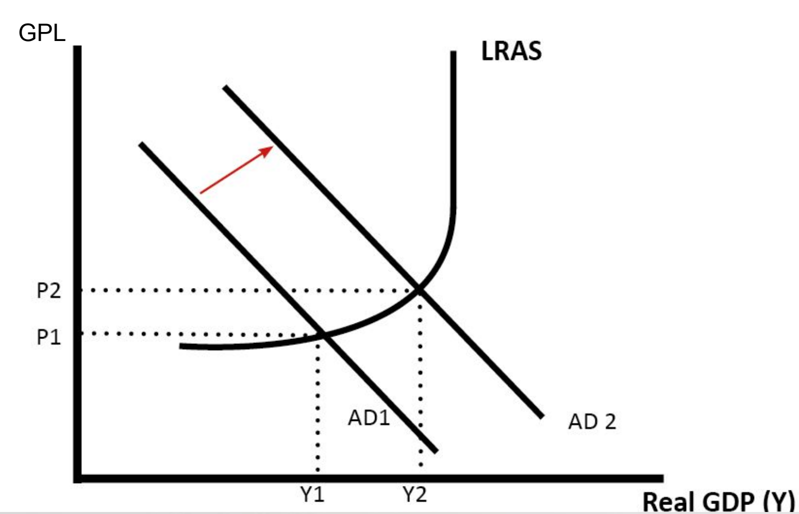
TAKE NOTE!!

In Macroeconomics,

General Price Level (GPL) is the Price

Real GDP is the Quantity (known as **Y** for income)

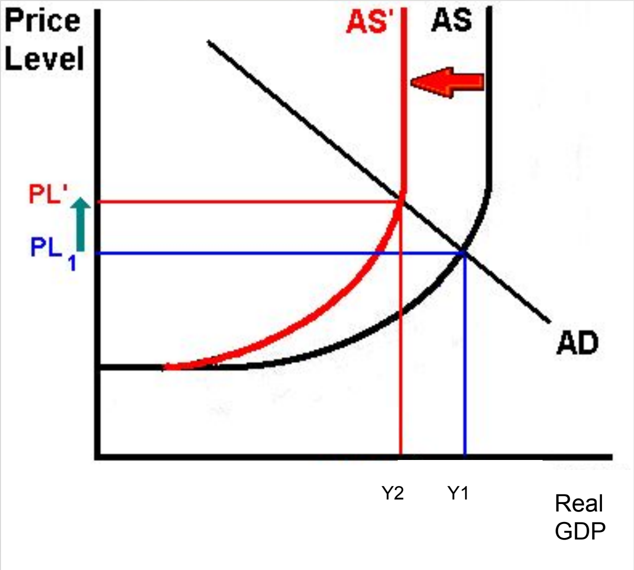
Increase in AD



Increase in AD

- A rise in AD from AD1 to AD2 due to an increase in export earnings → Where producers increase production to increase the total value of g/s → Increase in real GDP from Y1 to Y2.
    - [*To produce this higher real national output, firms need to hire more workers and economy moves closer to full employment*]

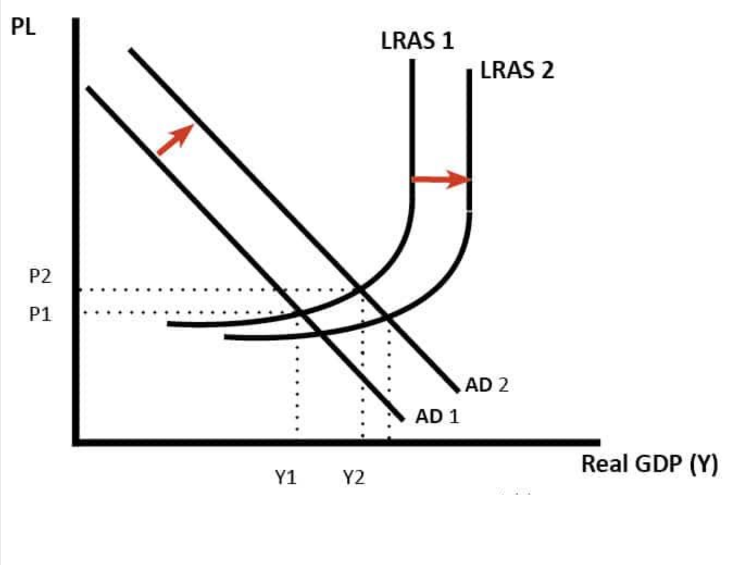
Fall in AS



Fall in AS

- Due to lower wage costs → Downward shift from AS to AS’ → Increase in national income (Real GDP) from Y1 to Y2 and a fall in GPL from PL to PL’.

Increase in AD and AS



Increase in AD and AS

- An increase in investments by firms on machinery → Causes AD to rise in the short run.
- In the long-run, AS will shift outwards and downwards as capital stock and technology in the economy increases → Results in a fall in COP and increase in productive capacity.

- These will **increase Real GDP** and **GPL will increase** in the **short-run** but **fall** in the **long-run**.
  - [*Known as sustained economic growth without inflation in the long-run*]

Exam Requirements

- Be able to explain and drawn the simultaneous change in AD and AS and thereafter state the impact of the change on AD and AS.
- Be able to identify possible factors in the question and decipher whether it causes a change in AD or AS.

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The Multiplier Effect

MACROECONOMICS

The Multiplier Effect of changes in AD

- Occurs when a change in autonomous spendings (ie change in C, I, G, X-M not due to a change in national income but other non-income factors) bring about a **more than proportionate** change in national income.
  - Extent of the change in national income depends on the magnitude of the multiplier, **k**.

The multiplier, K

K = 1/MPW

MPW = MPS + MPT + MPM = 1 - MPC

MPW: Marginal Propensity to Withdraw

MPS: Marginal Propensity to Save

MPT: Marginal Propensity to Tax

MPM: Marginal Propensity to Import

MPC: Marginal Propensity to Consume

What does Marginal Propensity mean?

- Marginal Propensity is defined as the proportion of a raise in income that a consumer would in turn spend on consumption/save/goes to taxes/on imports.

More about MPW in relation to Singapore

- MPS, MPT, MPM will only rise upon receiving additional income.
- Singapore has a high MPS and MPM due to compulsory CPF savings scheme and a lack of domestic resources which forces us to spend a large proportion of our additional income on imports.

Multiplier Effect essay: 7 steps

1. Identify a change in autonomous spending

- A rise in autonomous export earnings caused by a rise in income of her trading partners causes AD to rise.

2. State the multiplier process

- This will lead to a multiplied rise in NY due to the knock-on effect on higher consumer spending that is being induced by higher additional income.

Multiplier Effect essay: 7 steps

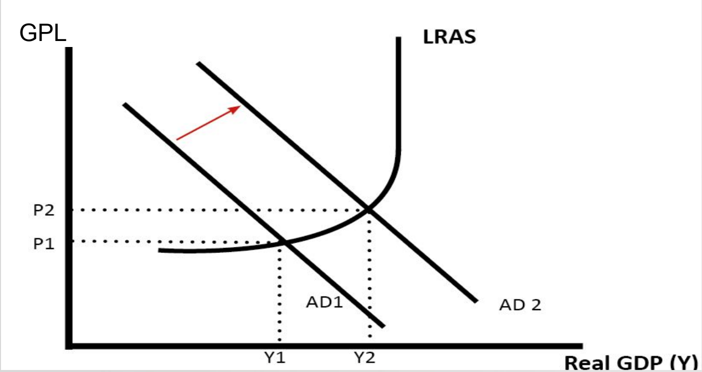
3. Give a numerical example

- For e.g. With a rise in $10m of exports → the exporting firms will receive an additional increase in income of $10m and pay the households $10m.
- Assuming mpc=0.8, the first group of recipients will spend an additional $8m (0.8 x $10m) on domestic consuemrs goods and withdraw $2m from the circular flow of income in terms of savings, imports and taxes.
- The additional consumption of $8m will cause the next group of recipients to experience an increase in income of $8m and hence increase their consumption by $6.4m (0.8 x $8m) thus increasing the NY of retailers by $6.4m.
- This process of spending and re-spending will cause NY to increase more than the original increase in autonomous exports and will stop once original increase in injection is withdrawn from the circular flow of income.

Multiplier Effect essay: 7 steps

4. Draw and explain using a diagram

- A rise in exports expenditure will shift AD curve by a larger extent from AD1 to AD2 and final national income rises from Y1 to Y2.



Multiplier Effect essay: 7 steps

5. State the size of the multiplier

- The extent of the rise in NY depends on the size of the multiplier, k, which is directly related to mpc and inversely related to mpw.
- K = 1/mpw = 1/1-mpc = 1/0.2 = 5 in this case.
- Thus, when X rises by $10m, NY will rise by 5 times to $50m.

6. Analyse whether the effect on NY is real or nominal.

- Whether the rise in NY is real or nominal depends on the level of resource utilisations.
- If the country

Multiplier Effect essay: 7 steps

6. Analyse whether the effect on NY is real or nominal

- Whether the rise in NY is real or nominal depends on the level of resource utilisations.
- If the country is currently operating below full employment, a rise in X → Leads to a larger rise in real output and NY due to the multiplier effect.
- If the country is reaching/at full employment → Rise in X → Leads to a rise in GPL and hence a smaller rise in output or real NY.
- Hence, the rise in NY is a nominal rise.

Multiplier Effect essay: 7 steps

7. Evaluation

- Presence of crowding-out effect may reduce the impact of a rise in X/G on the economy.
- Crowding-out effect can take the forms of resource or finance crowding out.

Crowding-out effect: When rising public sector spending drives down or even eliminates private sector spending.

Exam Requirements

- Be able to write an entire essay on the multiplier effect (simply follow the 7 steps).
- Understand the various ways in which the size of the multiplier may change, and what the size of the multiplier says about an economy.

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