H2 Economics (Macroeconomics)

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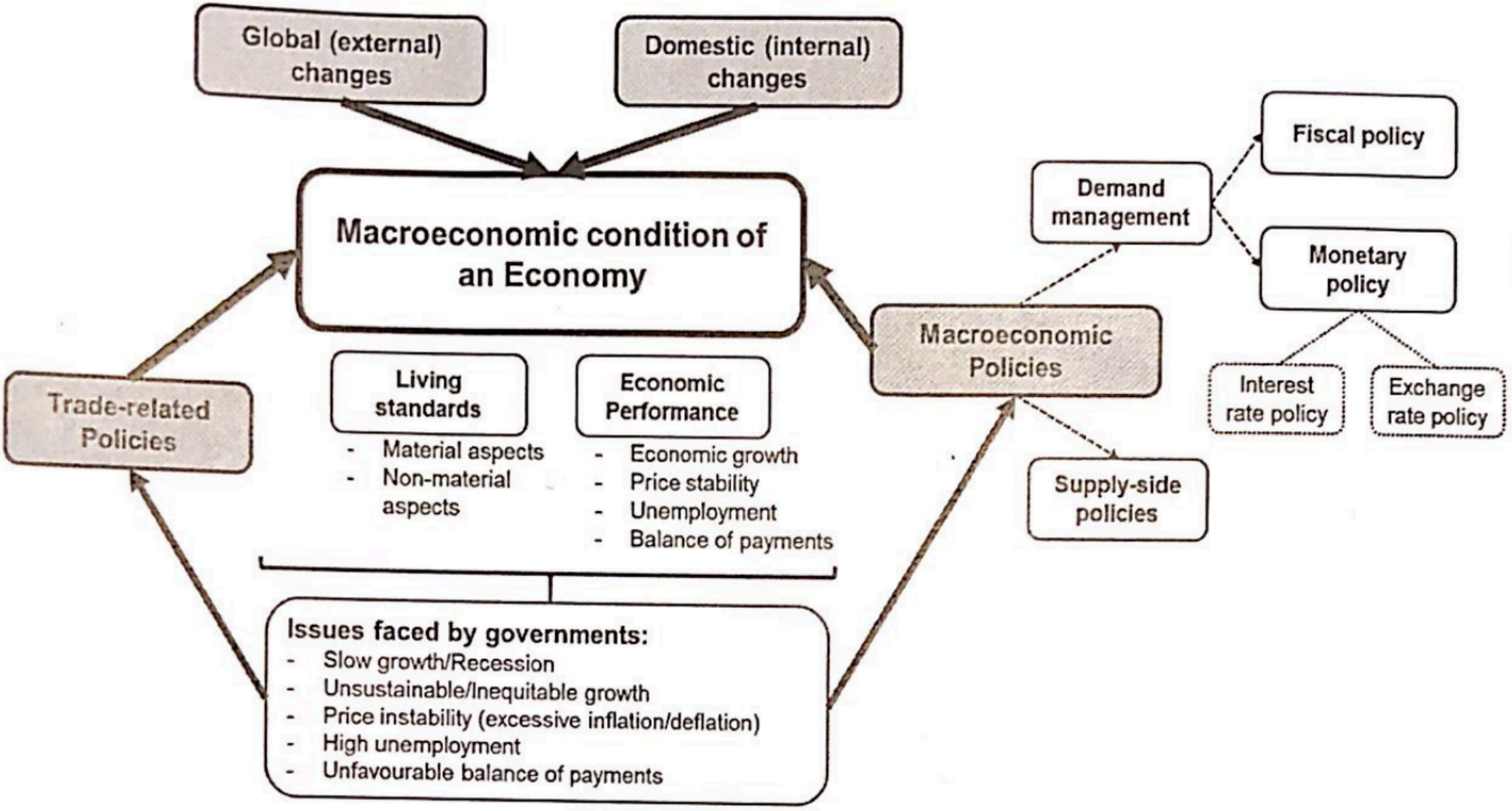
Abstract

This document is written with the intention to provide readers with a brief summary of each topic in the Singapore GCE A-Level H2 Economics, under the theme of Macroeconomics. The syllabus can be found here.

Contents

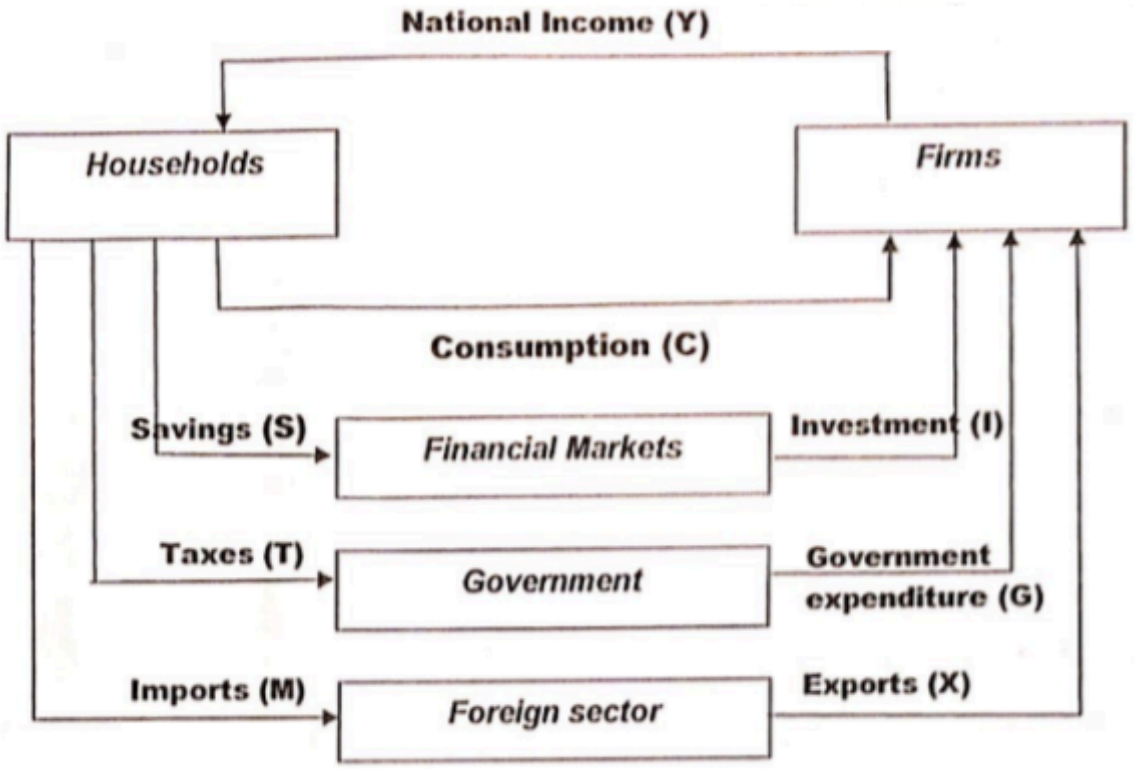
Theme 3: National Economy



3.1 Introduction to Macroeconomics

Circular Flow of Income

Circular flow of income: sources of spending flow & uses of income generated by spending flow



Consumption (C)	Households pay firms for the purchase of G&S to satisfy needs and wants
National income (Y)	Firms pay households for factor services provided by households (factor payments) e.g. wage
Injections (J)	Any payment of income to domestic firms that do not arise from domestic household consumption • **investment** (I) • **government expenditure** (G) • **export revenue** (X) Injections increase circular flow income, lead to increase in national income level
Withdrawals (W)	Any part of households' income that is not spent on domestic G&S • **savings** (S) • **taxation** (T) • **import expenditure** (M) Withdrawals decrease circular flow income, lead to decrease in national income level

National income level (GDP): total expenditure of consumers, firms, govt, foreigners on G&S
Expenditure = Total value of output = National Income = GDP

Multiplier effect

Marginal propensities

Marginal Propensity to Consume (MPC)	proportion of additional income spent on consumption	**MPC = Δ C / Δ Y**
Marginal Propensity to Save (MPS)	proportion of additional income spent on saving	**MPS = Δ S / Δ Y**
Marginal Propensity to Tax (MPT)	proportion of additional income spent on tax	**MPT = Δ T / Δ Y**
Marginal Propensity to Import (MPM)	proportion of additional income spent on imports	**MPM = Δ M / Δ Y**
Marginal Propensity to Withdraw (MPW)		**MPW = MPS + MPT + MPM = 1 – MPC** (since $1 additional income earnt must either be consumed or withdrawn)

Multiplier indicates no. of times income changes relative to initial change in injection

k = Δ Y / Δ J = 1 / (1 – MPC) = 1/MPW

By circular flow of income, expenditure creates income and income generates more expenditure

Full explanation (10m)

- Circular flow of income represents the sources of spending flow and the uses of income generated by the spending flow.
- Assume I ↑ $1000, MPC=0.6
- Round 1:
  - Initially, NY ↑ $1000. Firms pay out $1000 as factor income to households who provide factor service e.g. labour
  - Out of this increase in income of $1000, households spend part of it i.e. $600 on consumption, and the rest goes to saving, taxes and imports. The increase in consumption encourages firms to produce more in Round 2.
- Round 2:
  - Factor income paid out by firms increases by $600, households spend part of it i.e. $360 on consumption in Round 3. Remaining goes to savings, taxes and imports.
- Process continues until there is no more additional spending on consumption and hence income (in other words, total injections = total withdrawals)
- The whole process by then would have increased NY by a total of $2500, that is 2.5 times the initial increase in investment given by k=1/(1-MPC)

- Smaller MPW, larger k size, larger multiplier effect. A smaller combined effect of savings, taxes and imports implies that more of the initial increase in injection (via higher I) will be spent on consumption, leading to larger overall increase in NY through multiplier effect.

Factor affecting multiplier size k:

- Size of leakages (which affects MPW)
  - High leakages: large % of every additional unit of income earned leaves circular flow of income, less channelled back to create income for next groups of households → smaller additional increases in RNY
  - Singapore: lack natural resources so high reliance on imports & compulsory saving of workers' monthly salary through Central Provident Fund (CPF) → high level of withdrawals (high MPM and MPS) → small k
  - *For every additional dollar injected into economy, large % leaves circular flow of income, leaving less to be channelled back to create income for next group of households
  - Weaker multiplier effect, so fiscal and monetary policy less effective
- MPC (poorer countries have higher MPC)

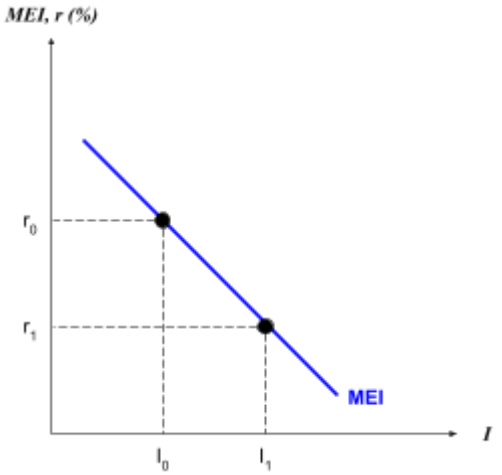
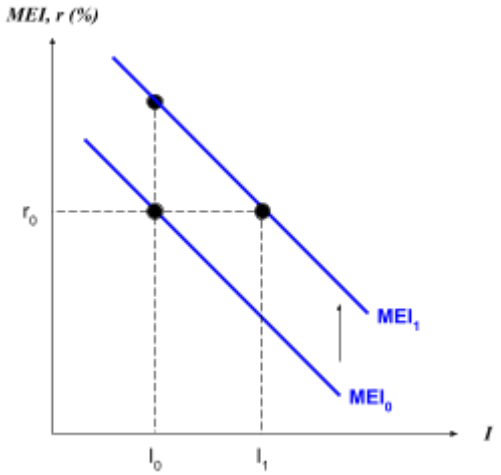
Aggregate Demand and Aggregate Supply

Aggregate demand (AD)
Quantity of domestically-produced G&S that households, firms, government, foreigners are w/a to buy at each price level

AD = C + I + G + (X – M)

Components of AD:
1. **Consumption (C)**
2. **Investment (I)**
3. **Government spending (G)**
4. **Net exports (X – M)**

Component	Determinants
C	**Induced expenditure**: change in consumption when income changes ● **Income**: Income ↑ purchasing power ↑ C ↑ **Autonomous expenditure**: minimal consumption expenditure by households when income is zero i.e. independent of income ● **Wealth**: Decrease in wealth (e.g. poor performance in financial assets) → choose to consume less and save more to restore wealth Increase in wealth → feel less need to save to add to now-larger stock of wealth ● **Govt policies**: **Disposable income**: income excluding personal income tax and including transfer payments Disposable income = income earnt – direct taxes + transfers Disposable income ↑ purchasing power ↑ C ↑ ● **Expectation of future prices and income**: Future prices expected to increase → buy now while prices low & purchasing power of income high to maximise utility → C ↑ Future income expected to decrease → increase precautionary saving ● **Cost and availability of credit**: Cost of credit: interest rate ○ Borrowers: i/r ↑ higher explicit cost of borrowing → less incentive to borrow to finance spending → C ↓ ○ Savers: i/r ↑ higher earnings from bank savings → when consume and

	not save money in banks, incur higher *opportunity cost* in terms of interest income forgone → less incentive to consume → C ↓ Availability of credit: willingness of financial institutions to provide loans ● **Distribution of income**: ○ Low-income household: high MPC ○ High-income household: low MPC ○ Redistribution of income: C of low-income ↑ C of high-income ↓
I	**Investment**: expenditure on production of capital goods and net additions to stocks of goods **Marginal Efficiency of Investment (MEI)**: relationship b/w eRORI and level of investment  interest rate (movement along MEI)  non-interest rate factors (shift of MEI) ● **Interest rate**: Explicit cost of credit when taking loans i/r decrease from r_0 to r_1 → cheaper to finance investments, firms expect higher rate of return At I_0, eRORI > cost of borrowing → to capture positive net eRORI, firms incentivised to ↑ I from I_0 to I_1 where eRORI = cost of borrowing ● **Business confidence and expectations**: Optimistic about future market conditions → firms revise eRORI, higher eRORI relative to cost of borrowing → MEI shift upwards At I_0, eRORI > cost of borrowing → to capture positive net eRORI, firms incentivised to ↑ I from I_0 to I_1 where eRORI = cost of borrowing ● **Govt policies**: Corporate tax rate ↓ → expectations of after-tax profits ↑ → MEI shift upwards → I ↑

G	**Government expenditure**: current spending and capital spending by govt on provision of G&S (autonomous in short run, independent of NY) ● For macroeconomic stabilisation Govt spending tends to be counter-cyclical in SR → govts increase spending in periods of economic recession to support the level of economic activity and keep down employment → govts cut back spending to avoid overheating the economy ● For sustained and sustainable growth Spending on infrastructure, education, R&D on green tech to build the economy's productive capacity while minimising envt impact that could undermine sustainable growth and the continuous improvement in SOL ● Government spending for social objectives Ageing population, govt increase spending on healthcare and eldercare
X – M	**Net exports**: difference b/w export expenditure & import revenue $TR_X - TE_M$ ● **Foreign & domestic income**: TR_X depends on foreign income TE_M depends on domestic income (MPM) ● **Relative prices**: Relative inflation rate: ○ Inflation in other country > own country ○ Imports: price of foreign-produced G&S ↑ price of imports ↑ Qdd for imports ↓ MTP (assume $\|PED_M\| > 1$) → TE_M decrease ○ Exports: domestic buyers switch to local G&S substitutes → TR_X increase (extent depends on XED) ○ Trade balance improve, AD ↑ Relative exchange rate: ○ Domestic currency appreciates against foreign currency ○ Exports: price of exports ↑ in foreign currency terms → Qdd_X ↓ ○ Imports: price of imports ↓ in domestic currency terms → Qdd_M ↑ ○ Assuming Marshall-Lerner condition holds ($\|PED_X\| + \|PED_M\| > 1$), price changes in exports and imports will induce sufficiently large changes in Qdd in opposite direction → TR_X decrease relative to TE_M ○ Trade balance worsen, AD ↓ ● **Tastes and preferences**: ● **Govt policies**:

	Tariffs reduce M and increase C

Broadly, AD is affected by GEE factors

G	Govt policies	● Fiscal policy ● Monetary policy
E	Expectations	● Expect future incomes ● Expect future prices ● Expect future economic outlook
E	External ec envt	● Relative inflation rates ● Movements in exchange rate ● Changes in tastes and preferences ● Economic performance of trading partners

Aggregate supply (AS)
Quantity of domestically-produced G&S that firms are w/a to supply at each general price level

Why the shape?

- **Horizontal** range: unemployment of resources
  Workers willing to work at prevailing wage, firms able to obtain resources to expand production without paying high prices for FoP → RNY can be increased without changes in GPL
- **Upward sloping** range: structural rigidities
  Firms have to hire less suitable FoP to increase production → unit cost of production increase → increase in RNY is possible only when accompanied by increase in GPL
- **Vertical** range: full employment of resources
  Productive capacity of economy (Y_f: max possible output given current resources) → attempts to stimulate aggregate demand will only push up GPL with no effect on RNY

Determinants

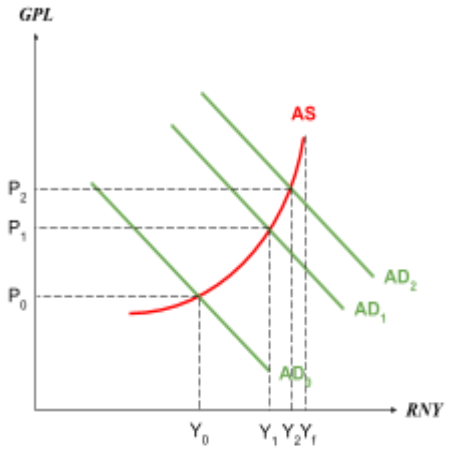
Determinant	Explanation
1. SRAS (shift upwards / downwards): **uCOP**	• Input prices: Price of essential FoP ↑ uCOP ↑ to protect profit margins, firms w/a to supply same o/p only at higher prices → AS ↓ (shift upwards) Technology → increase productivity → uCOP ↓ → AS ↑ (shift downwards) increase productivity → uCOP ↓ → SRAS ↑ (shift downwards) • Govt indirect taxes & subsidies: Tax: uCOP ↑ Subsidy: uCOP ↓
2. LRAS (shift leftwards / rightwards): **Q&Q of FoP**	Increase in quantity of FOP: 1) Labour: increase in legal working age / working population size e.g. foreign labour → increase labour force 2) Land: discovery of new sources of energy, minerals, land etc. 3) Capital: increase quantity of machinery, equipment Increase in quality of FOP: 1) Labour: better education or training, better knowledge/skills → increase labour productivity 2) Land: better land fertility / utilisation of land 3) Capital: better tech and innovation with more efficient capital stock Improvement in tech level:

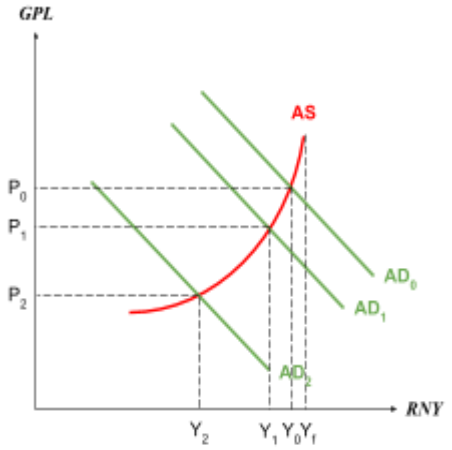
	With R&D and innovation, new tech produces more o/p with same input → increase potential o/p

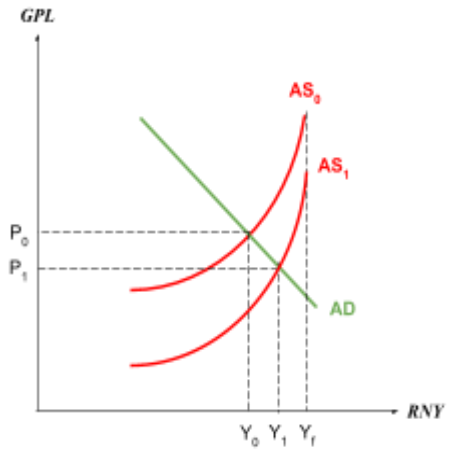
Equilibrium

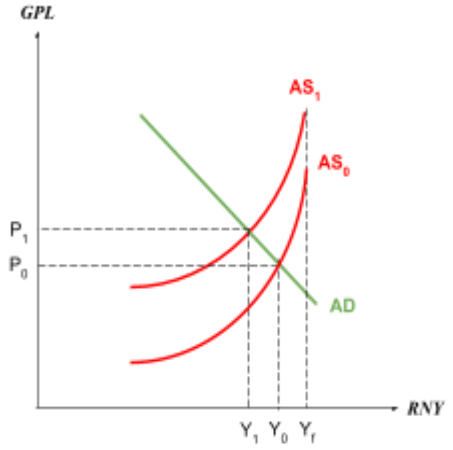
Macroeconomic equilibrium: AD = AS

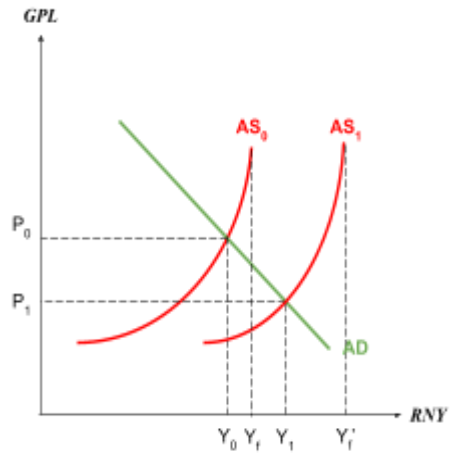
Adjustment process

AD increase	
National income: ● AD increase from AD_0 to AD_1 ● Firms faced with unplanned disinvestment (unplanned fall in inventories) as firms draw down stocks to meet unanticipated increase in AD → increase o/p in next production cycle to restore inventories to optimal level ● Firms enter factor mkt to demand for more FoP (incl labour), pay out more factor income ● Through multiplier effect (spending creates income, income generates more spending), AD increase further from AD_0 to AD_2 ● RNY increase from Y_0 to Y_2 Inflation: ● Firms demand more FoP, increased competition for FoP, bid up factor prices (holding SS of FoP constant) ● Increase in uCOP ● To protect profits, firms pass on part of higher costs by raising prices of final G&S ● GPL increase from P_0 to P_1 Employment: ● Since firms demand for more FoP, employment increase / unemployment decrease	

AD decrease	
National income: ● AD decrease from AD_0 to AD_1 ● Firms faced with <u>unplanned investment</u> (unplanned increase in inventories) → <u>decrease o/p</u> in next production cycle to restore inventories to optimal level ● Firms enter factor mkt to <u>demand for less FoP</u> (incl labour), pay out <u>less factor income</u> ● Through <u>reverse multiplier effect</u> (spending creates income, income generates more spending), AD decrease further from AD_0 to AD_2 ● RNY decrease from Y_0 to Y_2 Inflation: ● Firms demand less FoP, less competition for FoP, <u>factor prices fall</u> (holding SS of FoP constant) ● <u>Decrease in uCOP</u> ● To protect profits, firms pass on part of higher costs by raising prices of final G&S ● GPL decrease from P_0 to P_1 Employment: ● Since firms demand for less FoP, employment decrease / unemployment increase	

SRAS increase	
National income: ● Firms experience decrease in uCOP, profits increase, firms incentivised to increase o/p, hire more FOP incl labour Inflation: ● Firms facing market competition pressure pass on part of cost savings to consumers, lower prices of final G&S from P_0 to P_1	

SRAS decrease	
National income: ● Firms experience increase in uCOP, profits decrease, firms decrease o/p to protect profits ● Firms reduce production, lay off FOP (incl labour), pay out less factor income Inflation: ● To protect profits, firms pass on part of increase in unit cost of production to consumers by raising prices of final G&S ● GPL increase from P_0 to P_1	

LRAS increase	
National income: ● Inflation: ● Productive capacity expand → firms can increase o/p without intensifying competition for FOP	

***Quantity of FoP increase, lower uCOP -> AS shift right AND down

Extent of change in RNY and GPL depends on

- Availability of spare capacity
  - Larger spare capacity: firms increase o/p without having to bid up prices of FoP → no sharp increase in GPL
  - Smaller spare capacity (ec operate close to full capacity): firms compete intensely for limited FoP to increase o/p to meet rising AD → sharp increase in GPL
- Leakages (which affects increase in AD)

3.2 Macroeconomic Objectives and Policies

Concepts and Tools of Analysis
☐ Standard of living – Material and non-material well-being – Gross Domestic Product (GDP) and Gross National Income (GNI) – Human Development Index (HDI) – Income inequality – Gini coefficient ☐ Economic growth – Actual and potential growth – Sustainable growth – Inclusive growth ☐ Full employment and unemployment – Demand-deficient unemployment – Structural unemployment – Frictional unemployment ☐ Price stability – Demand-pull inflation – Cost-push inflation – Deflation – Consumer Price Index (CPI) ☐ Nominal and real concepts ☐ Balance of trade surplus and deficit ☐ Short-term capital flows ☐ Long-term capital flows – Foreign direct investment ☐ Discretionary fiscal policy ☐ Government budget surplus and deficit ☐ Monetary policy – Interest rates – Exchange rates ☐ Supply-side policies

Standard of Living and Macroeconomics Indicators

Standard of living: level of economic welfare and social well-being of individual or household

- Material aspect: Quantity of goods and services consumed by the average person in a country in a given time period
- Non-material aspect: Qualitative aspects of welfare

Mathematical concepts

Nominal and real concepts

- **Nominal**: measured using prices prevailing in the market in the current year → not adjusted for inflation
- **Real**: measured using prices that prevailed during some fixed base year → adjusted for inflation to remove price effect

Real XXX = Nominal XXX – Inflation rate

Per capita: divided by population count

Index numbers: used to make comparisons between years & measure magnitude of change over time

- Use a base year to compare to other years E.g. if the year 2015 is the base year, the value given to it is 100. If inflation has risen by 5% between 2015 and 2018, the index number for 2018 will be 105.
-
- When calculating CPI, different items in the basket of goods have difference weights. Food will have a much larger weighting than clothing, since consumers spend more of their income on food. The index number measures the change in price over time.
- The calculation used is: (Pn/P0) x 100 where P0 is the price level in the base year and Pn is the price in the year being compared.
- Weights are assigned using the following method:

$$\frac{\sum \left(\left(\frac{Pn}{P0} \times 100 \right) \times P0\,Q0 \right)}{\sum P0\,Q0}$$

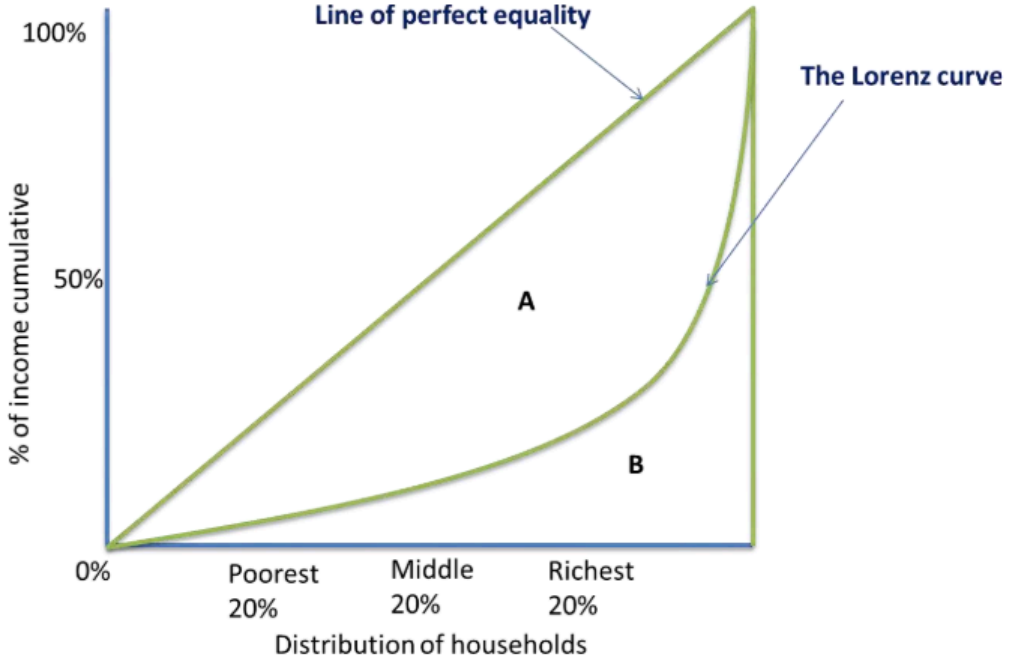
-
- where Q0 is the quantity of the unit being compared and P0 is the original price of the unit. The total amount spent in the base year is P0 x Q0.
- The amount spent on each unit in a later year is

$$\frac{Pn}{P0} \times 100$$

-

Key economic indicators

Used to measure macroeconomic performance

Indicator	Definition
Gross Domestic Product (GDP)	Total value of all final G&S produced within geographical boundaries of a country (*domestic* production), in a given period of time **Real GDP**: value of GDP adjusted for inflation **Real GDP per capita**: value of real GDP divided by population of country
Gross National Income (GNI)	Sum of gross factor incomes received by residents of country (*national* production) GNI = GDP + net primary income from abroad
Unemployment rate	% of unemployed persons in labour force
Productivity **Labour productivity**	Real output per unit of factor input used Real output per unit of labour input used
Gini coefficient	Degree of variation to measure extent of distribution of income within a country from a perfect equal distribution Lorenz curve: measures distribution of income and wealth in a country. The line of perfect equality shows the distribution of income when the richest x% of the population owns x% of the cumulative income.  Gini coefficient = A/(A+B) varies between 0 and 1 0 is perfect equality, 1 is perfect inequality
Consumer Price Index (CPI)	Weighted average of prices of specified basket of G&S commonly purchased by a typical household

Indicator	Definition
	(indicator to measure inflation/deflation)
Inflation rate	Rate at which general price level increases Can be measured using purchasing power parity (PPP), general price level Inflation rate = %increase in CPI
Exchange rate	Price of a currency, in terms of other currency **Appreciation** of A against B: increase in price of A in terms of B **Depreciation** of A against B: decrease in price of A in terms of B
Human Development Index (HDI)	Composite index: combine multiple indicators to provide more holistic measurement ● life expectancy ● education level ● per capita income indicators e.g. per capita GNI (PPP)

Indicators for SOL

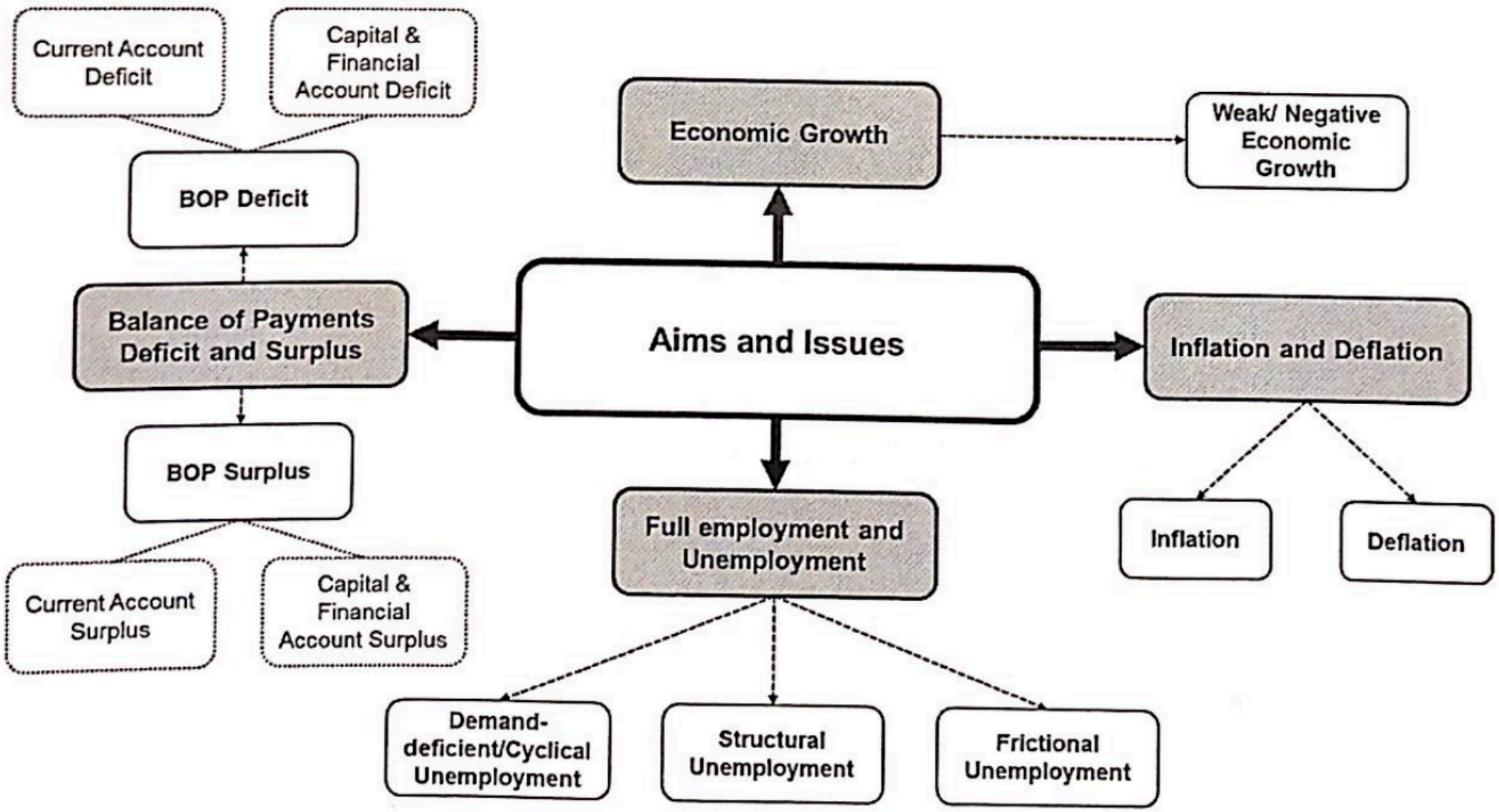
Comparison over time and space

Indicator	Explanation	Limitations
Real per capita GDP over time	Material SOL ● Increase in real per capita GDP → more G&S produced per head, more needs and wants satisfied → derive higher level of utility Non-material SOL (proxy) ● National income of country rises → govt collect more tax revenue, more govt spending towards social development	● Changes in income are not considered ● GDP statistics do not distinguish between type of output ● National income statistics fail to capture changes in qty of G&S & availability of free services ● Inclusion of previously-excluded productive activities ● Reliability of data improved overtime (overstate / understate) ● National income data does not adequately reflect non-material aspect of SOL Moreover, real GDP growth alone fails to account for changes in the quality of goods and services or the non-material aspects of the standard of living. Even if quantitative output improves

		over time, the overall quality of life may deteriorate due to factors like a faster pace of life, urban congestion, and environmental degradation. For example, with the increased output may have come at the expense of longer working hours. This reduces the rest and leisure time available and thus lower one quality of life. Nonmaterial standard of living is negatively affected as such.
Real per capita GDP (PPP) over space	GDP converted to ● per capita: account for population differences ● PPP exchange rate: account for differences in cost of living <u>Material SOL</u> <u>Non-material SOL (proxy)</u>	● Countries have different degree of inequality in income distribution ● Countries differ in composition of national output ● Countries differ in extent of non-marketed activities and underground economy ● Countries differ in terms of method, accuracy, reliability of data collection ● Countries differ in non-material aspect of SOL, not captured by national income statistics
Inflation rate	inflation rate reflects shifts in the general price level and is calculated based on the percentage change in the consumer price index. assuming no change in income, erode purchasing power, less w/a to able to purchase G&S ⇒ mSOL fall	Does not account for income changes
Unemployment rate	Unemployment → absence of employment opportunities directly → affects individuals' capacity to earn income, which in turn impacts their ability to access and enjoy goods and services ⇒ mSOL Stable employment → less likely to engage in criminal activities driven	Only measure the number of people without jobs but do not consider the quality of those jobs. People may be employed but in low-paying or part-time positions that do not provide a high material standard of living

	by economic desperation → safer ⇒ nmSOL rise	
Composite indices over time & space	Combine two or more indicators to provide more holistic measurement ● **Human Development Index (HDI)**: provides composite measure of three key dimensions of human development ○ living long and healthy life (measured by life expectancy) ○ access to education (measured by adult literacy and gross enrollment in education) ○ ability to maintain decent standard of living (measured by purchasing power parity, PPP, income) ● Green Growth Indicators ● Happy Planet Index ● World Happiness Index	**<u>Evaluation</u>** 1) To fully assess SOL, need to consider non-material aspects of SOL: ● A more holistic indicator for measuring SOL is Human Development Index (HDI) [explain it] 2) Accuracy and reliability of data: ● in many countries, obtaining complete and precise information for these calculations can be challenging ● SG: developed country with high level of statistical sophistication and data availability → more accurate assess changes in mSOL

Macroeconomic Issues



Govt microeconomic aims

Equity	Equitable distribution of income whereby economic growth widens income gap. Govt tries to redistribute income using taxes e.g. progressive income tax
Efficiency	Goods and services produced at minimum cost so that consumers and firms can enjoy max benefits, i.e. productive, allocative, dynamic efficiencies

Govt macroeconomic aims

Internal	1. **Sustainable economic growth** 2. **Low inflation** 3. **Low unemployment**
External	1. **Healthy balance of payment (BOP)** 2. **Stable exchange rate**

Policies

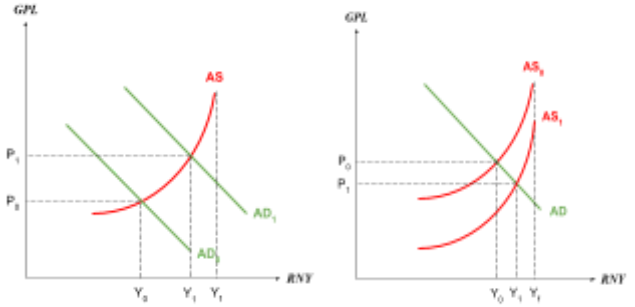
1. **Fiscal policy**
2. **Monetary policy**
3. **Exchange rate policy**
4. **Supply-side policy**

ECONOMIC GROWTH

Economic growth: sustained increase in real national output brought about by increase in productive capacity

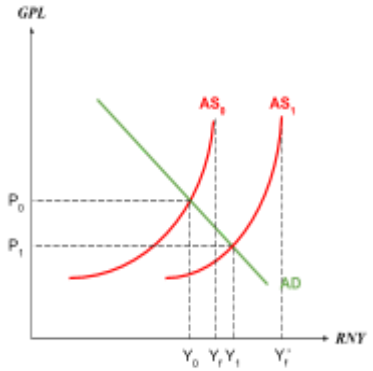
Recession: fall in real GDP for at least two consecutive quarters

Actual growth: increase in <u>real national output</u>
→ AD increase / SRAS increase



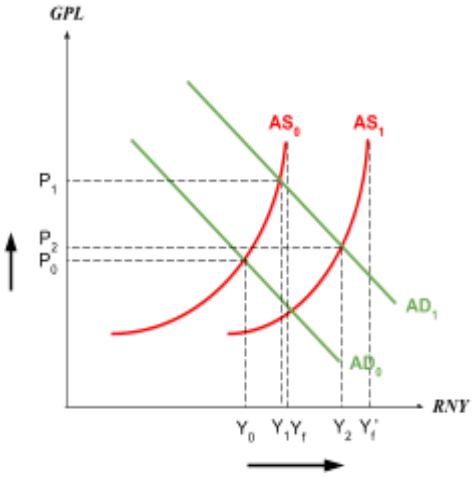
Extent of increase: depends on availability of spare capacity

Potential growth: long-term expansion of <u>productive capacity</u>
→ LRAS increase



Note: refer to both actual and potential growth in essay, especially when question does not specify which

Sustained growth: actual growth + potential growth



- Actual growth only: amount of FoP decreases, limit ability of economy to increase national o/p + shortage bid up prices, *sharp* increase in GPL
- Coupled with potential growth: level of economic activity increases so that extra capacity created is put into use → <u>continuous increase</u> in RNY & relieve inflationary pressure → <u>sustained non-inflationary growth</u>

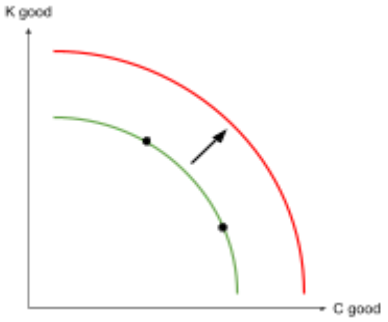
Inclusive growth: <u>sustained</u> growth, <u>broad-based</u> across economic sectors, creates productive employment opportunities for majority of population

- Economic progress fairly distributed across society
- Low Gini coefficient, low income inequality

Sustainable growth: <u>sustained</u> growth without causing other significant <u>economic problems</u>, particularly for <u>future generations</u>

- Current rapid growth may exhaust scarce resources / envt degradation → undermine future growth

<u>Benefits</u>	**<u>Costs</u>**
Decrease in DD-deficient u/e	Demand-pull inflation Ec operate close to full employment level,

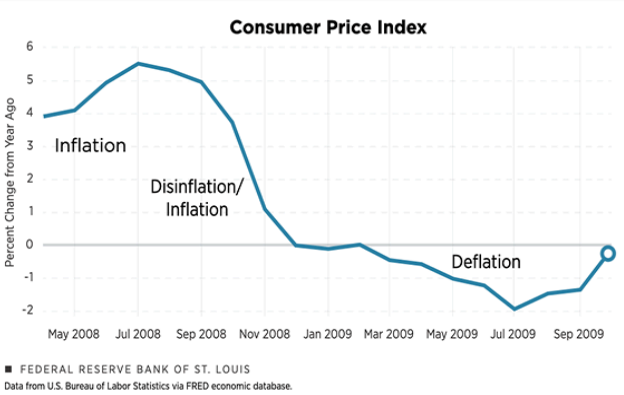
+ve outlook, I increase, … higher n sustained growth (pg15)	rising AD without significant increase in AS GPL ↑ erode internal value of currency Purchasing power ↓, less w/a purchase G&S to satisfy needs and wants ⇒ mSOL ↓ (holding nominal wage constant) BOT worsen Higher Y, purchasing power, w/a to purchase g&s incl import Tech-driven growth Structural u/e
Higher consumption ● If increase in real GDP > increase in population, real GDP/capita ↑ purchasing power ↑ more w/a to purchase G&S to satisfy more needs and wants, derive ↑ utility ⇒ <u>mSOL ↑</u> **Income redistribution** ● More tax revenue collected → redistribute more income from rich to poor (progressive income tax system) through transfer payments to low-income households / lower-skilled workers → close income gap ⇒ <u>lower income inequality</u> **Govt spending on merit goods** ● Y ↑ govt <u>tax revenue</u> ↑ increase spending on merit goods e.g. healthcare services → access to better healthcare services, enjoy healthier lifestyle ⇒ <u>nmSOL ↑</u> **Virtuous cycle of savings and investment** ● Ec growth → higher savings → source of funds for investment → I ↑ ● Ec growth → rising DD and o/p, firms make more profits, higher eRORI → I ↑ ⇒ <u>AD ↑</u>	**Investment comes at trade-off with current consumption** ● Investment diverts resources away from production of C goods towards K goods ● SR: current consumption ↓ ⇒ <u>mSOL ↓</u> ● LR: I adds to capital stock, increase qty of FoP → productive capacity expand (PPC shift outward) → higher potential Y ⇒ <u>mSOL ↑</u>  **Tech-driven growth** ● Change in technique of production, skills required ● DD for <u>high-skilled workers</u> ↑ → wage ↑ ● DD for <u>low-skilled workers</u> ↓ → wage ↓ ● Skills no longer relevant → <u>structural u/e</u> ⇒ <u>widen income gap</u> b/w employed & unemployed **Environmental degradation** ● Ec growth due to <u>industrialisation</u> / greater <u>consumption</u> levels → pollution → generate negative externalities

	● Damage environment & health of population ⇒ nmSOL ↓ ● Limit rate of improvement in Q&Q of FoP → limit potential growth ⇒ limit future SOL

INFLATION

Internal price stability: zero or small rise or fall in GPL
External price stability: stable exchange rate

Inflation: increase in GPL
Deflation: decrease in GPL
Disinflation: decrease in rate of inflation
Stagflation: situation of high unemployment and rapid inflation with depressed RNY



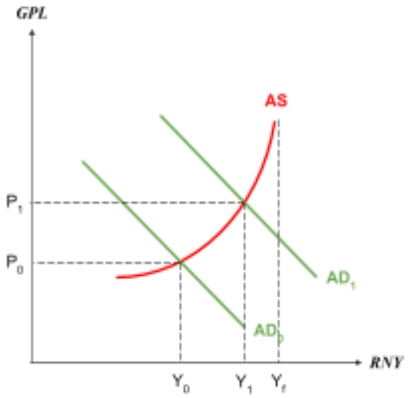
Inflation rate = Δ CPI / Δ t x 100%
Consumer Price Index (CPI): indicator to measure changes in GPL
(index number - relative to base year)

Value of money

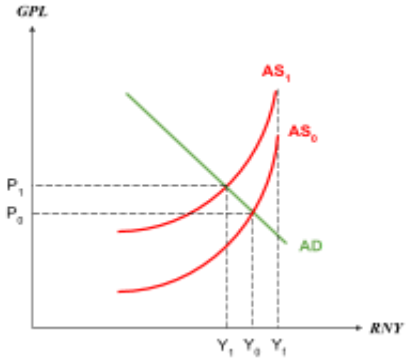
- Internal VOM: dependent on inflation rate
- External VOM: dependent on exchange rate

Causes

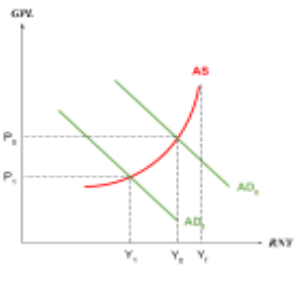
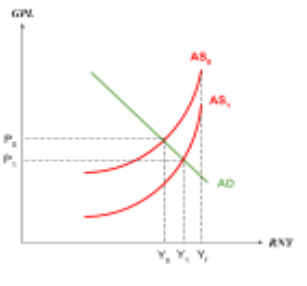
Demand-pull inflation: continuous increase in AD with little/no increase in AS, near/at full employment → AD increase



Cost-push inflation: continuous increase in uCOP for reasons not associated with increase in AD → SRAS decrease



Causes of deflation

AD fall → RNY fall and u/e rise (bad)	SRAS/LRAS rise → RNY rise and u/e fall (good)
	

<u>High and unexpected inflation</u>

<u>Costs</u>

Erode purchasing power, discourage savings

- Less able to apportion income between current consumption (C) and future consumption (S)
- Unable to plan consumption, may need to spend all current income for fear of loss in purchasing power of savings over time
- Less savings (funding of investment) → I fall

Economic growth*

- Difficult for firms to <u>predict future streams of revenue and cost</u>, lower business confidence → revise eRORI downwards → … I ↓ ⇒ AD ↓ (actual growth) AS ↑ limited (potential growth)
- Inflation rate > nominal i/r → <u>-ve real i/r</u>, households' <u>savings</u> fall in real terms → hold wealth in other forms → less funds available for firms' investment as savings decline → … I ↓ ⇒ AD ↓ (actual growth) AS ↑ at slower rate (potential growth)

BOT*

- Relative inflation rate ↑ exports less price competitive … ⇒ worsen BOT

ER

- Currency DD ↓ SS ↑ ⇒ ER depreciate

Redistribution of income → inequity

- Debtors (borrow) gain ⇔ creditors (lend) lose
  - Debtors: assume nominal i/r same, i/r paid fall in real terms - amt that they repay has lower purchasing power than amt borrowed
  - Creditors: receive repayment of loans that are lower in real terms - amt repaid has lower purchasing power than amt loaned out
- Variable income earners gain ⇔ fixed

<u>Deflation</u>

<u>Benefits</u>

BOT

- X–M ↑ BOT improve

<u>Costs</u>

Economic growth, u/e

Deflationary spiral*

- GPL ↓ increase value of money, csr expect price to continue falling → postpone spending in anticipation of further fall in prices → C ↓
- Increase in real value of debt → reduce spending and investment → C ↓ I ↓ ⇒ AD ↓
- LR: I ↓ ⇒ limit potential growth

Decline in investment

- Deflation creates uncertainty for firms & reluctant to borrow during deflation due to redistribution effects that cause them to pay off loans with increasing real value → I fall

Redistribution of income → inequity

- [Reversed]

income earners lose ○ Fixed income earners: real income fall, as nominal wages allow them to consumes less G&S → lower mSOL ○ Variable income earners: wages tied to price of o/p (salesmen earning commission) / strong bargaining power in negotiating wage increments → maintain mSOL ● Govt gain ⇔ taxpayers lose ○ Inflation pushes taxpayers into higher tax brackets, when money income rises but real income may not have increases ○ Pay greater proportion of income in taxes -> experience slower rate of increase in disposable income / profits Significance of issue - Magnitude n duration - Relative inflation rate - Root cause - Current ec condition, govt ec priorities - Ec characteristics of SG	

UNEMPLOYMENT

Labour force: all those who are w/a to work at current wage rate

Unemployment: situation where labour force of legal working age who are without jobs but available for work, willing to work, actively seeking work at current wage rate

Causes

Structural unemployment:

- Structure of economy changes (employment expands in sunrise industries, contracts in sunset industries)
  → change in skills and knowledge required to perform jobs + transition to structural changes impeded by occupational / geographical immobility (workers unable to upgrade skills to stay relevant / move to placed where their skills are still in demand)
  → mismatch b/w skills of unemployed workers & skills required by employers
- Globalisation: goods produced have to cater to changes in DD of both local and foreign csr → types of goods produced change more frequently → skills possessed by workers must stay relevant
- Technological changes: create DD for previously non-existent goods and jobs & make other goods and skills obsolete
- Long-term and large magnitude (not solved easily)

Demand-deficient unemployment:

- Cyclical unemployment: AD fall → firms cut back production, reduce (derived) DD for FoP incl labour → reverse multiplier effect → unemployment
- e.g. Covid-19
- Short-term and large magnitude

Frictional unemployment:

- Imperfect information in labour market: workers not fully informed about job opportunities & employers not fully informed about labour available → takes time for job-seekers to be matched with suitable jobs
- e.g. university fresh graduates
- Short-term and small magnitude

Real-wage unemployment:
real wages forced above eqm wage, leading to excess supply of labour

- Minimum wage legislation
- Union bargaining
- Efficiency-wage theory: information asymmetry [refer to micro notes]

Costs

Forgone output

- Produce within PPC
- Under-utilisation of resources → society incurs opportunity cost, loss of ec welfare
- Csr: smaller o/p means fewer needs and wants can be satisfied - lower level of utility derived

Decline in investment, potential growth

Erosion of skills (hysteresis)

- Long-term unemployment: miss out on on-the-job training opportunities that counter skills obsolescence → work skills erode → productivity decline → PPC shift inwards
- mSOL fall & undermine potential growth

Worsen govt budget position

● Csr income fall, so C ↓ AD ↓ Firms profits fall, so I ↓ AD ↓ ● DD-deficient u/e falls further ● I ↓ AS increase at slower rate, limit potential growth **Rising inequality and social costs** ● Wide disparity in material welfare ● Unemployed indv get restless and unhappy → crime, social unrest	● Unemployed pay no income tax → tax revenue (T) decrease ● Unemployed spend less, govt collect less tax & incur higher expenditure on unemployment benefits → govt expenditure (G) increase ● When cyclical unemployment on the rise, govt adopt expansionary fiscal policy (cut tax, increase spending) to boost AD → increase outlay → govt expenditure (G) increase ● Worsen budget position → debt → fiscal austerity

BALANCE OF PAYMENT

Balance of payments

Balance of payments: record of international transactions (receipts + payments) b/w residents of the economy & non-residents

1. **Current account (CA)**
   - Goods and service account (BOT)

BOT deficit: $TR_X < TE_M$

BOT surplus: $TR_X > TE_M$

- Primary income account:
- Secondary income account

CA surplus:

CA deficit:

2. **Capital and financial account (KA)**

Currency flows b/w countries (intl)

- Short-term capital flows: hot money, investors seek out assets with highest rate of returns
- Long-term capital flows: portfolio investments / direct investments, influenced by eRORI

SG char

- Always in CA surplus: trade balance surplus > income balance deficit
- BOT surplus
- Primary n sec income balance deficit - outflow > inflow (bcos ⅓ of workforce is foreign workers)

Causes of BOT deficit

Relative inflation rates

- Scenario: the country is experiencing high rate of inflation, while other countries have zero rate of inflation
- Exports: P_X ↑, assume $|PED_X| > 1$, MTP ↓ in Qdd_X → TR_X ↓
- Imports: P_M same, increase in prices of domestically-produced G&S induce locals to switch to imports (substitutes) → DD_M ↑ → TE_M ↑
- TRX ↓ + TEM ↑ ⇒ BOT worsen

Causes of KA deficit

(short-term capital flows)

Relative interest rates

- i/r falls relative to other countries
- Yields on holding assets fall relative to other countries
- Investors decrease holdings of country's short-term financial assets as they move their funds in search of assets with highest expected rate of returns
- Capital inflow ↓ capital outflow ↑ ⇒ net capital outflow ⇒ worsen KA position

Anticipation of exchange rate movement

- Speculators expect central bank to act to devaluate country's currency
- Should this happen, assets denominated in currency lose value along with currency → speculators sell assets, convert currency holdings into other currency to avoid exchange losses
- Capital inflow ↓ capital outflow ↑ ⇒ net capital outflow ⇒ worsen KA position

(long-term capital flows)

Business confidence and expectations

- Firms pessimistic abt future market conditions → expect decrease in eRORI → reduce firms' willingness to invest

Govt policies

- E.g. impose foreign workers' levy / increase corporate taxes → decrease eRORI → reduce firms' willingness to invest

Relative exchange rates

- Scenario: the country's currency appreciates against foreign currencies
- Exports: P_X ↑ in *foreign currency terms* → Qdd_X ↓
- Imports: P_M ↓ in *domestic currency terms* → Qdd_M ↑
- Assume Marshall-Lerner condition ($|PED_X| + |PED_M| > 1$), price changes in exports and imports induce *large enough* changes in Qdd in opposite direction to cause TR_X to fall relative to TE_M
- TR_X ↓ + TE_M ↑ ⇒ BOT worsen

Emergence of low-cost competitors / international competitiveness

- Exports: *relative* P_X ↑, assume XED > 1 (closer substitutability), TR_X ↓ to large extent
- Imports: P_M ↓, Qdd_M ↑, assume $|PED_M| > 1$, MTP ↑ in Qdd_M → TE_M ↑
- TR_X ↓ + TE_M ↑ ⇒ BOT worsen

Relative growth rates

- Major trading partners enter recession, while country has yet been affected by contagion
- Foreign incomes fall, less w/a to purchase G&S, TR_X ↓ ⇒ BOT worsen
- Extent of which determined by YED for exports

Competitive advantage

DD for imports is price inelastic e.g. sg trade deficit against msia, need to import essential goods

2) US heavy trade deficit against China due to China competitive advantage in producing goods (low manufacturing cost) - Trump trade tariffs against China

3) Demand for imported goods, especially so if it is price inelastic (necessities imported from Malaysia into Singapore)

BOT deficit	**BOT surplus**
Benefits	**Benefits**
Inflation	**Economic growth, u/e**
• X–M ↓ AD ↓ • If economy initially overheating, relieve	• X–M ↑ AD ↑ • Fixed capital formation, I ↑ LRAS ↑ ⇒

inflationary pressure **<u>Costs</u>** **Economic growth, u/e** ● X–M ↓ AD ↓ **Deficit financing*** ● Suppose any surpluses in other items of CA insufficient to offset BOT deficit → overall CA deficit ● Finance CA deficit by: ○ running down reserves: not sustainable ○ external borrowing: give foreigners greater claim on country's assets and resources in interests, profit, dividends which must be paid out to foreigners → in future, leave resident households with less factor income to spend on G&S to satisfy needs and wants ● Current mSOL ↑ future mSOL ↓ **Undermine ER stability** ● BOT deficit → net outflow of currency → excess SS of currency in forex ● Vice versa	non-inflationary growth **<u>Costs</u>** **Inflation** ● DD-pull inflation if economy operating near full-employment o/p level **Automatic correction of BOT position** ● BOT surplus → net currency inflow → … currency appreciate → worsen BOT position **Inflation** ● Currency appreciate → reduce prices of imported FOP, uCOP ↓ SRAS ↓ ⇒ moderate inflation arising from initial improvement in BOT position **Retaliation [globalisation]** ● BOT is zero-sum game: one country's BOT surplus is another country's BOT deficit (BOT must balance for the world as a whole) → impossible for all countries to run BOT surpluses simultaneously ● Ctries with BOT deficits may be forced to resort to import controls → volume of trade fall → limit efficiency gains from CA

EXCHANGE RATE

Exchange rate of a currency: price of the currency on foreign exchange (forex) market in terms of other currencies

- DD by foreigners to purchase exports / assets of Singapore (investments) → represented by TR_X
- SS by locals to exchange for foreign currencies to purchase imports / assets abroad (investments) → represented by TE_M

Factors

Relative interest rate

- Yields on holding country's assets falls relative to those of other countries
- Speculators decrease their holdings of country's short-term financial assets, move funds in search of assets with highest expected rate of returns
- Capital inflow ↓ capital outflow ↑ ⇒ net capital outflow
- Currency DD ↓ SS ↑ in forex market → surplus at original exchange rate ⇒ depreciate

Relative inflation rate

- Scenario: the country is experiencing high rate of inflation, while other countries have zero rate of inflation …
- TR_X ↓ DD for currency ↓
- TEM ↑ SS for currency ↑
- ⇒ depreciate

CA / KA deficit: net outflow of currency → excess supply in forex mkt, exert downward pressure on currency ⇒ depreciate
CA / KA surplus: net inflow of currency → excess demand in forex mkt, exert upward pressure on currency ⇒ appreciate

Seriousness depends on root cause of BOT deficit

Exchange rate systems

1. **Free float** e.g. Japanese Yen

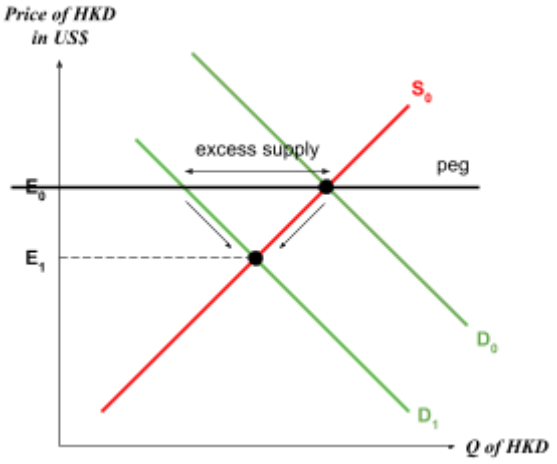
ER determined by market forces of DD & SS in forex market, w/o govt intervention

2. **Fixed exchange rate system** e.g. HKD

ER based on predetermined rate against a specific foreign currency set by govt

Peg: official exchange rate

- To maintain peg, buy / sell domestic currency



- Current ER coincides with peg
- DD for HKD fall from D_0 to D_1, excess supply at current ER - downward pressure on ER
- W/o govt intervention, ER depreciate from R_0 to R_1

Reserves [counter depreciation]

- To maintain peg, use reserves to buy up excess supply of currency to relieve downward pressure on ER
- Foreign reserves are limited + govt has only limited power to borrow foreign currencies → run out reserves → mkt forces prevail, currency depreciate - adjust peg down to R_2 (devaluation)

Reserves [counter appreciation]

- To maintain peg, use reserves to sell its currency, buy up foreign currency →

- Loss of export competitiveness (bad)
    - Due to higher relative inflation rates, weakness in productivity growth, decline in relative quality of exports
    - Reflect structural weakness in economy that cannot be resolved in short term
- Importing capital goods (good)
    - Import capital → expand productive capacity → LRAS rise, non-inflationary growth
- Strong ec growth (good)

accumulate foreign reserves
- Enhance central bank's ability to manage ER
- Improve business confidence (by reducing foreign exchange risks faced by foreign firms thinking of investing in domestic economy) → I ↑

Devaluation: official decrease by monetary authority of value of currency in relationship to currencies of other countries
Revaluation: official increase by monetary authority of value of currency in relationship to currencies of other countries

3. **Managed float** e.g. SGD

Monetary authority allows currency to <u>float</u>, but still <u>intervenes</u> to ensure ER does not move beyond limits / kept within the band

<u>Stable ER (external price stability)</u>

FDI

- Prospective foreign investors better ascertain costs of investment + foreign firms enjoy stable stream of profits when converted back into home country → raise investor confidence, FDI rise
- Improve financial KA of BOP
- I rise AD rise AS rise

Trade/current account

- Price of exports and imports remain stable
- X: Foreign consumers aware of predictable prices of exports → encourage them to purchase exports / enter long-term sales contracts

<u>ER depreciation</u>

<u>Benefits</u>

Automatic correction of CA deficit

[Fixed ER system]

- Currency depreciate, P_X fall in foreign currency terms, P_M rise in domestic currency terms … BOT position improve, correct BOT deficit

<u>Costs</u>

Inflation

- P_M in domestic currency terms ↑
- Input prices (esp countries w high reliance on imports for raw materials) ↑ uCOP ↑ SRAS ↓ ⇒ <u>cost-push inflation</u>

Increase size of external debt

- Loans denominated in foreign currency terms now cost more to repay in domestic currency → increase debt burden ⇒ mSOL ↓

Financial crisis

- Speculative attacks on currency: investors

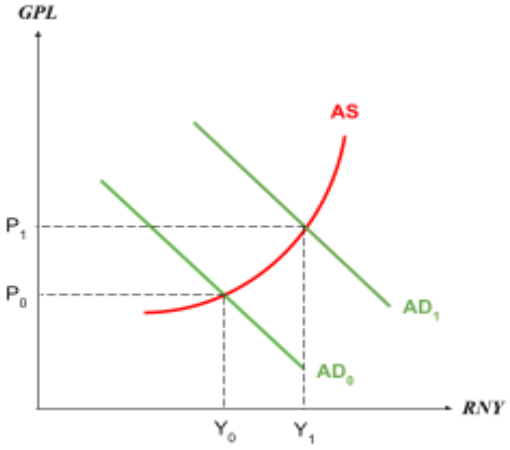
	anticipate central bank to run out of reserves to maintain peg → bring out funds before actual devaluation …

Macroeconomic Policies

FISCAL POLICY

Expansionary fiscal policy: increase govt spending / decrease taxes → AD ↑

- Objective: AD ↑ ⇒ <u>boost actual growth</u>, <u>reduce DD-deficient u/e</u>
- How it works:
  - G ↑ (govt spending on final G&S)
  - C ↑ (personal income tax rebates / transfer payments)
  - I ↑ (cut in corporate tax rates)

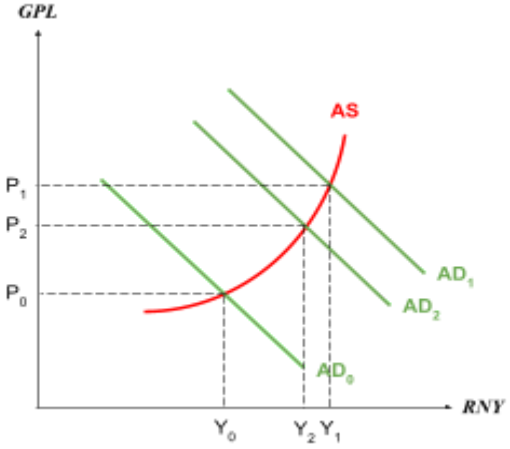


General limitations for DD-management policies

- Size of multiplier
- Relative share of AD components
- Time lag
  - recognition lag: longer for fiscal policy than monetary policy
  - implementation lag

Contractionary fiscal policy: decrease govt spending / increase taxes → AD ↓

- Objective: AD ↓ (slowdown ↑ in AD) ⇒ <u>reduce demand-pull inflation</u>
- How it works:
  -



Limitations

- Politically unpopular

○ impact lag ● Trade-off with other macro goals ● Economic outlook (expectation of future income / profits) Limitations ● Fiscal sustainability	
Supply-side effects E.g. SG: aimed at raising economic competitiveness & promoting potential growth ● Infrastructure development ● Human capital development ● Continuing education and training (CET) ● Shift from direct to indirect taxes - indirect taxes are regressive in nature	**Fiscal policy in SG context**: macroeconomic stabilisation policy ● Some cushioning is better than no cushioning ● Since infrastructure projects are planned years ahead, govt only needs to bring forth plans in times of ec downturn to give ec a needed stimulus **Fiscal policy to manage widening income gap** 1. <u>Progressive taxes and transfers</u>: - High-income households: fall in higher tax brackets, face higher income tax rates → disposable income fall - Low-income households: transfer payments → disposable income rise 2. <u>Workfare Income Supplement (WIS)</u>: govt tops up wages of low-income workers by as much as 25% per year 3. <u>GST Voucher</u>: help low income households, in the form of cash, annual top up of Medisave accounts, rebate on utilities bill

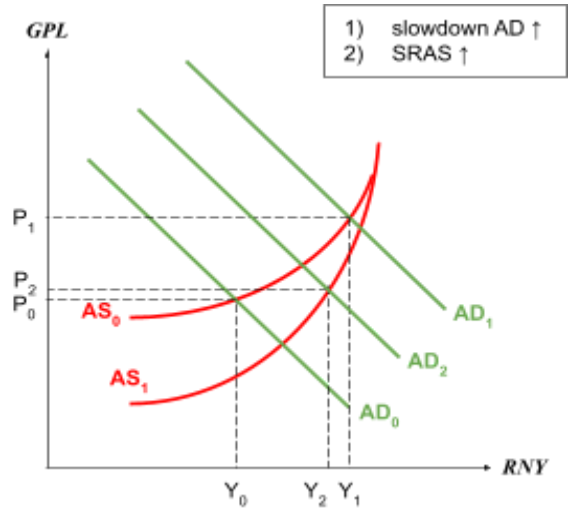
MONETARY POLICY	
Interest rate **Expansionary monetary policy**: decrease i/r by increasing money supply ● Objective: AD ↑ ⇒ boost actual growth, reduce DD-deficient u/e ● How it works: ○ C ↑ ○ I ↑ ○ X–M ↑ (net capital inflow → currency depreciate → …) Limitations ● Ec outlook: csr, business confidence ● Interest elasticity of C and I ○ Households and firms rely on their own sources of funds e.g. MNCs reply on head offices for funding rather than loans in host country to finance investment & households have ample savings to draw from to finance purchases → C ↑ I ↑ less ● Time lag: determined by central bank that is independent of policy process → shorter time lag ● Liquidity trap: cut i/r, households choose to simply hold on to excess holdings of money instead of purchasing bonds → no more room for further i/r cut ○ Quantitative easing (QE): central bank buy assets e.g. govt bonds → inject bank reserves into economy → increase money SS → lower i/r ⇒ AD ↑ ○ Negative interest rate policy (NIRP): banks pay interest for parking excess cash in central bank → to avoid charges, banks incentivised to lend out money to csr and firms → C ↑ I	Interest rate **Contractionary monetary policy**: increase i/r by decreasing money supply ● Objective: AD ↓ ⇒ reduce demand-pull inflation ● How it works: ○ I ↓ ○ C ↓ ○ X–M ↓ (net capital outflow → currency appreciate → …) **EG**: In 2008, sharp increase in inflation → SG govt held back several infrastructure projects e.g. new expressways, to avoid competing with private sector for FOPs and bidding up factor prices Limitations ● Ec outlook: csr expect Y to continue increasing, still willing to take on loans despite higher i/r & eRORI ↑ even through COB ↑ so net eRORI relatively unchanged → ineffective in discouraging C and I ● Interest elasticity ● Time lag

↑ ⇒ AD ↑	
Exchange rate **Expansionary monetary policy**: managed depreciation (devaluation) by buying domestic currency (SS ↓) ● Objective: AD ↑ ⇒ <u>boost actual growth</u>, <u>reduce DD-deficient u/e</u> ● How it works: ○ Currency depreciate … ML, X–M ↑ C_d ↑ Limitations ● Trade-off: DD-pull & cost-push inflation ● Retaliation ○ International competitors move to protect competitiveness of their own exports → competitive devaluation among competitors ⇒ policy ineffective in stimulating exports and actual growth (Qdd for exports may not increase significantly due to competition from cheaper alternatives when trading partners also devalue currencies	Exchange rate **Contractionary monetary policy**: managed appreciation (revaluation) by selling domestic currency (SS ↑) ● Objective: AD ↓ ⇒ <u>reduce demand-pull inflation</u> ● How it works: ○ Currency appreciate … ML, X–M ↓ AD ↓ ○ Import prices in domestic currency terms fall (esp FOP), uCOP ↑ SRAS ↑ Lower inflationary pressure significantly, while avoiding sharp contraction of RNY / large increase in DD-deficient u/e Limitations ● Require use of reserves
Monetary policy trilemma Only two out of the three objectives can be mutually consistent, policymakers must decide which one to give up 1. K-flow 2. ER 3. i/r Why there exists a trilemma ● Scenario: country wishes to allow free K flow, maintain ER, so central bank has to allow i/r to move to a level consistent with ER ● If US raises i/r, to maintain SGD-USD ER, SG has to raise i/r to	**Singapore** 1. Why ER ● Small open economy <u>lack natural resources</u> → <u>reliant on imported FOP</u> → susceptible to imported inflation (input price ↑ SRAS ↓ GPL ↑). ER policy: SRAS fall, directly targeting <u>imported inflation</u> ● <u>Export oriented</u>, X is largest component of AD. ER working through X is highly effective in managing <u>demand-pull inflation</u>

maintain relative i/r (move in tandem with US i/r) to avert capital outflow to maintain ER (if not, SG i/r relatively lower, net capital outflow → ER depreciate) → unable to set i/r independent of US

United States

1. Why i/r
   - C is large component of AD: large and less open economy, possess good factor endowment → lower reliance on imports and exports. With a large domestic market and a population with high average income per capita
   - Developed economy with significant innovations financed through high investment by firms. Therefore, their large domestic market puts them at a higher risk of facing domestic sources of inflation as compared to imported inflation.
   - Hence, an increase in interest rate impacts consumption and investment expenditures which are two different and significant components of AD for the U.S.. Therefore, interest rate policy will be more effective in addressing rising inflation that is due to domestic sources.
   - With freely floating ER, rise in i/r attracts inflow of hot money in search of higher returns → DD for USD rise → USD appreciate → … X-M fall → slowdown rise in AD → moderate DD-inflation



2. Why not i/r
   - Monetary trilemma: SG promotes itself as <u>international financial centre</u> that emphasises open and free K flows → impossible for MAS to independently determine the domestic interest rates [if MAS decides to increase i/r, net inflow of short term capital flows ('hot money') to seek higher interest returns → due to relatively small domestic sources of loanable funds, SS of loanable funds increases → downward pressure on i/r until comparable to foreign i/r]
   - <u>I is interest inelastic</u>: open to foreign investment → MNCs dominate investment spending in SG, rely on funding from head offices rather than on local financial market → investment decisions are less dependent on SG i/r
   - <u>C is interest inelastic</u>: large part of savings locked up in CPF, cannot be freed up to be spent at will
   - Small size of C as % of GDP, due to small domestic market

→ less susceptible to DD-pull inflation (from domestic sources)

- Small k size due to high withdrawals / leakages - MPS and MPM - limited impact on AD

3. **MAS** operates <u>managed float</u> regime for SGD, allow nominal effective exchange rate (NEER) to float within undisclosed policy band

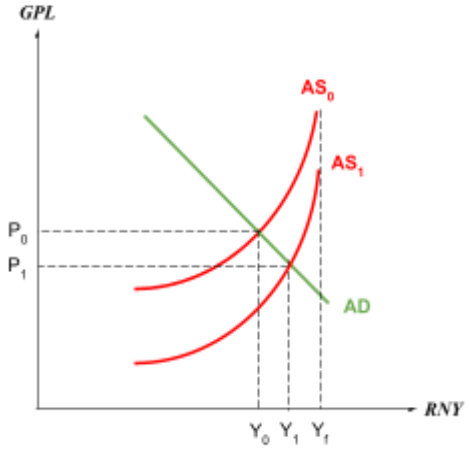
Basket	managed against trade-weighted basket of currencies of major trading partners and competitors, assigned weights in accordance to importance of the country to SG's trading relations with the rest of the world
Band	if exceed, MAS buy / sell foreign exchange
Crawl	modestly and gradually appreciating

EG: In 2010, SG economy enjoyed strong double-digit growth following Global Financial Crisis → strong DD-growth & increase in global commodity prices → inflation → MAS recentred S$NEER policy band upwards, allowed for modest and gradual appreciation

SUPPLY-SIDE POLICY

Cost-cutting measures

- Objective: SRAS ↑ ⇒ RNY, u/e, combat inflation
- How it works:
  - Decrease uCOP
    - EG: Jobs Support Scheme (JSS): provide wage support for employers to retain local employees during period of ec uncertainty → labour cost fall, uCOP fall
    - EG: flexible wage system: when wages are flexible downwards, wages can fall in times of falling labour demand → pay out less wages
    - Reduction in national minimum wages
    - Cut in rental of govt-owned commercial properties, utilities rebates

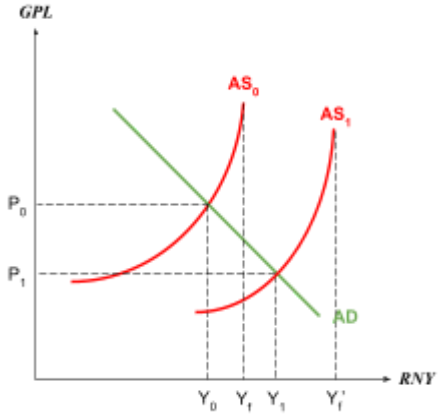


Enhance long-run growth potential

- Objective: SR&LRAS ↑
- How it works:
  - Interventionist policies
    - Infrastructure development: increase quantity of capital
      EG: MRT, T5
    - Human capital development: encourage firms to send workers for training → increase productivity
      EG: Skills Development Fund - govt co-pays training
      EG: Workforce Development Agency - design courses to meet training needs of industries
      EG: SkillsFuture - encourage upskilling and retraining [also allows workers to equip themselves with relevant new skills → enhance occupational mobility]
    - Promote innovation: grants, subsidies, tax incentives to encourage R&D
  - Market-oriented policies
    - Fiscal reforms: remove policies that impede mobility of factor inputs
      EG: housing regulations, unaffordable for job seekers from other parts of country to move into cities to take on jobs (geographical mobility) → price ceiling on rent
      EG: occupational licensing, impose strict regulations on who can enter regulated occupations (occupational mobility)
    - Deregulation: lower barriers to entry, introduce greater

market competition → force firms to cut X-inefficiency, stimulate dynamic efficiency to offer competitive prices and products → raise productivity

- Trade liberalisation: expose domestic producers to competition from imports → …
- Privatisation: private sector more efficient than public sector, reduce X-inefficiency, profit incentive to reduce costs
- Removal of bureaucratic red tape: improve ease of business & lower business costs → I rise



Limitations

- Long gestation period, not intended as short-run policy → require complementary short-term gap measure
- Receptiveness of workers towards training
- Outcome of R&D is uncertain
- Govt spending may have to be financed by borrowing …

<table>
<tr><th colspan="2">BOT POLICY</th></tr>
<tr>
<td>Expenditure-switching: (M fall C rise X rise)
get domestic csr to switch to domestically-produced goods, away from imports OR
get foreign csr to switch to exports, away from goods produced at home
● Devaluation
● Import restrictions e.g. tariffs, non-tariff barriers on imports
● Export subsidies and promotion
● SS-side policies to boost export competitiveness

Evaluation
● Ineffective in short term, as Marshall-Lerner condition does not hold in short term [J-curve effect]
○ tastes and preferences take time to adapt
○ consumers need time to source for substitutes
○ takes time for price changes to pass through supply chain
→ DD price inelastic in short-run ⇒ BOT worsen before any eventual improvement</td>
<td>Expenditure-reducing: (M fall)
get domestic csr to cut down spending on all G&S
● Contractionary DD-management policy: AD fall RNY fall less purchasing power, less w/a to purchase G&S incl imports → TEM fall ⇒ improve BOT position

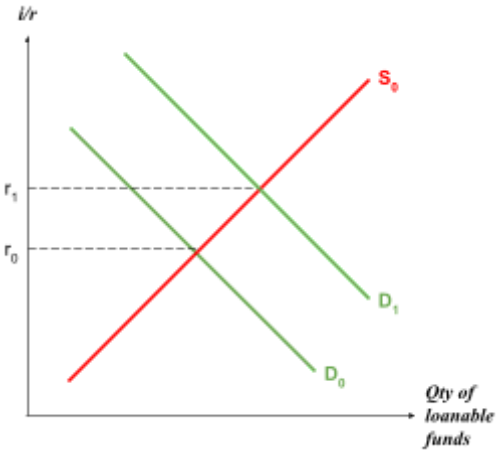
Evaluation
● k size
● PED_X, XED between imports and domestically-produced substitutes
● Trade-offs</td>
</tr>
</table>

Govt budget position: importance of fiscal sustainability

Fiscal sustainability: ability of govt to maintain public finances at a credible and serviceable position over the long term. High and increasing government debt levels are harmful to governments' fiscal positions and can cause a vicious cycle of growing national debt, reducing the potential for economic growth as funds are used for interest payment and diverted away from productive investments.

- Govt budget position = tax revenue (T) – govt spending (G)

balanced	G = T
deficit	G > T
surplus	G < T

- Why govt want to maintain fiscal sustainability:
  - To achieve sustained economic growth
  - To maintain high level of standard of living
- Singapore:
  - SG govt spending: social development, security, ec development
  - SG govt revenue sources: corporate income tax, personal income tax, GST, NIRC (Net Investment Returns Contribution)
- Borrow to finance budget deficit, leading to:
- **Crowding out effect**:
  - govt borrow money from private sector, increase DD for loanable funds → drive up i/r
  - raise COB relative to eRORI → C fall I fall (*crowd out private investment*), weaken rise in AD
  - OR i/r rise, hot money inflow rise outflow fall -> DD rise SS fall of currency → currency appreciate, X-M fall worsen BOT position → *crowd out external demand*, weaken rise in AD ⇒ EFP ineffective
  - 

  - Eval: crowding-out effect is weak in deep recession, as households and most firms are reluctant to demand for loans to finance higher levels of C and I given bleak ec outlook ⇒ G rise > C fall and I fall ⇒ EFP effective
  - Eval: SG govt has large fiscal reserves + budget surplus, able to increase govt expenditure w/o having to resort to borrowing

- **Severe macro instability**: capital flight, where investors concerned with financial fisk of size of debt, choose to bring funds out of country → capital outflow rise, inflow fall → downward pressure on ER, sudden and substantial depreciation of ER → financial crisis (HOW?)
  - Sovereign debt defaults - govt unable to pay interest to creditors, need bail out -
  - Country may need to undertake austerity measures (cut spending & increase taxes to improve budget position, but could hurt growth & social unrest)

    EG: European Sovereign Debt Crisis: Eurozone countries like Greece piled on government debt (borrowing). The 2008 financial crisis and recession hit tax revenue, while investor confidence plummeted. Bond yields (borrowing costs) for these countries skyrocketed. Banks holding the debt became stressed, and countries couldn't access new funding (liquidity crisis) → default loomed → bailouts came with strings attached: austerity
  - Regardless of way to finance deficit, intergenerational transfer of welfare: in future, govt will either have less reserves to spend, or tax revenues must be diverted to pay for resulting debt and interest incurred -> less resources available in future for govt to spend on social and developmental needs-> future SOL / potential growth

- How does budget deficit affect BOT:
  -

3.3 Globalisation and the International Economy

Concepts and Tools of Analysis
☐ Globalisation ☐ Free trade ☐ Protectionism – Tariffs and non-tariff measures ☐ International and regional economic co-operation

Scope:

	G&S	K	labour
trade	✓		
FTA	✓	✓	
globalisation	✓	✓	✓

Globalisation

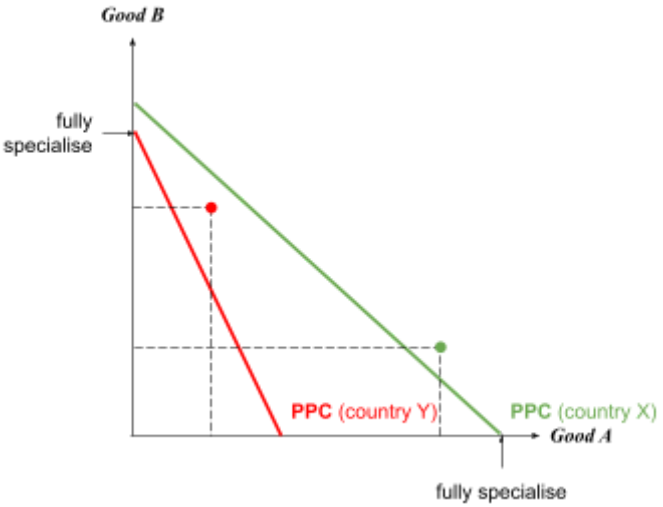
Globalisation: integration of economies around the world, through movement of G&S, capital, labour, technology across borders.

Movement of labour, tech can occur during movement of K
(esp tech transfer with foreign direct investment)

Indicator of globalisation: **trade-to-GDP ratio** = X+M/GDP x 100%
Measures openness of economy

Causes of globalisation

1. **Theory of Comparative Advantage*** **	**Comparative advantage**: produce good at lower opportunity cost than other country **Law of Comparative Advantage**: trade can be mutually beneficial to all countries if they specialise in production of goods in which they have comparative advantage



Long explanation: (for 10m essay qn)

1) Country X: opp cost of producing additional unit of A is lower → CA in production of A
   Country Y: opp cost of producing additional unit of B is lower → CA in production of B
2) Country X fully specialise in production of A
   Country Y fully specialise in production of B
3) Trade with each other for goods which it does not have CA in
   Country X exchange *x* units of A (export) for *x* units of B with country Y (import)
4) Consumption outside PPC is possible

Short explanation: (underlying economic intuition)

- Trade occurs because nations have diff resource endowments and tech capabilities → exist diff opp costs in production of diff types of goods
- A country can benefit by specialising in production of good which it can produce at lower opp cost, use the good to exchange for other goods which it can produce at higher opp cost (but which other countries can produce at lower opp cost)
- Trade allows countries to increase productivity of resources through specialisation based on their comparative advantage

Sources of CA (why opp costs differ?)

1) **Differences in factor endowments**
   - Differences in climate and resource endowment → countries specialise in producing goods that require FOP for which they have relative abundant supply → produce at lower opp cost → trade to obtain G&S that they produce at high opp cost

   Static

	● Land: fertile land → CA in land-intensive industries ● Labour: abundant labour → CA in labour-intensive industries ● Climate: esp agriculture ● Geographical location: e.g. SG as a port hub, CA in port services Dynamic ● Demographics: ○ high labour productivity → CA in value-added knowledge-based industries e.g. high tech goods ○ low labour productivity → CA in labour-intensive industries e.g. textiles ● Investment in physical capital (e.g. due to inflow of foreign investment, rising domestic savings which provide funds for domestic investment → lead to PPC shift outward due to improvement in factor Q&Q, non-parallel shift, opp cost for capital-intensive good fall below that of other countries - acquire & lose CA), human capital (raise skills level of labour force) ● Resource depletion / discovery of new resources 2) **Differences in technology** ● Access to new tech → cost savings → acquire CA 3) **Economies of scale** ● Trade allows small countries to specialise in producing limited range of goods at high o/p level - reap iEOS - lower uCOP, lower opp cost and thus acquire CA ● (Without which domestic markets too small to exploit iEOS - prohibitively expensive to become self-sufficient as they have to produce everything at a high average cost)
2. **Technological innovations**	● Transport tech ○ If transport costs high, wipe out gains from trade → choose to be self-sufficient instead ○ Lower transport cost → retain gains from trade based on CA w ctries further away → increase willingness to trade to reap the gains ○ ⇒ stimulate expansion of world trade - globalisation ● Communication tech ○ Drives trade in services: Makes possible the disaggregation of work (outsourcing) Cand a further specialisation and trade, this time in services, along the Theory of Comparative Advantage e.g. call centres ○ Drives global e-commerce: ● Production tech ○ High costs incurred in acquiring machinery spread over larger o/p

	- reap iEOS ○ LRAC fall over large range of o/p, MES occurs at higher o/p level - cheaper for many of the manufactured goods to be produced in a few key regions in the world to reap iEOS, rather than to have all countries producing the goods in small quantities for domestic consumption
3. **Economic policies**	● Trade policies: dismantle trade restrictions - reap full benefits of specialisation and trade ○ trade negotiations (multilateral / bilateral FTA) ○ countries' unilateral decision to reduce trade benefits ● Investment liberalisation and promotion:

Benefits & costs of TRADE & K-FLOWS

Ec agent	Benefit	Cost
Consumers	**Higher consumption possibilities** Expand consumption possibilities beyond PPC (production possibilities), satisfy more needs and wants → higher mSOL **Greater consumer choice** Import of large varieties of G&S catering to diff T&P of csr becomes possible → increase csr utility Increased competition from foreign firms a. Prevention of monopolies b. Promotes X-efficiency among firms => Lower prices, higher quality products	
Producers	**Foreign markets** ● Higher revenue through exports ○ Access larger csr base, DD rise TR rise ● Lower costs ○ Expand scale of production to produce for overseas markets → reap iEOS, esp. if fixed costs are high but domestic market is small → AC fall **[productive efficiency]**	**MNCs' activities** ● Crowd out domestic firms: large MNCs better able to reap iEOS → … smaller domestic firms cannot compete, exit industry → dominated by MNCs & MNCs offer more generous remuneration and better career prospects, compete for resources, affect growth of domestic firms ● Footloose: no commitment to country, pull out when profit

	○ Access cheaper FOP - lower import tariffs → MC fall ● Diversify ○ Diversify risks of failure across diff markets ○ If recession in one economy, DD decline, firm can still enjoy supernormal profits due to rise in demand in other markets experiencing ec growth [provided mkts are decoupled from each other] → increase stability of firms	declines / other countries offer better investment conditions → lose I → …
Govt	**Export** ● Increased access to foreign markets, DDX rise **Investment** ● Access to larger world market - higher potential profits, raise eRORI relative to COB so I rise ● Increased capital flow so higher investment by foreign firms ○ LT capital flows: firms set up production facility in other countries, add to I in AD, AS ⇒ sustained, non-inflationary growth **Competition and resultant efficiency gains** ● Lower uCOP → SRAS rise **Tariff reduction on imported FOP** ● Removal of tariffs on imported FOP & firms source FOP from more efficient producers globally → uCOP fal, SRAS rise	**Hasten pace of structural change** ● Removal of trade barriers exposes firms to competition from abroad - csr switch to foreign suppliers who are able to produce products at lower price / higher quality → domestic firms operating at higher uCOP cannot match competitor's price → DD fall, shut down if revenue can no longer cover cost ● <u>Structural unemployment</u>: influx of cheap imports → erode CA in labour-intensive manufacturing, inefficient firms cannot compete → shut down, displaced workers lack occupational mobility ● <u>Worsen BOT</u>: erosion of CA, export revenue fall → X–M fall ● <u>Widen income gap</u>: DD for high skill rise, DD for low skilled workers fall - income gap b/w skilled n unskilled -> equity **Vulnerable to external economic**

		shocks ● External DD shock (recession) ○ Foreign markets experience recession, Y fall DDX fall so TRX fall, AD fall … ○ Firms profit decline ● External SS shock (imported inflation) ○ Foreign suppliers experience inflation, price of FOP rise, uCOP rise, SRAS fall **Volatility of short-term capital flows** ● Severe fluctuation in ER and i/r: sharp and sudden ER depreciation - cause problems E.g. Asian financial crisis
	<u>Society</u> **Productive efficiency** ● [refer to above] **Dynamic efficiency** ● Exposed to greater competition → to protect market share, engage in R&D ○ Process innovation: increase productivity, lower uCOP, pass on cost savings to consumers by lowering prices [price] ○ Product innovation: better quality products [non-price] **Allocative efficiency** ● Markets more contestable, DD for each incumbent firm falls & more price elastic → weaken power due to exposure to competition → reduce ability to charge price mark-up above MC **x-inefficiency**	**<u>Global</u>** Efficient allocation of world resources By the Law of Comparative Advantage, if all country specialise in area of CA and trade, everyone gains from higher world output and consumption, given favourable Terms of Trade (TOT) for all OVERALL: PPC shifts outwards (due to increased efficiency and lower costs), CPC shifts outside PPC, Consumption point shifts outside PPC => Increased SOL, reduced scarcity AD rises (from X), AS rises => Improved BOP, ECONOMIC GROWTH!

	● Increase in contestability → each firm earns lower revenue → more incentive to check complacency, produce on LRAC to maintain profits, avoid losses	

Eval	Eval of benefits:
	- [Ec characteristics] Size of domestic market:
	  - Large domestic market: consumption driven economy, reply less on globalisation
	  - Small domestic market: globalisation needed to boost further growth, access to global market (allows for export-driven economy)
	- [Ec characteristics] Stage of ec development
	  - Availability of domestic capital: high Y, more savings, more funds to invest ⇔ developing economy, lower Y, little domestic sources of funds for investment → need foreign sources of investment
	  - Technology gap: globalisation provides tech (esp developing countries, more dependent on foreign firms for tech transfer
	- Prevailing ec conditions: ec competitiveness (incl investment climate of own economy) - if competitive / good investment climate, then can benefit
	- Countervailing forces / measures: there are -ve impact e.g. structural u/e, widening Y	

	gap, but can be mitigated through govt policies - [pg16]	

Benefits & costs of L-FLOWS

Benefits	Costs
Brain gain	**Brain drain**

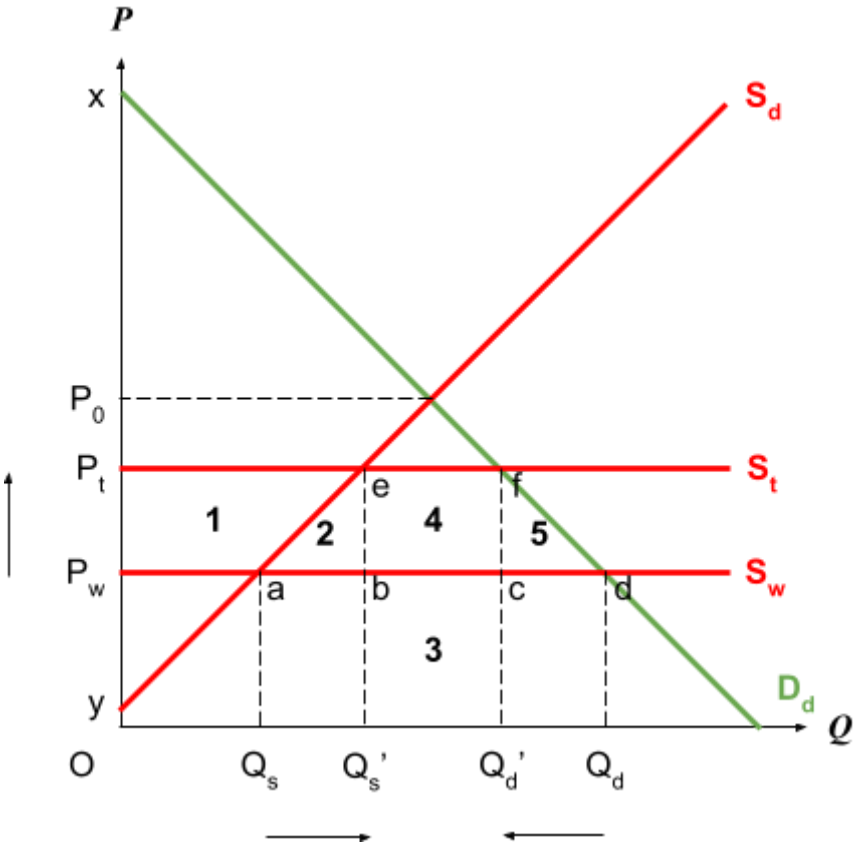
Free trade

Free trade: integration of economies around the world, through movement of G&S, capital across borders.
(Trade is a subset of globalisation.)

Protectionism

Tariffs: taxes on imports, in order to

- restrict imports → protect domestic industries from foreign competition
- raise govt revenue



Before tariffs	After tariffs

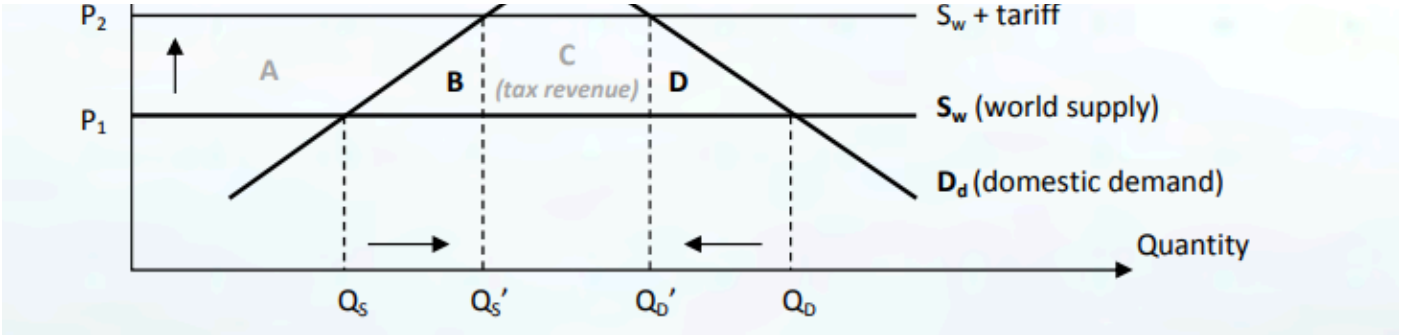
World price Pw (import is cheaper than eqm price → domestic producers have to match a lower price)	Tariff adds to foreign producer's uCOP → SS curve of imports shift up by amt of tariff Price of import after tariffs Pt (import is cheaper than eqm price by a smaller extent → domestic producers only need to match a higher price)
At Pw, larger shortage of QsQd units → import QsQd units (larger qty of M)	Domestic production increases to Qs', domestic consumption falls to Qd' - Price increases raises MR of domestic producers, units of o/p that can be produced only at higher MC become profitable, increase Qs - Price increase, utility-maximising csr, constrained by budget, less w/a to buy the good, reduce Qd At Pt, smaller shortage of Qs'Qd' units → import Qs'Qd' units (smaller qty of M)
TE = OP_wdQ_d	TE = OPtfQd'
TR_d = OP_waQ_s $TR_{foreign}$ (TE_M) = Q_sacQ_d	TRd = OPteQs' TRforeign (TE_M) = Qs'bcQd' Govt tax revenue = bcfe ⇒ TE_M decrease

Economic welfare

	Before	After	Change
Csr surplus	xPwd	xPtf	– 1, 2, 4, 5
Prs surplus	yPwa	yPte	+ 1 (lost by csr, transferred to domestic prs)
Govt expenditure	0	bcfe	+ 4 (lost by csr, transferred to govt)
Society			– 2, 5 (DWL)

Explain DWL***

- **Area 2**: efficiency loss on production side
    - Extra costs (higher opp cost due to lack of CA) of producing QsQs' at home, rather than importing it from foreign countries that can produce the good at lower opp cost. If QsQs' is still imported, the country only pays Pw. By producing at home, cost is given by area under domestic SS curve (=MC). → difference b/w MC and Sw
- **Area 5**: loss of csr surplus due to under-consumption



Tariffs or quotas can be set to reduce imports from (Q_D - Q_S) to (Q_D' - Q_S'), but at the cost of a deadweight loss to society equal to the loss in consumer surplus not transferred to other sectors, shown by areas B + D.

- A + B + C + D: Total loss in consumer surplus
- A: Increased producer surplus for domestic producers *(Redistribution Effect)*
- B: **Deadweight loss** from the extra cost incurred by domestic producers to produce (Q_S' - Q_S), which could have been imported at P_1 instead. *(Protective Effect)*
- C: Tax revenue collected by government *(Revenue Effect)*
- D: **Deadweight loss** due to under-consumption. *(Consumption Effect)*

Non-tariff measures

- **Import quota**: legal limit on qty of imports allowed in a given time period
- **Export subsidy**: give domestic producers cost advantage, lower price → compete with imported goods more effectively
- **Exchange control**: govt control exchange rate (buy/sell foreign reserves) → control availability of foreign currency in market → regulate imports and exports to achieve healthy BOT
- **Embargo**: complete ban on certain imports/exports

For	Evaluation
Improve BOT position (Expenditure-switching policy) ● Tariffs raise import prices, induce csr to switch to domestically-produced goods → TE_M fall And also improve govt budget position through tax revenue collected form tariffs	"Beggar-thy-neighbour" policy: - Import less → trading partner's X fall so AD fall RNY fall → less purchasing power, less w/a to purchase G&S incl imports → country's own X falls ⇒ BOT may not improve - Retaliate with similar protectionist measures → trade war (tit-for-tat retaliation) → should opt for supply-side or expenditure-reducing policies instead Tariffs on imported FOP: undermine price competitiveness of X → X fall

	Does not address root cause of prolonged deficit: loss of CA → need SS-side policy to raise productivity, create new areas of CA
Protect domestic employment ● Raise price of import, divert demand towards domestic production → raise u/e	"Beggar-thy-neighbour" policy
Develop infant industries ● **Infant industry**: industry with potential CA (as deemed by govt) but too young / undeveloped to realise its potential, esp faced with more established foreign competition ● Keep out foreign competition, give domestic firms larger share of home market, expand scale of production, reap iEOS → develop genuine CA → able to compete with foreign competitors w/o protection (remove protection)	Difficult to determine which industries have that potential CA → waste resource May breed inefficiency and complacency - sheltered from competition
Protect sunset industries ● **Sunset industry**: an industry in decline ● Old established industry no longer competitive → require temporary protection → lessen impact of mass structural u/e (delay restructuring, more time for workers to be retrained, seek other jobs)	May actually hinder restructuring of economy, by preventing it from growing through development of new sectors → removal of protection allows for quick development of new industry
Protection against dumping ● **Dumping**: selling of goods in foreign market at price below MC ● Predatory dumping: in short run sell at low prices → drive out local competition, gain monopoly power → in the long run sell at high prices ● charge csr higher prices ● Protect domestic firms, reduce u/e	Domestic producers may falsely accuse foreign firms of "dumping" when they cannot match their lower prices, which may actually be so due to them being more efficient
Diversification (resilience) ● Protectionism to develop new industries → diversity economy away from narrow concentration on a few industries, remain self-sufficient (even if no CA) ● Import restriction: [infant industry argument]	

● Export restriction: developing economies diversity economy towards higher value-added activities, away from narrow specialisation in primary product industries ○ Reduce cost of industrial o/p → promote downstream industries ○ Establish higher value-added industry → TRX rise	

Against

- **Lower world o/p and consumption**: prevents countries from benefiting from specialisation and trade → decline in trade → lower o/p → lower consumption levels
- **Higher prices and loss in welfare**: protectionism i.e. tariffs → raise prices → lower csr welfare
- **Greater inefficiency**: lower consumption breeds complacency → protected industry dependent on protectionist measures → disincentive to improve efficiency → greater allocative and productive inefficiencies
- **Reduced consumer choice**: amounts of imports decrease → lower choices available → lower csr welfare
- **Misallocation of resources**: resources tied up in protected industries cannot be used for other more efficient industries

Economic co-operation

Free trade agreement (FTA): legally binding international treaties b/w trading partners that seek to promote trade by reducing barriers to

1. trade in goods
2. trade in services
3. investment

Generic benefits & costs: refer to globalisation
Specific:

Benefits	Costs
Increased access to foreign markets Increase X and I … anchor on goals Allow firms to enjoy larger profits **Protection and promotion of investments in overseas markets** Investment income from higher investments in overseas market improve primary income balance → improve current account balance **Stability**	

● Sign more FTAs with many diff countries to diversify trading partners ● If a particular trading partner is experiencing recession, can fall back on other trading partners for exports [diagram]	

could you highlight some impt cross-topical links that could be useful in answering questions (eg btwn micro and macroecons - how taxes can correct negative externalities and also decrease AD by reducing C)

Fiscal policy
- (broad) => macroeconomic applications to AD, AS → RNY, GPL, u/e, BOT
- (specific aspects e.g. C tax, green subsidies) => sustainable growth (macro), externalities (micro)
- (specific aspects e.g. progressive tax, transfers) => inclusive growth (macro), equity & Gini (micro)
- (specific aspects e.g. tariffs) => expenditure-switching v expenditure-decreasing => BOT

Costs of inflation
- Micro: allocative efficiency & distribution of Y
- Macro: other goals
- Ultimate goal: SOL
- Cost to crs v.s. cost to prs

Impact of macroeconomic issue / policy tool
- Micro v.s. macro dimension
- Impact on crs v.s. prs

Elasticity
[Nov 2008] Discuss the relative significance of the multiplier, the price elasticities of demand for imports and exports, and crowding-out in influencing macroeconomic policy decisions. [25]

DD/SS
- Exchange rate movement
- wage gap between skilled & unskilled L

PPC
- Scarcity, choice & opportunity cost
- Comparison of opportunity cost => comparative advantage
- Unemployment & under-employment => opportunity cost & inefficiency
- Actual v.s. potential growth

Marshall-Lerner's condition
The Marshall Lerner condition, when and where to use them in my essay. When to use Marshall-Lerner's condition: when explaining BOT, TEM/TRX or AD?

TRIGGER: exchange rate

Must write out the inequality: $|PED_X| + |PED_M| > 1$

DO NOT: with ER depreciation, prices of X in foreign currencies decline, inducing a more than proportionate increase in Qd for X

Refer to the chunk in the notes

How different are 8,10 mark CSQ evaluations different from essay ones?

CSQ (8m): one evaluative point that is explained PLUS a recommendation is made

CSQ (10m): two evaluative points explained or one point that is well developed PLUS a recommendation is made

Essay: two explained evaluative judgement PLUS a summative conclusion

1. What is autonomous and induced consumption? What affects k and what shifts AD?

$C = C_a + C_i$

$\rightarrow C = a + bY$

$MPC = \frac{\Delta C}{\Delta Y} = b$

Induced → income induced (affected by income)
Autonomous → independent of income

Common Questions

ACJC 2023 Q5(a)
Explain why countries use different monetary policy tools to address rising inflation. [10]

- "Different monetary policy tools" to address rising inflation: Interest Rate and Exchange Rate. The choice of monetary policy tool will depend on the nature of a country's economy: Large vs small and open
- Context: U.S. and Singapore
- R1: Explain why the U.S. chooses to use interest rate policy and explain how an increase in interest rate helps to address rising inflation.
- R2: Explain why Singapore chooses to use exchange rate policy + explain how an appreciation of the exchange rate helps to address rising inflation.

ASRJ 2023 Q4(b)
Discuss the extent to which these statistics are useful in determining the change in Singapore's standard of living in 2021. [15]

- R1: Explain how real GDP growth rate is useful in determining change in standard of living in Singapore in 2021 + limitations.
- R2: Explain how inflation and unemployment rate is useful in determining change in standard of living in Singapore in 2021 + limitations.

Globalisation

Question	Approach
Protectionism - types, purpose	
FTA	Mention both trade & capital flow
Costs and benefits of globalisation	
Comaprative advantage	Dynamic (why changing CA), Sources of CA

Annex – Case Studies

Japan ends negative interest rate
https://www.weforum.org/agenda/2024/03/japan-ends-negative-interest-rates-economy-monetary-policy/#:~:text=In%20a%207%2D2%20majority,in%20Japan%20in%2017%20years.

SG fiscal policy
SG monetary policy

2008 financial crisis
https://www.investopedia.com/articles/economics/09/financial-crisis-review.asp

Asian financial crisis
https://corporatefinanceinstitute.com/resources/economics/asian-financial-crisis/

Sri Lanka
https://www.bbc.com/news/world-61028138