MACROECONOMICS

For people who think hwachong notes suck.

MACROECONOMICS

A comprehensive A-Level guide, or what you do when hwachong notes suck.
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Chapter 1: Things you *simply* have to mug.

Concepts of National Income

This is, in all honesty, pure memory work.

	Gross Domestic Product (GDP)	Gross National Product (GNP)
Definitions	The total market value of all **final** goods and services **newly** produced within the **geographical boundaries** of a country during a specified period, usually one year, before provision for **capital consumption**. I.e. all goods and services produced by capital invested locally	The total market value of all **final** goods and services newly produced during a specified period, usually one year, by productive factors **owned by residents of the country**, irrespective of where the factors are located, before provision for **capital consumption**. **GNP** = **GDP** + **Net Property Income from abroad (NPIA)** = GDP + Property income from abroad – Property income paid abroad Property income paid abroad by foreign companies in country that transfer profit and dividends out to foreign owners. Property income from abroad from residents making foreign investments. GDP higher only if NPIA is positive. If negative, GNP higher.
Market Price	Market Price: value of output at shop level; price purchasers have to pay for the G&S sold on the market Factor Cost: what the factors of production received for the produced G&S cost Market price and factor cost different due to indirect taxes (taxes levied on G&S that raise market price) and subsidies (financial aids given by government that lower the market price). **GDP/GNP (Market Price) – Indirect Taxes + Subsidies = GDP/GNP (Factor Cost)**	
Gross VS. Net	Capital consumption: loss in value of physical assets (plant and equipment) due to wear and tear; obsolescence. To maintain productive capacity of country, depreciation must be made good occasionally. Provision for depreciation = allowance for capital consumption. This also allows for a better picture of the net flow of goods and services. **GROSS** National Product – Depreciation = **NET** National Product *In referring to NI, Net National Product at Factor Cost is always used. NNP is a better measure of country's output, but GNP usually used because it is difficult to ascertain accurately the value of depreciation. Estimates tend to be imprecise and influenced by income tax laws.*	
Real VS. Nominal	Nominal: total market value of all final goods and services, and therefore has **PRICE** and **QUANTITY** components. Change in Nominal GDP/GNP may be due to rise in price level, rise in physical output, or both. Therefore to determine whether changes are price of quantity related, it is useful to obtain GNP figures in current and constant prices. Nominal GDP/GNP: value of output measured at prevailing/current prices Real GDP/GNP: level of output in terms of physical quantities, effects of price changes removed $\text{Re}\,alGNP = \frac{MoneyGNP}{GNPDeflator} \text{X}100$	

Difficulties in Measuring NI *(not very necessary if you ask me)*

1. *Arbitrary Definitions*
   - Different definitions of what is included in NI
   - E.g. including activities which are not exchanged for money – therefore no market price and require imputed value
2. *Imputed Values*
   - Owner Occupied Housing; Employees' remuneration in kind such as food and lodgings; Goods consumed by producers themselves; Service of buildings owned and occupied by public authorities
   - Difficult to find accurate valuation for these activities, which are likely to differ across countries and be inaccurate
3. *Omissions in measurement of NI*
   - Non marketed activities: housewives work, community work
   - Illegal activities: gambling and smuggling
   - Unreported activities: summer jobs, private tuition. Unreported to avoid the taxman, and constitutes a hidden black economy
4. *Difficulty in obtaining reliable and complete information*
   - Data obtained through sampling, not designed fully for NI calculations
   - E.g. income tax returns may fail to cover lower income groups, or people under-report incomes to avoid higher taxes
5. *Difficulty in calculating depreciation*
   - Different firms use different methods in calculating depreciation, therefore giving different data
   - This makes national measurement of depreciation difficult and arbitrary, and makes dealing with gross output easier
6. *Danger of double counting*
   - Final and intermediate products – intermediate products counted even though they do not contribute directly to output
   - Earned and transfer incomes – no good/service provided when income is transferred

Uses of NI statistics *(not very necessary if you ask me)*

1. *Indicate overall SOL of people*
   - Real per capita national income used since people's SOL dependent on amount of goods and services
   - $\text{Real GNP per capita} = \frac{\text{Real GNP}}{\text{Population}}$
2. *Measure the rate of economic growth*
   - Economic growth represented by outward shift of PPC (achieved through increases in LLCE)
   - This growth measured in terms of percentage increase in real output
3. *Calculate rate and direction in which national income is growing*
   - Using output method, we can see contributions made by each sector of the economy
   - Can therefore tell the economic condition of each sector (stagnating, growing, declining) and allow effective policies to be made
4. *Indicate distribution of factor incomes among wage earners and property owners*
   - Using income method, we can obtain the income distribution amongst different workers
5. *Assist in formulating policies*
   - To achieve various internal and external macroeconomic goals, governments can refer to NI figures when formulating policies (taxation, foreign trade, public investment etc.)
6. *Assist firms in marketing and research*
   - Income level of individuals help businesses determine pattern of consumption
   - E.g. disposable income of consumers gives a gauge of their ability to buy – helps firms to decide when to release new products
7. *Assist international economic planning*
   - E.g. individual country contribution to the UN's aid and assistance programmes determined by the size of its NI

Comparisons of National Income *(this, on the contrary, is extremely necessary)*

Over Time	1. *Changes in Price Level* – NOMINAL GDP/GNP misleading especially when country experiences high inflation rate. Therefore use REAL figures for comparison – REAL national income measures value at constant prices, i.e. increase = rise in output and therefore rise in living standards – NOMINAL increase could simply mean a rise in prices without rise in living standards 2. *Changes in Population* – Population grows over time, so real GNP per capita should be used to see if individual share of real NI is growing or falling 3. *Composition of GNP* – National income: measures level of production. May not be good indicator of consumption level – Country's output includes both consumption and investment goods, but **CURRENT living standards** depend only on consumption – Rise in NI from rise in exports will not increase SOL if income generated not spent on increased imports. Fall in NI due to rise in imports does not necessarily reduce SOL – For comparing changes in consumer welfare, must determine size of GNP for consumer use, i.e. amount of consumer goods 4. *Distribution of GNP* – Judge whether there is an equitable distribution, i.e. does the average person benefit from increase in NI, or is it just the elite few 5. *Non-monetary versus monetary transactions* – NI statistics only involve monetary transactions – Production that does not pass through a market is not counted in NI statistics even though they contribute to the total output of final G&S in the economy – E.g. housewives' work and charity work – Therefore true level of production in economy may be understated 6. *Nature and Reliability of data* – Data obtained through **sampling**, not designed fully for NI calculations – E.g. income tax returns may fail to cover lower income groups, or people under-report incomes to avoid higher taxes – Made worse in developing countries without proper accounting and data collection systems 7. *Intangibles* – Real per capita NI cannot measure changes in intangibles that also affect SOL – E.g. increased production may increase pollution and other negative externalities that could undermine rise in SOL brought about by rise in real per capita NI – E.g. increased production brought about by disamenities (longer working hours and more stress) could also undermine rise in SOL
Over Space (Countries)	1. *Different accounting practices* – E.g. different provisions for depreciation, different tax laws. More advisable to use GROSS NI to compare between countries 2. *Different size of non-monetised sector* – E.g. the barter trade system may be much more prevalent in developing countries and not captured in NI statistics 3. *Different currencies involved* – NI statistics have to be converted to universally accepted currency, e.g. the greenback – However may not be satisfactory as exchange rate between currencies can fluctuate for various reasons and change converted NI value. Official exchange rates not always reliable as they as subject to government manipulation – **Purchasing Power Parity (PPP)** can be used to eliminate some of these problems as it measures how much goods and services can be bought by a unit of currency at home compared to other currencies 4. *Differences in composition of NI* – How much capital/investment goods and how much consumption goods 5. *Different distribution of income* 6. *Different amount of intangibles* 7. *Differences in availability of data*

Other indicators	*Net Economic Welfare*: adds to GNP certain items such as leisure and housewives' services, deducts costs of pollution and other disamenities *Physical Quality of Life Index*: considers life expectancy at age one, infant mortality rate and literacy rate.

Factors influencing size and growth of NI

Internal Factors

1. *Improvement in quality and quantity of factors of production*
   - Land: soil, climate, minerals, oil
   - Labour: education and training, health and welfare standards, specialisation and division of labour
   - Capital: rate of net investment (different between gross investment and depreciation) – whether plant equipment, communications systems and other infrastructure maintained along with increased investment; labour adaptability to new work procedures and retraining; scientific and technical research for new processes and technology
2. *Enterprise*: entrepreneurship, foreign investment brought about by liberal economic policies
3. *Government policies*: how well government maintains economic and political stability; taxation and expenditure policies

External Factors

1. *Foreign loans and investment*: what is the NPIA? Positive or negative? Excess income – purchase more imports?
2. *Terms of trade*: rate at which exports can be exchanged for imports, dependent on relative export/import prices. Improvement in TOT implies that country can get more imports per unit of export, therefore increasing amount of G&S available and raising SOL

National income determination

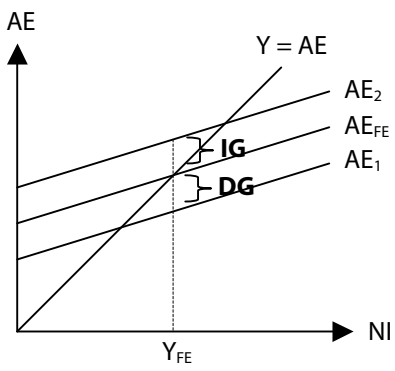
By now you should be completely familiar with how to draw a Y = AE graph, and an AD/AS graph. Don't bother with the 2, 3 and 4 sector economy things – that's wasting your time. All you need for this chapter is to memorise the definitions, some key factors and how to explain the multiplier effect. Also be familiar with using AS/AD to explain inflation, and the three ranges of the AS curve (Keynesian, intermediate, classical).

AE = C + I + G + (X – M)

- *Withdrawal / leakage*: any siphoning off of expenditures from the income flow between firms and households, e.g. savings.
- *Injection*: any fresh of additional expenditure going into or added onto the domestic income flow, e.g. investment spending.

Definitions

- *Consumption function*: a function C = a + bY showing the relationship between consumption and income, ceteris paribus. It has an autonomous component (the minimum amount spent even if income is zero) and an induced component (consumption that changes with income).
- *Savings function*: if consumption function is C = a + bY in a 2 sector economy, then S = (-a) + (1 – b)Y. This is because MPC + MPS = 1.
- *Average propensity to consume*: proportion of total income consumed, C/Y.
- *Marginal propensity to consume*: change in consumption as income changes, ΔC/ ΔY.



More definitions:

- *Deflationary gap*: this occurs when current planned expenditure brings about an equilibrium level of NI that is insufficient to produce full employment – i.e. not on the PPC.
- *Inflationary gap*: occurs due to excess demand in an economy at FE, causing demand-pull inflation.

Factors shifting consumption and savings functions

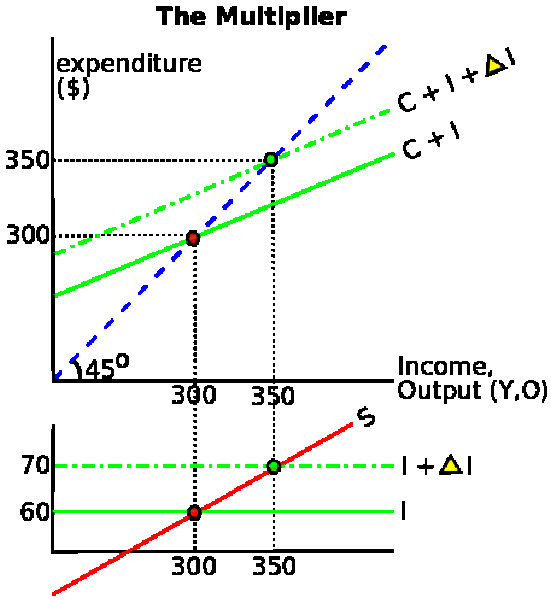
- *Wealth*: increases and decreases in wealth.

- *General price level*: increase in prices obviously causes consumption to fall.
- *Expectations of future income*: if we expect greater income, we will spend more now.
- *Consumer Credit*: if more consumer credit is available we are likely to borrow more and buy more durables, especially if interest rates are low.
- *Taxes*: decreasing taxes will increase consumption, particularly for direct taxes.

Factors affecting MEI curve

- *Business expectations*
- *Cost of new capital goods*
- *Innovation and technology*
- *Taxes*

Multiplier



The multiplier is the number of times a rise in income exceeds the rise in injections that produced it. It is measured by K = ΔY/ ΔJ, or K = 1/(1 – MPC) = 1/MPW.

To illustrate how the multiplier works, we assume an economy not at full employment with a marginal propensity to consume of 0.8. All other economic conditions remain constant throughout the period for which the multiplier acts. The government decides to reduce unemployment by spending 10 billion it on road building.

- In the first stage, 10 billion is received as income by building workers and contractors.
- In the second stage, these workers spend 8 billion out of the 10 billion on consumer goods with 2 billion leaking into savings, since MPC = 0.8.
- In the second stage, owners of these shops and cafes will spend 6.4 billion on other goods.
- In subsequent stages, less and less income is generated, as some part will leak into savings.
- Total increase in NI is given by K times ΔJ.

Stage	Initial Change	Change in NI (billions)	Change in C (billions)	Change in S (billions)
1	10 billion	10	8	2
2		8	6.4	1.6
3		6.4	5.12	1.28
4				
Total		50	40	10

AS/AD analysis

- To memorise: AD shows the relationship between the price level and real equilibrium output levels at which planned spending equals actual output. Only points at which AE is in equilibrium with total output of a country contribute to AD when price levels change.
- AS/AD is always drawn with Y-axis being *general price level*, and X-axis being r*eal output*.
- Ranges of AS curve: *Keynesian* (where there is excess capacity), *Intermediate* (Where there is some excess capacity that is being taken up as economy moves towards FE), *Classical* (no excess capacity)

Factors affecting AD

- *Changes in economic outlook*
- *Changes in expected inflation*: if higher inflation expected in the future, people buy more now
- *Government policies*: changes in government expenditure and taxation policies
- *Changes in money supply* (interest rates)
- *Changes in exchange rates*
- *Changes in our trading partners' economic status*

Factors affecting short run AS

- *Changes in costs of production*
- *Supply shocks*

Factors affecting long run AS
- *Incentives for work*: e.g. lower income tax
- *Working and business environment*: e.g. reduction in regulation and bureaucracy
- *Changes in human and industrial capital*: e.g. more machines, more productive workers, new technology
- *Increased labour force*: e.g. more women working

Taxation and Public Finance

I don't think A Level examiners will be stupid enough to give you a question asking you to describe the wonders of taxation (and there's no such question in the TYS), so you can count your lucky stars. They have asked for comparisons between direct and indirect tax systems though, so I suppose you just need to mug that.

Taxes: compulsory transfers of money from private individuals, groups of institutions to the government.
- *Direct*: taxes paid directly by the group on which the tax falls. The burden cannot be shifted to another. These taxes include income tax and corporation profits tax.
- *Indirect*: there are taxes on an individual's expenditure, levied on goods and services. Tax incidence can be shifted from seller to buyer depending on PED. For example, GST.

Characteristics of a good tax system
- *Equity*: taxation is based on one's ability to pay
- *Economical*: low administrative costs
- *Convenience*: little administrative hassle for taxpayers
- *Clarity*: taxpayers have perfect information about their tax liabilities
- *No disincentives*: taxpayers are not discouraged from working, saving, consuming and investing.

	Advantages	Disadvantages
Direct Taxes	– Progressive in nature, hence reduces income inequality – Clarity achieved since tax is deducted each time a worker receives pay – Effective demand management instrument as they act as automatic stabilizers	– As they affect real income, they act as disincentives, and may stifle investment and consumption – Tax evasion is a likely possibility – Higher administrative costs as each taxpayer's liability must be calculated – May cause wage price spiral
Indirect Taxes	– Less disincentive than direct taxes as they are hidden in the prices of goods, and people are thus less aware of the amount being paid – Less administrative costs as they are easier to collect. Also more flexible as they can be changed before the next budget comes out – If consumption is reduced and channelled into savings, it acts as a source for loanable funds, stimulating investment – Can be used to protect domestic industries, and reduce consumption of demerit goods	– Regressive in nature since everyone pays same amount of tax – poor are less protected – Producers may try to transfer tax incidence to consumers, reducing consumer welfare – May cause cost push inflation – May harm production if producers lose economies of scale as a result of fall in output

Chapter 2: Macroeconomic Goals

There are 4 main macroeconomic goals: low inflation, low unemployment, economic growth and balance of payments equilibrium. What we need to know:
- *Effects of these goals on the economy*
- *Trade off with other goals*
- *The policies we use to achieve them and their effectiveness*
- *These goals in the Singaporean context*

A good evaluation of any macroeconomic goals must involve the above four segments. It's not necessary to memorise all the effects of each goal (e.g. expected and unexpected inflation and its effects).

These goals are important when evaluating the effect of events on the economy:
- *We evaluate first the effects on C, I, G, (X – M) / effect on the 4 macroeconomic goals*
- *The reasons for these effects (e.g. change in interest rate, change in exchange rate)*
- *The effect on standard of living*
- *Other miscellaneous effects (e.g. an increase in oil prices worldwide increases amount of R&D on oil substitutes)*

<table>
<tr><td colspan="2">Goal 1: Inflation
A sustained increase in the general price level, typically measured with the CPI (consumer price index)</td></tr>
<tr><td>Economic effects</td><td>Production, investment, employment
– Higher productivity: people feel more confident about the state of the economy and less worried about the value of their money.
– Low cost-push inflation: investment increases since investors are more confident of returns. Also borrowing and lending of credit goes on as usual, stimulates investment.
– Low amount of demand-pull inflation: justifies why inflation should not be zero – a small amount of demand-pull inflation stimulate investment and potential economic growth due to gains in the SR. Also decreases unemployment in the SR.
– Unemployment: if economy not at FE, cost-push inflation increases unN, demand-pull decreases unN.

BOP & exchange rate
– If we have lower inflation than other countries, our exports become more competitive, and our domestic goods more competitive (since imports are relatively more expensive), therefore BOP improves. Exchange rate will appreciate.

Other effects
– Shoe leather costs (incurred when people convert money to other assets), menu costs (incurred as price tags, catalogues etc. are updated). These costs may cause misallocation of resources if they distort price signals, and also waste resources due to constant changing needed.
– Income redistribution: fixed vs. variable income earners, creditors vs. debtors</td></tr>
<tr><td>Trade offs</td><td>– Unemployment: e.g. to decrease inflation, decrease money supply and increase i/r → investment and consumption fall, unN increases.
– Balance of payments: e.g. to decrease cost-push inflation, appreciate exchange rate → exports less price competitive, BOP worsens if Marshall Lerner condition not satisfied
– Economic growth: higher i/r → lower C & I, stifles both potential and actual economic growth</td></tr>
</table>

Policies to achieve	**Fiscal Policy** – Use to reduce demand-pull inflation – But subject to various technical problems (refer to Chapter 3) – *In SG*: used with supply side effects to ensure long-term growth and provide room for potential growth, thus hedging against cost-push inflation as well. E.g. government spending on capital goods **Monetary Policy** – Use to reduce demand-pull inflation – But subject to various technical problems, as well as flaws in surrounding interest rate theories (refer to Chapter 3) – Monetarists: believe in the direct transmission mechanism MV = PT. Since V and T are assumed to be constant, inflation is money related. Also, since investment is i/r elastic, MP will be effective in influencing GPL via the indirect transmission mechanism. – Keynesians: only believe in indirect mechanism, but they believe investment is i/r inelastic, therefore MP is ineffective. Also, decreased demand due to increase in i/r will decrease prices, decreasing transactions demand for money. Therefore i/r decrease, offsetting effect of MP on inflation. – *In SG*: MP not effective since we cannot do OMO effectively. Being a small open country also means any slight deviation from international i/r would trigger huge capital inflows or outflows. Therefore we are a price taker of i/r. – *In SG*: domestic demand constitutes very little of AD since our external exports sector is 2 times of GDP. Therefore MP in Singapore affects AD very little. **Supply Side Policy** – Use to reduce domestic cost-push inflation – *In SG*: used together with fiscal policy. Real-wage push inflation is kept in check by the tripartite agreement between employers, unions and the government, as well as the National Wages Council. **Exchange Rate Policy** – Use to reduce imported cost-push inflation, the main source of cost-push inflation in SG – *In SG*: this is the main tool to control inflation since most of our inflation is imported (our X+M combined is four times our GDP) – *In SG*: import-price push inflation and imported demand-pull inflation are kept in balance via a relatively strong exchange rate managed within a band against a trade-weighted basket of currencies (BBC model).
Important goal in SG?	– *Definitely*: keeps investor and consumer confidence up which is important to the SG economy – However, rather than using an i/r centred MP to managed inflation, our low inflation is a consequence of our *exchange rate centred MP* and *fiscal-supply-side policies* – both of which are intended to promote economic growth. – *Our MP*: using exchange rates to control imported inflation and therefore controlling the largest cause of inflation in SG. – *Our fiscal policy*: has supply side effects so AS is continuously shifting rightwards, providing room for potential growth and keeping domestic cost-push inflation in check. Other policies include education and retraining, thus promoting efficiency and productivity. – Also, fiscal prudence on the part of the government prevents overspending. – *Therefore*: economic growth (both actual and potential) remains SG's main macroeconomic goal. In achieving economic growth we achieve low inflation as well.

Goal 2: Unemployment *The number of people of working age who are without work, but willing and able to take up employment*	
Types and Causes	– *Frictional*: arises because of imperfect information. Time is needed to match people to the appropriate jobs as they go around searching. – *Seasonal*: self-explanatory. – *Structural*: when changes in technology/industries change the set of skills needed by workers, workers without these skills become unemployed. – *Cyclical*: unemployment caused by up and down swings in the business cycle.

Economic effects	– *Loss in production and income*: national income falls, and SOL falls too – *Loss in human capital*: unemployed people may lose their skills over extended periods of time, reducing economy's potential output. Vicious cycle, as older workers may be less preferred to their cheaper, younger counterparts. – *Loss in tax revenues*: as income falls, revenues from taxes fall. – *Loss in social stability*: may cause more crime and other social issues.
Trade offs	– *Inflation:* e.g. to decrease unemployment, increase money supply and decrease i/r → investment and consumption increase. If economy at FE, demand-pull inflation results – *Balance of payments*: e.g. devalue currency to make exports more price competitive, reducing unN in the export sector. But if Marshall-Lerner condition not satisfied, cost-push inflation from imports will worsen the BOT and therefore the BOP. – *Economic growth*: as economy powers ahead, older workers tend to get structurally unN, as they cannot keep up with the new skills needed for new industries.
Policies to achieve	**Fiscal Policy** – Use to reduce cyclical unN – But subject to various technical problems (refer to Chapter 3) – *In SG*: used with supply side effects to ensure long-term growth and provide room for potential growth, thus hedging against structural unN as well. E.g. government retraining of workers, lifelong learning. **Monetary Policy** – Use to reduce cyclical unN – But subject to various technical problems, as well as flaws in surrounding interest rate theories (refer to Chapter 3) – *In SG*: MP not effective since we cannot do OMO effectively. Being a small open country also means any slight deviation from international i/r would trigger huge capital inflows or outflows. Therefore we are a price taker of i/r. – *In SG*: domestic demand constitutes very little of AD since our external exports sector is 2 times of GDP. Therefore MP in Singapore affects AD very little. **Supply Side Policy** – Use to reduce structural unN – *In SG*: used together with fiscal policy. Real-wage push inflation is kept in check by the tripartite agreement between employers, unions and the government, as well as the National Wages Council. Continued retraining and skills development subsidised heavily by government.
Important goal in SG?	– *Definitely*: due to above factors that are important to SG. – However, our low unN is a consequence of our focus on continued economic growth (both potential and actual). Our fiscal policies have supply side effects and focus on providing a *good infrastructure* and *educated workforce* for the private sector. As such we can continue to attract FDI and other investment, while hedging against structural unN. – Since our external sector is 4 times the size of our domestic sector, cyclical unN in Singapore tends to be externally induced. Hence economic diversification also reduces our dependence on any one foreign economy. – *Therefore*: actual economic growth (to prevent cyclical unN via diversification) and potential growth (to prevent structural unN via supply side policies) remains SG's main macroeconomic goal. In achieving economic growth we achieve low unN as well.

Goal 3: Balance of Payments *Statement that records all economic transactions between a country's residents and the world during a time period*	
Trade offs	– *Inflation:* e.g. to correct BOP deficit, devalue exchange rate. Import-price push inflation results. – *Unemployment*: e.g. use demand deflationary policies. Domestic demand falls, unN increases. – *Economic growth*: to reduce BOP deficit, deflate demand. Economic growth slows down.

Structure	**Current account** – Trade in goods (visible trade = X – M) and trade in services (invisible trade) – Income flows: *w, r, i, p*, includes investment returns. – Current transfers **Capital Account** – Very small category, includes debt forgiveness, disposal of non-financial assets **Financial account** – Direct investment – Portfolio investment (i.e. in stocks, shares etc.) – Other short term investments (e.g. hot money, bank deposits) **Official reserves account** – Accommodates any surplus or deficits in the BOP by using reserves
Economic effects	<u>BOP Deficit</u> **Causes include:** – *Different rates of inflation and growth* between countries – *Income elasticity of demand* for imports higher than for exports. E.g. developing countries' demand for capital and manufactured goods increases rapidly with income, but demand for their exports (usually primary goods) grows at a much slower rate – Trading blocs may put up trading barriers to other countries **Effects include:** – If the BOP deficit is financed by borrowing from abroad, huge rates of interest might have to be paid. If people abroad suddenly withdraw their money, it will lead to a run on the currency. – As reserves are reduced, investor confidence may be reduced, leading to various ill effects. <u>BOP Surplus</u> **Why reduce surplus?** – For a country experiencing large current account surpluses over many years, the opportunity cost involved is the G&S it could have consumed. – A country experience a surplus necessarily means another country is experiencing a deficit. These other countries may pressure the country with the surplus to reduce it, or even adopt protectionist measures. – Demand-pull inflation may result if X increases by a lot. – Exchange rate may rise due to hot money inflows or current account surpluses, causing our local goods to lose competitiveness. If the current account surplus is caused by high demand for one good (e.g. oil in the UK in the 1980s), then other goods (e.g. non-oil products) will lose price competitiveness.
Policies to achieve	**<u>Expenditure Reducing Measures</u>**<u>: contractionary MP and FP</u> *Advantages*: – Demand for imports reduced, while demand for domestic goods falls as well. Hence producers can sell more goods overseas, increasing exports. – Domestic inflation rate will also fall relative to other countries, increasing price competitiveness of exports. – Increased interest rates (brought about by MP) will attract capital inflows, increasing funds for portfolio investment. *Disadvantages*: – Higher unemployment and slower economic growth will result. – Expenditure reducing not effective if demand for imports is income-inelastic – Other evaluation of MP and FP (refer to Chapter 3) **<u>Expenditure Switching Measures</u>**<u>: raise the price of imports relative to domestic goods</u> – *Impose tariffs*: may invite retaliation from other countries, and cause complacency and inefficiency in domestic firms. – *Devalue domestic currency*: must comply with Marshall-Lerner condition, and trading partners must not devalue as well. Also subject to J-curve effect, which states that BOT deteriorates in the SR after devaluation. – *Import Quotas* – *Policies to make exports easier and more profitable*: e.g. provide information about foreign markets.

Important goal in SG?	– *Definitely*: due to above factors that are important to SG. – However, our BOP equilibrium results from an exchange rate centred MP that focuses on providing room for economic growth in Singapore. – Our trade balances have generally been healthy, and our currency relatively strong to ensure a healthy BOT. Since our exports have high import content, a strong currency is more a boon than a bane to them. Making SG an attractive place for investment to stimulate economic growth (e.g. promoting us as a financial hub, cutting the corporate tax rate to 18%) also attracts capital inflows regularly. – However, our main worry is that excessive export driven growth could cause overheating via demand-pull inflation. Hence we use effective supply-side policy to provide potential growth. – *Therefore*: economic growth (both actual and potential) remains SG's main macroeconomic goal. In achieving economic growth we achieve a stable BOP as well.

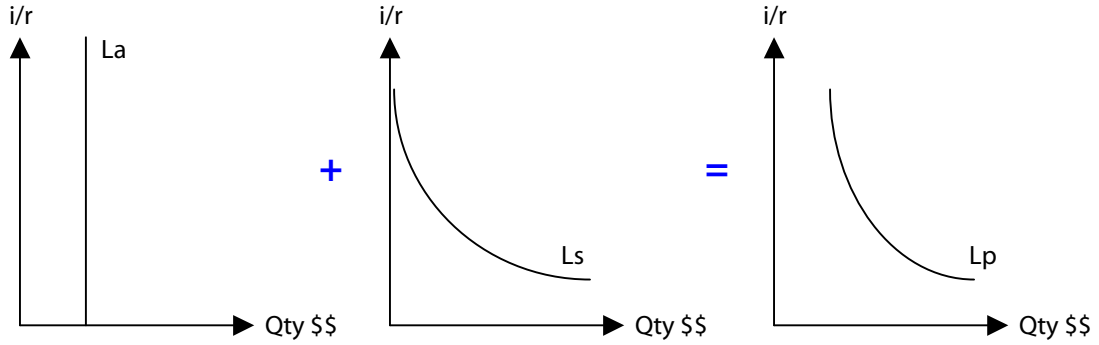
Goal 4: Economic Growth *The sustained annual percentage increase in an economy's level of real output over time*	
Types	– *Actual*: the annual percentage increase in national output, i.e. rate of growth of actual output. – *Potential*: the percentage annual increase in the economy's capacity to produce The above can be illustrated with use of a PPC, or AD/AS curve.
Economic effects	**Benefits** – *Increased consumption levels*: leads to increased SOL. – *More income for all*: this is possible with a progressive tax system and an equitable income distribution. – *Reduces unN*: increase in AD (actual growth) reduces cyclical unN, while increase in AS (potential growth) may help to reduce structural unN. – *Environmental consciousness*: people start caring more about things other than their Ferrari. **Costs** – *Reduced current consumption*: use PPC to illustrate trade off between capital and consumption goods if country wants potential growth. – *Worsen income disparities*: especially for low skilled workers. – *Environmental Pollution*: e.g. depletion of natural resources.
Policies to achieve	**Actual Growth** – *Expansionary fiscal and monetary policies*: typical evaluation (Chapter 3) – Must also be accompanied by potential growth to prevent demand-pull inflation at classical range of AS. **Potential Growth**: through supply side policies – *Capital accumulation*: buy capital goods to increase productivity, spend on R&D to create new technology. – *Invest in human capital*: retrain old workers and continually upgrade skills. Encourage entrepreneurship. – *Foreign trade and investment*: attract FDI from overseas to establish new industries.
Important goal in SG?	– Currently, economic growth remains the most important goal in Singapore. – However, we may need to temporarily veer of this path is there are other more urgent economic problems at hand. For example, if there is high inflation, we will have to use deflationary policies that compromise economic growth in the short term.

Chapter 3a: Macroeconomic theories

In the A-Levels, you are sometimes expected in part (a) of essay questions to describe a particular theory. Hence it is imperative that you are familiar with the theories below. You are also expected to know the loopholes in these theories, and how applicable they are to Singapore – such information can be used in two main contexts:
1. *Evaluations of various macroeconomic policies and their usefulness to Singapore.*
2. *Evaluations of how relevant the theories below are to Singapore.*

Interest rate determination: the Liquidity Preference Theory

Money supply: the quantity of money held by households and firms in the economy at a given point in time.
Interest Rate: the cost of obtaining a loan to a borrower, and the return from the giving the loan for the lender.
Liquidity Preference: the desire to hold non-interest bearing cash balances instead of interest bearing bonds.
- *Transactions*: for planned daily expenses.
- *Precautionary*: for unplanned expenses.
- *Speculative*: used to buy assets (e.g. bonds) to make capital gains



Transactions + Precautionary = Active Balances, L_A
Interest-inelastic

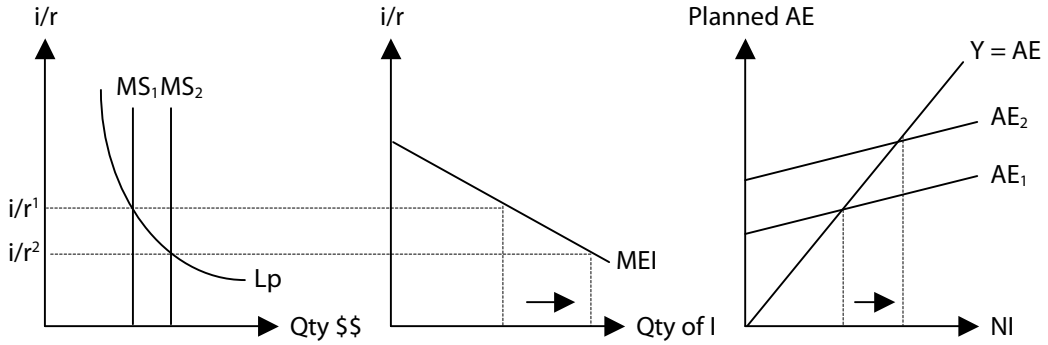
Speculative = Idle Balances, Ls
Bond prices and i/r vary inversely

Factors affecting LP curve
- *Level of real income*: as real income increases, Lp shifts rightwards.
- *General price level*: as GPL increase, Lp shifts rightwards.
- *Expectations of GPL*: if they increase, Lp increases.

Equilibrium i/r
- Determined by intersection of money supply and Lp.
- Money supply is insensitive to i/r since it is mainly determined by Central Bank.

LP theory in the economy
1. *Monetarist Direct Transmission Mechanism*
- Believes in the quantity theory of money: MV = PT (money supply X velocity = price level X total real volume of goods and services).
- V and T are relatively constant in the economy. V is assumed to be determined largely by institutional factors, while T is constant as the economy is assumed to be at full employment.
- Hence when M increases, P increases.
- Therefore "*inflation is always and everywhere a monetary phenomenon*".
- When money supply increases, people spend the excess money on G&S, causing AD to rise. Therefore GPL rises as well.
- Keynesians however did not believe in the direct transmission mechanism.

2. *Indirect Transmission Mechanism*



- The monetarists believed that C and I were interest elastic, and hence the indirect transmission mechanism provided a strong link between MS changes and changes in AD.
- Keynesians believed that C and I were interest inelastic as business sentiments were more important. Hence they believed that there was a very weak and unstable link between MS and AD at best.
- Keynesians also argued that at the *liquidity trap* (where i/r is so low people consider it to be rock bottom, hence expecting i/r to rise, causing bond prices to fall) people would simply hold cash to safeguard their wealth. Hence there would be no change in i/r and no change in AD.
- Excess demand created from fall in i/r would increase GPL if the economy was at FE, thus increasing transactions demand for money and offsetting the fall in i/r!

Comments on the LP Theory

- The transactions and precautionary demand for money may not always be interest inelastic – at high levels of interest they may be interest elastic (e.g. transactions demand to pay for consumer durables).
- Money supply in the real world in not determined solely by the Central Bank – it is also affected by international capital movements and a government's monetary policies.
- The LP theory tends not to be very relevant to Singapore; due to our small and underdeveloped bond market that makes it difficult to carry out an *i/r centred MP*.
- We are a small and open economy; hence our domestic money supply is determined largely by the influx of flow of capital from abroad. Singapore is seen as a stable country both economically and politically with strong financial institutions. Domestic inflation rate is low, meaning the Singapore currency is a good store of value. Hence large amounts of foreign funds have been attracted into the country, increasing the domestic money supply and keeping interest rates low.
- We are a price taker with no influence on i/r. Changes in Singapore's i/r tend to follow that of the US. If their i/r is higher than ours, money will flow out of Singapore. To pre-empt this, our i/r must be adjusted upwards to be in line with international rates, especially that of the US.
- Hence we use an exchange rate centred MP, rather than an i/r centred MP.

<u>Interest rate determination: the Loanable Funds Theory</u>

Demand for Loanable Funds: the amount households, firms, the government are willing to borrow at each i/r.
Supply for Loanable Funds: comes from current and pass savings of individuals and government, undistributed profits of firms, and other financial intermediaries that can create credit.

Equilibrium i/r

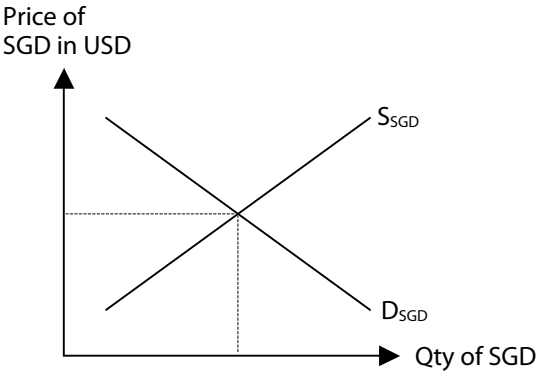
3. Determined by intersection of demand and supply, graph looks exactly the same except Y-axis is i/r, X-axis is quantity of loanable funds.

Comments on the Loanable Funds Theory

- In Singapore, *demand for loanable funds* comes typically from the private sector. With the current economic boom (particularly in the property market), demand for loans is expected to have increased.
- Business demand for loans for investment purposes will also have increased now given the economic boom.
- The Singapore government runs budget surpluses. Given the fiscal prudence of the PAP, there is also no need for the government to borrow from the public to finance any budgets.
- *Supply of loanable funds* comes from the general level of savings in the country, which is high relative to the income level. There is ample supply in the form of voluntary and involuntary savings (CPF).
- Voluntary savings happen to be the highest in the world. In 2000, the gross national savings out of GNP amounted to 51.5%.

Exchange rate determination

Foreign exchange: trading of one country's currency for another currency. Usually takes place in the foreign exchange market.
Exchange rate: the rate at which one currency is exchange for another. It reflects the external value of the currency.
- *Nominal ER*: exchange rate based on the nominal value of currency.
- *Bilateral ER*: exchange rate between the currencies of two countries.
- *Trade weighted / Effective ER*: value of a currency against a basket of other currencies of its major trading partners, each currency weighted according to the country's relative importance as a trading partner.



Demand and supply of currency

- *Local demand* for imports affects supply of SGD; *overseas demand* for our exports affects demand of SGD.
- *Inflow* of speculative or investment funds by foreigners affects demand of SGD (goes up); *outflow* of these funds affects supply of SGD (goes up).
- Financial gifts to the country increase demand of our currency and supply of the giver's currency. E.g. USA gives us 10 million – demand for SGD increases, supply of USD increases.

Exchange rate systems
1. *Fixed*: government fixes and guarantees the official price of its currency in terms of other foreign currencies, through continued intervention in forex markets to devalue / revalue currency.
2. *Freely floating*: currency is determined solely through market forces of demand and supply, and can thus appreciate or depreciate freely.
3. *Managed float*: combines a freely floating system with occasional intervention by the Central Bank to moderate unwanted fluctuations. Band for fluctuation is not disclosed, but Central Bank will only intervene when exchange rates exceed these bands.

Drawing of graphs: fixed and freely floating systems can be illustrated with the same graphs, but with different descriptions. Managed floats have two extra lines drawn on to illustrate the room for fluctuation.

Appreciation: occurs when market forces operate freely to increase the external value of a currency.
Depreciation: occurs when market forces operate freely to decrease the external value of a currency.
- *Relative inflation rates*: if our inflation rate is higher than other countries, we will demand more imports, and other countries demand less of our exports. Hence our currency will depreciate.
- *Relative economic performance*: if we perform better than other countries, we will tend to demand more imports, thus increasing supply of our currency and depreciating the currency.
- *Relative interest rates*: if i/r in Singapore falls relative to foreign countries, supply of SGD will increase as Singaporeans start depositing funds overseas. Demand for SGD will also fall, as foreigners are discouraged from placing funds here. Hence currency depreciates.
- *Currency speculators*: if speculators expect a fall in our exchange rate in the future, they will sell our currency now, and wait till it truly falls to buy again. Hence supply of SGD increases, demand for SGD falls.

	Advantages	Disadvantages
Fixed ER	– *Confidence and certainty*: international trade and investment is more certain as there is external price stability, and people do not have to be worried of exchange rate movements wiping out profits. – *Less room for speculation*: currency rates fluctuate less so less room for speculation. **THIS HAS HOWEVER BEEN PROVEN WRONG BY THE AFC.**	– *BOP*: there is no automatic adjustment to balance a BOP disequilibrium. – *Large forex reserves needed*: to keep the exchange rate fixed, governments must maintain large amounts of reserves for continued intervention in the markets. The opportunity cost here is spending on fiscal and supply side policies. – *Vulnerable*: e.g. the Asian Financial Crisis.

Freely floating ER	– *BOP*: there is automatic correction of any BOP disequilibria. E.g. BOP deficit will cause the currency to depreciate, which reduces demand for imports and hence resolves the deficit. – *No need to hold reserves*: the Central Bank does not need to hold large amounts of foreign reserves. – *Freedom to pursue domestic policies*: Central Bank need not worry about exchange rate and can focus on domestic policies instead.	– *Lack of confidence*: the exchange rate will be highly volatile, affecting investor confidence since the value of their profits is not stable. This also deters long-term investment and reduces potential growth. – *Increased speculation*: speculators will increase volatility of the ER and worsen investor confidence.
Managed Float	– *Some stability*: there is a reasonable amount of exchange rate stability to satisfy investors, hence disrupting trade and investment less. – *Some freedom*: there is some freedom to pursue domestic macroeconomic policy.	There is still some need to hold foreign reserves, which can be depleted if handled poorly. Managing these reserves can also bring about a whole lot of administrative and bureaucratic problems.

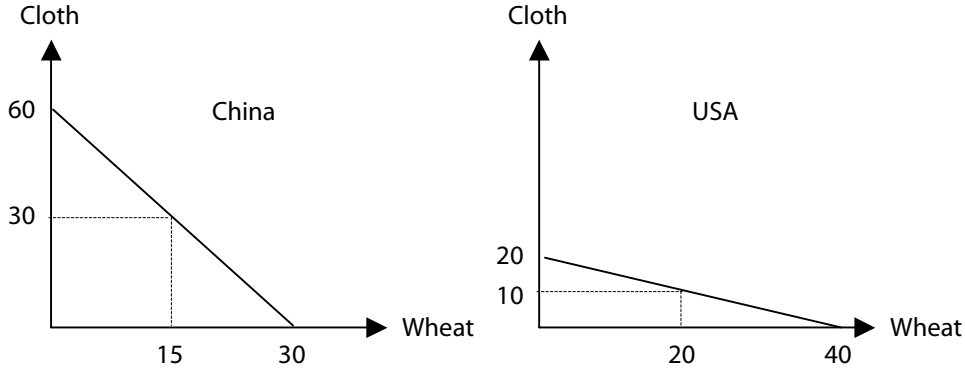
Law of Comparative Advantage

A country is said to have *comparative advantage* in the production of a good when she can produce the good at a lower opportunity cost than another country. The *law of comparative advantage* states that trade can benefit all countries if they specialize in the goods in which they have a comparative advantage, with terms of trade that lie within the limits set by the domestic opportunity cost ratios.

We assume that only 2 countries (China and USA) are involved in the production of 2 goods (wheat and cloth). There is perfect factor mobility and hence constant opportunity costs of production of each good in the country, and zero transport costs. Before specialisation, each country devotes half her resources to the production of each good:

	Wheat	Cloth
China	15	30
USA	20	10
Total World Output	35	40

Each country is currently producing along its own PPC, such that:



We observe that the opportunity cost ratios for each country is:

	1 unit of wheat	1 unit of cloth
China	2C	0.5W
USA	0.5C	2W

Therefore we can see that China has a comparative advantage in cloth production while the USA has a comparative advantage in wheat production. Hence both parties will benefit if they specialize in one good and trade.

We now assume complete specialization, so China only produces cloth and the USA only produces wheat. Hence output is:

	Wheat	Cloth
China	0	60
USA	40	0
Total World Output	40	60

The two countries now have to determine their terms of trade. China will not accept less than 0.5 units of wheat for each unit of cloth, and the USA will not pay more than 2 units of wheat. Therefore the terms of trade for cloth are: 0.5 wheat < 1 cloth < 2 wheat. Likewise for wheat: 0.5 cloth < 1 wheat < 2 cloth. We assume that they two countries trade 1 unit of cloth for 1 unit of wheat. Now they have:

	Wheat	Cloth
China	15	45
USA	25	15

Both countries end up with production possibilities outside their PPC, with China enjoying 15 more units of cloth, and the USA enjoying 5 more units of cloth and wheat. They can therefore consume at points previously outside their PPC curve. This increase in the number of goods represents an increase in the material well being, and ceteris paribus, and increase in the SOL of citizens in both countries.

However, we must take note that the law of CA has its limitations. In the real world, countries face factor immobility and hence are subject to the law of increasing opportunity costs. A country will tend to lose her CA as she specialises more and more in the production of one good, since increasingly unsuitable resources will have to be deployed, and as factor prices are driven up for a growing industry. Transport costs incurred in trading may also undermine the benefit brought about by trade. Finally, free trade does not always exist, and countries may adopt protectionist measures that protect industries they do not have a CA in.

Chapter 3b: Macroeconomic tools

When we discuss macroeconomic tools, we are talking about policies that can be used to manipulate the economy to attain our macroeconomic goals described in Chapter 2. In essays, you will regularly be expected to evaluate these policies (especially with reference to Singapore), and very commonly their theories as well (e.g. how applicable is the LP theory to Singapore; can and should a government keep interest rates low in an economy).

Therefore when evaluating macroeconomic tools, we must evaluate:
- *How practical they are;*
- *Any flaws or loopholes their underlying theories may have, as described in the previous part of this chapter.*
- *How applicable is this evaluation to Singapore.*

Fiscal Policy	
How it works	**Automatic stabilizers**: built in features of the economy that operate automatically to smooth out fluctuations in disposable income over the business cycle. – *Direct progressive tax system*: as income rises, people pay more taxes and vice versa. Hence disposable income is reduced during expansions, increased during recessions. – *Transfer payments*: these are unemployment and welfare benefits. As economy expands and unN decreases, government gives less out. Hence disposable income approximately maintained. **Discretionary fiscal policy**: deliberate manipulation of government and taxes to promote desired macroeconomic goals (contractionary and expansionary).
Uses	1. Cure cyclical unN – Tax holidays to encourage investment, increased government spending on say roads and infrastructure – Taxes on imports to encourage consumption of domestic goods 2. Reduce demand-pull inflation 3. Reduce BOP deficit (expenditure reducing) 4. Promote actual economic growth 5. Resolve income disparities via automatic stabilizers
Evaluation	– *Crowding out effect*: increased government spending has costs. To raise funds, government either have to increase taxes or borrow funds from financial institutions. If they raise taxes, it defeats the purpose of expansionary FP. If they borrow funds, they increase demand for loanable funds, causing i/r to rise and discouraging investment. Hence FP crowds out private consumption and investment. – Tax cuts will not stimulate I or C a lot if consumers and investors have poor business outlook and poor future income expectations. – Budgets tend to be inflexible and changing them to accommodate FP involves huge bureaucratic delay. – *Fiscal drag*: FP may be implemented at the wrong time since time is needed for the problem to be identified. Runs the risk of say, contractionary FP being implemented when economy is recovering from recession, slowing down growth instead. – Countries with *small multiplier* will benefit little from fiscal policy.
Relevant to SG?	Fiscal policy in Singapore hence aims to use a supply side approach to provide incentives for savings, investment and enterprise, hence achieving long-term economic growth. – The crowding out effect is not very relevant to Singapore since the government tends to draw upon previous budget surpluses, or on foreign reserves to finance its spending. Government also usually seeks to have a balanced budget. – Singapore has a very small multiplier due to its high volume of imports and large amount of savings, hence using FP to stimulate growth during a recession is highly ineffective. We believe in developing our private sector to maximise our resilience against recessions, through practices such as economic diversification, continued retraining of workers, and continued upgrading of infrastructure.

Monetary Policy / Exchange rate policy in Singapore	
How it works	MP aims to control money supply (MS) in two ways: **Regulating demand for credit** – *Central bank lending rate*: the rate at which Central Bank lends reserves to commercial banks. – If this rate is increased, banks will raise their own i/r and become selective in lending. This has a contractionary effect on credit creation, hence curbs increase in money supply. **Regulating supply of credit** – *Open market operations*: if the CB wants to reduce MS, it sells bonds. Buyers pay using money (credit from commercial banks), reducing their cash holdings and hence the credit creating ability of banks. – *Liquidity ratio*: the ratio of liquid assets (cash, treasury bills etc.) to liquid deposits. Expansionary MP will call for a lower ratio to increase credit-creating ability of banks. – *Special deposits*: CB freezes a certain percentage of deposits in a special account that cannot be touched. – *Moral suasions and directives*: qualitative (types of borrowers to lend to, e.g. don't lend to subprime borrowers) and quantitative (how much the bank should loan out).
Uses	1. Cure cyclical unN 2. Reduce demand-pull inflation 3. Reduce BOP deficit (expenditure reducing) 4. Promote actual economic growth
Evaluation	– *Responsiveness of MD to i/r*: Keynesians believed that demand for money (MD) was i/r elastic (since most people held money for speculation), and hence a large increase in MS would be needed to cause significant i/r fall. Monetarists believed that MD was i/r inelastic (since most people held money for transactions and precautionary motives), hence a small increase in MS was sufficient. – *Responsiveness of I and C to i/r*: via the indirect transmission mechanism. Keynes believed I and C were interest inelastic, and more dependent on business sentiment and consumer outlook. During recessions, people would not invest or spend even if i/r was low. During booms, people would spend and invest even if i/r was high due to "irrational exuberance". Hence MP would be ineffective. Monetarists however believed that I and C were interest elastic and hence MP was effective. – A *small multiplier* will make MP less effective. – OMO is effective at reducing MS only if there is a *viable and active bond market*. – If banks are already holding a lot of liquid assets, changes in the central bank lending rate will not affect them much as they don't have to borrow from the Central Bank.
Relevant to SG?	– Normal MP (as described above) is not very relevant to Singapore for a number of reasons. – Being a small and open economy, our domestic money supply is determined largely by the influx of flow of capital from abroad. Singapore is seen as a stable country both economically and politically with strong financial institutions. Domestic inflation rate is low, meaning the Singapore currency is a good store of value. Hence large amounts of foreign funds have been attracted into the country, increasing the domestic money supply and keeping interest rates low. – We are a price taker with no influence on i/r. Changes in Singapore's i/r tend to follow that of the US. If their i/r is higher than ours, money will flow out of Singapore. To pre-empt this, our i/r must be adjusted upwards to be in line with international rates, especially that of the US. – Also the second point above also means there is no need for us to try and attract hot money inflows by giving high interest rates, since foreigners will park their funds here for the reasons in point two. – Singapore also lacks an active secondary bond market to buy and sell bonds, hence making OMO ineffective. – Also, recalling the explanation of inflation in Singapore in Chapter 2, exchange rates are far more effective in maintaining price stability in Singapore. Our MP thus uses exchange rates. – Since we are too small to influence world prices, having a managed float exchange rate system enables us to hedge against import price push inflation and keep our exports price competitive (since most of our exports have high import content).

Exchange rate policy in SG	MP in Singapore seeks to achieve price stability and low inflation as a basis for long-term economic growth. A strong and credible currency is one of the key pillars of our macroeconomic policy. MAS maintains a managed float system where the Singapore currency is managed in a undisclosed band against a trade weighted basket of currencies. Since 1981, MAS has actively pursued a gradual appreciation of the Singapore dollar. – Strong currency curbs imported inflation, and provides price stability in Singapore where import-price push inflation is the strongest cause of inflation. – Since we import practically all our raw material, a strong currency reduces the cost of imported components, encouraging the growth of domestic and export sectors. – A strong currency also reflects strong economic fundamentals, i.e. strong economic growth and healthy fiscal/external surpluses. It is a sign that the Singapore government pursues a disciplined economic policy and does not outspend its revenues (which would depreciate the currency). This instills consumer and investor confidence. However, in appreciating the Singapore dollar we must consider the following: – *Transmission lags*: devaluation of our currency will cause the J curve effect in the SR. Time is also needed for changes in the exchange rate to show its effects on the rest of the economy. – *To appreciate, or to depreciate*: appreciating the SGD benefits the import sector (since costs are reduced) and also a significant number of goods exports since our exports tend to have high import content. However, service exports may be hurt since they do not benefit from lower imported input prices as manufactured exports do. This poses a dilemma to the MAS. However, MAS has always pursued a policy of not depreciating the currency to help exporters gain. Instead, supply side and fiscal policy is pursued to increase productivity in these sectors, and to innovate and improve to make price elasticity of demand for exports more price inelastic. – *Large foreign reserves*: since the AFC, Singapore has acquired more than USD150 billion of foreign reserves. Large amounts of opportunity costs are incurred in the storage of such reserves. Hence the Government Investment Corporation of Singapore has been tasked with investing these reserves to obtain safe and respectable returns of approximately 7% per annum. – *Relinquishing control over i/r*: since we can only control exchange rates or interest rates, we have to give up our control over i/r. As mentioned earlier however, this is of smaller consequence.

Supply Side Policy	
How it works	An approach that focuses directly on aggregate supply, and seeks to increase it.
Uses	1. Cure structural unN 2. Reduce cost-push inflation 3. Control aggressive trade unions and check wage price spirals 4. Promote potential economic growth

Evaluation	Supply side policy is an integral part of Singapore's macroeconomic policy, used with fiscal policy to ensure stable long-term economic growth without cost-push inflation. – Costs are incurred in providing or subsidising retraining, which may strain the government's budget. Also, older workers tend to resist retraining, and is harder to convey new skills to those without basic literacy or skills. – Wage controls (price and incomes policy, under SSP) distort price signals, and may lead to confrontations with trade unions. Black markets may also arise from price floors/ceilings. However, trade unions in Singapore tend to be more cooperative due to the tripartite agreement between employers, unions and the government, as well the National Wage Council. Costs of production are reduced by cutting CPF contributions and reducing cost of utilities. Wages are cut less. – An integral part of SSP in Singapore is the use of foreign labour. Foreign unskilled labour may bring about social problems, while foreign talent may incite resentment from local workers. – Education and training show their effects only over the long term, and hence need to be supplemented with short-term measures. – Singapore enjoys sufficient funds for SSP due to its high voluntary and involuntary savings rate, which provide adequate funds for long-term investment. However making use of such funds also entails other problems. For example, the government recently raised the age from which annuities would be distributed from the CPF, in lieu of growing evidence that the CPF nest egg may not be sufficient to support one in old age.