ANGLO-CHINESE JUNIOR COLLEGE
JC2 Economics 2024

H1 H2

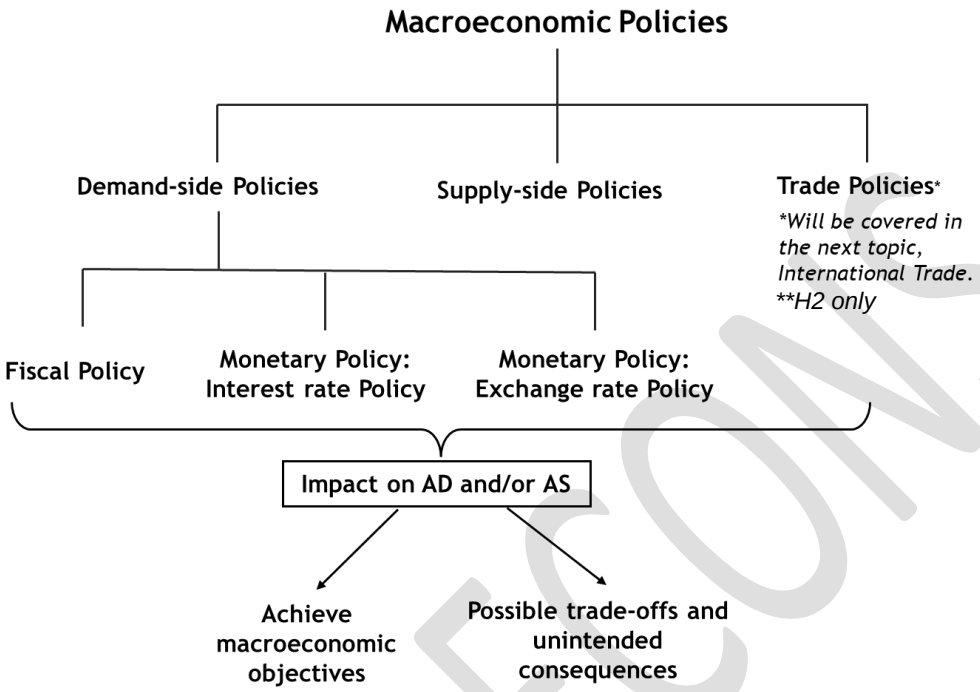
MACROECONOMIC POLICIES (2)
Supply-Side Policies and Conflicts in Macro Objectives

Texts for References:

1. ***Principles of Economics**: Case, Fair & Oster, 10th edition, pages 638-644, 662-663*
2. ***Principles of Economics, Asian Edition**: Mankiw, Quah & Wilson, chapter 25*
3. ***Economics**: John Sloman & Alison Wilde, 7th edition, chapters 14.4, 14.5, 22 & 23*
4. ***Economics Today**:*
   - *Volume 21 Issue 1, Pages 10-15*
   - *Volume 24 Number 2, Pages 22-28*

1. OVERVIEW:

In part 1 of Macroeconomic Policies, we learnt that governments could adopt the following policies to address macroeconomic problems and achieve their macroeconomic goals.



Governments' macroeconomic intervention for dealing with macroeconomic problems involves the use of a set of policy instruments. These policy instruments can be classified as follows:

Fiscal Policy		Management of the budget balance (deficit or surplus budget) using tax and government expenditure to influence AD. Fiscal policy can also have an impact on AS.
Monetary Policy	Interest Rates	Monetary policy (MP) involves the management of interest rate and money supply to influence AD.
	Exchange Rates	Monetary policy (MP) involves the management of exchange rate to influence AD and AS.
Supply-side Policies		Supply-side policies, involving government intervention in markets. Note: supply-side policies may also be fiscal in nature as these may involve tax and spending policies.
Trade Policy *H2 only		Trade policy involves the use of instruments such as tax, subsidies and regulations on imports and exports.

2. SUPPLY SIDE POLICIES:

Unlike demand-side policies, many policies can be classified as supple side policies. Generally, however, supply-side policies tend to be focused on increasing the productive capacity and lowering the unit cost of production in the economy.

Supply-side policies aim to promote long run growth, reduce macroeconomic instability, and improve factor mobility.

- Long term growth can be promoted through policies which aim to raise the quantity and quality of resources (e.g., investments in education, capital, and technology etc).
- Macroeconomic instability can be reduced through policies which aim to quickly lower economy-wide production costs (e.g., wage subsidies, cuts in employers' social security contributions, price controls on wages or rentals) or to directly manage prices of necessities (e.g., subsidies or price controls on food and fuel)
- Factor mobility can be enhanced by promoting retraining, job matching and various forms of deregulation to enable both factor and product markets to operate more efficiently.

Supply-side policies can be categorised into policies targeting the LRAS and/or SRAS.

2.1 Policies that affect LRAS

Long-run supply-side policies are mainly implemented to increase the productive capacity of an economy. Supply-side policies that seek to increase LRAS can be broadly categorized into 4 categories:

a. Policies to improve the quality and quantity of the labour force.
b. Policies to improve infrastructure developments.
c. Policies to improve the level of technology.
d. Policies to promote competition between firms.

a. Policies to improve the quality and quantity of the labour force.

Education, retraining and upskilling:

- **Example 1:** The Workfare Skills Support (WSS) Scheme in Singapore provides workers with a training allowance when attending, rewards workers for completing courses with bonuses, and pays up to 95% of the worker's salary during the training duration.
- **Example 2**: SkillsFuture Singapore (SSG) provides credits to workers that can be used to subsidize the cost of courses, promoting life-long learning.
- Both the WSS and SSG encourages workers to increase their education and upskill themselves ▫ increases labour productivity ▫ assuming no change in the quantity of factors of production and level of technology ▫ increases the maximum output of the economy ▫ increases productive capacity.

Good to know: Policies to improve the quantity of labour:

Many policies also strive to increase the quantity of labour. For example:

- **Immigration policies** – allowing more foreign workers into the country.
- **Retirement regulation** – increasing the official retirement age, allowing more to remain in the workforce.
- **Pro-familial policies** – cash incentives and tax rebates for having children, children's subsidies, and extensions of maternal and paternal leave makes it easier for households to have children, increasing the labour force in the future. These support schemes also allow more mothers to return to the labour force, increasing the labour force size in the short term as well.

With a larger labour force size, more output can be produced in the economy, ceteris paribus, increasing the productive capacity and LRAS.

b. Policies to improve infrastructure developments.

- **Example 1**: building new mass-rapid transit (MRT) lines and procuring more MRT trains. By 2030, the goal is to have 80% of the resident population living within a 10-minute walk to an MRT station.
- **Example 2**: expanding the airport (Changi Airport Terminal 5, operational by 2025) and seaport (Tuas Megaport, operational by 2040s)
- Improving in transportation infrastructure ▫ reduces travel and transportation time ▫ allows workers to spend more time at work ▫ increases labour productivity ▫ increases productive capacity, ceteris paribus.

c. Policies to improve the level of technology.

- **Example 1**: setting up, funding and subsidising research institutions like A*STAR, and local universities (e.g. NUS / NTU / SMU). These research institutions often conduct scientific and technological research with the objective of developing new products and/or methods of production.
- **Example 2**: Productivity Solution Grant (PSG) provides up to 50% funding for Small-Medium Enterprises (SMEs) to procure equipment or digitalisation efforts (e.g. building websites) that allows the firm to increase its productivity.
- **Example 3**: incentivising Multinational Corporations (MNCs) (e.g. Dyson, Hyundai, Panasonic, etc) to invest in Singapore, often through generous tax rebates and subsidies. When MNCs set up in Singapore, they bring with them new and efficient methods of production, allowing a transfer of technology.
- Increasing the level of technology by adopting more efficient methods of production allows firms to produce with greater productivity and to produce more with the same number of factors of production (e.g. number of workers) → increases productive capacity, ceteris paribus.

Good to know: Policies to promote competition between firms.

In addition to the above 3 types of supply-side policies to increase the productive capacity of the economy, there are also policies that promote competition between firms.

These policies usual focus on ensuring a sufficient level of competition in the economy (for example by preventing mergers between firms with significant market power, legislating quality or production standards, allowing more firms to enter the market, etc). In general, these policies provide firms incentive to continually adopt more productive methods of production to compete with their rivals. Doing so results in a higher level of productivity in the economy and hence productive capacity, ceteris paribus.

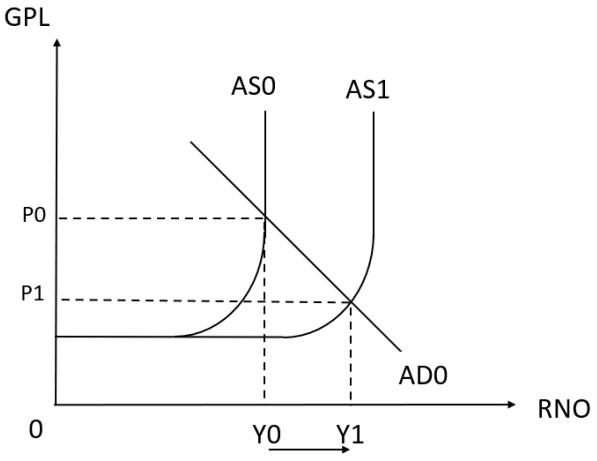
H2 students should refer to your JC1 notes on **"Firms and Decisions"** to revise the concept of **"Dynamic Efficiency"**. Policies to promote competition improve the economy through achieving dynamic efficiency in markets.

Policies affecting LRAS will help achieve:

- **Potential economic growth**
  - An increase in the productive capacity of the economy → rightward shift in the LRAS → potential economic growth.

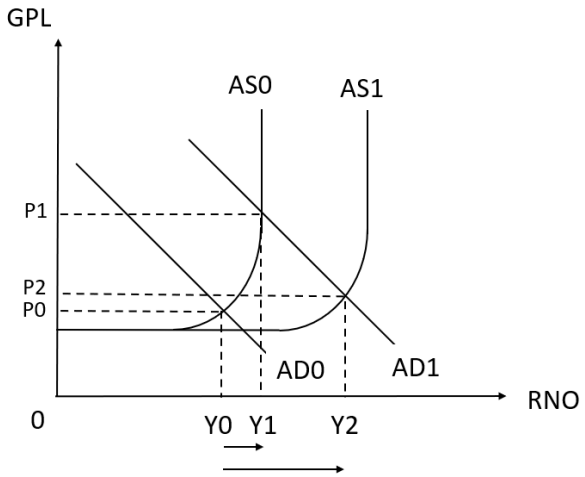
- **Sustained economic growth (both actual and potential growth)**
  - Short term effect for economies currently operating at or very near the full employment level of output (Y_f): The increase in productive capacity reduces competition for factors of production → firms bid down factor payments → lowers unit cost of production → firms pass on lower costs to consumers by lowering GPL (from P_0 to P_1) → assuming household income remains constant → purchasing power increases → consumption increases → increase in AD (as seen by a movement along the AD) → since there is spare capacity due to the higher productive capacity → allows firms to increase output → RNO increases (from Y_0 to Y_1) → results in actual economic growth.

Figure 1: Supply-side policies leading to actual economic growth



- Long term effect for economies: increase in productive capacity implies that even if economies continue increasing their AD (from AD_0 to AD_1) → there are sufficient factors of production available to be employed for firms to increase output → allows a continued rise in RNO (from Y_0 to Y_2, instead of only from Y_0 to Y_1) even in the future.

Figure 2: Supply-side policies allow sustained economic growth in the future



- **Lower demand-pull inflation**
  - As explained above, assuming no change in AD (refer to Figure 1), increase in productive capacity reduces competition for factors of production → firm bids down factor payments → lowers unit cost of production → firms pass on to consumers as lower GPL (P_0 to P_1).
  - Alternatively, assuming AD continues rising (refer to Figure 2), increase in productive capacity reduces competition for factors of production despite higher demand → factor payments rise, but to a smaller extent → slows down the rise in unit cost of production → firms pass on the smaller rise in cost of production as a smaller rise in GPL (P_0 to P_2, instead of P_0 to P_1) → results in a positive but lower inflation rate → achieving price stability.

- **Improvement in BOT position**
  - **Price competitiveness:**
    - As explained above, increasing productive capacity possibly allows GPL to fall → the fall in GPL not only implies to domestically sold goods and services, but also to exported goods and services → fall in the price of exports → if the demand is price elastic (|PED|>1) → fall in the price of exports causes a more than proportionate rise in quantity demanded → rise in export revenue (X), ceteris paribus.
    - Meanwhile, cheaper domestic goods also imply that consumers switch to domestically produced goods → if XED* is positive, domestic and imported goods are substitutes → fall in the demand for imports → fall in import expenditure (M), ceteris paribus.

**XED concept is only needed for H2 students. H1 students can just state the assumption that there are domestic substitutes for imported goods.*

- **Competitiveness in export quality:**
  - If the policies increase the skills of the labour force and methods of production, it is possible for the goods and services produced to also be of better quality → shift the taste and preference of trading partners favourably toward the country's exports → increase in the demand for exports → rise in export revenue (X), ceteris paribus.
  - Likewise, domestic consumers prefer local products since they are of better quality → shift in taste and preference for local products and away from imports → demand of imports fall → fall in import expenditure (M), ceteris paribus.
- The rise in X and fall in M → improvement in the BOT position → Assuming BOT was originally in equilibrium → results in BOT surplus.

- **Lower structural unemployment**
  - Policies for education and retraining → allows workers to equip themselves with skills highly demanded by jobs → especially given these policies tend to be targeted to low-skilled workers who do not yet possess the relevant skills → minimises skills mismatch between the labour force and that required by jobs → allows more to keep their jobs and more to be hired → decreases structural unemployment → assuming constant labour force size and no change in demand-deficient unemployment → fall in unemployment rate.

- **Lower income inequality**
  - Given that the low-skilled and low-income households tend to be more prone to structural unemployment, reducing structural unemployment is likely to increase the income from employment of previously low-income households more than high-income households → reduces the wage gap.
  - Additionally, previously low-skilled workers are also better able to take on high-skilled jobs which command higher wages, since they now possess the relevant skills → increases labour mobility, especially of the previously low-income households → allows previously low-income households to increase their income (from better jobs) → assuming no change in high-income households → reduces income inequality.
  - Lower income inequality can be measured through a lower Gini coefficient.

Evaluation of LRAS policies

- **Effectiveness across time horizon**
  - Supply-side policies generally take time to implement and show results in the long run. For example, improving the quality of human capital, through education and training, is unlikely to yield quick results. Similarly, the supply-side policies that aim to increase investment in research and development would likely take a long time before any innovation could be implementable and scalable for the mass market.

- **Feasibility of budget constraints**
  - Supply-side policies such as training schemes are often costly and may impose a burden on government's budget. Firms may have to bear the cost of retraining and risk losing their newly trained employees to another company.
  - Refer to "*Budget Constraints*" under "*Limitations of Expansionary Fiscal Policy*" in Part 1 of your Macroeconomic Policies lecture notes for more elaboration on the implications of straining the government budget.

- **Uncertainty of outcomes**
  - Even if the government provides incentives, the success of the retraining schemes is also limited if employers and employees are not receptive to the new and better methods. Furthermore, older workers may be less adaptable to new technology and may not respond well to retraining efforts.
  - Many economies such as Japan, Singapore, and Britain are facing the situation of ageing population. Hence, greater resistance may be faced in acquiring new skills especially by the older workers. In Singapore, the government has been actively encouraging lifelong learning to address the issue.
  - The outcomes of supply-side policies are difficult to predict. The success of training and labour policies depends on the attitude of the workers and employers towards training and work.

2.2 Policies that affect SRAS

Some supply-side policies also target the SRAS. While there is an inexhaustive list of such policies, generally, they work to reduce the unit cost of production in the economy. Below are examples of the more prominent SRAS policies.

Job support scheme (JSS)

- During periods of economic uncertainty or recession (e.g. during the years of the Covid-19 pandemic) → the Singapore government paid a portion of residents' wages → this lowers the unit cost of production for firms → increases firms' willingness and ability to produce → increase SRAS.

Central Provident Fund (CPF) variable component

- Workers in Singapore must make compulsory contributions to their CPF (for housing and retirement). Additionally, there is also an employer's CPF contribution, which firms pay part of the worker's wages by contributing to their CPF accounts. In times of economic uncertainty and recession, the government can lower the firm's contribution (which currently stands at 17% for most workers), effectively allowing firms to lower the wages of their workers → this lowers the unit cost of production for firms → increases firms' willingness and ability to produce → increase SRAS.

Good to know: Other examples of SRAS policies

Apart from examples in Singapore, here are some other examples of SRAS targeted policies from around the world.

- Subsidies for energy and utilities in certain European countries.
- Heavy subsidies of petroleum in Malaysia.
- Pro-competition policies that prevent mergers and collusion, grants to allow entrants to industries, and removal of unfair business practices by incumbent firms all over the world.

All these policies effectively lowers the unit of production and increases the SRAS of economies.

Policies affecting SRAS will help achieve:

- **Lower cost-push inflation**
  - As firms enjoy a lower unit cost of production → firms pass on to consumers as lower GPL (from P_0 to P_1), ceteris paribus.
  - This can be seen in Figure 3 below.

Figure 3: SRAS policies to lower cost push inflation by lowering GPL.

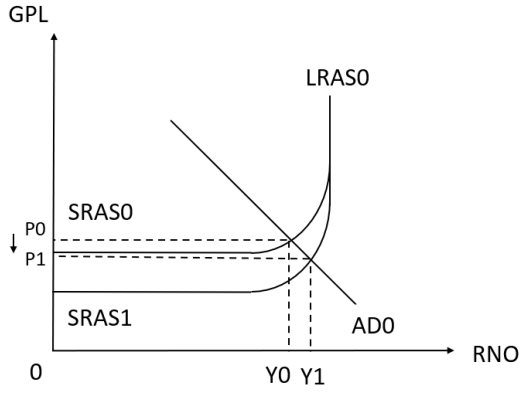
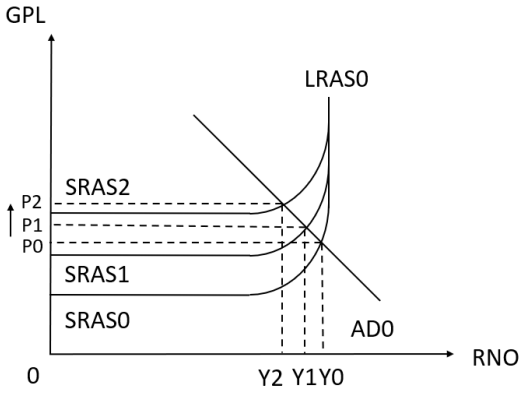


Figure 4: SRAS policies to lower cost push inflation by reducing the increase in GPL.



  - Alternatively, this can also be seen as reducing the rise in the cost of production (Figure 4), causing the SRAS to rise by less (from $SRAS_0$ to $SRAS_1$, instead of $SRAS_0$ to $SRAS_2$) → allows firms to pass on higher cost of production to consumers, but by a smaller extent → GPL rises but by less (from GPL_0 to GPL_1, instead of GPL_0 to GPL_2)

- **Actual economic growth**
  - As firms enjoy a lower unit cost of production → firms pass on to consumers as lower GPL (from P_0 to P_1 in Figure 3) → assuming household income remains constant → purchasing power increases → consumption increases → increase in AD (movement along the AD) → assuming the economy is below the full employment level of output (Y_f) → there is spare capacity → allows firms to increase output → RNO increases (from Y_0 to Y_1 in Figure 3) → results in actual economic growth.

3. CONFLICTING MACROECONOMIC OBJECTIVES

So far you have learnt that in every policy tool that government employs, unintended consequences such as conflict in macroeconomic aims can arise.

In this section, students are expected to understand the following:

1. How policy decisions result in conflicts of macroeconomic objectives.
2. The factors affecting the extent of these conflicts.
3. The possible ways to reduce such conflicts.

3.1 Example of Conflicts in Macroeconomic Objectives.

a. Achieving actual economic growth and lower unemployment at the expense of demand-pull inflation and worsening BOT.

Expansionary demand-side policy tools such as increasing government expenditure (G), reducing taxes or interest rates can increase AD. The multiple increase in AD will cause a multiplied increase in production of output via the multiplier process. This increases actual economic growth and lowers unemployment rate.

When the economy is in recession and the AD is very weak relative to the LRAS, there is no conflict between achieving actual economic growth at the expense of demand-pull inflation.

As seen in **Figure 5** below, despite the rise in AD from AD1 to AD2 → due to excess spare capacity → there is little need to compete for the resources → GPL rise minimally, if at all.

Figure 5: No conflict between growth and price stability during recession

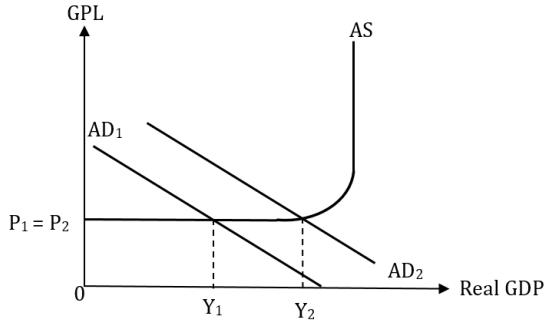
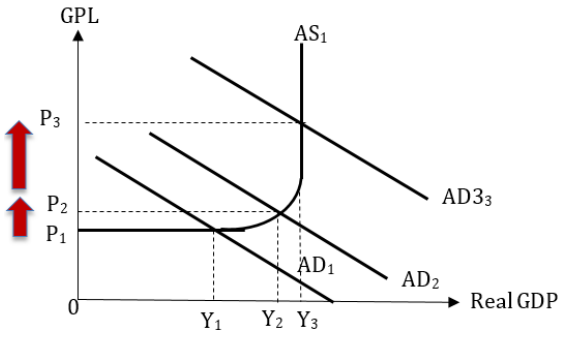


Figure 6: Conflict between growth and inflation in times of economic boom



However, in **Figure 6** above, when AD continues to rise and AS remains constant → there will be fewer available resources → firms bidding up prices for these limited resources. The increase in prices of the FOPs → rise in unit COP for firms → pass on the increase in terms of higher GPL for consumers, leading to demand pull inflation, as seen from the increase in price from P_2 to P_3.

As the workers enjoy higher income earnings, they are also more willing and able to spend on goods and services, including imports. As such, this may worsen the balance of trade due to a higher import expenditure.

b. Achieving price stability at the expense of negative economic growth and higher unemployment rate

Contractionary demand-side policy tools such as reducing government expenditure, raising tax rates, or raising interest rate can decrease AD. The decrease in AD will help to reduce the demand for factor inputs → prices of factor input falls as there is a surplus → firms pass on the cost-savings (or lower unit COP) to the consumers by lowering GPL, achieving price stability.

When there is strong AD and high inflation (Figure 7), a fall in AD does not lead to a fall in real national income. There is no conflict between achieving price stability and economic growth.

Figure 7: No conflict between price stability and growth in times of high inflation

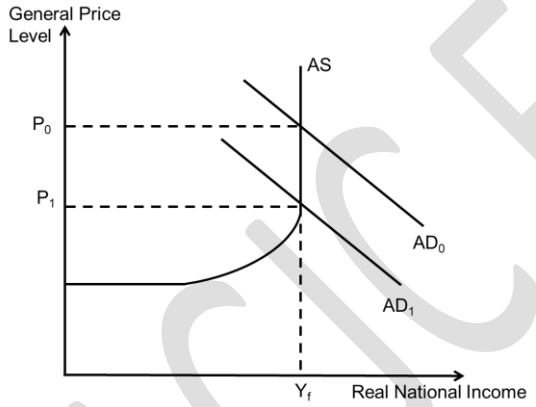
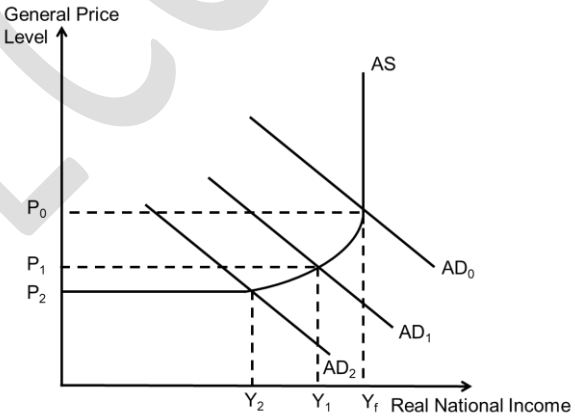


Figure 8: Conflict between price stability and growth when AD is weak.



However, as seen from Figure 8, assuming AS remains constant, the fall in AD can result in a fall in RNY via the reverse multiplier process, hence worsening economic growth and unemployment rate. This happens when the AD is weak relative to LRAS.

In the case of Singapore, when Singapore appreciates our SGD to achieve low and stable inflation (from imported inflation), this may come at the expense of negative economic growth and worsening of the unemployment rate too.

- When the currency is appreciated, imported raw materials are cheaper in local SGD → lower unit COP → SRAS increases → GPL falls.

- However, an appreciated SGD means that the Singapore exports are more expensive in terms of foreign currencies, leading to a fall in demand for Singapore exports.
- The fall in demand for Singapore's exports will result in a fall in AD, worsening economic growth and unemployment rate as real national income falls.

c. Achieving potential economic growth at the expense of structural unemployment

When government spends money to purchase technology and machines, this is done to enhance labour productivity as well as to achieve potential economic growth and thus, sustained economic growth.

However, in so doing, some workers may be replaced by technology and do not possess the necessary skills to be employed, leading to jobs-skills mismatch, hence structural unemployment.

3.2 Reducing conflicts in macroeconomic objectives

Below are some ways the government can help to reduce such conflicts:

a. Use of complementary policies

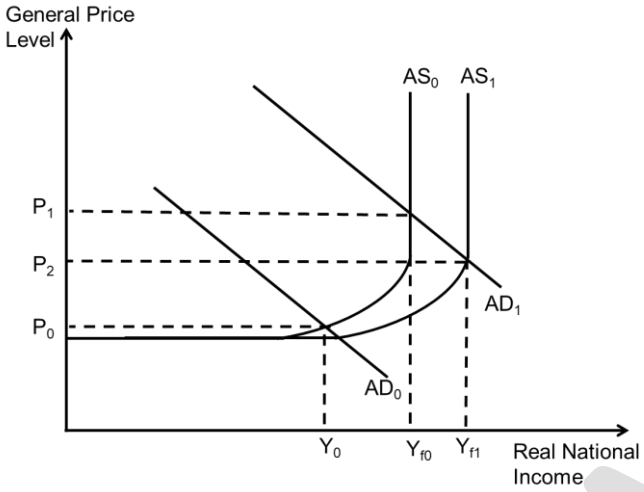
As seen in the earlier example, when policymakers over-estimated the duration an economic downturn and implemented expansionary demand-side policies too late when AD is already growing closer to the full employment, this may lead to rising inflationary pressures and even asset bubbles.

If the government can simultaneously expand the country's productive capacity using supply-side policies for example, the improvement in the quality and quantity of resources not only expand the country's productive capacity, but also reduces the unit COP as workers are now able to produce more within a shorter amount of time.

As seen from the diagram below, the rise in AD, as seen from the increase in AD_0 to AD_1, due to the expansionary demand-side policies → RNY increases from Y_0 to $Y_{f0,}$ but general price level rises sharply from P_0 to P_1. This causes demand-pull inflation.

However, with the simultaneous expansion in AS from AS_0 to AS_1, this can bring about a continuous rise in both the actual and potential economic growth, as seen from the increase in RNY from Y_{f0} to Y_{f1}, while keeping prices low, as seen by how the prices rise to P_2 instead of P_1. This helps to reduce the conflict of demand-pull inflation.

Figure 9: Use of supply-side policies to reduce conflicts in macroeconomic objectives.



b. Improvements to time and information lags in policy-making

The government can improve on the following:

- Data Collection and Analysis:
  - Governments can invest in improving the collection and analysis of economic data. Utilizing advanced technology and data analytics can help expedite the process of gathering and processing economic indicators, reducing information lags.

- Real-Time Monitoring:
  - Implementing systems for real-time monitoring of economic indicators can provide policymakers with up-to-date information on economic conditions. This allows for quicker identification of emerging trends or imbalances, enabling timely policy adjustments.

- Frequent Policy Reviews:
  - Governments can conduct frequent reviews of macroeconomic policies to assess their effectiveness and address any conflicts or unintended consequences promptly. Flexibility in policy implementation allows for timely responses to changing economic conditions.

- Capacity Building:
  - Investing in the training and development of government officials and economic analysts enhances their ability to interpret economic data accurately and make informed policy recommendations swiftly.

Conclusion:

Overall, the extent of conflicts in macroeconomic objectives is largely dependent on:

1. The state of the economy
2. Whether complementary policies in place
3. Information and Data lags

The governments need to be aware of the above to better calibrate the extent and timing of their policies and hence, minimise the extent of these conflicts.

Annex: Government decision-making process

In attempting to achieve the macroeconomic aims, the government goes through a decision-making process to decide how best to intervene. They start by:

1. Identifying the main macroeconomic problem / issue
2. Intended objectives of the policy tool(s)
3. Factors that will influence the decision-making process

Factors that will influence decision making in choice of policies:

Having identified the problem(s) and the intended outcome / objective(s), the government will consider the policy options available.

To decide which policy to implement, the government has to go through the decision-making process by taking into consideration:

1. Possible **constraints** the government may face
2. **Cost** and **benefits** of the policies

Constraints
1. Quality & Quantity of Factors of Production • Government might have to consider if they have the necessary factors of production (capital, entrepreneur, land and labour) for the implementation of the policies. • For example, to encourage sustained economic growth, the US government may want to implement interventionist supply-side policies such as funding of research programmes for scientific breakthrough. However, the US government will have to consider if the country has the necessary skilled labour to carry out the research. Otherwise, the lack of skilled researchers may limit the effectiveness of the policy. **2. State of Development of country** • The government will also have to consider if there is availability of adequate infrastructure to enact policies. • For example, to encourage sustained economic growth, the US government may want to implement interventionist supply-side policies such as funding of research programmes for scientific breakthrough. However, the US government will have to consider if the country has the necessary research facilities or state of technology that could conduct the research programmes. The lack of necessary infrastructure may prevent the government from implementing the supply-side policy. **3. Characteristics of country / economy** • The government will have to consider the nature of the economy (e.g. size of domestic market and dependence on exports), size of the multiplier and comparative advantage of economy (e.g. oil exporting or oil importing country).

- For example, US government may want to adopt expansionary fiscal policy to prevent recession and reduce high unemployment in 2019. However, government will have to consider the size of multiplier as it would restrict the effectiveness of the expansionary fiscal policy. A small multiplier would restrict the effectiveness of the expansionary fiscal policy and would require a larger expenditure and/or tax cut to achieve the desired result.

4. Fiscal sustainability

- The government will have to consider their budget constraint, especially if the policy requires huge funding. If the government does not have sufficient budget, the government might have to consider if they are able to borrow to finance their spending.
- If the extent of recession and unemployment is severe, the government might need substantial funds to correct the problems. The limited budget might restrict the government's ability to finance the policies and hence the choice of policies. Certain policies (e.g. expansionary fiscal policy and some supply-side policies) require substantial government expenditure.

5. Information

- The government has to consider the reliability, availability and accessibility of information.
- For example, if US government is planning to use expansionary fiscal policy to reduce unemployment and recession, it would be helpful for the government to know the size of the country's multiplier. However, the lack of accurate and reliable data may prevent the government from estimating the size of the multiplier and hence the level of expenditure needed to bring about the desired growth.

6. Time frame

- The government has to consider the urgency of the problem.
- Given the severity of the unemployment situation in US, the government may need to resolve the problem immediately. And this might restrict the type of policy that government can adopt. Some policies, such as fiscal and interest rate policies, may see a more immediate result compare to some supply-side policies.

Note: Students are not expected to include all the above-mentioned constraints in their answers. What is more important is for students to choose the most appropriate and relevant considerations when discussing policy effectiveness / appropriateness.

Costs	Benefits
Types of costs • **Financial** costs or resources used. • Trade-offs in use of resources **(opportunity cost)** and government objectives ○ Benefits that could have been gained from alternative use of resources.	Benefits of the policies • Increase in standard of living through higher economic growth and thus increase income per capita. Ease of implementation of policy • For example, interest rate policy maybe easier to implement than supply-side policies.

Feasibility and Net Benefits

Having gathered all these information (constrains, cost and benefit), the government will then select the policy that is (1) feasible and that (2) gives the highest **net** benefit.

1) **Feasibility:**

- A policy is feasible if the costs is within the constraints (costs < constraints)

2) Beneficial:

- A policy is beneficial if the benefits outweigh the costs (benefits > costs)
- The government will select the policy it deems to have the highest net benefit (where net benefit = total cost – total benefit)