

Macroeconomic Policies Tutorial

Suggested Answers for SECTION A: ESSAY QUESTIONS

Question 1

The recent worldwide recession caused many governments to re-assess their use of fiscal policy in order to stimulate their stagnating economies.

- (a) Explain the possible demand-side and supply-side reasons for a recession in an economy. [10]
- (b) Assess the relative importance of fiscal policy and exchange rate policy to manage Singapore economy when faced with a worldwide recession. [15]

(a) Explain the possible demand-side and supply-side reasons for a recession in an economy. [10]

Question analysis

Concepts	Cause: • Demand factor - AD • Supply factor - AS Effect: • “Recession” – fall in RNO
Context	• General
Command Word	Explain: Use economic analysis to explain cause and effect No evaluation or balance in positions needed.

Introduction

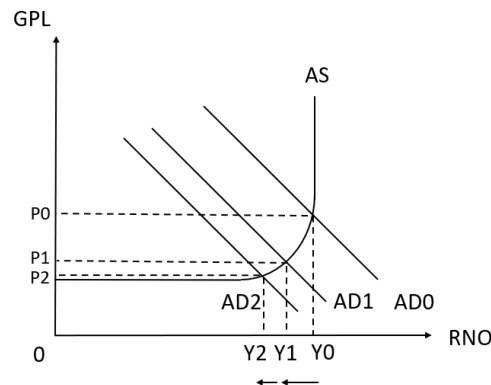
A technical recession is defined as two consecutive quarters of negative actual economic growth, measured by a negative real GDP growth rate. This implies a fall in RNO.

Requirement 1: Demand reasons

A **recession experienced by major trading partners** is one possible demand-side reason for a recession in an economy. A recession in the economies of the major trading partners implies a fall in household incomes for trading partners. Assuming the exports of the economy are normal goods ($YED > 0$), there will be a fall in the demand for the economy's exports. This causes the

price and quantity of exports to fall, resulting in a fall in export revenue (X). Hence, there will be a fall in AD (AD₀ to AD₁), ceteris paribus.

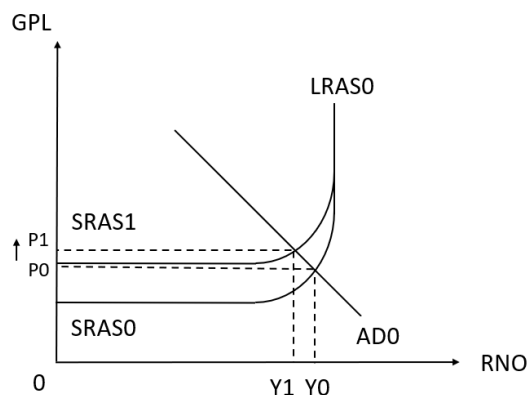
At the same time, **weak confidence** on the future economic outlook could prompt consumers to save more, rather than consume, leading to a fall in consumption expenditure (C). Firms may also expect a fall in profitability on investments in the future, hence less willing and able to invest, fall in investment expenditure (I).



(Reverse multiplier process) The fall in X, C and I will likely lead to a fall in AD. Assuming the economy is currently NOT at full employment, the fall in AD causes an unplanned rise in inventories stocks, signaling firms to decrease output, this results in a fall in RNO (Y₀ to Y₁). The fall in RNO implies a fall in economic activity, reducing the derived demand for factors of production, causing prices of factor of productions to be bid downwards. This means household incomes fall, inducing a fall in consumption expenditure by the amount equal to the marginal propensity to consume (MPC). This causes AD to fall again (AD₁ to AD₂), resulting in another fall in RNO (Y₁ to Y₂). This process repeated until RNO falls by a multiplied extent equal to the original fall in (C, I and X) $\times 1/(1-MPC)$. The fall in RNO implies negative economic growth. If this is sustained for two or more quarters, the economy will experience a recession.

Requirement 2 / Topic Sentence 2: Supply-side reasons

A **sudden increase in the price of a majority commodities** such as crude oil is a possible supply-side reason causing a recession in the economy. This sudden increase in price could be due to natural disasters or a war, causing a fall in its supply. Given that crude oil is an essential factor of production for most goods and services, a rise in crude oil price causes a rise in unit cost of production for firms. This reduces their profitability from production of final output, making firms less incentivized to produce final goods and services, reducing SRAS (SRAS₀ to SRAS₁).



The **higher unit COP is passed on to consumers in terms of higher GPL**. The fall in production hence leads to a **fall in household incomes**, since the demand for FOPs are now lower. Coupled with the rise in GPL, this **results in lower purchasing power**, reducing consumption. The higher prices also affects the economy's **exports, worsening its price competitiveness**. Assuming the demand for exports are price elastic ($|PED| > 1$), a rise in price leads to a more than proportionate fall in quantity demanded of exports and hence, a fall in export revenue.

As a result, due to the higher GPL, there is a fall in C and X, as seen by a movement along the AD curve. This causes an unplanned rise in inventory stocks, signaling firms to reduce output, as seen by the fall in RNO from Y0 to Y1.

Level	Descriptor	Marks
L3	- Rigorous explanation on how demand and supply factors cause a recession, using AD/AS framework. - Answer includes rigorous explanation of the (reverse) multiplier process - Best quality answer should include AD/AS diagram.	8 – 10
L2	Missing any L3 criteria	5 – 7
L1	- Significant conceptual errors - Lacking in relevant economic analysis.	1 – 4

(b) Assess the relative importance of fiscal policy and exchange rate policy to manage Singapore economy when faced with a worldwide recession. [15]

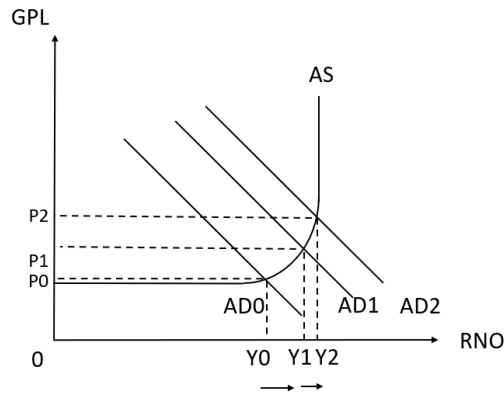
Concepts	• Fiscal and Monetary policies.
Context	• Due to worldwide recession • Singapore
Command Word	Discuss (...the relative importance) Cause: • 1: Fiscal Policy • 2: Monetary policy Effect: • “manage the economy” – macroeconomic goals (RNO, unemployment, deflation and BOT)

Introduction:

In the context of a worldwide recession, the Singapore government's immediate priority would be to adopt expansionary fiscal and monetary policies to increase the RNO, hence achieving actual economic growth and reduce demand deficient unemployment. This is so that the overall SOL can be improved.

Requirement 1: Expansionary FP can be effective to help manage Singapore economy in times of worldwide recession

Expansionary fiscal policies would be an extremely effective policy to help achieve actual economic growth in the context of a worldwide recession. This can take two forms. Firstly, the government can increase government expenditure (G) such as developmental expenditure on infrastructures, which is a direct component of AD. Secondly, the government could lower direct taxes. Lowering personal income tax would result in higher disposable household income, increasing consumers' purchasing power and hence ability to consume. This increase C. Lowering corporate income tax increases firms' after-tax profits, allowing them more funds and ability to invest. Also, it increases the expected returns to investment after taxes for firms, incentivizing them to invest. This increases I. The rise in C, I and G increases AD (AD₀ to AD₁), ceteris paribus.



Assuming the economy is operating below the full employment output, the rise in AD causes an unplanned fall in inventories stocks, signaling firms to increase output. Given firms require more factors of production (e.g. labour) to increase output, this increases the derived demand for labour, causing firms to **hire more and layoff fewer workers**. This helps to **reduce unemployment** rate. At the same time, with higher derived demand for labour, their incomes rise. Assuming the rise in income exceeds the rise in GPL, this causes a rise in purchasing power, allowing households to consume more, prompting a further injection of induced consumption, hence AD rises again from AD1 to AD2. The cycle continues until there is no further injection and the **RNY increased by a multiplied amount from Y0 to Y1 and then to Y2, achieving actual economic growth**.

Since household incomes rise more than the rise in GPL, the consumers are able to consume better quality, and greater variety of goods and services. **This increases material standard of living**.

Evaluation of R1:

Fiscal policy is extremely effective given it is performed by the government independent of market sentiment. This guarantees the certainty in increasing AD via the increase in G, and hence, ensuring some level of actual economic growth.

- Nature of economy:

However, in Singapore's case, it has a relatively smaller size of the domestic economy, as compared to other bigger countries like the USA. This means that Singapore's C, I and even G takes up a **relatively smaller proportion of our total GDP**. As such, even with the expansionary FP, the increase in AD and therefore RNO may not be to a significant extent. To achieve the same extent of increase in RNY, the government will likely have to spend more than the other economies.

- **Small multiplier size**

Singapore has relatively high withdrawal propensity, as seen by the relatively **high MPS** (due to CPF savings) and **high MPM** (import-reliant due to lack of natural resources). This means that with every additional income earned, a **large proportion of it leaks out of the economy** as savings and/or import spending. As such, even if the AD increases, the final increase in RNY is still smaller in Singapore, compared to the other economies with a larger k size. This means that **exp FP will likely need to either spend more or to take a longer time to help Singapore economy recover from worldwide recession**.

Requirement 2 / Topic Sentence 2: Expansionary exchange rate policy could be effective too

In the context of falling demand for Singapore's exports due to a severe global recession, we have seen the central bank of Singapore **zero-appreciate** the Singapore Dollar (SGD) to increase RNO. This is similar to a momentary and slight depreciation of the SGD.

This weaker SGD reduces the price of Singapore's exports in terms of foreign currency in the short term. This results in an increase in quantity demanded by the foreigners. Since the price of exports in domestic currency remains unchanged, the increase in Q_d means that the X-revenue of the AD will increase.

Meanwhile, the weaker SGD means that the price of imports is now more expensive in terms of SGD. Assuming imports and domestically produced goods and services are close substitutes ($XED > 0$) and that our domestic goods are now cheaper than the imports with a weaker SGD, consumers **switch to domestically produced goods and services**, increasing domestic consumption expenditure.

Given the rise in X and C, AD of Singapore would rise, ceteris paribus. The rise in AD leads to a rise in RNO and a fall in demand deficient unemployment, similar to that explained above. *(Note to students, you do NOT have to repeat the multiplier process!)*

Evaluation of R2:

Given X is the largest component of Singapore's AD, exchange rate policy has the potential to increase the AD of Singapore by the largest extent.

- Weak global economic outlook

However, in the context of a global recession, our trading partners may see a **fall in their household incomes**. This might mitigate their willingness to purchase our Singapore's exports, and therefore, **Singapore's X and AD may not rise significantly**.

- Conflict with imported inflation

Furthermore, if the SGD is depreciated continually, the **price of imported factors of production would rise in terms of SGD**. Given that Singapore is small with very few natural resources, it relied heavily on imported factors of production. This would **increase the unit cost of production**, and this would be passed on to consumers in terms of higher GPL.

In the context of already falling household income from the recession, a rise in GPL would severely **worsen purchasing power and hence, material standard of living**. Furthermore, higher costs of production would also force firms that are exporting goods and services to increase their prices. Hence, the absolute prices of Singapore's exports in SGD are likely to rise. This would worsen Singapore's export price competitiveness in the long term, reducing AD and hence RNO, which is contrary to the objective of the policy.

Evaluative conclusion:

In the context of a severe global recession, expansionary fiscal policy, especially through increasing G, would be the most effective policy. This is because a global recession is likely to still result in X falling despite exchange rate policies. Apart from falling household incomes of

trading partners, the bleak expectations of future household incomes would reduce their demand for goods and services even more. Furthermore, it is common for other countries to also depreciate their currencies in a global recession. This would reduce the effect on our exports-revenue and hence, AD. Hence, exchange policies are not likely to be very effective during a global recession.

At the same time, Singapore has strong fiscal reserve due to years of budget surpluses. This allows the government significant funds, allowing the government to increase G substantially. Since this is independent of market sentiment and trading partner's spending, it is also more certain. Hence, fiscal policies are likely the most effective for Singapore during a global recession.

Level	Descriptor	Marks
L3	- Explain how the expansionary fiscal and exchange policies adopted by Singapore can help to achieve actual economic growth, reduce unN and improve m.SOL in Singapore - Detailed analysis of the AD/AS framework - Best quality answer should include AD/AS diagram. - Answers is well contextualized to a worldwide recession & the Singapore economy	8 – 10
L2	Missing any L3 criteria	5 – 7
L1	- Significant conceptual errors - Lacking in relevant economic analysis.	1 – 4
	Evaluation	
E3	- Limitations of the 2 policies are well-explained - Overall summative judgement on the relative importance is provided - Summative judgement is well-substantiated using at least 2 criteria.	4 – 5
E2	- Limitations of the 2 policies are explained but with some inaccuracies - No summative conclusion on the relative importance of the two policies	2 – 3
E1	- Limitations of only 1 policy are given, or that the limitations of the policies are stated, rather than explained. - Judgement with little substantiation	1

Question 2

In 2017, the annual rate of inflation in Singapore was significantly lower than the average rate for Southeast Asia.

- (a) Explain a possible demand side reason and a possible supply side reason for a rise in the rate of inflation. [10]

Question analysis

Concepts	• Rising inflation – GPL increasing at an increasing rate (necessary to comment on the extent GPL increases by) • AD (demand side reason) and AS (supply side reason) – must suggest reasons why AD/AS will change
Context	• Singapore
Command Word	Explain: Use economic analysis to explain cause and effect Cause: • AD • AS Effect: • GPL increasing at an increasing rate

Introduction:

A key macroeconomic goal of the government is to maintain price stability which can be achieved through positive, low and stable inflation rates. A rising inflation rate implies that the general price level of an economy is increasing at an increasing rate. Rising inflation rates may be caused by demand-pull inflation and/or cost-push inflation.

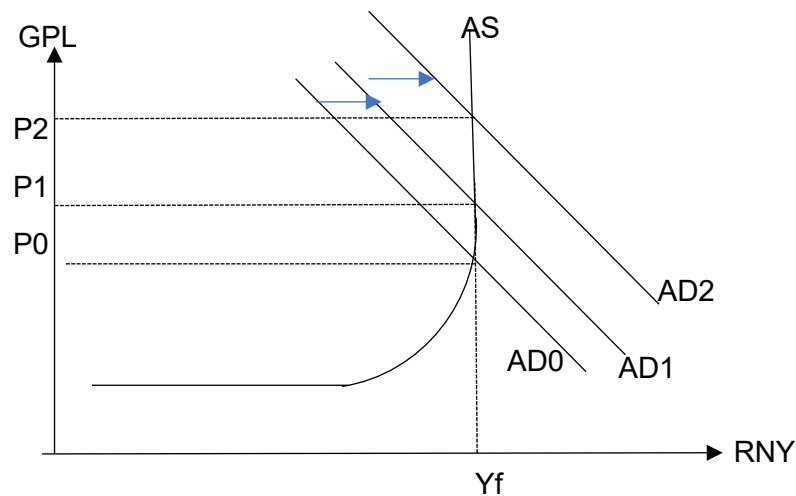
Requirement 1: Demand Side Reason

A **persistent increase in the aggregate demand (AD)** of a country that is at full employment output may lead to rising inflation rates. An increase in AD could be due to:

- optimistic business outlook and expectation of Singapore's future economic performance, expected returns to investment in Singapore may be high and investors may be more willing to invest in Singapore. This may lead to higher planned investment expenditure.
- Likewise, if expected future incomes are higher due to optimistic economic performance, consumers may increase consumption expenditure.
- Furthermore, if the trading partners of an economy are experiencing strong economic growth, the income levels of trading partners may increase, increasing the demand for the exports of the economy. This would increase the export revenue of the economy.

(Note: Minimally two reasons to explain an increase in AD is expected)

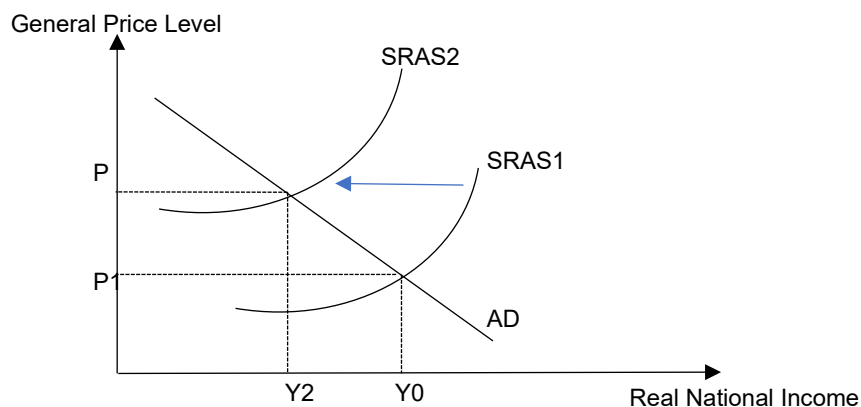
Figure 1 (illustrating demand side reason)



Higher consumption, investment, government spending and export revenue may lead to an increase in the AD. This can be reflected by a rightward shift in AD, from AD0 to AD1. As the economy is **already at full-employment, resources are all fully utilized**. As the demand for goods and services increase, the firms will have to increase production, **hence leading to a higher demand for factors of production**, as they are derived demand. This would **bid up factor payments** (e.g. wages and rents) by a significant extent (as compared to a rise in AD below the full employment output). This **increases the unit cost of production** for firms, which may be **passed on to consumers in the form of higher prices**. If the AD continues to rise, from AD1 and AD2, this will continue to cause an increase in demand for FOPs, continue to bid up prices of the factor inputs. As such, general price levels continually rise, from GPL0 to GPL1, and to GPL2, leading to demand-pull inflation.

Requirement 2: Supply Side Reason

Figure 1 (illustrating supply side reason)



Rising inflation rates may also be due to supply-side reasons such as **an increase in the cost of production**. Singapore, being a small and open economy with few natural

resources, has a **high reliance for imported goods and imported factors of production**.

A possible reason for inflation in Singapore is the **higher prices of imports**. Reasons for this may **include trading partners experiencing higher inflation** or **global shortage** of essential raw materials such as oil and food. These issues inevitably will lead to a higher imported price of the factors of production. Firms which rely on these imported factor inputs will face a higher unit cost of production → **cut production** of final goods and services, as seen by the **fall in SRAS** from SRAS1 to SRAS2 → in **shortage** of final goods and services → **prices of final goods and services increase, from P1 to P2**. At the same time, if **firms pass on the higher costs** to consumers in terms of higher prices, general price level will rise too.

Level	Descriptors	Marks
L3	Well-developed answer that uses the ADAS analysis accurately to explain both demand and supply side reasons for rising inflation	8 – 10
L2	- Imbalanced answer that only explains demand or supply side reason for rising inflation - Answer that explains rising GPL instead of rising inflation - Under-developed answer with incomplete or some inaccurate analysis	5 – 7
L1	- Descriptive answers lacking economic analysis - Significant conceptual errors - Lacking relevance to question	1 – 4

- (b) Assess whether policies designed to prevent a large and continuing rise in inflation in Singapore are the most appropriate policies for all economies. [15]

Concepts	Policies adopted by Singapore to prevent a large and continuing rise in inflation
Context	Singapore and other economies
Command Word	Discuss (whether... most appropriate for all economies...) Choice of the policies must be Singapore-relevant Policy 1 (student to suggest) - Appropriate for Singapore - Appropriate (or not) for other economies Policy 2 (student to suggest) - Appropriate for Singapore - Appropriate(or not) for other economies Policy 3 (student to suggest) - Appropriate for Singapore - Appropriate (or not) for other economies

	Important: Students should identify and explain how the difference/similarity between Singapore and other economies determines the appropriateness of the policies.
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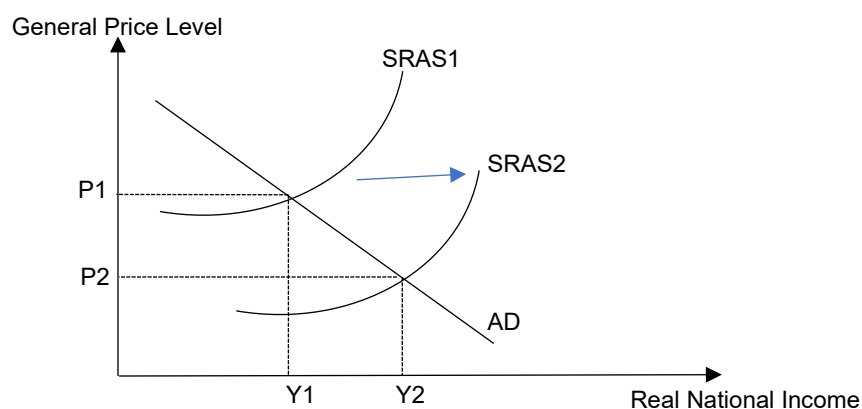
Introduction

In bid to prevent a large and continuing rise in inflation, the Singapore government has adopted a gradual appreciation of Singapore's exchange rate, occasional contractionary fiscal policies, and supply-side policies focused on increasing Singapore's productive capacity. These policies target both the demand and supply of Singapore, and are appropriate in the context of Singapore due certain traits of the economy, but may not be equally appropriate for all economies.

Requirement 1: Appreciation of currency is most appropriate for Singapore

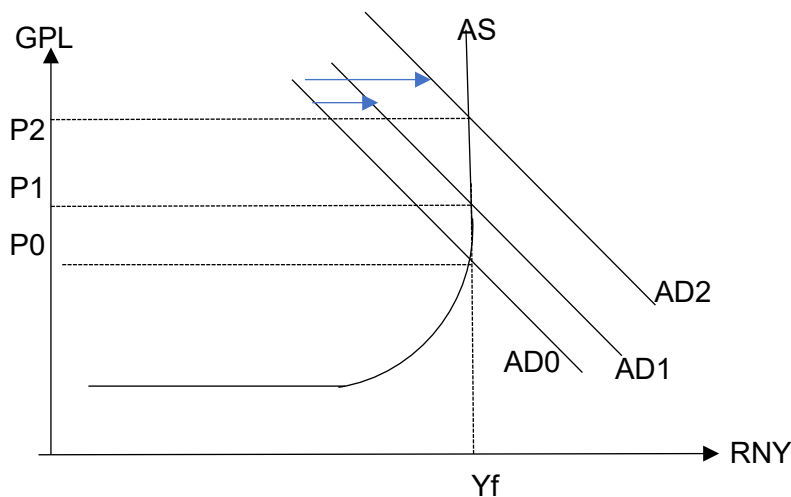
Cheaper cost of production → deal with imported inflation

For small and open economies with a high reliance on imports and exports like Singapore, a gradual appreciation of the exchange rate might be an appropriate policy to achieve price stability and economic growth. **An appreciation of the exchange rate makes the prices of imported goods and services cheaper in terms of the domestic currency.** Furthermore, **imported factors of production are also cheaper** in terms of the domestic currency. As Singapore depends heavily on imported factors of production, an appreciation of the exchange rate significantly lowers the unit cost of production → **SRAS increases from SRAS1 to SRAS2**, as firms increase production of final goods and services. This allows them to price the final goods and services lower, as firms to pass on cost savings to consumers in terms of lower prices, as seen from the fall in GPL from P1 to P2.



Less Price competitive exports

However, when Singapore appreciates the SGD, it also **makes Singapore's exports more expensive in foreign currencies, notwithstanding the reduction in the cost of production**. As a result of higher prices for Singapore's exports, in foreign currency, trading partners of Singapore may **choose relatively cheaper alternatives from other countries, reducing the quantity demanded for Singapore's exports** and a **decrease in export revenue** for Singapore. **Assuming that the other components of AD continue to rise (C, I and G), the fall in X-revenue could dampen the increase in AD** of Singapore and **reduce demand-pull inflation pressures** especially if the AD is very near to full employment.



As seen from the diagram above, an appreciation of SGD can cause the AD to **increase to a smaller extent, only from AD0 to AD1, instead of AD0 to AD2**. This smaller increase in AD leads to a smaller increase in the derived demand for FOPs, hence the prices of the FOPs only increase to a smaller extent. When the firms pass on this increase in unit COP to the consumers, this results in a smaller increase in the GPL from P0 to P1, instead to P2. This helps to dampen the inflationary pressures from the demand-pull inflation.

Evaluation

Over a longer period, however, an appreciation of the SGD tends to reduce the price of Singapore's exports. This may be appropriate for small and open economies. Given that the costs of **imported factors of production make up a very significant part of Singapore's overall costs of production**, an appreciation leads to significant cost savings, which allows exporters in Singapore to lower the prices of their goods as well, achieving price stability.

However, this policy **may not work so well for countries that face inflation due to domestic causes, such as tight labour market** due to shortage of workers or ageing population. At the same time, it **may not be so effective to curb demand-pull inflation for larger economies** where the **domestic consumption takes up a larger proportion of the country's GDP**. AS such, to curb rising inflation in these countries, **other alternative policies such as fiscal policy may be more appropriate**.

Requirement 2: Alternative Policy (Contractionary fiscal policy)

Singapore has also implemented contractionary fiscal policies on multiple occasions to prevent a large inflation. This can be done by **reducing government expenditure and/or increasing taxes**.

Given that government expenditure is a direct component of AD, a fall in government expenditure leads to a fall in AD. Increasing taxes, in the form of income tax for example, reduces the disposable income of households and leads to a fall in consumption. Increasing corporate tax may reduce after-tax profits for firms and thus reduce their ability to invest. This might lead to a fall in investment.

A fall in AD leads to a fall in production of output by firms → rise in inventories → firms react by cutting prices of the goods and services → lower GPL. At the same time, the fall in AD leads to lower derived demand for FOPs → lower unit COP → firms pass on the lower unit COP to consumers, in terms of lower prices. Do note that the firms

Contractionary fiscal policies are particularly effective for governments who would like to effect a faster and more immediate drop in GPL in cases where inflation is very high and severe. At the same time, it is also more effective for **countries with a large multiplier value**. The multiplier value is larger for countries with larger marginal propensity to consume (MPC). As such, any reduction in government, consumption or investment expenditure would result in a larger reduction in the AD for such countries. This means that the **prices can fall quicker and larger, addressing demand-pull inflation more effectively**.

In the case of Singapore, as our multiplier value is relatively small, the adoption of contractionary fiscal policy result in **large trade-offs**. The **extent of the fall in G** (and hence the initial decrease in AD) has to be **very large to ensure the same extent of drop in GPL for Singapore in comparison to other countries**. However, the huge drop in G, **in the long term**, will also lead **contraction in the national income, reducing economic growth in the meantime**. This **trade-off is worse for Singapore**, as the fall in G is larger, hence the **extent of impact on RNY is larger too**. As such, **other complementary policies like supply-side policies may be necessary to reduce this trade-offs**.

(For students who are able to write fast)

Optional requirement 3: Supply side policies

Supply side policies are also appropriate for most economies to prevent a large and continuing rise in inflation. As Singapore faces ageing population and falling birth rates, the constraint on our workforce is real. Therefore, there is an urgent need for Singapore government to improve the productivity of our limited labour force. Singapore adopts certain interventionist supply side policies, for example subsidising education and retraining programs. This improves the skillset and productivity of workers.

If **labour productivity increases at a faster rate than wage increment**, **unit cost of labour would fall**. Firms may **pass on these cost savings** to consumers in terms of **lower prices**. Moreover, education and retraining programs also increases the quality of the labour force, and in turn, productive capacity of the economy. This corresponds to a **rightward shift of the LRAS**.

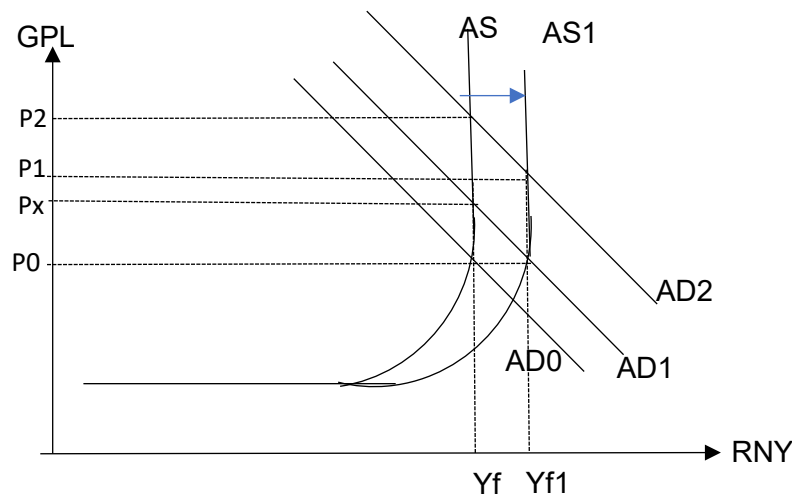
As seen in the diagram below, this rightward shift in the LRAS, as seen from AS to AS1, can help to maintain price stability.

Scenario 1: Suppose the AD increases, from AD0 to AD1, the corresponding increase in LRAS can **keep the prices constant at P0**.

Scenario 2: **Even if the AD continues to rise from AD1 to AD2, this increase in LRAS can help to slowdown the increase in GPL, as seen from the rise in price from Px to P1 only, rather than from Px to P2 (without an increase in LRAS).**

In summary, the increase in LRAS ensures **sufficient spare capacity** in the economy to sustain increases in aggregate demand **without causing a large increase in factor payments, preventing large inflation**.

Figure (rightward shift in LRAS outpacing rightward shift in AD)



[Address Question] Supply side policies are particularly appropriate for most developed economies. As developed countries tend to utilize most of their available factors of production and also facing the issue of ageing population, they are usually operating near or at their full employment output. This makes developed countries especially susceptible to demand-pull inflation if AD increases near the full employment output and is not accompanied by an increase in LRAS. Supply side policies that increases the productive capacity helps these countries achieve sustained economic growth and to keep inflation low in the long run.

Evaluative Conclusion

Ultimately, Singapore's policies to prevent a large and continued inflation is catered largely to its context of being a small and open economy. Our traits make us susceptible to imported inflation and demand-pull inflation due to rigid supply constraints. Hence, the policies adopted by Singapore will be most appropriate for economies that share this trait. An example of such an economy might be Hong Kong.

The use of appreciation of currency **may not be that appropriate for economies with larger domestic markets and a smaller reliance on external markets**. These

economies are more reliant on domestic consumption and internal sources of inflation. Therefore, contractionary monetary policy like interest rates may be more appropriate.

Also, the appropriateness of the abovementioned policies also **differ for developed and developing economies**. Developing countries tend to have ample excess capacity, implying that the economy is operating far below full employment output. While supply side policies may still prevent inflation in such countries, it does little to encourage actual economic growth, which is another significant macroeconomic objective of governments. It may be more beneficial for developing countries to prioritize policies to increase real national output instead of adopting supply-side or contractionary fiscal policies. Perhaps, developing countries could adopt expansionary fiscal policy with supply side effects. The government can increase government expenditure on infrastructure (e.g. to build roads, schools, telecommunication networks and systems, etc) which is a direct component of AD, causing AD to increase. Meanwhile, an increase in infrastructure would increase the productive capacity of the country, allowing the country to sustain actual economic growth for prolonged periods in the future. While still a form of supply side policy, expansionary fiscal policies have a more direct effect on AD and hence actual economic growth for developing countries.

Additionally, governments usually seek to achieve economic growth, low unemployment and a favourable balance of trade together with preventing a larger and continuous inflation. The policies adopted by Singapore are appropriate for most countries in that minimizes trade-offs with other macroeconomic goals of the government. For example, Singapore's heavy emphasis on supply side policies prevents inflation as well enables sustained economic growth in future periods. However, the benefits of policies on multiple macroeconomic aims depends on countries' contexts. Supply side policies may not have a significant impact on the economic growth for developing countries, at least in the short run.

In summary, the appropriateness of the policies adopted by Singapore vastly differs across economies.

Note to students: The above is an ideal conclusion, you are expected to at least provide one or two of the above judgements during exams.

Level	Descriptor	Marks
L3	- Considers 2 policies adopted by Singapore to prevent large and continuous inflation. - Detailed analysis of the effectiveness and limitations of each policy using economic concepts. - Effectiveness and limitations of each policy are well contextualized to the differences between Singapore and other economies.	8 – 10
L2	- Imbalanced answers that consider only one policy. - Under-developed answers where the analysis of the effectiveness and limitation of policies lack rigour. - A general consideration of effectiveness and limitations of suggested policies that do not stem from the differences between Singapore and other economies.	5 – 7
L1	- Significant conceptual errors - Lacking in relevant economic analysis.	1 – 4

	Evaluation	
E3	• Overall judgement is well-substantiated using some criteria. • Conclusion is well justified and based on prior analysis.	4 – 5
E2	• Substantiated judgement which may not be fully convincing	2 – 3
E1	• Judgement with little substantiation	1

Question 3

Singapore's economy expanded a faster-than-expected 1.8 per cent in the last quarter of 2016. Moving ahead, growth remains uncertain. Internally, Singapore has adopted a policy of restricting foreign labour and restructuring towards productivity-driven growth. Externally, higher US interest rate may lead to higher interest rates in Singapore.

Source: Adapted from Channel Newsasia, 3 January 2017

- (a) Explain the possible conflicts in government macroeconomic objectives caused by a policy of restricting foreign labour and restructuring towards productivity-driven growth. [10]
- (b) (can refer to 2019 P2) Assess the impact of higher US interest rate on Singapore's macroeconomic performance. [15]

(a) Explain the possible conflicts in government macroeconomic objectives caused by a policy of restricting foreign labour and restructuring towards productivity-driven growth.

Question analysis

Concepts	• Macroeconomic aims • Macroeconomic policies
Context	• Singapore
Command Word	Explain: Use economic analysis to explain cause and effect Cause: • "Restricting foreign labour and restructuring towards productivity-driven growth" Note to students, you are expected to explain how the above can help Singapore achieve certain benefits – i.e. actual economic growth & long-term price stability. Effect: • Conflicts with other macroeconomic objectives & trade-off Note to students: Throughout the essay, the idea of trade-offs must be clear – that is the factors and process to achieve one set of macroeconomic aim also worsens another set of aims. This is just one suggested answer structure, other reasonable and appropriate answer structures are accepted too.

Introduction:

Governments strive to achieve economic growth and price stability, lower unemployment, and a balance of trade (BOT) equilibrium. The context of restricting foreign labour and restructuring towards productivity driven growth comes amidst a slowdown in productivity growth.

Benefits on the economy due to restricting foreign labour and restructuring towards productivity driven growth

The policy of restricting foreign labour and restructuring towards productivity driven growth may help Singapore achieve **actual, potential and sustained economic growth in future.**

This is a good to know and students should be aware of how Singapore may restrict foreign labour.

There are 2 aspect of restricting foreign labour in Singapore.

- Firstly, the government can reduce the **ratio of foreign to resident** (i.e. Singaporean / PR) **workers** each firm can hire.
- The second aspect of restricting foreign labour is to **selectively allow for only more high-skilled foreign workers into the country** or raising the qualifications to enter Singapore. This has been done by raising the salary requirements for employment and S-passes.

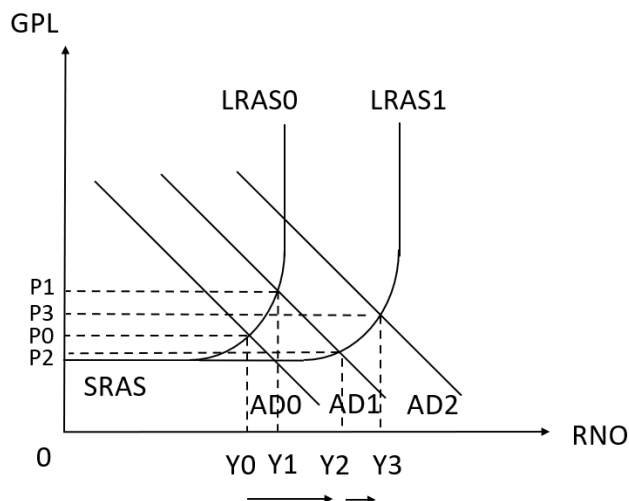
Note to students, you are expected to explain how the above can help Singapore achieve certain benefits – i.e. actual economic growth & long-term price stability.

Restrict the hiring of foreign labour → reduce supply of foreign labour within Singapore → prices of these used to be cheaper foreign labour is raised → assuming that the price of these foreign labour increase to comparable to local labour → force firms to hire more local labour

The higher demand for local labour → increase prices of local labour → higher total cost of production to firms → encourages firms to **increase productivity of these labour to match the higher labour cost** → if successful to raise labor productivity, the **total output produced increases more than the rise in total cost, average cost falls → SRAS increases.**

At the same time, better quality of labour can increase the total maximum no. of final output a country can produce → **increase productive capacity, and hence LRAS → achieve potential economic growth.**

Productivity driven growth refers to a broad category of government efforts to increase productivity in Singapore. For example, **increasing government expenditure on research and development infrastructures** that can help improve both product and process innovation. Process innovation includes developing **more efficient and productive methods of production**, so that even with the same quantity of factors of production, **more output can be produced.** This increases not just the **G in the AD** but also expands the economy's productive capacity and hence **LRAS of the economy.**



The rise in AD from AD0 to AD1, as explained above, results in a fall in unplanned inventory stocks, signaling firms to increase output. Given that there has been a rise in the productive capacity, there are now even larger amount of spare factors of production available and better quality of FOPs. This allows the RNY to increase to a larger extent, from Y0 to Y2, instead of only from Y0 to Y1.

Since the LRAS expands, with the multiplied further increase in AD, from AD1 to AD2, it still results in a rise in RNO from Y2 to Y3. At the same time, since the **available capacity reduces the competition for factors of production** amongst firms. While there is still greater demand for FOPs due to the higher AD, the **factor payments** (e.g. wage) are likely to increase only to a slight extent → **the unit cost of production only increases slightly**, which means the GPL also **increases slightly, from P0 to P3**. This helps the economy enjoy sustained economic growth without significant inflationary pressures.

Requirement 1: First trade-off on Structural unN and income inequality

Accelerating the efforts on productivity driven growth, while increasing LRAS, could also **increase structural unemployment and possibly worsen income inequality**. Increasing the level of technology often leads to changing methods of production in the economy, which **replaces low-skilled manual jobs** and changes the skills required by jobs to one that is **high-skilled** such as coding, engineering, and critical thinking.

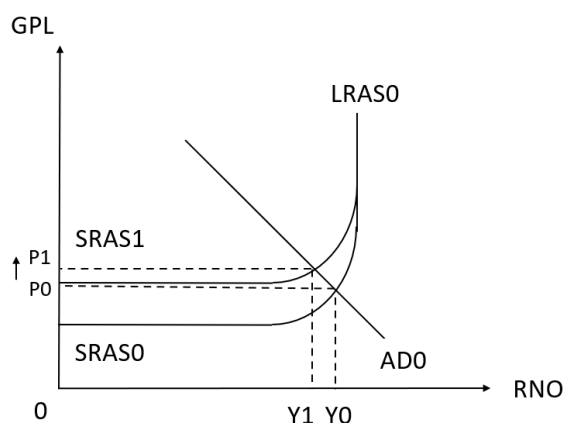
Low-skilled workers are laid off due to replacement with technological process → they lack the necessary skills required by the higher-performing jobs → structurally unemployed.

At the same time, the **demand for the low-skilled workers will fall and the demand for the high-skilled workers increase**. This leads to corresponding **surplus** and **shortage** in the respective markets. The **low-skilled workers suffer from a falling / depressed wages**, while the **high-skilled workers enjoy higher wages** → **worsens income inequality** between these two groups of workers. This **worsens the non-material SOL in the economy, as the gini coefficient value increases**.

Requirement 2: Second trade-off on short-term inflation and worse BOT position

The policy of restricting foreign labour and restructuring towards productivity driven growth may achieve sustained economic growth in the long term **at the expense of higher GPL and worsened BOT in the short term**.

Acquiring physical capital, increasing labour productivity, and changing methods of production **takes time**, and hence would only be significantly reaped in the long term. In the short term, however, reducing the number of foreign workers firms can hire would force firms to **hire more expensive local workers**. Assuming that labour productivity cannot be improved significantly in the short term → this increases unit cost of production for firms. This reduces profitability of the firms, and hence make firms **less willing to produce, reducing SRAS (SRAS0 to SRAS1)**.



Assuming the economy is operating below the full employment output, firms would **pass on** the **higher costs to consumers as higher GPL** (P_0 to P_1).

Note to students: Since this point is closely related to the point on inflation, it is encouraged for students to explain this as well. This is taken to deepen the relevant links within the same paragraph (stems from the same reason: higher prices) The increase in GPL also affects exported goods and services, reducing our export price competitiveness.

Assuming the **demand of Singapore exports are price elastic** ($|PED_x| > 1$), the fall in the price of exports leads to a more than proportionate decrease in quantity demanded, results in a fall in export revenue (X). Meanwhile, if imports and domestically produced goods are **close substitutes** ($XED > 0$), a rise in price of Singapore goods would **cause the demand for imported goods to rise, increasing price and quantity of imports and hence import expenditure (M)**. **The fall in X and rise in M suggests BOT will worsen**. If Singapore was originally in BOT equilibrium, the BOT would now be in deficit.

Level	Descriptor	Marks
L3	- An answer that clearly and rigorously explains the benefits and 2 trade-offs from restricting foreign labour and productivity-driven growth. - Use of AD/AS framework.	8 – 10
L2	Missing any L3 criteria	5 – 7

L1	• Significant conceptual errors • Lacking in relevant economic analysis.	1 – 4
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(b) Assess the impact of higher US interest rate on Singapore's macroeconomic performance. [15]

Concepts	• Macroeconomic policies
Context	• Due to US interest rate → interest rate taker from USA • Singapore's economy → small / open, heavily reliant on external trade for growth and imported FOP for production
Command Word	Assess (the impact...) Cause • Higher US interest rate Effect • Singapore's macroeconomic performance linked to the 4 macroeconomic objectives of economic growth, unemployment, price stability and BOT Requires evaluation and a balance of positions (positive and negative impacts).

Introduction:

Given that Singapore prioritizes free capital flows and control over our exchange rates, we are unable to control interest rates. This makes Singapore an **interest rate taker**. The rise in the US's interest rates would cause Singapore's interest rate to rise. Additionally, increasing interest rates is a contractionary monetary policy with the objective of reducing inflation rates. Hence it is reasonable to expect the rising interest rates to be in response to high inflation rates globally (as seen during the first few years after the Covid-19 pandemic).

Requirement 1: Positive Impact = reduce demand-pull inflation & improve BOT

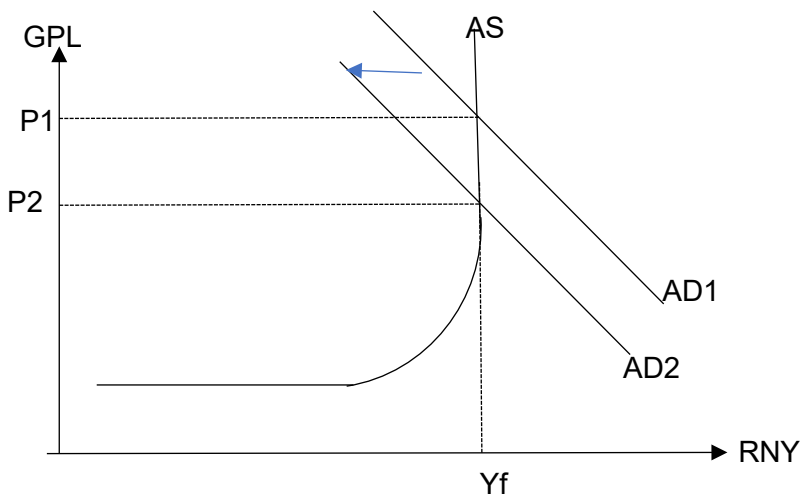
The rise in US's, and consequently Singapore's, interest rate can **help reduce demand-pull inflation in Singapore**.

As Singapore's interest rate rises, the **cost of borrowing rises**. **Profitability** of investment is calculated by **expected returns on investment minus cost of borrowing**. Since the COB is higher, assuming no change to the expected returns on investments, this **reduces the profitability of investment, reducing the incentive for firms to invest**. This would decrease investment expenditure (I).

Furthermore, the cost of taking a loan for big-ticket items (e.g. cars and houses) would rise, reducing consumers' willing to spend, reducing consumer expenditure (C). Additionally, higher

interest rates increases the returns to saving. Assuming constant household incomes, consumers will be more likely to save more and spend less, further dampening C.

Taken together, AD is likely to fall, from AD1 to AD2. **Assuming the economy is operating at or near the full employment output, firms will see a rise in the inventory stocks, signaling firms to reduce output. Firms will therefore reduce their demand for FOPs → lesser competition for the FOPs → prices of FOPs fall → unit COP falls → pass on the consumers as seen by lower GPL, from P1 to P2.**



Note to students: It is possible that students see the higher interest rate as dampening the increase in AD as well, this means that the AD rise to a smaller extent, rather than fall. Answers of this should look at reducing competition for resources and hence, the price of FOPs rises SLIGHTLY. Both are accepted answers.

A higher interest rate in US and hence Singapore can also help to **improve Singapore's balance of trade position**. The fall in GPL reduces the prices of exported goods as well. This increases Qd for our Sg's X → **assuming that the $PED > 1$, the fall in price leads to a more than proportionate the rise in Qd of X → overall increase in X-revenue.**

At the same time, since our domestic goods are now cheaper (due to the fall in GPL) → **local consumers switch to consume local domestic goods, instead of foreign imports → demand for M falls, leading to a fall in M-expenditure (assume there is no change to the price of foreign imports).**

The rise in X-revenue and a fall in M-expenditure → **improves BOT position for Singapore.**

Evaluation of R1 (extent of positive impact):

- **(Context) Positive outlook** → Households and firms may have positive outlook of the economy → expect future income and future profits to rise instead → despite the higher interest rate, sentiments to borrow is strong → C and I continue to rise instead of fall. Harder to bring down inflationary pressures, extent of positive impact is more limited.

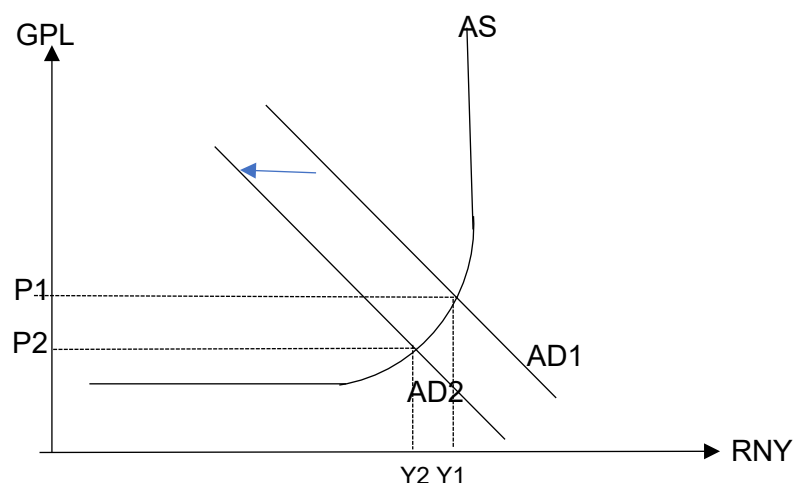
- **(Context) USA's economic situation** → Since USA is a major trading partner for Singapore → their higher interest rate is likely to have contractionary effect on their RNY and household incomes. Despite the cheaper SG's exports, the willingness to buy may not be high due to the lack of income and spending power from the USA. This means that the extent of the rise in X-revenue may not be sufficient to improve the overall BOT position in Singapore.

- **(Counter-propose) However**, Singapore has diversified our trading partners, to include ASEAN, China, Asia-Pacific. Hence, despite the fall in the RNY in USA, it is likely that the extent of impact on our overall X-revenue may not be so severe in the longer term, as long as other major trading partners continue to purchase our exports.

Requirement 2 / Topic Sentence 2: Negative impact of higher interest rate

The rise in US's and Singapore's interest rates may possibly reduce **result in negative economic growth and higher demand deficient unemployment**, if the current Singapore's economy is not near to or at full employment and the rise in interest rates is done quickly and by a large extent.

As explained above, higher interest rates could **dampen C and I** → increase households' willingness to save for the uncertain times ahead, drastically reducing willingness to spend, causing **C to fall**. Likewise, uncertain business environment in future drastically reduces expected returns to investment, which may cause firms to put off the acquisition of physical capital in bid to reduce costs for the uncertain future. This **reduces I**. Furthermore, as mentioned earlier, the possible contractionary effect on the US economy may lead to a fall in their willingness to spend on Singapore's X → reduce the demand for Singapore's exports, reducing export revenue (X). The fall in C, I and X would result in AD falling.



(Reverse multiplier process) A fall in AD causes an **unplanned rise in inventories** stocks, **signaling firms to decrease output**. Assuming the economy is operating below the full employment output, firms cutting production results in a **fall in RNO** (Y0 to Y1).

The fall in RNO implies a fall in economic activity, **reducing the derived demand for factors of production**, causing **prices of factor payments to be bidden down**. This causes household income to fall, **inducing a fall in consumption expenditure** by the amount equal to the marginal propensity to consume (MPC). This causes **AD to fall again**, resulting in another fall in RNO (Y1 to Y2). This process repeated until RNO falls by a **multiplied extent** equal to the original fall in export revenue $\times \frac{1}{1-MPC}$. The fall in RNO implies **negative actual economy growth**. If this is sustained for two or more quarters, the economy will experience a recession.

Furthermore, since output is lowered, derived demand for labour would also fall, causing firms to lay-off workers and reducing hiring. This would **increase the demand deficient unemployment** → unemployment rates would rise.

Evaluative conclusion

In conclusion, whether a rise in US affects Singapore's macroeconomic performance desirably **depends on a few criteria**: **Time, Context, Government Policy & Magnitude**

1) **Context**: the underlying state of the economy prior to the interest rate hike.

- If the problem of high inflation is only contained within the US, Singapore was not near to full employment and originally experiencing moderate positive economic growth **and low inflation rates**, this means **our AD is below full capacity**, rising interest rates is likely to have the dominant effect of reducing AD, **leading to negative economic growth and rising unemployment**.
- If, however, high inflation was **prevalent globally**, the interest rate hike is likely **to be overall beneficial, reducing inflation rate without causing a fall in RNO**.

2) **Magnitude** of the interest rate increase:

- If USA is experiencing high level of inflation rate → **interest rate increase is likely to be high**
- Assuming that Singapore's economy is not at full employment → the negative effect on growth and unemployment is **likely to outweigh** the positive effect
- **Overall, more undesirable on Singapore's economy**

3) **Government Policy**: Any complementary policies in place?

- Also, the overall impact on AD might depend on existing fiscal policy. If the Singapore government is **concurrently adopting an expansionary fiscal policy, increasing G on infrastructural** such as MRT lines and transport network.
- **Expand both AD & LRAS** due to more quantity of capital resources as well as greater labour productivity → **better able to contain demand-pull inflation as well as contain cost-push inflationary pressures**.
- In this case, the negative impact of slowing economic growth due to the higher interest rate may be dampened, **overall more beneficial**.

Mark scheme:

Level	Descriptor	Marks
L3	• Explain possible +ve & -ve impacts of the interest rate hike in USA on the Sg economy • Use of AD/AS framework to explain the analysis	8 – 10
L2	• Lacking any of the L3 criteria.	5 – 7
L1	• Significant conceptual errors • Lacking in relevant economic analysis.	1 – 4
	Evaluation	
E3	• Limitations / extent are well-supported and explained • Overall summative judgement is well-substantiated using some criteria.	4 – 5
E2	• Some limitations / extent are explained but may not be accurate • Attempt at brief summative conclusion	2 – 3
E1	• Limitations / extent is stated, rather than explained • No summative conclusion provided	1