

St Andrew's Junior College
JC2 Preliminary Examinations for General Certificate of Education Advanced
Level
Higher 2

ECONOMICS

Paper 2

9570/02

15 Sep 2025

2 hours 30 minutes

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

An answer booklet will be provided with this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional answer paper ask the invigilator for a continuation booklet.

Answer **three** questions in total, of which **one** must be from Section A, **one** from Section B and **one** from **either** Section A or Section B.

The number of marks is given in brackets [] at the end of each question or part question.

This document consists of **3** printed pages and 1 blank page.



- 1 The US economy contracted by 0.3% in Q1 2025. To revive the declining domestic textile manufacturing industry, the US has decided to impose tariffs (import taxes) on imported textiles. China remains competitive as she can manufacture both low-end as well as high-end textiles.

Source: CNN

- (a) Explain how a production possibility curve (PPC) can be used to illustrate the concept of scarcity, choice and opportunity cost, and explain how the impact of US tariffs on Chinese imports can be shown on China's PPC. [10]
- (b) Discuss the likely effects of a contraction of the US economy and the imposition of tariffs on consumer expenditure on different types of imported textiles into the United States. [15]

Question Analysis (a)

Command	Explain
Content	PPC – scarcity, choice, opp cost Impact of tariff on PPC
Context	China

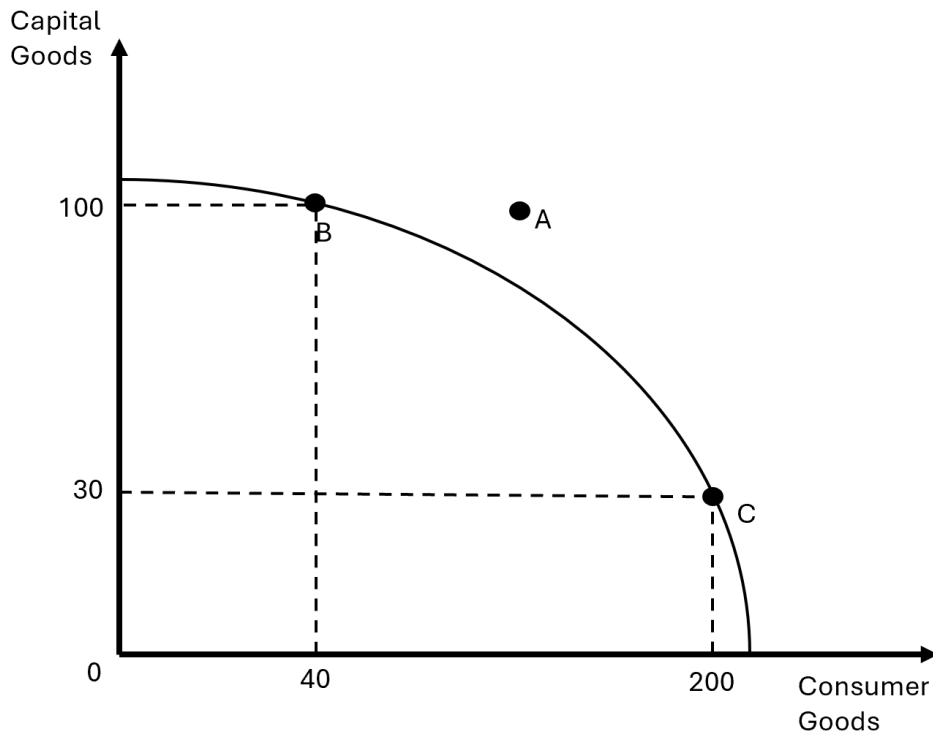
Schematic Plan

Requirement 1	Requirement 2
Explain how PPC can be used to illustrate the concepts of scarcity, choice and opportunity cost.	Explain how US tariffs will lead to an inward movement in China's PPC in SR and inward shift of PPC in LR.

R1: Using PPC to show concept of scarcity, choice and opportunity cost

The production possibility curve (PPC) shows all combinations of the maximum quantities of two goods that can be produced by an economy with a given amount of resources fully and efficiently employed at a given state of technology in a given time period.

The diagram below assumes a simple economy only producing two goods: capital goods and consumer goods.



Scarcity arises because of limited resources but unlimited wants.

This can be illustrated by the unattainable combinations outside the PPC boundary shown by point A. The country currently does not have the necessary resources or the level of technology needed to produce that combination of capital goods and consumer goods. An economy cannot produce at points beyond the production possibility curve.

Choice is illustrated by the need to choose among the alternative attainable combinations along the curve (points B or C). If the economy wants more capital goods by choosing combination B instead of C, then it must be prepared to produce fewer consumer goods.

Opportunity cost refers to the value of the next best alternative foregone when a choice is made. In the context of this PPC, assume that an economy can either choose to produce at point B or C.

As explained earlier, a country can choose to either produce at point B or point C. Opportunity costs refer to the units of one good (e.g. capital goods) that need to be given up to produce one more unit of another good (e.g. consumer good).

In order for the economy to produce more units of consumer goods, it needs to give up some units of capital goods, i.e. movement from Point B to C. In order to produce 160 more units of consumer goods, it has to give up 70 units of capital goods.

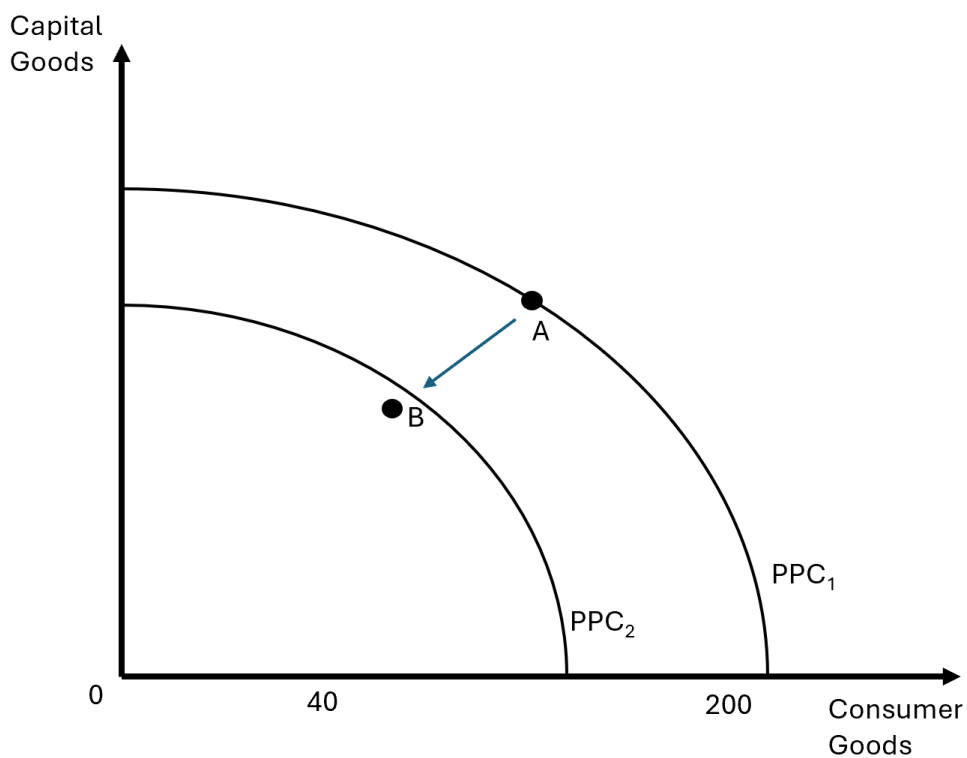
There exists a trade-off because given that the limited amount of resources have been fully and efficiently employed, the economy would have to reallocate some resources e.g., labour and capital away from the production of capital goods towards the production of consumer goods instead.

R2: Impact of US tariff shown on China's PPC

Consider SR impact

The immediate impact of US tariff on China's imports is that there will be less Chinese imports in the US. Viewed from China's perspective, this means that there will be lesser exports in China.

Assuming *ceteris paribus*, the decrease in export revenue would lead to a decrease in AD and unplanned inventory accumulation at initial GPL. Firms will hire less factors of production, e.g. labour, and there will be a decrease in derived demand for labour leading to higher unemployment. This can be represented by a movement of the point on the PPC to a point within the PPC, i.e. Point A to B in the diagram below.



Consider LR impact

If the tariff persists in the longer term and assuming China is unable to redirect its trade to other countries, there might be closure of production facilities, e.g. factories, which might decrease the productive capacity of China's economy. This can be illustrated with an inward shift of the PPC from PPC_1 to PPC_2 .

Level	Knowledge, Analysis, Understanding and Application	Marks
L3	Thorough knowledge of the theory with an excellent ability to describe & explain in a precise, logical and reasoned manner. This is done and supported with an appropriate tool of analysis . (PPC diagram) Able to explain the concept of scarcity, choice and opportunity cost clearer. Able to consider the SR <u>or</u> LR impacts of US tariff on China's PPC clearly.	8 – 10
L2	Accurate although undeveloped explanation of the theory. Mistakes made mar the otherwise well-explained answers.	5 – 7
L1	Answer shows some knowledge but does not indicate that the meaning of the question has been properly grasped. Basic errors of theory or an inadequate development of analysis may be evident.	1 – 4

Question Analysis (b)

Command	Discuss
Content	DDSS, PED, PES, YED, consumer expenditure.
Context	Types of imported textiles in US

Schematic Plan

Requirement 1	Requirement 2
Effects of contraction of the US economy on consumer expenditure on imported textiles. 1. High-end textiles (luxury) 2. Low-end textiles (inferior)	Effects of tariff on consumer expenditure on imported textiles. 1. High-end textiles (luxury) 2. Low-end textiles (inferior)

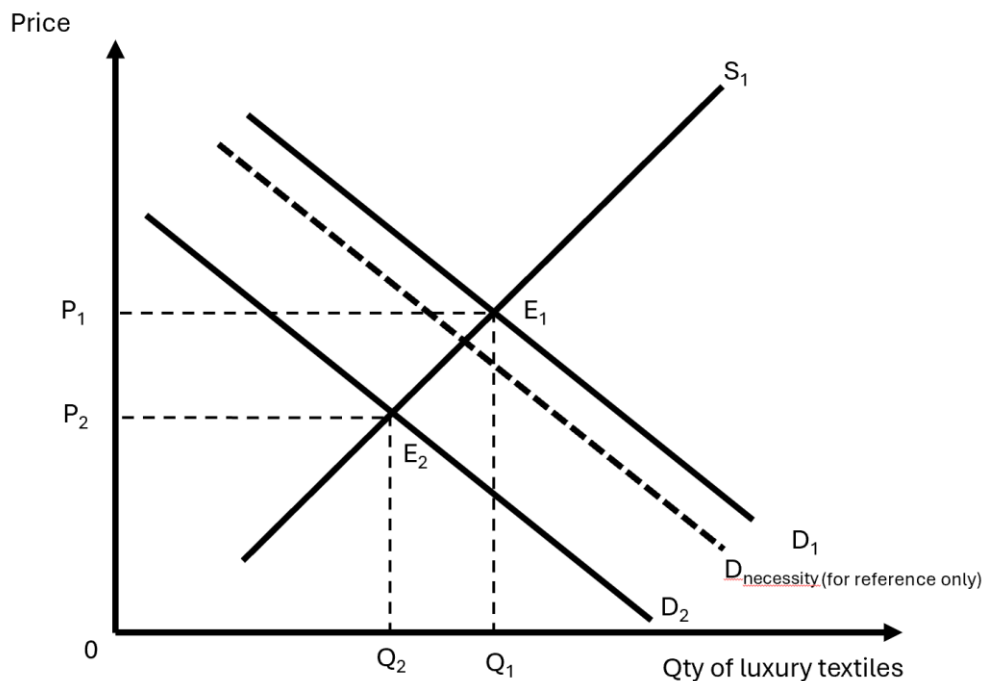
Note to candidates: A deliberate decision was made to categorise the demand for low-end textiles as price inelastic, and the demand for high-end textiles to be price elastic so that the resultant change in CE will be easier to determine. See table below.

	High-end textiles	Low-end textiles
R1: Contraction of US economy	Income falls → given that $YED > 1$, $DD \downarrow$ CE decreases	Income falls → given that $YED < 0$, $DD \uparrow$ CE increases
R2: Imposition of tariff	SS decreases given that $PED > 1$ CE decreases	SS decreases given that $PED < 1$ CE increases
Overall	CE decreases	CE increases

R1: Effects of contraction of the US economy on consumer expenditure on imported textiles

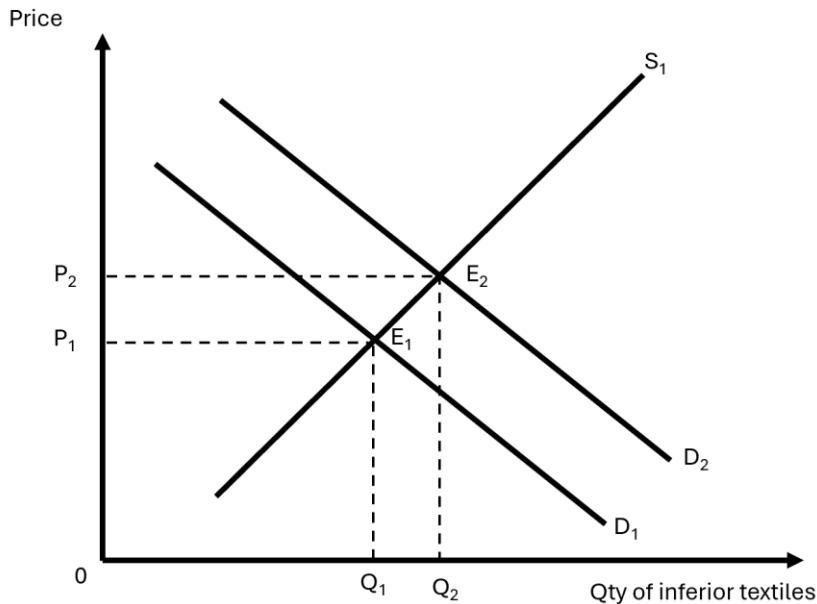
Shift in DD: High-End Textiles, $YED > 1$

The contraction of the US economy suggests that the real national income has fallen resulting in lower incomes for households. Using the concept of YED, the value of YED for high-end luxury textiles is likely to be greater than 1, i.e. $YED > 1$. Therefore, the fall in income will lead to a more than proportionate fall in demand for textiles from D_1 to D_2 , resulting in a decrease in equilibrium price (P_1 to P_2) and equilibrium quantity (Q_1 to Q_2) and a decrease in consumer expenditure (Area $OP_1E_1Q_1$ to $OP_2E_2Q_2$). This is illustrated in the diagram below.



Shift in DD: Low-End Textiles, $YED < 0$

However, the value of YED for inferior textiles is likely to be less than 0 i.e. $YED < 0$. Therefore, given the fall in income, there will be an increase in demand for inferior textiles and a corresponding increase in equilibrium price and quantity. This results in an increase in consumer expenditure on inferior textiles from Area $OP_1E_1Q_1$ to $OP_2E_2Q_2$. This is illustrated in the diagram below.



Consider PES

The PES of textiles will not affect the direction of change in consumer expenditure on high-end textiles nor low-end textiles, i.e. consumer expenditure will still decrease for luxury textiles when income falls; and consumer expenditure will still increase for inferior textiles when income falls.

R2: Effects of tariff on consumer expenditure on imported textiles

Shift in SS: Impact of tariff on SS

The imposition of tariffs on imported textiles will increase the COP of imported textiles and decrease the supply of imported textiles in the US. The decrease in supply will result in an increase in equilibrium price and decrease in equilibrium quantity. To determine how CE will change, we will need to consider the PED for normal and inferior textiles.

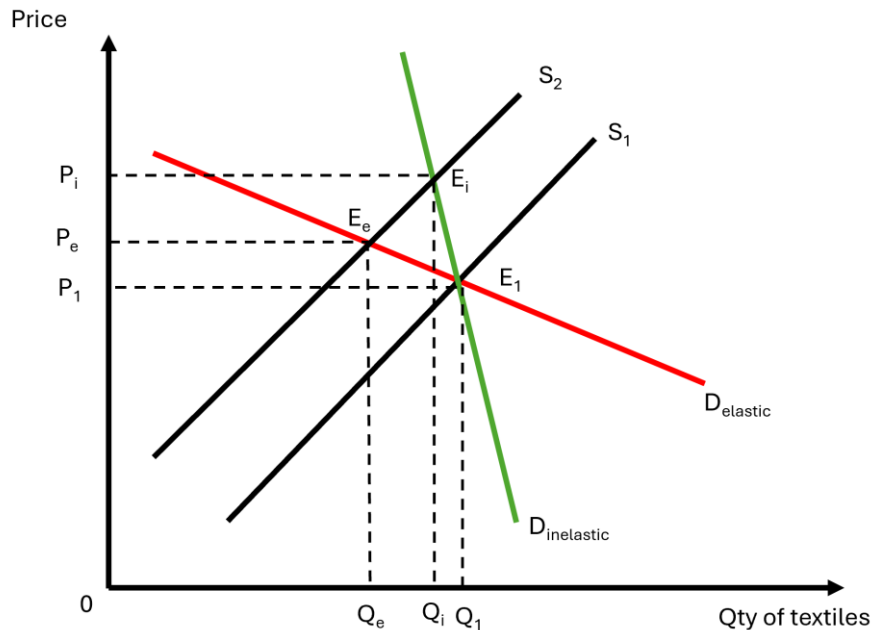
Consider PED: High-End Textiles, $PED > 1$

The demand for imported high-end textiles is likely to be price elastic because the degree of necessity is low and alternative grades of textiles can be used to substitute it. Therefore, an increase in price will lead to a more than proportionate decrease in quantity demanded, which will result in a decrease in consumer expenditure.

Consider PED: Low-End Textiles, $PED < 1$

However, the demand for imported inferior textiles is likely to be price inelastic because there is a lower availability of substitutes for inferior textiles produced in US (or the proportion of income spent on inferior textiles is likely to be small). Therefore, an increase in price will lead to a less than proportionate decrease in quantity demanded, which will result in an increase in consumer expenditure.

This is illustrated in the diagram below where the original CE is given by the Area $0P_1E_1Q_1$. Under a price elastic demand curve (D_{elastic}) for high-end textiles, the CE decreased to Area $0P_eE_eQ_e$, while the CE increased to Area $0P_iE_iQ_i$ to under a price inelastic demand curve for inferior textiles ($D_{\text{inelastic}}$).



Evaluative Conclusion

The **overall** consumer expenditure on high-end luxury textiles is likely to decrease as a result of the contraction of US economy and imposition of tariffs. On the other hand, the **overall** consumer expenditure on low-end inferior textiles is likely to increase as a result of the contraction of US economy and imposition of tariffs.

[TIME]

In the longer-run, the demand for inferior textiles is likely to become more price elastic since there will be more time to look for substitutes, this may cause the overall consumer expenditure on inferior textiles to be indeterminate, assuming the recession persists in the US.

[ASSUMPTIONS] Finally, there were a lot of assumptions made on the PED values for luxury and inferior imported textiles, the ability of US firms to produce similar types of textiles as substitutes, and the lack of trade diversion to other textile manufacturing countries as a result of the imposition of tariff on Chinese imported textiles. Should these assumptions not hold, the analysed outcome might be different. For example, the contraction of the US economy is very small (merely 0.3%) and for a short period of time (one quarter), which may not impact economic decisions on imported textiles that much in reality.

Level	Knowledge, Analysis, Understanding and Application	Marks
L3	Well-explained answer which considers both the impact of contraction of the US economy and imposition of tariffs on two types of textiles. This is done and supported with an appropriate tool of analysis (e.g. use of demand and supply diagrams to show shifts in DD and PES, shifts in SS and PED). Able to explain the effect of contraction of US economy on consumer expenditures on <u>two</u> types of textiles. Able to explain the effect of import tariffs on consumer expenditures on <u>two</u> types of textiles.	8 – 10

	Able to explain the combined effects on consumer expenditures on <u>two</u> types of textiles.	
L2	Accurate although undeveloped explanation of the two requirements of the questions.	5 – 7
L1	Answer shows some knowledge but does not indicate that the meaning of the question has been properly grasped. Basic errors of theory or an inadequate development of analysis may be evident. Where the answer is mostly irrelevant and only contain a few valid points made incidentally in an irrelevant context.	1 – 4
E3	Well explained evaluative statements about 2 requirements.	5
E2	Evaluative statements about 2 requirements, one of which is well-explained.	3 – 4
E1	Unsupported evaluative statements.	1 – 2

- 2 Airlines adjust ticket prices based on travel periods to increase profits by charging more during peak seasons and lowering prices during off-peak seasons to attract more customers.
- (a) Explain whether the above pricing strategy can be considered as an example of price discrimination. [10]
- (b) Discuss the most appropriate strategies that an airline company could adopt to increase its profits when faced with increased competition. [15]

Part (a)

Question Analysis

Command	Explain
Content	Price Discrimination
Context	Airline Industry

Requirement 1	Requirement 2
The strategy is an example of price discrimination as it meets the conditions of price discrimination	The strategy is <u>not</u> an example of price discrimination but instead the differences in price between peak and non-peak is due to revenue and cost reasons Or - Difficult to differentiate PED between 2 sub-markets

Introduction

Definition of Price Discrimination (PD)

Price discrimination occurs when a firm sells an identical product at different prices to different groups of consumers, and these price differences are not due to variations in production cost.

Setting context

In the above context of airlines' pricing strategy, the product being sold is an airline ticket for travel between two destinations. This service can be identical in terms of aircraft type and route taken to the destination.

However, the price charged can vary depending on when the ticket is purchased and when the trip takes place. For example, passengers who fly during peak travel seasons such as school holidays or festive periods are charged higher fares compared to those who fly during off-peak periods.

It must be noted that these price differences are not due to differences in cost of production. The costs of providing the service, such as aircraft fuel, maintenance and airport fees remain the same regardless of season. Thus, for price discrimination to occur, the variation in prices is not explained by cost differences but by the firms' ability to set prices based on demand conditions.

Body

Requirement 1: The strategy of setting higher airfares during peak seasons and lower airfares during off-peak seasons is an example of price discrimination as it meets the conditions of price discrimination

Conditions for Price Discrimination

For price discrimination to take place, three key conditions must be satisfied:

1. The firm must have the ability to set prices

This requires a degree of market power, which is typically present in imperfectly competitive markets such as monopolistic competition, oligopoly, or monopoly.

In the airline industry, major carriers such as Singapore Airlines, Emirates, and Qatar Airways operate in an oligopolistic market structure. They hold a significant market share and face high barriers to entry from potential competitors. For example, a new airline would need to make a large capital investment in aircraft and secure government approvals, serving as high barriers to entry that makes competition difficult even in the long run.

These market conditions give the established airlines the power to determine their pricing strategies, including price discrimination.

2. Resale must not be possible

Price discrimination requires that consumers in the lower-priced sub-market cannot resell the product or service to those in the higher-priced sub-market. In the case of airline tickets, resale is generally impossible. This is because tickets are issued based on passengers' names and they would require identity verification at boarding, and are thus non-transferable.

3. The price elasticity of demand (PED) must differ across sub-markets

Firms must be able to segment the market into distinct sub-markets with different PED values. This allows the firm to charge higher prices in markets where demand is price inelastic and lower prices in markets where demand is price elastic. For airlines, the market can be segmented into peak travel periods (e.g., year-end holidays, festive seasons, school breaks) and off-peak periods (e.g., weekdays in non-holiday months).

During off-peak periods, demand is price elastic ($PED > 1$). Passengers in this period, such as leisure travellers or retirees, are more flexible with travel dates and more sensitive to fare changes. Since airfare constitutes a relatively large proportion of their travel budget, they may postpone or change their travel plans if prices rise.

Conversely, during peak periods, demand is price inelastic ($PED < 1$). Travellers, such as families bound by school holidays or business travellers with fixed schedules, have a high degree of necessity to travel at specific times. Since these passengers often have higher disposable incomes or travel budgets and airfare constitutes a smaller proportion of their overall spending, they are less responsive to price changes and are willing to pay more to secure their preferred travel dates.

Requirement 2: The strategy of setting higher airfares during peak seasons and lower airfares during off-peak seasons is not an example of price discrimination but the difference in price is instead due to DD and SS reasons

The condition or assumption that there are no cost differentials between peak and off-peak travel periods might not hold.

This is because the costs of providing air travel during these two periods can be higher during peak seasons (i.e. SS factor). For example, during festive periods or major holiday seasons, airports may experience heavier air traffic, leading to longer turnaround times for aircraft. This can increase fuel consumption due to holding patterns in the air or extended taxiing on runways, as well as raise crew costs due to longer duty hours.

Furthermore, airlines may incur higher opportunity costs during peak seasons as valuable aircraft slots could be used to serve more high-demand routes.

At the same time, there is typically an increase in demand for air travel during peak seasons, as this is when most leisure travellers, families, and students choose to travel.

Due to this increase in the firm's demand curve (average revenue, AR) and marginal revenue (MR) curve, the profit-maximising price would rise.

Thus, airlines charge higher airfares during peak seasons compared to off-peak periods.

Level	Knowledge, Analysis, Understanding and Application	Marks
L3	Thorough knowledge of the theory with an excellent ability to describe & explain in a precise, logical and reasoned manner. This is done and supported with an appropriate tool of analysis . <i>Able to explain why the pricing strategy meets the conditions of price discrimination.</i> <i>Able to explain why the pricing strategy does not meet the conditions of price discrimination.</i>	8 – 10
L2	Accurate although undeveloped explanation of the theory. Mistakes made mar the otherwise well-explained answers.	5 – 7
L1	Answer shows some knowledge but does not indicate that the meaning of the question has been properly grasped. Basic errors of theory or an inadequate development of analysis may be evident.	1 – 4

(b) Discuss the most appropriate strategies that an airline company could adopt to increase its profits when faced with increased competition. [15]

Question Analysis

Command	Discuss
Content	Most appropriate strategies To increase its profits
Context	Increased competition Airline Industry

Requirement 1	Requirement 2
Strategy to increase revenue	Strategy to decrease cost
<u>Possible revenue strategy 1</u> Diversification is one revenue strategy that an airline firm could adopt to increase its profits + Limitations	<u>Possible cost strategy 1</u> Process innovation is one cost strategy that an airline firm could adopt to increase its profits + Limitations
OR	OR
<u>Possible revenue strategy 2</u> Production innovation is another revenue strategy that an airline firm could adopt to increase its profits + Limitations	<u>Possible revenue strategy 2</u> Diversification is another cost strategy that an airline firm could adopt to increase its profits + Limitations
Note: Students can also suggest other strategies such as 1) Predatory pricing 2) Mergers or acquisition	

Introduction

Set context:

Analyse how an increase in competition would cause problems for an airline firm

In recent years, due to weakening of BTE, there has been intense competition experienced by both full-service carriers and low-cost airlines in the Asia-Pacific region.

This would have caused a fall in market share for an airline company, potentially reducing its revenue and profits.

Rising operating costs, such as fuel prices, labour expenses, and airport charges, further reduce the profits.

In this competitive landscape, an airline company must adopt effective strategies such as diversification and predatory pricing to increase its profits.

Body

Requirement 1: Strategy to increase revenue

Possible revenue strategy 1

Diversification is one revenue strategy that an airline firm could adopt to increase its profits + Limitations

Explain how diversification could increase revenue and hence increase profits

Diversification is a strategy that firms can adopt to increase their revenue. For example, an airline company can expand into different market segments beyond its traditional premium full-service passenger flights.

This includes offering low-cost air travel, operating regional routes, or providing air cargo services. By entering these different segments of the aviation and travel industry, an airline company is able to spread its risk and reduce its vulnerability to changes in market conditions by reaching out to a larger pool of consumers with varying tastes and preferences. If it is able to capture demand from these new markets, this will lead to an increase in demand for its services, causing a rightward shift of the AR and MR curves as shown in the diagram. This enables the firm to enjoy an increase in revenue from OP_0BQ_0 to OP_1EQ_1 .

Limitations of diversification to increase profits

Diversification often requires significant upfront investment, as entering new market segments involves purchasing additional aircraft, hiring and training staff, and developing the infrastructure to support expanded operations. These costs can be substantial, and if the anticipated demand from new markets fails to materialise, the firm may struggle to recover its investment. In such cases, diversification may reduce profitability instead of increasing it.

At the same time, diversification carries the risk of brand dilution. For instance, when a premium airline known for comfort and exclusivity enters the low-cost market, customers may become confused about its brand identity. The association with budget services can weaken its premium reputation, making it harder to maintain customer loyalty and differentiate itself from competitors. Thus, AR/DD and MR may not necessarily increase to reap greater profits.

OR

Possible revenue strategy 2

Production innovation is another revenue strategy that an airline firm could adopt to increase its profits + Limitations

Explain how product innovation could increase revenue and hence increase profits

Engaging in product innovation is another strategy that firms can adopt to protect their profits when faced with increasing competition. Firms can choose to differentiate their services to better cater to the rapid changes in customer tastes and preferences.

In the case of an airline firm, in order to stay competitive in view of the highly competitive market, they should seek to innovate by introducing cutting-edge features such as enhanced in-flight entertainment systems, premium cabin experiences, and digital booking platforms, using their existing supernormal profits. As a result, this product innovation can lead to an increase in demand for the airline firm's services, causing a rightward shift in the Average Revenue (AR) curve from AR_0 to AR_1 and a corresponding rightward shift in the Marginal Revenue (MR) curve from MR_0 to MR_1 , increasing their total revenue P_1EQ_{10} .

Limitation of product innovation to increase profits

However, while innovation can enhance efficiency and service appeal, it often requires significant upfront investments. Developing new products or upgrading services, such as introducing advanced in-flight entertainment systems or digital platforms, incurs costs that can strain an airline firm's resources. These costs contribute to an increase in average costs (AC) from AC_1 to AC_0 , subsequently increasing marginal costs (MC).

Moreover, introducing innovative services does not guarantee immediate success. There might be a lag before passengers fully embrace the new offerings. During this period, the airline may experience lower demand, negatively impacting average revenue (AR).

Overall, this will limit an airline firm's ability to mitigate the fall in supernormal profits due to increased competition.

Body

Requirement 2: Strategy to reduce costs

Possible cost strategy 1

Process innovation is one cost strategy that an airline firm could adopt to increase its profits + Limitations

Process innovation to increase profits

Engaging in process innovation is another strategy that firms can adopt to protect their profits when faced with increasing competition.

For example, airline company could optimise their operational processes to enhance efficiency and eventually reduce the average cost of production from AC0 to AC1. For example, with the help of automation and digitalisation, an airline firm can streamline check-in procedures, improve aircraft turnaround times, and optimise fuel consumption. This lowers every additional cost incurred for providing one more unit of service, causing the Marginal Cost (MC) curve to shift to the right from MC0 to MC1. As a result, total cost falls to C1AQ10

Overall, process and product innovation will help to address the problem of falling supernormal profits by increasing revenue and reducing costs as profits increase from area P0BDC0 to P1EAC1

Limitation of process innovation to increase profits

However, while innovation can enhance efficiency and service appeal, it often requires significant upfront investments. Developing new products or upgrading services, such as introducing advanced in-flight entertainment systems or digital platforms, incurs costs that can strain an airline firm's resources. These costs contribute to an increase in average costs (AC) from AC1 to AC0, subsequently increasing marginal costs (MC).

Possible revenue strategy 2

Diversification is another cost strategy that an airline firm could adopt to increase its profits + Limitations

In addition, an airline company can adopt diversify by integrating different stages of its operations within the company to gain better control over key services. For example, it could manage its own catering and handle maintenance, repair, and overhaul services. By performing these complementary activities in-house rather than relying solely on external providers, an airline firm can save time and reduce costs related to transport and shipment of supplies and aircraft parts. This diversification allows the company to benefit from economies of scale, lowering average costs per unit of service provided. This would cause MC and AC to fall from MC0 to MC1 and AC0 to AC 1 respectively.

Assuming the firm maximise profits where $MC=MR$, the firm would be able to set higher price at P1 and sell more airline services at Q1 causing an increase in profits from P0BDC0 to P1EAC1

Limitation of diversification as a cost strategy to increase profits

However, the decision-making complexity arising from integrating different stages of operations, inefficiencies results. When an airline firm manages various activities across its supply chain, such as catering, maintenance, and flight operations, coordinating these functions

can be complex. For example, ensuring that aircraft maintenance schedules align perfectly with flight timetables and catering deliveries can be challenging. This may result in an increase in average costs, leading to a decline in supernormal profits.

Evaluative conclusion:

[Stand] In conclusion, in an increasingly globalised world where markets are more contested, large firms such as airline firms should consider diversification, especially when existing markets no longer offer opportunities for further growth (saturated market).

[Substantiation]

Extent of benefit of diversification is large:

Diversification allows firms to enjoy both cost and revenue advantage i.e. enjoy economies of scale as well as breaking into new markets.

Extent of cost of diversification is small:

Moreover, in view of increasing competition and market saturation, large firms with substantial financial resources, should pursue diversification since the opportunity cost of doing so is lower.

Relying solely on product differentiation/innovation may not generate substantial additional revenue when the market is saturated.

On the other hand, product innovation might be suitable for smaller firms where probability of rival consciousness between competitors is lower. For airline industry, any product innovation may be easily copied by rival companies and hence may not be appropriate for longer term.

[Suggestion]

In the long run, diversification would be more appropriate for airline firms to increase profits as the industry can be highly saturated due to its homogenous nature of airline services. In the short run, the product and process innovation can be conducted to accumulate profits for diversification in the future

Level	Knowledge, Analysis, Understanding and Application	Marks
L3	Well-explained answer which considers the possible strategies that an airline firm can undertake to increase its profits. This is done and supported with an appropriate tool of analysis. <i>Able to explain how the strategy works, the advantages of it as well as considering the limitations of the two strategies that an airline can use.</i>	8 – 10
L2	Accurate although undeveloped explanation of the two requirements of the questions.	5 – 7
L1	Answer shows some knowledge but does not indicate that the meaning of the question has been properly grasped. Basic errors of theory or an inadequate development of analysis may be evident. Where the answer is mostly irrelevant and only contain a few valid points made incidentally in an irrelevant context.	1 – 4
E3	Well explained evaluative statements about 2 requirements.	5
E2	Evaluative statements about 2 requirements, one of which is well-explained.	3 – 4
E1	Unsupported evaluative statements.	1 – 2

- 3 Excessive consumption of foods high in saturated fats, salt and sugar (HFSS) is a key contributor to obesity. With productivity costs associated with obesity expected to continue to rise, governments are looking at a range of policies such as taxes, nutritional labelling and restriction of advertising on foods with HFSS.

- (a) Explain how consumption of foods with HFSS would lead to market failure. [10]
- (b) Discuss the factors that a government should consider when implementing policies to achieve a more efficient allocation of resources in the market for food with HFSS. [15]

Question Analysis (a)

Command Word	Explain
Content	HFSS food Market Failure
Context	HFSS food

Requirement 1	Requirement 2
Presence of negative externalities in consumption of HFSS food gives rise to overconsumption in the free market	Presence of imperfect Info in the consumption of HFSS food gives rise to overconsumption in the free market

Introduction

The Marginalist Principle states that when economic agents make rational decisions, they do so by considering the marginal cost and marginal benefit of that decision. As long as marginal benefits exceed marginal costs of consuming or producing an additional unit of a good, the decision should be made to consume or produce that additional unit of the good.

In making decisions related to consumption, consumers aim to maximise utility. Utility is the level of satisfaction a consumer derives from the consumption of a good or service. Marginal private benefit is the additional utility derived from the consumption of an additional unit of the good or service [eg. marginal satisfaction]. Marginal private cost is the additional cost incurred in the consumption of the additional unit of the good or service [eg. price of the good].

Requirement #1- Presence of negative externalities in consumption of HFSS food gives rise to overconsumption in the free market

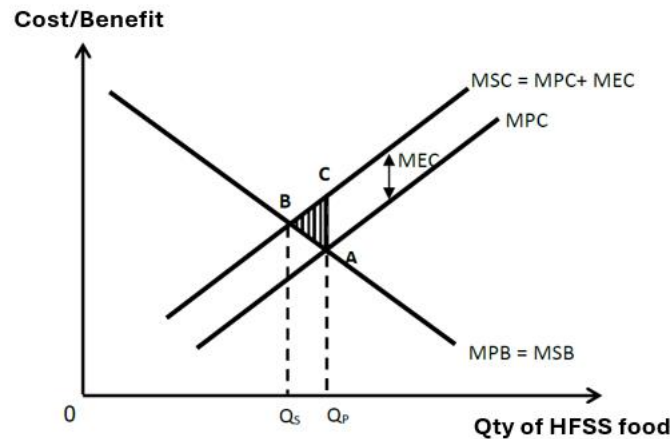
There is the **presence of negative externalities in consumption** of food high in HFSS that gives rise to **overconsumption when left to the free market**.

In the consumption of food high in HFSS, the **consumer** would only **consider his/ her own private benefits and costs**. The **private benefits** that a consumer would derive from the consumption of food high in HFSS would be the **satisfaction** of it while the **private costs** that a consumer would incur would be the **price** of the food.

However, in the consumption of such food, **third parties** (individuals who are not involved in the consumption or production of such food high in HFSS) are negatively affected as there is **external cost** imposed on them. As mentioned, long term consumption of such food contributes to obesity and as given in the preamble, there is the **loss of productivity** which would be

suffered by companies and firms due to the illnesses and treatment required for obesity-related diseases. This would thus suggest the **presence of the marginal external cost (MEC)**.

Assuming that there are no external benefits in this instance, $MPB=MSB$ since $MEB=0$.



Left to the free market, consumers would choose to maximise their utility and consume up to the point where marginal private benefits (MPB) is equal to marginal private costs (MPC) which occurs at the point Q_p on diagram.

However, societal welfare is maximised at the point where marginal social benefits (MSB) is equal to marginal social costs (MSC) which occurs at the point Q_s on diagram.

Since Q_p is greater than Q_s , there is overconsumption of food high in HFSS when left to the free market. Due to the overconsumption, the social costs of consuming $Q_s Q_p$ quantity of HFSS food is $Q_s B C Q_p$ while the social benefits is $Q_s B A Q_p$. As such, there is a net cost to society leading to deadweight loss of area ABC.

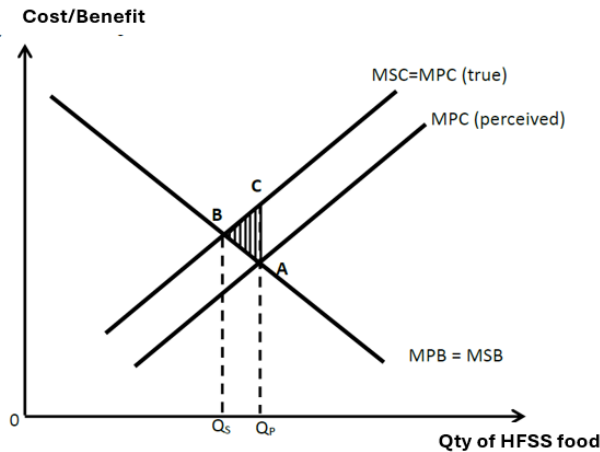
Requirement #2- Presence of imperfect info in consumption of HFSS food gives rise to overconsumption in the free market

There is the **presence of imperfect information in consumption** of food high in HFSS that gives rise to **overconsumption when left to the free market**.

In the consumption of food high in HFSS, the **consumer** would only **consider his/ her own private benefits and costs**. The **private benefits** that a consumer would derive from the consumption of food high in HFSS would be the **satisfaction** of it while the **private costs** that a consumer would incur would be the **price** of the food.

However, in the consumption of such food, consumers would suffer from an under-estimation of the private costs that is incurred by them in consuming food high in HFSS. As such, there is a divergence that exists between $MPC_{perceived}$ and MPC_{actual} .

Assuming that there are no externalities involved in this instance, $MPB=MSB$ since $MEB=0$. While $MPC_{actual}=MSC$



Left to the free market, consumers would choose to maximise their utility and consume up to the point where marginal private benefits (MPB) is equal to perceived marginal private costs (MPCperceived) which occurs at the point Qp on diagram.

However, societal welfare is maximised at the point where marginal social benefits (MSB) is equal to marginal social costs (MSC) which occurs at the point Qs on diagram.

Since Qp is greater than Qs, there is overconsumption of food high in HFSS when left to the free market. Due to the overconsumption, the social costs of consuming QsQp quantity of HFSS food is QsBCQp while the social benefits is QsBAQp. As such, there is a net cost to society leading to deadweight loss of area ABC.

Level	Knowledge, Analysis, Understanding and Application	Marks
L3	Thorough knowledge of the theory with an excellent ability to describe & explain in a precise, logical and reasoned manner. This is done and supported with an appropriate tool of analysis . <i>Able to explain how negative externalities in consumption and under-estimation of private costs in the context of food high in HFSS would lead to market failure.</i>	8 – 10
L2	Accurate although undeveloped explanation of the theory. Mistakes made mar the otherwise well-explained answers.	5 – 7
L1	Answer shows some knowledge but does not indicate that the meaning of the question has been properly grasped. Basic errors of theory or an inadequate development of analysis may be evident.	1 – 4

Question Analysis (b)

Command Word	Discuss
Content	Factors to consider by Govt Implementing Policies to achieve a more efficient allocation of resources
Context	HFSS food

Requirement 1	Requirement 2
Factor 1 E.g. Costs/ Benefits/ Constraints/ Root Cause of Problem	Factor 2 E.g. Costs/ Benefits/ Constraints/ Root Cause of Problem

Introduction

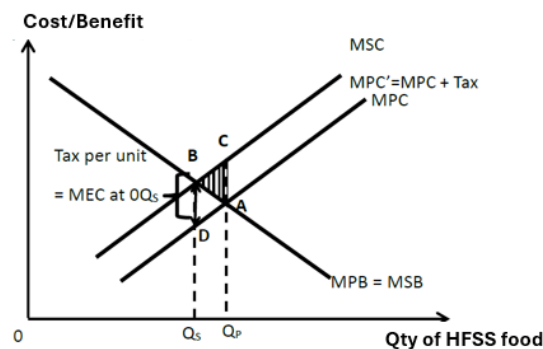
As mentioned in part (a), there is a deadweight loss incurred on society and thus societal welfare is not maximised. As a result of this, governments may wish to intervene by implementing the use of policies.

In the decision-making process of policies to undertake to achieve a more efficient allocation of resources in the market for HFSS food, the government would need to consider a few factors such as the benefits involved for the policies, costs involved for the policies, constraints and information such as the root cause of problem.

Requirement #1: Benefits of policy

One of the factors to be considered would be the benefits of policy.

To address the case of negative externalities in consumption associated with HFSS, the government may want to consider the use of a tax policy.



The government can implement a tax per unit equivalent to the MEC incurred at Q_s so that MPC would increase to MPC' . With this increase in MPC, consumers are forced to internalise the external cost and would now maximise utility at the output where $MPC' = MPB$ and this would now occur at the quantity Q_s which coincides with where the societal welfare is maximised at.

One benefit of the tax would be that it helps to address the overconsumption issue raised in part (a) and eliminates the deadweight loss that is incurred on society, allowing for the societal welfare to be maximised.

alternatives tend to be more expensive and thus inaccessible for them, the low-income consumers may thus have no close substitutes to switch and thus have to bear the higher price due to the tax imposed for food that are HFSS.

Evaluation

The extent of the above may be limited if the government make use of the tax revenue received and provided targeted subsidies for healthier food to the low-income so that they can then switch to it.

Requirement #3: Constraints

One of the constraints that needs to be considered is whether the government has access to the necessary information required to implement the policy.

When faced with a price increase due to the tax, different groups of consumers may react differently especially if driven by habits or marketing influence, thus it is important to have data that would help government to project the expected change in behaviours so that they can also better estimate the right amount of tax to impose. Assuming the case where $PED < 1$, this would mean that when faced with a price increase due to the tax imposed, consumers would decrease quantity demanded less than proportionately, assuming *ceteris paribus*. Thus, in order to drive the desired reduction in consumption levels, the government would need to impose a significant amount of tax to do so.

Requirement #4: Root Cause

One of the factors that needs to be considered is the root cause of the problem that is causing overconsumption of HFSS food.

If the root cause was driven by negative externalities in consumption, a tax can be imposed. However, if the root cause was due to the under-estimation of private costs, then perhaps public education and campaigns could be held to ensure that people are better educated about the harms of prolonged consumption of HFSS food.

As there may be instances whereby both negative externalities in consumption and under-estimation of private costs are both responsible, then a combination of both policies should thus be considered.

Synthesis

As decision-making goes, a government should first consider the marginal social cost (MSC) and marginal social benefit (MSB) and weigh them against one another. They should only proceed with the decision of the policy if MSB outweighs MSC.

Beyond this theoretical construct, they should also factor in the consideration on whether the above condition still stands given the constraints it faces and if it is able to tackle the root cause of the problem as these can undermine policy effectiveness.

While taxes on HFSS food can reduce consumption and internalise the negative externalities, their success depends on factors such as price elasticity of demand. In contexts where equity is a concern, regressive effects may also prompt governments to pair taxes with subsidies for healthy food to support the low-income groups.

Administrative feasibility is also critical — a sugar tax is far easier to implement than a saturated fat tax, which requires complex classification.

Ultimately, the most influential factors in policy choice are likely to be the effectiveness, equity, and feasibility, but their relative importance will vary depending on the government's fiscal position, institutional capacity, and societal values.

Hence, to ensure a more holistic and context-sensitive decision, governments should consider as many relevant factors as possible and adopt a multi-pronged approach that balances behavioural change with fairness and practicality.

Level	Knowledge, Analysis, Understanding and Application	Marks
L3	Well-explained answer which considers the factors that a government would need to consider when making decision on policies to undertake to improve the resource allocation in context of food high in HFSS. This is done and supported with an appropriate tool of analysis. Able to explain what the factors that a government would need to consider are in their decision-making of policies.	8 – 10
L2	Accurate although undeveloped explanation of the two requirements of the questions.	5 – 7
L1	Answer shows some knowledge but does not indicate that the meaning of the question has been properly grasped. Basic errors of theory or an inadequate development of analysis may be evident. Where the answer is mostly irrelevant and only contain a few valid points made incidentally in an irrelevant context.	1 – 4
E3	Well explained evaluative statements about 2 requirements.	5
E2	Evaluative statements about 2 requirements, one of which is well-explained.	3 – 4
E1	Unsupported evaluative statements.	1 – 2

- 4 (a) Explain why Singapore chooses exchange rates rather than interest rates as its main tool of monetary policy. [10]
- (b) Discuss whether policies aimed to promote economic growth might cause difficulties for Singapore's economy. [15]

Question Analysis (a)

Command Word	Explain
Content	Exchange Rates Interest Rates Main monetary policy tool
Context	Singapore

Requirement 1	Requirement 2
Nature of economy	Susceptibility to imported inflation

Introduction

Singapore's economy is one that is both small and open. A consequence of being small, she is faced with a small domestic market. Furthermore, due to the limited natural resources she is endowed with, the economy is also open to both trade & capital flows.

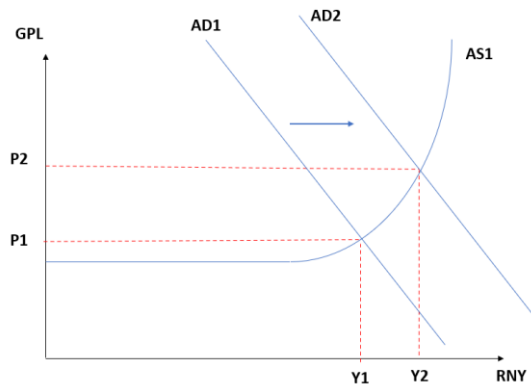
The Monetary Authority of Singapore (MAS) manages the exchange rates rather than the conventional interest rate as a basis for monetary policy, taking a gradual and modest appreciation stance to achieve price stability and economic growth.

Requirement 1 – Nature of economy

Exchange rate policy is chosen over interest rate policy in Singapore because it has a direct influence on our export component. As an open economy, trade is an important engine of growth for Singapore and thus a policy such as an exchange rate based monetary policy that can influence the export component, would be more effective.

With small population of only 6 million and hence a very small domestic market, Singapore must thus depend on the external market to overcome its lack of domestic demand. By having some degree of control over the Singapore's exchange rate, we will be able to exert influence over her exports as our total trade volume constitutes more than 300% of Singapore's GDP.

In the event of slowing growth or a recession, MAS can adopt a policy of zero appreciation which is similar in effect to depreciation, and this would lead to export prices becoming cheaper in terms of foreign currency and raise the price of imports in terms of domestic currency. Due to this, demand for exports would rise causing export revenue (X) to increase. Assuming $PED_m > 1$, the rise in price of imports would lead to a more than proportionate fall in quantity demanded and this would lead to a fall in import expenditure (M). Assuming ceteris paribus, (X-M) would increase and this would cause an increase in AD (AD1 to AD2) and an increase in real national income (Y1 to Y2) via the multiplier effect.



Since export revenue makes up a very large proportion of the total demand in Singapore, the impact of an increase in (X-M) would lead to a significant rise in AD resulting in a rise in national income via the multiplier effect.

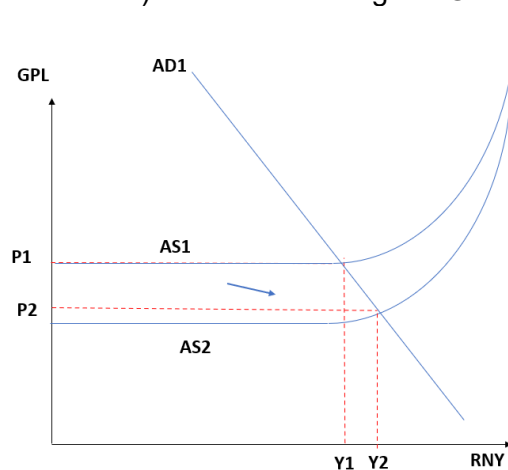
In comparison, an interest rate policy mainly impacts the consumption (C) and investment expenditure (I) components which make up a smaller proportion of total demand in Singapore. The impact on AD thus would be smaller than the impact from the use of an exchange rate based policy.

Hence Singapore prefers the use of exchange rate policy over the interest rate policy due to the nature of her economy.

Requirement 2 – Susceptibility to imported inflation

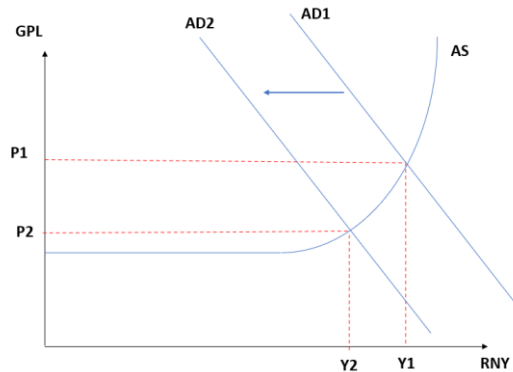
Exchange rate is a more effective monetary policy in Singapore because of our large dependence on imported raw materials, intermediate goods and finished products which renders her susceptible to imported inflation.

For example, due to supply shocks such as the Russian-Ukraine crisis causing a rise in global price of oil, this would lead to an increase in the cost of production in Singapore. To curb imported inflation and thus cost push inflation in Singapore, exchange rate policy would be more appropriate to be undertaken compared to interest rate policy. Through the adoption of an appreciation for the Singapore dollar, this would help to offset imported inflation since it will lower the price of the imported inputs in terms of domestic currency, reducing unit COP. This would increase the SRAS (AS1 to AS2) and thus lowering the GPL (P1 to P2) in Singapore.



Furthermore, an appreciation of the SGD would also be able to lower demand-pull inflation that is caused by rising export demand. Due to the appreciation, this would lead to export prices becoming more expensive in terms of foreign currency and lowering the price of imports in

terms of domestic currency. Due to this, demand for exports would fall causing export revenue (X) to fall. Assuming $PED_m > 1$, the fall in price of imports would lead to a more than proportionate rise in quantity demanded and this would lead to a rise in import expenditure (M). Assuming ceteris paribus, (X-M) would decrease and this would cause a decrease in AD (AD1 to AD2) and a fall in GPL from P1 to P2, thus lowering demand-pull inflation.



In contrast, the interest rate policy is targeted at lowering only demand-pull inflation. A rise in interest rate would make cost of borrowing higher for both households and firms and thus would lead to a fall in both consumption and investment expenditure as it is now more costly to borrow for such expenditure. Due to this, there would be a fall in AD from AD1 to AD2 and a fall in GPL from P1 to P2. The use of interest rate policy would not be able to mitigate the rise in cost of production as a result of cost-push inflation.

Therefore, exchange rate policy is preferred over interest rate policy in Singapore due to her heavy dependence on imported raw materials thus allowing better control over inflation.

Conclusion

Due to the reasons stated above, Singapore uses exchange rate as the main tool of monetary policy over interest rate.

Level	Knowledge, Analysis, Understanding and Application	Marks
L3	Thorough knowledge of the theory with an excellent ability to describe & explain in a precise, logical and reasoned manner. This is done and supported with an appropriate tool of analysis . <i>Able to explain why Singapore uses exchange rate instead of interest rate as its main monetary policy tool.</i>	8 – 10
L2	Accurate although undeveloped explanation of the theory. Mistakes made mar the otherwise well-explained answers.	5 – 7
L1	Answer shows some knowledge but does not indicate that the meaning of the question has been properly grasped. Basic errors of theory or an inadequate development of analysis may be evident.	1 – 4

Question Analysis (b)

Command Word	Discuss whether
Content	Policies aimed to achieve EG Cause difficulties
Context	Singapore economy

Requirement 1	Requirement 2
Policies aimed to promote economic growth might cause difficulties for Singapore's economy	Policies aimed to promote economic growth might NOT cause difficulties for Singapore's economy

Introduction

When Singapore faces slow or negative economic growth, the government can address this by using policies such as demand-side policies as well as supply-side policies to achieve economic growth.

In this essay, we will consider whether policies aimed to promote economic growth might cause difficulties for the Singapore's economy. In assessing whether difficulties would be caused, we would look at whether there would be conflicting macroeconomic objectives as we seek to promote economic growth.

Requirement 1: Policies aimed to promote economic growth might cause difficulties for Singapore's economy (conflict in macro aims)

When Singapore faces slow or negative economic growth, the government can consider managing this situation by adopting demand-side policies such as either an exchange rate policy whereby a 'zero appreciation' stance is taken or an expansionary fiscal policy whereby the government lowers tax rates and increasing government expenditure to manage its aggregate demand.

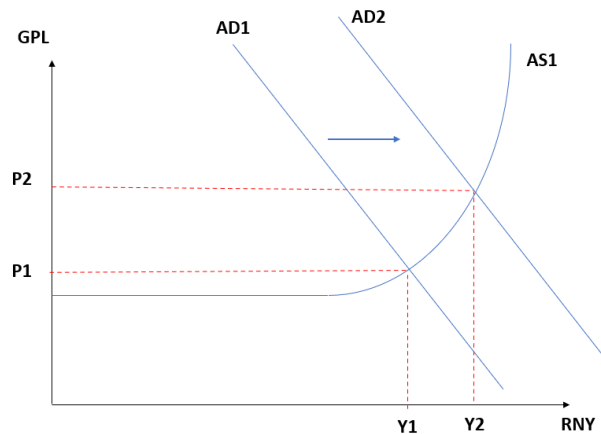
With a zero-appreciation stance, the MAS can undertake a neutral policy stance by slowing the pace of the Singapore dollar's gains versus the currencies of its main trading partners. This would have a similar effect as depreciation of the Singapore dollar.

A weaker Singapore dollar will make the price of Singapore's exports cheaper in terms of foreign currency and this would lead to an increase in demand for exports causing export revenue (X) to increase.

On the other hand, import prices are now more expensive in terms of Singapore dollar and this would lead to a more than proportionate decrease in quantity demanded for imports as $PED_m > 1$ (many close substitutes). This would lead to import expenditure (M) decreasing. Hence the depreciation will increase the net exports (X-M) and increase the AD from AD1 to AD2, leading to a multiplied increase in national output from Y1 to Y2 via the multiplier process, allowing for actual economic growth to be achieved.

The initial increase in AD due to the increase in (X-M) will lead to a rise in output and national income. The rise in output represents a rise in factor incomes as more factors of production are employed. This will cause households to increase their consumption. This subsequent rise in induced C will lead to a further rise in AD and hence national income, which leads to further rounds of increases in induced C. This process stops when the initial increase in AD (injections) equals the total increase in savings, taxes and spending on imports (withdrawals).

Therefore, there is a more than proportionate rise in national income via the multiplier effect as output increases from Y_1 to Y_2 .

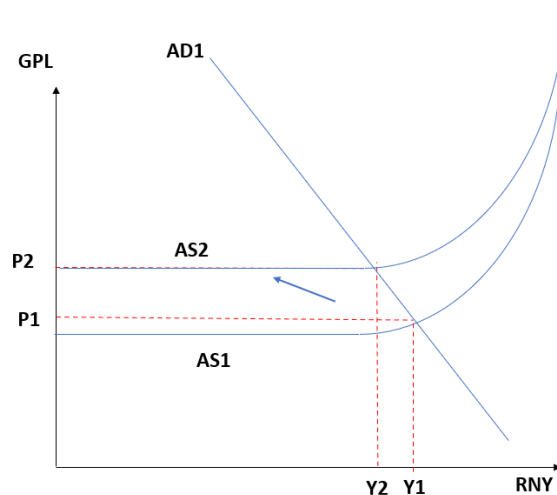


Given the nature of Singapore's open economy, we are very dependent on trade and foreign direct investments – these components take up a significant proportion of our AD. Thus, a policy which can increase both these components would lead to a more significant increase in RNY and hence actual growth.

However, depreciation of the exchange rate will cause some difficulties for the Singapore economy in terms of price stability and negative economic growth.

Due to Singapore's small size the lack of natural resources, we are heavily reliant on imports for our factors of production. As such, given that the depreciation will lead to prices of imported raw materials increasing, this would drive up the cost of these imported factors of production used in manufacturing goods for exports, leading to an increase in unit cost of production and a fall in SRAS from AS_1 to AS_2 .

At the original equilibrium GPL, there would now be a shortage which gives rise to an upward pressure in GPL. Due to this, GPL would increase from P_1 to P_2 while real national income would fall from Y_1 to Y_2 .



Requirement 2: Policies aimed to promote economic growth might NOT cause difficulties for Singapore's economy (complementary in macro aims)

The government may implement supply side policies to increase productivity so as to lower the unit cost of production, and to promote economic growth.

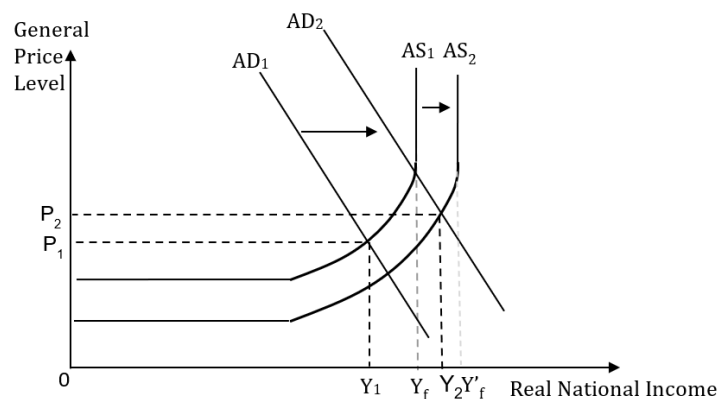
The National Productivity Fund in Singapore is one such policy which seeks to enhance long term productivity and competitiveness across sectors such as manufacturing, services and digital technology. It provides targeted funding for firms to invest in technology adoption, upskilling of workers and process innovation.

As a result of the funding provided to encourage greater technology adoption, this would lead to investment expenditure (I) to increase and AD would increase from AD₁ to AD₂.

Furthermore, through the funds provided for training and upgrading of workers, this would lead to an increase in productivity of workers as they would now be able to produce more with the same amount of input. Assuming wages remain constant, this would lead to a decrease in unit cost of production and SRAS would increase. Furthermore, with an increase in quality of labour, this would also increase the productive capacity of the economy and LRAS would increase. This would lead the AS curve to shift rightwards from AS₁ to AS₂.

Due to the increase in AD as well as increase in AS, this would lead to actual economic growth as real national income increases from Y₁ to Y₂ and potential economic growth as Y_f increases to Y'_f.

Due to this increase in output, there would be a derived demand for labour and this leads to a fall in demand-deficient unemployment. There would also be price stability as prices are kept stable by the increase in productive capacity despite the increase in AD as prices only rise from P₁ to P₂.



Successful implementation of supply side policies can also improve Singapore's external economy, specifically a more favourable BOT position. Since local labour are now more productive and better skilled with the implementation of the policies, goods and services which are meant for export, can become more competitive in terms of both price and quality. Greater export competitiveness increases demand for Singapore's export and in turn export revenue. This helps to improve Singapore's balance of trade position.

Even though the National Productivity Fund aims to boost productivity and long-term growth, it may unintentionally worsen structural unemployment.

Through the funding provided, firms may undertake greater level of technological adoption and pursue automation of processes resulting in the displacement of labour as machines and robots

may replace low skilled labour. This may lead to low-skilled and older workers in manufacturing sector to become unemployed.

The National Productivity Fund also encourages restructuring towards high-tech sectors such as digital technology and advanced manufacturing and this would lead to the demand for highly skilled workers to increase in these sectors. However, as the displaced workers from manufacturing sector earlier do not possess the required skills or qualification to transition, this may lead to structural unemployment as they remain unemployed despite there being job vacancies in the market.

Nevertheless, as part of the National Productivity Fund provides support for retraining and upskilling of workers, if these workers do attend these sessions, they may be able to upskill and improve their skill sets so that they would now be more employable as they become more attractive to employers. This would thus, help to mitigate the possibility of this from happening and cause difficulties for the Singapore economy.

Synthesis

Overall, whether policies aimed to promote economic growth cause difficulties for Singapore's economy would depend on whether these policies would lead to complementary or conflict in macroeconomic objectives.

It seems that supply side policies are less likely to result in conflict in macroeconomic objectives as compared to demand side policies as these policies are undertaken to bring about long term growth for the economy. Measures are put in place to mitigate and prevent possible difficulties like inflationary pressures and structural unemployment from happening.

As explained earlier, the exchange rate policy would result in conflicts in macroeconomic objectives and bring about significant impacts due to the nature of Singapore's highly open economy. The Monetary Authority of Singapore (MAS) usual approach to monetary policy is to use a modest gradual appreciation to maintain price stability as a basis to achieve sustainable growth. The use of depreciation is typically as a last resort in times such as the 2008 Global Financial Crisis as well as during the 2020 Covid-19 pandemic.

Ultimately, the success of Singapore's policies hinges on how well these conflicts in macroeconomic objectives can be managed so that the benefits can be greater than the harm caused.

Level	Knowledge, Analysis, Understanding and Application	Marks
L3	Well-explained answer which considers whether policies aimed to promote economic growth would cause difficulties for economy of Singapore. This is done and supported with an appropriate tool of analysis. <i>Able to explain the policies used by Singapore to promote economic growth.</i> <i>Able to consider whether such policies would cause difficulties for economy of Singapore.</i>	8 – 10
L2	Accurate although undeveloped explanation of the two requirements of the questions.	5 – 7
L1	Answer shows some knowledge but does not indicate that the meaning of the question has been properly grasped. Basic errors of theory or an inadequate development of analysis may be evident.	1 – 4

	Where the answer is mostly irrelevant and only contain a few valid points made incidentally in an irrelevant context.	
E3	Well explained evaluative statements about 2 requirements.	5
E2	Evaluative statements about 2 requirements, one of which is well-explained.	3 – 4
E1	Unsupported evaluative statements.	1 – 2

- 5 (a) Explain one internal and one external cause of inflation in Singapore. [10]
- (b) Discuss whether Singapore should prioritise achieving price stability as its main macroeconomic objective. [15]

Question Analysis (a)

Command Word	Explain
Content	Causes of Inflation Internal vs External causes
Context	Singapore economy

Requirement 1	Requirement 2
One internal cause of Inflation	One external cause of inflation

Introduction

Inflation is defined as a sustained increase in the general price level (GPL) of an economy over time. It can arise from factors internal to or external to an economy.

Requirement 1: an internal cause of inflation

E.g.: ↓SRAS due to tight labour market in part caused by ageing population

E.g.: ↑AD due to domestic economic growth

Inflation can arise from internal causes.

Demand-pull inflation refers to inflation that is caused by continuing rises in the Aggregate Demand (AD), with one or more of the components of AD increasing in a situation where the economy is close to or at full employment. Such inflation is usually associated with a booming economy.

The initial increase in AD (due to the increase in $C/I/G/(X-M)$) will lead to a rise in output and NY. The rise in output leads to a further rise in factor incomes as more factors of production are employed. This will cause households to increase their consumption. This subsequent rise in induced C will lead to a further rise in AD and hence NY, which leads to further rounds of increases in induced C. This process stops when the initial increase in AD (injections) equals the total increase in savings, taxes and spending on imports (withdrawals).

Therefore, there is a more than proportionate rise in NY via the multiplier effect.

Due to this increase in AD from AD_1 to AD_2 , it would lead to a shortage of inventories occurring at the original equilibrium price level, OP_1 . As the economy approaches full employment, resources are also becoming increasingly scarce. With the economy's spare capacity being used up gradually, labour and raw material shortages mean that it becomes more difficult for firms to expand production to meet the rising demand. The competition for scarce resources will thus cause firms to bid up factor prices. Producers will pass on this increase in cost to consumers in terms of higher prices. As such, there will be an upward pressure in GPL.

As GPL increases, the level of AD will decrease, a movement along the AD curve while the level of AS will increase, a movement along the AS curve until $AD=AS$ again and this causes GPL to increase from OP_1 to OP_2 (Figure 1).

Singapore experienced high economic growth when it gradually reopened its economy after the Covid-19 pandemic became endemic. During such periods of high economic growth, further increases in AD from AD_2 to AD_3 will lead to GPL increasing from OP_2 to OP_3 while real national income rises from OY_2 to OY_f . When the economy is operating at full employment, OY_f , any further increases in AD beyond AD_3 will only lead to GPL to rise further, with no changes to RNY. (Figure 2). The sustained rise in GPL was indicative of demand-pull inflation.

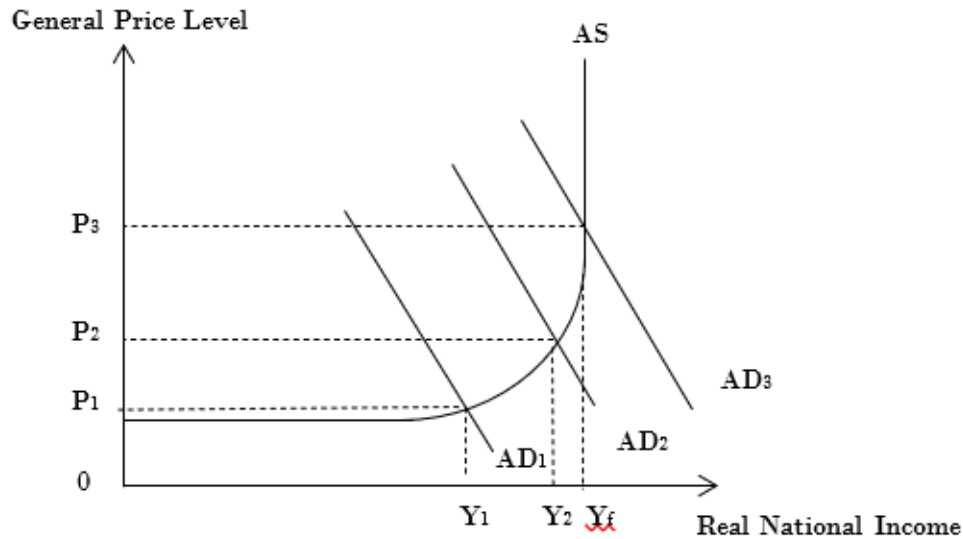


Figure 1

Requirement 2: an external cause of inflation

E.g.: $\downarrow$ SRAS due to rising global energy prices supply chain disruptions brought about by natural disasters / war / poultry diseases

E.g.: $\uparrow$ AD due to increase in net exports driven by higher export revenue fuelled by rising affluence from trading partners, etc.

Inflation can also arise from external causes.

Cost-push inflation refers to inflation that is caused by a persistent increase in the cost of production, for reasons not associated with an increase in AD. The Short Run Aggregate Supply (SRAS) decreases, resulting in an increase in GPL.

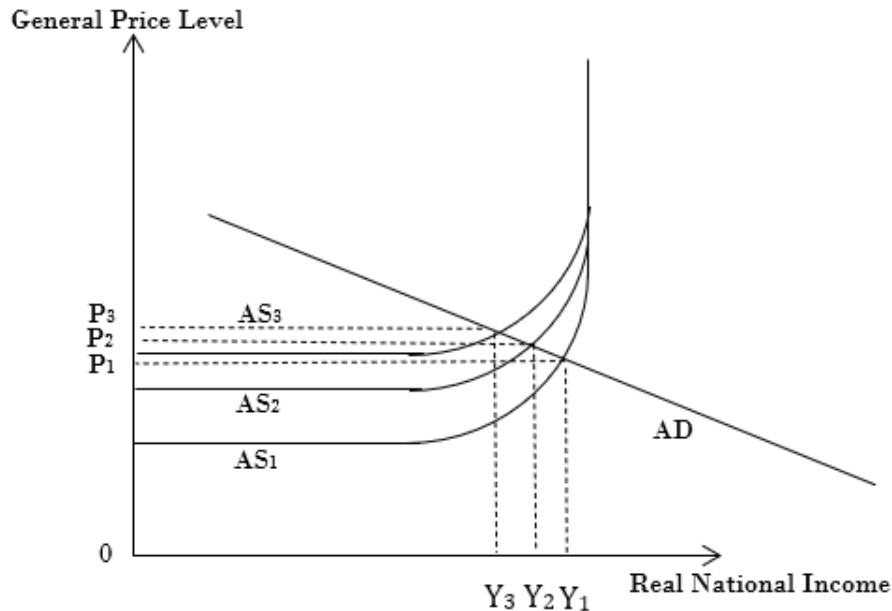


Figure 2

Cost push inflation occurs due to an increase in cost of production as illustrated by an upward shift in the SRAS curve from AS_1 to AS_2 , AS_2 to AS_3 , thus resulting in an increase in general price level from OP_1 to OP_2 to OP_3 as shown in Figure 2.

Due to this decrease in SRAS from AS_1 to AS_2 , it would lead to a shortage of inventories occurring at the original equilibrium price level, OP_1 . Due to limited spare resources, labour and raw material shortages mean that it becomes more difficult for firms to expand production to meet the rising demand. The competition for scarce resources will thus cause firms to bid up factor prices. Producers will pass on this increase in cost to consumers in terms of higher prices. As such, there will be an upward pressure in general price level (GPL).

As GPL increases, the level of AD will decrease, a movement along the AD curve while the level of AS will increase, a movement along the AS curve until $AD=AS$ again and this causes GPL to increase from OP_1 to OP_2 .

If there are further increases in cost of production, then SRAS will continue to fall from AS_2 to AS_3 and the GPL will continue to rise from OP_2 to OP_3 . When the rise in GPL is sustained, this is known as cost-push inflation.

Import price-push inflation is a type of cost-push inflation caused by rising import prices of raw materials and semi-finished goods independent of the level of aggregate demand. This phenomenon typically occurs when there is an increase in the prices of imports from other countries experiencing inflation. As such, countries that import from these economies with high levels of inflation would tend to 'import' their trading partners' inflation into their home countries.

Singapore, a small economy with limited natural resources, is very susceptible to import price-push inflation as its imports are largely intermediate goods. Beyond our shores, poor weather conditions can negatively affect the harvest and lead to an increase in price of agricultural produce; supply chain disruptions and political strife (such as the Russian Ukraine conflict that has dragged for close to three years) have led to a rise in global energy prices. Such an increase in prices of raw materials would lead to an increase in cost of production resulting in an increase in the prices of the final goods and an overall increase in general price level.

The government thus must put in place policies in order to achieve price stability.

Level	Knowledge, Analysis, Understanding and Application	Marks
L3	Thorough knowledge of the theory with an excellent ability to describe & explain in a precise, logical and reasoned manner. This is done and supported with an appropriate tool of analysis . <i>Able to explain a possible reason for internal and external cause for inflation in Singapore.</i>	8 – 10
L2	Accurate although undeveloped explanation of the theory. Mistakes made mar the otherwise well-explained answers.	5 – 7
L1	Answer shows some knowledge but does not indicate that the meaning of the question has been properly grasped. Basic errors of theory or an inadequate development of analysis may be evident.	1 – 4

Question Analysis (b)

Command Word	Discuss whether
Content	Prioritise achieving price stability as main macroeconomic objective
Context	Singapore economy

Requirement 1	Requirement 2
Yes, Singapore should prioritise achieving price stability as main macroeconomic objective	No, Singapore should NOT prioritise achieving price stability as main macroeconomic objective

Introduction

In order to achieve a high standard of living, governments strive to achieve the following four macroeconomic goals. Singapore is no different.

The four goals are sustainable and inclusive economic growth; price stability; full employment; and favourable position of Balance of Trade.

Whether Singapore should prioritise achieving price stability as its main macroeconomic objective could depend on the circumstances that the economy is facing.

R1: Yes, SG should prioritize achieving price stability as this is complementary to the achievement of other macro goals

Price stability, i.e. low and stable inflation, helps households to maintain their purchasing power. Assuming that wages increment outpaces the rate of inflation, households will be able to continue to afford the same (or higher) level of material standard of living.

Price stability encourages consumers to save and minimizes the erosion of value of savings over time. For consumers who live off savings such as retirees living on limited savings, low and stable inflation minimizes the degree of reduction in purchasing power with every passing year, thereby reducing the drop in material standard of living.

Price stability facilitates investment decisions with confidence and certainty. With low and stable inflation, firms are more confident in the projections of revenue, costs and thus profits. Assuming that firms project healthy future profits for their industry, investors are more likely to choose to partake in long-term investment projects. This also boosts an economy's attractiveness to foreign direct investment. Higher savings would build up the pool of money that banks have at their disposal for lending to businesses to invest. Assuming that interest rates and hence cost of borrowing are kept low, firms will be more willing to invest.

With volatility in multiple economies, Singapore's ability to maintain price stability will help us to remain attractive to inward foreign direct investment. This is important given that inward FDI constitutes a big component of investment expenditure within our economy.

Price stability also helps to maintain export price competitiveness, which can help to maintain or even increase export revenue, especially if trading partners face inflationary pressures. Presuming that consumers of Singapore's exports are price sensitive, stable prices for our exports will help to increase export revenue and hence net exports, *ceteris paribus*. This is of paramount importance to Singapore given that we are very reliant on sale of exports, given how small our economy is.

Put together, price stability encourages the increase in household consumption, firms' investment and net exports, thereby increasing aggregate demand, illustrated by a rightward shift of the AD curve in Figure 3 below. The real national income could see a multiplied increase via the multiplier effect.

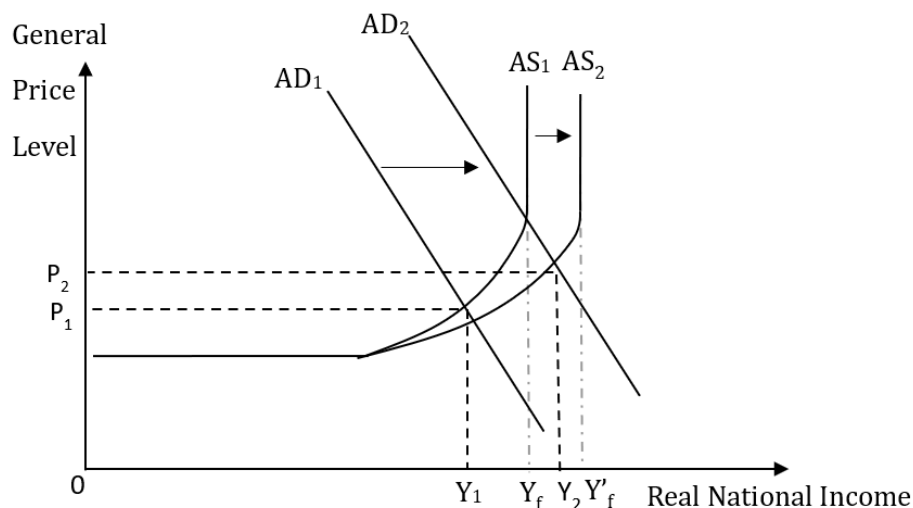


Figure 3

The initial increase in AD from AD_1 to AD_2 will lead to a rise in output and national income. The rise in output represents a rise in factor incomes as more factors of production are employed. This will cause households to increase their consumption. This subsequent rise in induced C will lead to a further rise in AD and hence national income, which leads to further rounds of increases in induced C . Therefore, there is a more than proportionate rise in national income (Y_1 to Y_2) via the multiplier effect. This process stops when the initial increase in AD (injections) equals the total increase in savings, taxes and spending on imports (withdrawals). This enables the Singapore economy to achieve actual economic growth, reduces demand deficient unemployment in the economy and could help maintain a favourable current account balance.

The rise in investment could facilitate capital accumulation and hence increase the economy's productive capacity in the future. This will increase the long run aggregate supply, illustrated by

a rightward shift of LRAS from AS_1 to AS_2 in Figure 3 above. Potential economic growth is achieved, and this enables the attainment of sustained growth.

R2: No, SG should prioritize achieving other macro goals

However, other macroeconomic objectives warrant attention and could instead be the government's priority. Singapore might prioritize achieving sustainable economic growth instead, for the wealth of benefits it brings.

Attainment of sustainable economic growth can bring about an improvement in standard of living. Economic growth results in rising real income per capita, *ceteris paribus*. With greater affluence and purchasing power, each individual can consume a greater bundle of goods and services. Hence, the material standard of living would be improved.

Furthermore, an expanding economy has many job opportunities for the unemployed, and the level of demand-deficient unemployment should be much reduced. Those who are willing and able to work are more likely to find employment in such an economy. They will be able to support themselves and their dependents. Thus, poverty can be reduced. With rise in incomes, the government can redistribute incomes from the rich to the poor through Singapore's progressive income tax system. The alleviation of poverty level could help to reduce crime rate, societal tensions hence improving non-material standard of living as well.

With economic growth, government is able to enjoy higher tax revenue even without raising tax rates. This increase in government revenue could then be spent on improvement in infrastructure, education, promoting research and development to ensure continued economic growth. Also, with economic growth and a healthy Budget position, Singapore is better able to look into environmental issues which may improve the non-material standard of living.

Evaluative conclusion:

Sample #1

Stand: In conclusion, whether Singapore should prioritise achieving price stability as its main macroeconomic objective will depend on the state of the economy.

Criteria explained: In the absence of major crisis or threats, achieving price stability should be a priority as it facilitates the achievement of other macro objectives. By managing its labour costs and keeping imported price-push inflation at bay, this can encourage consumption and investment expenditure and maintain (or even increase) net exports. In times of crisis, the priority would be to address the most urgent economic challenge.

Recommendation: Nonetheless, the Singapore government needs to regularly and continually assess the economy's performance and keep an eye on emerging trends so as to reassess its priority and put in place needed policies to safeguard our economic performance.

Sample #2

Stand: In conclusion, whether Singapore should prioritise achieving price stability as its main macroeconomic objective will depend on the state of the economy, specifically the challenges it is currently facing.

Criteria explained: In order to Make America Great Again, President Trump of the US has waged a tariff war with all of America's trading partners. Singapore was not spared either. The so-called reciprocal tariffs will cause major changes in trade flows globally, threatening Singapore's export performance. American companies which have supply chains spread across the globe now face pressure to re-shore their production processes back onto American soil. *Ceteris paribus*, Singapore may face a fall in export revenue due to falling exports to US. Inward foreign direct investment (FDI) from US may also reduce, as American firms reassess

their strategies for the near and medium term. Ceteris paribus, the reduction of X and I – both of which are significant components of our AD – may cause an economic downturn in Singapore. Under such circumstances, Singapore should instead prioritise achieving economic growth to avoid the painful consequences of a recession.

Sample #3

Stand: In conclusion, whether Singapore should prioritise achieving price stability as its main macroeconomic objective will depend on the state of the economy.

Criteria explained: In the 60 years since our independence, Singapore's economy has restructured and evolved multiple times. This has enabled the achievement of sustained growth. Moving ahead, Singapore is embracing Artificial Intelligence (AI) which should ideally continue to drive productivity improvements.

To achieve sustainable growth and to do its part to mitigate the impact of the climate crisis, Singapore has set itself the target of reaching net-zero emissions by 2050. While these shifts could help sustain economic growth, they bring the risks of higher structural unemployment and a widening income gap. Singapore may thus need to prioritize minimizing structural unemployment by channeling resources towards skills upgrading for the labour force.

Such efforts could address the skills mismatch between skills that workers possess, and what jobs in up-and-coming sectors require. This is also crucial in uplifting the lower-skilled and lower-income workers, to enable them to benefit from the country's continued growth.

Level	Knowledge, Analysis, Understanding and Application	Marks
L3	Well-explained answer which considers whether Singapore should prioritise price stability as its main macroeconomic goal. This is done and supported with an appropriate tool of analysis. <i>Able to explain the benefits of achieving price stability</i> <i>Able to consider whether Singapore should instead prioritise other macroeconomic goals instead.</i>	8 – 10
L2	Accurate although undeveloped explanation of the two requirements of the questions.	5 – 7
L1	Answer shows some knowledge but does not indicate that the meaning of the question has been properly grasped. Basic errors of theory or an inadequate development of analysis may be evident. Where the answer is mostly irrelevant and only contain a few valid points made incidentally in an irrelevant context.	1 – 4
E3	Well explained evaluative statements about 2 requirements.	5
E2	Evaluative statements about 2 requirements, one of which is well-explained.	3 – 4
E1	Unsupported evaluative statements.	1 – 2

- 6 (a) Explain possible reasons that can lead to changes in a country's comparative advantage over time. [10]
- (b) Assess the extent to which globalisation has benefitted small and open economies such as Singapore. [15]

Question Analysis (a)

Command Word	Explain
Content	Reasons for changes in comparative advantage over time
Context	Open

Requirement 1	Requirement 2
Reason 1	Reason 2

Introduction

The Theory of Comparative Advantage (Theory of CA) states that countries can gain from trade if there are differences in the opportunity costs of producing specific goods among them.

Countries can benefit from specialising in and exporting products in which they have a comparative advantage and importing products in which they do not have a comparative advantage.

A country is said to have comparative advantage in the production of a good when the country can produce a good at a lower opportunity cost than another country.

A country's comparative advantage in the production of goods and services is determined by the factor endowment available and technology.

Changes in comparative advantage refers to a country's comparative advantage changing over time due to changes in factor endowment or technology.

Requirement 1: Changes in factor endowments

Changes in the quantity or quality of a country's factor endowments can change the country's comparative advantage over time. This happens when new resources are discovered or when existing resources are depleted.

Possible examples:

Gain:

- Singapore – accumulation of capital through investments – oil, water, aviation
- Singapore – gain in labour through migration
- China – rare earths
- Australia – Lithium and rare earths

Loss:

- Nauru – Phosphate
- Japan, Europe – ageing population
- China – depletion of resources (lecture notes)

- UK – North sea oil
- Canada – Grand Banks – overfishing

China – Gain and Loss of CA through Changing Labour Quality

China has been enjoying CA in labour-intensive manufactured goods in the 1980s and 1990s given its abundance of cheap unskilled labour.

However, due to an aging and shrinking population coupled with China's workforce increasingly becoming more educated, it becomes less productive and efficient in production of labour-intensive goods while becoming more productive and more efficient in the production of more technologically advanced goods/services.

As such, the opportunity cost of producing labour-intensive semi-conductors will increase while the opportunity cost of producing more technologically advanced goods/services will decrease.

China is losing its CA in the manufacturing of labour-intensive semi-conductors, compared to Vietnam and Mexico where labour force is large in size and youthful.

China is gaining its CA in the production of more technologically advanced goods/services compared to countries like USA or Japan which previously had CA.

China needs to reallocate fewer labour from other areas to high tech goods such as semi-conductors and hence gives up less semi-conductor production.

Example B: Countries that Lose CA through Resource Depletion

One possible erosion of comparative advantage is through the depletion of factor endowments.

For example, when China's arable lands for farming are depleted, they will no longer be able to produce the same amount of food. This may cause the country's PPC to decrease. Hence, the opportunity cost for China in food production will increase to become higher than that of other countries. This will then lead to a loss in China's comparative advantage

Requirement 2: Changes in Technology

Example A:

China has a technological progress in the production of clothing resulting in China being able to produce more clothing and the same amount of food. This could be due to the use of better machines to produce clothing.

As such, its comparative advantage in producing clothing is improved with a lower opportunity cost relative to other countries. Its comparative advantage in producing food is now being eroded with a higher opportunity cost.

Hence, China no longer has comparative advantage in producing food as compared to Japan but comparative advantage in producing clothing instead.

Example B:

Initially, USA did not have CA in oil production. Then in 2010s, it discovered development of new technology in oil production specifically hydraulic fracturing (fracking) and horizontal drilling. These innovations made it technically and economically viable to extract oil from vast, low-permeability shale formations that were previously inaccessible.

Resources are much better in producing oil, so fewer resources need to be reallocated from other areas to produce oil. This technological advancement led to a significant increase in the nation's proven oil reserves and propelled the U.S. to become the world's top crude oil producer. USA became more efficient in the production of oil and was able to produce oil at a lower opportunity cost compared to other countries such as Russia, where production is more resource-intensive and costly.

Hence, USA gained comparative advantage in the production of oil.

Example C:

Singapore's decision to attract foreign direct investment (FDI) from multinational corporations (MNCs) help to create facilitate technology transfer.

When MNCs set up operations, they bring their technology, processes, and R&D activities. This allowed Singapore to learn from and adopt advanced manufacturing techniques and systems.

Recently, companies like Applied Materials have set up R&D centres in Singapore, collaborating with local universities and institutes to transfer knowledge and build local expertise in advanced chip packaging and design. Fewer resources are required to produce semiconductors as compared to before. This means that the opportunity cost incurred in the manufacturing of semiconductors, after the improvement in technology, would be lower since fewer units of another good need to be given up. Hence Singapore gain CA in semiconductor manufacturing due to these technological improvements.

Requirement 3: Government policies

Government policies can lead to accumulation of capital through investments and increase skills and productivity of labour through education and training.

Singapore actively pursued a plan to offer a business-friendly environment, tax incentives, and a skilled workforce to attract these companies. Coupled with R&D and improved skills, these raises the productivity of factors of production → improve quality of labour (fewer workers needed for same output).

R&D also allows countries to develop new areas of CA as lower opportunity cost of producing this good is incurred since fewer units of the other good (also requiring labour) need to be given up.

Example:

Singapore's government investment in biomedical research, pharmaceutical industry, satellite technology → improving quality of capital; SkillsFuture to improve quality of labour.

Changes in government policies can result in countries gaining CA when opportunity costs fall and are lower than other countries.

Level	Knowledge, Analysis, Understanding and Application	Marks
L3	Thorough knowledge of the theory with an excellent ability to describe & explain in a precise, logical and reasoned manner. This is done and supported with an appropriate tool of analysis . <i>Able to explain possible reasons for changes in comparative advantage over time.</i>	8 – 10
L2	Accurate although undeveloped explanation of the theory. Mistakes made mar the otherwise well-explained answers.	5 – 7

L1	Answer shows some knowledge but does not indicate that the meaning of the question has been properly grasped. Basic errors of theory or an inadequate development of analysis may be evident.	1 – 4

Question Analysis (b)

Command Word	Assess the extent
Content	Benefits & Costs of Globalisation
Context	Small & open economies

Requirement 1	Requirement 2
To a large extent, globalisation has benefitted small & open economies such as Singapore	To a small extent, globalisation has benefitted small & open economies such as Singapore

Introduction

Define Globalisation

- Globalisation can be broadly defined as the increased interconnectedness and interdependence of peoples and countries with the opening of international borders to increasingly fast flows of goods, services, finance, people and ideas; and the changes in institutions and policies at national and international levels that facilitate or promote such flows.

Causes of Globalisation

- The process of globalisation is motivated largely by the self-interests of firms to increase profits, consumers to increase their welfare as well as governments to tap into the wider macroeconomic and social benefits that come from greater trade in goods, services and the freer flow of financial capital.

Requirement 1: Globalisation has benefitted small and open economies such as Singapore

Macroeconomic Benefits for Singapore

Increase in Trade

- Based on comparative advantage (CA), Singapore can benefit from specialising in and exporting products in which they have a comparative advantage and importing products in which they do not have a comparative advantage.
- Hence Singapore can export more goods and services to other countries.
- In addition, assuming Singapore enjoys trade surplus, access to larger global markets through globalisation increases its net exports or $X > M$.
- Due to constraints of limited resources and a small domestic market, the size of its exports and imports as a % of GDP is significant, and Singapore gains significantly through higher AD and AS.

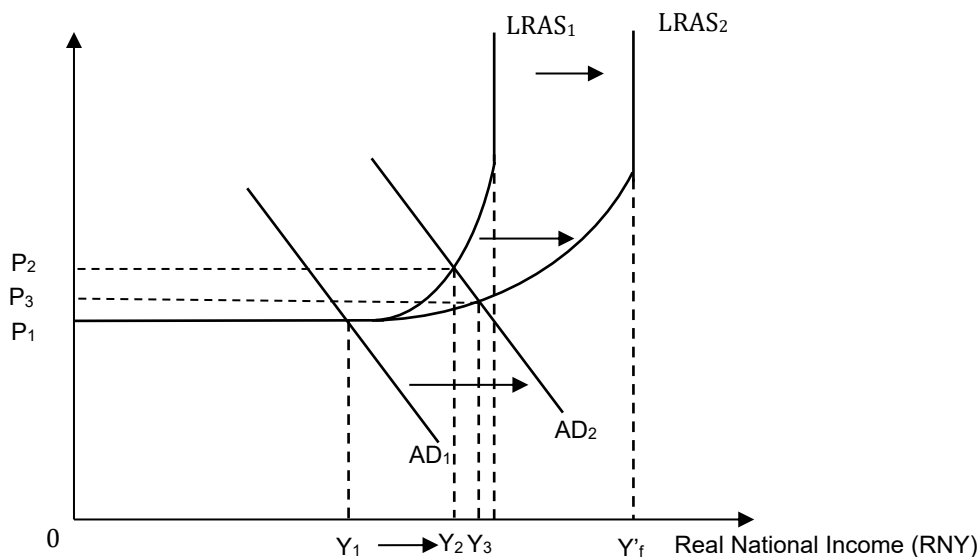
Increase in Investments

- Globalisation attracted foreign firms seeking attractive investment destinations.
- The government also signed FTAs and implemented attractive policies to attract Foreign Direct Investment (FDI).
- At the same time, FDI inflow will also boost technology transfer from foreign firms.
- Inflow of FDI is also important given Singapore depends on capital accumulation to boost its capability for its exports of goods and service that are high value and high tech in nature based on its CA.

Stimulation of Economic Growth (Actual growth & Potential growth)

- An increase in net exports and investments increases aggregate demand (AD)
- From the diagram below, the increase in AD will lead firms to employ more factors of production in order to increase their output to meet the increase in demand for goods and services.
- As a result, real national income (which is the sum of all factor incomes) will rise from Y_1 to Y_2 via the multiplier effect.
- Increases in capital stock, improvements in technology and workforce quality increased Singapore's productive capacity, shifting long-run aggregate supply (LRAS) rightward and increasing potential output

General Price Level (GPL)



- The increase in productive capacity due to the Increases in capital stock increases LRAS from $LRAS_1$ to $LRAS_2$. This results in an increase in the potential output from Y_f to Y'_f . Hence in the long run, the economy can experience potential growth.

Reduction in Unemployment

- As a result of increase in real national income, derived demand for labour also increases. Thus, there would be a fall in demand deficient unemployment.

Balance of Trade Improvement

- As mentioned above.

Reduction in Inflationary Pressures

- Greater economic integration also allows Singapore to gain access to larger source of markets for final goods and services. This allows imported prices of goods and services to decrease, leading to an increase in SRAS hence reducing imported inflation.

Other Benefits

Microeconomic Benefits for Consumers:

- Consumers can enjoy goods and services at lower prices. Consumers can enjoy goods and services at lower prices due to increase in supply of goods and services from abroad and increase competition from abroad.
- Consumers can enjoy a larger variety of goods and services. Due to the competition from foreign competitors from all over the world, firms may also end up undertaking more innovation to improve the quality of their products in order to survive the international competition.

Microeconomic Benefits for Producers

- Producers can enjoy a larger demand for their goods and services due to the increase in size of markets. Globalisation results in an increase in the market size as firms experience an increase in demand from consumers abroad. The higher demand for their products can generate higher total revenue for firms.
- Producers can also have the ability to exploit economies of scale due to the increase in output. Globalisation results in freer trade and this encourages specialisation in production that is based on the principle of comparative advantage. Such specialisation allows producers to enjoy economies of scale from enlarging their scale of production that arises from expanding into the global market.

Evaluation

- Globalisation has benefited Singapore to a large extent.
- Globalisation helps SG overcome constraints of limited resources and a small domestic market.
- Recognising Singapore's lack of domestic market and resources, the Government also help facilitate a wide array of FTAs to lower trade barriers, boosting skills training through SkillsFuture and various policies to improve infrastructure.

Requirement 2: Globalisation hasn't benefitted small and open economies such as Singapore

Macroeconomic Costs

Costs in terms of Trade and Investments

- Due to global trade and geopolitical tensions, countries reduce trade with each other. Growth may also slow. As a result, countries reliant on trade like Singapore, will suffer more significantly as they are more vulnerable. The decrease in AD will be more significant, as a exports are a substantial % of its GDP. Smaller economies like SG are more vulnerable than large economies (e.g., US) where domestic demand cushions export shocks.
- Likewise, the weakening of business confidence will cause a decrease in investments in countries reliant on FDI like Singapore. Dependence on FDI, especially in high value-added, high-tech sectors, narrows economic activities compared to bigger, more diversified economies.

- As a result of decrease in exports and investments, Singapore's real national income will fall due to a fall in AD and the reverse multiplier effect. Growth will also slow as a result.
- Demand-pull inflation may occasionally result due to strong Aggregate demand at times. For instance, due to post-Covid resurgence, strong exports and investments and supply being unable to catch up with demand, AD rises faster than AS and demand-pull inflation results.

Cost due to Reliance on imports

- Singapore is also highly vulnerable to imported inflation. As a result of global trade tensions and other supply shocks, imports have become more expensive due to these shortages. Due to Singapore's reliance on imports for raw materials, higher import prices will result in imported inflation.

Cost due to Labour flows

- As a result of movement of labour flows, low skilled workers in Singapore may suffer from Structural unemployment due to the competition from migrant workers.
- Some firms may outsource some of their production activities overseas to benefit from the lower relative factor prices in foreign countries. Technology changes could also reduce the demand of low skilled workers resulting in further structural unemployment.

Microeconomic Costs

- Increasing Income Inequalities Within the Country due to the creation of a dual economy as small pockets of wealth may result from FDI but the domestic sector remains poor, leading to unequal growth hence raising income disparities within the country.
- Destruction of the environment has caused negative externalities such as pollution or congestion. The costs to developed countries also include the closure of industries that re-locate to low-wage countries where environmental regulations are less stringent.

Evaluation

Government Policies

- On balance, globalisation has been largely beneficial to Singapore, enabling high growth, full employment, and rising living standards despite trade-offs. Singapore's policies (FTAs, diversifying exports, reskilling workforce, redistribution policies) help mitigate downsides, allowing it to gain more from globalisation. For Singapore, given its adaptability, the gains have outweighed the costs.

Nature of the Singapore economy being Small & Open

- Singapore benefit more from globalisation because they must rely on external demand and they cannot survive on domestic markets alone. But this also means they are far more exposed to global downturns than larger, diversified economies.

Different Gains for Different Groups

- Globalisation doesn't benefit all groups equally. High-skilled workers and capital owners gain the most. Lower-skilled workers may face structural unemployment and slower wage growth. This distributional tension is a big issue in small open economies where inequality is very visible.

Level	Knowledge, Analysis, Understanding and Application	Marks
L3	Well-explained answer which considers whether globalization has benefitted small & open economies like Singapore. This is done and supported with an appropriate tool of analysis. <i>Able to explain the benefits and costs to small & open economies such as Singapore</i>	8 – 10
L2	Accurate although undeveloped explanation of the two requirements of the questions.	5 – 7
L1	Answer shows some knowledge but does not indicate that the meaning of the question has been properly grasped. Basic errors of theory or an inadequate development of analysis may be evident. Where the answer is mostly irrelevant and only contain a few valid points made incidentally in an irrelevant context.	1 – 4
E3	Well explained evaluative statements about 2 requirements.	5
E2	Evaluative statements about 2 requirements, one of which is well-explained.	3 – 4
E1	Unsupported evaluative statements.	1 – 2