



**VICTORIA JUNIOR COLLEGE
JC2 PRELIMINARY EXAMINATION 2021
HIGHER 2**

ECONOMICS

9757/01

Paper 1

13 September 2021

2 hours 15 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 **all** questions.

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

This document consists of **8** printed pages.

Answer **all** questions.

Question 1: The future of biofuels in Brazil

Extract 1: Brazil's sugarcane sector

Brazil is the world's top producer and exporter of sugarcane. Besides sugar, sugarcane is also used to produce ethanol, a renewable fuel that is important in the fight against climate change. Ethanol made from sugarcane reduces greenhouse gas emissions by between 40 to 62 per cent compared with gasoline.

Source: Adapted from brazilianfarmers.com

Extract 2: Betting on ethanol, Brazilian mills turn sour on sugar

Brazilian sugarcane processors are increasing their capacity to produce ethanol in the face of depressed global sugar prices and government policies expected to boost demand for the biofuel.

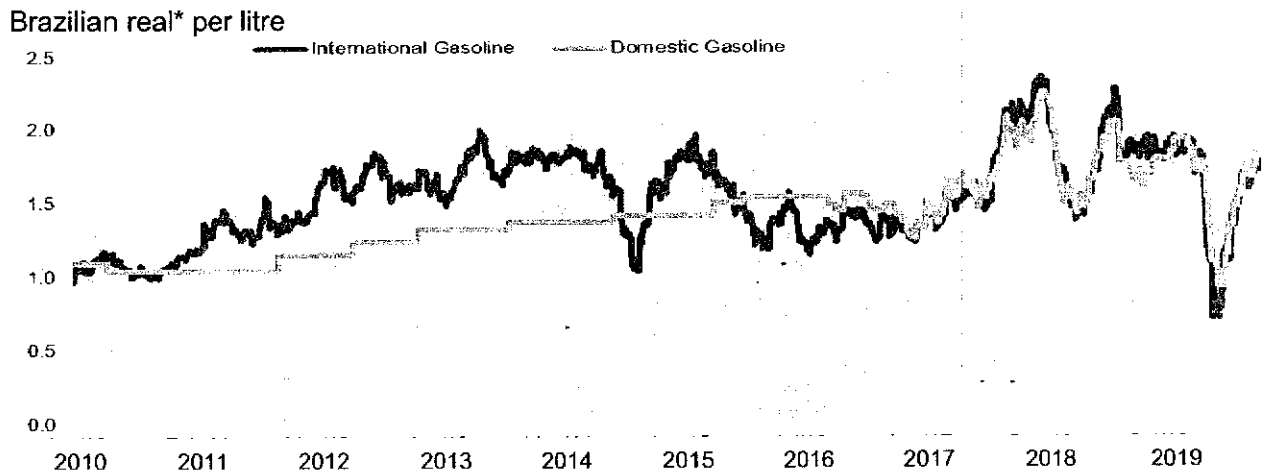
For these firms, switching to ethanol has proved an attractive option as the increased focus on the biofuel partly shielded mills from a plunge in global sugar prices in September 2018 to their lowest since 2008. Both major and smaller sugarcane processors are now investing in more ethanol capacity ahead of next season. Biosev, Brazil's second largest sugarcane processor, said it was installing distillation columns at two plants to give the mills the option of using 90 per cent of their sugarcane for ethanol, up from 50 per cent now.

In 1975, Brazil rolled out policies to use more biofuels through the so-called flex-fuel cars that can switch between pure ethanol and a gasoline-ethanol blend. Such cars now make up 80 per cent of Brazil's vehicle fleet. With the introduction of flex-fuel cars into the Brazilian market, cross-price elasticities between gasoline and ethanol have become positive, significant, and increasing. In a new push, the government this year approved a program called RenovaBio that mandates fuel distributors to gradually increase the amount of biofuels they sell from 2020. Brazil's Ministry of Mines and Energy expects RenovaBio to push demand to 47.1 billion litres in 2028 from 26.7 billion in 2018, helping Brazil's ethanol industry recover from years of competition with subsidised gasoline prices.

The global market could also offer opportunities for Brazilian ethanol producers. Brazil's sugarcane-based ethanol has a lower carbon footprint that could appeal to governments striving to meet Paris climate agreement commitments. However, high tariffs still pose a barrier in many countries, including China where Brazilian ethanol is subject to a 30 per cent duty.

Source: Reuters, 3 Dec 2018 and Energy Policy, Volume 128, May 2019

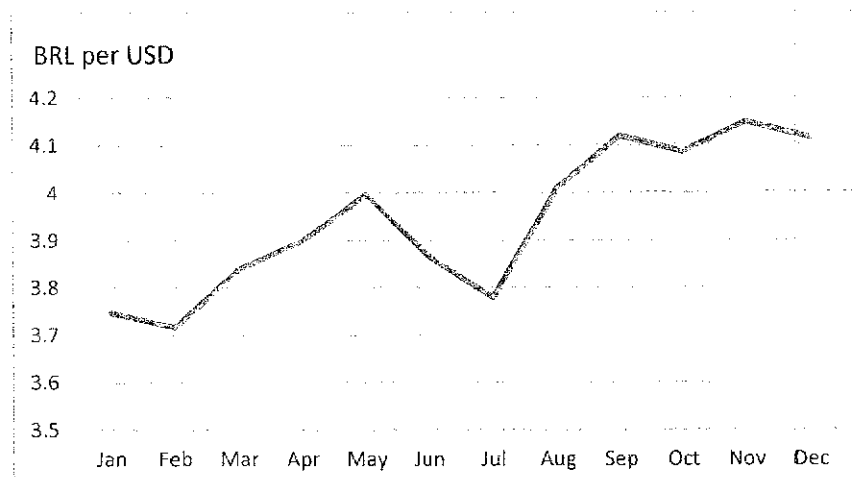
Figure 1: International and domestic Brazilian gasoline prices



* Brazilian real (BRL) is the currency of Brazil

Source: czarnikow.com

Figure 2: Brazilian Real vs US dollar, 2019



Source: <https://www.x-rates.com>

Extract 3: Is biofuel good for the environment?

In the earlier years, as governments grappled with how to most effectively combat global warming, attention was turned to the transport sector as it accounts for 22 per cent of energy-related greenhouse gas emissions worldwide. This was in part due to steady growth in the use of personal cars in the developing world. The use of biofuels seems like the perfect solution as bio-based crops do not emit carbon — or so policymakers assumed.

Brazil was then amongst the first country to establish its ethanol fuel program, and today is considered to have the world's first sustainable biofuels economy, with almost all cars burning some element of biofuel.

The European Union (EU), on the other hand, established its own biofuel requirements which required member countries to source at least 10 per cent of their transport fuel from renewable sources by 2020. The stringent requirements resulted in a huge growth in the biofuel industry.

However, shortly after these laws were passed, problems began to emerge. Farmers across the world were incentivised to start growing crops for biofuel instead of food, changes which resulted in food shortages. A study in 2016, commissioned by the European Commission, concluded that the EU's renewables law has probably increased carbon emissions since it was put in place in 2009. The change in farming land use is causing more carbon emissions than biofuels are able to abate in the transport field. This is because emissions happen when a forest is cleared and when a field switches to growing crops for the more profitable biofuel. This unintended consequence is known as "indirect land use change" (ILUC). As the consequences of the policy became clearer, environmental and anti-hunger campaigners have pushed these governments to end their policies supporting biofuel. However, the biodiesel industry says the science behind measuring the ILUC caused by biofuels, and the emissions that might result, is inconclusive.

This June, EU lawmakers agreed to limit the amount of crop-based biofuels that can be used to meet EU renewable targets. Meanwhile, in Brazil, the trend has gone in the opposite direction as the government views its biofuel growth as a success story rather than something to worry about.

Source: DW.com, 25 June 2018

Extract 4: Sugarcane rush poses new threat to the Amazon rainforest

The world watched in horror last year as the planet's largest rainforest burned unchecked. Satellites detected 90,000 fires in the Brazilian Amazon during the 2019 burning season, a 30 per cent increase from the previous year. The fires were not wildfires but a grim reflection of surging deforestation. And before the fires had even died away, its government had added another piston into the engine of deforestation, by allowing the expansion of sugarcane into protected areas in the country.

Source: The Magazine of the Sierra Club, 10 June 2020

- (a) Mills in Brazil are able to process sugarcane into either sugar or ethanol.
Explain the opportunity cost of producing ethanol for a Brazilian sugarcane processor. [2]
- (b) With reference to Extract 2,
(i) State what the cross-price elasticities between gasoline and ethanol indicate about the relationship between the two goods. [1]
(ii) Explain the impact of the introduction of flex-fuel cars on the cross-price elasticities between gasoline and ethanol. [2]
- (c) Using a diagram, explain one measure that the Brazilian government could have used that caused the price differential between international and domestic gasoline prices from 2011 to 2014. [3]
- (d) Explain whether the trend of the foreign exchange rate of the Brazilian real in 2019 benefitted Brazil's ethanol producers. [4]
- (e) Discuss the factors that determine a Brazilian sugarcane processor's decision on whether to increase its capacity to produce ethanol. [8]
- (f) Assess whether Brazil should reverse its policy of promoting the use of biofuels to address global warming. [10]

[Total: 30]

Question 2: Developments in the economies of Singapore and the United Kingdom**Table 1: Selected indicators on Singapore and the United Kingdom (UK), 2018**

| | Human Capital Index* (HCI) | Commitment to Reducing Inequality Index* (CRII) | Highest Possible Personal Income Tax Rate |
|-----------|----------------------------|---|---|
| Singapore | 0.88 | 0.43 | 22% |
| UK | 0.78 | 0.74 | 45% |

*1 represents perfect score while 0 represents the worst score for both HCI and CRII.

Source: World Bank, 2018

Extract 5: Singapore's performance on HCI and CRII

The inaugural World Bank Human Capital Index (HCI) measures the human capital that a child born today can expect to attain by the age of 18. The HCI comprises three components: survival of children to school age, the quantity and quality of education, and health outcomes. Singapore's score of 0.88 is the highest among the 157 countries on the HCI for 2018.

However, the Commitment to Reducing Inequality Index (CRII) report released by United Kingdom-based organisation Oxfam had ranked Singapore among the bottom 10 countries in the world for its efforts to reduce inequality. The report said that Singapore's low ranking was due to a number of its "tax practices", and that while it has raised personal income tax for the rich by 2 per cent, the maximum income tax rate remains very low for the highest earners at 22 per cent.

This was rebutted by Social and Family Development Minister Desmond Lee, who said that although income tax burden on high-income earners is low, every Singaporean "benefit more than proportionately from the high quality of infrastructure and social support that the state provides". He added that the report assumed high taxation and high expenditure showed commitment to combating inequality, but it was "more important" to look at the outcomes Singapore has achieved instead.

Source: Adapted from World Bank, 2018 and Channel NewsAsia, 9 October, 2018

Extract 6: Uncertainty around Brexit

UK's unemployment has dropped to the lowest level in more than 44 years despite mounting fears over Brexit, its long-awaited departure from the European Union (EU). Britain's jobless rate fell to a fresh low of 3.9 per cent in the three months to January, down from 4 per cent a month earlier, the lowest point since the start of 1975. The robust picture of the jobs market may, however, mask potential problems facing the UK economy.

Observers said companies were likely to have hired workers to meet demand, instead of investing in productivity-boosting technology. Workers tend to be easier to hire and fire, while major investments are costly to reverse. Economist Andrew Wishart said: "This will add to concerns that the Brexit-related fall in investment is having a detrimental effect on the economy, as firms have opted to hire workers to meet demand rather than invest."

The decline in available labour could also lead to mismatches between skills available and job vacancies. Such mismatches would also be expected to lower workers' productivity as people end up in roles they are not particularly good at or well-trained for.

Policymakers said the UK would avoid falling into recession this year, but warned that uncertainty over Brexit will weigh on the economy.

The Bank of England has kept interest rates on hold at 0.75 per cent. However, the Bank stressed that interest rates could move up or down if the UK and EU cannot reach a consensus on new trade terms i.e. "no-deal Brexit". The ongoing uncertainty over the UK's relationship with the EU risked a further period of "entrenched uncertainty", leading to weaker growth and less inflationary pressure which reduces the Bank's need to raise interest rates.

The longer that uncertainty continues, particularly against a background of a weak global economy, the more likely that growth, and also inflation will slow. The Bank has until now signalled that interest rates are likely to rise gradually back from its post-crisis lows only if there was a "smooth Brexit", where there will be an orderly departure from the economic bloc with room for future arrangements. Or else under no-deal, amid exchange rate falls, inflation rises and slower economy, there could be either cuts or rises.

Source: The Guardian, 19 March 2019 & BBC, 19 September 2019

Extract 7: Singapore is reducing its reliance on foreigners

Singapore has transformed itself into a city-state with one of the highest gross domestic product per capita in the world. However, real economic growth rates have slowed in recent years. Singapore fueled its growth primarily through factor accumulation — attracting foreign capital and importing foreign workers — and not increasing productivity. This strategy has now run into diminishing returns.

Historically, Singapore has a poor track record of boosting labour productivity. Part of the reason stems from distortions in the incentive structure of the economy. For example, the large inflow of cheap, unskilled labour in previous years has depressed wage growth, reducing the incentive for companies to move up the value chain by investing in productivity-enhancing equipment or implementing better ways to organise production processes.

To keep Singapore's services sector competitive, companies in the sector will have to rely less on foreign workers and become even more productive. The Government is tightening the Dependency Ratio Ceiling (DRC), or the proportion of foreign workers a firm can employ, from 40 per cent to 38 per cent next year, and to 35 per cent in 2021.

Ravi Menon, managing director of the Monetary Authority of Singapore believes that Singapore may be able to maintain economic growth for a while through higher productivity alone. But some of these productivity gains have come from foreigners, who have brought know-how with them. Some observers worry that Singapore lacks manpower in high-tech fields such as artificial intelligence and robotics. Fewer experts from abroad may leave Singapore behind in these areas. The decline of foreign population in Singapore could reduce its competitiveness to attract tech start-ups and companies looking for a vibrant and dynamic workforce.

Source: Various

Table 2: Composition of Gross Domestic Product of Singapore and the UK, 2019

| | Singapore (%) | UK (%) |
|--------------------------------|---------------|--------|
| Household Domestic Consumption | 37 | 66 |
| Government Consumption | 10 | 21 |
| Gross Capital Formation | 29 | 14 |
| Exports of Goods and Services | 173 | 30 |
| Imports of Goods and Services | 149 | 31 |

Source: <http://mecometer.com/>

Extract 8: Fiscal policy to achieve inclusive growth

Over the past decade, fiscal policies have focused on economic stabilisation, but less attention has been given to reforms to foster long-term inclusive growth. Major fiscal expansions across the globe after the 2007-08 global financial crisis helped address demand-side weakness, but this has resulted in significantly higher public debt ratios in many countries. As of 2019, UK's public debt-to-GDP ratio stands at 80.7 per cent. Income gains are also increasingly accruing to the rich, and wealth is becoming more concentrated.

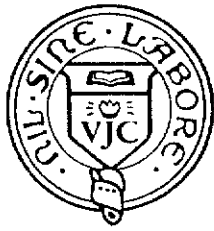
Fiscal policies need to adapt to these trends by upgrading tax and by increasing infrastructure and social spending. Taking such steps will help to foster higher growth — which is also key for durably reducing public debt levels — and to ensure that gains from openness and innovation are broadly shared within and across countries.

However, the brewing of a tax competition has been largely unaddressed and may intensify in the future. This is especially problematic for low-income countries, which rely relatively more on corporate taxation as a revenue source. Fairness concerns have sparked debate on the allocation of taxing rights. Countries that are planning to adjust their tax rates as a driver of growth could face backlash from the international community and potentially trigger a tax war.

Source: Adapted from *International Monetary Fund, 2019*

- (a) (i) Using a diagram, explain what an increase in the Human Capital Index (HCI) might suggest about the production possibility of an economy. [2]
- (ii) Explain why Singapore has a high score on the HCI in spite of its low score on the Commitment to Reducing Inequality Index (CRII). [2]
- (b) With reference to Extract 6, explain **two** reasons why the UK should be concerned about its falling unemployment rate. [4]
- (c) Extract 6 states that 'the Bank [of England] stressed that interest rates could move up or down if the UK and EU cannot reach a consensus on new trade terms i.e. "no-deal Brexit".
- Explain **two** economic performance indicators that will determine the Bank of England's monetary stance under a "no-deal Brexit". [4]
- (d) Assess whether reducing reliance on foreign workers is favourable to Singapore's economy. [8]
- (e) Evaluate the relative appropriateness of fiscal policy in Singapore and the UK to achieve inclusive growth. [10]

[Total: 30]



**VICTORIA JUNIOR COLLEGE
JC2 PRELIMINARY EXAMINATION 2021
HIGHER 2**

ECONOMICS

9757/02

Paper 2 Essays

1 September 2021

2 hours 15 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.

[Turn over

Answer **three** questions in total.

Section A

One or two of your three chosen questions must be from this section.

- 1** According to data from the United Nations, global food prices rose at the fastest pace in October in more than two years. Many emerging economies face a price surge for staple food products that are central to consumers' diets – for example, pork in China and onions in India. Economists identified three triggers for the rise in food prices - weather-related shocks, higher oil prices and rising incomes.

Source: Adapted from *The Business Times*, 28 Nov 2019

- (a) Explain how the abovementioned events caused food prices to surge. [10]
 (b) Discuss the policies that governments could use to address rising food prices. [15]

- 2** Governments sometimes intervene in markets when information failure is a concern.

- (a) Explain two reasons for market failure when there is information failure. [10]
 (b) Discuss whether government intervention in such situations will improve the market outcome. [15]

- 3** Some cinema operators like Shaw Theatres and Golden Village operate more than 50 cinema screens in Singapore while some operators like The Projector operate only 3 screens. Many of the screens operated by Shaw Theatres and Golden Village are 3D or IMAX screens that offer better audio and video quality. However, none of the screens operated by The Projector have such features.

Source: Adapted from *Infocomm Media Development Authority*, 2020

- (a) Explain why some firms can grow to be dominant and make profits higher than what is required to continue operations while other firms cannot do so. [10]
 (b) Assess the extent to which strategies of cinema operators in Singapore depend upon the actions of competitors. [15]

Section B

One or two of your three chosen questions must be from this section.

- 4 Economists view economic growth as an important driver for the well-being of a country.
- (a) Explain why a country's inflation rate and unemployment rate can be rising with the pursuit of economic growth. [10]
 - (b) Discuss whether achieving economic growth is the most crucial factor for Singapore in improving its residents' well-being. [15]
- 5 In then Finance Minister Heng Swee Keat's 2019 Budget Speech, he mentioned a few major shifts, which include rapid technological advancements and changing demographic patterns. Global growth was also expected to moderate in 2019.
- Source: Adapted from *Budget Speech 2019*
- Discuss how the Singapore government should respond to these changes. [25]
- 6 The United States, the United Kingdom and India are amongst the economies with the largest trade deficit.
- (a) Explain the internal and external factors that have likely contributed to the large trade deficit in these economies. [10]
 - (b) Assess the relative significance of the factors considered by a government in its policy response to a trade deficit. [15]

Suggested Responses to 2021 VJC H2 Economics Preliminary Examination

H2 Economics Paper 1 — Case Studies

Question 1: The future of biofuels in Brazil

- a) Mills in Brazil are able to process sugarcane into either sugar or ethanol.

Explain the opportunity cost of producing ethanol for a Brazilian sugarcane processor. [2]

Opportunity cost is the cost of using resources for a certain activity, measured in terms of the net benefit that could be derived from the next best alternative forgone [1].

For a Brazilian sugarcane processor, net benefit from the next best alternative use of the mill forgone is the sacrifice of the profits from producing sugar [1].

Or

The opportunity cost of producing ethanol for a Brazilian sugarcane producer is the sacrifice of the profit that could have been earned from producing sugar because sugar production is the next best use of its resources. [2]

Students must show understanding of the concept of 'net benefit' for credit.

- (b) With reference to Extract 2,

- (i) **State what the cross-price elasticities between gasoline and ethanol indicate about the relationship between the two goods. [1]**

The positive value indicates that gasoline and ethanol are substitutes [1].

- (ii) **Explain the impact of the introduction of flex-fuel cars on the cross-price elasticities between gasoline and ethanol. [2]**

The introduction of flex-fuel cars led to a rise in the value of the cross-price elasticity of demand (XED) for ethanol with respect to a change in the price of gasoline (Ext. 2 – “significant and increasing”).

The XED value is likely to rise to become greater than 1 (i.e. XED is significant). This is because the introduction of flex-fuel cars increases the substitutability of the 2 types of fuel and enabled them to become close substitutes. That is, a change in price of gasoline will lead to a more than proportionate increase in demand for ethanol [2].

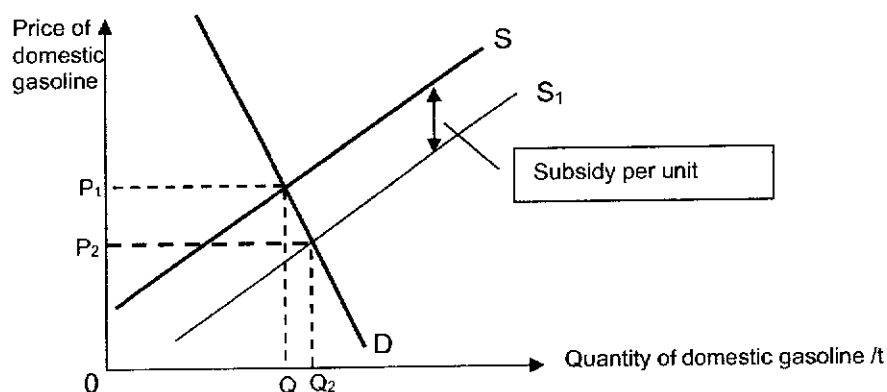
OR

The XED value is rising (i.e. magnitude of XED increasing). This is because with the introduction of flex-fuel cars, the 2 types of fuel are now closer substitutes and hence enabled owners of flex-fuel cars to switch more easily between the 2 fuels [2].

- (c) Using a diagram, explain one measure that the Brazilian government could have used that caused the price differential between international and domestic gasoline prices from 2011 to 2014. [3]

The Brazilian government could have subsidised gasoline to make gasoline more affordable to the residents. The subsidy led to a fall in marginal cost of production, leading to an increase in supply (S to S_1). At the original price P_1 , there is now a surplus. Downward pressure on the price to clear the surplus results in a fall in price of domestic gasoline from P_1 to P_2 . This results in the price differential between international and domestic gasoline prices, assuming international price is equal to domestic market equilibrium price at P_1 . [2]

Diagram [1]



Alternative answer: Use of price ceiling

Define price ceiling and highlight that the price ceiling set needs to be below the market equilibrium price to effectively impact the market, with reference made to the diagram drawn. In addition, the same assumption that domestic market equilibrium price is equal to international price is needed.

- (d) Explain whether the trend of the foreign exchange rate of the Brazilian real in 2019 benefitted Brazil's ethanol producers. [4]

From Figure 2, it can be inferred that the Brazilian real has depreciated against the US\$ in 2019 [1].

This may benefit Brazil's ethanol producers. This is because a depreciation of real will lead to a rise in export price competitiveness of Brazilian ethanol as price of Brazil's export in terms of US\$ falls. This would have led to a rise in demand and hence rise in export revenue for Brazil's producers [2].

However, it could also not have benefitted them as the depreciation resulted in a rise in price of imported inputs used by the producers, for e.g., the use of imported machinery. This would have increased their unit cost of production [2] and hence resulted in lower profit margins.

- (e) **Discuss the factors that determine a Brazilian sugarcane processor's decision on whether to increase its capacity to produce ethanol.** [8]

Introduction

In the long run, a firm's capacity can be increased by changing all its variable factors of production to produce more output. This can be done by adding more equipment and storage facilities which may entail building bigger plants.

Assuming that the Brazilian sugarcane processor is profit-maximising, it will take into consideration the benefits and costs of increasing its capacity to produce ethanol.

Body

Factors that relate to the benefits of increasing its capacity to produce ethanol (i.e. factors that will affect its profitability) are:

A factor to consider is the price / average revenue of ethanol

This is in turn affected by

- Change in demand for ethanol
With Brazil's government policy towards flex-fuel cars that use more biofuels, the domestic demand for ethanol is likely to rise.

This rise in demand is further reinforced by the government's implementation of RenovaBio that mandates fuel distributors to increase the sale of biofuels.

Furthermore, there is likely to be a rise in external demand from the global market due to preference for Brazil's ethanol as it has a lower carbon footprint [Ext 2]. However, this rise in demand may be dampened by the high tariff imposed on Brazil's ethanol [Ext 2] and clamping down by EU on import of crop-based biofuels [Ext 3].

- Change in supply for ethanol
With the global fall in sugar prices to its lowest since 2008 (Ext 2), sugarcane processors will find it more profitable to turn the mills to ethanol production since sugar and ethanol are substitutes in production (in competitive supply). This is observed by the entry of both major and smaller players into the ethanol market. This will in turn increase supply of ethanol in the market which puts downward pressure on the price of ethanol.

The net impact of the domestic and external demand for ethanol together with the rise in domestic supply will determine the overall impact on the price of ethanol.

A sugarcane processing firm will consider the direction of change in the price of ethanol because it affects the average revenue (AR) of producing ethanol. The greater the likelihood of a rise in price, the greater the benefits for a Brazilian sugarcane processor to increase its capacity to produce ethanol since he is able to reap higher AR and hence higher profit margin (assuming average cost is constant).

NOTE – The above analysis assumes a PC model where the firm is a price taker and the price of ethanol affects its AR.

Alternatively, imperfectly competitive firm model can be used. The demand factors will affect the demand (and MR) for the ethanol produced by the firm and in turn affect the price that the ethanol firm could charge, thereby affecting its profitability.

Another factor that affects the firm's profitability and hence affects its decision about increasing capacity is the impact of increase in capacity on average cost of producing ethanol.

Increasing capacity could enable the firm to reap internal economies of scale. For example, the firm could reap technical economies of scale where the firm can make use of huge and highly specialised machinery by installing distillation columns (Ext 2). Such indivisibilities of capital can only be reaped with larger output as the equipment usually require huge capital outlay. The costs of acquiring these machines can be distributed over a much larger output, which brings the unit cost down.

The greater the ability of the producer to enjoy internal economies of scale from ethanol production, the greater the likelihood for the processor to increase its capacity to produce ethanol since he is able to enjoy lower unit cost and hence there is possibility of higher profit margin (assuming constant price). On the other hand, the increase in capacity could result in internal diseconomies of scale. This could be due to increased difficulties of coordination when scale of production is increased, leading to loss of efficiency and hence increases in unit cost. If internal diseconomies of scale are anticipated, then the firm might not wish to expand its capacity for production.

Factor that affects the cost of the decision

A factor that relate to costs of increasing its capacity to produce ethanol is the price of sugar

From part (a), if the sugarcane processor uses the mill to produce ethanol, the opportunity cost is the sacrifice of the profits from producing sugar since it is the next best use of the mill. The price of sugar will thus determine the opportunity cost of producing ethanol because it affects the profitability of sugar production.

The lower the price of sugar, the lower the opportunity cost incurred in ethanol production as the profits of sugar production is reduced. This means greater likelihood for a Brazilian sugarcane processor to increase its capacity to produce ethanol.

Conclusion

Prices of ethanol and sugar would be the more important factors in determining a Brazilian sugarcane processor's decision on whether to increase its capacity to produce ethanol.

In the long run when firms can exit if they wanted to, factors like the prices of ethanol and sugar will determine the relative profitability of going into these production as firms will compare their profitability before increasing the capacity. So, if there is a trend of rising demand for ethanol and hence rising price of ethanol, firms would go ahead to increase their capacity.

The scope for internal economies of scale is less important than the price of ethanol (or demand for ethanol) in determining the decision on whether to expand capacity because even if increasing the scale of production led to internal diseconomies of scale, if the rise in demand from ethanol production is extensive relative to its supply such that price of ethanol rises significantly and ethanol production is very profitable, firms will still go ahead to expand since the rise in total revenue will outweigh the rise in total cost.

| Level | Descriptors | Marks |
|-------|--|-------|
| L2 | Analysis of both benefits and costs of the decision (or revenue and cost factors) using contextual evidence NOTE: Q does not require a benefit vs cost of decision approach. So, answers that only considered factors that affect profitability, i.e., considered both AR (DD) factors and AC factors are acceptable. | 4-6 |
| L1 | Descriptive or incomplete analysis of either benefit or cost (revenue or cost) factors with / without contextual evidence Max 3 if all factors considered are too general (e.g., macro factors). | 1-3 |
| E | Evaluative comments with support of evidence that weigh the importance of the factors. i.e. <ul style="list-style-type: none"> comment on relative importance of benefit factor vs cost factor OR revenue factor vs cost factor or <ul style="list-style-type: none"> comment on the relative importance of revenue factors (e.g., is factor that affects local DD more or less important than the factor that affects external DD) and cost factors (e.g., is the forex factor more or less important than EOS factor). | 1-2 |

- (f) **Assess whether Brazil should reverse its policy of promoting the use of biofuels to address global warming.** [10]

Introduction

Whether Brazil should reverse its policy of promoting the use of biofuels to address global warming depends on the benefits and costs of doing so - its likelihood of attaining sustainable growth and equity in its distribution of goods and services through its current policy on biofuel.

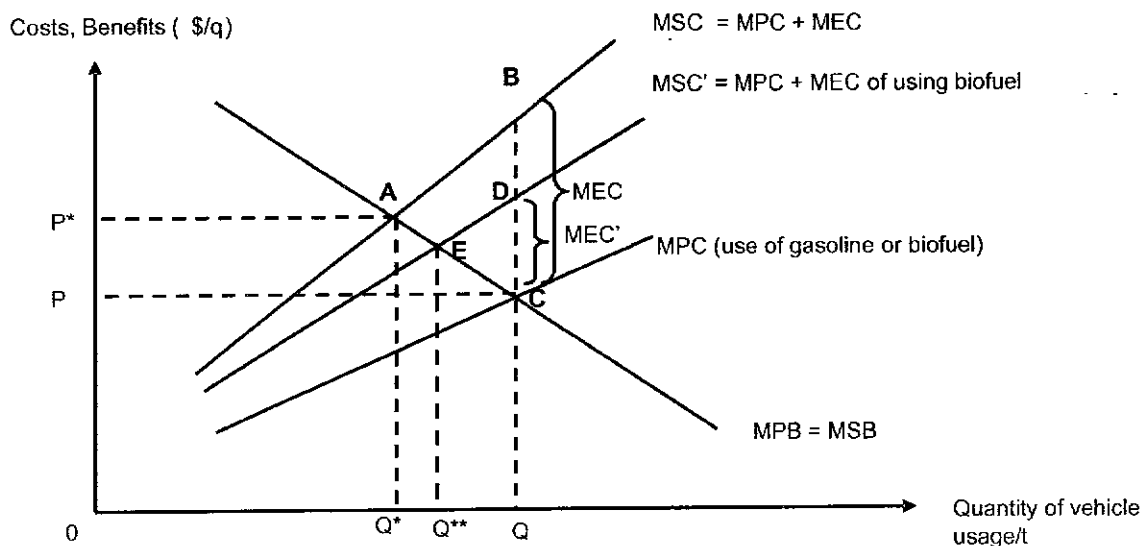
Body

Thesis: Brazil should promote the use of biofuels to address global warming

The use of biofuels promotes sustainable economic growth as it reduces allocative inefficiency and helps to address global warming.

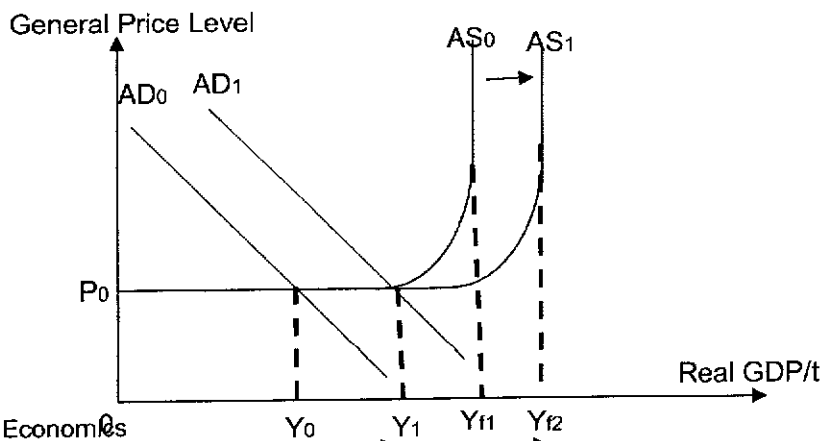
The use of gasoline to power vehicles, will result in pollution to the environment. This contributes to global warming which leads to external costs incurred by third parties. For example, global warming has been linked to climate change. Such climate change has resulted in massive floods which have destroyed property, livestock, and lives. The negative externality causes the marginal social cost (MSC) to be greater than the marginal private cost (MPC) of using vehicles fueled by gasoline. Utility-maximising consumers only consider their marginal private benefits (comfort and convenience) and marginal private costs (vehicle expenses), ignoring third-party costs, hence they consume at Q where $MPB = MPC$. However, the socially optimal consumption level is at Q^* , where $MSB = MSC$ where society's welfare is maximised. Hence, there is an over-usage of $Q - Q^*$ units,

resulting in welfare loss to society (area ABC) as MSC is greater than MSB for every unit between Q^* and Q . However, the use of ethanol to fuel vehicles will result in lesser pollution to the environment [Ext 1] because it is a cleaner fuel. This means that its MEC is smaller (MEC') compared to the use of gasoline. Assuming that the price of gasoline is the same as ethanol, with a lower MEC, the use of ethanol results in smaller welfare loss (area EDC). This is especially important as with rising income, demand for car transport will rise. With the promotion of use of biofuels, the rising air pollution due to increased car usage will be slowed down. This helps to make economic growth more sustainable. Thus Brazil should promote the use of biofuels to address global warming.



Sustained economic growth and increased employment may result from the growth of biofuel industry.

Assuming ethanol is a huge industry in Brazil and with its growing importance due to the government's emphasis on biofuels, firms have the incentive to invest [Ext 2 – installation of distillation columns at two plants]. The rise in demand for Brazilian ethanol from the global market [Ext 2] will lead to rise in export revenue. As such, the increase in investment expenditure (I) and export revenue (X) will result in an increase in aggregate demand (AD_0 to AD_1), leading to an unplanned fall in inventories as expenditure exceeds output. Firms then increase their output and hire more factors of production, consequently causing a multiple increase in national income (Y_0 to Y_1) via the multiplier process and reduction in demand-deficient unemployment. Moreover, the increase in investment will result in a rise in the productive capacity (Y_{f1} to Y_{f2}) and aggregate supply (AS_0 to AS_1) in the long run. As such, maximum output of the economy increases, achieving positive potential growth, and allowing for further increase in real GDP.

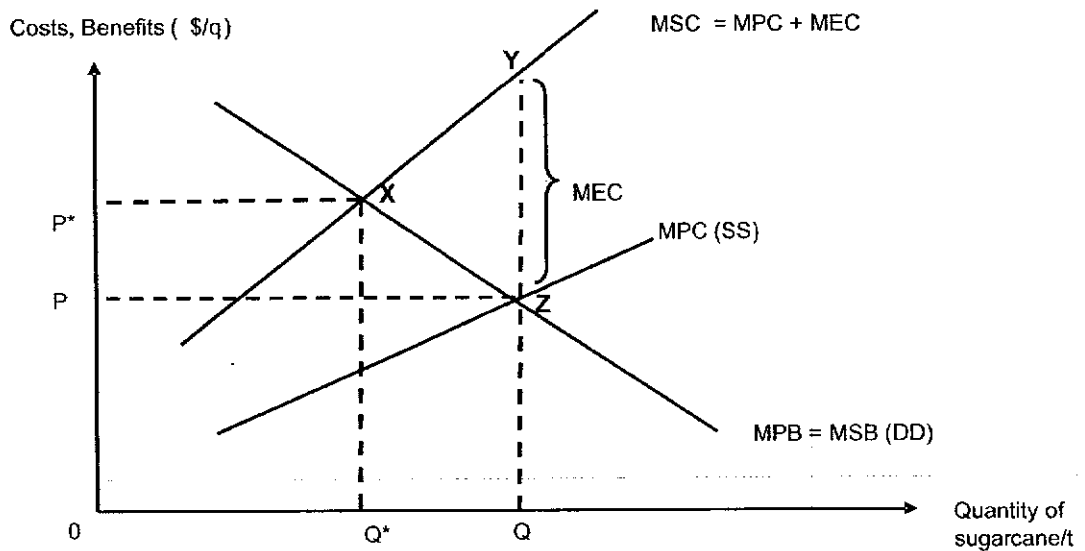


Hence, Brazil should promote the use of biofuels as it results in sustained economic growth.

Anti-thesis: Brazil should not promote the use of biofuels to address global warming (because it has resulted in adverse unintended consequences)

The promotion of the use of biofuels may worsen allocative inefficiency.

The change in farming land to grow the more profitable biofuels requires forest to be cleared for this alternative use. However, such clearance results in carbon emissions. While the use of biofuels for vehicle usage may result in lower carbon emissions as it is cleaner, the production of the fuels itself generates even more carbon emissions [Ext 3] as evidenced by the findings from European Commission and the destruction of the Amazon rainforest in 2019.



In producing sugarcane, farmers use the cheapest method to clear land, which is to burn down the vegetation. The pollution from the deforestation associated with the production of sugarcane results in health costs suffered by residents who are neither consumers nor producers of sugarcane. The pollution also leads to global warming which leads to other external costs as earlier mentioned. Sugarcane farmers disregard MEC in their supply decisions. Left to market forces, there will be welfare loss arising from the over production of sugarcane by $(Q-Q^*)$ units. This welfare loss (Area XYZ) could well be greater than the welfare loss from consuming gasoline. Hence the net benefit of using biofuels may be negative, worsening the allocative inefficiency.

The promotion of the use of biofuels may result in less inclusive growth.

The production of biofuels incurs an opportunity cost in terms of the net benefit from the next best alternative forgone. In this case, the next best alternative was to use the scarce land to grow food. This will result in a fall in supply of food, and consequently a shortage of food at the original price level as quantity demanded outstrips quantity supplied. Since demand for food is price inelastic as there is no substitute for it, there will be a sharp rise in food prices so as clear the shortage. This in turn reduces the accessibility of food to the low-income group. While there may be economic growth due to the growth of the biofuel industry, however, the resulting gains may not create equal positive effects for all segments of the Brazilian population as it is not broad-based across economic sectors, thus impeding inclusive growth and contributing to higher inequity in the distribution of food, an essential good.

Conclusion

Brazil should not reverse its policy of promoting the use of biofuels to address global warming. The negative impact of carbon emissions from the use of biofuels need not be significant. Instead of 'allowing the expansion of sugarcane into protected areas in the country [Ext 4], Brazil could adopt strict monitoring and regulation regarding land use, so that a valuable resource like the Amazon rainforest can be protected. Moreover, findings measuring the ILUC caused by biofuels is inconclusive [Ext 3] as it may be hard to measure the carbon footprint of a product.

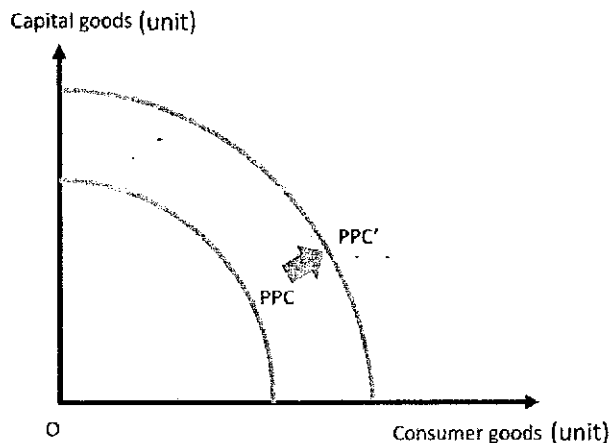
On the other hand, there is significant macroeconomic benefits of promoting the biofuel industry in Brazil. Given that the transport sector accounts for 22 per cent of energy-related greenhouse gas emissions worldwide and the use of personal vehicles will continue to rise as income rises [Ext 3], there is potential for Brazil's biofuel industry to grow further. This is especially so as governments strive to meet the Paris climate agreement commitments [Ext 2]. With the rise in economic growth that comes from the growth of the industry, higher tax revenue collected by the government can be allocated to mitigate the effects of carbon emissions and provide transfers to low-income group so as to improve their accessibility to necessities. Hence overall, the benefits gained from the lower welfare loss due to the use of cleaner fuel compared to the use of gasoline and the positive impacts on the macro economy are likely to exceed the costs incurred from the promotion of biofuels.

| Level | Descriptors | Marks |
|-------|---|-------|
| L2 | A balanced and analytical answer that explains both benefits and costs of the policy of promoting the use of biofuels to address global warming in Brazil using the case materials. | 5-7 |
| L1 | One-sided answer that only considers either the benefits or costs of the policy of promoting use of biofuels to address global warming or descriptive response. | 1-4 |
| E | Evaluative comments that weigh the benefits and costs of the policy of promoting the use of biofuels to address global warming in Brazil using the case materials, in arriving at a stand (should or should not) that answers the question. | 1-3 |

Question 2: Developments in the economies of Singapore and the United Kingdom

- a(i) Using a diagram, explain what an increase in the Human Capital Index (HCI) might suggest about the production possibility of an economy. [2]**

Production Possibility Diagram [1]



Assuming *ceteris paribus*, an increase in HCI would suggest a rise in labour productivity as workers in the economy are healthier and more educated. This increases the quality of labour and thus the productive capacity (or the production possibility) of an economy. The production possibility curve shifts outwards from PPC to PPC'. [1]

- a(ii) Explain why Singapore has a high score on the HCI in spite of its low score on the Commitment to Reducing Inequality Index (CRII). [2]**

According to Extract 5, the low score on the CRII was due to Singapore's low income tax rates for the rich. This would imply a relatively low level of tax revenue (and thus a smaller fiscal budget) [1] but the government could have prioritised healthcare and education spending, leading to good education and healthcare outcomes. [1]

OR

Additionally, the low score on the CRII was also due to Singapore's low government expenditure (Ext 5), suggesting low levels of expenditure on healthcare and education [1]. However, low spending does not necessarily translate to poor outcomes as the government could have been targeted in its spending, leading to good education and healthcare outcomes. [1]

- (b) With reference to Extract 6, explain two reasons why UK should be concerned about its falling unemployment rate. [4]**

According to Extract 6, UK's falling unemployment rate could be a direct consequence of firms hiring more workers instead of investing in capital as a result of poorer investor's confidence due to the uncertainty of Brexit. As the expected rate of returns to investment falls below the interest rate, firms will reduce their investment expenditure (I). A fall in capital accumulation would increase UK's

aggregate supply at a slower rate, leading to slowing potential economic growth assuming investment rate exceeds the capital depreciation rate. [2]

The falling unemployment rate could also suggest lower labour productivity (Ext. 6) as workers are forced to work in jobs that they might not be the most suitable for as firms hired more workers to meet demand. This would result in a rise in unit cost of production by firms, and firms would only produce more if the goods can be sold at higher prices, leading to a rise in GPL and inflation. [2]

- (c) **Extract 6 states that ‘the Bank [of England] stressed that interest rates could move up or down if the UK and EU cannot reach a consensus on new trade terms i.e. “no-deal Brexit”.** [4]

Explain two economic performance indicators that will determine the Bank of England’s monetary stance under a “no-deal Brexit”.

The first economic indicator is the **inflation rate** measured by the consumer price index (CPI). If UK’s CPI is rising significantly i.e. the **inflation rate is positive and magnitude is large**, the Bank of England will likely raise the interest rate, which is the cost of borrowing, to reduce consumption (C) and investment (I) expenditure. A fall in C and I will lead to a fall in aggregate demand. This will help to curb demand-pull inflation. [2]

The second economic indicator is the economic growth rate measured by **Real Gross Domestic Product (GDP) growth rate**. If UK’s real GDP growth rate is **negative** i.e. the economy is suffering from a recession (or a low positive rate implying slow growth), the Bank of England will likely lower the interest rate to increase C and I. This will lead to a rise in aggregate demand, which will help to boost actual economic growth in the country. [2]

- (d) **Assess whether reducing reliance on foreign workers is favourable to Singapore’s economy.** [8]

Introduction

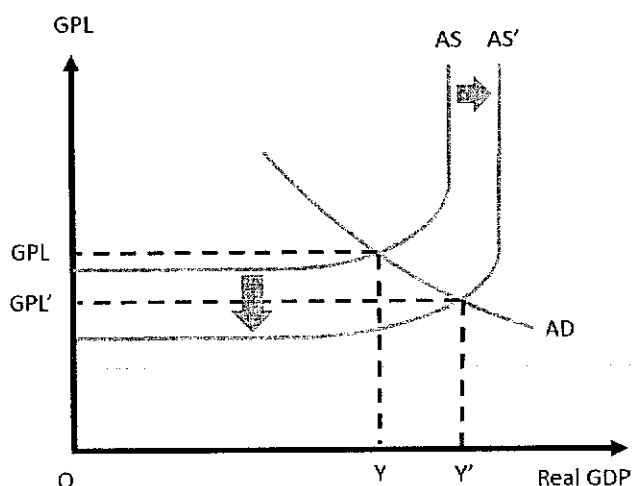
Reducing reliance on foreign workers may bring about both benefits and costs to Singapore’s economy, quantified by its impacts on the country’s economic growth, unemployment and price stability. On balance, this decision will be favourable if the benefits outweigh the costs.

Body

Thesis: Benefits of reducing reliance on foreign workers on Singapore's economy

Reducing reliance on foreign workers will lead to actual and potential economic growth. By tightening the foreign dependency ratio, firms will be incentivised to switch from relying on cheap low-skilled foreign workers to more productive capital and production processes (Ext 7). For example, firms could switch to using more robots in the assembly line to replace workers in the factories. This will lead to more efficient methods of production and lower the unit cost of production. The greater capital accumulation will also result in an improvement in productive capacity. These will lead to a rise in aggregate supply illustrated by a downward shift of the horizontal AS curve as well as a rightward shift of the vertical AS curve.

AS-AS diagram for Singapore's Economy



With a fall in unit cost of production, and rise in AS (horizontal portion of AS shifts down), GPL will fall. As productive capacity expands (vertical portion of AS shifts right), Singapore's economy achieves potential growth. Assuming Singapore's economy is operating near full employment level initially, the expansion of productive capacity allows firms to use more efficient combinations of factors of production, leading to a fall in UCOP and firms can again pass on cost savings by lowering the price of their goods. These will lead to a fall in the general price level from GPL to GPL'. The fall in GPL will also lead to a rise in real GDP from Y to Y' due to the real balance effect as households enjoy greater purchasing power to buy more domestic goods. Thus, reducing reliance on foreigners can help Singapore achieve both actual and potential growth.

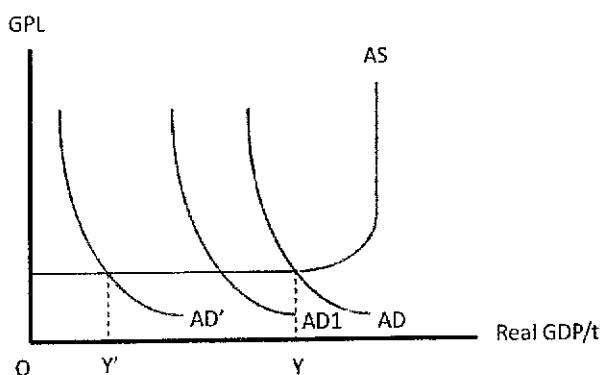
Possible in-body evaluation: Even though firms would likely switch to use more "productivity-enhancing equipment" (Ext 7), much of the technical knowledge and skillsets to utilise them efficiently are still lacking in the domestic workforce. For instance, local workers still require foreigners to teach them the "know-how" in the artificial intelligence and robotics sectors. Simply purchasing the capital goods might not lead to a significant improvement in productivity as learning-by-doing is very important as well. Without foreigners with the relevant expertise to teach and guide

locals, the impact on sustained economic growth is likely marginal, especially in the short term.

Anti-thesis: Costs of reducing reliance on foreign workers on Singapore's economy

Reducing reliance on foreign workers could lead to a recession in Singapore. Reducing reliance on foreigners, high-skilled foreigners in particular, could "reduce Singapore's competitiveness to attract tech start-ups and companies looking for a vibrant and dynamic workforce" (Ext 7). One of the reason foreign companies are attracted to Singapore to set up their headquarters and offices is the availability of human capital to tap on due to a highly educated local workforce and a large pool of high-skilled foreigners. The access to skills and talents helps these companies engage in product and process innovation which increases their profits. If this pool of foreigners decreases, foreign companies might be discouraged to invest in Singapore which leads to a fall in foreign direct investments, ceteris paribus. This will lead to a fall in Singapore's aggregate demand from AD to AD1.

AD-AS diagram for Singapore's Economy



Firms will experience an unplanned rise in inventories and cut back on production by hiring less FOPs including labour. In return, households receive less factor income from firms and spend less on domestic goods. Assuming Singapore's economy is operating with spare capacity, this will eventually trigger multiple falls in its real GDP from Y to Y' due to the downward multiplier effect. Demand-deficient unemployment rises as well since labour is a derived demand from production of goods and services. Thus, Singapore could suffer a recession and a rise in demand deficient unemployment when there is a shift away from relying on foreigners.

Possible in-body evaluation: The extent of fall in FDI might not be significant as there are other factors that foreign companies would consider before investing in a country. Since Singapore has a low corporate tax rate, foreign companies would still invest in the country despite a less vibrant and dynamic workforce as long as the expected rate of returns is higher than the marginal cost of investment. As such, the extent of recession due to a fall in FDI would be marginal.

Note: Answers that explained AS falls in the short-run due to an upward pressure on the wage rate as supply of labour falls are accepted.

Conclusion

On balance, reducing reliance on foreign workers is likely to be favourable to Singapore's economy.

Singapore is most likely operating near full employment level since its unemployment rate is very low. As such, it is beneficial for Singapore to reduce reliance on foreigners as it can prevent overheating of the economy as explained earlier on. While a loose immigration policy can also be considered a supply-side policy, it is less appropriate as Singapore is a geographically small country with land constraints. The pursuit of sustained economic growth through such a policy stance has its limits and will not be sustainable in the long run due to a strain on public infrastructure from overcrowding.

While it is true that restricting the inflow of high-skilled foreigners might limit the extent of productivity gain as well as discourage FDIs from investing here, the government can circumvent this issue by establishing more research and learning institutions to better prepare locals in fields such as artificial intelligence and robotics. Since Singapore's HCI is very high, which in part reflects the quantity and quality of education, it is very likely that more skilled locals can be trained to take over the role that foreigners are playing now. In the long term, the extent of economic growth brought about by reducing reliance on foreigners will likely be positive and significant.

Mark Scheme

| Level | Descriptors | Marks |
|--------------|--|--------------|
| L2 | Well-developed answers that explain the benefits and costs of reducing reliance on foreign workers using AD-AS analysis. | 4-6 |
| L1 | One-sided answers that only focus on the benefits OR costs of reducing reliance on foreign workers OR Undeveloped/Underdeveloped answers that do not draw links to macroeconomic impacts using AD-AS analysis. | 1-3 |
| E | Reaches a conclusion on whether reducing reliance on foreign workers is favourable to Singapore's economy based on the critical analysis and the given context. | 1-2 |

- (e) **Evaluate the relative appropriateness of fiscal policy in Singapore and the UK to achieve inclusive growth.** [10]

Introduction

Governments can adopt expansionary fiscal policy such as lowering personal income tax rates, providing transfer payments and increasing government expenditure to achieve inclusive growth, which refers to broad-based economic growth where majority of households benefit from a rise in their income. However,

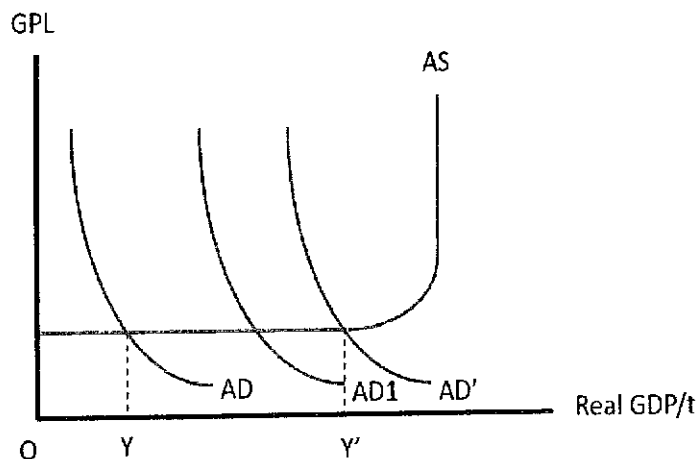
the appropriateness of various fiscal policies would differ for Singapore and the UK based on the nature of their economies.

Main Body

One fiscal policy that Singapore and the UK can adopt is by “upgrading tax” and “increasing social spending” (Ext 8) through lowering personal income tax and providing transfer payments. With a fall in personal income tax rates, households will have higher disposable income and an increase in purchasing power to buy more domestic goods. This will lead to a rise in autonomous domestic consumption expenditure (Cd). The government can focus on lowering the tax rates of the low-income households to a greater extent to improve income equality. For example, the government can reduce the income tax rates for the bottom 10% households by half and the income tax rates for the bottom 10% - 20% by a quarter. This can disproportionately benefit the poorest households, making the policy more inclusive.

The government can also provide more transfer payments to households, focusing on the lower-income groups. For example, the government can give additional \$200 per month to households earning less than a specified amount, increasing their disposable income and purchasing power to buy more domestic goods. This will also lead to a rise in Cd. Since their marginal propensity to consume domestic goods would be high as they are unlikely consuming at a satisfactory level and thus would not save the extra money, the rise in Cd would be significant. The rise in autonomous Cd will lead to a rise in the aggregate demand of the country from AD to AD1.

Effects of lowering personal income and providing additional transfer payments on an economy



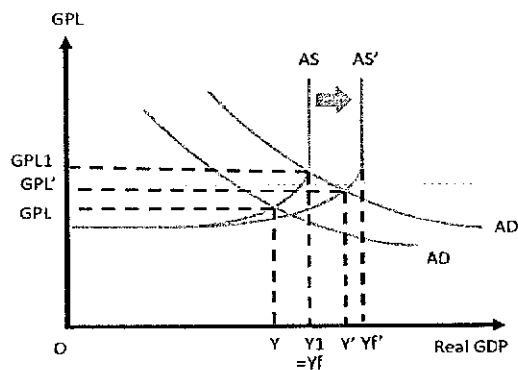
When AD increases, causing AD to exceed output, firms will experience an unplanned fall in inventories and increase production by hiring more FOPs including labour. In return, households receive more factor income from firms and spend more on domestic goods. This results in a rise in induced Cd and thus AD and firms again experience an unplanned fall in their inventories. Firms would once more increase their production by hiring more FOPs including labour. Receiving more factor income from firms, households will again spend more on domestic goods. Assuming the economy is operating with spare capacity, the initial increase in AD will

eventually trigger multiple rises in real GDP from Y to Y' due to the upward multiplier effect. The economy achieves actual economic growth.

Another fiscal policy Singapore and the UK can adopt is increasing government expenditure on infrastructure (Ext 8). Governments can increase spending on building more roads to improve the connectivity of the country. For example, governments can build underground highways connecting two places that were previously not directly linked. Governments can also increase spending on building more public hospitals, to ensure that more citizens have access to healthcare facilities (more inclusive) and can be treated immediately whenever they fall ill. These will increase autonomous G , leading to a rise in AD from AD to AD' .

Since roads and highways are needed for production of goods and services (transporting raw materials for example), increased government expenditure on building roads will increase the quantity of capital in the country. Greater access to healthcare facilities will improve the health outcomes and productivity of workers. These will lead to an improvement in the productive capacity of the country and potential output increases from Y_f to Y'_f . AS increases, as illustrated by a rightward shift of the vertical AS curve from AS to AS' .

Effects of increased government infrastructure spending on an economy



Due to the rise in AD , firms experience an unplanned fall in inventories and will increase production by hiring more FOPs. If the economy is operating near Y_f , real GDP rises from Y to Y_1 while GPL rises from GPL to GPL_1 . Since the productive capacity improves from Y_f to Y'_f , firms can now use more efficient combinations of FOPs, leading to a fall in their unit cost of production. Firms can pass on their cost savings by lowering the price of their goods. This results in a fall in GPL from GPL_1 to GPL' and real GDP rises further as the economy can now produce beyond the previous Y_f and produce Y' instead. Since the economy enjoys actual growth without significant inflationary pressures, and leads to more broad-based improvements in living standards, increased government spending on infrastructure can help the economy achieve inclusive economic growth.

Possible in-body evaluation: Increased government expenditure on infrastructure would require a lot of money. Extract 8 mentions that the UK's public debt-to-GDP ratio stands at 80.7 per cent, which is very high. There is a high possibility that if UK implements such a fiscal policy, they would have to borrow money from commercial banks, which could drive up the interest rates and crowd out private consumption and investment expenditure. This means that the overall rise in AD could be

marginal as the rise in G would be partially offset by the fall in C and I. The extent of actual growth would then be marginal.

Conclusion

In general, fiscal policy is relatively more appropriate for the UK than Singapore to achieve inclusive growth.

According to Table 2, the UK's C and G as % of GDP is about twice as that of Singapore's. Since the fiscal policies aim to increase autonomous C and G, the increase in AD will be more significant in the UK than Singapore, which would translate to larger increases in real GDP in the UK. Fiscal policy would be more effective in the UK than Singapore to boost actual growth.

Table 1 shows that the tax rate for the richest people in the country in Singapore is half of the UK's. Singapore's personal income tax rate is also very low. A further cut on tax rates could trigger backlash from other countries (Ext. 8) as this may be perceived as an unfair act to 'steal' highly skilled talents (FDIs if it is corporate tax) from them. Other countries may retaliate by lowering their tax rates even further, which could result in fall in Singapore's I (if it is corporate tax), affecting actual and potential growth.

Mark Scheme

| Level | Descriptors | Marks |
|-------|--|-------|
| L2 | Well-elaborated explanation of how expansionary fiscal policy works to achieve inclusive growth using AD-AS analysis. | 5-7 |
| L1 | Undeveloped/Underdeveloped explanation of how fiscal policy works. | 1-4 |
| E | Evaluative conclusion on the relative appropriateness of the policies based on the 2 countries (need for comparison). | 1-3 |

H2 Economics Paper 2 — Essays

Question 1

According to data from the United Nations, global food prices rose at the fastest pace in October in more than two years. Many emerging economies face a price surge for staple food products that are central to consumers' diets – for example, pork in China and onions in India. Economists identified three triggers for the rise in food prices - weather-related shocks, higher oil prices and rising incomes.

Source: Adapted from *The Business Times*, 28 Nov 2019

- (a) Explain how the abovementioned events caused food prices to surge. [10]
- (b) Discuss the policies that governments could use to address rising food price. [15]

Part (a)

Introduction

The increase in demand for food as well as fall in supply of food, coupled with food having a price inelastic demand and supply, have caused food prices to surge.

Body

The increase in income has caused demand for food to increase.

With rising income, there is an increase in consumers' purchasing power. Consumers are now more able to consume food, thus demand for normal goods such as food will increase. Given that food is a normal good where $YED > 0$, an increase in income will bring about an increase in the demand for food. Thus, demand curve shifts to the right from DD_0 to DD_1 , as shown in Figure 1. Therefore, with rising incomes, demand for food has increased.

Weather-related shocks and higher oil prices has caused supply for food to fall.

Weather-related shocks such as heatwaves, droughts and floods can negatively affect the supply for food. For example, crop production in North America, Europe and Australia has fallen due to drought and extreme heat. Wildfires resulting from heat waves have also caused the supply of livestock and crops to decrease. Farmers are now less able to sell their crops and livestock.

With higher oil prices, there is an increase in the marginal cost of production for food since oil is an essential factor of production, such as fuel for operating machines like tractors and cultivators. This leads to a fall in profitability at every price level. Producers are less willing and able to produce, leading to a decrease in supply.

Overall, there is a fall in supply of food and the supply curve shifts to the left from SS_0 to SS_1 , as shown in Figure 1.

The demand and supply for food is price inelastic.

Due to the lack of substitutes for food for nourishment, demand for food is very price inelastic, $|PED| < 1$. An increase in price causes a less than proportionate fall in quantity demanded, *ceteris paribus*. As time is needed to grow crops and livestock for harvest and slaughter for production, producers are not able to change the quantity supplied significantly in response to

a change in price. Thus, the supply of food is price inelastic in the short run, $PES < 1$. An increase in price will lead to a less than proportionate increase in quantity supplied, ceteris paribus. Hence, both demand and supply for food is price inelastic.

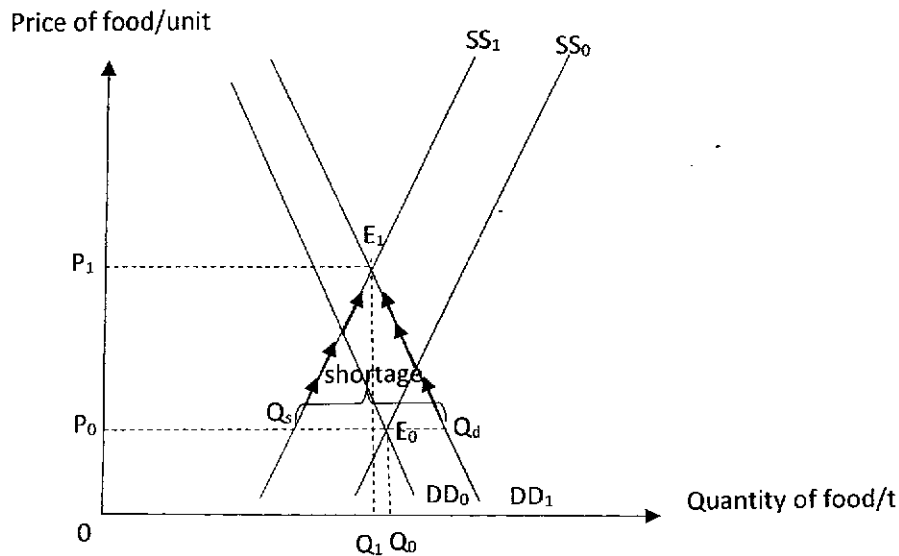


Figure 1: Market for food

There is a price surge due to the increase in demand, fall in supply and the price inelastic nature of demand and supply of food. As shown in Figure 1, the market was originally in equilibrium at point E_0 where the equilibrium price and quantity is P_0 and Q_0 respectively. There is a fall in supply and increase in demand. At the original price level P_0 , there is a shortage as quantity demanded (Q_d) is greater than the quantity supplied (Q_s). The shortage leads to an upward pressure on price as frustrated consumers bid up the price to obtain the good. As price rises, profitability for profit-motivated firms would increase and this incentivises the firms to expand production and hence quantity supplied rises. At the same time, the price rise would lead to a fall in quantity demanded as consumers become less willing and able to purchase. This is shown by the movement along the new supply curve (SS_1) and new demand curve (DD_1). The process continues until a new equilibrium is reached at E_1 where quantity demanded is equal to quantity supplied at price P_1 . Equilibrium price thus increases from P_0 to P_1 . Given that both demand and supply are price inelastic, quantity demanded and quantity supplied are unresponsive to changes in price (as price increases, quantity demanded falls less than proportionately while quantity supplied rises less than proportionately), and thus price will need to rise significantly from P_0 to P_1 to clear the shortage in the market.

Conclusion

Thus, the increase in demand and fall in supply, coupled with the price inelastic demand and supply, led to the surge in food prices.

Mark Scheme

| Level | Descriptors | Marks |
|-------|---|--------|
| L3 | Knowledge + Application + Analysis <ul style="list-style-type: none"> • Thorough and accurate explanation and analysis of changes in demand and supply, PED, and PES • Good use of context in pre-amble to illustrate the concepts • Thorough and accurate explanation of market adjustment process with a complete and well-labelled diagram | 8 – 10 |
| L2 | Knowledge + Application <ul style="list-style-type: none"> • Incomplete explanation of demand/supply factors and/or PED and/or PES • Undeveloped explanation of market adjustment process with a relevant diagram • Some reference made to the context given in the pre-amble in the explanation | 5 – 7 |
| L1 | Knowledge <ul style="list-style-type: none"> • Contains major theoretical errors • Mere listing of points without elaboration | 1 – 4 |

(b) Discuss the policies that governments could use to address rising food prices. [15]

Introduction

Food is a necessity for survival. Due to its essential nature, governments may choose to intervene to control rising food prices to improve equity in distribution of food. The policies that governments could use to address rising food prices include imposition of price ceiling, providing subsidies for production or R&D on weather-resistant crops.

Body

To address rising food prices, a government could intervene through imposing a price ceiling on imported food so as to keep the price of food affordable.

A price ceiling is a legal maximum on the price at which the good can be sold. The market price is not allowed to rise above this level. As shown in Figure 2, the government could impose a price ceiling at P_c which is lower than the equilibrium price.

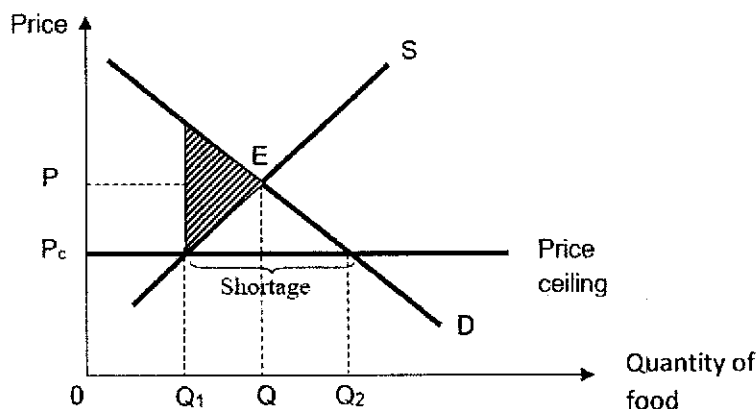


Figure 2: Market for food

Consumers will thus pay P_c instead of P . This increases affordability of food and improves equity.

[Ev] However, imposition of price ceiling results in a shortage of Q_1Q_2 units as at price P_c , the quantity demanded is OQ_2 but the quantity supplied is only OQ_1 . This shortage will persist because the market is prevented from adjusting itself. The shortage may result in a black market where those who are allocated the good may resell it at a higher price. This will especially hurt the low-income earners because if they are not allocated the good, they now have to pay a higher price as they will need food which is a necessity essential for survival.

Moreover, at Q_1 , society values each additional unit of the good more than what it would cause society to produce it. More resources should have been allocated to the production of food for consumption by society. The shaded area illustrates the deadweight loss to society because it is now under-produced.

[Ev] Furthermore, imposition of price ceiling will only work for countries that produce the food products. For countries who import the food items, they will still have to pay the high current market price when they import the food as the price charged needs to at least cover the imported price.

Another policy that the government can adopt to tackle rising food prices is providing production subsidies to food producers to increase the supply of food.

The government could provide production subsidies to the food producers to incentivise them to produce more food. This results in a fall in marginal cost of production and makes it more profitable for the producers to produce, *ceteris paribus*. Producers are more willing and able to supply, leading to an increase in supply for food. Supply curve shifts to the right, from SS_0 to SS_1 , as shown in Figure 3. The increase in supply leads to a surplus and hence downward pressure on price from P_0 to P_1 . Thus, equilibrium price falls and this overcomes the problem of rising food prices.

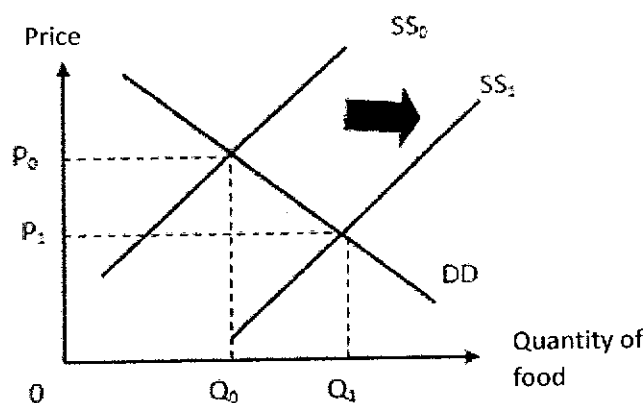


Figure 3: Market for food

[Ev] However, providing subsidies puts a strain on government's budget. There is also opportunity cost incurred as this will result in resources being diverted from the next best alternative use of government funds which might be for education in order to accommodate the provision of subsidies. For governments that are in budget deficit, they lack the fiscal ability to provide subsidies, or they risk worsening their budget deficit and accumulating debt, which will compromise future spending and hence future standard of living of their citizens.

The government can also use education campaigns to educate people on reducing food wastage to reduce demand for food or curb the increase in demand for food. One reason causing the rising food prices is the increase in demand for food resulting from rising incomes. With greater affluence and increased purchasing power, people may adopt more wasteful ways of living and there may be increased incidence of consumers overbuying due to poor planning, or going for buffets where there is a wide variety of food. To overcome this, governments can embark on education campaigns to educate people on the negative effects of food wastage, such as the increase in greenhouse gas emissions. If successful, consumers will be less willing to consume excessive amounts of food; the demand for food may fall or rise at a slower rate, hence controlling the rate of increase in food prices.

[Ev] However, education campaigns are expensive to implement and further puts a strain on government budget. Moreover, the success of such education campaigns is not guaranteed as affluent consumers may be reluctant to change their wasteful behaviour. Even if the campaigns are successful, the results are likely to only be seen in the longer term.

Accepted alternative policies:

- *Providing subsidies to firms to switch away from oil to alternative sources of energy for production or R&D grants for research on weather-resistant crops*
- *Diversifying food supply by increasing the number of worldwide suppliers of food to reduce price of imported food products (there needs to be consideration of adverse weather conditions in different parts of the world)*
- *Food vouchers or transfer payments – students need to state that the poor are worse off due to the rising prices and hence government will intervene to improve equity*
- *Appreciating exchange rate – students need to explain that this is only relevant for countries reliant on imports for food, and that food is important for survival*
- *Lower sale tax for staple products*

Conclusion

Overall, the appropriateness of policies that governments can use to tackle rising food prices depends on the nature of their economy and fiscal ability of the government.

Ultimately, the choice of policy that the government can implement depends on whether the country is food-producing or food-importing. Imposition of price ceiling and production subsidies will be appropriate for countries that are food-producing, such as China, United States and Brazil as they are able to influence the price of the food that they are selling domestically or exporting, but food-importing countries like Singapore will not be able to influence the price set by their exporters through a price ceiling. Furthermore, production subsidies will have little impact in curbing rising food prices for food-importing countries. For example, Singapore only produces about 10% of the food that she consumes. Any production subsidies given to the food producers will have limited effect in bringing down food prices if imported food prices are rising.

For developed countries with sufficient fiscal ability, providing production subsidies may be only a short term measure to tackle rising prices. Instead, they can consider subsidising R&D in food research and technological advancements as this will likely bring more benefits to the country in the long run. They can also consider subsidising firms to switch away from oil to cleaner sources of energy as this will not only lower firms' cost of production, but improve environmental sustainability. Finding solutions to ensure a steady food supply through R&D for weather-resilient crops is also a long-run solution to ensure price stability for food. This is especially so in current times where climate change has resulted in unpredictable weather conditions.

Furthermore, controlling the increase in demand for food must be done in tandem to increasing the supply of food to ensure that prices remain stable. Therefore, there needs to be a mind-set shift for the measures to be effective and sustainable in the long run.

Mark Scheme

| Level | Descriptors | Marks |
|-------------------|--|--------|
| L3 | Knowledge + Application + Analysis A balanced and well-developed answer on the policies used by governments to address rising food prices, with consistent use of examples. | 8 – 10 |
| L2 | Knowledge + Application An under-developed answer on policies that deal with rising food prices, with inconsistent use of examples and gaps in analyses. Some minor conceptual errors may be present which does not hinder overall analysis. | 5 – 7 |
| L1 | Knowledge An undeveloped answer where points are merely stated or listed without elaboration. May contain theoretical errors. | 1 – 4 |
| Evaluation | | |
| E3 | Well-reasoned judgement <ul style="list-style-type: none"> • Justified conclusion and evaluation regarding the policies that governments can use to tackle rising food prices. • Might question any unstated assumptions to arrive at this well-reasoned judgement. | 4 – 5 |
| E2 | Largely unexplained judgement <ul style="list-style-type: none"> • Some attempt at a conclusion or evaluation regarding the policies that governments can use to tackle rising food prices, but does not explain adequately their judgement or base it on analysis. | 2 – 3 |
| E1 | Unsupported judgement <ul style="list-style-type: none"> • Mere stating of stand. An unexplained, unsupported evaluative statement on government policies to deal with rising food prices. | 1 |

Question 2

Governments sometimes intervene in markets when information failure is a concern.

(a) Explain two reasons for market failure when there is information failure. [10]

(b) Discuss whether government intervention in such situations will improve the market outcome. [15]

Approach

Two different ways imperfect information leads to market failure need to be explained, with use of relevant diagrams where possible.

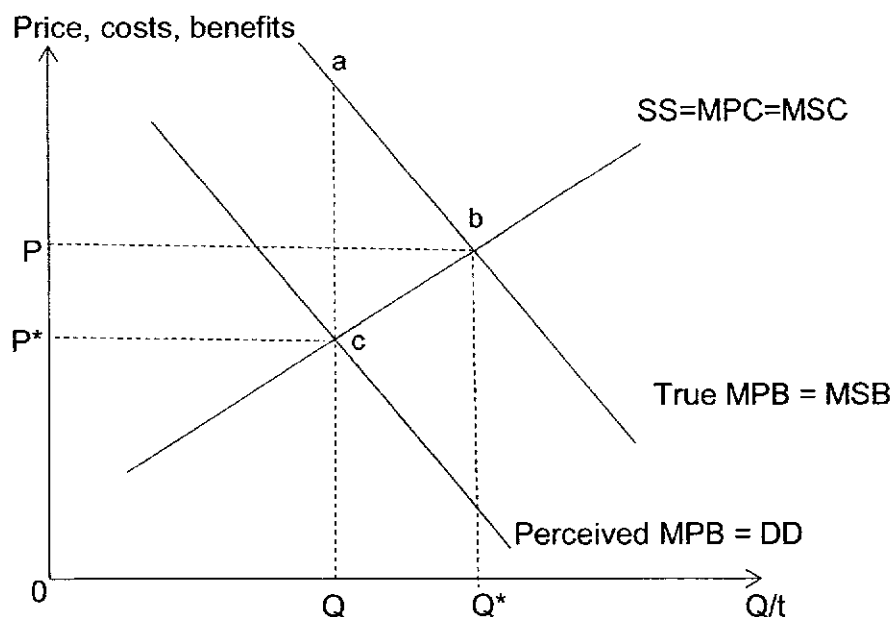
Introduction

Market failure occurs when the free market fails to allocate resources in a way that maximises societal welfare. When consumers or producers have imperfect information regarding their decisions i.e., information failure, market failure will result.

Body

One reason for market failure is consumer ignorance. Consumers may lack full information on the benefits that can be obtained from consuming a good or service. For example, in the case of vaccinations, where some benefits such as increased protection from illnesses may not be immediately obvious, consumers may underestimate the true benefits that can be enjoyed from being vaccinated. As such, perceived marginal private benefit (MPB) from vaccination will be lower than true MPB (Fig.1). Consumers base their demand on perceived MPB. The demand curve thus reflects perceived MPB. Assuming no externalities, the true MPB equates the marginal social benefit (MSB), while marginal private cost (MPC) equates marginal social cost (MSC). The MPC curve is also the supply curve.

Figure 1: Market for vaccinations



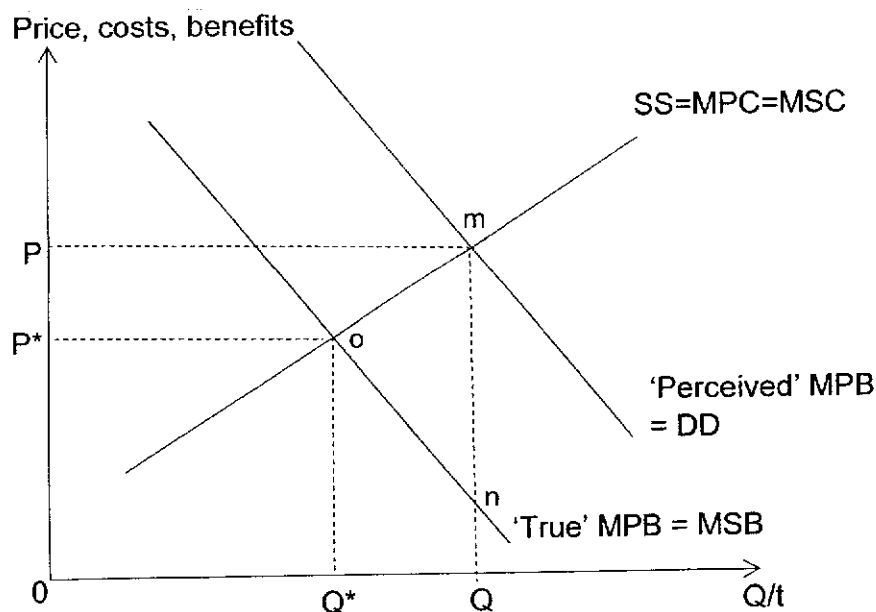
Left to the free market, market outcome will be where demand equates supply at output Q and price P (Fig. 1). However, socially optimal level of output where welfare is maximised is where $MSB = MSC$ at Q^* . There is thus underconsumption of vaccinations because of consumer ignorance. For every unit between Q and Q^* , MSB is higher than MSC ; consuming one more unit thus adds more to total social benefit than to total social cost. The underconsumption of QQ^* units thus lead to a welfare loss of Area abc .

[Alternative: Underconsumption of QQ^* units leads to a welfare loss of Area abc . This is because total social benefit of consuming QQ^* units, Area abQ^*Q is larger than total social cost of consuming QQ^* units, Area cbQ^*Q .]

As such, consumer ignorance is one reason for market failure when there is information failure.

One other reason for market failure is the occurrence of supplier induced demand. Supplier induced demand can occur when information between consumer and producer is asymmetric. In some cases, the producers may have more information than the consumers. For example, doctors have more information regarding medical procedures such as check-ups than their patients do. As such, it is possible for profit-motivated doctors to convince their patients of unnecessary procedures in order to increase their earnings. Patients, convinced by these doctors, will perceive their MPB of consuming such health care services as higher than it is, i.e., perceived MPB is higher than their true MPB . Their demand, based on perceived MPB , is thus higher than it would be had the patients have perfect information on the medical procedures (Fig. 2).

Figure 2: Market for health care services



Left to the free market, market outcome will be at Q where demand equates supply. However, socially optimal level of output where $MSB = MSC$ is Q^* instead. There is thus overconsumption of Q^*Q units. For every unit between Q^* and Q , MSC is higher than MSB ; consuming one more unit thus adds more to total social cost than to total social benefit. The overconsumption of Q^*Q units thus leads to welfare loss of Area mno .

As such, supplier induced demand is one other reason for market failure when there is information failure.

Alternative: Persuasive advertising could have led to supplier-induced demand too.

Alternative: Case of adverse selection

One other reason for market failure when there is information failure is the possibility of adverse selection. Adverse selection can occur when information between consumer and producer is asymmetric. In some cases, the sellers may have much more information than the buyers. This is particularly prevalent in the market for second-hand products e.g. used cars. In the market, there would be both high quality second-hand cars (also known as cherries) and poor quality second-hand cars e.g. those with defects (also known as lemons). The sellers, being current owners of the cars, definitely has more information about its condition, e.g. wear and tear, mileage, than the buyers. While a buyer would be willing to pay a high price for a cherry and a low price for a lemon, the buyer lacks information on the condition of the cars. As such, buyers would offer a price averaging the value of a cherry and a lemon for the cars (lower than for a cherry, but higher than for a lemon).

Sellers of cherries would be unwilling to sell their good quality car for the average price and leave the market. On the other hand, sellers of lemons would find the price acceptable and be willing to sell their cars. With cherries leaving the market and more lemons joining, the average quality of cars in the second-hand car market will fall. This leads buyers to offer increasingly lower 'average' prices. More sellers of cherries would leave the market, and the market becomes increasingly concentrated with lemons. The 'average price' offered by less informed buyers drives the high quality cars from the market – [L] this leads to market failure because the potential welfare to society that can be obtained from buying and selling high quality cars is lost.

Note: It is also possible to consider the case of consumers having more information than producers e.g. in the case of insurance. However, note that you would need to know relevant government intervention measures to address part (b) well, so the choice of points in part (a) is important.

Alternative: Situation where moral hazard (stemming from asymmetric information) occurs can be accepted.

Marking Scheme

| | Descriptor | Marks |
|-----------|--|---------------|
| L3 | Thorough explanation of two reasons why information failure can lead to market failure. Provision of relevant examples and use of accurate and well-labelled diagrams. | 8 – 10 |
| L2 | Underdeveloped explanation of two reasons why information failure can lead to market failure. OR Thorough explanation of only one reason why information failure can lead to market failure. | 5 – 7 |
| L1 | Mere statements without explanation. Major conceptual errors. | 1 - 4 |

(b) Discuss whether government intervention in such situations will improve the market outcome. [15]

Approach

A two-sided response is required – how government intervention in cases of information failure will improve market outcome, and how, in certain cases, it may not improve market outcome or worsen the outcome instead e.g., larger welfare loss.

Introduction

One objective of the government is to achieve allocative efficiency, where resources are allocated in a way which maximises societal welfare. A government may thus intervene in cases of market failure to try to improve market outcome, such as in the situations explained in (a).

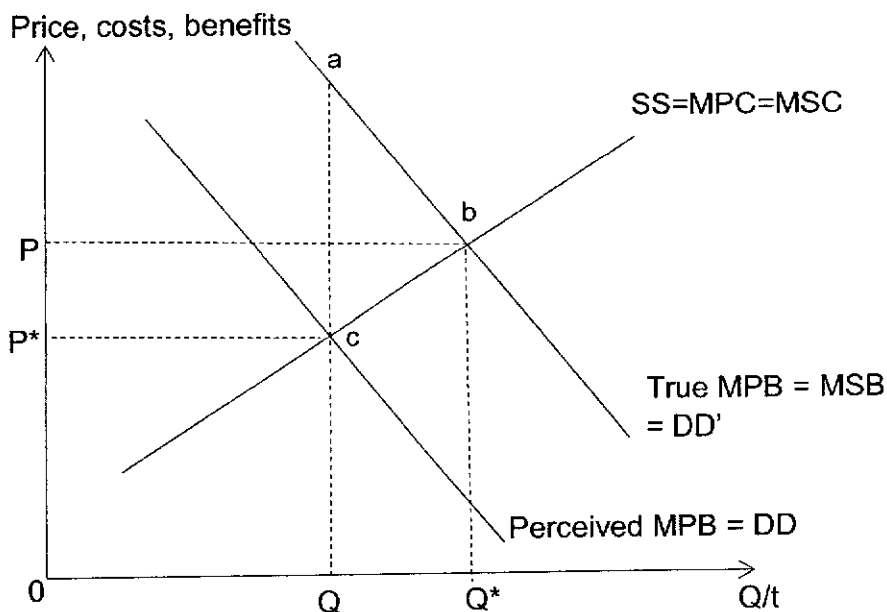
Body

Thesis: Government intervention in cases of information failure can improve the market outcome.

Public education can improve the market outcome when there is consumer ignorance.

By educating consumers on the true benefits of vaccination, such as through social media campaigns, perceived MPB will rise. Demand will be rising as the gap between perceived MPB and true MPB narrows and consumers become more willing to consume vaccinations. With full information on the benefits of vaccination, demand DD' (Fig. 3) will be based on true MPB. The new DD' will cut SS at Q^* ; market outcome is improved as welfare loss of Area abc will be eliminated. This is because with government intervention, the socially optimal level of output is now being produced and consumed.

Figure 3: Market for vaccinations



[Ev] Public education may also be used in cases of asymmetric information to provide the party with less information i.e., the patients in the situation explained in (a) more information

so that consumers cannot be easily misled by the producers. However, it is likely for little improvement in market outcome in this case, because broad-based education campaigns may not be effective in providing technical knowledge of medical procedures, which require years of training to understand.

Regulations to reduce the occurrence of supplier induced demand can improve market outcome.

To prevent producers from taking advantage of less informed consumers, governments can set regulations such as the prohibition of false advertising. Should doctors be caught encouraging patients to undergo unnecessary procedures, punishments such as a hefty fine or even suspension of their medical licenses can be imposed. This would disincentivise doctors from making false recommendations. Consumers' demand would thus be based on their true MPB, and the socially optimal output of Q^* units will be produced and consumed (Fig. 2), improving market outcome as welfare loss is eliminated.

Note: Any reasonable government measure to improve market outcome can be accepted. If part (a) is on adverse selection, one possible measure would be the lemon law.

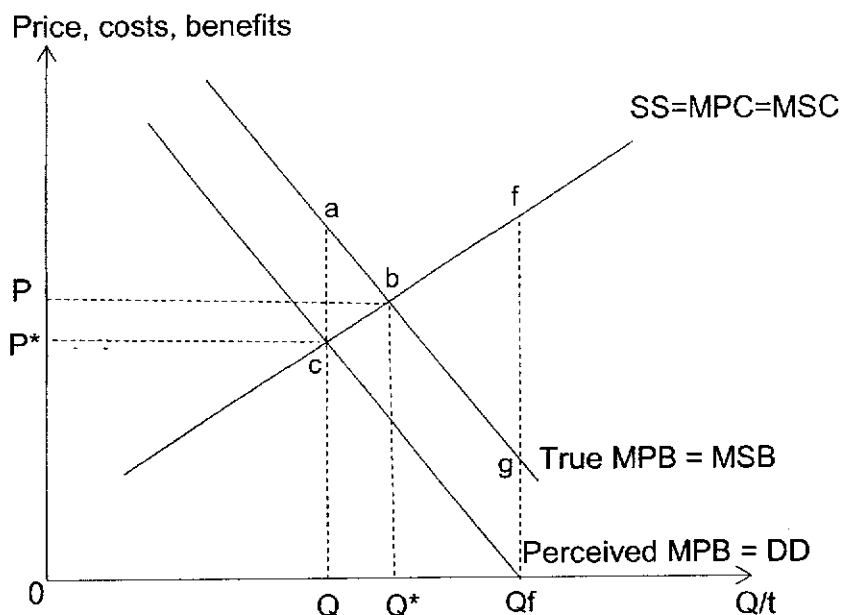
Anti-thesis: Government intervention in cases of information failure may not improve the market outcome.

Government intervention, such as free provision (or a full subsidy) can sometimes lead to a worse outcome.

To encourage consumption in the case of information failure leading to underconsumption, the government may choose to fully subsidise i.e., provide the good e.g. vaccinations for free. At $P = 0$, quantity demanded will increase to Q_f . Since $Q_f > Q^*$, there is now overconsumption of the vaccine. $MSC > MSB$ for every unit between Q^* and Q_f , leading to welfare loss of Area bfg (Fig. 4). If Area bfg is larger than initial welfare loss of Area abc, government intervention would have led to a worse outcome, since there is now a larger welfare loss to society.

[Ev] In a country such as Singapore where people are fairly well-educated, level of consumer ignorance regarding well-known vaccines may be low. The initial welfare loss is thus likely to be small. Therefore, if the government chooses a policy of free provision to tackle market failure from imperfect information, there is a high chance that intervention by the government leads to a worse outcome in terms of efficiency.

Fig. 4: Free provision of vaccinations



Conclusion

Whether government intervention in such situations will improve the market outcome depends on several factors, including the type of intervention, extent of initial welfare loss and nature of the good/service.

The type of intervention e.g. public education or free provision will play a large part in determining if market outcome improves. If public education is used, market outcome is likely to improve, especially if the product is not overly complex, or if the cost/ benefit of consuming the product is easy to understand. This is because giving consumers more information will reduce the extent of information failure and help them to make better choices. Even if the consumers are not very responsive to the campaign, any change in the demand closer to where demand would be should consumers have full information would mean market output is now closer to Q^* , and there would be a smaller welfare loss. However, policies such as free provision can lead to new problems of overconsumption, which can lead to a larger welfare loss.

Whether the initial welfare loss is large or small also needs to be considered. In countries where information failure is more severe, e.g., because of a lack of access to the internet for easy information finding, the extent of welfare loss can be large enough such that free provision leads to a smaller welfare loss (Area abc larger than Area bfg). In such cases, even free provision, which involves a larger degree of intervention, could lead to an improvement in market outcome.

Marking Scheme

| | Descriptor | Marks |
|----|--|--------|
| L3 | Thorough and two-sided discussion of whether government intervention in situations of information failure will improve the market outcome. Provision of relevant examples and use of accurate and well-labelled diagrams. | 8 - 10 |
| L2 | Underdeveloped but two-sided discussion. OR Thorough but one-sided discussion of whether government intervention in situations of information failure will improve the market outcome. OR Only 1 situation (based on part a) is discussed. | 5 - 7 |
| L1 | Mere statements without explanation. Major conceptual errors. | 1 - 4 |
| E3 | Strong substantiation of stand, with at least two different considerations of why government intervention in cases of information failure will or will not improve the market outcome. Contextualisation using own example(s) is provided. | 4 - 5 |
| E2 | Relevant stand with some justification of why government intervention in cases of information failure will or will not improve the market outcome. | 2 - 3 |
| E1 | Relevant stand without substantiation. | 1 |

Question 3

Some cinema operators like Shaw Theatres and Golden Village operate more than 50 cinema screens in Singapore while some operators like The Projector operate only 3 screens. Many of the screens operated by Shaw Theatres and Golden Village are 3D or IMAX screens that offer better audio and video quality. However, none of the screens operated by The Projector have such features.

Source: Adapted from *Infocomm Media Development Authority*, 2020

- (a) Explain why some firms can grow to be dominant and make profits higher than what is required to continue operations while other firms cannot do so. [10]
- (b) Assess the extent to which strategies of cinema operators in Singapore depend upon the actions of competitors. [15]

Part (a)

Approach

Explain why some firms grow to be dominant using the concept of internal EOS either by explaining that internal EOS acts as an entry barrier or how internal EOS allows firms to engage in actions that enables them to acquire a dominant position.

Explain why some firms, especially those belonging to monopoly and oligopoly industries can continue to earn supernormal profits in the long run due to high BTE in the industry but others in monopolistic competitive or perfectly competitive industries cannot because of low BTE.

Introduction

When a firm grows to be dominant it will grow to be large in size and capture a large market share. A firm's market share will be large if the firm's output value as a percentage of the total output value of the industry is high. A dominant firm will also have a high market power, meaning high ability to set prices. Firms hold a dominant position in a market when they are monopolists or oligopolists. Profits higher than what is required to continue to operate are supernormal profits which are profits in excess of normal profits. This answer will consider the long run period. Whether firms can earn supernormal profits in the long run, a period where all factors of production are variable and where firms can enter and exit the industry, depends on the level of barriers to entry in the industry.

Body

Some firms can grow to become dominant because they are able to reap significant internal economies of scale which serves as barriers to new firms that wish to enter the industry.

Internal economies of scale (EOS) refers to decreases in the unit cost of a firm when it expands its output. Some firms may be able to reap significant technical economies of scale as the products they produce can be mass-produced, which allows for the use of large capital that are indivisible. Firms who can reap economies of scale will likely do so by installing large capital. These large complex machineries will be more cost efficient. Thus, these firms can produce a large quantity of output at relatively lower unit costs. For example, some firms like

publishers can use larger indivisible capital like printing presses when producing in larger quantities and thus produce a large volume of output at lower unit costs of production.

When it is possible for substantial internal EOS to be reaped, profit-maximising firms would tend to want to grow to a large size to enjoy the cost savings. Their low unit cost will pose as an entry barrier into the market because new firms with a small market share will not have a scale of production large enough for their unit cost to be sufficiently low, to be able to compete and survive against the larger incumbent firms. Smaller firms will charge higher prices than larger incumbent firms. This prevents entry of new firms as they will not be able to match the lower prices of larger firms and larger firms continue to stay dominant.

Some firms can grow to be dominant firms because the substantial internal EOS that is available to them enables them to engage in actions that enables them to dominate the market.

For example, firms that operate in industries with substantial EOS are more able to engage in predatory pricing to kick out smaller firms to increase market share. When firms increase production to exploit internal EOS, they could charge a price under the smaller competitors' average total costs, with the former possibly just breaking even. The smaller competing firms will make subnormal profits if they try to match the price or suffer a fall in demand for their product. If the subnormal profit persists, they will exit the market in the long run. If predatory pricing is successful, the larger firm would then be able to increase its market share and market power as its competitors leave the market. However this strategy cannot be employed by smaller firms as they would have higher costs and insufficient profits to cover their temporary losses.

Therefore some firms can grow to become dominant while others cannot.

Firms in oligopolistic and monopolistic market structures could earn profits higher than what is necessary to continue operations while firms in perfectly competitive and monopolistically competitive industries do not because of differences in the barriers to entry in the different industries. Firms in perfect and monopolistically competitive market structures do not enjoy supernormal profits in the long run due to low barriers to entry. High profits can only be earned in the short run for monopolistically competitive firms and cannot be sustained into the long run. In a monopolistically competitive industry, there are many firms, and there are low barriers to entry. Assume that the monopolistic competitive firm is a firm that serves Korean meals. It is using a plant (restaurant) whose cost curves are represented by SRMC and SRATC. The demand curve for its product is D and marginal revenue curve is MR. Profit maximising level of output is at Q, for which $MR = MC$. The firm charge the price OP based on the level of demand. Price = ATC and the firm is earning only normal profits.

Assume that growing interest in Korean culture has led to a rise in demand for Korean meals. Demand rises to D' and MR rises to MR'. This firm will increase output to Q' because for each unit between Q and Q', $MR' > MC$ and total profits could be increased by increasing output. The firm raises its price to P'. At the new output level Q', supernormal profits of area P'BCX are made. The supernormal profits attract new firms into the industry in the long run. New firms are able to enter due to very low entry barriers into this industry. As new firms enter, this existing firm will have more competitors and hence its demand and market share decreases. The fall in demand is represented by a leftward shift of the demand curve for its product. At the same time, as there are more substitutes available, the demand for its product becomes more price elastic as well. This process continues until the demand curve D is tangent to the

ATC curve at point A. At this point, the firm maximises profit by producing at Q where $MR = MC$ and the price P is just sufficient to cover average cost ($P = ATC$). It is back to earning only normal profits.

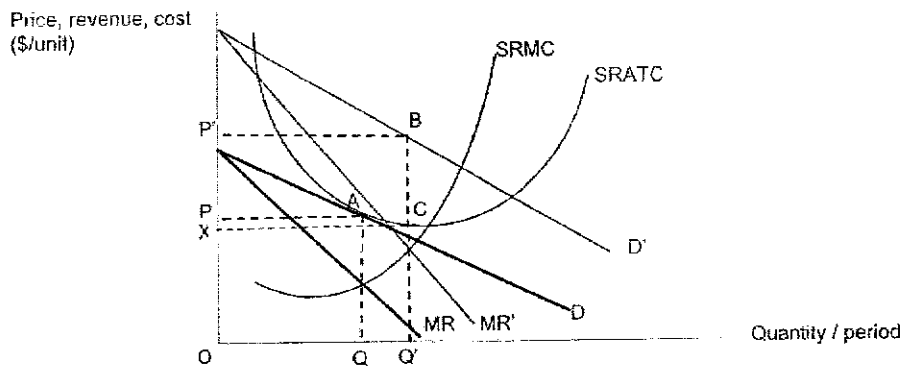


Figure 1: Long run entry into a monopolistically competitive industry

On the other hand, oligopolistic and monopolistic market structures are characterized by high barriers to entry like high start-up costs, government regulations, and internal economies of scale. With high entry barriers, if the monopolist or oligopolist was earning supernormal profits in the short-run, it can continue to earn the supernormal profits since new firms are not able to come in and compete away the profits.

While monopolistic competitive firms are not able to preserve supernormal profits into the long run, monopolists and oligopolists are able to.

Note:

Mere statements that some firms continue to be dominant because of high barriers to entry like licenses will not be accepted as this does not explain why firms grow to be dominant.

Some firms in oligopolistic or monopolistic industries may not be able to earn supernormal profits because demand for their product could be low.

Mark Scheme

| | | |
|----|---|------|
| L3 | Well-developed explanation of why some firms can grow to be dominant AND make profits higher than what is required to continue operations while other firms cannot do so. The concept of grow must be explicitly made known for the former. | 8-10 |
| L2 | Underdeveloped analytical explanation or largely descriptive explanation of why some firms can grow to be dominant and make profits higher than what is required to continue operations while other firms cannot do so. OR Reasons why some firms can become dominant is analytical but reasons why they can make profits larger than what is required to continue operations is descriptive. OR Reasons why some firms can make profits larger than what is required to continue operations is analytical but reasons why they can become dominant is descriptive. | 5-7 |
| L1 | Mere statements without explanations OR explanations contain major conceptual errors. | 1-4 |

Part (b) Assess the extent to which strategies of cinemas operators in Singapore depend upon the actions of competitors. [15]

Approach

Two-sided response required. 1. Explain how cinemas take into account the actions of competitors in their decision making and 2. explain the various other factors that affect the strategies of cinema operators. Evaluate by comparing which factors are more critical in explaining the behaviour of cinema operators in Singapore.

Introduction

Firms make decisions with regards to pricing and non-price behaviour by considering several factors. Cinema operators in Singapore are in an oligopolistic market structure as the industry is characterised by a few firms with significant market power who control a majority of the market share with some smaller operators co-existing. Strategies of cinema operators depend upon a large number of factors including actions of competitors, cost and demand conditions, and alternative objectives the firms might have.

Body

Thesis: Strategies of large cinemas will depend upon the actions of competitors.

Strategies of large cinemas will depend upon the actions of competitors because of rival consciousness. An oligopolist takes into consideration the reactions of its competitors in its

decision making, because oligopolistic firms will be affected by the actions of their rivals, given the rivalry between the few large dominant firms in the industry.

Due to rival consciousness, firms will respond to price cuts by its rivals, potentially triggering a price war. When one cinema operator like Shaw theatre reduces its price, consumers would increase the quantity demanded by switching away from Golden Village, causing a fall in demand for Golden Village. Since cinema operators are likely to have similar movie line-ups and offer similar facilities in the theatres, the XED value of their services are high and positive i.e. they are close substitutes and the fall in demand will be more than proportionate to the fall in price of their competitor. Golden Village would thus respond by cutting their prices as well, so as to preserve their demand and market share. This price competition may then end up spiralling into a price war with repeated price cuts by the rival firms. Therefore in order to prevent a loss of profits from price wars, firms would not resort to using price cuts as their strategies and would rather adopt non-price strategies like product differentiation and advertising. In addition, firms would not want to increase prices either as other firms are not likely to follow suit with a raise in price. Strategies of cinemas operators in Singapore are thus dependent upon the actions of competitors

An alternative point for pricing strategies could involve 'collusion.'

Alternatively, the firms might collude implicitly in order to collectively raise their revenue and profits. Implicit collusion may be in the form of price leadership, where firms may follow the price set by the price leader and change their prices only if the leader changes its price.

An alternative thesis point considering non-price competition:

A similar behaviour may happen for non-price competition as well. For example, if one cinema engages in extensive advertising to persuade consumers to switch over from its rivals, the other cinemas may also respond with their own advertising campaigns to prevent a fall in demand.

Therefore strategies of large cinemas will depend upon the actions of rivals to a large extent.

[Ev] The extent to which cinema operators' strategies depend on rivals' actions depends on how close a substitute the other cinemas' products are. With a greater degree of similarity and hence substitutability between products, a cinema's demand would be more affected by the actions of its competitors, thus these firms would be more responsive to what their competitors do.

[Ev] In addition, the above analysis applies to the behaviour of the dominant firms in the oligopoly with rival consciousness. However, the cinema industry includes smaller firms who have found a niche in the market by catering to particular tastes e.g. The Projector shows indie films. Their market power is rather high due to their specialised product (making them less of a substitute to the large firms) and so they will be far less rival conscious, and their behaviour will be closer to that of a monopoly than an oligopolist.

Anti-thesis: Strategies of large cinemas will depend upon other factors.

Decisions of firms in the cinema industry also depend on other factors besides the actions of its competitors, such as the firm's objective.

For example, if the firm has the objective of market share dominance, it may choose to engage in predatory pricing to drive out its competitors even if it means sacrificing short-term profits and a possibility of starting a price war. It would go ahead with reducing its price if it has significant cost advantage over its rivals or substantially more reserves from past supernormal profits earned, knowing that its cost advantage or deeper reserves would enable it to sustain price cuts longer to win the price war and hence capture market share from its rivals. Therefore strategies of cinemas will depend upon the actions of rivals to small extent as they consider other objectives.

Profit-maximising cinemas also consider changing market conditions and respond accordingly.

For example, due to the rise of Netflix and other video streaming services, consumers may now prefer to watch movies from home. Cinemas would have to respond to this change in tastes and preferences by improving the cinematic experiences for movie-goers. For example, installing better audio visual equipment to improve audio and video quality. This would reduce the substitutability between watching movies in a cinema and watching Netflix from home. With a better movie experience in the cinemas, tastes and preferences of consumers will not change too much towards home based steaming services and the demand for cinemas would fall less significantly such that profits of cinemas can be preserved. Therefore strategies of cinemas will depend upon the actions of competitors to a small extent as they have to consider demand as well.

Profit-maximising cinema operators also consider changes in costs and respond accordingly.

For example, Singapore has seen manpower shortage owing to the government's stringent regulations on hiring of foreign workers. The government has tried to reduce the increase in number of foreign workers in Singapore by raising the levy firms have to pay to hire foreign workers and by reducing the foreign worker quota for each firm. This will increase the costs of production for cinemas as wages will increase. As a result, cinemas have resorted to replacing labour by installing automated ticketing booths that reduce dependency on manual labour. If the rise in fixed costs from the machines is outweighed by the fall in average costs due to lower wages paid to labour, profits for cinemas will increase. Therefore strategies of cinemas will depend upon the actions of competitors to a small extent as they have to consider costs conditions as well.

Conclusion

In conclusion, strategies of large cinemas will depend upon the actions of competitors to a large extent given that there are a few dominant cinemas that control a large percentage of the total market share in Singapore and the cinema industry is oligopolistic in nature. But it is not the overriding factor.

The cinema industry operates as an oligopoly with rival consciousness, and hence the actions of competitors who are dominant firms would greatly influence the decisions of the dominant cinemas in relation to strategies like pricing and marketing.

While cinemas like any other firm may not always aim to be profit maximisers, they would need to earn at least normal profits to stay on in the business. Thus, factors that affect its cost and revenue would be the more fundamental determinants of its decisions, such as changing demand conditions due to consumers' tastes and preferences. In Singapore's context, labour crunch is a big problem and hence will be a critical factor affecting cinemas' strategies. Although cinemas may want to use the same strategies as their competitors, the rate of technology adoption is different for different cinema operators, especially the small operators. Therefore, these small operators do not follow the actions of other competitors. They survive by showing niche films and do not see a need to compete with the larger players.

Mark Scheme

| | | |
|----|---|------|
| L3 | Well-developed explanation of 3 factors, including actions of competitors, that determine strategies of cinema operators. | 8-10 |
| L2 | Underdeveloped analytical explanation or largely descriptive explanation of the factors that determine strategies of cinema operators OR Response only provides one well-explained factor that determine strategies of cinema operators. | 5-7 |
| L1 | Explanation of factors that determine cinema operator's strategies contains conceptual errors or does not address the question. | 1-4 |
| E3 | In-body evaluative comments are made and are backed by economic analysis. Arguments are synthesized and presented in a well-reasoned manner. | 4-5 |
| E2 | Some evaluative comments/attempts at making judgements that is explained using economic analysis. Link to the Singapore context is weak or missing entirely. | 2-3 |
| E1 | Unsubstantiated judgments on the extent to which strategies of cinemas operators in Singapore depend upon the actions of competitors. | 1 |

Question 4

Economists view economic growth as an important driver for the well-being of a country.

- (a) Explain why a country's inflation rate and unemployment rate can be rising with the pursuit of economic growth. [10]
- (b) Discuss whether achieving economic growth is the most crucial factor for Singapore in improving its residents' well-being. [15]

Part (a):

Approach:

This question requires students to explain how the pursuit of economic growth by the government (via government policies to attain economic growth) may also result in an increase in inflation rate and unemployment rate, using AD/AS analysis.

Introduction:

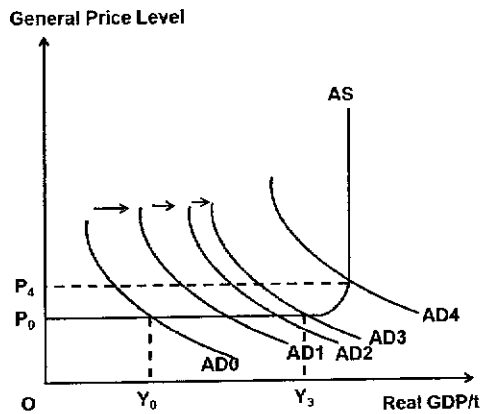
Economic growth is the increase in actual national output. Inflation is a situation where there is a sustained increase in the general price level of an economy. Inflation is measured by inflation rate, which is the rate of change of the general price level. Unemployment is a situation when the economy's resources, especially labour, is not fully utilised. Unemployment rate is the percentage of labour force that is unemployed.

Economic growth can be caused by an increase in aggregate demand or/and aggregate supply.

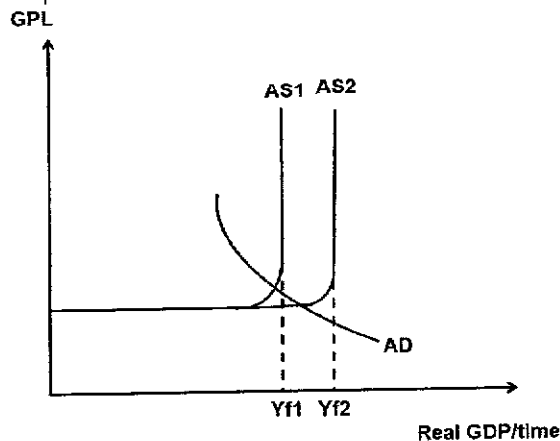
Main Development:

The pursuit of economic growth via an increase in aggregate demand (AD) can result in demand-pull inflation, and cause inflation rate to increase. To pursue actual growth, the government can implement expansionary fiscal policy by decreasing corporate tax to increase AD. This increases the post-tax expected rate of returns of investment. Firms will be incentivised to invest, causing an increase in investment expenditure (I). This will increase AD and AD shifts to the right. This increase in AD from AD_0 to AD_1 will cause an unplanned fall in the inventories of firms. In order to increase production, firms will hire more factors of production, including labour, assuming the economy has spare capacity. This results in an increase in national income from Y_0 to Y_1 . Households will spend some of this increase in income on domestic consumption, savings, taxes and imports. The increase in domestic consumption will lead to further increases in AD causing AD to rise from AD_1 to AD_2 . Firms experience another fall in unplanned inventories resulting in more hiring of factors of production and further increases in national income. There will be further increases in AD and national income until the increase in savings, taxes and imports equals the initial increase in I. National income increases by a multiple of the initial increase in I from Y_0 to Y_3 as spending by one party results in increases in income for another. Actual economic growth will be achieved.

However, if the economy is close to full employment, in the short run, an increase in AD from AD_3 to AD_4 will result in producers being forced to use less efficient factors of production and this results in an increase in unit cost of production (UCOP) as more factors of production are needed to produce the same amount of output. As UCOP increases, producers would only produce if they can charge higher prices, leading to higher general price level (GPL) from P_0 to P_4 and demand-pull inflation if the rise in GPL is sustained. There will thus be an increase in inflation rate, assuming that the initial inflation rate is zero percent.



The pursuit of economic growth via an increase in aggregate supply (AS) can result in structural unemployment, and cause unemployment rate to increase. To pursue potential growth, the government can implement supply side policy to increase AS by providing grants to encourage companies to adopt improved technology. For example, the Singapore government offers a Productivity Solutions Grant which provides funding support for companies to adopt new technology solutions to enhance productivity. The adoption of these new technology, for example greater automation of business processes will increase the productivity of capital and labour. This increases the maximum output that the economy can produce, resulting in an increase in productive capacity. AS will increase and the vertical portion of AS shifts to the right from AS1 to AS2. The increase in full employment level of output from Yf1 to Yf2 results in potential growth.



However, this may also increase structural unemployment as adoption of new technology and automation may displace workers, especially those who lack the skills to work with the new technology. These retrenched workers are unable to take on jobs in the other growth sectors due to a mismatch of skills, resulting in structural unemployment. This will increase the unemployment rate in the country.

Mark Scheme

| | | |
|----|--|------|
| L3 | At least 2 well-developed analytical explanations of how the pursuit of economic growth may increase inflation rate and unemployment rate. Answer included both AD and AS arguments, supported with at least 1 diagram(s). | 8-10 |
| L2 | Underdeveloped explanation or largely descriptive explanation of how the pursuit of economic growth may increase inflation rate or/and unemployment rate. - For example, lacking in rigorous explanation of tools of analysis (AD-AS analysis), OR answer may only address the increase in inflation rate OR unemployment rate. | 5-7 |
| L1 | An answer which demonstrates some knowledge of economic growth and how pursuing it impacts on inflation or unemployment. Explanation contains major conceptual errors. | 1-4 |

Part (b):

Approach:

This question requires students to examine how sustained economic growth (thesis), limitations and other factors (anti-thesis) are important in improving the standard of living of residents in Singapore. Students need to consider both material and non-material aspects of standard of living. An overall conclusion on whether economic growth is the most crucial factor in improving standard of living needs to be considered in the context of Singapore.

Introduction:

A country's standard of living refers to the well-being of its residents. It comprises of material and non-material aspects. Material standard of living stems from the consumption of goods and services. Non-material standard of living stems from intangibles such as amount of leisure time, state of the natural environment, job satisfaction, etc.

Main Development:

Thesis: Achieving economic growth is an important factor to improve the standard of living of Singapore residents.

Achieving economic growth can improve material standard of living of Singapore residents. Achieving economic growth will mean an increase in real national income. Assuming real GDP is increasing faster than population size, real GDP per capita increases. Purchasing power of citizens increases, reflecting an increase in Singapore residents' ability to consume goods and services to satisfy needs, thus material standard of living of residents increase.

[Ev] However, it depends on the composition of output in GDP.

An increase in output may not translate into an increase in consumption. If GDP rises due to an increase in production of exports or capital goods, these do not contribute to the increase in amount of goods and services available for consumption by Singapore residents. Hence, material SOL may improve by a smaller extent. This is very applicable to Singapore given that

export revenue (X) makes up a large proportion of our GDP. If the increase in GDP is due to an increase in capital goods, then future living standards may improve.

Achieving economic growth may also improve non-material standard of living of Singapore residents. The increase in income also provides the government with more income tax revenue, which allows the government to be able to implement policies that protect the environment such as providing subsidies for green technology. For example, under the Research, Innovation and Enterprise (RIE) 2025 strategy, the Singapore government has plans to fund projects in low carbon energy technologies such as hydrogen and carbon capture. This results in an adoption of cleaner production methods and better quality of the environment. This may lead to higher non-material standard of living.

[Ev] This is likely especially if the government's goal is to achieve sustainable economic growth, where environmental sustainability for future generations is a key focus. Being an advanced economy with a relatively high GDP per capita, Singapore has been more concerned about the depletion of resources and environmentally sustainable growth is a key focus in the country as seen in the emphasis on the Singapore Green Plan 2030. Thus, it is likely that the Singapore government will spend on improving non-material standard of living aspects such as the quality of the environment.

Anti-thesis (1): However, achieving economic growth may not improve standard of living of Singapore residents.

Achieving economic growth may not improve the standard of living of the average resident due to inequality in income distribution. Even if economic growth is achieved, the average resident may not be better off if the increase in real GDP is concentrated in the hands of the rich minority, due to inequality in income distribution. Thus, material standard of living of the average resident may not have improved.

[Ev] Singapore's Gini coefficient has been improving in recent years and is 0.452 in 2020. This is relatively lower (better) than other countries such as Japan, US, UK. Thus, this may be a less significant problem for Singapore.

Achieving economic growth may worsen non-material standard of living. Higher output may be accompanied by workers having to work longer hours, thus they enjoy less leisure hours, resulting in a fall in their quality of life. Moreover, higher output may also be achieved at the expense of the environment, especially if the higher output is in highly pollutive sectors such as oil refining. This may result in higher levels of pollution. Non-material standard of living may worsen.

Anti-thesis (2): Achieving economic growth is not the only factor which can improve the standard of living of Singapore residents. There are other factors which can also improve standard of living of Singapore residents.

To improve living standards, particularly in the non-material aspect, Singapore can focus on the reduction of negative externalities. Environmental standards refer to the quality of environment that can be measured by indicators such as the PSI (Pollutants Standards Index). An improvement in environmental standards can be achieved by imposing a carbon tax. Singapore imposed a carbon tax at \$5 per tonne of greenhouse gas emissions in 2019 through the Carbon Pricing Act. Firms will be incentivised to reduce pollutants or

emissions such as installing equipment that reduce carbon emissions in order to reduce the amount of tax paid on pollution generated. Thus, marginal external cost is reduced. This improves the quality of the environment and improves non-material standard of living of residents.

[Ev] However, the carbon tax may result in negative economic growth as it increases UCOP. AS falls and the horizontal portion of AS shifts upwards, resulting in a fall in real GDP and negative actual growth, which may be at the expense of material standard of living.

If the country is having a structural unemployment problem, reducing structural unemployment will improve the material standard of living of structurally unemployed residents. If there is a structural unemployment problem in the country, achieving economic growth may not improve living standards of this group as they may not have the skills to take on the jobs created. In recent years, technological disruption has displaced lower-skilled workers and resulted in structural unemployment in Singapore. For example, internet banking and robo-advisors in the finance industry have displaced workers in the finance industry. Skills upgrading programmes must be implemented to equip structurally unemployed workers with the skills to take on jobs in sunrise industries or to enable them to operate the new technology, thus improving occupational mobility of workers and lowering structural unemployment. This will increase the income for this group of workers, increasing their purchasing power and material standard of living.

Conclusion:

Achieving economic growth is the most crucial factor to improve the well-being of Singapore residents.

[Stage of development of country] Being an advanced economy with a relatively high GDP per capita, Singapore has been more concerned about the depletion of resources and environmentally sustainable growth is a key focus in the country as seen in the emphasis on the Singapore Green Plan 2030. Thus, achieving economic growth will allow Singapore to improve both material and non-material living standards as growth will enable the country to have the resources and technology to promote the use of greener technology. Singapore is also looking into inclusive growth and has been putting in place policies like progressive wage model to raise salaries of low-wage workers and provided transfer payments like GST vouchers to the lower income households. This has enabled Singapore's Gini coefficient to fall (improve) in recent years, thus ensuring a more equitable income distribution. Hence, achieving economic growth will enable more residents to benefit from higher income and improvement in material living standards.

[Mitigation by government policies] At the same time, Singapore has invested substantially in SkillsFuture in order to upgrade the skills of workers so that workers can possess the requisite skillsets to take up jobs in the growing industries, thereby reducing structural unemployment. Thus, structural unemployment is less of a problem in Singapore with these SkillsFuture initiatives. Achieving economic growth will thus enable workers to be employed, earn higher income and enjoy higher material living standards.

Mark Scheme

| | | |
|----|--|------|
| L3 | Well-developed, 2-sided answer explaining how achieving economic growth may improve standard of living, limitations and other factors which might improve living standards. Answer covers both material and non-material aspects of living standards. | 8-10 |
| L2 | Underdeveloped answer or largely descriptive answer explaining how achieving economic growth may improve standard of living, limitations and other factors which might improve living standards. Well-developed 1-sided answer explaining how achieving economic growth may improve living standards. | 5-7 |
| L1 | Answer shows some weak attempts to address the question, demonstrating some knowledge of concepts (e.g. standard of living). Serious conceptual errors made. | 1-4 |
| E3 | Evaluative comments are made and are backed by economic analysis and linked to SG context. Arguments are synthesized and presented in a well-reasoned manner. | 4-5 |
| E2 | Some evaluative comments/attempts at making judgements that is explained using economic analysis. Link to the Singapore context is weak or missing entirely. | 2-3 |
| E1 | Unsubstantiated judgments on whether achieving economic growth is the most crucial factor in improving living standards. | 1 |

Question 5

In then Finance Minister Heng Swee Keat's 2019 Budget Speech, he mentioned a few major shifts, which include rapid technological advancements and changing demographic patterns. Global growth was also expected to moderate in 2019.

Source: Finance Minister Heng Swee Keat, Budget Speech 2019

Discuss how the Singapore government should respond to these changes. [25]

Approach

Students should first explain the impact of these shifts on Singapore's macroeconomic objectives. Following that, their response should explain the policies that the Singapore government should use to address the impacts on Singapore's macroeconomic goals. Overall evaluations can address the appropriateness of the policies explained, coming to an overall stand on how the Singapore government should respond.

Introduction

The 4 macroeconomic goals of the government include sustained economic growth, low unemployment, price stability and a favorable balance of trade. This essay will explain the impact that the above shifts have on the relevant macroeconomic goals before explaining the policies that the Singapore government should adopt in order to address the impact of these shifts on the macroeconomic goals.

Body: Impact on macroeconomic goals

Rapid technological advancement will result in greater structural unemployment in Singapore, preventing the attainment of low unemployment. Rapid technological advancements which make capital more productive cause firms to change their methods of production to lower their UCOP. For example, firms are increasingly relying on digitalisation in order to improve worker efficiency. This means the previous skills of workers for the older method of production have now become obsolete. If these workers are unable to pick up these new digital skills, they may become unemployed. If firms across the whole economy change their methods of production as a result of technological advancements, these unemployed workers will be unable to find new jobs even in other industries. This is because it may be difficult for these workers to develop these digital skills and as a result of the skills mismatch, they remain unemployed. These workers may face difficulty in obtaining jobs which are available, resulting in a rise in structural unemployment.

Note: Possible to frame technological advancements as something positive for the Singapore economy. There can be follow-up policies by the government which allows Singapore to capitalise on technological advancements to increase AS. This leads to potential growth and a fall in UCOP.

An aging population will also pose challenges for the government in terms of achieving economic growth. An aging population would mean that the proportion of elderly in Singapore is increasing relative to the population. This could mean a fall in size of the labour force, if the elderly who are leaving the labour force (retirement) outnumber the young who are entering the labour force. The fall in the size of the labour force causes the quantity of FOP in Singapore

to fall, resulting in a fall in potential output from Y_f to Y_f' . There is negative potential growth, which constrains future increases in real income for Singapore.

The fall in the size of the labour force can cause the supply of workers to fall, placing upward pressure on wages. The increase in wages will cause a rise in the UCOP. This causes a fall in AS (horizontal portion of AS shifts up). Firms pass on the increase in UCOP to consumers in the form of higher prices, leading to cost-push inflation when there is sustained rise in GPL. As a result of the increase in GPL, consumers' purchasing power falls and they cut back on consumption which results in a fall in AD (movement along AD) and national income.

The rise in UCOP will lower the expected rate of returns and hence the MB of investment. As $MB < MC$, previously profitable investments are now unprofitable and firms cut back on investments. As investment expenditure is a component of AD, with a lower demand for capital goods, this results in a fall in AD and national income falls. As spending by one equals income to another, AD continues to fall due to further falls in consumption through the multiplier process. This causes a multiplied fall in national income. In addition to cost push inflation, an aging population can result in negative potential and actual growth for Singapore.

A moderation of global growth will result in negative economic growth for Singapore. Slowing global growth could lead to a decrease in consumer confidence as consumers expect a slower increase in their incomes. In anticipation of smaller increases in incomes, consumers may cut back on current consumption. Foreigners will reduce their demand for imports which will result in a fall in export revenue for Singapore. There is a fall in AD and a multiplied fall in national income as explained earlier.

In addition, the moderation of global growth would weigh on investor confidence. Foreign investors expect a lower rate of return and cut back on investments. The fall in expected profits will lower the expected rate of returns and hence the MB of investment. As $MB < MC$, previously profitable investments are now unprofitable and firms cut back on investments. As investment expenditure is a component of AD, with a lower demand for capital goods, this results in a fall in AD. The fall in investments reduce the amount of capital within Singapore, assuming that capital depreciation is more than capital accumulation. This reduces the productive capacity for Singapore and results in negative potential growth.

The moderation of global growth has negative consequences for the attainment of economic growth in Singapore.

Body: Policies

In response to these challenges, the Singapore government should modify existing policies to be able to continue to achieve its macroeconomic objectives.

The Singapore government can provide more funds for skills retraining in response to the effects of rapid technological advancements. The Singapore government can provide more grants to Singaporeans to undergo retraining through schemes such as SkillsFuture Credit. This will increase the ability of the workers to go for courses and update their skill set. Undergoing these training courses will enable these workers to adapt to the new methods of production brought on by technological change. This will also increase the occupational mobility of those who were previously structurally unemployed as they are better able to develop skillsets which are in demand. This policy would be especially helpful for the older workers who find themselves unable to find new jobs due to the mismatch of skills. This solves the problem of structural unemployment that arises from rapid technological advancements.

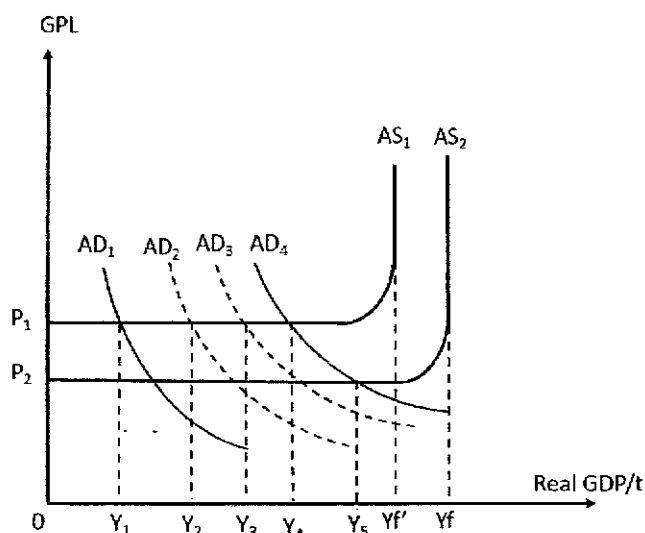


Fig 1.

Providing more funding to SkillsFuture can also help to mitigate the impact of an aging population on AS. These subsidies enable workers to better afford training courses which increases their productivity. The increase in the productivity of workers enables firms to lower their UCOP since fewer units of labour is required to produce the same amount of goods. In addition, the increase in labour productivity also causes the quality of FOP (labour) to increase and increases the productive capacity of the economy since the same quantity of FOP can produce more now. The increase in funding for SkillsFuture causes AS to rise from AS1 to AS2 which mitigates the negative impacts of an aging population and enable Singapore to achieve potential growth.

In response to the above changes, the Singapore government can increase spending on infrastructure projects in order to stimulate an increase in AD. Spending on infrastructure projects will increase government expenditure (G), which is a component of AD. The increase in demand for domestically produced goods and services e.g. construction services will increase AD from AD1 to AD2. This leads to $AD >$ national output, and results in an unplanned fall in inventories. Firms will hire more FOP to increase production. This will increase the income that households receive from Y1 to Y2, which results in a rise in purchasing power and induced consumption. The rise in income results in a rise in spending on ~~taxes~~, imports and savings too. AD continues to rise from AD2 to AD3 as consumption rises. This causes a further fall in unplanned inventories and firms continue to increase production. This leads to a further rise in national income. This process repeats itself until the initial rise in government expenditure (injections) equals the total rise in withdrawals from increased savings, taxes and spending on imports. AD rises to AD4 and national income rises by a multiple from Y2 to Y4.

Expansionary fiscal policy helps to mitigate the negative effects of an aging population and slower global growth on AD.

[Ev] However, the effectiveness of expansionary fiscal policy to increase AD is limited given that G makes up a small proportion of Singapore's GDP. Overall, there will not be an increase in AD should the fall in X and I outweigh the increase in G.

However, the increase in G on infrastructure has supply side effects which lower the UCOP in Singapore. With better infrastructure, firms have easier access to quality capital and enjoy an increase in productivity. The fall in UCOP from better infrastructure and SkillFuture improves the price competitiveness of Singapore's exports. This leads to an increase in the quantity

demand for exports and assuming that the demand for Singapore's exports is price elastic, this leads to an increase in export revenue and AD (movement along AD - international substitution effect). National income increases from Y4 to Y5.

Note: other possible policies to tackle an aging population include:

- Increase retirement age
- Increase number of foreign workers.

Singapore could slow down the rate of appreciation of the SGD in response to the moderation of global growth. In contrast to adopting a gradual appreciation of the SGD, Singapore could instead maintain the relative strength of the SGD with respect to her major trading partners. This would allow Singapore's exports to maintain its price competitiveness to mitigate a fall in the demand for Singapore exports from slowing global growth.

Should Singapore continue to adopt a gradual appreciation of the SGD against major currencies, the price of Singapore's exports in foreign currency will increase, causing a fall in the demand for Singapore's exports and export revenue. In addition, the price of imports in SGD will fall, causing an increase in quantity demanded for imports. Assuming that demand for imports is price elastic, this will cause a rise in import expenditure. The fall in X and rise in M will contribute to a fall in AD and worsen the current situation of falling AD. Hence adopting a slowing of the rate of appreciation (or policy of zero appreciation) instead will reduce the fall in AD from the moderation of global growth.

[Ev] However a slower appreciation of the SGD will limit the ability of exchange rate policy to control imported inflation. Singapore may face increased risks of imported inflation when the prices of imported FOPs increase. Even so, this may not be a significant concern given the current context of slow global growth.

Conclusion:

The Singapore government should use exchange rate policy for economic growth and price stability. However, it is important that supply-side policies are also used in the LR to adequately address structural unemployment.

In the short run, the most pressing issue that Singapore faces would be to maintain its export competitiveness, since export revenue is the main driver of growth in Singapore. Hence slowing the appreciation of the exchange rate would be the most appropriate to achieve this in light of the slowing global growth. However, such an approach would not be suitable when global growth starts to improve in the long run. The rise in global income will push up prices of raw materials and coupled with rising wages from the aging population, this will create a significant amount of cost-push inflation in Singapore. The conflict between attaining economic growth through increased export revenue and managing cost-push inflation from wages and imported inflation is going to become more pronounced. As such the government should aim to reduce UCOP through the SkillsFuture programme in the LR.

The key policy that Singapore should adopt to solve structural unemployment would be those focused on retraining such as the SkillFuture programme, which can be targeted to help the older workers. As this group of workers are also the ones who are impacted the most by rapid technological changes, they are likely the ones which face the highest rate of structural unemployment. However as these workers are nearing retirement age, they may be more unwilling to under retraining given that the benefit of learning new skills in terms of being re-employed would be lower for them. In order to solve this issue, the Singapore government can provide more subsidies for older workers to lower the cost for retraining significantly.

Mark Scheme

| Level | Descriptors | Marks |
|-------|--|---------|
| L3 | Impact of the changes on the Singapore economy is well explained and analysed. A well-developed analysis of at least 3 policies that are relevant for the Singapore government to tackle the changes in the preamble. Choice of policies are suitable for the Singapore context. | 18 - 20 |
| | At least 3 policies are well explained and analysed although there might be minor gaps in explaining how the changes are addressed by the policies raised. All three changes must be discussed. | 15 - 17 |
| L2 | A descriptive and underdeveloped explanation of the policies that the government should use to address the above changes. AND/OR The explanation of the impact of the changes on the Singapore economy is descriptive and contains gaps in explanation. OR Policies explained only target either AS OR AD. Policies raised are well explained and relevant to the context of the question (e.g. FP) but not linked to the changes specifically. | 12 - 14 |
| | Policy explanations are mainly theoretical and are not relevant to addressing the changes. There is insufficient awareness of the impact of the changes on the Singapore economy. Explanations of macroeconomic problems and policies are descriptive and lack rigour. | 9 - 11 |
| L1 | Response show some knowledge of policies that the Singapore government can use. Even through the response makes an attempt to explain the impact of the policies in addressing the changes in the preamble, these statements are mostly unexplained. | 5 - 8 |
| | Policy explanations contain basic theoretical errors. Policies raised are irrelevant to address the changes in the preamble. | 1 - 4 |
| E3 | Makes a stand as to which policy is appropriate or a possible policy mix that the Singapore government should use to address the changes. Substantiation includes consideration of the various strengths and limitations of the different policies in tackling the changes. | 4 - 5 |

| | | |
|----|--|-------|
| | Considers the relative appropriateness of the policies applicable to the Singapore context. | |
| E2 | Some attempts to substantiate the appropriateness of the policies. | 2 – 3 |
| E1 | Makes a stand with no further substantiation on the appropriateness of the policies to address the challenges. | 1 |

Question 6

The United States, the United Kingdom and India are amongst the economies with the largest trade deficit.

- (a) Explain the internal and external factors that have likely contributed to the large trade deficit in these economies. [10]
- (b) Assess the relative significance of the factors considered by a government in its policy response to a trade deficit. [15]

Part (a)

Approach:

Students are to provide 3-4 well-explained factors (2 internal and 2 external) within the context of the countries listed. Beyond the superficial assertion of "internal" and "external", answers should demonstrate an understanding of "internal" or "external" factors by illuminating the source of change e.g. GPL in trade partners rises while that of the country remained constant (making GPL an external factor clearly).

Introduction:

The balance of trade (BOT) is a sub account within the current account on the balance of payments. BOT records the export revenue and import expenditure on goods and services. It is given by the value of Export Revenue (X) – Import Expenditure (M). A trade deficit occurs when the import expenditure exceeds the export revenue i.e. $[X - M] < 0$. This essay will explain both internal and external factors which might possibly have led to a large trade deficit in the UK, US and India.

Body:

One external factor which might have caused the large deficit could have been a relative appreciation of a country's currency. Suppose China lowered their exchange rate against the USD to make their exports more competitive, the export demand for US exports to China will fall since the price of its exports would have increased in terms of Chinese Yuan. At the same time, the price of imports from China into US would be cheaper in terms of USD. Assuming that the demand for imports into USA is price elastic, USA will experience a more than proportionate rise in in quantity demanded for Chinese imports, leading to a rise in import expenditure.

Assuming that export revenue equals import expenditure initially, such a relative appreciation would have led to a BOT deficit. Countries that experienced an appreciation in relative exchange rates against their trade partners might thus end up with a trade deficit.

Another external factor that could have led to a deficit could be government policy implemented by trade partners. For example, the Chinese government's policy of providing subsidies for its manufacturers especially those in the "heavyweight industries" such as machinery, steel and automobiles would lower the marginal cost of production for Chinese producers.

Chinese producers would then be willing to accept lower prices for their goods including those for exports; this lowers the price of imports from China into the USA and will lead to a rise in

quantity demanded for Chinese goods as Americans switch away from the domestically produced substitutes to consume the relatively cheaper Chinese imports.

Assuming that the Americans' demand for Chinese imports is price elastic given the many substitutes available, there will be a more than proportionate rise in quantity demanded of imports, leading to a substantial increase in import expenditure.

At the same time, US exports within the same category would now be relatively less price competitive. Steel exports from the USA, for example, would become relatively more expensive and the demand for US exports will fall. Export revenue will thus fall.

Assuming that the initial export value equals import expenditure, this policy by the Chinese government will cause the USA to suffer a large trade deficit.

An internal factor which might have led to a large deficit could be the rapid economic growth. India has enjoyed a relatively fast growth rate over the past decade, with growth rates averaging about 6% a year. If the growth exceeds that of population growth, the average incomes of Indian households would have increased.

The increase in incomes of Indian residents means that they now have higher purchasing power to purchase more goods and services. This includes imports, especially luxury goods such as gold with a high income elasticity of demand ($YED > 1$). The demand for such goods will increase more than proportionately to a rise in income, *ceteris paribus*. Hence, Indian residents increase their consumption of imports, and import expenditure would have risen.

In addition, India could be at the stage of economic development which necessitates the import of capital goods for production of other goods and services. As demand for imports increases, this would have led to an increase in import expenditure.

India has not been able to significantly increase its export revenue like their other Asian counterparts. Therefore, an increase in import expenditure would have exceeded any increase in export revenue, leading to a large BOT deficit (assuming $X=M$ initially).

Another internal factor is a slowdown in productivity gain that could have resulted in rising general price levels. If productivity gains in a country slows down e.g., UK (ranked 31 out of 35 OECD countries for productivity growth 2008-2017) due to its low spending on R&D, the unit cost of production would increase especially if productivity is outstripped by wage increase. Producers would thus increase the prices of their goods to maintain profitability. If this increase in prices is faster than those of its trade partners, it would cause a fall in export price competitiveness.

With a rise in export prices, quantity demanded for UK exports would fall. If the demand is price elastic, the rise in price would lead to a more than proportionate fall in quantity demanded for exports leading to a fall in export revenue. At the same time, the imports would become relatively cheaper and demand for imports rises, leading to a rise in import expenditure.

With a fall in X and a rise in M , this would lead to a ($X-M < 0$) large trade deficit assuming $X=M$ initially.

Given that UK's manufactured products have many substitutes in the international market, a rise in UK prices would have led to a more than proportionate fall in quantity demanded for her exports and export revenue would have fallen significantly.

| Level | Descriptors | Marks |
|-------|--|-------|
| L3 | Analytical and developed explanation of at least 3 factors for the large deficit, addressing both internal and external factors within the context of the countries. | 8-10 |
| L2 | Underdeveloped explanation of 3-4 factors (both internal and external) contributing to a large trade deficit. | 5-7 |
| L1 | Demonstrates knowledge about the BOT and factors leading to a large deficit. Answers may be vague or ridden with conceptual errors. | 1-4 |

(b) Assess the relative significance of the factors considered by a government in its policy response to a trade deficit. [15]

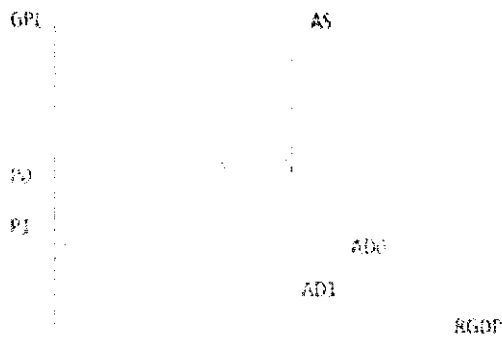
Approach

Students can approach the question by framing the factors within the decision-making framework i.e. benefits, costs and constraints that the government will have to examine when formulating its policy response. A thorough analysis of these factors, followed by an explanation on how it might affect the government's decision, is needed, before weighing in which is the most important factor for the government's decision.

Introduction

A large trade deficit has repercussions on the achievement of the other macroeconomic goals such as poorer economic growth, falling general price levels and rising unemployment. Whether the government should actively intervene and how the government should do that depends on the benefits of such efforts against the costs of doing so. Should the government decide to correct the deficit, there are several policy options such as depreciation and subsidies (expenditure switching ones) in addition to expenditure reducing ones that a government could choose from.

The government should consider possible conflicts between macroeconomic objectives when deciding on its policy response. Assuming that a country's $X-M=0$ initially, a trade deficit lowers net exports and causes the AD to decrease from AD_0 to AD_1 . This would lead to an unplanned rise in firms' inventories, causing firms to decrease production in response and hire less factors of production.



For economies operating near full employment, and facing DD-pull inflationary pressures, the trade deficit eases the country's inflationary pressure. The increased idle resources would mean that firms become more able to hire resources that are most suitable for their respective production processes. This improves efficiency and hence reduces unit cost of production. With a fall in unit cost of production, firms will be willing to produce at lower prices, causing GPL to fall from P0 to P1 and reduce demand-pull inflationary pressures.

For economies already with huge spare capacity, the deficit and thus the fall in AD would have led to a multiplied fall in its national income. Since spending by one is income for another, the initial fall in income of those in the export sectors would have lowered their purchasing power and induced consumption of domestically produced goods and services, thereby further lowering the income and employment in other sectors (especially if wage does not adjust itself due to the presence of sticky wages).

In this case where there is huge spare capacity, correction of the trade deficit benefits the economy. When AD rises, AD exceeds AS at current price levels, leading to an unplanned fall in inventories. This prompts firms to step up production and restore inventories to planned levels. The rise in national income induces a rise in household spending and thus AD, resulting in a further unplanned fall in inventories. The process repeats until equilibrium is reached (where injections = withdrawals). NY will have risen by a multiple of the initial rise in AD. With a higher output produced, more FOP such as labour is required, causing a fall in DD-deficient unemployment.

The government should consider the possible conflicts between macroeconomic objectives and thus the benefits of intervention in its policy making process in response to a trade deficit.

[Ev] A BOT deficit may relieve the country of inflationary pressures or worsen economic performance depending on the current state of its macroeconomic performance. The impact will be more pronounced for countries with a large trade to GDP ratio (such as the UK with 55% compared to USA with 26%). Should the trade deficit lead to positive impacts on the other macroeconomic goals, there may be no need for governments to actively correct it.

The government should consider the benefits of using the respective policies i.e. its effectiveness, before choosing the policy measure to adopt.

The factor that the government has to consider is the root cause of the deficit. The effectiveness of the policy is contingent on whether it addresses the *root cause* of the deficit. Suppose the reason for *trade deficit lies in the loss in price competitiveness* of a country's exports, the government could consider short term solutions such as allowing its exchange

rate to depreciate to correct the large deficit. By doing that, the price of its exports becomes cheaper in terms of foreign currency, thereby increasing the demand for the country's exports. At the same time, a depreciation would increase the price of imports in domestic currency, encouraging a switch away from foreign goods to substitute with domestically produced ones. Assuming that the demand for imports is price elastic, this lowers the import expenditure. This increase in the export revenue and fall in import expenditure will improve/correct the trade deficit.

A longer term response to such lost price competitiveness may be to encourage human capital investment - workers may undergo training and development to improve labour productivity. If the workers are empowered to work with more complex equipment, they will produce more per man hour and assuming wages does not rise as fast, the UCOP falls. If the producers pass on such cost savings to the consumers, the lower price will encourage exports (raising export revenue).

On the other hand, if the *trade deficit is a result of lost non-price competitiveness*, then the government may instead want to subsidise R&D activities to incentivise the firms to undertake innovation and improve product quality so that the increase in demand for the country's goods can improve the trade balance.

Depending on the cause of the deficit, the government may choose more targeted measures to address the deficit.

[Ev] The root cause of the deficit is an important consideration especially for prolonged deficits in countries. Knowing what led to the country's deficit enables the government to design appropriate policy responses. For example, while the USA may continue to blame its trade deficit on trade partners' unfair trade practices such as artificially low exchange rates, or provision of export subsidies, another possible less considered reason may be USA's lost competitiveness. Until the government accurately diagnoses the cause, all responses may at best be cursory or deemed as retaliation at best, without sustainable effects.

Another factor the government may also have to consider is the conditions that must hold for the policies to work effectively. When choosing policies to undertake, the government has to consider the likely responsiveness of the economic agents.

In the case of depreciation of the currency to correct the trade deficit, the *price elasticity of demand for imports* will play a significant role in the effectiveness of the policy measure. Suppose the demand for imports is price inelastic, such as for countries that are dependent on imports with limited import substitutes available in the domestic market, then a depreciation will increase the import expenditure and worsen the trade deficit.

The depreciation will raise the demand for a country's exports. If there are structural bottlenecks, then the producers will not be able to increase production because of the inability to obtain resources to step up production in response to increasing demand. This will limit the effectiveness of a depreciation to correct the trade deficit.

Likewise, for a country with high levels of import content in its exports, a depreciation will increase the unit cost of production for its exports. If the producers were to raise the price of its exports (i.e. push the increased cost to consumers) then it will negate the initial gains from depreciation and not be able to increase export revenue or correct the deficit significantly.

If the government were to provide subsidies for its exports in an attempt to raise its export revenue, then the *price elasticity of demand for exports* will determine if the export revenue actually rises to correct the trade deficit.

The effectiveness of the policies, which is in turn affected by the respective price elasticities, should be carefully considered by policy makers when choosing policies to undertake.

The government would have to consider the cost of the policy measure and the government budget position when deciding on policies to reduce the trade deficit. In addressing trade deficits, expenditure reducing policies which are in essence contractionary in nature are politically unfavourable.

Supply-side policies to increase spending on R&D to improve export quality or export subsidies tend to involve huge sums of government spending. The government would therefore have to weigh whether the spending on the trade deficit can bring about significant enough benefits to the economy, so as to rationally justify the opportunity cost incurred such as forgoing healthcare spending.

Furthermore, the government budget position would also need to be considered. If the government does not have sufficient revenue to finance subsidies for its exports, then it may have to draw down on its reserves or raise tax rates. If the government draws down on its reserves, it would result in lower investment returns generated from the reserves that can be used to fund future government expenditure, which may then cause future expenditure to be reduced. If tax rates are raised, it may have a contractionary effect on the economy or raise production costs. Thus, the ability of the government to fund macroeconomic policies would be constrained by the availability of government budget. If the government wishes to fund a policy by incurring a budget deficit, then it would have to assess the benefits of the policy against the costs arising from the financing of the budget deficit.

The government should consider the cost and constraints when deciding on the policies to implement to correct the trade deficit, choosing the most cost-effective method for the country.

Conclusion

Of the factors mentioned, the government should pay the most attention to the root cause of the deficit, especially if it is persistent and large.

Recognising the cause of the large deficit enables the government to design policies in response with limited repercussions. In the case of developed countries like the USA, the large trade deficit is possibly a reflection of lost competitiveness in some industries. The country may then want to reallocate resources to the ones with new competitive advantage. In these cases, policy measures such as depreciation and subsidies will provide limited reprieve for them.

On the other hand, for a country like India, the deficit could be a result of temporary excess in import expenditure due to its current stage of development i.e. high levels of imported capital goods which will later be able to correct its deficit. In this case, not only will a depreciation not address the deficit, it will lead to long term repercussions on the economy, since the depreciation will cause imported capital to be more expensive, with importers having to incur higher costs of production.

While other factors such as budget and other constraints have some significance for a government in considering its policy response, they can be overcome with the right policy choice. Therefore, it is of lesser significance than the right identification of the cause of the problem.

Mark Scheme

| Level | Descriptors | Marks |
|-------|---|--------|
| L3 | An accurate analysis of at least 3 factors which might have informed/affected the government's policy response towards a large trade deficit. | 8 – 10 |
| L2 | An underdeveloped explanation of what the government may consider when faced with a large trade deficit with limited explanation of its significance. OR A well-developed response but limited in scope. | 5 – 7 |
| L1 | Some awareness of the factors affecting government's decision making but the answer contains many conceptual errors. Answers may be wrongly focused on policies to address the deficit instead of the factors which the government might consider. | 1 – 4 |
| E3 | Makes substantiated judgements on the relative significance of the factors considered i.e. some ranking of the factors is expected. | 4 – 5 |
| E2 | An attempt to rate the significance of factors independently without addressing the "relative" significance. | 2 – 3 |
| E1 | Unsubstantiated judgement. | 1 |

