Raffles Institution
Nurturing the Thinker, Leader & Pioneer

ECONOMICS

Higher 2

Syllabus 9757

Examiner's Report

Year 6 Preliminary Examination 2017

ECONOMICS

Y6 H2 Preliminary Examination 2017

| Paper 9757 |
| Paper 1 |

Question 1

a) i) With reference to Table 1, identify the type of user that will face the highest water conservation tax rate from July 2018. **[1]**
Answer: Households (h/hs) that consume more than 40 m^3

a) ii) Explain a possible reason for the above. **[2]**

Answer (any one)
- Demand for h/hs that consume > 40 m^3 may be price-inelastic.
  - It is possible that these h/hs have higher incomes and can afford to consume more. Thus it can be inferred that water consumption takes a smaller % of their income. In this regard, a higher tax is needed to reduce consumption to the desired level; or

- Issue of equity: A lower tax for h/h consumption <40 m^3 as it is likely a larger % of the poorer household's income i.e. demand is less price-inelastic; or

- Reduce need to raise income taxes that may result in more progressive income taxes as water tax charges user based on consumption

- Use of 2-tiered taxation: a lower tax for a certain basic level of consumption which is essential for survival and a higher tax for less essential consumption (beyond 40 m^3); or

- To pre-empt inflationary pressures due to greater rise in production cost if water tax for firms were higher: need to raise taxes on water, but need to avoid raising production cost; therefore rise in taxes mostly subjected on households with high usage

b. Using a diagram, explain one demand factor and one supply factor that may have caused the water tariff to rise. **[3]**

Answer:
Rise in water tariff is due to both a <u>rise in demand and fall in supply</u>, leading to an overall shortage, which results in consumers bidding up the price.

Demand factor: _(any one)_
- Economic growth _(from case: 'As the economy grows')_
  - Higher industrial production increases demand for water as an input
  - Higher incomes lead to more leisure activities that are water-intensive in nature; or people feel less of a need to conserve water as they can afford

- Growth of population in Singapore (_Not in case but acceptable_)

- As population increases, both household consumption and industrial consumption (due to more goods and services produced) increases

Supply factor: *(any one)*

- Rise in (variable) cost associated with water treatment (desalination and Newater): increases production cost and firms less willing to supply at given price; rise in cost of water transmission

- Fall in supply of water to Singapore from Johor due to population growth in Johor (this is a supply, and not a demand factor)

- Fall in supply due to climate change

Illustration with diagram
A rise in demand leads to a rightward shift of the demand curve and a fall in supply leads to a leftward shift of the supply curve respectively. The shortage results in water tariffs rising.

c. With reference to Extract 2, to what extent do you agree with the view that privately-owned utilities make the provision of water efficient and equitable? **[8]**

Introduction:

Resources are scarce and there is a need to apportion them amongst competing uses so as to attain an efficient allocation of resources with the resultant impact of maximising society's welfare.

Allocative efficiency is attained when MSB= MSC or P=MC; equity is achieved if water is equitably distributed regardless of ability to afford.

It is implicit that for allocative efficiency to be attained, productive efficiency must be attained.

Development:

Thesis: Efficient and Equitable

1. X-inefficiency
Transferring ownership to the private sector resolves the problem of X-inefficiency. Private firms aim to maximise profits. One way to do so is to be as cost-effective as possible i.e. to be X-efficient and operate at a point on the LRAC curve.

Governments have less need to be cost-effective and may operate at a point above the LRAC curve. If left to government, the lack of profit-incentive and bureaucracy results in X-inefficiency. In addition, the possible erosion of profits may be covered with government subsidies

2. Dynamic efficiency

Transferring ownership to the private sector may result in more investment and innovation, since innovation has the potential to increase profits for private firms. Conversely, governments lack spontaneity without incentives to increase profits.

- Process innovation: Innovating the process of producing water can result in greater productivity, which can reduce cost and increase profits for firms. It also allows firms to lower prices to consumers will reaping higher profits.
- Product innovation: Firms may improve the quality of water, such as reducing water contamination, in order to increase demand for its water. This benefits consumers.

2. Allocative efficiency (with increase in competition)

Competition may arise if there a few private companies in the country providing water to different localities in the country. In a bid to remain in business, firms are forced to price nearer MC (nearer allocative efficiency). There is thus a certain level of bench-marking in terms of pricing. In a bid to remain in business, firms are forced to price nearer MC (nearer allocative efficiency)

3. Further benefits in terms of X-efficiency and Dynamic efficiency (with increase in competition)

There is further reduction of X-inefficiency and dynamic inefficiency should there be an increase in competition when water provision is left to private hands. Because of the fear that contracts may not be renewed or may be awarded to rivals, firms will engage in price and non-price competition that can result in lower prices and better quality (less contaminated) water.

Anti-thesis: Neither Efficient nor Equitable

1. Allocatively inefficient (due to natural monopoly)

It is likely that a natural monopoly arises. It is common for the contract for a particular locality to be awarded to a single firm. This is to prevent duplication of resources and also allow the firm to reap benefits of internal economies of scale. The latter arises from the huge sunk cost e.g. laying of pipes and other water treatment plants which leads to very low LRAC. While this allows firms to lower the price of water, the monopoly power gives firms full autonomy to charge exorbitant prices.

Without government intervention, the monopoly is likely to be allocatively inefficient, charging a price much > MC at its profit-maximising output. The under-production leads to a DWL for society, where society values the last unit of the good more than what it costs to produce it. This analysis corroborates with Extract 3 which shows private utilities 'charging 59 percent more for water service; $185 more than what local governments charged for the same amount of water; water rates increasing at about three times the rate of inflation'. Given monopoly power, the demand by households for the essential service is price-inelastic. And with huge entry barriers due to government licensing, the market dominance allows the firms to restrict output by charging a high price.

2. X-efficiency and dynamic efficiency

The monopoly also has no incentive to be X-efficient (_show from the same diagram_) and thus operates at a point above the LRAC curve, as it can still make supernormal profits.

Neither does it need to be dynamic efficient, given its monopoly power.

3. Effect on Equity

Extract 2 mentions that private utilities 'are prone to cherry-picking service areas to avoid serving low-income communities '. This results in a case where demand with income gap is lower than what would be socially optimal – a situation of demand without income gap. The under-production leads to a dwl where MSB>MSC for every unit under-produced. From the earlier

illustration on allocative inefficiency, CS also falls when one compares the price of a monopoly to price in a PC market.

Conclusion/Evaluation: (any of these ideas)

- The privately-owned utilities is, by and large, allocatively inefficient and inequitable, as shown by the empirical evidence. Unlike a government-owned utilities which has P=MC and equity as its objective, the private firms are more concerned about maximising profits and being 'accountable to their stockholders'.

- This is further worsened by the fact that there is 'rarely competition'.

- But fear of the market being contestable may force the private firm to be efficient especially when the government can ensure that contracts are not renewed. After-all, in the case, '18 municipalities did end their contracts with private companies'.

Conclusion can also be couched in terms of how the government can make the market contestable or how there can be regulatory bodies to ensure move towards efficiency.

d. Extract 3 states that water is generally grossly underpriced.

Explain the effects on stakeholders if water were priced to reflect its true value. [6]

Suggested Answer:
- Price not reflecting true value is due to the fact that 'water is often heavily subsidised by governments'. For the price to reflect its true value, the subsidy has to be removed.
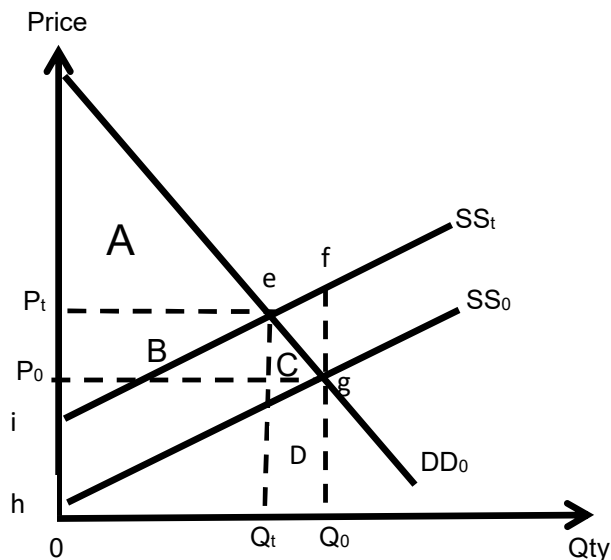
As shown in the diagram, OP_t is the true price/value of water when there is no subsidy. So, the removal of subsidy shifts the supply curve from SS_0 to SS_t. This creates a shortage, with the final equilibrium price rising to P_t and quantity falling to Q_t.

- On Consumers (households that use water as an input) and Producers of Water
  - With a reduced quantity, consumer surplus falls by area B+C; or

- - Since demand is price-inelastic, a rise in price leads to a less than proportionate fall in quantity demanded to Qt, causing total expenditure by consumers to rise
  - This is likely to worsen inequity as it takes a larger % of the poor household's income.
  - Higher water prices also affect the macroeconomy because water is an important factor of production in the production of most goods and services. Water price hikes will increase production cost, which decreases AS and causes cost-push inflation. The resultant impact is that households end up with more expensive goods and services.
  - For producers of water, the producer surplus falls from P0gh to Ptei

- On Firms (businesses that use water as an input)
  - The rise in price of water and the subsequent increase in total expenditure on water will increase the variable costs of businesses. Since water is an important input, the rise in production cost will reduce the supply of final goods and services produced by producers, reducing the quantity sold. The higher costs and lower sales quantity reduces producer surplus and profits.

  - In Extract 3, it is stated that' water scarcity is generally not translated into an additional component in the price of goods & services that are produced with the water, as happens naturally in the case of private goods.' If water is factored into the cost of producing goods, the country may lose its comparative advantage in certain industries that are water-intensive especially since 'governments subsidise water supply on a huge scale'. They may re-allocate resources to industries that are less water-intensive.
  - 2 issues arise here:
    - The competitiveness of the goods is affected with removal of subsidies. This affects the profits of firms.
    - Moreover, in the re-allocation of resources to restructure and develop comparative advantage in new areas, workers or households may be adversely affected due to structural unemployment since they may lack skills for these new industries.

- On Government
  - With the removal of subsidies of area fg X 0Q$_0$), it may alleviate problems of financing and budget deficit as well as reduce the opportunity cost of not being able to spend the money on areas of education, healthcare and infrastructure.

- On Future Generations
  - The over-consumption due to the subsidy has also led to water scarcity – a situation of limited resource and unlimited wants. This leads, over the long-term, to a depletion of the water resource. With the removal of subsidy, more water can be conserved to meet the needs of future generations.

e. Discuss whether trade based on the 'virtual content of water' is more effective than the use of technology in addressing the problem of water scarcity. **[10]**

Introduction:
Scarcity is a situation of limited (water) resource with unlimited human wants. Water resource is largely made available through natural forces, and this limited resource faces a rapid depletion due to over-use – a result of unlimited human wants manifested in demand for goods, leisure activities etc.

There are 2 possible ways to mitigate the problem of scarcity: to reduce the demand or increase the supply. While trade based on the 'virtual content of water' targets a reduction in demand, the use of technology target an increase in supply to augment what is available in nature.

Another approach is to use the theory of comparative advantage to explain how consumption beyond the PPC due to trade solves the problem of scarcity as more water-intensive products can be consumed.

Development:

A. Trade based on 'virtual content of water'	
Effective:	**Not Effective:**

Explain how it works: Moving towards a pattern of trade based on the 'virtual content of water' means that 'water-scarce countries should buy water-intensive goods such as agricultural and industrial commodities from water-abundant countries'.
 	
▪ This is based on the principle of comparative advantage which arises due to differences in factor endowments. A country which has more water resources will incur a lower opportunity cost in the production of water-intensive products. The reverse is true for water-scarce countries which can specialise in the goods that are less water-intensive eg. capital goods and provision of services. This gives rise to exchange and both countries will eventually gain from trade based on comparative advantage.
 	
▪ Effect on water scarcity:
    ▪ As comparative advantage leads to an efficient allocation of resources in the world, this implies that <u>on a global level, the demand for water may rise more slowly</u>, thus reducing the need for water.
 	
    ▪ In the <u>water-scarce countries, the demand for water will be reduced</u> since they are specialising in goods that are not water-intensive. This is an effective means for water-scarce countries to 'preserve their domestic water resources'.
 	
▪ It is also effective as trade based on 'virtual content' of water is more feasible and possibly less costly than physically transporting water across countries to solve the problem of
	From a global perspective, the problem is not solved:
	
	▪ It <u>increases the demand for water in the water-intensive countries.</u> While it solves the problem in the water-scarce countries, the scarcity problem can arise in these water-abundant countries.
	
	▪ This is worsened by the fact these 'seemingly' water-abundant countries <u>may not really have a comparative advantage in the production of water-intensive products</u>. Their cost competitiveness may have been due to the fact that the government had heavily subsidised the water input – and such costs are not imputed into the total price of the goods.
	
	▪ In a case where subsidies were removed to allow the pattern of trade to be aligned with the availability of water, it may require a re-allocation of resources. Some countries may have to move away from producing water-intensive products. The process of restructuring takes time and thus may be ineffective in reducing the problem of water scarcity in the interim.
	
	▪ Moreover, the production of agricultural products and manufactured goods (unlike tertiary industries and services) is more likely to give rise to pollution eg. pollution of rivers in China due to toxic waste being released into the rivers – which further reduces the supply of

scarcity. ▪ If trade based on virtual content of water involves removing the subsidies on water and increasing price of water, then there would be a corresponding fall in quantity of water demanded. This can alleviate the problem of scarcity.	clean water.

B. Use of Technology (Case: Newater & desalination)	
Effective:	**Not Effective:**
Explain how it works: Use of technology includes current methods like Newater & desalination as well as further investment in r&d to develop even more ways of increasing the supply of clean water. ▪ Newater & desalination tap on existing water supplies. While Newater is produced from treated used water, desalination refers to the removal of salts and minerals to produce water suitable for human consumption or irrigation. If new technology does like-wise, that effectively increases the supply of clean water. This, to some extent, reduces the problem of limited water resource, and reduces significantly the reliance on natural forces e.g. weather. ▪ The added advantage of Newater is that the treated water can keep getting recycled. This explains how 'Newater is projected to meet 55 per cent of Singapore's water needs'. ▪ Improvements in the state of technology for the production of goods and services may reduce the amount of water used for production too. If production techniques can be made more water-efficient, less water is needed for a given quantity of goods and services, reducing the derived demand for water.	▪ The development of new technology takes time and may not yield results. ▪ Moreover the huge sunk cost in developing such technology or 'buying' such technology can be prohibitive for some countries due to inability to finance. In this regard, the use of technology may not be viable/effective as a quick solution to the problem of water scarcity. ▪ If the cost of developing such infrastructure is not passed on to consumers in the form of higher prices, the problem of water scarcity will not be resolved since greater availability and subsidised prices merely 'feeds' the greater demand (unlimited wants) – itself a result of increasing world population and affluence.

Comparison:

In a hypothetical situation where the difference in comparative advantage arises from the relative abundance vs scarcity of water and water is less underpriced, trade based on 'virtual content' of water can be a more effective solution since technology takes time to bear fruits.

However, the reality is that countries that are producing water-intensive products may actually be inefficient in the production of such goods, thereby worsening the demand for water. Therefore, effectiveness is still contingent upon the removal of subsidies to allow the true price of water to be reflected. Countries may be unwilling to do so as this makes them lose their comparative advantage in their current industries.

Moreover, as trade leads to increased affluence and exposes consumers to more choices, this may continue to feed the insatiable wants of humans, thereby further increasing the demand for water and worsening the shortage.

On the other hand, the use of technology may seem to be a more effective long-term measure as it increases the availability of the resource.

Evaluation: (Some possible ideas)

- A statement asserting which is more effective accompanied by explanation
- But both measures do not seem to tackle the problem of unlimited human wants.
- The government probably needs to use education to raise awareness and punitive measures such as taxes in order to discourage consumption. The removal of subsidies may also be a step in the right direction.

	Knowledge, Application, Understanding, Analysis
L1 (1 – 4m)	- feeble attempt to use DD-SS framework; and with glaring conceptual errors - Smattering of points not directly linked to question; no DD-SS framework - only discussed one measure - one-sided response: failed to discuss merits and demerits of both measures
L2 (5 – 7 m)	Balanced (T/AT) and well developed answer with good illustration (diagram), and good use of case material
	Evaluation
E1 (1m)	An unexplained conclusion /judgment or mere repetition of points discussed eg. a mere statement w/o substantiation
E2 (2-3m)	A judgment/conclusion supported by reasons / economic analysis

Question 2

ai) Define terms of trade. (1)

Terms of trade (TOT) refers to the rate at which a country exchanges its exports for imports and is calculated as the ratio of the price of exports over the price of imports. Computation: Px/Pm×100.

[1m for correct definition /measurement]

ii) Describe the trend in China's Terms of trade over the period Jan 2016 to Jan 2017. (1)

China TOT worsens / deteriorates / declines

[1 mark for correct trend and use of terminology]

iii) Explain <u>two</u> reasons for the trend identified in a(ii). (4)

Deterioration in the terms of trade can be due to a fall in Px and /or a rise in Pm.

Likely reasons:

- Depreciation of RMB as observed from Figure 2 where value of RMB/USD has increased suggesting an appreciation of the USD against the yuan or a depreciation of the yuan. A depreciation of the Chinese currency results in a fall in the relative price of Chinese exports in foreign currency and a rise in the relative price of imports in terms of yuan, hence resulting in a declining terms of trade for China.

- Extract 4: 'global trade would register its fifth straight year of sub-3 percent growth, citing …falls in commodity prices'. This implies weakening global trade likely caused by slowdown in global economic growth. Hence, weaker global demand for Chinese exports leads to price of Chinese exports resulting in a worsening TOT for China.

- Extract 4: 'China's exports and imports for September came in well below expectations, dented by weak demand at home and abroad'. Weak demand abroad → lower global DD for Chinese exports → lower Px. In addition, students can infer that both China's Px and Pm fell, but with Px falling more than Pm → TOT worsens.

[2 marks for explanation of each reason]

b) From the perspective of WTO, assess the case for and against China's export duties on raw materials. (6)

Extract 4 last para stated that WTO's aim is to promote an 'open, <u>non-discriminatory</u> and <u>equitable</u> multilateral trading system' with national and international efforts to <u>better protect and conserve environmental resources</u> and promote <u>sustainable development</u>.

From Extract 5, the Chinese government impose duties or taxes on her exports of minerals and metals such as copper, graphite and lead.

Case for China's raw material export duties

Ext 5: China said it respected WTO rules and that the duties had been imposed as part of efforts at 'environmental protection' with "daily worsening pressure on resources and the environment" and are to help with 'sustainable development'.

Explain:

- Tax on raw materials exports → ↓SS of raw materials to abroad → ↑P & ↓Qdd of raw materials for foreign mkt → helps reduce the over-production (due to negative externality from mining -eg pollution, environmental degradation)
- Slow down the rate of depletion of minerals: slow down the fall in quantity of resources → more sustainable outcome – prevent falling LRAS: prevent future generations from suffering from slower econ growth & SOL

Case against China's raw material export duties

Ext 5: 'the duties impose higher costs on U.S. manufacturers, while Chinese competitors do not have to pay them, encouraging companies to locate production in China'

"China's attempt to game the system so that raw materials are cheaper for their manufacturers and more expensive for ours"

The above suggests ***discriminatory*** pricing- higher price for foreign buyer than for domestic (China) buyer of minerals. This contravenes WTO's initiative.

Explain the undesirable effect:

- Tax on raw materials exports → ↓SS of raw materials to abroad (eg US, EU etc) → ↑P of raw materials for foreign firms manufacturing final goods like autos, aerospace, electronics → COP for foreign firms↑ → translates into higher Px for them. Result: their exports lose export competitiveness compared to the same gds manufactured in China, due to the 'unfair' pricing of inputs

Possible Synthesis

Whether WTO should rule for or against China's export duties

- Depends on priority of WTO- which aim is more impt: Sustainability (eg. for that purpose should also impose a tax on Chinese firms using the limited resource?) or equity?
- Depends on how rapid the resource depletion is
- Depends on how widespread the negative impact is-- If it affects several countries, then costs > benefits

Mark scheme:
- *Answer should cover WTO's aims on sustainability and non-discriminatory/equity.*
- *For an answer that only covers 1 side but has depth: Max 3*
- *For an answer that lacks econ analysis: Max 3*
- *For an answer that has no synthesis: Max 5*

c) Trump has labelled China a currency manipulator and has pressurized China on her yuan.

To what extent would such a move by the US government resolve the problems of growth and trade balance of the US economy? **[8]**

Suggested answer:

From Table 1: falling growth rate; rising US trade deficit (table 2; ext7)

Thesis: Appreciation of yuan is effective in resolving the problems of falling growth and trade deficit of US:

When the Yuan appreciates against the USD, this means US$1 can exchange for less foreign currency. For US, the price of imported goods and services from China will appear relatively more expensive in terms of USD and this leads to Americans buying fewer made-in-China imports. Americans may also switch towards domestically-produced import substitutes which are relatively cheaper now.

At the same time, US goods and services would be relatively cheaper to its trading partners and this may lead to a rise in US exports. Assuming Marshal-Lerner condition holds, net exports of US will rise and this will reduce the trade deficit of the US.

A rise in (X-M) and a rise in C on domestically-produced goods would also lead to a rise in AD for US. Assuming that US is operating with spare capacity, via the multiplier effect, this will result in a multiplied increase in real NY, stimulating actual growth, as shown below.
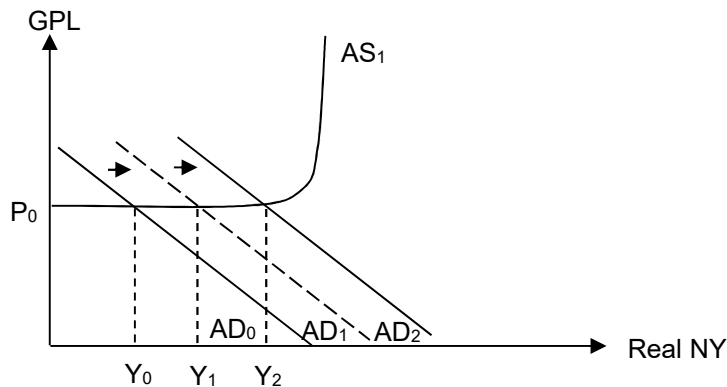
Anti-thesis: Appreciation of yuan is not effective due to limitations and other factors accounting for the loss in export price competitiveness.

1) Limitations of the appreciation of yuan

- Higher price of imported made-in-China inputs will result in increased cost of production for US firms leading to fall in AS and resulting in an increase in GPL (cost-push inflation) and a fall in real NY. For example, extract 5 highlighted that imports of graphite from China are a 'key ingredient' in brake lining industry. Hence a fall in AS would result in lower real output, adversely affecting US's actual growth. Moreover, her higher inflation, especially if the inflation rate is higher relative to other countries, could eventually worsen US export price competitiveness for her final goods such as autos → fall in Qd for exports (assuming PEDx>1) → fall in X (export revenue) → ceteris paribus, worsen US's trade deficit.

- Yuan appreciation might result in a rise in price of imported made-in-China factor inputs for American firms. In response to rising COP and lower profits, US firms may offshore to other developing economies to tap on cheaper factor inputs as highlighted in extract 7: where US pressure on the yuan would simply shift manufacturing to the other low cost producers such as Bangladesh or Vietnam, and the United States would still be uncompetitive.". The resultant fall in I and AD could worsen the falling growth rate of the US economy.

2) Other factors that may account for US trade deficit:

- Extract 7 mentioned that 'the overall U.S trade deficit is the result of the saving decisions of US households. Americans are spending more than they produce'. This implies that due to the consumerist culture in US, Americans tend to save less and spend more on goods and services including imports. Even with China's yuan appreciation, the higher price of made-in-China's imports into US may not deter the Americans' purchase of these goods. Hence US's import expenditure may

still not be curbed, meaning US's trade deficit problem might not be resolved despite yuan appreciation.

- Extract 7 suggest that 'Some economists stated that US pressure on the yuan would simply shift manufacturing to other low-cost producers such as Bangladesh or Vietnam, and the United States would still be uncompetitive'.
    - The above implies that world markets might switch away from relatively more expensive Chinese-made goods and buy from Bangladesh or Vietnam instead of from US, because these countries are able to produce these goods at relatively lower cost than US as US doesn't possess comparative advantage in manufacturing for low-value added goods which Bangladesh or Vietnam are likely to specialize in. As a result, US's X may still not rise, implying that US's trade deficit problem would still persist. Without a rise in X, US's AD and RNY (actual growth) would not improve too.

- The slowdown in productivity growth of US workers (Table 2) also suggests a lack of competitiveness in US goods and services. Falling productivity growth could imply upward pressure on unit cost, leading to fall in SRAS and a resultant increase in GPL. This could in turn lead to a loss in export price competitiveness and limit extent of the effectiveness of appreciation of yuan in boosting NX of US.

Evaluation and Synthesis

- An appreciation of yuan against the USD seen to be effective as a temporary or SR measure to minimize the adverse macroeconomic impact of trade and growth for the US economy especially if China is indeed alleged to practise unfair competition by manipulating her exchange rate. However, in the longer run, it would not be effective as it does not target root causes of US trade deficit.

- Ultimately, there is a need for alternative policies by the US govt. to improve her competitiveness (price and non-price) by adopting ss-side policies. For example, more govt spending on R&D to develop CA in new growth/higher valued-added sectors / invest in education and re-skilling to improve productivity of workers.

Mark Scheme

	Knowledge, Application, Understanding, Analysis	
L1	Answers are largely descriptive or contain errors in the explanation of how the appreciation of the exchange rate works to correct for the US problems. No use of relevant framework and answers are largely theoretical with limited or no reference to case material	1 – 3
L2	Answers provide correct identification and explanation of how an exchange rate appreciation by the Chinese government would correct for the problems of fall in NX and growth by US and included other relevant factors that may limit the effectiveness of the exchange rate stance. Reference to case material is clearly applied. Use of relevant economic analysis via the AD-AS framework	4 - 6
E	Evaluative comment that makes a stand on the extent to which the appreciation of the Chinese yuan is effective in resolving the problems of the US economy.	1-2

Consideration of alternative policies and a justification of it may be mentioned.	

d) Discuss what determines whether American firms and households are more likely to win or lose, with the imposition of tariffs on imported steel by the US government. (10)

Suggested answer

- US households (HHs) - American consumers of final goods (Consumer goods using steel as FOP), American workers
- US Firms- US Steel producers, US producers of goods using steel as FOP such as cars, electrical appliances etc.
- Define tariff and briefly explain impact of tariff with a tariff graph
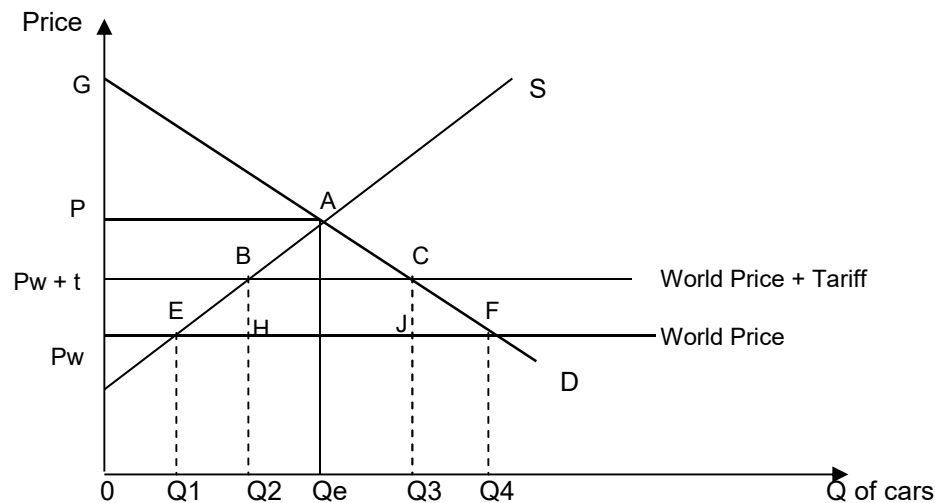
Effects on stakeholders (US firms and HHs)

- US Steel Firms win (rise in domestic Qss from Q1 to Q2, ↑PS of P_w EB P_w+t)
- US Steel workers – HHs win

However
- Loss of CS (area P_w FC P_w+t): US steel consumers lose i.e. US Firms (downstream producers) which need steel as FOPs lose (eg autos, shipbuilding, construction, electrical appliances etc) - higher COP, less profits
- Downstream producers may retrench workers – US workers from these industries (HHs) lose
- US-made consumer goods eg cars, electrical appliances: more expensive due to higher COP incurred by downstream producers – US HHs lose

Determinants of whether stakeholder is more likely to win/lose

(I) For US HHs

US workers (Steel and downstream)

- Depends on quantity of labour employed for steel vs downstream producers in US
  - Cite evidence: 'While employment by primary metal manufacturers was 400,000, downstream manufacturers employed 6.5 million, also 16 times greater' (ext 6 last para)
  - US steel tariffs protect US steel workers but at the expense of many others. Net job losses → US workers (HHs) more likely to lose

US consumers of final consumer goods

- Depends on avail of substitutes for the more expensive US-made consumer goods
  - Are there foreign-made substitutes to the relatively > expensive US-made cars, washing machines, microwave ovens etc? Do these imported items also face trade barriers (tariffs/quotas) into US?
  - Ext 6: Para 2: tariffs were imposed on China-made large washing machines. If such tariffs applies to many other imported consumer goods, that would imply that there may be no good substitutes → US HHs/consumers more likely to lose
  - In LR, if downstream producers are able to rely less on steel input/find alternative to steel (see point 4) and overcome higher AC brought about by steel, then consumers may not lose.

(II) For US Firms

US Steel firms

- Likely to win in SR due to protective effect of tariff which is applied directly on them
- But in the LR, whether US steel firms are more likely to win/lose depends on their ability to become more efficient and competitive.
- If US steel firms take steps to improve productivity, process/product innovate→can boost competitiveness (price & quality) in > sustainable manner, without need for further govt protection. ↓AC &/or ↑DD: ↑π margin
- Then again, table 2 shows fall in productivity growth over time → Gains are less likely, at least for now.
- Moreover, long period of protection (30 years- ext 6) might have bred complacency and inefficiency in US steel firms → COP & prices uncompetitive relative to foreign firms (even with tariffs) → no significant rise in DD, TR, profits
- Evaluate: The extent of losses to US steel industry is contingent on the strategies undertaken by downstream industries. Given that downstream producers suffer higher COP and might lose profits, the downstream producers might undertake strategies (see next point) to reduce reliance on steel, or to offshore production to developing countries. Such decisions would more likely lead to ↓DD, TR and π for US steel industry.

Downstream producers in US

- With tariffs imposed on steel from several countries, in SR, downstream producers in US would lose π due to ↑COP.
- But in LR, whether they are more likely to win/lose depends on whether they can increase AR and/or reduce AC to overcome loss of π.
- Eg:
  - If can find alternative to steel as input or rely less on steel as input
  - If undertake more efficient methods of production to offset higher AC from steel tariffs
  - If decide to offshore to other countries to bypass steel tariffs and to lower overall COP
  → more likely to win if able to ↓AC→ cet par, ↑π

Other possible points:

- Depends on govt's use of tariff revenue- whether it is used to reduce inequity → If so, low income households may win / lose less

- <u>Depends on the extent of tariff imposed</u>→ For Steel producers: higher the tariff→ the greater the extent of domestic steel production→ gain more
- Depends on the <u>formation of a domestic monopoly in the steel industry in LR</u> ('protection for 30 years'), if foreign firms are excluded→ consumers of steel / downstream firms lose

Synthesis

- Ultimately, perhaps the 'over-arching' determinant may be the purpose & length of steel tariff protection as well as the efficacy of US govt.
- If there is no intention to remove protection over time, or if it had been adopted as populist measure, then workers, consumers and firms more likely to lose in the LR. Effect: Slows down the transfer of scarce resources to other higher VA areas → slow down EG → more prolonged unrealized gains for workers and producers, high opportunity cost to US firms and HHs
- US may not possess CA anymore in producing steel. Fig 3 shows that US doesn't possess large endowment of steel in the world at all. That implies that US is better off reallocating her resources towards other areas -- but whether US workers and firms can gain in terms of moving up value ladder might depend on factor mobility, level of R&D to develop new areas of CA etc. So the quality of govt intervention affects such development too.

Mark Scheme

	Knowledge, Application, Understanding, Analysis	
L1	*Irrelevant answer: Eg- an answer that spammed the positive and negative effects from protectionism without addressing the determinants.* *Several glaring errors*	*1 – 4*
L2	*For an answer that displays depth of analysis on at least <u>two</u> factors that would affect who is more likely to win or lose* *Tariff graph is used to aid with the analysis of the determinants* *Answers that analysed with good reference to case material and data would earn more credit.*	*5 - 7*
E2	*For an answer that displays good attempt at evaluating the factors, supported with judgment that is substantiated and with insightful comments.*	*2-3*
E1	*Mere summary. Judgment with weak substantiation*	*1*

1 Meal delivery fever has hit Singapore, with companies like Uber and Grab announcing their move into the food delivery market to join the likes of Deliveroo and FoodPanda. Analysts are optimistic about this industry, given Singapore's steady economic growth and the downtrend of petrol prices. Consumers will now be spoilt for choice as they no longer have to dine in at hawker centers and restaurant.

Source: Channel News Asia 2016

(a) Explain the possible reasons for the rapid growth of the market for delivered food.   [10]
(b) Assess how related markets might be affected by these developments.   [15]

Suggested Answer Scheme

Part (a)

Note that growth can be in terms of increase in total revenue earned by delivered food firms or in terms of equilibrium quantity of delivered food sold by the firms.

Possible Demand factors

1. Sedentary lifestyle or hectic and stressful work with long working hours or more women at work and therefore households increasingly do not cook at home - greater demand for such food delivery services.

2. Increase in income – higher income leads to greater demand for restaurant food which can be delivered to the home. Restaurant foods are considered as luxury as opposed to home cooked food or hawker food. Therefore an increase in income leads to a more than proportionate increase in demand for delivered restaurant food, showing YED >1.

3. Improvement in technology that develop the apps to order delivered food – make it so convenient to settle the households meals with a smart phone.

4. The supply may be price elastic- for a given increase in price, the quantity supplied is likely to increase by more than proportionate because it is relatively easy to increase production by employing more riders or expand software apps to increase delivery orders. Show on diagram how an increase in price (due to shift in demand curve to the right) leads to a more than proportionate increase in quantity supplied, from Q_0 to Qe. This shows the rapid growth in the market.

Draw shift in dd curve to the right by a large extent in the dd/ss diag

P

SS_i

SS_e

P_i

P_0

DD_1

DD_0

Q

0

Q_0 Q_i Q_e
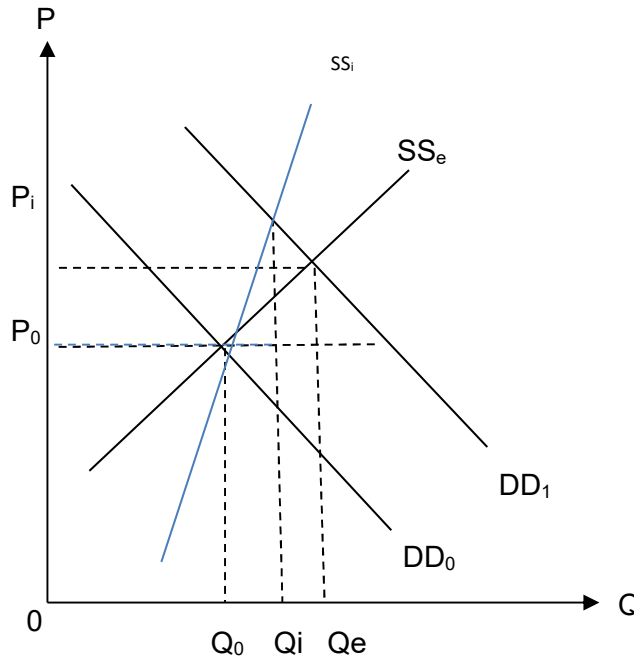
Possible Supply factors

5. Fall in the cost of production – delivery is usually done on motorbike which uses petrol as fuel. COP falls with the fall in petrol price and that may lead to an increase in the number of delivery companies. Supply of delivered food increases and illustrated by a rightward shift of the ss curve. Price may fall but quantity increases.

6. Improvement in technology that made apps possible – also increase in the supplier of delivered food.

7. Demand may be price elastic since there are so many substitutes to delivered food and it may be a small proportion of the buyers' income. With an increase in ss, the fall in price of delivered food will result in a more than proportionate increase in qty dded, from Q_0 to Q_e on the diagram. This will also illustrates rapid growth in the delivered food market.

Combined shifts of demand and supply

When demand increases, this will lead to an increase in equilibrium qty from Q_0 to Q_{11}. This will be reinforced by an increase in supply. Eventually, the equilibrium quantity is at Q_1. Explain the price adjustment process and focus on the equilibrium quantity that increases finally.

At P_o, after demand and supply increase, $DD_1 > SS_1$, this shortage will cause an upward pressure on prices. As prices increase, quantity demanded will decrease while quantity supplied will increase. Hence reducing the shortage. This will continue until the shortage is eliminated. At the new equilibrium, price is increased to P_1 and quantity is increased to Q_1.
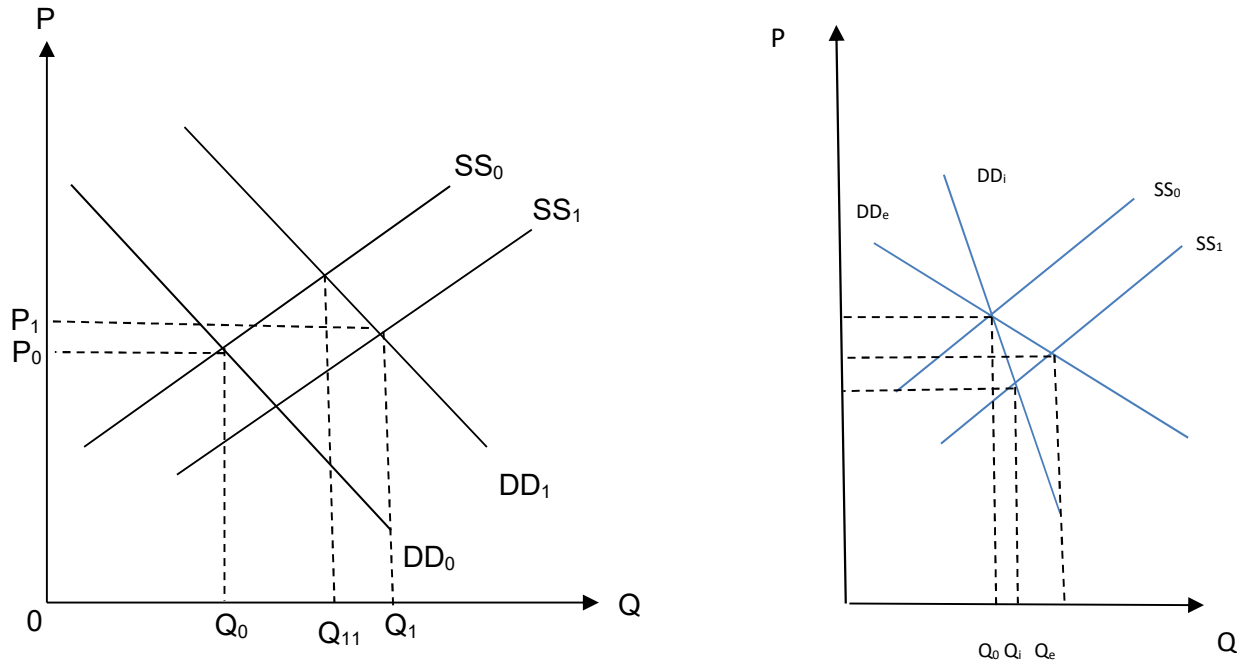
Conclusion: Both demand and supply increases, leading to rapid increase in equilibrium quantity. Net effect on price is also likely to increase because of greater increase in demand than supply.

Note: students should only pick any 3 of the above demand and supply factors. Diagrams are important. Elasticity diagrams are recommended.

		Knowledge, Application, Understanding, Analysis	
L1		Listing of demand and supply factors with minimum explanation.	1-4
L2		At least 2 well explained factors, with use of demand and supply framework. Some attempt at use of examples.	5-7
L3		At least 3 factors well explained and well elaborated with good use of examples in the food delivery service industry. Factors must include **both** demand and supply ones and at least one elasticity factor. Must place focus on 'rapid growth'.	8-10

(b) Assess how related markets might be affected by these developments.   [15]

   1. Introduction: Identify the related markets to delivered food market. It can include
       Substitutes market: non-delivered food such as restaurants, hawker centre.
       Complements market : Apps mkt, smart phone
       Factor of production market: delivery crew market, packaging market, motorcycles
   2. Impact can include : P, Qty,TR.

   3. **Explain the impact of developments on markets of delivered food substitute.**
       Non-delivered restaurant food
       • As the demand for delivered food increases, the demand for non-delivered food will decrease. The extent of the fall will depend on the CED of the 2 goods. They are considered to be closely related. (Note: The theoretical relationship: the increase in price of delivered food will cause a

greater increase in the demand for restaurant food is not quite applicable here)

- People feel more comfortable to eat at their own home and can even save on time and their own transport costs to go to the restaurant. These will cause a more than proportionate decrease in the demand for non-delivered restaurant food. Illustrated by a leftward shift of the demand curve.

- We should also try to incorporate the given changes in the preamble into the different markets wherever it is relevant. For eg, With the fall in the price of petrol, it is now cheaper to transport ingredients/ groceries to the restaurants, lowering the cost of production of these restaurants. This will cause an increase in the supply of restaurant food. OR With economic growth, the income of the households will be expected to increase, this may encourage the profit maximizers restaurants to set up more new ones in this F&B industry. Hence, increase in supply of restaurants.

- The impact on the equilibrium price and output will depend on the extent of shifts of the demand and supply. Illustrate with an appropriate diagram.

- If the decrease in dd > increase in ss, there will be a fall in P and Q. TR will also decrease. OR

- If decrease in dd < increase in ss, there can be a fall in P but increase in Q. TR may fall.

- As part of evaluation:
  - In the LR, as the delivered food becomes more popular, non-delivered restaurant food will have no choice but to join the delivered queue in order not to lose out.

  - May also want to consider the extent of fall in demand for non-delivered restaurant food vs hawker centre food. As the restaurant food is more income elastic than hawker food, the fall in demand for restaurant food is not going to fall as much as the hawker food. The TR of restaurants will fall lesser than the TR of the hawker vendors.

4. **Explain the impact of developments on factor of production markets of delivered food**.

   Packaging market- eg: plastic containers, plastic cutlery

   - The demand for plastic containers is a derived demand of the delivered food. As the demand for delivered food increases, the demand for plastic containers will also increase. This is illustrated by a rightward shift of the demand curve of plastic containers. They are closely related, therefore it will be a large rightward shift of the dd curve.
   - Assuming ceteris paribus, ss being constant, equilibrium P and Q will increase, increase in TR of the plastic containers producers.
   - As part of evaluation
     - In the LR, as society is cutting down on the usage of plastic, packaging firms may want to look into more sustainable and environmentally friendly way to store the delivered food. If these firms think that delivered food kind of lifestyle is going to last, they will act fast to work on the new sustainable packaging.

5. **Conclusion**
   In general, producers of delivered food substitutes are likely to face a fall in total revenue while producers of derived demand goods of delivered food are more likely to face an increase in their total revenue.

Knowledge, Application, Understanding, Analysis		
L1	- For an answer that is descriptive and lacks the use of economic framework/concepts in analysis. Presence of glaring errors -	1 – 4
L2	- Use of appropriate economic framework/concepts in analysis - Explain at least 1 mkt- substitute or FOP. Lacking in scope or depth. -	5 – 7
L3	- Excellent use of appropriate economic framework/concepts in analysis - Good depth of analysis, include at least 2 different markets. - Discussion of the given changes in the preamble in at least 1 of the markets.	8 – 10
Evaluation		
E1	Unexplained judgement that is not supported by economic analysis	1
E2	Judgment provided in conclusion but has room for greater depth or scope.	2 – 3
E3	Evaluative assessment and judgement supported by economic analysis. Excellent synthesis and insightful comments.	4 – 5

2. Today, Singapore is the largest manufacturer of oil jack-up rigs and command 70% of the world market. However, firms in this sector are facing challenges from cyclical weakness and competition from emerging economies. There has been a call on the government to defer the increase in the foreign worker levy.

(a) Explain how the survival of these firms is affected by the revenue and cost challenges.   [10]
(b) Discuss if the ability to combat these challenges is more dependent on government assistance or the firms' own strategies.   [15]

Suggested Outline:

Introduction

- Briefly state that the market structure of this oil jack-up rig industry is a monopoly (or an oligopoly as there could be a few firms in Singapore), since Singapore has more than 70% of the world market share. Hence, the firms have relatively steep AR and MR curves as they are price-setters.
- Survival of the firms refers to the ability of the firms to make at least LR normal profits where AR=AC. In the short run, firms will shut down if AR<AVC.

Development

Revenue Challenge:

- Cyclical weakness refers to the downturn of the global economy where world incomes are falling or rising much slower. As the demand for final consumer goods falls, the derived demand for factors of production such as oil rigs and oil falls. At the same time, emerging economies pose intense competition for Singapore's oil rigs. They are likely to benefit from lower wages due to their surplus labour and cheaper rental due to abundant land. This makes the price of their oil rigs lower especially when the industry could be labour-intensive. The demand for Singapore's oil rigs thus

falls more than proportionate, given a CED value of >1.
- In sum, the demand falls significantly, shown by a large by a leftward shift of the AR curve from AR_0 to AR_1 as shown in Figure 1.
- Furthermore, the presence of cheaper substitutes also makes the demand more price-elastic, resulting in a gentler curve AR_1.

Cost Challenge

- Firms also face cost challenge arising from the increase in foreign worker levy i.e. a tax imposed on the firm for each foreign worker employed. Although it may be deferred by a year, but it has not been approved yet. As labour is a variable factor, the levy will add increase the firm's variable costs. So both MC and AC rise, causing an upward shift of both curves.

Explain from the diagram/s a new lower-profit-maximising output and show the fall in profits.
- The firm aims to maximise profit and will produce output at MC=MR.
- Original equilibrium was at output Q1. Super profit was AEHD.
- After the revenue and costs changes, equilibrium output decreases to Q2. Profit dropped to losses BFGC.
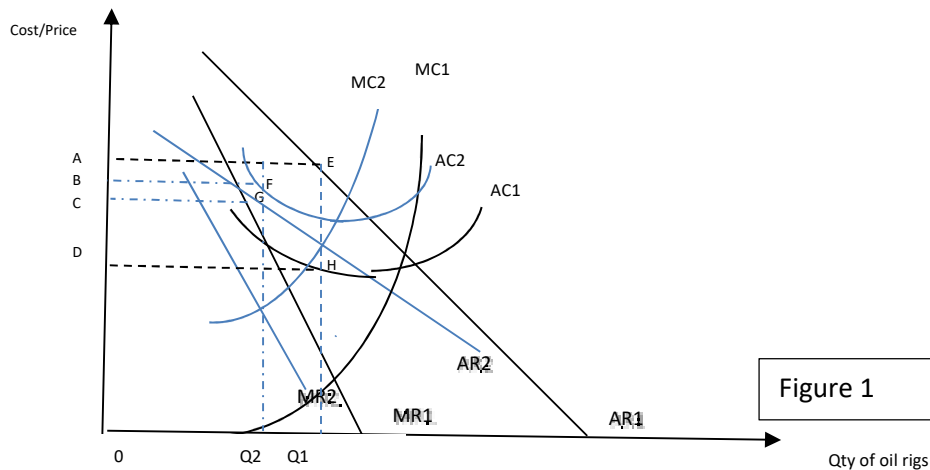- The monopolist will now not be able to survive since it makes LR subnormal profits.

Figure 1

Knowledge, Application, Understanding, Analysis		
L1	Smattering of valid points; glaring conceptual errors. Fail to show sufficient economic analysis in tackling the question.	1-4
L2	Some gaps in explanation of revenue and /or cost challenges. Revenue or cost challenges were not always well explained with clarity lacking in the answers.	5-7
L3	Well-developed analysis of the 2 challenges. Clear show of framework and well elaborated answers with good examples.	8-10

(b)   **A. Firm's Strategies**

Strategies to increase TR:
1. Merge with local firms or with foreign rivals.
    - Effect: This reduces the number of substitutes in the world market and increases the market share of the firm. This target the challenge of competition from rivals.
    - It reduces the need to resort to price competition which may have an adverse effect on the firm's profits, especially in such trying times.
    - Moreover, expansion can lead to internal economies of scale and a lower LRAC. With a lower MC, the firm can wield this to its advantage by lowering prices.

    Limitations:
    However, this may take time and is not an immediate solution to the problem of cyclical weakness.
    Moreover, there can be lack of synergy in the merger and diseconomies of scale can arise, leading to higher LRAC.

2. Predatory Pricing
    - The firm can use predatory pricing (P<MC) to drive out rivals. This tackles the challenge faced from rivals
    - Effect: As they command 70% of the market share, they are likely to be able to do so due to their huge output and substantial internal economies of scale. The rivals are less likely to be able to compete since they are likely to be producing on a smaller scale.
    - Limitations: This may further erode the falling profits of the firm.

3. Diversify the Business
    - As a long-term measure, the firm may want to diversify its business in other areas – areas that are related to the energy market such as renewable sources of energy or even areas that have nothing to do with oil rigs but where the world demand lies eg. healthcare or property development. This is the way most conglomerates operate.
    - Effect: This works over the long-term such that where demand in one sector falls, the firm can still tap on rising demand in other sectors.

Strategies to reduce TC
- Increase the productivity of the workers by sending them for training. Such training costs may even be subsidised by government through grants. This serves to reduce both the MC and AC, thus allowing them to price competitively
- Limitations: However, these workers may have steep learning curves and will take time to transfer the new skills into practice.

- Invest in r&d thus achieving product and process innovation eg. automation
- Effect: They can develop better oil rigs that are more efficient, long-lasting and energy saving. They can also use automation to overcome the problem of labour shortage This serves to both increase AR and reduce MC and AC.
- Limitations: However, this way is very costly as huge funds are involved in developing technology and there is no certainty in its results.

- Reduce X-inefficiency by cutting down on unnecessary sending. By operating at a point on the LRAC curve, the firm can reduce the erosion of its profits.

B. Government's assistance:
- Defer the foreign workers' levy by a year which will definitely help to lower TC. But if the fall in TR arising from cyclical weakness and emerging rivals is greater than the fall in TC, the monopolist will still be making losses. In addition, this is really a capital intensive / technology based industry, the proportion of labour cost out of total costs may not be so significant. Hence, delaying the foreign worker levy is not going to be of much help. Of course, some help is better than no help.
- Other possible forms of assistance can also include government subsidy in training of workers in this industry so as to increase productivity of the workers to bring down the cost.
- Or government subsidies for r&d.
- Other acceptable ideas:
  - Sign FTA with other countries to open new doors for the firms in this industry
  - Depreciation of the exchange rate

2. Conclusion/Comparsion
   - Many of the firms' measures are long-term in nature, so government assistance is essential to help firms tide over the cyclical weakness. Thus government stop-gap measures such as deferment of worker levy increase, subsidies and even use of a depreciation exchange rate can help.
   - Moreover, the government has power to pass such legislation.
   - But the government has other considerations:
     - Is this industry so significant whereby it is a significant contributor to GDP and employment?
     - The issue of addressing the inequality in income gap by restricting foreign labour.
     - The industry being oligopoly and the firm thus having supernormal profits to tide over cyclical downturn?
     - Will assistance breed X-inefficiency?
     - Impact on govt budget and opp cost – less for other more important areas such as education and healthcare.

Knowledge, Application, Understanding, Analysis		
L1	No theoretical framework. Smattering of points, glaring conceptual errors.	1-4
L2	Credible economic analysis. Attempt to discuss through at least 1 TR strategy and/or TC strategy. Scope and depth can be improved	5-7
L3	Well balanced answer with rigorous MR-MC analysis.	8-10
Evaluation		
E1	Unexplained assessment.	1
E2	Evaluative assessment supported by economic analysis.	2-3

E3	Evaluative assessment supported by economic analysis and insightful comments.	4-5

3. Some countries provide free education to all its citizens whereas others provide free elementary to high school education while university education requires payment.

   Explain whether education is a public good and assess the economic case for the different approaches taken by various countries in the education sector. [25]

Suggested Answer Scheme

A pure public good will display the characteristics of non-rivalry in consumption and non-excludability. Explain briefly how these 2 characteristics will result in zero provision of the good when left to the free market and elaborate on how in the case of education, these 2 characteristics are not fulfilled and there is provision of education in the free market without govt intervention. So education is not a public good.

Non-excludability: Once the good is provided, it is difficult or impossible to exclude non-payers from consuming the good. The problem of free rider will accompany this characteristic and no self-interested, rational consumer will reveal his effective demand for the good and no profit maximizing firm will supply the good without the ability to collect payment.

Application: However, the consumption of education is excludable.
A non-paying individual is easily denied physical entry into a school compound without the necessary passes and can be barred from attending classes if he has not registered with the necessary payment. So free-ridership is not possible and the producer is able to charge and collect fee.

Non-rivalrous in consumption: T
The provision of the good to an additional user will not lower the satisfaction of existing users consuming the good and therefore the marginal cost of providing the good to an additional user is equal to zero. For allocative efficiency to prevail, the price of the good must be equal to the marginal cost of the good. However, no profit-maximising firm will price his good at zero dollar to achieve allocative efficiency. Any price charged above zero however will lead to fall in qty demanded and output will be at less than allocatively efficiently level.

Application: However, the consumption of education is rivalrous.
Any additional student to a class beyond an optimal size may reduce the quality/effectiveness of lessons. This is because the student-teacher ratio has increased to a level that makes interaction and discussion less effective than before. (OR there is a limit in the number of places in a school and beyond the maximum number of places, any additional student will deprive a current student of his place in the school.) So there is rivalry in consumption and the marginal cost of providing for one more student is more than zero.

Thus, education does not display BOTH characteristics of a pure public good and there is provision of education in the free market without govt intervention.

However, the govt is likely to think that there is less than optimal allocation of resources to this sector and therefore may intervene because:
1. education is a merit good with positive externalities
2. there is excessive unequal distribution of income leading to inability to consume.
3. there is lack of information

Note that in the given context, govt intervention can be explained as direct provision for free or indirect (full) subsidy given.

Positive Externalities

- The government perceives that education at all levels is able to improve welfare to society and it regards education as a merit good that generates positive externality on third parties,– education leads to a more productive labour force which attracts more investments and creates more jobs *for all levels of workers*. Formal education also moulds a more gracious, cultured and civilized society. It creates greater awareness of social issues, inculcates desirable social values and civic-mindedness, all of which contributes to greater *social stability for all*.
- However, a rational individual pursues self-interest and does not consider these external benefits generated from attending formal school. Hence there is an under consumption of the education services→ consumption should be increased.

- Use MSB/MSC diagram to explain how level of consumption is below the socially optimum level, resulting in deadweight loss to society.
- E.g. Marginal private benefit (MPB) is the benefit derived from the consumption of an additional unit of education services. Marginal private cost (MPC) is the cost of consuming an additional unit of education. Marginal external benefit (MEB) is the benefit conferred to third party who is not directly involved in the consumption of educational services. (examples of externalities are given earlier)

- Because of the existence of external benefits, there is a divergence between MSB and MPB by the full extent of the MEB.

- Assuming no negative externalities, MPC is equal to Marginal Social Cost (MSC) as shown.
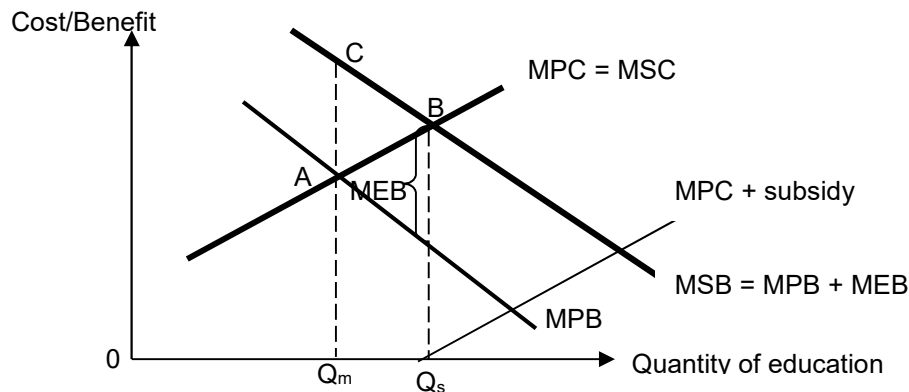
- Under free market conditions, private individuals only consider their own private benefits and costs in their pursuit of self-interest, the private equilibrium level of education services consumed occurs at MPB=MPC, i.e. Q_m.
- However, the society takes into account the full costs and benefits in the provision and attendance of schools; And the socially optimal level of consumption of the education is at where MSB=MSC, i.e. Q_s.
- Since Q_m is less than Q_s, there is under-consumption of education services by the free market, signaling a misallocation of resources.
- Between Q_m and Q_s, for every additional unit of education services consumed, it adds more to social benefit than to social cost. Hence, there is a net benefit that is not enjoyed by society since only Q_m level of education service is consumed. This loss of net benefit is known as welfare loss and is denoted by area ABC.
- This leads government to provide for free or provide heavy indirect subsidies→ reduces COP (MPC, representing the supply curve shifts down) → decrease the fees payable (or to zero) and hence increase the level of consumption.
- Here the govt puts a value to the positive externalities generated, it may be high or low depending on the govt's perception, and therefore, provides it for free or charges partial or full.

Whether a govt *provide directly up to high school or up to university level, given the presence of positive externalities* depends on their perception of the extent of market failure in education at each level. Hence different countries have different policy approaches.

Why some govt provide free education for all levels up to university

The govt thinks that the externalities at all levels are equally large. In the lower levels, externality is especially large in terms of inculcating good social values from young and a more civic-minded people leading to greater social cohesion and stability for all. At the university level, the external benefits in terms of more investments attracted by a productive labour force and leading to more job created for all workers is also large.

Why some govt provide free education at elementary levels but charge at university

- On the other hand, other govts may think that the externalities at university levels are negligible and therefore chooses not to provide for free. They think that the external benefits (cultured, civilized, gracious community etc..) to be reaped from engaging in university education are very little and that the benefits of an university education is mainly private in terms of how one can enjoy a higher wage rate in the job market because of specialized skills acquired in university.
- Hence, some governments do not see the need to intervene and the free market is able to self-sustain at an acceptable level of consumption near to the socially optimum one.

Excessive Income Inequality

Besides the presence of positive externalities, low income households may not send their children to school because they cannot afford to. This is considered inequitable because education is considered a basic right and necessity for any individual and it is unfair that a child is not able to attend school because of financial difficulty. So if there is a large group of such households in a society because of excessive income inequality, then resources are under-allocated to this sector.

With reference to the demand and supply diagram below, the demand for education services when there is excessive income inequality is at Dd (with income inequality), which is lower than the socially optimal level of demand for the good if all are able to afford to send their children to school, i.e. Dd (without income inequality). If this is the case, the extent of under-consumption, is shown by the difference between Q_s and Q_p. Without government intervention, the under-consumption of education leads to misallocation of resources.
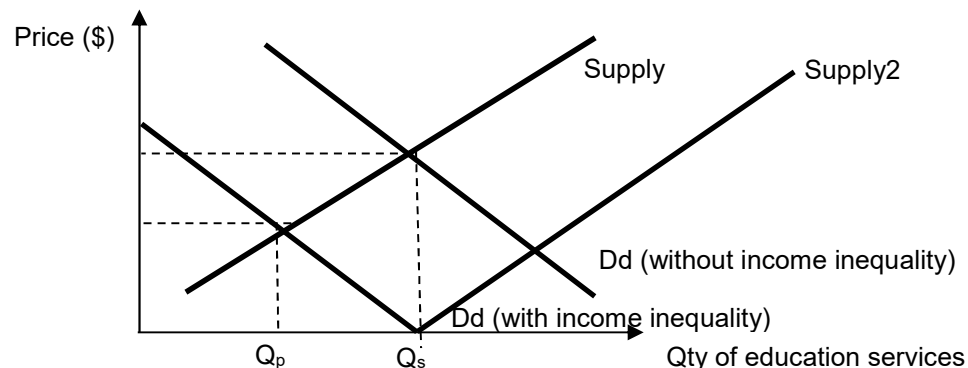
- In such cases, governments tend to intervene through direct provision for free.
- Direct provision for free will increase the supply (supply curve shifts down) and thus increase the quantity demanded to Qs and lead to optimal level of consumption.

Why some govt provide free education for all levels up to university

As explained above, if the govt feels that no one should be deprived of education at all levels because of his/her social and economic background, then it will provide for free at every level up to university.

Why some govt provide free education at elementary levels but charges at university

In some countries where the divide between the poor and rich is so great that those who can afford to study at the university level are likely to be from privileged background mainly. So to provide education for free to this group of students will further increase the wide income gap. That is why some govts do not provide university education for free as this will lead to greater inequity.

Such govts may instead provide direct subsidy (eg scholarship and bursaries) selectively to students who qualify for university education but are unable to pay the relevant fees. (evaluation mark given for this insight)

Imperfect Information

Parents with relatively poor educational qualification may be unaware of the long-term benefits that their children might derive from a proper education. Also, because the learning of knowledge is a slow long term ongoing process, individuals themselves may underestimate the long-term gains to themselves from a proper education. The long term private gains from receiving a proper education include higher potential earnings over one's working life.

If left to free market forces, demand for formal education under imperfect information is lower than the demand under perfect information. With reference to figure below, free market equilibrium occurs at output OQe (with imperfect information, DD0). However, the socially optimal level of consumption is at output OQs (with perfect information DD1). Hence, with imperfect information, too little resources will be diverted to the education sector. A welfare loss represented by area ABC arises from imperfect information as the benefits lost in not consuming QeQs units of education exceeds the resources saved in not producing QeQs units of education.
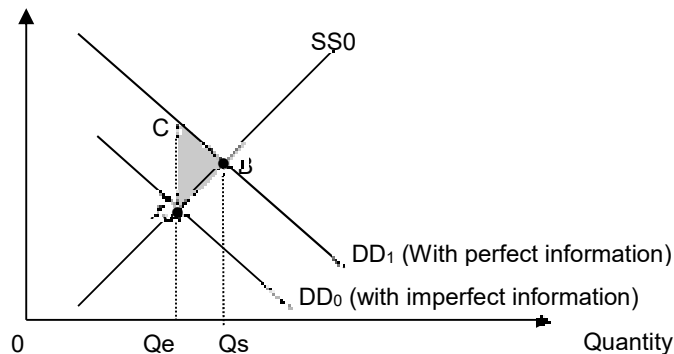
Hence, when left to the free market, education will be under-consumed and under-provided from society's point of view.

Market failure results and so many governments provide education for free up to university.

Why govt provides free education at elementary levels but charges at university

It is relatively easier for many to see the personal benefits of a university education in terms of higher status and higher paying jobs as professionals in specialized fields. Comparatively, an elementary

and high school education aims to build character and a foundation in numeracy and literacy skills. These do not result in a specialized skill and many parents are not able to see how these can translate into better paying jobs. So the market failure of imperfect information is negligible at the university level and so some govts choose to provide for free only up to high school but charges at university.

Note that a good discussion of 2 of the above sources of market failure is sufficient to score at the max L3 mark.

Conclusion and Evaluation:

Any 2 good points/insights well used to address given question and well substantiated can achieve an E3 (4-5m) score.

- Different countries have different values/cultures and their respective governments have their own sets of values and practices, eg welfare states like those in Europe believe strongly in equity and that education is a basic human right and so are likely to provide free education up to university. Others like Singapore believe in co-payment to encourage taking ownership and personal responsibility for learning and so require partial payment at university instead of providing for free. Government approaches to provision of education therefore differ.

  • Also, a government may feel that the opportunity cost involved in diverting resources to the university education market is high and would prefer to use the resources in other areas, especially if the majority of the population perceives benefits of education as mainly private rather than external and are well informed and self-motivated to consume in the education market.

  • In some countries, private universities are able to self-sustain and produce at a level near the socially optimum level and government intervention may not be to a large extent at the university levels. For example, there are many renowned universities in USA which charge full fee without any govt subsidy and others which are privately funded with very strong and wealthy alumni.

- Most govts have additional measures on top of provision or indirect subsidy to encourage greater consumption in the education sector. Eg, legislation of compulsory education (usually for primary education), campaign to keep parents informed of the benefits and scholarship and bursary to enable children from poor families to attend school.

- Govt failure - An awareness of how govts may have failed in their attempt to correct the market failure in the education sector, especially in the university level which might result in a glut of graduates. This coupled with their incompetency to create relevant jobs in the macro-economy resulted in many graduates who are not unable to find relevant employment.

- Any other other <u>economic</u> evaluative points (may not be linked to market failure), why some govt do not provide free education up to university. Eg, it might be because of budget constraints that many govt do not provide free university education which can be very costly.

Knowledge, Understanding, Application, Analysis		
L1	There are some glaring conceptual errors in the use of economic concepts to explain whether education is a public good. Mainly hashing of points which may not be used to address question. *Insufficient scope* – answered only first part of question to explain whether	**1-8**

	education is a public good using the 2 characteristics of non-rivalry and non-excludability	
L2	Answer includes first part of question on whether education is a public good through explanation of the 2 characteristics of non-rivalry and non-excludability AND explanation of at least 1 source of market failure leading to govt intervention. Theoretical framework for explaining sources of market failure and how the relevant direct provision (or indirect subsidy) works are accurate, although there may be some gaps in elaboration. Application evident with use of relevant examples in the given context.	9-14
L3	Answer includes first part of question on whether education is a public good through explanation of the 2 characteristics of non-rivalry and non-excludability AND explanation of at least 2 sources of market failure leading to govt intervention in the given context AND address the reasons for the different approaches of different govts in the given preamble. Theoretical framework for explaining sources of market failure and how the relevant direct provision (or indirect subsidy) works are accurate and well elaborated to address question.	15-20

	Evaluation	
E1	Unsubstantiated judgment or judgement that does not address the given question of the different approaches of the different govt in the education sector (as given in preamble).	1
E2	A judgment is given based on the analysis in the body of the different approaches of different govts in education sector (as given in preamble). Evaluation is substantiated.	2-3
E3	A judgment is given based on the analysis in the body of the different approaches of different govts in education sector (as given in preamble). Evaluation is substantiated AND further insights or relevant ideas are provided and substantiated.	4-5

4(a)Explain how an economist would assess changes in economic performance of an economy. [10]

Requirements:

Students are expected to explain how the key macroeconomic indicators can be used to assess a change in performance. The emphasis is on the measurement of the indicators and explaining why these reflect performance.

Intro:

- Economic performance refers to achievement of the 4 macroeconomic goals.
- Economists make use of the key macroeconomic indicators below to measure the changes in economic performance of a given country.

Body:

Macro Indicator 1: Real GDP Growth

1.Definition:

- Real GDP refers to the value of all final goods and services produced within a given country, using constant base year prices, during a given time period.

2. Formula:

- GDP growth rate = [(Real GDP current year-Real GDP previous year)/(Real GDP previous year)] x 100%

3. Assessing the change in performance:

- An increase in the GDP growth rate reflects increased economic performance, vice-versa.

4. Explanation of performance (Benefits or costs):

- The GDP growth rate reflects an increase in purchasing power and correlates to higher consumption levels suggesting improvements in material SOL.

Macro Indicator 2: Inflation Rate

1. Definition:

- Inflation refers to a sustained increase in general price level (GPL), where the GPL is proxied by the CPI which measures the price of a fixed basket of goods and services commonly purchased by a typical household.

2. Formula:

- Inflation rate = (CPI current year-CPI previous year)/(CPI previous year) x 100%

3. Assessing the change in performance:

- Improvements in performance occur when there is a fall in inflation rate if the current rate is above 2%, or a rise in inflation rate if current rate is below 2%, since low inflation is the goal.

4. Explanation of performance (Benefits or costs):

- Price stability aids in economic decision making, allowing agents to make accurate decisions based on expected price movements. It instills confidence and encourages firms to invest as profits can be accurately predicted.

Macro Indicator 3: Unemployment Rate

1. Definition:

- Unemployment refers to a situation where those who are actively seeking work are unable to find a job.

2. Formula:

- (No.of unemployed people/Labour Force) x 100%

3. Assessing the change in performance

- Since low unemployment is the goal, a fall in the unemployment rate shows an improvement in performance.

4. Explanation of performance (Benefits or costs)

- Ensuring unemployment is low and at the natural rate allows an economy to operate near its potential output and achieve productive efficiency. Conversely higher unemployment leads to fall in SOL, social instability and is a strain on the government's budget.

Macro Indicator 4: Healthy balance of payments (BOP)

1. Definition:

- BOP is a record of a country's international transactions

2. Measurement

- The main components are the current account and the capital & financial accounts.
- BOP position = Current Account Balance + Capital and Financial Account Balances

3. Assessing the change in performance

- Improvements in balances over time and avoidance of large and persistent deficits or attainment of BOP equilibrium.

4. Explanation of performance (Benefits or costs)

- An improvement in the current account balance will increase AD and lead to economic growth.
- BOP equilibrium leads to exchange rate stability.
- Avoidance of a BOP deficit protects against a potential loss of foreign currency reserves under a managed float exchange rate system.

Level	Description	Marks
L3	Thorough explanation of how economic indicators are used to assess a change in performance.	8-10
L2	Minor lapses in explanation on how a change in performance can be measured or insufficient scope in the number of indicators explained.	5-7

L1	Conceptual errors and inaccuracies. Answers that did not address the measurement of a change in performance.	1-4

(b) Discuss whether trade-offs between macroeconomic objectives is the main consideration in the choice of policies to achieve economic growth in Singapore. [15m]

Students are expected to explain the conflicts that arise due to the use of certain macroeconomic policies in Singapore and weigh the significance of these trade-offs against other factors that influence macroeconomic decision making.

Intro:

Singapore is a small, open economy that lacks natural resources. In making macroeconomic policy decisions to achieve growth, the Singapore government considers the trade-offs that may arise as a result of the implementation of certain policies. However, there are other factors that the government considers as well.

THESIS: Trade-offs between macroeconomic objectives is a consideration in the choice of policies to achieve economic growth in Singapore

T1: Use of fiscal policy to achieve growth

Conflicts in goals:

- Actual Economic growth + inflation /BOP
Explain how the use of expansionary FP to boost actual growth may result in demand-pull inflation.

- E.g ↑G ➔↑AD
- As expenditure =income and becomes the basis of future induced consumption, the process of income creation will continue with the AD shifting to the right after every round of induced consumption. The process of expansion in RNY will stop when the initial injection has been fully withdrawn. Actual economic growth is achieved.
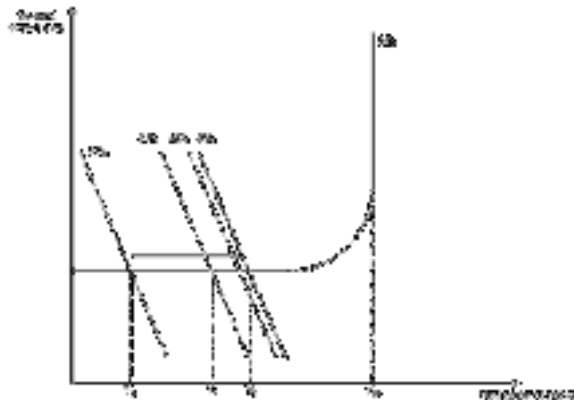
Conflict 1:

- However, GPL rises when economy is operating along intermediate/classical range of AS. This gives rise to possible demand pull inflation if there is overshooting due to time lags.
Conflict 2:

- RNY ↑ ➔ ↑M, (X-M)↓or ↑GPL ➔ X↓(if PEDx >1) ➔ worsen BOT

EV: Therefore SG government needs to consider the above conflicts when deciding when to use expansionary FP. For this reason fiscal policy in Singapore is usually centered on increasing the AS of the economy to prevent overheating and accompanying supply-side policies are used to prevent overheating through an increase in productive capacity.

T2: Use of monetary (exchange rate) policy to achieve growth

Conflict: Growth and Inflation

Explain how a depreciation achieves actual growth with the k process in the short-run.

- Depreciation ➔ ↓Px in foreign currency and ↑Pm in SGD. If PEDx+PEDm>1 ➔ (X-M)↑ ➔AD↑ ➔ RNY ↑

Conflict:

- If price of imported raw materials↑, cost of production↑ ➔↓AS (shifts up) ➔ GPL↑➔ import induced cost push inflation.

[Alternative approach (not preferred): Explain how the use of a 'gradual modest appreciation might lead to growth in LR but may worsen Singapore's BOP in SR.

Explain policy mechanism for 'gradual modest appreciation in reducing prices of imports & thus ensuring low inflation. Assuming Singapore's inflation rate is lower than foreign countries➔ LR export price competitiveness is achieved as COP falls and this encourages investment and exports growth. ↑AD and ↑AS ➔ sustained economic growth.

Conflict: Balance of trade worsens in the short-run leading to a fall in AD and RNY.]

Therefore, SG government needs to consider the above conflicts when deciding when to use monetary exchange rate policy.

EV: in consideration of the trade-off, adopt zero-appreciation of ER in times of recession.

T3: Use of supply-side policies to achieve potential growth

Conflict: Potential growth and structural unemployment

Explain how use of SS-side policy to increase potential growth may increase structural unemployment.

- E.g. giving grants to promote R&D or incentives to improve productivity and achieve potential economic growth.
- With the adoption of labour-saving technology, the displaced workers might not be equipped with new skills to be employed in high-tech sector, and this mismatch will lead to an increase in structural unemployment.

ANTI-THESIS: There are other considerations in the choice of policies to achieve economic growth in Singapore.

AT1: Size of multiplier ➔ impacts the effectiveness of FP

- Define k + state formula
- Relevance in decision-making: Size of k is significant when making decisions on whether demand-management policies (policies that affect AD) should be implemented to achieve actual growth.
- Due to import dependence and mandatory savings the mpm and mps for SG is high. The high marginal propensity to withdraw leads to a small k size.
- Autonomous increase in AD brings about smaller successive shifts of the AD curve➔ smaller than expected increase in RNY
- Implication: May need a large initial injection to bring about an expected increase in RNY and this is a strain on the government's budget.
- Between the various DD management policies, size of k affects the effectiveness of FP the most as there is a limit to which the government can increase G and/or decrease T to stimulate AD without worsening its budget position. Hence exchange-rate monetary policy is preferred.

AT2: High degree of openness ➔ impacts effectiveness of FP and tool of MP

- High total trade to GDP ratio suggests that demand management policies that target domestic demand e.g. reduction in direct taxes under FP will not be able to influence AD significantly since C and I are smaller than X.
- This affects the choice of demand management policy and explains the preference for exchange rate policy over fiscal policy.

AT3: Inability to influence interest rate ➔ impacts the tool of MP

- Relevance in decision-making: This accounts for Singapore's choice of exchange rate rather than interest rate as a monetary policy tool to achieve actual growth
- Small differences between domestic and foreign interest rates will lead to large inflow/outflow of hot money thus making it difficult for MAS to control money supply/interest rates effectively
- Based on the open economy trilemma, a country must choose between free capital mobility, exchange-rate management and control of the interest rate. Only two of the three outcomes are possible. If the exchange rate is managed but the country is open to cross-border capital flows, it must relinquish control of the interest rate.

AT4: Availability of spare capacity or state of the economy

- This would be a consideration for fiscal policy since it determines whether demand pull inflation will occur. During a protracted recession, e.g. in 2008-9, the government still opted to use expansionary FP because growth was the priority and inflation was not a consideration given the state of the economy.

Conclusion and overall evaluation:

- Trade-offs between macro objectives is an important consideration. It explains why fiscal policy is combined with supply-side policy to achieve sustained economic growth.
- Although important, it might not be the main consideration. Given that conflicts are inevitable, the priorities of the economy matter more. The government needs to weigh whether low inflation is a more urgent priority compared to economic growth.
- In the context of SG, the high degree of openness and dependence of trade are the main factors determining the choice of policy. This rather than the trade-offs explains the preference towards exchange rate policy and supply-side policies to boost international competitiveness.

Level	Description	Marks
L3	Excellent depth of analysis without any major gaps in analysis. Use of appropriate economic framework/concepts in analysis Balanced answer: Explained both conflicts & other factor(s) that the SG government may consider.	8-10
L2	Sufficient depth of analysis. Use of appropriate economic framework/concepts in analysis: AD-AS diagram, multiplier etc. Underdeveloped answer: Some lapses in analysis, policies covered or linkage to trade-offs.	5-7
L1	Conceptual errors and inaccuracies. Answers that were not anchored on trade-offs from policy choices.	1-4
E1	A summary of arguments.	1
E2	A substantiated judgement on the determinants of the policy choice.	2-3
E3	A substantiated judgement preceded by an insightful and detailed synthesis.	4-5

Essay Q5

The Singapore economy is expected to grow more slowly which is typical of a maturing economy. Our population is ageing rapidly and our infrastructure needs are rising, as we seek to build new infrastructure and renew old ones to enhance our quality of life and Singapore's economic competitiveness.

Source: Budget 2017, March 2017

(a) Explain how automatic stabilisers and discretionary fiscal policy work in an economy. [10]
(b) Discuss the extent to which the above trends affect both Singapore's budget position and its standard of living in the future. [15]

Part (a)

Question requirements:

- *Candidates are expected to explain how both automatic stabilisers and discretionary fiscal policy work.*
- *For automatic stabilisers – Use examples to explain how it works through changes in G or T without any deliberate government action.*
- *For discretionary fiscal policy – Explain how expansionary (or contractionary) fiscal policy works to stabilise the macro-economy. Explanation of multiplier effect is expected.*

Introduction:

- Fiscal policy works through the influence of government spending (G) and tax revenue (T).
- It consists of both automatic stabilisers and discretionary fiscal policy.

- Both work through G and T to stabilise economic growth rates but there are some differences.

Development:

Automatic stabilisers

- Automatic stabilisers are counter-cyclical measures put in place to smooth out the business cycle i.e. prevent excessive fluctuation in the rate of economic growth.
- This is done without any deliberate government action once these measures are put in place hence it is not subjected to time lags.
- Examples include progressive income tax structure and unemployment benefits.

Explain how G automatically decreases or T automatically increases when the economy is expanding - Answer can also be couched in terms of contracting economy

✓ Progressive income tax structures
   - Progressive tax structure: Marginal tax rate ($\frac{(\Delta\ in\ tax)}{\Delta\ in\ income}$) increases as income increases.
   - In times of economic boom, where income levels are rising rapidly, more households will now move into higher tax brackets which means that they now have to pay a higher percentage of income on personal income tax.
   - As a result, <u>tax payments (T) increase at a faster rate than the rise in income</u>. This serves to slow down the rise in <u>disposable income</u> hence slowing down the rise in consumption and consequently aggregate demand (AD).
   - Explain using diagram
   - Without the progressive tax in place, the rise in AD would be from AD1 to AD2 with income rising from Y1 to Y2. With the progressive income tax system, AD would rise from AD1 to AD3 instead and income increases at a slower rate from Y1 to Y3.
✓ Unemployment compensation
   - Unemployment benefits: payments from the government to persons unemployed.
   - In times of economic boom, production levels are rising and more workers will be required as factors of production, hence reducing unemployment.
   - This automatically means that less unemployment benefits are paid out, resulting in a fall in government expenditure (G). This slows down the rise in disposable income hence household consumption expenditure rises at a slower rate which in turn slows down the extent to which AD rises.
   - With the lowered unemployment benefits payout during a boom, the rise in AD would be from AD0 to AD2 instead of AD1 hence income rises at a slower rate from Y0 to Y2.
- A slower rise in AD serves to slow down the rate of economic growth, thus reducing the pressure on general price level / keeping inflation in check and thus helps to stabilise the economy when it is experiencing high economic growth. Automatic stabilisers hence smooth out the business cycle and reduce the volatility in economic growth rates.
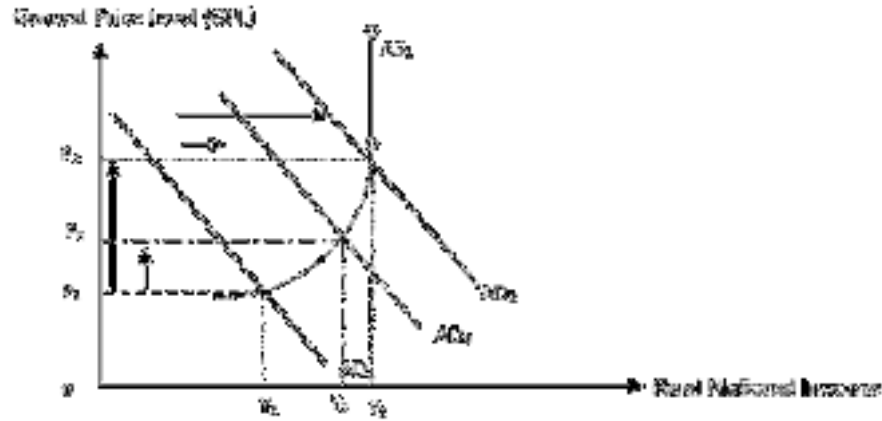
Figure 1: Automatic Stabilisers

Discretionary Fiscal Policy:

- Discretionary fiscal policy is the <u>deliberate</u> management of <u>government spending and/or taxation</u> to primarily influence the aggregate demand of an economy to achieve its macroeconomic goals.
- ✓ <u>Explain workings of either expansionary (or contractionary) fiscal policy</u>
  Expansionary Fiscal Policy

    - Adopted by the government to stimulate AD when the economy is in a recession and is operating below full employment, where AD consists of C, I, G and (X-M).
    - A budget deficit (G greater than T) can be planned by either increasing G and/or reducing T.
    - Increasing G e.g. transfer payments or public works projects directly increasing AD.
    - The government can also reduce personal income & corporate tax rates which will increase households' disposable income and firms' post-tax profits respectively. Households will hence increase autonomous consumption (C) and firms increase investment (I), raising AD.
    - Increase in AD will lead to a more than proportionate increase in RNY via a multiplier effect.
    - The multiplier process works on the premise that one person's spending generates income for the next, and the process goes through many rounds of induced spending to increase national income by a larger magnitude, compared to the initial autonomous increase in AD.
- ✓ <u>Explain *multiplier effect either with the use of diagram (Accept numerical example)*</u>
    - Government initially increase spending to build new infrastructure with a domestic contractor → leads to an initial increase in AD from AD_1 to AD_2.
    - Initial effect of this increase in AD will raise the domestic contractor's profits and employment as it hires more workers to carry out the new construction → increase RNY from Y1 to Y2.
    - Newly hired workers earning more will now increase their own spending on other domestically produced consumer goods → creating additional increase in AD from AD2 to AD3.
    - Sellers of these domestically produced consumer goods will earn higher profits, increase their production and hire more workers. Higher earnings and profits from Y2 to Y3 stimulate consumer spending once again → increase in AD from AD3 to AD4.
    - However, the multiplier process does not continue indefinitely.
    - With each round of increase in national income, the additional induced consumption generated becomes smaller and smaller due to leakages in the economy in the form of savings, taxes and imports.
    - The multiplier process stops when the initial increase in aggregate demand (AD1 to AD2) is totally leaked out of the circular flow of income i.e. initial spending = total withdrawals and real national income increases more than proportionately from Y1 to Y4.

Figure 2: Multiplier effect of discretionary fiscal policy
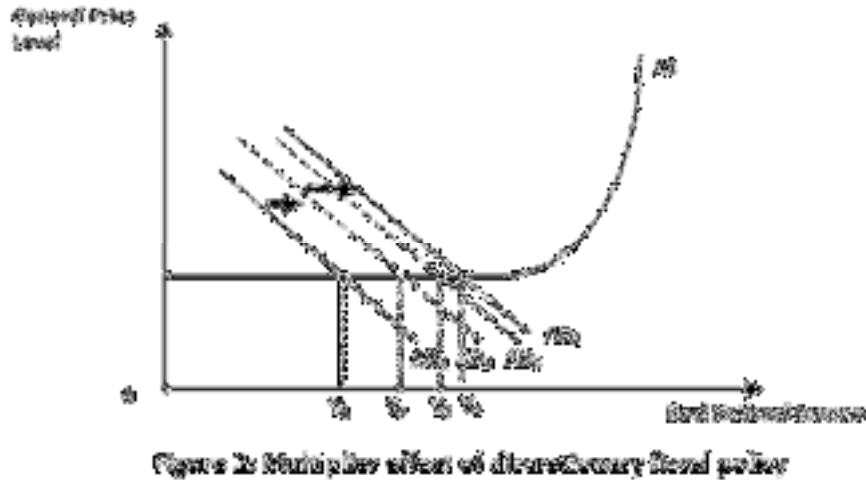
Conclusion:

- Both approaches focus on minimizing fluctuations in real GDP but have different means of doing so.
- Any suitable conclusion.

Knowledge, Application, Understanding and Analysis	
L3 (8 – 10)	For an answer that is able to analyse and explain in detail the **key workings** of **automatic stabilisers** AND **discretionary fiscal policy**. To gain full credit, answers must include explanation of how the two policies work through changes in G or T – no need for both.
L2 (5 – 7)	For an answer that is able to analyse and explain the key workings of the 2 types of fiscal policies but there are gaps in economic analysis. Max 7 – If no attempt at explaining multiplier effect Max 5 – If answer comprises only automatic stabiliser OR discretionary fiscal policy
L1 (1 – 4)	For an answer that contains glaring conceptual errors in its explanation

Part (b)

Question requirement:

- *An open-ended question. Candidates are expected to analyse the possible effects of the above trends on future budget position of the Singapore government and standard of living for the average citizen.*

- *Analysis should be used to show how each of the above trends will likely lead to a budget deficit in the future and should cover both the effects on government revenue and expenditure.*
- *Analysis on standard of living should cover both material and non-material aspects and should be explained using analytic framework such as AD/AS.*
- *The above analyses should be set within the context of the Singapore economy which should include understanding of Singapore-specific issues.*
- *Evaluation will be on the likelihood of these effects in the Singapore context.*

Introduction:

- The above trends can affect both Singapore's budget position and standard of living in the future.
- Define budget
  - Budget refers to the government's revenue (T) and expenditure (G).
  - Budget deficit refers to the situation where the government's expenditure exceeds the revenue collected (G > T), while a budget surplus is where revenue collected exceeds expenditure (G < T) for a specified fiscal year.
- Define standard of living
  - Material standard of living refers to the quantity of goods and services consumed by the average person in the economy in a given period of time.
  - Non-material standard of living refers to the qualitative aspects of welfare, including health, stress levels, education and security among other aspects

Development:

Thesis 1. Effects of above trends on future budget position

- **The above trends will worsen Singapore's budget position (negative effects)**
Implications of slower rate of growth

- When the Singapore economy is expected to grow more slowly, this means that there is a slower rate of economic growth and results in <u>lower expected tax receipts</u> (↓T) from corporate and personal income taxes.
Implications of ageing population

- Coupled with a fall in size of labour force due to ageing population → Smaller tax base for personal income tax → ↓T
- Moreover, there is likely to be increased government spending on healthcare and infrastructure to meet the ageing needs of the elderly e.g. lift upgrading, hospitals, CHAS → ↑G
Implications of building new infrastructure and renewing old ones

- At the same time, the Singapore government is also spending on infrastructure to boost future growth e.g. Transport network which will further necessitate increased government spending → ↑G

Overall effects of all the trends on budget

- ❖ Tax revenue (T) is rising more slowly due to slow growth and could even fall due to the narrowing tax base. Coupled with the significant need for the government to increase G (↑G coupled with ↓T), the above trends will lead to an <u>overall future budget deficit where G > T or overall fall in surplus (since the Singapore government takes a prudent stance and tends to maintain a budget surplus in years where growth is positive)</u>

- ❖ These changes may result in more persistent budget deficits (or worsening of budget positon).

Thesis 2. The above trends can lead to lower of standard of living in the future (negative effects)

<u>Implications of slower rate of growth</u>

- ▪ Real GDP per capita is the most commonly used measure to assess the material standard of living. GDP measures the value of all final goods and services produced within the geographical boundary of a country during a given period of time.
- ▪ Slower growth rates will mean a slower rise in national income levels. If inflation rates and population growth rates rise faster than nominal GDP, there will a fall in real GDP per capita which means that households now have lower purchasing power and less able to consume goods and services. This leads to a fall in material SOL.
- ▪ Moreover, real GDP per capita may function as an indirect proxy for non-material SOL. A fall in real GDP per capita will now mean that consumers are less able to enjoy more goods and services e.g. leisure activities, healthcare and education that enhance their non-material SOL.

Students can also argue that real GDP per capita is still rising but at a slower rate as a direct implication of slower (real) growth rates.

<u>Implications of ageing population</u>

- ▪ Ageing population can result in smaller size of labour force if the number of people leaving the workforce outstrips those who are entering.
- ▪ This will pose supply side constraints, leading to rising wage cost. The fall in labour supply will exert an upward pressure on wages → fall in SRAS. LRAS with a fall in quantity of labour hence causing a fall in productive capacity of the Singapore economy.
- ❖ If inflation rate exceeds nominal growth rate → fall in real national income, assuming stable population size → fall in real GDP per capita and purchasing power → fall in consumption → fall in both material and non-material SOL.

Other accepted points:

- ▪ Persistent budget deficits may mean that:
  1. Singapore government will have to raise personal income tax rates or find alternative sources of tax revenue e.g. raising consumption tax rates (Goods and Services Tax)
     - o ↑ GST → Lower consumption → lower material and non-material SOL of the average citizen.
     - o Possible application: Given Singapore's open nature of trying to attract foreign talent to mitigate the problem of ageing population, it is more likely for the Singapore government to raise consumption tax rate rather than personal income taxes. Moreover, GST is regressive in nature → impact of fall in SOL will be felt more by the lower and middle income group as compared to the higher income groups.
  2. Lower ability for Singapore government to spend in the future
     - o A fall in government spending can lower non-material aspects of SOL e.g. if the government spends less on merit goods such as the rejuvenation of public housing, healthcare spending and transport network.
     - o Possible application and evaluation: Given the past prudence of Singapore government and its accumulated past budget surpluses, the Singapore government has the option of dipping into its reserves to continue to finance its expenditure.

Anti-thesis:

1. **Budget deficits may improve future standard of living in Singapore.**
▪ Budget deficits imply lower tax revenue and increased government spending which tend to increase AD and therefore an expansionary effect on the economy. This will lead to higher income levels and therefore an increase in material and non-material aspects of SOL.

2. **Spending on infrastructure can improve productive capacity in the long run and attract FDI**
▪ The above trends tend to increase government expenditure in the future while decreasing sources of tax revenue. Whether or not this will actually lead to a budget deficit in the future depends on, amongst other things, the Singapore government's ability to raise and sustain economic growth rate into the future.
    o The rise in government spending on infrastructure such as roads and transport facilities such as airports and ports could contribute to a budget surplus in the future. Improvement in such infrastructure will increase LRAS (potential economic growth). Moreover, if it can attract FDI or domestic firms to increase investment in the future, AD will also rise.
    o Possible application: The Singapore government has always been mindful to spend on necessary pro-business infrastructure and measures. This can lead to an increase in domestic and foreign investment which could in fact lead to future increases in AD and subsequently capital accumulation that could lead to an ↑ in LRAS, resulting in non-inflationary economic growth into the future.

3. **Other factors could contribute to budget position and SOL**
▪ The Singapore government can also adopt measures to counter the negative impact of the above trends:
    1. Singapore is an open economy – i.e. open to labour migration → Mitigates the problem posed by ageing population.
        o Rising number of foreigners → increase the income tax base
        o Also increases LRAS and hence reduces inflationary pressure
    2. Singapore government has been pursuing flexible labour market e.g. contract, flexible work arrangement or hours to encourage increase in female labour participation rate or policies such as education and retraining that can increase labour productivity. If successful, this can increase source of income tax receipts or mitigate the supply-side constraints posed by the ageing workforce, increasing the LRAS as well.

Synthesis

▪ An increase in AD coupled with the increase in AS will lead to non-inflationary actual economic growth.
▪ Rise in GDP per capita will mean higher purchasing power of citizens and hence higher SOL.
▪ With a rise in GDP in the future, the Singapore government will be able to receive increased tax revenue which it can then spend on improving both material and non-material SOL of the average citizen.
▪ Higher economic growth rates would also mean that the Singapore government can collect higher tax revenue from corporate or personal income taxes and also from other indirect taxes such as GST.
▪ Hence the above trends need not necessarily lead to budget deficit and lowering of SOL in the future.

Conclusion:

▪ The above trends pose certain challenges to both the budget position and SOL of the Singapore economy in the future.

- However, these challenges can be overcome if the Singapore government continues to be prudent and pursue pro-growth policies to mitigate the effects of these trends.
- There is still uncertainty since the effects of long term growth policies do not necessarily guarantee results.
- Any other suitable conclusion.

<table>
<tr><th colspan="2">Knowledge, Application, Understanding and Analysis</th></tr>
<tr><td>L3 (8 – 10)</td><td>
• Well balanced answer, with a good analysis on the effects of the trends on both budget position (government spending and revenue) and standard of living (material and non-material aspects) as well as other factors that could counter the negative effects on budget
• Evident application to Singapore context
• Well labelled and effective use of diagrams</td></tr>
<tr><td>L2 (5 – 7)</td><td>
• May have occasional conceptual errors
• Answer shows clear understanding about the effects of the trends on both budget position and SOL
• Appropriate use of economic framework to analyse issues but there are gaps.
• Max 7 – If no application to Singapore context
• Max 6 – If answer involves only effects on future budget position OR future SOL</td></tr>
<tr><td>L1 (1 – 4)</td><td>
• Weak and incomplete understanding of the question and context
• Answer contains clumsy explanation with lots of glaring conceptual errors
• Mere stating of effects with little rigour in analysis. Structure and linking sentences are weak
• Max 2 - Nearly totally irrelevant or all concepts raised have glaring conceptual errors</td></tr>
<tr><th colspan="2">Evaluation</th></tr>
<tr><td>E3 (4 – 5)</td><td>For an answer that uses analysis to support an evaluative appraisal of the potential effects of the trends on the future budget position and SOL of the Singapore economy.</td></tr>
<tr><td>E2 (2 – 3)</td><td>Makes some attempt at an evaluative appraisal of the potential effects.</td></tr>
<tr><td>E1 (1)</td><td>Unsupported concluding statement(s)</td></tr>
</table>

6 Conceived as a single market involving free movement of labour and capital, the ASEAN Economic Community (AEC) is part of broader efforts to integrate ASEAN economies. ASEAN's market of more than 600 million people, and almost US$3 trillion in combined GDP, represents vast opportunities and threats for the member countries in ASEAN, including Singapore.

Discuss whether Singapore stands to gain more from the AEC compared to the other ASEAN countries. [25]

Candidates are expected to explain both the microeconomic and macroeconomic gains and losses of the ASEAN Economic Community (AEC) on the various member countries in ASEAN. All 3 flows should be considered: increasing volume and variety of cross-border transactions in g/s, flows of capital and technology and finally labour migration. Evaluative comments include the extent of gains vs. losses on the Singapore economy relative to other member countries.

Intro:
- ASEAN Economic Community (AEC) is a form of economic integration which aims to

increase the volume and variety of cross-border transactions in g/s, flows of capital and technology and finally labour migration between various ASEAN countries
- There are both microeconomic and macroeconomic gains and losses from this movement and the extent of gains and losses are largely influenced by the nature of the economy.

THESIS: GAINS FROM AEC

MACROECONOMIC

T1: Actual Growth & fall in cyclical unemployment
- AEC encourages freer trade & signing of Free Trade Agreements (FTAs) which *removes protectionist measures such as tariffs* that is aligned with the theory of comparative advantage.
    o Following the *theory of comparative advantage*, countries should specialize and export g/s that they can produce at relatively lower opportunity cost + import g/s that they have a comparative disadvantage in. Since Singapore has an abundance of skilled labor and infrastructure, we can produce high value-added g/s at relatively lower opportunity cost compared to other countries in ASEAN. Thus, we have a comparative advantage in biochemical products and pharmaceutical products and will export these to the other countries in the region. A reduction in tariffs would further enhance the price competitiveness of our exports and promote greater regional trade, thus export revenue (X) rises.
    o *Reduced trade costs*: Cross-border trading processes have been simplified, including in customs procedures and rules of origin, harmonization of technical regulations and mutual recognition arrangements.
    o Furthermore, trade based on CA allows countries to access cheaper FOP (due to removal of tariffs) + outsourcing to low cost regions → lowers per unit COP → boost export price competitiveness → since PED_{sg} exports >1 due to the presence of a large number of substitutes → when P_x falls, Q_d rises more than proportionately → X rises
    o **Ev:** Singapore is very reliant on export demand: evident in the fact X is approximately 170% of our AD. Thus, any increase in X will impact AD significantly

- Greater investments inflow
    o FTAs: *removal or reduction in tariffs when they export from countries in the AEC*, enhancing their export competitiveness → increases their expected rate of return on investment → incentivize foreign firms to set up their operations in AEC
    o Furthermore, the AEC arrangement may *reduce regulations and red-tape* towards FDI → reduces cost of doing business → incentivize foreign firms to set up their operations in AEC
    o FTAs also allow FDI to *gain access to larger markets* + rest of ASEAN without tariffs (tariff-free) → increases expected rate of return of investment → incentivize foreign firms to set up their operations in AEC
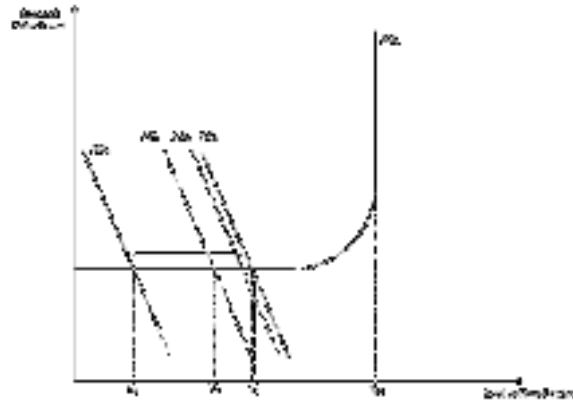
- ↑X and ↑I → → ↑AD → by the multiplier process → more than proportionate increase in rNY → **actual growth + reduction in cyclical unemployment (labor = derived demand)**
- Increase in rNY → assuming that all goods produced are consumed + pop size relatively constant → mSOL
- Furthermore, FDI inflow = job creation (AEC could generate around 14 million new jobs by 2025) → reduces unemployment → boost household disposable income & increase purchasing power → more affluent middle class will also drive the consumption of goods and services

Ev:
- *Yes, SG most to gain as we have a very small domestic market thus highly dependent on external demand (we are one of the most open economies in ASEAN) to grow compared to other larger economies in ASEAN (e.g. Thailand) that can rely on domestic consumption/investment for growth. AEC arrangement benefits use greatly as AD rises to a larger extent compared to other larger economies.*
- *Extent of gains depends on ability of an economy to maintain export competitiveness and attractiveness as an FDI destination*

T2: Improved BOP
- Assuming that increase in X (high-value exports) > increase in M (low value imports) → **improve BOP CA**
- Presence of FTAs, tax incentives and a skilled labor force draws Foreign Direct Investments (FDIs) → **improves BOP KA**
- Outflow of FDI from SG to develop brand abroad/ due to outsourcing to region → repatriation of profits and incomes in the LR
- Ceteris paribus, these improvements in current and capital account respectively will thus improve a country's BOP in SR

Ev:
- *Since SG has enjoyed BOP surplus → AEC will enhance size of our surplus.*
- *Having a BOP surplus is important as it gives us sufficient pool of foreign reserves which may be used in times of recession + allows SG government to manage our S$NEER*

T3: Reduction in inflationary pressures
- Trade based on CA allows countries to purchase from least cost producer: Trading preferentially with countries such as Vietnam & Myanmar that have an abundance of low-skilled labor and abundance of land → CA in manufactured products and agricultural products + Integrating industries across the region to *promote regional sourcing* → downward pressure on import prices → **lower the tendency for imported cost-push inflation**.
- Furthermore, due to our lack of natural resources and fact that we have limited FOP → v dependent on imports, especially imported FOP → tariff-free trade would also lower per unit

COP for producers → producers are more willing and able to produce g/s at all GPL → increase in SRAS as seen in the diagram below → fall in GPL from P_0 to P_1 (lower inflationary pressures)
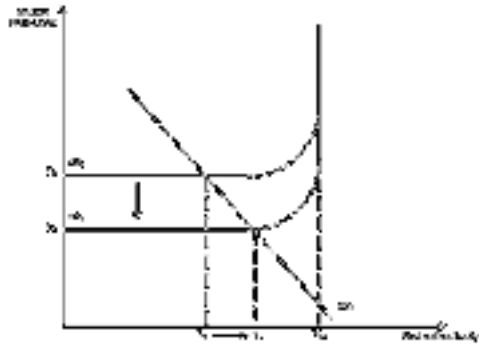

- Inflow of labor due to greater interconnectedness between ASEAN countries and relaxed immigration laws → increase in supply of labor (especially low-skilled foreign labor that are willing and able to accept lower wages)→ downward pressure on wages → **alleviate wage-push inflation**
- As labor = FOP → lower per unit COP for producers → will have a similar effect to above

Ev:
- *Most gains for Singapore given that we lack FOP (cost of production in SG is relatively higher than rest of ASEAN due to lack of resources) → leads to higher domestic prices for g/s. Extent that world price differs from domestic price will be significantly more for SG than rest of ASEAN → gains higher for SG as we are more able to mitigate inflation*
- *Our high dependency on imported FOP compared to other ASEAN nations such as Indonesia that has an abundance of natural resources makes us more vulnerable to cost-push inflation and the removal of tariffs would reduce import prices and mitigate inflationary effects greatly*

T4: Potential Growth & Reduction of LR inflationary pressures
- Influx of FDIs due to *greater expected future profits from an enlarged ASEAN market* *(*ASEAN as a single economy is forecast to become the fourth largest economy in the world by 2030, behind only the United States and China)
- Besides getting to enjoy lower trade barriers and higher trade flows, they can access larger markets and enjoy the same incentives regardless of which ASEAN country they operate in. With tariff and non-tariff fully eliminated, those looking for opportunities within the region will be able to expand more easily, while tapping on the integrated production base → capital accumulation (e.g. building of factories, manufacturing plants etc.) + *promote greater diffusion of new technologies + sharing of best-practices + human resources development and capacity building* (e.g. Electronics & manufacturing) → increase in productive capacity → greater ability to produce g/s given a fixed quantity of factor inputs
- *Mutual recognition arrangements (MRAs)* in six sectors - engineering, nursing, architecture, medicine, dentistry and tourism - as well as framework arrangements on MRAs in surveying and accounting to help facilitate cross-border labor mobility. These agreements allow each member country to recognize education and experience, licenses and certificates granted in another country → increase labor supply (skilled + low skilled) → increase prod cap
- Greater interconnectedness between regions → greater competition for jobs which incentivizes workers to upgrade skills → boost productive cap
- In the long run → increase an economy's productive capacity and shift the aggregate supply from AS0 to AS1, resulting in **potential growth** →this helps to **reduce long run inflationary pressures.**
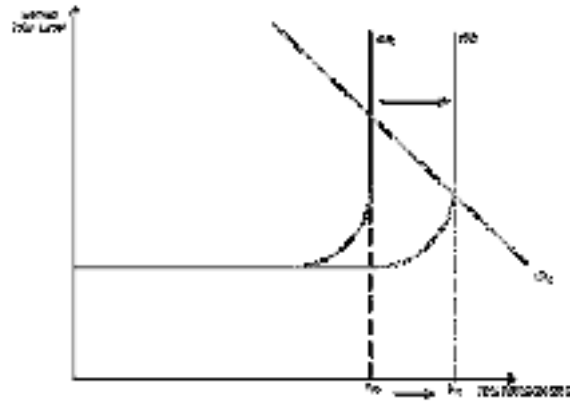
Ev:
- *This is of particular importance to Singapore given that domestic inflation threatens our export competitiveness, which determines the quantity demanded of our exports and export revenue.*
- *In light of the fact that we lack natural resources + small population + ageing population → very dependent on external sources for sustained growth. SG stands to gain the most as we have favorable policies to attract FDI + foreign talent: lowering income tax + liberalize immigration laws + Grant 'S' pass + work permits + intellectual property laws compared to other countries in the region which have higher corporate & income tax + lack proper infrastructure etc. → greatest inflow of labor (especially low cost labor)*

MICROECONOMIC

T5: Greater profits
- ***Expansion of market*** & greater demand for Singapore's g/s → Increased output that allows firms to exploit greater internal economies of scale (iEOS) + Explain any 1 e.g. of an iEOS that may be exploited → thus fall in COP
- Moreover, access to imported FOP with tariffs removed → lower COP
- Greater demand also increases firms' revenue (PxQ)
- Overall, costs fall while revenue rises → profits rise (producers benefit)

Ev: Especially beneficial for SG vs. other countries due to our very small domestic market compared to other larger nations in ASEAN with greater populations. Small and medium-sized enterprises will be better placed to expand regionally and then globally.

T6: Greater variety & choice
- Following the ***theory of comparative advantage***, countries should specialize and export g/s that they can produce at relatively lower opportunity cost + import g/s that they have a comparative disadvantage in. Since Singapore has an abundance of skilled labor and infrastructure, we can produce high value-added g/s at relatively lower opportunity cost compared to other countries in ASEAN. Thus, we have a comparative advantage in biochemical products and pharmaceutical products and will export these to the other countries in the region
- Many other countries in ASEAN, on the other hand, such as Thailand and Brunei have an abundance of natural resources and can produce agricultural products at a relatively lower opportunity cost. These countries will thus specialize in agricultural products and export them to other countries.
- Assuming favorable terms of trade, trade based on specialization and exchange will allow

all countries to consume beyond their PPC
- This improves consumers' welfare as they are able to consume a greater variety of g/s and quantity of g/s

Ev: Benefits are especially large for SG as we lack ability to be completely self-sufficient unlike many other countries in ASEAN. Thus, trade based on CA allows consumers to consume a greater variety.

ANTI-THESIS: LOSSES FROM AEC

MACROECONOMIC

AT1: Increase vulnerability to external shocks
- Increasing interconnectedness due to AEC → economic turmoil in one country has implications on other countries
- Especially for Singapore given our reliance on external demand to drive growth etc. E.g. When these countries face falling national income → since YED sg exports >0 (e.g. export high value added products: integrated circuits + biomedical g/s) → DD for SG's exports will fall greatly → fall in export revenue → ↓ AD, actual growth and worsening unemployment.

   Ev: SG will be hardest hit, unlike economies with a large domestic market which was able to dampen recessionary effects through its strong domestic demand.

- External shocks may also include supply-side shocks in terms of fluctuations in prices of imported FOP → e.g. Climate change/ sudden drought might result in poor harvests of agriculture & push up prices of agriculture → imported inflation. Furthermore, if imports = FOP, this results in cost-push inflation & this will negatively affect a country's LR export price competitiveness

   Ev: SG will be hardest hit due to strong reliance on imported FOP compared to other ASEAN nations that are possess self-sufficiency in certain FOPs

AT2: Loss of CA + Structural Unemployment
- Changes in supply and demand patterns (dynamic CA: due to lower COP in regional countries in developing ASEAN nations such as Myanmar + Vietnam due to their abundance of labor) may cause outflow of FDI+ outsourcing of certain parts of production process abroad (e.g. HR/legal work)
- Moreover, dumping may arise → country loses competitiveness → industries shutdown + workers unemployed
- This may result in structural unemployment where there is a mismatch between jobs offered in high-skilled sunrise industries and skills offered (occupational immobility) by the unemployed workers in the short run
- Given that pace of industrialization is faster than the rate of accumulation of human capital → "skills gap" arises where demand for new skills outpaces supply of workers with relevant skills

Ev: SG may not be the hardest hit as the effects are reduced by existing policies that the government has implemented to discover new areas of CA + SkillsFuture to ensure that the workforce has updated skills etc.

AT3: Crowding out of domestic investment
- Increasing reliance on FDI may hinder the growth and development of domestic investment due to competition for loans and resources
- Given the 'footloose' nature of FDI → may look to other regions instead due to increasing competitiveness of those countries → may have negative implications on potential growth

possibilities if they leave

Ev: Singapore likely to be most adversely affected due to our heavy reliance on FDI

AT4: Negative effect on standard of living
- Influx of foreign labor + FDI may cause increasing competition and a strain on existing infrastructure E.g. housing and healthcare services, land, public transport, roads. Increasing demand for various g/s causes an upward pressure on prices and increases cost of living for locals (inflationary effects)
- Moreover, many developed economies have stringent production requirements which require firms to use cleaner but more expensive production methods. On the other hand, developing economies have relatively less stringent environmental regulation of the activities of firms and this encourages many MNCs re-locate their industries to developing countries. Thus, FDI production activities may generate negative externalities such as pollution
- These effects may impede sustainable growth and worsens both material and non-material living standards in a country

Ev: Singapore will likely be more affected in the short run as we have size and resource constraints as a small country. This effect may be less pronounced for larger nations will abundant spare capacity. However, this effect more short term than long term as the government expands our existing infrastructure to keep up with the growing needs of our expanding population

MICROECONOMIC

AT5: Worsens income inequality
- ***Inflow of migrant workers* (increase in supply)** from countries poorer than their recipient countries (E.g. from rest of ASEAN to Singapore) are typically willing to work for lower pay than the local worker due to the lower cost of living in their home country. Thus, wages for jobs where migrant workers are in competition with locals may be depressed. This negative effect on wage rates falls mainly on the unskilled domestic workers who compete with and are substitutable by immigrants
- Furthermore, changing comparative advantage: low-cost labor intensive industries & 'footloose FDI' relocate abroad to Vietnam, Myanmar → ***fall in demand*** for low-skilled labor in SG → further reduce wages or may even lead to unemployment
- On the other hand, highly skilled workers (who are also in the higher income group) are likely to be ***in great demand*** because of their higher productivity level and their skills that are relevant to sunrise industries. They are sought after not just by local industries but also by the regional labor market. As such, they are likely to keep their jobs, enjoy greater job prospects and even enjoy wage increases.
- The reduction in wages of low-skilled labor and rise in wages of high-skilled labor results in income inequality.

Ev: SG has a lot to lose as we are not a welfare state. However, the government has made conscious effort to mitigate these effects by ensuring that workers remain relevant by equipping them with the relevant skills to meet the changing demands of the economy.

Conclusion:
- By transforming ASEAN into a single market and production base, the AEC will boost the competitiveness and connectivity of the region as a whole. If implemented, the AEC could lift aggregate output by 7 per cent by 2025. This serves to largely benefit all.
- Weighing benefits and costs, SG will stand to gain more from the AEC relative to other

countries in the region
- SG govt has implemented policies to enhance benefits (E.g. through signing many FTAs) + mitigate costs (e.g. through SkillsFuture policy which tries to meet changing needs of economy + find new areas of CA)
- Moreover, unlike many of the other countries in the region, SG may not be able to sustain economic growth only through the use of domestic policies
- Ideally, the AEC will help link up the less developed economies with the more developed ones, bringing about a more equitable economic development across the region. As such, ASEAN as a whole will be better integrated into the global economy.
- However, governments must make a concerted effort to ensure that the gains are distributed equally within and across countries.

Knowledge, Application, Understanding, Analysis		
L1	- Descriptive answer that lacks the use of economic framework/concepts - Superficial analysis/listing of effects (lacks depth) - Did not link back to macroeconomic/microeconomic effects - Did not acknowledge the existence of various flows that arise due to increasing economic integration - Insufficient scope - Glaring conceptual errors - Did not address the question	**1-8**
L2	- Sufficient depth of analysis → use of appropriate economic framework/concepts in analysis: AD-AS diagram, multiplier, theory of CA - Linked to macroeconomic and/or microeconomic goals with some lapses in clarity - Addressed <u>at least 2 flows</u> that arise due to increasing economic integration - Underdeveloped answer: several gaps may arise in terms of analysis - Balanced answer→ explained <u>BOTH</u> benefits and costs of AEC - Sufficient scope in analysis Weak application of AEC context	**9-14**
L3	- Excellent use of appropriate economic framework/concepts in analysis - Linked clearly to microeconomic and/or macroeconomic goals - <u>Addressed all 3 flows</u> that arise due to increasing economic integration ○ To score high L3 must explain reasons BEHIND increase in flows (e.g. reduce trade barriers and tariffs thus increase trade) - Answer fully and thoroughly developed - Balanced answer→ explained <u>BOTH</u> benefits and costs of AEC - Sufficient scope in analysis - Strong application of AEC context	**15-20**
Evaluation		
E1	- Unexplained and unsubstantiated statement	**1**
E2	- Substantiated judgement on whether or not Singapore gains more relative to other countries in ASEAN	**2 – 3**
E3	- Evaluative appraisal of Singapore's gains/losses - Excellent synthesis and insightful comments related to the nature of the Singapore economy that determines the relative gains/losses	**4 – 5**