VICTORIA JUNIOR COLLEGE
JC 2 PRELIMINARY EXAMINATION 2019
HIGHER 2

ECONOMICS **9757/01**

19 September 2019

Paper 1 Case Studies **2 hours 15 minutes**

Additional Materials: Answer Booklet

READ THESE INSTRUCTIONS FIRST

Write your name and class on all the work you hand in.
On the cover page of your answer booklet(s), remember to also fill in your exam number and syllabus details.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagram or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of **8** printed pages

[Turn over

Question 1: Agriculture, water crisis and poverty
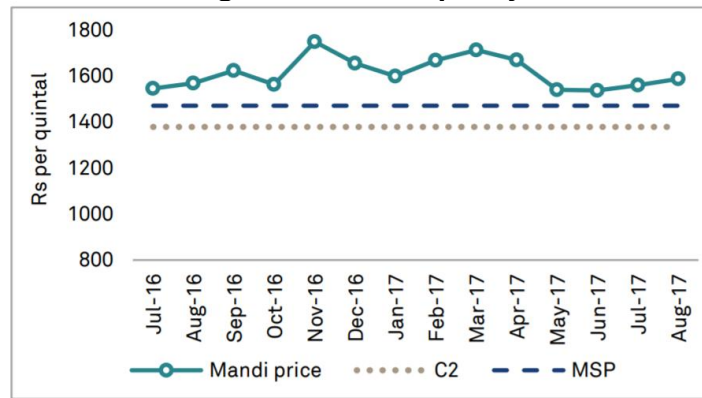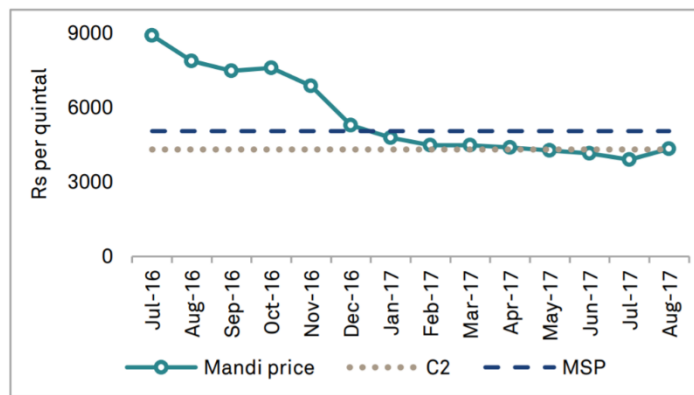
Figure 1: Price of paddy*

Figure 2: Price of tur*

* Paddy and tur are food crops.
Mandi price refers to market price. MSP is the minimum support price fixed by the government.
C2 is the cost of cultivation.

Source: CRISIL, 2017

Extract 1: Drought to hurt the Indian economy

Due to two consecutive years of poor monsoon, water shortage in reservoirs as well lowering of the water table have created a serious challenge for the drought-affected areas in 10 Indian states. About 330 million people across 256 districts are facing the grave situation.

A study by Assocham has estimated that this drought will cost the national economy at least Rs 650,000 crore (approximately US$100 billion). With regards to the economic impact of the drought, the study said that financial resources will get diverted from development to providing aid. Furthermore, the possible migration to other places puts pressure on urban infrastructure and supplies.

The drought would also create inflationary pressures, the report added.

Extract 2: Improving economic outlook

In mid-April, an "above-normal" rain forecast by the India Meteorological Department was a godsend for a country reeling from its worst water crisis in four decades. Over 600 million people in India depend on agriculture for their living and nearly two-thirds of land under cultivation has no irrigation and so relies on rain. In April, the Reserve Bank of India, the country's central bank, cut interest rates for the first time in six months; a good monsoon could raise the prospect of another cut.

Source: 25 May 2016, The Economist

Figure 3: India: GDP per capita in current prices (in USD)
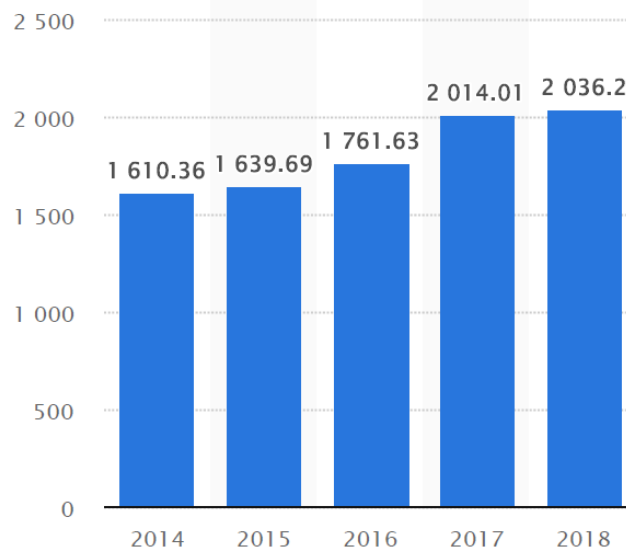
Source: Statista

Extract 3: Madhya Pradesh farmer protests

In June 2017, farmers in Madhya Pradesh, India, protested by demanding higher Minimum Support Prices (MSP), as well as a complete debt waiver. Farmers there had asked the central government to deliver on its promise of adjusting MSP to be cost of production plus 50 percent profit – a price that was declared impractical by the government in 2015.

After two years of drought resulting in successive crop failures farmers were finally relieved to receive abundant rainfall and a good harvest. Yet, they are still struggling to make a profit on their produce. Overproduction of food can push farmers into distress just as much as a failed harvest. A supply glut, such as the one presently faced by pulses, chili, potato, and onion cultivators in India, generally leads to a price crash, resulting in poor returns. But it is exactly for situations such as these that the MSP policy is in place in the country – to shield farmers from market volatility.

The MSP scheme forms part of India's agricultural price policy. It is the price at which farmers' produce in certain crops is bought by the government during the relevant seasons. When the market prices dip to a level that is below the MSP, the government agencies step up and buy over the produce in order to protect the farmers.

However, the states have either failed to procure most of the produce at MSP or are really slow in the process, forcing many farmers to sell far below the set price. There could also be exploitation by commission agents. They have been reported to have bought the farmers' produce at much below the MSP.

Sources: 14 June 2017, YourStory Research and 1 August 2018, Citizen Matters

Extract 4: Water crisis in India

India is suffering its gravest water shortage since independence due to the El Niño effect. Every day brings news of exhausted rivers and wells, destitute farmers migrating to the cities and water trains being dispatched to parched regions.

The central government has responded with many promises. In February Narendra Modi, the prime minister, pledged to double farm incomes by 2022. Other ministers speak of massive irrigation projects, and have revived an ambitious water-diversion scheme for parched regions that involves no fewer than 37 links between rivers. Most links would be via canals, some 15,000km of artificial waterways in all.

Hydrologists are sceptical of big projects, open to massive cronyism, when simpler and environmentally sounder solutions are at hand. India relies not on rivers but on underground aquifers for some two-thirds of its irrigation and for more than three-quarters of its drinking water. Despite the severity of the current drought, the real problem is not a lack of water. Per person, India has twice as much of it as water-starved northern China. But India is being hampered by mindless overuse and, in many places, a lack of sensible water-allocation policies. Pricing water properly would be much better than transporting it about at great expense.

Source: 14 May 2016, The Economist

Extract 5: Modi's $87 billion river-linking gamble set to take off as floods hit India

After years of foot-dragging India will begin work in around a month on a US$87 billion infrastructural scheme to connect some of the country's biggest rivers. The mammoth plan entails linking nearly 60 rivers, which the government hopes will cut farmers' dependence on fickle monsoon rains by bringing millions of hectares of cultivable land under irrigation. Government officials say diverting water from bountiful rivers such as the Ganges, Godavari and Mahanadi to sparse waterways by building dams and a network of canals is the only solution to floods and droughts that plague India every year, killing hundreds of poor people and withering crops.

Not everyone is convinced the projects should be the priority, however. "Theoretically we can't find fault with the plan," said Ashok Gulati, a farm economist who has advised governments. "But spending billions of dollars in a country which wastes more water than it produces, it makes more sense to first focus on water conservation."

The proposed 77-metre high (250-ft), 2-km long dam on the Ken River will submerge 9,000 hectares of mostly forest land. A big portion will come from the Panna Tiger Reserve. The forest reserve, a major tourist attraction, is home to 30 to 35 tigers and nearly 500 vultures. Authorities say they have planned for the safety of tigers and vultures.

Questions

(a) Explain how the changes in prices of paddy and tur are likely to affect what farmers will produce in the agriculture year 2018. [2]

(b) "A good monsoon could raise the prospect of another cut" of interest rates (Extract 2).

Explain why the Reserve Bank of India would be less concerned about cutting interest rate amidst a good monsoon. [4]

(c) Explain why Figure 3 might not be useful for drawing conclusion about change in the material living standards of a typical resident of rural India. [4]

(d) Explain why a network of artificial canals that divert water from bountiful rivers to parched regions (Extract 5) can be considered a public good. [2]

(e) Discuss the effectiveness of the minimum price support scheme (MPS) to improve the livelihood of farmers in India during a good harvest. [8]

(f) If you were an economic advisor to the government of India, discuss whether you would have advised it to go ahead with the US$87 billion water diversion scheme. [10]

[Total: 30]

Question 2: Green growth and sustainable development

Table 1: Annual growth rates in selected countries

	% change in real Gross Domestic Product (GDP)				
	2012	**2013**	**2014**	**2015**	**2016**
China	7.9	7.8	7.3	6.9	6.7
Indonesia	6.0	5.6	5.0	4.9	5.0
UK	1.4	2.0	2.9	2.3	1.8

Source: World Bank

Table 2: Selected economies' composition of aggregate demand (2016)

	Components of Aggregate Demand (as % of GDP)				
	Household Consumption Expenditure (C)	**Investment Expenditure (I)**	**Government Current Expenditure (G)**	**Exports (X)**	**Imports (M)**
China	40	44	14	20	18
UK	66	17	19	28	30

Source: World Bank

Extract 6: China's economy cools as government curbs hit factories, property and retailers

The world's second-largest economy has started to show signs of fatigue, with momentum seen slackening further as Beijing's crackdown on debt risks curbs demand. Beijing is already in the second year of a campaign to reduce high levels of debt as authorities worry that riskier lending practices, especially in the real estate sector, could endanger the economy. In addition, tighter pollution rules have hit factory output. China's exports growth have eased last month as the war on pollution dragged on manufacturing activity and pulled average daily crude steel output down.

Data showed China's new loans fell more than expected last month to their lowest in a year as banks tightened mortgage lending. While the People's Bank of China kept liquidity tight through much of the year by raising short term rates, growth is still expected to easily meet the government's full-year target of around 6.5 percent for 2017.

Source: Reuters, 14 November 2017

Extract 7: European ban on palm oil in biofuels upsets Jakarta, KL

Indonesia and Malaysia, which together produce nearly 90 per cent of the world's palm oil, are reeling from a decision by the European Parliament last week to ban the use of the commodity in motor fuels from 2021 to prevent deforestation and meet Europe's more ambitious climate goals.

Political leaders in both South-east Asian countries have warned that the move may lead to a trade conflict as it looks like a protective trade barrier. They also warned that the livelihood of over six million people - comprising mostly farmers with small holdings and plantation workers - could be badly affected.

Members of the European Parliament last Wednesday voted to amend a draft law on renewable energy that calls for reducing to zero "the contribution from biofuels and bioliquids produced from palm oil" in three years. Palm oil is widely used as cooking oil and in making products ranging from ice cream to instant noodles and soaps to lipsticks. The commodity has another use - it can be blended with fossil fuels such as diesel to produce biofuels to power up motor engines.

For Indonesia, 40 per cent of its palm oil exports to Europe are converted into biofuels. In 2018, Indonesia exported a total of 28 million tonnes of crude palm oil, valued at US$23 billion (S$30 billion), which accounts for almost 10 per cent of the country's exports.

Analysts say banning the use of palm oil for biofuels may be easier said than done as phasing out palm oil would mean Europe would have to find an alternative, likely to be soya bean oil from the United States and South America or from domestic sources. Three million tonnes of additional supply of soya bean a year will be needed as replacement, meaning six million hectares of tropical forest in Brazil would have to be converted into soya bean plantations to meet this increase in demand.

Source: The Straits Times, 24 January 2018

Extract 8: UK Government support needed to unlock billions in green business

The UK could be a green business powerhouse in the next three decades. The low-carbon economy in the UK employs at least 432,000 people, with a turnover of more than £77 billion in 2015. This is larger than industries such as car-making and steelmaking, which are frequently given the spotlight when politicians discuss industry and jobs.

Growth in green business is also expected to outstrip other sectors of the economy, as international opportunities open up for low-carbon goods and services. The shift to a more efficient and lower carbon economy is well under way across the globe, with the cost of clean technologies, such as renewable energy and electric vehicles, falling rapidly, and investment growing strongly. Investments in the UK by major developing countries alone are projected to be $23 trillion by the end of the next decade, with green business's supporters arguing that the UK is well placed to take a share of the burgeoning market. A group representing more than 30 of the UK's green and low-carbon companies forecast that the low-carbon economy would rocket from 2 per cent of the UK's GDP today to 13 per cent in the next three decades, boosting both manufacturing and services, but only with government support.

The UK government has pointed to increased encouragement for the use of electric vehicles, funding to build new nuclear power stations, and subsidies which will lower the costs of developing wind farms off the UK coast as evidence of its commitment to low-carbon infrastructure. Since May 2010, the UK has wind power capacity of more than 11 gigawatts, generating enough electricity for more than 7.8 million homes.

Source: The Guardian, 4 June 2017

Questions

(a) Compare the change in China's GDP levels with that of Indonesia from 2012 to 2016. [2]

(b) Explain two factors which would affect domestic consumption in China. [4]

(c) Explain how Indonesia's balance of trade will be affected by Europe's ban on palm oil in biofuels. [2]

(d) Using a demand and supply diagram, explain the likely impact of Europe's ban on palm oil in biofuels on soya bean prices. [4]

(e) Discuss the impact of the ban of palm oil in biofuels on the level of unemployment in Europe. [8]

(f) Discuss the effectiveness of measures adopted by the UK government as mentioned in Extract 8 to achieve sustainable growth in the UK. [10]

[Total: 30]

------ End of paper ------

2019 H2 Economics Prelim Exam Paper 1 Suggested Mark Scheme

Question 1: Agriculture, Water Crisis and Poverty

Answers

a)	**Explain how the changes in prices of paddy and tur are likely to affect what farmers will produce in the agriculture year 2018.** Rational farmers will switch to paddy production because the rise in price of paddy relative to tur (1m) makes production of paddy relatively more profitable (1m).	[2]
b)	"**A good monsoon could raise the prospect of <u>another</u> cut**" of interest rates. (Extract 2) **Explain why the Reserve Bank of India would be less concerned about cutting interest rate amidst a good monsoon.** A central bank typically cuts interest rate to stimulate C/I (1m) and hence AD in order to boost actual growth (1m) However, such a policy of increasing AD contributes to DD-pull inflation pressure when economy is near or at full employment. This is an unintended consequence. (1m) If there is a good monsoon, the resulting bumper harvest of crops would lead to decrease in prices of agricultural inputs which leads to fall in unit cost of production in given that India has many manufacturing industries that are engaged in processing of agricultural produce. (1m) The resulting rise in AS lowers cost -push inflation pressure and so reduce overall upward pressure on the country's GPL. (1m) Or When there is a good monsoon, more land become arable. This increases India's productive capacity. This means AS rises. (1m) The rise in AS helps to create capacity to accommodate increases in AD created by an expansionary interest-rate centred monetary policy and thus the central bank would be less worried that its cutting of interest rate would have the unintended consequence of worsening inflation in the country. (1m)	[4]
c)	**Explain why Figure 3 might not be useful for drawing conclusion about change in the material living standards of a typical resident of rural India.** Give 2 reasons. 1 reason with explanation is worth 2m. 1. The GDP per capita figures are measured in current prices. It is likely to have overstated the rise in *real* GDP per head since India most likely experienced inflation during that period. 2. The rise in real GDP per head is likely to have overstated the rise in SOL of rural residents. Growth of GDP is not likely to have been inclusive in the sense that the rural sector probably did not benefit as much as urban sectors. The data point to poverty in rural area.	[4]

	E.g. farmers have become destitute (Extract 4) and government schemes have not benefitted them (Extract 3). 3. The rise in real GDP per head may have overstated the rise in SOL of rural residents. As India develops, more and more farm output will be commercialised (i.e. reduction in subsistence farming). This will lead to less under-reporting of India's output. This means the observed rise in India's real GDP per head is partly due to a greater percentage of farm final output being included in the GDP calculation rather than actual rise in output.	
d)	**Explain why a network of artificial canals that divert water from bountiful rivers to parched regions (Extract 5) can be considered a public good.** It is non-rival – once the canals are built, the consumption of the functions of the canal (i.e. brings water to the farm land / reduce flooding) by one person does not prevent another from benefitting from it at the same time. (1m) It is non-excludable – It is hard / impractical to charge for its use. (1m)	[2]
e)	**Discuss the effectiveness of the minimum price support (MSP) scheme to improve the livelihood of farmers in India during a good harvest.** EXPLAIN HOW THE MEASURE WORKS In times of good weather, SS of crops rise to SS^2, price fall sharply to P_2. Farmers' TR falls due to $|PED|<1$ (because of lack of substitute to staple food). With $|PED|<1$, the rise in TR from selling more is less than fall in TR from charging less (i.e. fall in TR from fall in price is more than rise in TR from less than proportionate rise in quantity demanded). With a price support scheme, the government buys up the excess SS at MSP of P_F and this enables farmer to earn more (or at least not earn less). In the diagram below, without the scheme, farmers' TR falls from $0P_1E_1Q_1$ to $0P_2E_2Q_2$. With the scheme, when there is a good harvest that shifts SS to S_2, the government buys up the excess supply and TR rises from $0P_1E_1Q_1$ to $0P_FAQ_g$. 	[8]

LIMITATIONS

The MPS will be effective only assuming govt is efficient / and not-corrupt and willing to pay a high enough MSP which may not be possible given the govt's budget constraints (govt has other priorities).

1. Govt officials in some areas either did not implement the scheme (Extract 3) or were too slow in implementation. Farmers in dire need of income sold to commission agents instead who bought at prices way below MPS.
2. MSP is not high enough. Extract 3 reports that farmers are demanding that the govt increase the MSP. The data however, doesn't indicate whether the MSP has been enough to help farmers earn enough revenue to at least keep up with the country's inflation rate such that they don't suffer a fall in their real income.

Thus, the MSP is ineffective and the case evidence does point to great economic hardship among farmers in rural India.
[Note: This last concluding sentence is not necessary for 8m]

Mark Scheme

L1	1-3	Descriptive or incomplete explanation of how MSP is supposed to help farmers.
L2	4-6	Analytical explanation of how MSP is supposed to help (Explanation is supported by use of DD/SS diagrammatic tool of analysis and application of concept of PED <u>to TR</u>).
E	+ (1to2)	Justified stand on why scheme is not likely to be effective by applying critical thinking (singling out assumptions that don't hold, by referring to the evidence – e.g. govt is inefficient) or economic constraints. 2m awarded only when the limitation is explained and contextual.

f)	**If you were an economic advisor to the government of India, discuss whether you would have advised it to go ahead with the US$87 billion water diversion scheme.**	[10]

	I would consider the viewpoint of the government who would consider society's interest.
	
	Thesis – Should
	1) Benefits of scheme
	    • It enables India to enjoy a higher rate of actual growth.
	      The spending by the government on this water diversion scheme can be considered infrastructure spending which will lead to a rise in AD in India. Assuming the presence of excess capacity, the rise in AD will cause the actual GDP (Ye) to rise by a multiple of the rise in G. When AD rises from AD_1 to AD_2, AD will now exceed	

GDP and total injections now exceed total withdrawals in the circular flow of income. This leads to decrease in inventories in the capital goods industries. The firms in this sector will increase production thereby generating a rise in national income. The recipients of the rise in income will be induced to spend on locally produced consumer goods/services which leads to further rise in AD. The process continues until equilibrium is attained when AD equals GDP and withdrawals equal injections, at GDP level Y_2.
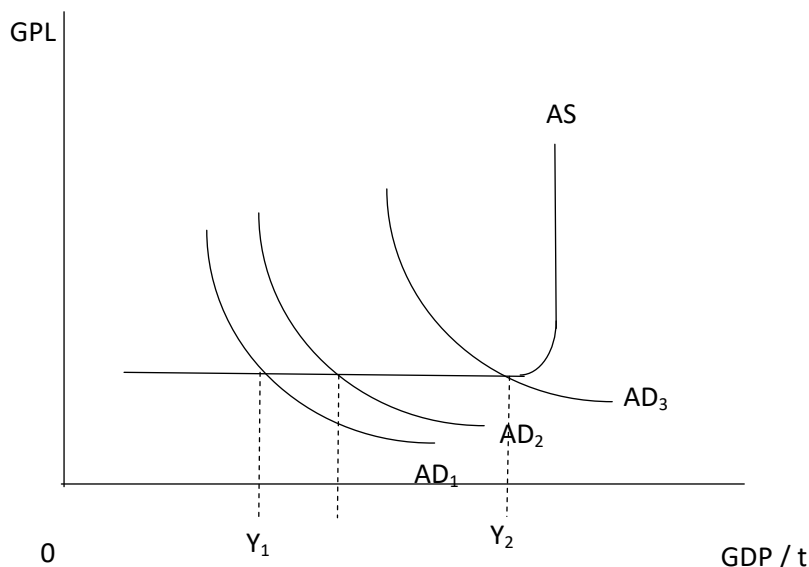
- It enables India to enjoy a higher rate of potential growth.
  It prevents destruction of crops in times of drought and thus lowers the need for the government to provide financial aid to afflicted residents. Such aid has meant increased spending by the government on transfer payments for households which is meant for them to spend on consumption, and cutting back by the government spending that supports economic development – e.g. education, infrastructure (Extract 1). A cutting back of spending on education would cause the country's labour productivity to expand more slowly. A cutting back of spending would lead to a slower rise in the country's capital stock. This would lower India's potential growth (slower shift of AS to the right)
  By preventing crop destruction, the above problem will be minimised, thereby enabling India to enjoy a greater rate of economic growth.

  The explanation on for the 'potential growth argument' can also be angled in terms of rise in infrastructure spending leading to a rise in full employment national output (Yf) [i.e. rightward shift of AS] due to expansion in country's capital stock].

- It makes India's actual growth more inclusive.
  Currently, the evidence suggests that growth in India has not been inclusive because although the data shows rise in GDP per head (figure 3), the data also highlights the problem of farmers in destitution (extract 4). The scheme improves India's irrigation system which will address the water crisis and so prevent crop

failure caused by droughts. Thus, rural households that rely on farming can be protected from destitution.

[Ev] This can be considered an important benefit because >600m people in India depend on agriculture for their livelihood.

- It could also help to lower the incidence of cost-push inflation experienced by India.

  Drought leads to destruction of crops and increase in prices of agricultural inputs which leads to rise in unit cost of production, given that India has many manufacturing industries that are engaged in processing of agricultural produce. The resulting fall in AS contributes to cost-push inflation since it causes AS to fall (AS shift up).

  By preventing crop destruction, the above problem will be minimised.

Anti-thesis – Should not

1) Costs of the scheme
   - The scheme will incur high opportunity cost in the use of public funds.

     The Indian government has a limited amount of tax revenue. Spending US$87 billion on the scheme will mean sacrificing some next best alternative area of spending – education or health care or some public good. Since India is still a developing country with high incidence of poverty where many still do not have access to education / health care / proper sanitation, the opportunity cost of the scheme could thus be rather high from the people's viewpoint.

   - The scheme also results in environmental costs.
   - For example, "the proposed 77-metre high (250-ft), 2-km long dam on the Ken River will submerge 9,000 hectares of mostly forest land. A big portion will come from the Panna Tiger Reserve" which is home to 30-35 tigers and nearly 500 vultures. This constitutes external costs – which are costs incurred by third parties who are neither producers or consumers of the scheme – e.g. nature lovers (locals or tourists) will not get to see tigers / vultures in their natural habitats

2) Constraints
   - The scheme will increase the national debt

     While going ahead with the scheme means cutting back on other areas, the government is still likely to have to borrow funds to fund the scheme. This leads to increase in public debt. This is a cause of concern because over-indebtedness could lead to loss of confidence in government's ability to repay its creditors. This could lead to future difficulty in obtaining loans by the government.

3) There are other cheaper ways to solve the water crisis
   - The water crisis could be solved by pricing water higher or public education to conserve water

     According to Extract 4, India has more water per person than

China but yet suffers from water shortage. The water crisis is a problem of under-pricing of water which suggests that the problem could be solved by pricing water higher and introducing schemes to lower the demand for water (conserve on use of water) – E.g. via public education. Since there is a cheaper way to solve the problem, the government should use the cheaper way to optimise use of scarce resources.

EV: However, this other way of addressing the problem may not be effective due to inadequate monitoring or ineffectiveness of public education due to low literacy rates in the rural sector.

Conclusion

Will advise the government to go ahead because
- While the costs of the scheme are high, if the benefits are higher, then should go ahead.
  The benefits are likely to exceed the costs. While the scheme is going to cost the government US$87 billion, the long term benefit could amount to be at least worth US$100 billion (extract 1) by saving the country the costs that arise from droughts. When the external costs arising from destruction to the natural environment are considered, perhaps the overall costs may outweigh the benefits, but with climate change, the problem of droughts is likely to increase in frequency. Thus, this scheme while costly, is likely to bring about more benefits in the long term.
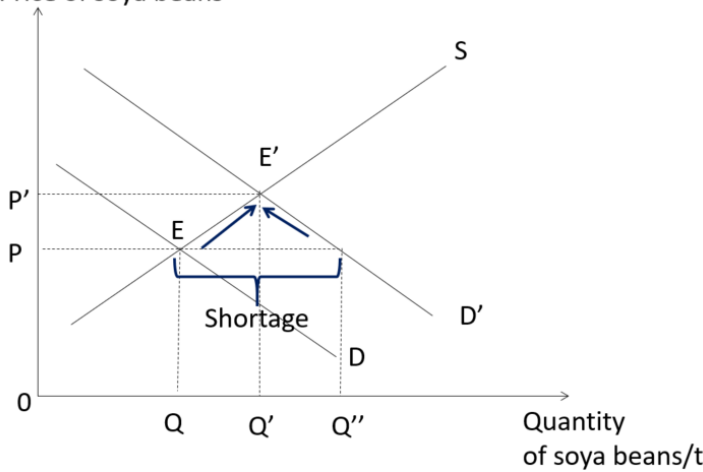
- The water crisis could be solved by pricing water higher but this would drive up the price of water and this adds to the economic hardship of the rural poor.
- The problem of loss of wildlife can be partly addressed by relocating the wild animals.
- The budget constraint is not that important a consideration for rejecting the scheme because this scheme is growth generating and tax revenue can rise over time to enable government to settle the debt that arose from the scheme.

Mark Scheme

L1	1-4	Limited / descriptive explanation of reasons for and against. or Developed explanation of reasons for or against the scheme.
L2	5-7	Analytical explanation of reasons for and against the scheme (Explanation is supported by relevant economic concepts / theories).
E	1 to 3	Overall stand with weighing of benefits vs. costs by evaluating the arguments, support with evidence / context

Question 2: Green growth and sustainable development

(a)	Compare the change in China's GDP levels with that of Indonesia from 2012 to 2016.	[2]
	Both China's and Indonesia's GDP levels were rising [1] at a falling rate. [1] *Note: Larger % increase in GDP levels for China as compared to Indonesia accepted - 1m*	
(b)	Explain two factors which would affect domestic consumption in China.	[4]
	Explain any of the following two factors [2m for explanation of each factor] 1. **Lower availability of credit** (Extract 6 Para 2) Due to debt risks banks are likely to have reduced lending to households. The inability by households to obtain loans will lead to a fall in domestic consumption in China. 2. **Rise in interest rate** (Extract 6 Para 2) 'People's Bank of China raised short term (interest) rates' which increases the cost of borrowing and increases the returns on savings. This discourages households to spend and will result in a fall in domestic consumption in China. 3. **Expectations of future income** (infer from Extract 6 Para 1) Signs that the Chinese economy is slowing down may cause households to anticipate slowdown/fall in income or loss of jobs. Households will be more careful with spending which will result in a fall in domestic consumption in China.	
(c)	Explain how Indonesia's balance of trade will be affected by Europe's ban on palm oil in biofuels.	[2]
	Evidence: Extract 7. Europe's ban on palm oil in biofuels will result in a fall in demand for Indonesia's palm oil exports which results in a fall in export revenue. [1] Assuming no change in import expenditure, there will be a fall in (X-M) hence balance of trade worsens/deteriorates. [1]	
(d)	Using a demand and supply diagram, explain the likely impact of Europe's ban on palm oil in biofuels on soya bean prices.	[4]
	Europe's ban on palm oil in biofuels will result in an increase in demand for soya bean to produce soya bean oil which is a substitute to palm oil. [1]	

Price of soya beans

The increase in demand shifts the demand curve right.
At **initial price** (P), Qd (Q'') > Qs (Q) leading to a **shortage**. This puts an **upward pressure** on prices. The process continues until the new equilibrium (E') is achieved and equilibrium price of soya beans rise from P to P'. [2]

Diagram [1]

(e)	**Discuss the impact of the ban of palm oil in biofuels on the level of unemployment in Europe.**	**[8]**

Increase in demand for other sources of biofuels produced in Europe will result in fall in unemployment.
Europe's ban on palm oil in biofuels will result in an increase in demand for other sources of biofuels produced in Europe (Evidence: Extract 7 para 5) such as soya bean oil, rapeseed oil and sunflower oil which are substitutes to palm oil. With the increase in production of these alternatives sources of biofuels, there will be an increase in the demand for workers in these sectors. This will result in a fall in unemployment.

[EV] The impact of the ban on palm oil in biofuels on the level of unemployment in Europe depends on whether Europe imports other sources of biofuels e.g. soya bean from USA rather than rely on domestic sources of biofuels. If Europe depends more on imported biofuels, unemployment may not fall significantly in Europe.

Europe's ban on palm oil in biofuels may lead to retaliation which will result in rise in unemployment.
(Evidence: Extract 7 para 2) The ban on palm oil in biofuels which leads to a fall in Indonesia's export revenue may result in retaliation from Indonesia and/or Malaysia. For example, Indonesia may place protectionist measures such as tariffs on Europe's goods and services entering Indonesia. Indonesians will buy less of Europe's exports which results in a fall in her export revenue. Assuming export revenue falls more than fall in import expenditure, (X-M) and hence AD will fall. With AD less than AS at the current GPL, there will be an unplanned rise in inventories. This will lead to firms reducing production and hiring less factors of production, such as labour. This results in a rise in unemployment in Europe.

OR

Europe's ban on palm oil in biofuels will result in feedback effects which will result in rise in unemployment.

(Evidence: Extract 7 para 4) The ban on palm oil in biofuels which leads to a fall in Indonesia's export revenue and hence (X-M) will result in fall in AD. This will result in a fall in Indonesia's national income which means that Indonesians will face lower purchasing power and buy less goods and services including imports e.g. from Europe.

Europe will hence experience fall in demand for its exports which results in a fall in export revenue. Assuming no change in import expenditure, (X-M) and hence AD will fall. With AD less than AS at the current GPL, there will be an unplanned rise in inventories. This will lead to firms reducing production and hiring less factors of production, such as labour. This results in a rise in unemployment in Europe.

Europe's ban on palm oil in biofuels will result in rise in unit cost of production and a fall in AS which will increase unemployment.

The ban on palm oil in biofuels will increase in the marginal cost of producing biofuels which will increase the price of biofuels which is a source of energy. As biofuel energy is a major factor input in the production of goods in Europe, there will be an increase in the unit cost of production. This results in a fall in AS illustrated by the horizontal portion of the AS curve shifting upwards and GPL increase. When GPL rises, purchasing power falls and consumption falls (upward movement along AD curve) and real GDP falls. *(Alternatively answers can use international substitution effect or interest rate effect to explain)* Hence, firms will reduce production and hire less factors of production such as labour. This results in a rise in unemployment in Europe.

Conclusion

Overall unemployment in Europe will rise in the long run.

In the short-run, the alternative biofuels industries in Europe which are substitutes to palm oil will see a fall in unemployment. However, in the long-run due to feedback effects or retaliation, Europe will experience a rise in the level of unemployment.

Level	Descriptor	Marks
L1	Some knowledge about the impact of the ban on palm oils in biofuels on the level of unemployment in Europe but answers tend to be descriptive.	1 – 3
L2	Analytical explanation of the impact of the ban on palm oil in biofuels on the level of unemployment in Europe. Reference is made to the case evidence.	4 – 6
E	Evaluative comments on the relative impact on unemployment in Europe considering whether there will be an overall rise or fall in unemployment or short-run vs. long-run impact on unemployment. *Note: For answers which analyse change in level of unemployment in a single direction only (e.g. argue that the ban results in rise in unemployment only), evaluation can consider extent of impact on unemployment level.*	1 – 2

(f)	Discuss the effectiveness of measures adopted by the UK government as mentioned in Extract 8 to achieve sustainable growth in the UK.	[10]

Sustainable growth includes sustained growth (actual and potential growth) at a rate that can be maintained without creating other significant socio-economic issues for future generations. The measures adopted by the UK government mentioned in Extract 8 include 'increased encouragement for the use of electric vehicles, funding to build new nuclear power stations, and subsidies which will lower the costs of developing wind farms off the UK coast' (Extract 8 last para).

The measures adopted by the UK government will boost actual and potential growth.
With the UK government's increased encouragement for the use of electric vehicles, the demand for electric vehicles is likely to rise and profits are likely to rise. Government funding to build new nuclear stations and subsidies to develop wind farms will lower the marginal cost of building nuclear stations and developing wind farms, which will result in higher profits for firms. The expected rate of return of investment in these industries will rise and encourage greater investment expenditure (I) (Evidence: Extract 8 para 2).

The data also suggests that there are 'international opportunities for low-carbon goods and services (Evidence: Extract 8 para 2) which will mean there will be increased global demand for green goods and services. With government support to develop the renewable energy sector (e.g. wind energy), the UK can gain comparative advantage in producing green products. This will allow the UK to ride on its possible comparative advantage in green products which will boost export revenue (X).

Overall, the increase in I and X will result in a rise in AD. The multiplier process will result in a multiplied rise in real GDP which boosts actual growth.

In addition, the rise in I will result in an increase in the quantity of capital. This increase the UK economy's productive capacity and there will be an increase in AS (illustrated by a rightward shift of the vertical portion of the AS curve) which will boost potential growth.

[EV] The increase in I and X will have a significant positive impact on the UK's actual growth as Table 2 shows that the combined impact of I and X accounts for 45% of the UK's GDP. Extract 8 also suggests that the growth of the green industry in the UK will bring significant benefits to actual growth.

[EV] Although the UK can ride of the global green movement which can boost FDI and export revenue, the developments of Brexit may limit the increase in FDI and export revenue. For example, Brexit uncertainties may hinder foreign firms from investing in the green industries in the UK as there is uncertainty regarding the expected return on investment. This will limit the increase in actual and potential growth in the UK.

The measures adopted by the UK government will reduce pollution which will help to ensure growth is sustainable for future generations.
Economic growth has resulted in the growth of use of fuel-powered vehicles for transportation and increased demand for energy/electricity by households and firms. The use of fuel-powered vehicles and traditional energy sources from burning fossil fuels e.g. coal have resulted in significant release of harmful

carbon emissions into the atmosphere. This has resulted in external costs generated e.g. healthcare cost incurred by third parties who fall ill from the pollutants, and society suffers from significant welfare loss. With the measures adopted by the UK government such as funding/subsidies to develop renewable energy e.g. wind, the cost of using renewable energy is likely to fall which will encourage firms to switch from coal-derived energy to renewable energy. This will reduce the demand and hence production of energy by burning fossil fuels. The encouragement of use of electric cars will encourage households to reduce the use of fuel-powered vehicles. These measures facilitate the reduction the amount of pollutants released in the atmosphere which lower the amount of external costs generated. Overall, the negative impact of rapid economic growth on third parties will fall, and there will be a reduction in welfare loss.

OR

Economic growth has resulted in an increased demand for energy/electricity by households and firms. The use of traditional energy sources have resulted in significant depletion of fossil fuels to generate energy/electricity. With the measures adopted by the UK government such as funding/subsidies to develop renewable energy e.g. wind, the cost of using renewable energy is likely to fall which will encourage firms to switch from coal-derived energy to renewable energy. This will reduce the demand and hence production of energy by burning fossil fuels, and will slow down the exhaustion of resources which could ensure sufficient amounts of resources for future generations. This will allow economic growth in the UK to be sustainable for future generations.

[EV] With government measures in place, there will be a boost in low-carbon/clean/green infrastructure. However, it is uncertain as to whether households and firms will change their consumptions habit / production methods. For example, if electric cars continue to be significantly more expensive than fuel-run cars, many households will not switch to electric cars which will reduce the effectiveness of the government measure to reduce carbon emissions.

[EV] Positive impact on reducing pollution and slowing down the use of resources will take time to be felt as the infrastructure takes time to be built. Green measures take time as green infrastructure e.g. nuclear plants and wind farms takes time to build. Therefore these benefits will be only experienced in the long run.

Conclusion
The measures adopted by the UK government will be largely **effective** to achieve sustainable growth in the UK as the measures have positive effects on all aspects of sustainable growth.

If the uncertainties of Brexit are resolved, the combined impact of increased G, I and X will ensure sustained economic growth for the UK. In addition, as the data mentions that the cost of clean technologies is falling (Extract 8 para 2), it is likely that the UK can move significantly towards the use of renewable energy e.g. wind energy and electric cars, which will help to achieve sustainable growth.

OR
The measures adopted by the UK government will be largely **ineffective** to

11

achieve sustainable growth in the UK.

The data suggests that government measures alone are insufficient and there is a need for the support of firms in order for the benefits of these measures i.e. sustainable growth to be achieved. The negative impact of Brexit may hinder FDI and export demand for green goods and services which will render these measures ineffective.

Furthermore, the UK's continued budget deficit will hinder the government's ability to support green movement. For example, the UK government may have to reduce funding in this area which could result in delays in the building of wind/nuclear infrastructure which will reduce the impact on sustainable growth.

Level	Descriptor	Marks
L1	Some knowledge about how the UK government measures achieve sustainable growth but answers tend to be descriptive.	1 – 4
L2	Analytical explanation of how the UK government measures achieve sustainable growth. Reference is made to the case evidence.	5 – 7
E	Evaluative comments about the effectiveness of the UK government measures to achieve sustainable growth. Conclusion with substantiation must be included to score full 3m.	1 – 3
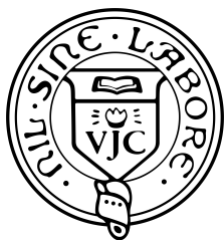
VICTORIA JUNIOR COLLEGE
JC 2 PRELIMINARY EXAMINATION 2019
HIGHER 2

ECONOMICS **9757/02**

4 September 2019

Paper 2 Essays **2 hours 15 minutes**

Additional Materials: Answer Booklet

READ THESE INSTRUCTIONS FIRST

Write your name and class on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use an HB pencil for any diagram or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

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

Start <u>each question</u> on a <u>new</u> page.

At the end of the examination, fasten all your work securely together.

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

Answer **three** questions in total.

Section A

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

1   Bubble tea has spread like wildfire on mainland China. This is in part due to viral marketing, recipe innovations and a push to create modern teahouses that have become hangout spots for the millennials. At the same time, new planting and soil management practices in China have resulted in a rise in the production of tea leaves, an ingredient of bubble tea.

Adapted from *Today Online*, 6 October 2017

Discuss the impact these events are likely to have on China's consumers and tea farmers.   [25]

2   (a) Explain the factors that are likely to influence firms' decisions to merge.   [10]

(b) Assess whether mergers are desirable to society.   [15]

3   The Competition Commission of Singapore (CCS) finds it extremely difficult to convince parents that highly marketed 'premium' infant milk powder products are comparable to other brands. "Without better information, parents should be careful about relying on the claims made by infant formula companies," Dr Koh Poh Koon, Senior Minister of State for Trade and Industry said, while stressing that cheaper options are just as nutritious.

Adapted from *The New Paper*, 2017

(a) Explain the market failure associated with imperfect information in the markets for different types of infant milk powder products.   [10]

(b) To what extent should the Singapore government intervene in the above markets?   [15]

Section B

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

4   The goal of many central banks is to achieve price stability.

(a) Explain the key determinants of price stability.   [10]

(b) Discuss the view that achieving price stability is the most important determinant of a country's success in improving its standard of living.   [15]

5   In 2017, Germany has the world's biggest absolute current account surplus while America's deficit remains the world's biggest. Current account imbalances are however not always a cause for concern.

Source: *International Monetary Fund (IMF) Report*, 2018

(a) Explain the possible causes of current account imbalances faced by countries.

    [10]

(b) Discuss the factors that are likely to influence macroeconomic policy decision makers in deciding if balance of trade imbalances are a cause for concern.

    [15]

6   The US government has accused China of engaging in unfair trade practices and has imposed tariffs on many Chinese imports like aluminium and steel. In turn, China imposed a number of retaliatory tariffs on US imports like fruit, wine, and pork.

Source: *The New York Times*, 1 April 2018

Discuss the policy measures that the Singapore government can adopt to deal with the macroeconomic problems associated with the ongoing trade war.   [25]

------ End of paper ------

H2 Economics Paper 2 Suggested Mark Scheme

1.   **Bubble tea has spread like wildfire on mainland China. This is in part due to viral marketing, recipe innovations and a push to create modern teahouses that have become hangout spots for the millennials. At the same time, new planting and soil management practices in China have resulted in a rise in the production of tea leaves, an ingredient of bubble tea.**

   Adapted from Today Online, 6 October 2017

   Discuss the impact these events are likely to have on China's consumers and tea farmers.   [25]

   Approach:

   This question requires students to use demand and supply analysis and the relevant elasticity concepts to determine equilibrium price and quantity in at least 2 different markets. The impact of these on total revenue / expenditure of farmers / consumers or on consumers and producers surplus have to be considered.

   Introduction

   The impact of the above events on two different markets will be considered: impact on China's consumers in the bubble tea market and impact on farmers in the tea market. Demand and supply tools including the use of price elasticity of demand and supply will be used to analyse both the impacts on consumers' total expenditure / consumer surplus and farmers' total revenue /producer surplus.

   [Note: Instead of the bubble tea market, students can choose to analyse the impact on another different market, for example, speciality coffee.]

   Body

   Explain how the events affect the market for bubble tea on China's consumers (DD and SS factors)

   Successful marketing efforts have fuelled the growth of modern teahouses, leading to a change in taste and preference towards bubble tea and hence a rise in its demand.
   Demand for bubble tea is the quantity of bubble tea that consumers are willing and able to buy at various prices. Successful marketing efforts and the emergence of modern teahouses may have resulted in the millennials checking out new joints as a hobby and something they can post about on social-networking sites. Also, consumers' evolving tastes, with more seeking out different recipe innovations, have resulted in a change in taste and preference in favour of the bubble tea beverage. Consumers are thus now more willing to purchase bubble tea, leading to an increase in demand for the beverage from D to D' (Fig. 1).

   A rise in the production of tea leaves will result in a rise in supply of bubble tea.
   Supply for bubble tea is the quantity of bubble tea that producers are willing and able to supply at various prices. New planting and soil management practices in China will result in both higher yields and newer and cheaper ways of producing tea leaves. As marginal

cost of producing tea leaves falls, this results in a fall in the raw material cost of producing bubble tea since tea leaves is a factor input in the production of bubble tea. This means the marginal cost of producing bubble tea falls and it becomes more profitable to produce bubble tea at every price level, thus producers will be more willing and able to produce it. Supply of bubble tea increases from S to S' (Fig. 1).

Overall, there will be both an increase in demand and supply for bubble tea.

Determining the PED and PES value of bubble tea

Demand for bubble tea is likely to be price elastic.
The price elasticity of demand (PED) measures the responsiveness of quantity demanded for the good to a change in its price, ceteris paribus. There are many substitutes for bubble tea as a beverage, for e.g., speciality coffee. This means that its demand is likely to be price elastic due to the availability of close substitutes i.e. a change in price of bubble tea will lead to a more than proportionate change in quantity demanded, ceteris paribus since consumers can easily switch to substitutes.

[EV] However, if the marketing effort is successful, it is likely to persuade consumers to view other beverages as less desirable substitutes. This is likely to result in a less price elastic demand for bubble tea.

Supply for bubble tea is likely to be price elastic.
The price elasticity of supply (PES) measures the responsiveness of quantity supplied for the good to a change in its price, ceteris paribus. The ease of production of bubble tea is relatively high as it requires factors of production that are easily available. For eg, the size of a shop tends to be small and thus rental cost is relatively lower. Firms can also switch from producing alternative products to bubble tea production. For eg, a coffee joint producer can easily convert its shop to a bubble tea joint since the setup and the manpower are likely to be similar. Hence, the supply of bubble tea is price elastic since an increase in the price can bring about a more than proportionate increase in quantity supplied, ceteris paribus.

Direction of change in equilibrium price and quantity of bubble tea

The increase in demand and supply of bubble tea will lead to an increase in equilibrium quantity of bubble tea but the impact on price depends on the relative shifts of demand and supply.
As seen from Figure 1, demand for bubble tea rises from D to D', and supply rises from S to S'. In the first scenario, suppose the rise in demand exceed that of the rise in supply for bubble tea, this means that there will be a shortage at the original price level, P. To eliminate the shortage, there will be an upward pressure on price as consumers bid up prices. With the rise in price, quantity demanded falls. This is because when price rises and becomes higher than the marginal benefit, rational consumers will cut back on purchases. At the same time, as price rises and exceeds the marginal cost of production, this incentivises producers to produce more as production is now more profitable and quantity supplied rises. The adjustment process will continue until the quantity demanded equals to the quantity supplied at the new equilibrium E', where the new equilibrium price is P' and the new equilibrium quantity is Q'. Overall, both equilibrium price and quantity of bubble tea rise.

Impact on total expenditure / consumer surplus for consumers of bubble tea

A rise in total expenditure (TE).
Since both the equilibrium price and quantity of bubble tea have risen, this means consumers' expenditure for bubble tea will increase from OPEQ to OP'E'Q'.

In terms of consumer surplus, which is a measure of consumer welfare that people gain from consuming goods and services, it has increased. This can be seen from the rise in consumer surplus from PaE to P'bE, which is the difference between the highest price consumers are willing to pay and the price they actually pay for the units consumed.

(Students need only to consider the impact on either consumer expenditure or consumer surplus)
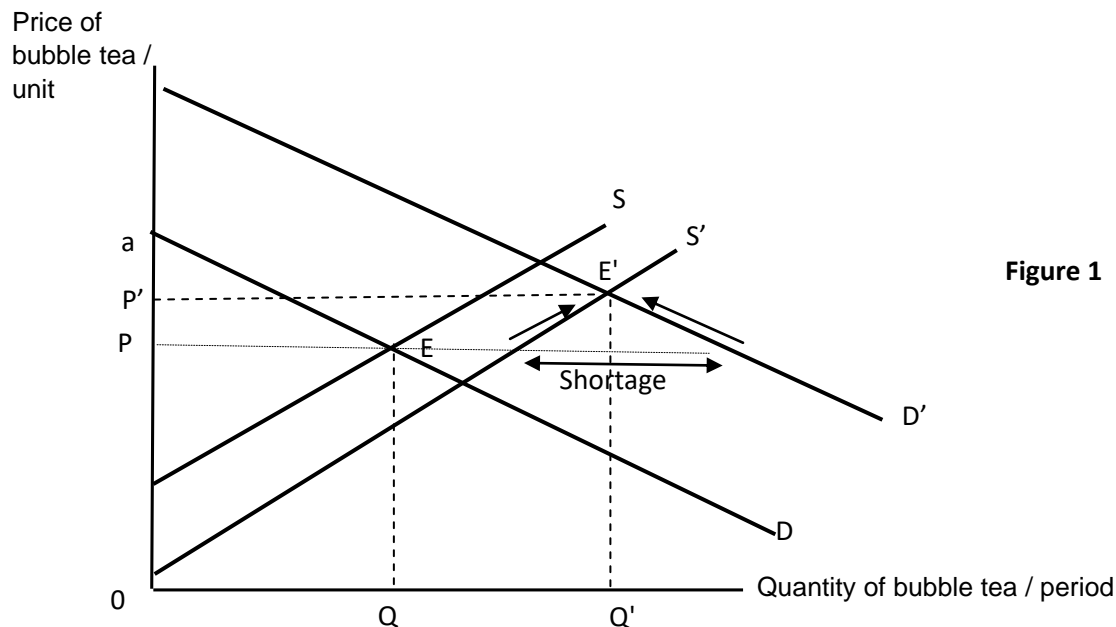
Figure 1

In the second scenario, suppose the rise in demand is less than the rise in supply for bubble tea (Figure 2). This means that at the original equilibrium price, OP, there is now a surplus. Producers will have the incentive to lower price so as to get rid of the excess stock. With the lower price, producers will reduce the quantity supplied since marginal cost is higher than the price and this disincentivizes production as it has become less profitable. On the other hand, for the consumers, the price fall will now become lower than the marginal benefit. Rational consumers will increase their purchases to obtain greater satisfaction. The consequent movement along D' and S' will result in lower equilibrium price (OP') and higher equilibrium quantity (OQ').

**Impact on total expenditure / consumer surplus for consumers of bubble tea**
When both demand and supply have changed and the final outcome is such that market equilibrium price and quantity change in opposite directions, the impact on consumers' TE will depend on the PED for bubble tea and the extent of the rise in demand caused by the change in non-price factor (taste in favour of bubble tea).

To analyse the overall impact on total expenditure (= equilibrium price x quantity bought), the impact of the changes in supply and demand on total expenditure is analysed sequentially.

Holding demand constant at D, the rise in supply from S to S' will result in a fall in price and given that demand for bubble tea is price elastic, the fall in price will result in a more than proportionate rise in quantity demanded. The increase in expenditure from the rise in quantity demanded (BE'Q'Q) will be more than the decrease in expenditure from the fall in price (PEBP'). Hence, total expenditure will increase from the impact of supply.

Holding supply constant at S', the rise in demand from D to D' will result in a rise in expenditure to OP"E"Q" since both price and quantity will increase. This further reinforces the increase in expenditure of bubble tea from the rise in supply.

Price of bubble tea / unit

Quantity of bubble tea / period
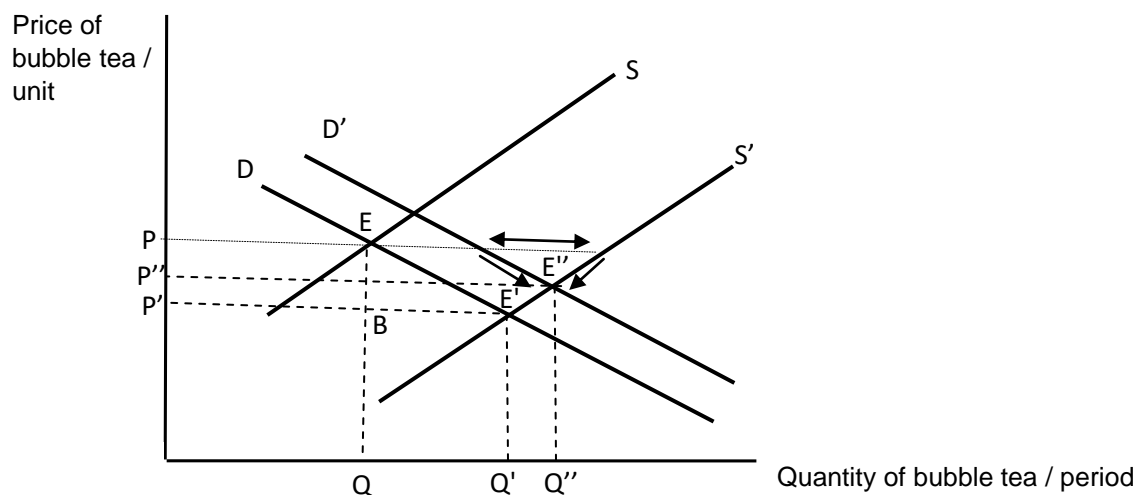
[EV] The first scenario is more likely to occur in the short run where the demand for bubble tea due to the fad rises more than its supply. Thus, consumers' expenditure in short term should rise.

[EV] The second scenario is likely to occur in the long run where the rise in supply is likely to exceed the rise in demand. This is because the bubble tea market is highly competitive (entry barriers are low) and so it is likely to attract many firms into the market since it is seen to be profitable. Moreover, then rise in demand for bubble tea is likely to moderate over time when the fad fades. Thus, bubble tea consumers' TE in long term will continue to be higher than in the current period (as explained earlier, with ref to Fig 2).

Explain how the events affect the market for tea on tea farmers (DD and SS factors)

The rise in demand for bubble tea results in a rise in demand for tea leaves.
Tea leaves is a factor input in the production of bubble tea. With the rise in the equilibrium quantity of bubble tea, this will lead to a rise in derived demand for tea leaves which is required in the preparation of bubble tea, shown by an increase in demand from D to D' (refer to Fig. 1 – assume it is a tea market).

An improvement in the method of production will result in a rise in supply of tea leaves.
As explained earlier, new planting and soil management practices in China will result in both higher yields and newer and cheaper ways of producing tea leaves. This results in lower marginal cost of producing tea leaves. This means that farmers will find it more profitable to produce tea leaves at every price level. Thus they will be more willing and able to produce it and supply of tea leaves increases from S to S' (again, refer to Fig. 1 – assume it is a tea market).

Determining the PED and PES value of tea leaves

Demand for tea leaves is likely to be price inelastic.
Tea leaves is an important ingredient in the making of bubble tea. In addition, in the context of China that has a long history of drinking tea, it is unlikely that the Chinese will view other beverages as close substitutes. The demand of tea leaves is thus price inelastic as there are few available substitutes. This means that a change in price of tea leaves will lead to a less than proportionate change in quantity demanded, ceteris paribus.

[Note: If students can provide well-argued reasons to substantiate demand being price elastic, it is acceptable too]

Supply for tea leaves is likely to be price inelastic.
Supply is price inelastic when an increase in the price brings about a less than proportionate increase in quantity supplied, ceteris paribus. In the case of tea leaves, even if its price was to rise, farmers are unable to respond by significantly increasing the quantity supplied of tea leaves given the relatively long gestation period involved in growing tea leaves.

Direction of change in equilibrium price and quantity of tea

The increase in demand and supply of tea will lead to an increase in equilibrium quantity of tea but the impact on price depends on the relative shifts of demand and supply.
Similar to the case for bubble tea, as seen from Figure 1, demand for tea rises from D to D', and supply rises from S to S'. The demand will likely increase more than the rise in supply. As the demand for bubble tea is significant and tea is an essential ingredient, this is likely to result in a significant rise in demand for tea. In addition, given that the planting and soil management practices are still new in China, there may be challenges faced in adopting these methods or some farmers may want to stick to the traditional way of production. Hence this may result in a less significant rise in tea production. Considering that the rise in demand exceeds that of the rise in supply for tea, there will be a shortage at the original price level, P. To eliminate the shortage, there will be an upward pressure on price as consumers bid up prices. The adjustment process is similar to what was discussed earlier for the bubble tea market.

Impact on total revenue for tea farmers

Since both the equilibrium price and quantity of tea have risen, this means farmers' revenue for tea will increase from OPEQ to OP'E'Q' (Fig 1).

In terms of producer surplus which is the difference between the price firms receive and the lowest price they were prepared to accept for the units sold, it has increased. This can be seen from the rise from PcE to P'dE' (Fig 1).

[EV] The above assumes short run analysis. In the long run, given the profitable nature of tea production, other agricultural farmers who are growing other crops may also be incentivised to convert their land to tea production instead. Hence more farmers enter into the tea market. In addition, as the new farming practices become more established, the yield from tea is also likely to rise more significantly. Hence in the long run, the supply of tea rises by a greater extent. Moreover, when demand for bubble tea moderate in the longer term as the fad diminishes, the derived demand for teas leaves will moderate too. As the population ages, the demand for sweet cold drinks like bubble tea is likely to be moderated too. Thus, it is likely the case that market equilibrium price will fall in the long run and market equilibrium quantity will rise in the long run. The impact on TR of tea leaves growers will depend on the PED for tea and the extent of the rise in demand caused by the rise in derived demand for tea.
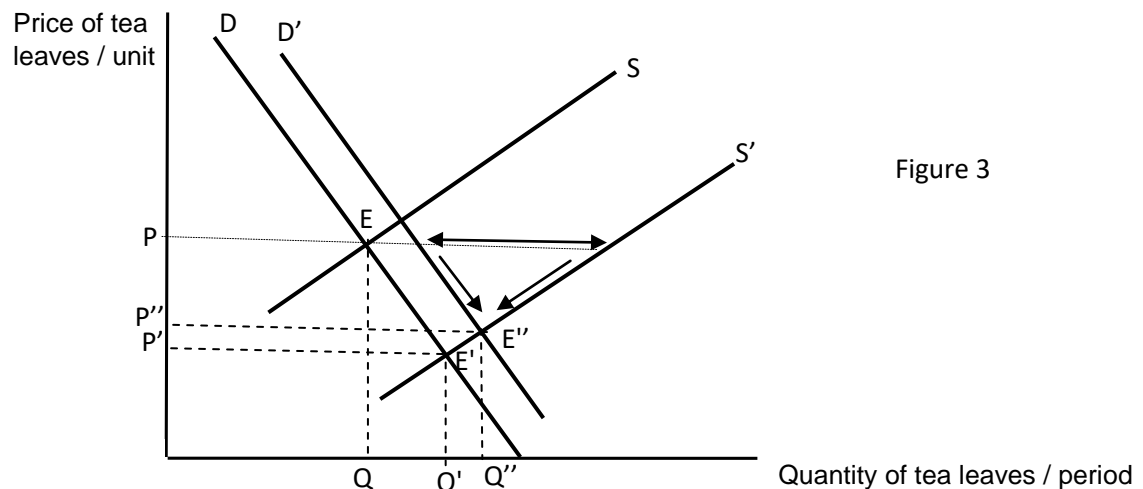
Price of tea leaves / unit

Figure 3

Quantity of tea leaves / period

Referring to Fig 3, with demand of tea leaves being price inelastic, holding demand constant at D, a rise in supply leads to a fall in TR. The fall in TR from the fall in price from P to P' will be more than the rise in TR from the less than proportionate rise in quantity sold from Q to Q'. Starting from point E', the rise in demand from D to D' results in a rise in TE (from 0PEQ to 0P'E'Q'). However, with demand for tea leaves moderating in the long term due to the moderating of the demand for bubble tea when the bubble tea fad fades, it is likely for the rise in TR (from area 0P'E'Q' to 0P''E''Q'') from the rise in demand from D to D' to be to be less than the fall in TR from the rise in supply from S to S'. As such, TR of tea leaves farmers will fall in the long run.

Conclusion
In conclusion, for the bubble tea market, consumer expenditure is likely to increase for both short and long run if demand for bubble tea is price elastic.

For tea market, there will be a rise in tea farmers' revenue in the short run. In the long run, given that demand is price inelastic and rise in supply is likely to be more than rise in demand, then farmers' revenue is likely to fall.

The above analysis assumes ceteris paribus, which is unlikely to hold in the real world. Over time, consumers' taste may change as new types of beverages enter into the market. Also, consumers in China may become more health conscious and informed about the health benefits of bubble tea. Thus, this means that the rise in the demand for bubble tea may be limited.

In the long run, the entry of farmers to the tea market may also not occur if there are more profitable developments in other global markets. This means that supply of tea may not increase significantly in the long run.

Such changes in demand and supply conditions in both markets will thus have impacts on consumers' expenditure and farmers' revenue.

Mark Scheme

Knowledge, Application/Understanding and Analysis		
Level	**Descriptor**	**Marks**
L3	For an answer that uses given demand and supply factors and relevant elasticity concepts to thoroughly analyse the impact on respective markets. Long run analysis is provided. Higher level of rigour in analysis is observed.	18 - 20
	For an answer that uses given demand and supply factors to analyse the impact on respective markets (i.e. change in price, quantity, total revenue / total expenditure). Accurate application of relevant elasticity concepts and appropriate use of diagrams is required. 2 different markets must be analysed.	15 - 17
L2	For an answer that either gives a descriptive and / or under-developed explanation of given demand and supply factors and how that impacts the respective markets OR a detailed explanation of given demand and supply factors and how that impacts either the market for tea or a related market. Explanation of impact on total revenue/ expenditure or consumer / producer surpluses.	12 - 14
	For an answer that mostly addresses the question, but explanation of how demand and/or supply factors lead to impact on the respective market(s) is undeveloped or descriptive.	9 - 11
L1	For an answer that shows some relevance and knowledge of given demand and supply factors, or impact on the market for tea or a related product. However, points remain largely unexplained.	5 - 8
	For an answer that is mostly irrelevant. There could be listing of some demand and supply factors without explanation.	1 – 4

E3	For an answer that uses analysis to support an evaluative conclusion on the overall impact of the events on the market for tea and on a related market in China in different time periods. Evaluates the likelihood of changes in demand / supply conditions in the 2 markets.	4 – 5
E2	For an in-body evaluation which shows attempt to explain the likelihood of changes in demand / supply conditions.	2 – 3
E1	For an answer that gives unsupported judgement(s) / evaluative statement(s) on the impact of the events on the tea market and / or a related market on consumers or farmers	1

Question 2

    (a) Explain the factors that are likely to influence firms' decisions to merge.   [10]
    (b) Assess whether mergers are desirable to society.   [15]

Part (a) Suggested Answer

Introduction
A merger is the coming together of two or more firms to create a single new firm. As firms are profit maximizing agents, they will consider the benefits and costs of merging, which affects the level of profits earned, as well as the constraints faced, when deciding whether to merge. The focus of this essay will be on horizontal integration, which is the situation where firms in the same stage of production in the same industry merge.

Body
Potential benefits of merging
One factor that influences firms' decisions to merge is the potential increase in market share after the merger.
For example, when two pharmaceutical firms merge, the resulting firm would have a larger market share since it now enjoys the combined demand of both firms, and the combined output is now larger as compared to before the merger. As a result of higher market share, the demand for the merged firm's products would become more price inelastic due to lower availability of substitutes. Hence, the firm can then raise prices to increase revenue, and hence increase profits, ceteris paribus. Thus, in deciding whether to merge, firms would consider the extent of increase in market share after the merger. The greater the increase in market share, the more likely the firms would decide to merge.

Another factor that may influence firms' decisions to merge is the potential internal economies of scale (EOS) that can be enjoyed after the merger, which depends on the nature of the industry.
When firms in the same stage of production in the same industry merge and become larger, they would be able to tap on available internal EOS. For example, when two airline companies merge, the larger firm can reap significant technical EOS due to the principle of increased dimensions. With the combined demand after the merger, there would likely be a greater amount of passengers for each flight. As such, the airline firm can switch to using a larger plane that can ferry double the number of passengers. However, the cost of the larger aircraft would likely not double since the number of pilots that are required to operate the larger aircraft, and thus AC will fall, allowing them to increase profits. On the other hand, two hairdressing firms would likely not be able to reap significant internal EOS from the merger since the production process is labour-intensive and thus profits are not likely to rise significantly. Therefore, a merger would be more likely for firms, such as the airline companies, that can benefit from substantial internal EOS that can be enjoyed after the merger, allowing them to lower costs and increase profits.

However, firms would also take into consideration whether the merger would result in internal diseconomies of scale that may arise when it grows too large.
As firms merge and expand beyond its minimum efficient scale (MES), there may be internal diseconomies of scale that set in and unit cost of production would start to rise. For example, the merger of two firms can give rise to the creation of many specialised departments, such as procurement, marketing, human resource, etc. These departments may have conflicting objectives, which may lead to problems with management and coordination. To manage these

problems, there may be increased red tape and paperwork, leading to greater inefficiency and a rise in unit costs. The onset of internal diseconomies of scale would therefore lead to a fall in profits, ceteris paribus. As such, firms would consider whether the merger would result in internal diseconomies of scale, and would not merge if the merger would lead to significant internal diseconomies of scale.

Potential costs of merging
Firms will also consider whether a merger will result in a <u>fall in the productivity of current workers</u>.
In view of a merger, current workers in the firm may become demoralised due to uncertainty about how a merger may impact them, as well as a fear of disruption to corporate culture. As a result, the productivity of current workers may fall, which may offset any potential cost savings that can be reaped from merging. Therefore, firms would be more likely to merger if the merger does not lead to a fall in the productivity of current workers.

Constraints
Lastly, constraints such as <u>government regulations</u>, as well as the <u>finances of the firms</u>, would also likely influence firms' decisions to merge.
The presence of anti-competition laws and regulations would prevent firms from merging and growing larger. For example, the competition act that is administered and enforced by the Competition and Consumer Commission of Singapore prohibits mergers and acquisitions that substantially lessen competition. As a result, firms that intend to merge may not be able to do so as they face restrictions set out by the competition act. Firms may also be unable to merge if they do not have sufficient funds to do so, or if they are unable to take loans to finance the merger.

Mark Scheme

Level	Descriptors	Marks
L3	• Well-developed explanation of three factors that firms would consider when deciding whether to merge • Factors explained should cover both benefits and costs of a merger	8 – 10
L2	• Underdeveloped explanation of at least two factors that firms would consider when deciding whether to merge OR • One well-developed factor that firms would consider when deciding whether to merge	5 – 7
L1	• An answer that shows some knowledge about mergers	1 – 4

Part (b) Suggested Answer

Introduction
- Merger of firms can impact society in different ways, and in this essay, we will analyse the impacts of mergers on efficiency (i.e. allocative, productive and dynamic efficiency) and equity to determine if mergers are desirable to society.

Thesis: Mergers are desirable to society
Mergers can benefit society as it could result in lower prices, which improves equity.
As explained in part (a), when firms merge and become larger, demand of the new merged firm rises and they can enjoy internal economies of scale (EOS) which the individual firms may not have enjoyed without the merger. As such, the MC curve of the merged firm would thus be

lower than the MC curve of firms if they had not merged since the plant size of the merged firm would be larger.
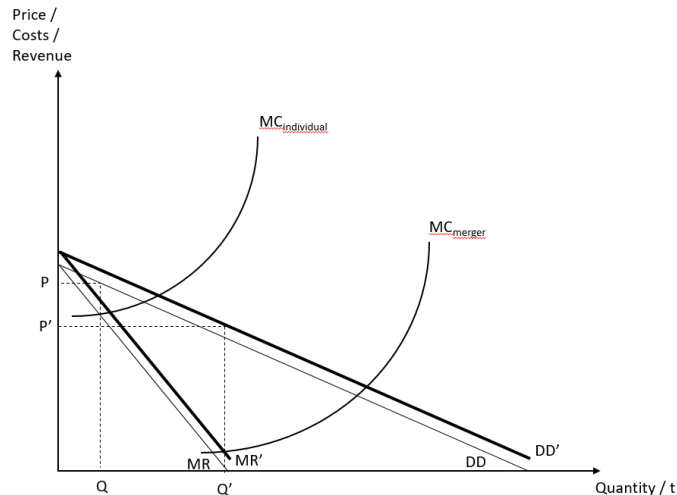

Figure 1: Merger resulting in lower prices

With reference to Figure 1, initially, assuming profit maximisation, the individual firms maximise their profits at P and Q, where $MC_{individual}$ = MR. With the merger of the firms, the resultant firm would see a rise in demand from DD to DD' and a corresponding rise in MR from MR to MR'. There is also substantial EOS which would cause the MC curve of the resultant firm that is using a larger plant size, MC_{merger}, to be lower than that of the individual firm, $MC_{individual}$. Assuming profit maximisation, the merged firm will maximise profits at P' and Q', where MR'=MC_{merger}. As such, consumers would benefit from the lower price and higher output as compared to before the merger, improving equity.

[Ev] However, whether price will definitely be lowered depends on the extent of EOS that can be reaped as compared to the rise in demand. In the case where the merged firm can enjoy significant cost savings that is much greater than the rise in demand, price will fall, as seen in Figure 1 above. On the other hand, if the amount of EOS reaped is smaller than the rise in demand, prices will not fall and may even rise instead.

Besides lower prices, mergers can also bring about increased dynamic efficiency through product innovation.
The merger of firms give rise to a larger resultant firm with greater market share and market power. As such, the firm will then be able to charge high prices, which increases the likelihood of them earning supernormal profits. The supernormal profits earned would give the firm greater ability to fund research and development (R&D) efforts in product innovation to raise total revenue and possibly total profits. If there are high barriers to entry into the industry, the firm would also have the incentive to innovate since the rise in profits from innovation would not be competed away by new firms. Through product innovation, society can benefit with an improvement in the quality of products and the development of new products. Thus, mergers can bring about dynamic efficiency, which benefits society.

[*] Note: Students can also explain process innovation, which also benefits society as it leads to more efficient production methods, which reduces the firm's marginal cost of production, allowing them to have a cost advantage over their competitors, giving it the ability to reduce prices to be more competitive and likely increasing its profits. The lower prices would mean that consumers can gain from being able to consume a greater quantity, increasing their welfare.

Anti-Thesis: Mergers are not desirable for society
However, mergers may lead to greater allocative inefficiency due to greater market power.
A merged firm would have a higher level of market power, which gives it greater ability to make pricing and output decisions. Assuming that the merged firm is profit maximising, it will produce the output level where marginal cost (MC) = marginal revenue (MR) to maximize profits.
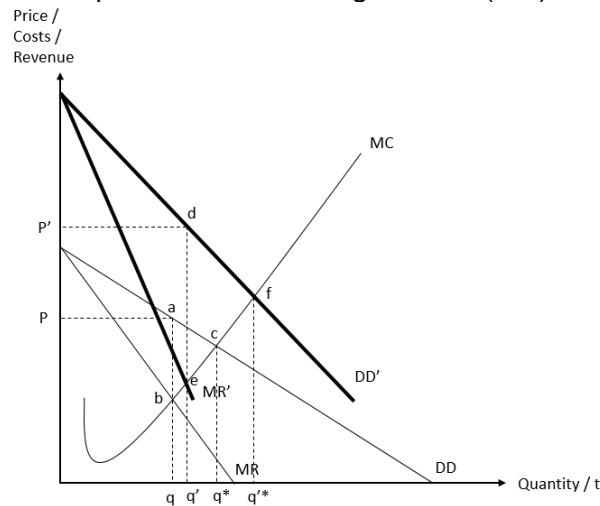

Figure 2: Allocative Inefficiency due to Merger

With reference to Figure 2, before the merger, the firm will be producing q and charging a price of P. However the socially optimal output level is at q*, where P=MC. Thus, there is underproduction of (q*-q) units. Between q to q*, total social benefit is qacq* but total social cost is qbcq*. As such, there is a net benefit to society that could have been enjoyed if these units were produced, and by not producing these units, there is therefore a deadweight welfare loss of area abc. After the merger, the merged firm enjoys greater market share and face a higher demand, illustrated by DD', as the firm captures a larger share of market demand. The firm will also have a more price inelastic demand as there are now fewer firms in the market after the merger, which means there are fewer substitutes available. The merged firm will thus produce a quantity of q' and charge a price of P'. However, the new socially optimal output level is q'*, implying an underproduction of (q'*-q') units and a resulting deadweight welfare loss of area def, which is larger than area abc.

Mergers may also result in worsened inequity in income distribution.
The higher price and lower unit costs that result from mergers translate to higher total economic profits for firms. With the merger, the firm may earn greater and more sustained supernormal profit in the long run, which will worsen income distribution between consumers and producers.
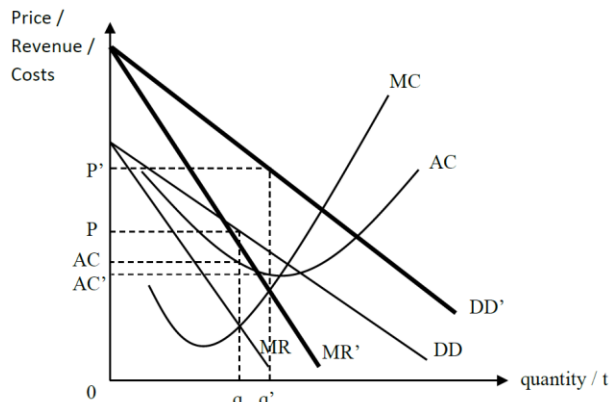
Figure 3: Supernormal Profits after Merger

With reference to Figure 3, as a result of the merger, consumers are now charged a higher price of P', while firms enjoy an increase in profits from [(P-AC) x q] to [(P'-AC') x q']. This worsens inequity between consumers and shareholders of the firm, who are presumably more affluent members of the society.

Moreover, with mergers, there could possibly be 'x-inefficiency' due to complacency, leading to productive inefficiency.
After a merger, the resulting firm would have higher market share as well as market power, as explained in part (a). As such, the lack of competition may possibly lead to the merged firm becoming complacent, leading to 'x-inefficiency' as it may not actively produce at the lowest possible unit costs. In this case, the firm would be productively inefficient. For example, the merged firm may fail to minimise costs as they over-staff, or spend excessively on prestigious buildings and equipment.

Mergers may also lead to a fall in consumer choice, which lowers consumer welfare.
For consumers, a merger might see increased dominance of a few large firms in the market. This may cause consumers to have less options as the existing firm do not carry a full range of what they might want due to the merger. There is thus a decrease in their welfare.

Conclusion
In conclusion, whether mergers are desirable to society depends on various factors, such as:
- The nature of the industry that the merging firms are in, which determines the opportunities available to reap internal EOS
- The particular industry the merging firms are in, which would likely determine the kind of goods they are producing

If the merger is taking place between firms that produce goods that are deemed as necessities, such as in the case of health insurance, the merger would likely be undesirable to society. This is because the market for insurance services would likely already be allocative inefficient due to imperfect information, and coupled with the rise in market power from the merger, the welfare loss would therefore be larger. Also, there would likely be higher prices and greater inequity between consumers and producers with a merger between insurance firms. On the other hand, if the merger is between firms that produce luxury goods, the impact on society would likely be less undesirable.

Moreover, as in the case of the merger between firms producing demerit goods, such as cigarettes, the merger would likely be more desirable to society. As cigarettes are demerit

goods that is over-consumed when left to the free market, the greater market power of the merged firm and the resultant higher prices would be beneficial from society's point of view as it can help to reduce the consumption of cigarettes.

Whether mergers are desirable to society also depends on the nature of the industry that the merging firms are in, which determines the opportunities available to reap internal EOS and thus the likelihood of a fall in price. The sale of insurance is largely labour-intensive and services are personalised, implying fewer opportunities for internal EOS to be reaped when insurance firms merge. As such, a merger between insurance firms would likely not benefit society as prices are unlikely to be lowered. In contrast, the production of consumer electronics is more capital-intensive. Thus, there would be greater opportunities for internal EOS to be reaped, thus prices can be lowered and equity can be improved.

Mark Scheme

Level	Descriptor	Marks
L3	• A well-developed and two-sided discussion on the impact of mergers to society	8 – 10
L2	• An underdeveloped two-sided discussion on the impact of mergers to society OR • A well-developed but one-sided discussion on the costs OR benefits of mergers	5 – 7
L1	• Descriptive answer which shows some knowledge of the impact of mergers	1 – 4
E3	• Strong, relevant substantiation of a stand on whether mergers are desirable to society. Substantiation should consider different factors that may determine whether mergers are desirable or not. • Good and appropriate use of examples for context	4 – 5
E2	• Some attempts at substantiation of a stand on whether mergers are desirable to society	2 – 3
E1	• Unsubstantiated judgement on whether mergers are desirable to society	1

Question 3

The Competition Commission of Singapore (CCS) finds it extremely difficult to convince parents that highly marketed 'premium' infant milk powder products are comparable to regular options. "Without better information, parents should be careful about relying on the claims made by infant formula companies," Dr Koh Poh Koon, Senior Minister of State for Trade and Industry said, while stressing that regular options are just as nutritious.

Adapted from *The New Paper*, 2017

(a) Explain the market failure associated with imperfect information in the markets for different types of infant milk powder products in Singapore. [10]

(b) To what extent should the Singapore government intervene in the above markets? [15]

Introduction

Infant milk powder products can be broadly categorised into "highly marketed premium infant milk powder products" and regular ones. In Singapore, there could be imperfect information in both markets, leading to supplier-induced demand for the premium products and consumer's ignorance regarding the regular products. As such, both markets fail to achieve allocative efficiency i.e. market failure.

Body

In the market for "highly marketed premium milk powder products", there could be a problem of asymmetric information, more specifically supplier-induced demand. Since milk powder products companies know more than consumers regarding their products, supplier-induced demand may result. This may occur when companies engage in extensive persuasive advertising to promote their products, creating the impression that they are much more nutritious than other products. For example, they may market their infant milk powder products as 'necessary' and 'essential' to an infant's brain and bones development. However, these could be exaggerated claims i.e. the nutritional content such as calcium and vitamin B in these 'premium' products are not much different from regular infant milk powder products, which buyers are not aware of. As a result, convinced parents may perceive these products to be more nutritious and beneficial than they actually are, creating a divergence between perceived marginal private benefit (MPB) and true MPB of such products. Perceived MPB curve is thus higher than the 'True' MPB curve.

Market for highly marketed premium infant milk powder products in Singapore
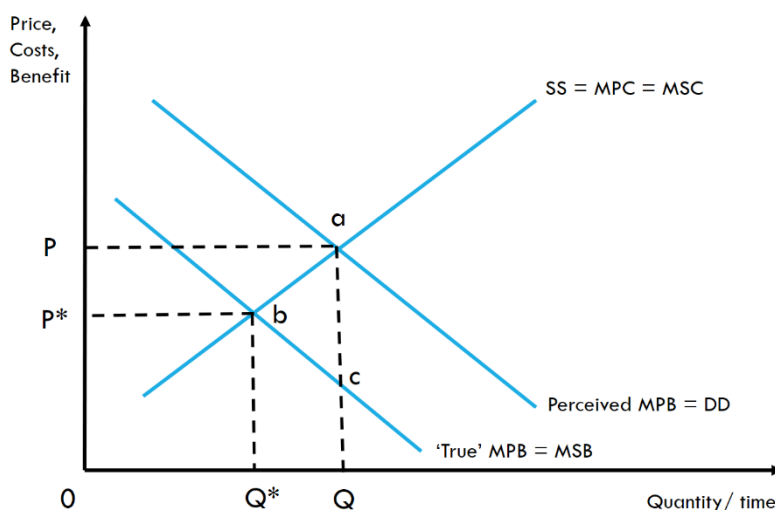
Consumers, in this case parents, will base their decision on their perceived MPB. As such, the perceived MPB curve equals the effective demand curve. Market equilibrium occurs where the demand (Perceived MPB) meets the supply (MPC) while the social equilibrium occurs where marginal social benefit (MSB) equals marginal social cost (MSC). The market quantity is Q and the social optimal quantity is Q*. Between Q and Q*, the total social costs measured by area abQQ* outweighs the total social benefits measured by area acQQ*. This means that the society has incurred a welfare loss of area abc by overconsuming these products of Q-Q* and the free market has failed to achieve allocative efficiency.

On the other hand, there could be a problem of consumer's ignorance in the market for regular infant milk powder products. Parents may form an inaccurate impression that these products are 'inferior' and 'inadequate' in terms of their nutritional content than they actually are simply because they are not marketed like the 'premium' ones. However as established earlier, they may be "just as nutritious", leading to consumer's ignorance on the parents' part. Perceived MPB curve is lower than the 'True' MPB curve.

Market for regular infant milk powder products in Singapore
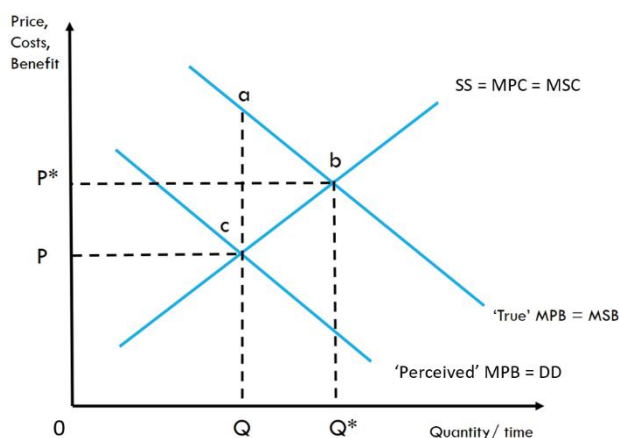
Consumers, will base their decision on their perceived MPB. As such, the perceived MPB curve equals the effective demand curve. Market equilibrium occurs where the demand meets the supply (perceived MPB=MPC) while the social equilibrium occurs where MSB equals MSC. The market quantity is Q and the social optimal quantity is Q*. Between Q and Q*, the total social benefits measured by area abQ*Q outweighs the total social costs measured by area cbQ*Q. This means that society misses out on the potential welfare (area abc) that could have been gained if not for the under consumption of these products for Q*-Q units. As such, the free market has also failed to achieve allocative efficiency in this market.

Mark Scheme

Level	Descriptors	Marks
L3	A well-developed answer which thoroughly explains how market failure arises from imperfect information in BOTH markets for 'premium' and regular milk powder products For clearer illustration of the sources of market failure, the answer should include accurately drawn diagrams	8 - 10
L2	An under-developed answer with some gaps in analysis for how imperfect information leads to market failure in BOTH markets for 'premium' and regular milk powder products OR Answer addresses only ONE market.	5 - 7
L1	Some knowledge of market failure due to imperfect information but mainly unexplained assertions.	1 - 4

(b) To what extent should the Singapore government intervene in the above markets? [15]

Introduction

In part (a), it is established that the markets for both types of infant milk powder products have failed to achieve allocative efficiency. As such, the government should intervene and eliminate the welfare loss. This essay will explain different types of intervention that Singapore government can adopt and conclude whether they should intervene to a large or small extent.

Body

The government should intervene to a small extent through the use of less costly education campaigns and stricter regulations on advertising

The government can implement a less costly, smaller scale education campaigns like delegating representatives to make public interviews such as that of Dr Koh Poh Koon's on the true benefits of premium milk powder products. By assuring parents that the nutritional value of premium milk is comparable to regular ones, the extent of consumer's ignorance can be tackled if they are convinced and the information gap between perceived MPB and true MPB can be closed as shown in the diagram below. Additionally, the government can also implement stricter

regulations on advertising efforts by companies. Since the main source of information failure is from the false impressions conveyed through persuasive advertising, the government should keep a greater lookout for misleading advertising that might perpetuate such inaccurate impressions. By limiting such advertisements, parents can have a greater accuracy of information.

Market for premium infant milk powder products in Singapore
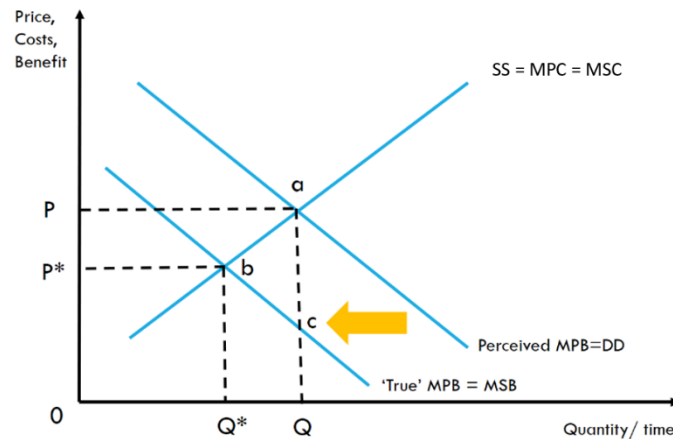
When the perceived MPB moves to true MPB, there will be a surplus at initial price level P, putting a downward pressure on the price. Equilibrium quantity will fall from Q to Q* and equilibrium price will fall from P to P*. In this case, a smaller intervention as such can help to achieve allocative efficiency.

This policy can improve allocative efficiency in the market for regular milk powder products as well. Since the imperfect information is due to misguided perceptions of different nutritional values in the two products, an effort to close the information gap on premium milk will also close the information gap on regular milk, encouraging consumers to switch over to regular milk. Allocative efficiency is improved when demand rises and the equilibrium quantity of regular milk increases closer to social optimal output Q*.

Possible In-body evaluation: However, there is an unintended conflict of objectives with this policy. While the government may solve the problem of allocative inefficiency, it will unintendedly worsen inequity as the rise in DD for regular milk will eventually lead to a rise in its equilibrium price. This means that lower-income family who previously benefitted from the lower prices (interestingly due to other parents' ignorance of the true benefits) may not be able to buy them now, worsening inequity. The Singapore government will have to consider this tension if they choose to intervene.

The government should intervene to a large extent through the use of free provision of regular milk powder products

Singapore government can provide regular milk powder products for free, especially if the extent of market failure is significant. If parents are highly misguided by the persuasive advertising of companies selling 'premium' infant milk powder products, the extent of imperfect information associated with the two markets will be large, which means that welfare loss in the markets will also be large. In this case, government can implement a larger extent of intervention such as free provision of regular infant milk powder products.

Market for regular infant milk powder products in Singapore
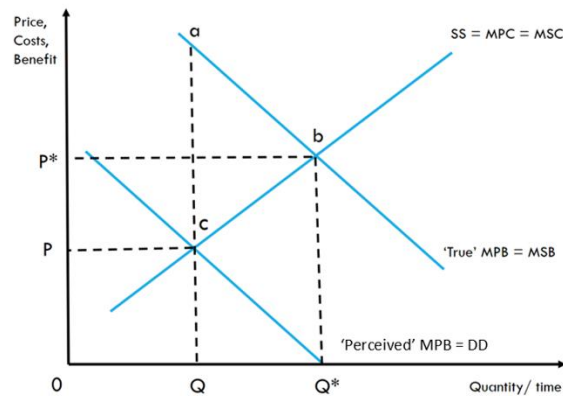
When the government provides free provision of the regular milk powder products, there will be a movement along the perceived MPB curve, which is also the effective demand curve, from the initial market price level P all the way to the price level 0. If the extent of consumer's ignorance is large enough, as illustrated by the significant enough to create divergence between perceived MPB and true MPB as illustrated in the diagram above (where the social optimal level happen to coincide with the quantity depended at zero price), free provision may eliminate the welfare loss of area abc and achieve allocative efficiency as the consumption level will increase from initial market quantity Q to socially optimal quantity Q*. Even though this policy requires the government to channel a large amount of funds, the objective of achieving allocative efficiency can be met. Moreover, it enables poor households to have access to milk powder for infants.

Possible In-body evaluation: In Singapore however, the extent of consumer's ignorance might be small due to the high degree of health and risk consciousness. Singaporean parents in general would likely do their own research and seek out additional information before settling on a milk powder product for their infants. This means that information that parents receive would likely be more accurate and therefore the extent of ignorance is small. If this is true, a free provision may result in a greater welfare loss, leading to government failure.

This policy can also improve allocative efficiency in the market for premium infant milk powder products. When regular infant milk powder products are provided for free, it will reduce the demand for premium milk powder products because they are viewed as substitutes albeit weak ones (XED>0). This will reduce the equilibrium quantity of premium milk powder products closer to socially optimal output Q*, eliminating some welfare loss.

Additionally, equity can also be improved as regular milk powder is considered an important good essential to the survival of infants. When the price of these products becomes 0, it becomes accessible to every parent, which can relieve their economic pressures, especially those of low-income families with more than one infant. This will significantly improve equity among parents in Singapore.

The government should not intervene because it may lead to a greater welfare loss, resulting in government failure

The government can implement production subsidy in the market of regular infant milk powder products. Given perfect information on the extent of consumer's ignorance, the government can implement the appropriate amount of per unit subsidy P*-P'. This policy lowers the marginal cost of production and increases the producers' ability to sell them, causing a rise in SS as illustrated by a rightward shift of the SS curve from SS to SS'. This results in a surplus at initial price level P, putting a downward pressure on price. Equilibrium price falls from P to P' and equilibrium quantity rises from Q to allocative efficient output Q*. In this case, the welfare loss of area abc is eliminated and the objective of allocative efficiency is achieved.

Market for regular infant milk powder products in Singapore
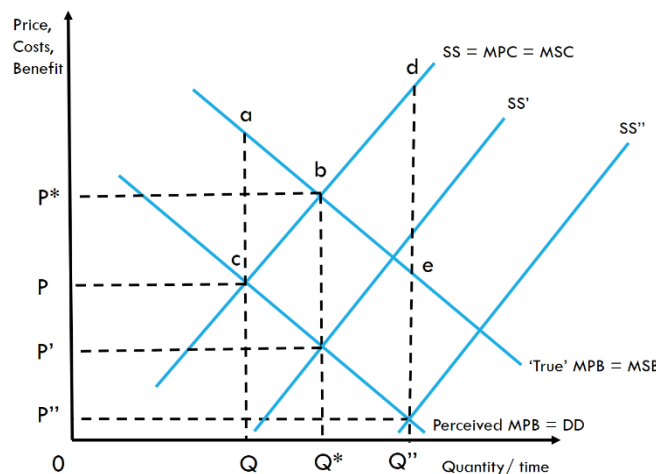
However, Singapore government may find it relatively difficult to measure the extent of consumers' ignorance. Imperfect information on the extent of consumers' ignorance poses a risk of government over-subsidising the market. When this happens, the SS curve may rise to SS'', leading to the market quantity increasing to Q'' instead of Q*. Between Q* and Q'', the total social costs of area Q*bdQ'' outweighs the total social benefits of area Q*beQ'', leading to a welfare loss of area bde. In this case, the welfare loss of area bde due to over consumption when government intervenes is larger than the welfare loss of area abc due to under consumption without government's intervention. As such, the government should not have intervened as free market would have achieved a more allocative efficient outcome.

Conclusion

In conclusion, Singapore government should intervene in the above markets to a smaller extent.

This is because the extent of consumer's ignorance in the market for infant milk powder is likely to be small to begin with because Singaporeans are relatively educated and health conscious. This suggests that parents would likely be more cautious in reading the nutritional labels and make more educated decisions on which milk product to buy. As such, the costs of larger

interventions (e.g. funds needed for free provision for regular milk) is likely going to outweigh the benefits (eliminating a small welfare loss). Therefore, it is not rational for the government to intervene to a large extent. They should focus on smaller interventions that are less costly instead.

If successful, the smaller interventions of education campaigns and stricter regulations on advertising are also preferred because they target the root cause of the imperfect information effectively. These policies are also more sustainable in the long term. Once Singaporeans are convinced about the true benefits of the milk powder products, they (current and prospective parents) will start to make rational decisions that are also allocative efficient; further government intervention will no longer required. Compared to production subsidies, this puts relatively less strain on government resources in the long term. Government can channel to the funds to tackle other sources of market failure such as public good and merit good to maximize society's welfare.

Mark Scheme

Level	Descriptors	Marks
L3	A well-developed answer which thoroughly explains <u>different extent of interventions</u> to improve allocative efficiency and equity for <u>both</u> markets of infant milk powder products	8 - 10
L2	An under-developed answer which explains how government measures improves allocative efficiency in both markets without considering different extent of the interventions	5 - 7
L1	Answer that shows knowledge of various government measures but does not link to how they improve allocative efficiency or equity Answer contains theoretical errors	1 - 4
E3	Concluding statement + substantiation In-body evaluation: Able to consider effectiveness or unintended consequences of policies that may affect allocative efficiency or equity in the context of Singapore Substantiation of stand: Able to consider contextualized factors such as the extent of market failure & costs and benefits of intervention in Singapore	4 - 5
E2	Concluding statement + some substantiation OR In-body evaluation	2 - 3
E1	Concluding statement on whether Singapore government should intervene to a large or small extent without substantiated conclusion	1

Question 4

The goal of many central banks is to achieve price stability.

(a) Explain the key determinants of price stability. [10]
(b) Discuss the view that achieving price stability is the most important determinant of a country's success in improving its standard of living. [15]

Part (a)

Approach: This requires students to demonstrate their understanding of the causes of inflation or deflation in a country, by explaining the converse, i.e. what leads to price stability.

Introduction
Price stability is one of the main macroeconomic goals of a country. It refers to a situation where general price levels remain relatively stable, i.e. low and stable rates of inflation (sustained increase in GPL) and no prolonged deflation (sustained fall in GPL). Generally, many central banks have an inflation target of 2%.

Body

One key determinant of price stability is the rate of potential growth.
Potential growth is the change in potential output of a country i.e. its productive capacity. It is reflected by an increase in the AS from AS_0 to AS_1 (vertical portion shifts right). Increases in a country's quantity and/or quality of factors of production lead to potential growth, since it enables the economy to produce more from Y_{f0} to Y_{f1}. When the increase in AD for a country is matched by the increase in AS, there will be price stability because demand-pull inflationary pressures will be avoided. When AD increases from AD_0 to AD_1, leading to AD > national output and thus unplanned falls in firms' inventories, firms will seek to produce more. Having sufficient spare capacity in the economy because of continued potential economic growth would mean that firms will be able to hire suitable factors of production and continue using efficient combinations of factor inputs when they expand production. This helps to maintain their unit cost of production, which means the firms can continue to produce more at the same general price levels i.e. P_0. Price stability will thus be achieved if rate of potential growth in an economy is high enough to accommodate increases in AD.

General Price Level

AS_0 AS_1

P_0

AD_1

AD_0

Real National Income/t
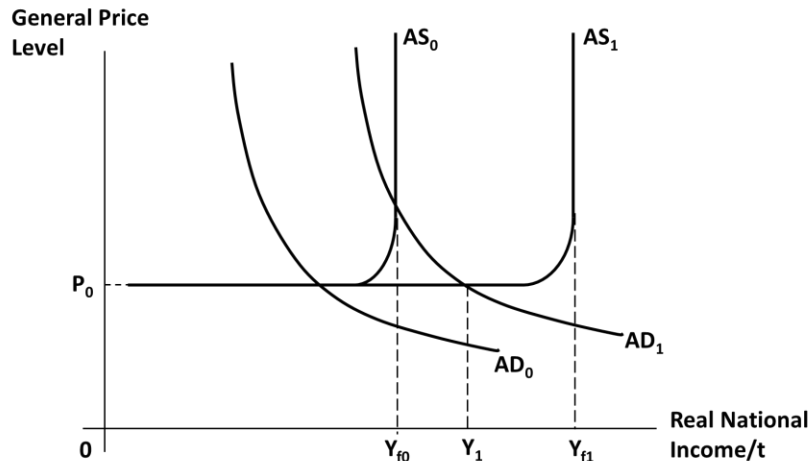
0 Y_{f0} Y_1 Y_{f1}

Fig. 1: Price stability when AD and AS increase in tandem
Note: Students may frame this as rate of increase in AD, but there should be consideration of rate of increase in AS to fully explain its impact on price stability. Students may also consider the reverse, which is how insufficient AD may lead to deflationary pressures in the country e.g. Japan.

It is also possible to consider 'whether there is spare capacity' or 'state of economy'. If AD is rising but there is ample spare capacity in the economy to accommodate the increase in demand for factor inputs, GPL will remain unchanged. This will be a more important determinant in the **current** time period, whereas rate of potential growth is a more important determinant **over time**.

Another key determinant is whether there is inflation in other countries.
This is especially important for countries lacking in raw materials such as Singapore, and thus dependent on other countries for factor inputs. When there is inflation in other countries, price of imported inputs e.g. sand will increase, leading to increases in unit cost of production in Singapore. This leads to a fall in AS as firms partly cut back on production, and partly pass on the unit cost increase to consumers through higher prices. As such, the new equilibrium general price level will be higher, leading to imported inflation. On the other hand, if there is price stability in other countries, this will not happen, leading to price stability also in Singapore.

One other determinant would be the policy stance of the government and/or Central Bank.
As the goal of governments and Central Banks include price stability, there could possibly be intervention by these parties to prevent the threat of either inflation or deflation in the country. For example, the Monetary Authority of Singapore generally adopts a policy stance of modest and gradual appreciation of the Singapore dollar (S$) to counter both cost-push and demand-pull inflationary pressures. A stronger S$ will mean imported inputs become cheaper, reducing unit cost of production and increasing AS. At the same time, foreigners will find Singapore goods and services to be more expensive in foreign currency, leading to reduced demand for Singapore's exports. This offsets prevailing increases in AD, thus reducing demand pull inflationary pressures. Thus, where there is successful intervention by the relevant authorities, price stability can be achieved.

Students may also phrase it as whether there will be intervention by the government and/or Central Bank (discretionary policies).

Other possible points pertaining to nature of an economy will also be accepted.

Mark Scheme

Level	Descriptor	Marks
L3	• A well-developed answer which thoroughly explains the possible factors leading to price stability in a country. There is reference to relevant diagrams, where applicable.	8 – 10
L2	• An undeveloped answer which explains the possible factors leading to price stability in a country. • Answer is descriptive and/or contains gaps in explanation.	5 – 7
L1	• Listing of possible factors leading to price stability in a country. • Answer may have basic conceptual errors.	1 – 4

Part (b) **Discuss the view that achieving price stability is the most important determinant of a country's success in improving its standard of living.** **[15]**

Approach: This question requires a two-sided response. Students need to first explain the view presented, i.e. why achieving price stability is important to a country's success in improving its standard of living (SOL). There is then need to explain the opposite view i.e. why price stability is not the most important determinant, because other determinants may be of more importance.

Introduction

The overarching goal of a government is to improve the SOL of its citizens, which comprises of both material and non-material aspects. To do so, governments seek to achieve the macroeconomic goals of price stability, high and sustained economic growth, low unemployment and a favourable balance of payments (BOP) position.

Thesis: Achieving price stability is an important determinant of a country's success in improving its SOL.

Ensuring price stability provides the basis for sustained economic growth.
Price stability provides more certainty for firms when making investment decisions, because firms can take cues from the price mechanism in determining whether there is growing demand for their products (as opposed to prices increasing because of inflation). Firms also have more confidence to invest compared to times of prolonged deflation, which may suggest weak demand in an economy. With more certainty and confidence, firms will be more willing to invest. This increase in investment expenditure (I) will result in an increase in AD, leading to actual growth assuming spare capacity in the economy initially.

An increase in AD from AD_0 to AD_1 leads to AD > national output. This causes an unplanned fall in firms' inventories level, causing firms to increase production to restore them. The increase in output leads to more income for households, inducing an increase in consumption and thus AD increases further. This triggers more production, and the cycle repeats leading to a multiplied increase in national output from Y_0 to Y_3. The rise in national income implies that households now have greater purchasing power, which enables them to purchase and consume more

goods and services to fulfil their material needs. Thus achieving price stability (which encourages investment) will lead to an improvement in material SOL of citizens.

The increase in I on capital goods also increases the productive capacity of the economy (from Y_{f0} to Y_{f1}). This allows for increases in real national output beyond Y_{f0} if AD were to continue to increase, which will allow for long-term improvement in the material SOL of citizens. Countries lacking in spare capacity, e.g. emerging economies such as Indonesia which have been experiencing strong growth, would also find price stability crucial in encouraging I and enabling improvements in material SOL.
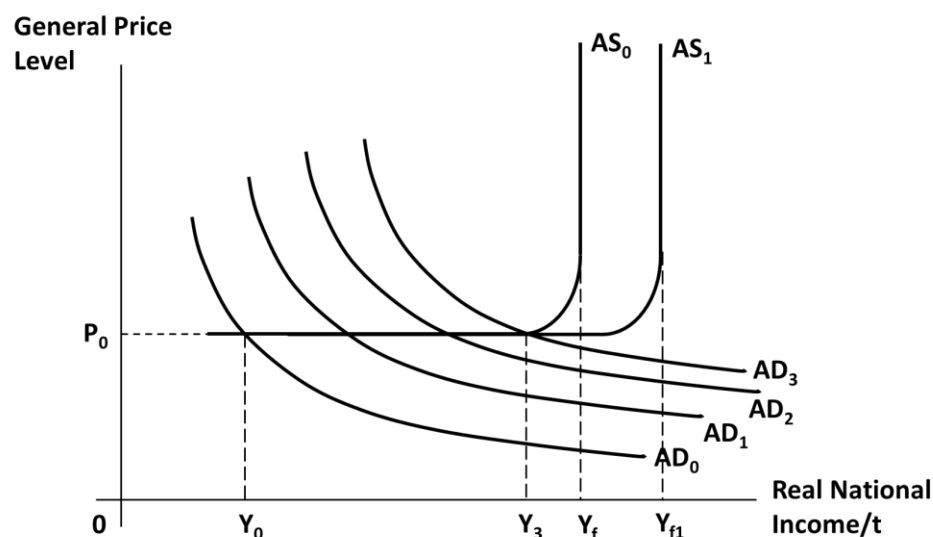

Fig. 2: Sustained economic growth from increase in investment expenditure

[Ev] As investment is important for both actual and in particular potential growth, achieving price stability to encourage investment is very important. If prices were not stable, firms likely will lack the willingness to spend on investment projects. This is especially since consumer confidence will also fall in periods of price instability, leading to poorer expected rate of returns on investment projects for firms. Even if the government loosen immigration policy to boost potential growth, countries with price instability tend to be unattractive to foreign labour (since there is much uncertainty regarding real income earned). Without potential growth, improvements in material SOL will eventually stop, since the economy cannot produce beyond Y_f.

[Ev] For countries where investment takes up a large proportion of real GDP e.g. China where growth is investment-led (44% of real GDP), ensuring price stability will lead to significant increases in AD and thus actual growth. It therefore contributes significantly to China's success in improving SOL.

Ensuring price stability implies a higher likelihood that real income has increased.
When general price levels remain stable, cost of living is maintained, i.e. the income needed to sustain a household's standard of living is maintained. Furthermore, if the rate of increase in nominal income in a country is higher than the inflation rate, it will mean that real income is increasing. Households will now have higher purchasing power, allowing them to buy and consume more goods and services. Material SOL is thus improved.

Anti-Thesis: Other determinants besides achieving price stability may be more important in determining a country's success in improving its SOL.

Achieving other macroeconomic goals e.g. favourable BOP position is a more important determinant of a country's success in improving its SOL.
A favourable BOP position refers to one where BOP is close to equilibrium i.e. no large deficits or surpluses. A large BOP deficit caused by a large trade deficit (export (X) revenue > import (M) expenditure) would imply that a country is spending beyond what it is earning from other countries, which means that the consumption of M has to be financed by either borrowing or selling of its assets. Borrowing leads to accumulation of external debt, and this debt has to be repaid in the future with interest. When repayment is made, the citizens' ability to consume goods and services will be reduced, leading to lower future material SOL. Avoiding large BOP deficits is therefore necessary for improvements in SOL over time.

[Ev] This is particularly significant in countries which have been running persistently large BOP deficits (caused by trade deficits arising from high import spending on consumer goods and services), e.g. the UK, and thus accumulating high levels of external debt. The persistent trade deficits may also suggest underlying issues in the economy, e.g. uncompetitive goods and services, which lowers firms' expected rate of returns on investments and may lead to a fall in investment expenditure even though there may be price stability in the economy.

Any other reasonable argument as to why external stability is important for improvements in SOL will be valid, e.g. if a country moves from BOP equilibrium to BOP deficit, it may reflect a fall in net exports (X – M) and thus a fall in AD, which leads to negative growth and a lower SOL for citizens.
Alternatively, students may explain why other macroeconomic goals, e.g. achieving low unemployment, may be more important a determinant of improvement in SOL.

Achieving price stability is insufficient in improving a country's non-material SOL.
Non-material SOL stems from intangibles, e.g. living in a clean environment, spending leisure time on enjoyable activities. Achieving price stability which leads to greater ability to consume targets only the material aspect of SOL. Furthermore, if the increase in national output comes with higher levels of pollution which leads to poor health or lesser ability to enjoy leisure hours, any improvement in material SOL may be offset by the reduction in non-material SOL. This is because firms are profit-motivated, and is unlikely to take into consideration the health cost on third parties when they produce using pollutive methods. It is therefore important also to improve non-material SOL as well, e.g. through regulations on pollution levels which improves the quality of air and water.

Conclusion

Depending on the nature of the economy, achieving price stability may not be the most important determinant of a country's success in improving its SOL.

This is because, even though price stability is very important in encouraging investment, which is necessary for continued economic growth and thus improvements in SOL, the improvement in SOL is not guaranteed. There may be other reasons inhibiting the improvement in material SOL for an average citizen, e.g. in countries such as India where growth has not been inclusive. Also, if the population grows faster than real GDP i.e. real GDP per capita is falling, SOL for the citizens may actually be falling.

In countries where improvements in material SOL have come at the expense of non-material SOL, achieving price stability is insufficient in ensuring improvements in SOL. Where pollution has reached hazardous levels, as in the case in many Indian cities, improving the environment may significantly improve the non-material SOL and be the most important determinant of India's success in improving SOL instead.

Other points to consider: Current state of economy; if there are high levels of unemployment implying many households living on very low (or no) income, achieving low unemployment may be a more important determinant of improvements in SOL.

Mark Scheme

Level	Descriptor	Marks
L3	• A well-developed and balanced discussion of the view that achieving price stability is the most important determinant of a country's success in improving its standard of living. • Good use of real-world examples to illustrate arguments.	8 – 10
L2	• A well-developed but one-sided discussion of the view that achieving price stability is the most important determinant of a country's success in improving its standard of living, or of the opposite view**.** OR • An underdeveloped but two-sided discussion of whether achieving price stability is the most important determinant of a country's success in improving its standard of living.	5 – 7
L1	• Descriptive answer which shows some knowledge of what leads to improvements in SOL. • Answer that has basic theoretical errors.	1 – 4
E3	• A well-substantiated conclusion on whether achieving price stability is the most important determinant of a country's success in improving its standard of living, e.g. by considering the nature of the economy. There is use of examples to contextualise the stand.	4 – 5
E2	• Answer attempts to substantiation its stand regarding the view provided.	2 – 3
E1	• Answer has unsubstantiated evaluative comments.	1

Question 5

In 2017, Germany has the world's biggest absolute current account surplus while America's deficit remains the world's biggest. Current account imbalances are however not always a cause for concern.

Source: International Monetary Fund (IMF) Report, 2018

(a) Explain the possible causes of current account imbalances faced by countries. [10]

(b) Discuss the factors that are likely to influence macroeconomic policy decision makers in deciding if balance of trade imbalances are a cause for concern. [15]

a)

Approach: Since current account balance consists of imports and exports of goods and services, plus incomes flowing into and out of the country and unilateral transfers, hence the causes raised for this part should come from these components. In addition, causes of current account deficit and surplus should be considered.

Introduction:

A current account records three main types of transactions: payments for imports and exports of goods and services, incomes flowing into and out of the country and unilateral transfers. A current account imbalances occurs when there is an overall net inflow of the above transactions (current account surplus) or when there is a net outflow of the above transactions (current account deficit).

Body

Higher domestic inflation relative to the rest of the world will affect export competitiveness of a country negatively.

Assuming prices of other countries' goods and services remain constant, an increase in domestic prices relative to the foreign prices will cause domestic households to increase demand for imported goods and services instead of domestically produced ones, thereby causing import expenditure to increase. At the same time, more expensive exports will cause foreigners to lower quantity demanded for the exports, causing export revenue to fall if the demand for the country's exports is price elastic. If demand is price elastic, the increase in price will lead to a more than proportionate fall in quantity demanded, ceteris paribus. Assuming the current account is initially in equilibrium, the falling export revenue and rising import expenditure will result in a current account deficit.

An appreciating exchange rate relative to the rest of the world will worsen the current account.

An appreciation of domestic currency of a country (e.g. Singapore) will cause the price of her exports in terms of foreign currency to rise, and the price of imports to fall in terms of the domestic currency. Therefore, foreigners will purchase less of Singapore's exports, causing demand for Singapore's exports to fall. This means that with a lower quantity of exports, export revenue in domestic currency falls. On the other hand, the residents of Singapore will now find imported goods cheaper in terms of domestic currency. This leads them to

purchase more foreign imports. If demand for imports is price elastic, expenditure on imports in domestic currency will rise as quantity demanded increases more than proportionately to the price fall, ceteris paribus. With export revenue falling and import expenditure rising, current account will be in a deficit, assuming it is initially in equilibrium.

Increase in overseas investment in the current period will lead to an increase in property income received from abroad in the next period.
If investors expect foreign countries to have better business expectation or offer lower labour costs, the expected rate of return on investment will rise and firms will spend more of their capital spending overseas, leading to a long-term capital outflow from the domestic country. Alternatively, changes in real interest rates can also alter the rewards earned by the owners of financial assets. For example, a Singaporean investor may purchase Australian bonds or deposits due to an increase in interest rates in Australia as it is now relatively more worthwhile to invest in Australian assets, resulting in an outflow of capital from Singapore. When a country builds up a portfolio of these overseas investments, this may lead to future returns of interest, profit and dividends. Assuming the current account is initially in equilibrium, this inflow results in a current account surplus as there is an increase in property income received from abroad.

[Note: Other causes for CA imbalances can be considered too]

L3	For an analytical answer that covers causes resulting in both current account surplus and deficit.	8-10
L2	A descriptive explanation of the causes of current account imbalances. The causes explain either current account surplus or deficit	5-7
L1	Knowledge of the current account and listing of factors that cause current account imbalances. Statements are mostly unexplained.	1-4

b)

Approach: Whether balance of trade (BOT) imbalances are a cause for concern depends on its impact on the other macroeconomic goals. Students are to consider the different factors and the impact of a BOT surplus / deficit on the macroeconomic goals.

Introduction:

The aim of macroeconomic policy decision makers is to achieve a higher living standard (SOL) via achieving the four macroeconomic goals of sustained economic growth, price stability, full employment and balance of payment equilibrium. BOT imbalances occurs when the export revenue is greater than the import expenditure (BOT surplus) or when the export revenue is less than the import expenditure (BOT deficit). Whether BOT imbalances are a cause of concern depends on the state of the economy, nature of the economy and the root cause of the BOT imbalances.

Body:

One factor that will influence macroeconomic policy decision makers is the root causes of BOT imbalances.
A country may be experiencing a persistent trade deficit due to the loss of its competitiveness. For example, US firms may be less competitive than some foreign countries especially in low-end manufactured goods. When this happens, US consumers are likely to import the relatively cheaper foreign substitutes. The demand for imports rises and import expenditure also rises. At the same time, exports of these goods will also be weak as US products cannot compete with products from other countries. A combination of rising import expenditure and reduced export revenue means net exports (X-M) is likely to be a negative value, assuming balance of trade is in equilibrium initially. This will have an adverse impact on economic growth and employment. In this instance, the trade deficit will be a source of concern if the root cause of the lack of competitiveness within the economy is not addressed and this deficit becomes chronic and persistent. On the other hand, if the trade deficit is due to a fall in income caused by recession of key trade partners, this may not be a cause for concern since the deficit is likely to be temporary, Once the trade partners recover from the recession, the trade deficit will improve.

Macroeconomic policy decision makers may not be concerned if the root causes of the BOT imbalances is due to the economic development of the country. If a country's rising trade deficit is not due to loss of its competitive advantage but rather due to its good domestic economic performance (eg the economy is growing and imports are being induced), then decision makers may not be concerned. Alternatively, the cause of the deficit may also be because the country has bought a lot of imported capital goods which can be a source of potential growth and job creation for the country. If imports are capital goods, a trade deficit due to increased import expenditure (assuming import expenditure rises faster than export revenue) would lead to an improvement in future material SOL as more goods can be produced in the future, shown by a rise in vertical AS. This means that there will be higher consumption of goods and services in the future and hence improvement in the material aspect of future SOL. This would be especially more relevant for developing countries which are reliant on imports of capital goods to achieve growth in the future.

Another factor that will influence macroeconomic policy decision makers is the state of the economy.
If an economy was initially at near full employment level (ie Y_0) and assuming that balance of trade was in equilibrium, that is, there is no BOP imbalance, then with a decrease in X-M, the AD will fall and subsequently result in a lower national income through the multiplier effect. This will be a cause for concern. The fall in AD will in turn lead to decreases in its national income. With the decrease in value of net exports, the aggregate demand will fall from AD_0 to AD_1 as seen in the diagram below. At the current national income level, AD is now less than Y meaning that aggregate demand falls short of national output. This would result in an unplanned accumulation of inventories and lead to firms cutting back on production. With lesser production, lesser workers will be needed and this would cause a drop in employment and the national income. When households face a drop in income, they will cut back on their consumption of domestically produced goods / services (Cd), resulting in a fall in AD. As they spend less on the other goods from firms, it would result in a further drop in production in the economy and more workers will be laid off. This multiplier effect will continue until the national income falls and reaches a new equilibrium Y_3. When the economy produces less goods and services, the derived demand for labour falls, thus worsening demand deficient unemployment.
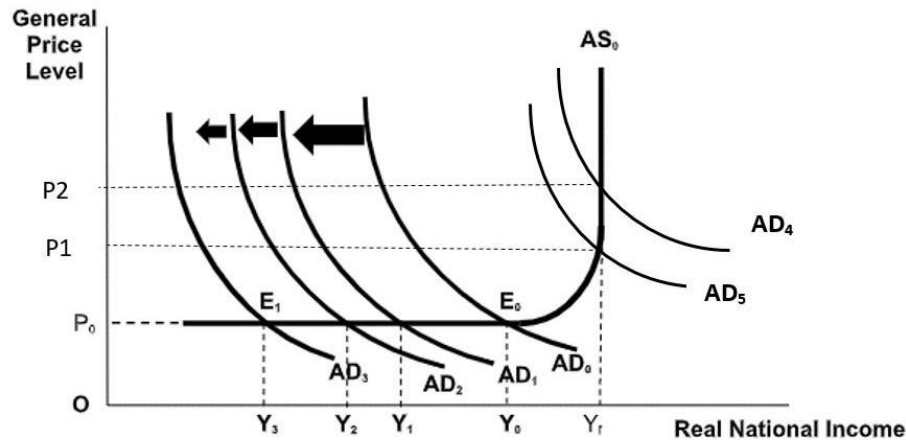
On the other hand, if the economy is experiencing demand-pull inflation and is operating on the vertical portion of AS, then a trade deficit is not a cause for concern. This is because with a fall in AD from AD_4 to AD_5, the general price level falls from P_2 to P_1. A fall in aggregate demand from a fall in net export earnings will lead to firms reducing production and thus competing less for resources for production. This means that firms are better able to get resources that they need, resulting in more efficient factor combinations and falling unit costs of production. This lowers the inflation rate and ensures price stability for the country. Hence a trade deficit in this instance is not a cause for concern.

[Ev] How significant this factor is depends on whether productive capacity is increasing in the economy. For a country like Singapore that is already operating near full employment level, a rising trade surplus may not be desirable as this may result in demand pull inflation, but only if the rise in productive capacity is unable to catch up with the rise in AD. If productive capacity is increasing, and possibly faster than the increase in AD, current state of economy will not be a significant consideration for policy decision makers.

The last factor that will influence macroeconomic policy decision makers is the nature of the economy.
A rising trade surplus could be a source of growth for small and open economies like Singapore which would aim for a rising trade surplus to stimulate growth. Due to her small domestic market, she is reliant on external demand to drive growth as seen by how exports constitute 176% of her GDP (2018). A rising trade surplus due to an increase in net exports (X-M) means that there will be an increase in the AD. Excess demand causes an unplanned fall in inventories, which signal to firms to increase production by hiring more factors of production. Such increase in demand for labour (demand for labour as a derived DD) results in a lower unemployment. An increase in household incomes of those in the trade sector will then induce consumption as consumers spend a portion of their income on domestic goods and services. Subsequent rounds of further spending lead to multiple increase in national income, leading to economic growth and improvement in material SOL.

On the other hand, for countries like US where the economic growth is not as dependent on external demand due to its large domestic market, its net exports makes up a less significant proportion of AD as compared to domestic consumption. As such, the impact on actual growth and unemployment may not be as severe. Hence the extent of a country's reliance on trade to drive economic growth will be a factor that will influence macroeconomic policy decision makers.

A factor that will influence macroeconomic policy decision makers in deciding if trade imbalances are a cause for concern is also the size of its economy and hence the resulting impact of trade imbalances on others. If an economy is large, its trade imbalances will have significant impact on its key trading partners. If this impact is adverse, the likelihood of retaliation from the trading partners is high. For eg, a large and persistent trade surplus for a country like Germany can be a cause for concern for macroeconomic policy decision makers. This is because one country's trade surplus is another country's trade deficit. This causes contraction of the latter's AD. As such, the latter's national income contracts via the downward multiplier effect. The contraction in the trade partners' income will induce them to cut back on imports since import is a function of income. Thus the country with the trade surplus will eventually suffer falling exports which will lead to contraction in AD and hence national income. The effect will be worsened if the trade partner engages in retaliation measures to protect their domestic industries. Germany and also China's large and persistent trade surplus with the US have led to tension with the US, and the resulting trade war. On the other hand, for a small country like Singapore, even if it has persistent trade surplus, its impact on its trade partners is likely to be insignificant, thus rendering the threat of retaliation to be low.

Another factor that influences whether trade imbalances are a cause for concern is whether exchange rate stability will be impacted.

A balance of trade deficit will result in a downward pressure on a country's currency in the foreign exchange rate market. If the country is operating on a managed float exchange rate system, it will have to maintain the value of the currency in the foreign exchange rate market through either buying or selling of currency. If the exchange rate is in danger of depreciating below the lower limit of the band set, to eliminate the downward pressure, the central bank will sell foreign currency reserves to buy back domestic currency. However the exchange rate cannot be maintained at the current level and may depreciate sharply if the central bank eventually runs out of foreign currency reserves. When the central bank runs out of foreign reserves, it will be forced to let its currency depreciate. The lack of exchange stability has negative impacts on the economy, e.g. for a country reliant on imported inputs for production, the depreciation will lead to costlier inputs, increasing cost of production and leading to cost-push inflation as AS falls. The currency may also be subjected to a speculative attack if foreign investors anticipate that the exchange rate may further depreciate, worsening the problem. Trade imbalances will thus be a cause for concern in such a case.

However, if exchange rate stability can be maintained, a balance of trade deficit need not be a cause for concern. This could be because foreigners are willing to lend to the country facing a trade deficit. For example, the US dollar is still sought after as a reserve currency thanks to its status as the world's dominant economy and investors have a lot of confidence in the US economy and currency. When the US borrows to finance its deficit, there will be an inflow recorded under the capital account that eliminates the downward pressure on the US dollar in the foreign exchange market. Thus the US economy would not be as concerned with the large trade deficit it is experiencing.

Note: Another possible point students can consider is the persistence of the trade balance.

Conclusion

The most significant factor that influences macroeconomic policy decision makers in its decision on whether balance of trade imbalances are a cause for concern is the root cause of such imbalances.

This will be of great concern if the root of the trade imbalances is due to the loss of competitiveness of its domestic industries against the foreign sectors. Such loss of competitiveness may be due to structural rigidities or unproductive labour force. If these internal problems are not addressed, this will result in slower economic growth as BOT deficit worsens due to locals preferring foreign substitutes. It will also result in cost-push inflation and unemployment in the economy, eventually affecting the country's SOL.

On the other hand, the factor due to the state of an economy is less important. If a trade surplus results in demand pull inflation due to the country's limited productive capacity, this is likely to be a short term concern. In the long run, as the country increases its productive capacity, by say, improving on its quality of factors of production, the inflationary pressures will be reduced.

Similarly, the factor about the nature of a country's economy is also less significant. Where there is retaliation from trade partners due to a country's trade surplus, the country can consider widening its trade links and form free trade areas with other countries. This will ensure that the country's trade flows will be minimally affected and hence its macroeconomic goals can be achieved.

Marks Scheme

L3	For an answer that gives a detailed and analytic explanation of factors influencing decision-makers. Assertions should be phrased clearly to address question and supported with good use of relevant tools of analysis.	8 – 10
L2	Answer that may not address the question explicitly but merely explains whether the trade imbalances are a cause for concern. Explanations may also be underdeveloped.	5 – 7
L1	For an answer that shows knowledge of some factors or some idea of the impact of trade imbalances on the macroeconomic goals. There may also be major and frequent conceptual errors.	1 – 4
E3	For a stand with strong, relevant substantiation, weighing the significance of the various factors influencing decision makers.	4-5
E2	For a stand that attempts to make some judgement of the various factors affecting decision makers.	2-3
E1	A conclusion where the judgement is unexplained.	1

Question 6

The US government has accused China of engaging in unfair trade practices and has imposed tariffs on many Chinese imports like aluminium and steel. In turn, China imposed a number of retaliatory tariffs on US imports like fruit, wine, and pork.

<div align="right">

Source: The New York Times, 1st April 2018

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Discuss the policy measures that the Singapore government can adopt to deal with the macroeconomic problems associated with the trade war. [25]

Introduction:

The trade war between China and US started with the US imposing tariffs on many Chinese imports. China in turn retaliated with counter-tariffs on US goods and services. As China and US are major trading partners of Singapore, the trade war would likely have significant impacts (largely negative) on Singapore's economy. In recommending policy measures to deal with these impacts, the nature of the Singapore economy will be considered - Singapore is a small and open economy that is heavily reliant on trade for growth.

Body

Impact of US and China's trade war on the macroeconomic goals of Singapore

The trade war may cause a recession and higher rates of unemployment in Singapore. Singapore's economy would be negatively impacted by the ongoing trade war.

The trade war would cause China and US economies to slowdown or slide into recession. A tariff is a tax levied on products when they cross national boundaries. They are implemented with the aim of restricting imports to protect domestic industries from foreign competition. When US imposes tariffs on Chinese goods and services, prices of Chinese goods increase for the Americans. This will encourage US consumers to buy US goods rather than Chinese goods, hence tariffs protect domestic industries and jobs.

If the tariffs are imposed on many goods across various sectors, the impact of the trade war would be economy wide. Import expenditure will fall for US while domestic consumption expenditure increases. This causes Aggregate Demand (AD) in US to increase. However, when China retaliates back with tariffs, demand for US exports would fall, assuming that the tariffs are imposed on many goods and services too. US export revenue falls too. Assuming exports revenue falls to a greater extent than import expenditure, overall AD of US decreases. This causes a multiplied decrease in US's national income.

US is a key export destination for Singapore. Thus when US consumers face a fall in national income, their purchasing power and ability to consume goods and services will decrease. Thus their demand for exports from Singapore would decrease and Singapore would face a fall in export earnings and its economy is at risk of slowing down too. This is assuming that Singapore's exports are normal goods with positive income elasticity. Singapore produces high quality and high value added goods like electronics that are likely to have positive income elasticity.

China will also face a fall in export demand with the tariffs imposed on its exports by US government. Thus its AD will decrease and will suffer negative economic growth. As China is

also a key export destination for Singapore, Chinese consumers will demand less of Singapore's exports with falling incomes.

Singapore's export revenues will be further reduced and its balance of trade worsens.

Moreover, since Singapore is part of the global supply chain, it produces many intermediate goods used as inputs in the production of Chinese exports to US. Since Chinese exports to US are slowing, derived demand for Singapore's exports would fall too. This again causes export earnings to decrease for Singapore.

Foreign Direct Investments (FDI) into Singapore are also likely to fall as a result of the ongoing trade war. A slowdown in major economies in the world would raise a lot of uncertainty about future business prospects as profitability of investments depends on the income level of consumers. This lowers expected rate of return on investments and investments in Singapore may fall since foreigners set up factories in Singapore to export to the rest of the world.

As I and X decreases AD decreases and national income of Singapore decreases. Demand deficient unemployment may rise too. Firms in the export and construction industries face an unplanned increase in inventories. Thus they will cut back on production and retrench workers. Incomes of workers in these industries will fall and they will in turn spend less, pay less in taxes, spend less on imports and save less. This causes firms in domestic retail industry to fall an unplanned increase in inventories. This prompts another round of cut in spending. National income decreases to a multiplied extent. This is shown by the multiple shifts in AD in the diagram below.

The trade war can cause Singapore's balance of payments (BOP) to worsen.

The BOP consists of both current and capital account. Current account will worsen with decrease export earnings. Capital account will worsen with lower inflow of foreign direct investments.

The price of imported goods will increase and cost-push inflation will arise as a result of the trade war.

A tariff on imported inputs would cause costs of production to increase in the US. This may result in higher cost push inflation in US if the unit costs of production increase. For example a tariff on steel would cause steel to be more expensive as steel users will use the relatively more expensive domestically produced steel. Firms that use steel, like electronics manufacturers, will face a rise in costs of production. Firms would pass on the higher costs as higher prices to consumers. As a result, the goods that consumers in Singapore import from the US would also be more expensive. This would erode their purchasing power assuming no change in nominal income.

Policy measures that the Singapore government can adopt to deal with the macroeconomic problems associated with the trade war:

The Singapore government can adopt a depreciation policy to address the recession associated with the ongoing trade war.

MAS may choose to let the Singapore dollar to depreciate i.e. a fall in the external value of S$. The policy of depreciation causes SGD to be weaker relative to selected foreign currencies (assuming no changes to the exchange rates of other economies), and makes its exports more

competitive in terms of some foreign currencies. When SGD depreciates, Singapore's exports will become cheaper in foreign currency. Foreigners will thus buy more of Singapore's exports. With a rise in DD for Singapore's export, export revenue will rise (price in SGD unchanged, higher quantity of output sold). Concurrently, imports to Singapore become more expensive in SGD. Singaporeans will thus decrease quantity demanded for imports. If DD for imports is price elastic, the fall in price (in SGD), will lead to a more than proportionate decrease in quantity demanded for imports, leading to a fall in import expenditure. With a fall in M expenditure and rise in X revenue, ceteris paribus, BOT will improve. AD and hence real NY will increase via the multiplier, ceteris paribus leading to economic growth. The gain in competitiveness in SG's exports will also cause a rise in demand for workers in the export sector and will also address the unemployment problem arising in this sector.

[EV] For Singapore that is very reliant on imported inputs, the gain in export price competitiveness from the weaker currency will be limited because of the high import content in her export. In addition, the rise in demand due to the relatively lower export prices may not be sufficient to counter the weak demand from US and China due to the lack in confidence and the recession in these countries. Exchange rate policy may thus not help to boost demand for exports significantly.

The Singapore government can use short run supply side policies to address the rise in unemployment associated with the ongoing trade war.

An example is the jobs credit scheme that provides businesses with cash grants based on the CPF contributions they make for their employees. This encourages firms to retain their workers during the downturn caused by the trade war. The credit an employer can receive depends on the number of employees on its payroll and the wage cost based on CPF contributions. This acts like a subsidy whereby costs of hiring workers decreases and unit costs of production will fall causing aggregate supply to increase. Horizontal AS shifts down. With excess aggregate supply, firms will have to cut prices to stimulate spending and so reduce the excess supply.

Alternatively the government can use flexible wage system with a sizable variable component in wages to allow companies to adjust wages quickly in severe business downturns. Businesses can adjust wages immediately when faced with short term economic downturns. Thus firms could avoid retrenching workers during recessions.

[EV] Wage subsidies may be prohibitive for a country with a large budget deficit or for a large country as the spending on such policy will be very high and may result in high opportunity cost. Such a measure is also more effective in industries where wage costs take up a large proportion of total cost of production, for example, in the hospitality industry. Given the healthy fiscal position enjoyed by Singapore over the years, it is able to use this tool to address the unemployment situation in the short run. However, in the long run, other policies need to be used. As Singapore is a fast aging population with rising demand on healthcare services, the allocation of the budget to this sector will thus rise. This will then pose a fiscal constraint on the ability of the government to implement wage subsidy in the long run.

The Singapore government can use trade policies to deal with the recession associated with the ongoing trade war

Singapore can negotiate trade deals with other economies to offset the loss in export earnings from USA and China.

Singapore can diversify its exports markets by pushing for trade deals with countries which are not as affected by the trade war. For example, countries like Vietnam have gained from the With the US imposing tariffs on Chinese products, US firms and consumers may choose to import from other countries like Vietnam instead. Moreover, foreign investors in China may pull out their investment and change destination to Vietnam in order to avoid facing the tariffs. Signing new trade deals like the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) will lower tariff and non-tariff barriers and facilitate trade between Singapore and Japan. While both exports and imports will increase with the trade agreements, export earnings will likely increase more than import expenditure as Singapore's domestic economy is small relative to the economy of Japan. In addition it will be easier for firms to undertake investments in trading partners' economies. This could additionally boost Singapore's actual economic growth as FDI flows into Singapore.

[EV] An FTA will benefit Singapore's exporting firms which no longer face the protectionistic measures imposed by the government who entered into FTA with SG. Thus, Singapore's planned export value should rise by more than that for import and the resulting rise in aggregate demand will lead to a rise in equilibrium national output as long as there is availability of capacity. However, FTAs may also lead to greater competition from foreign firms. With more FTAs signed, this could lead to more foreign direct investment as the larger foreign firms would want to take advantage of Singapore's FTA status to export from Singapore. This may exacerbate the constraints of the smaller domestic market size and the lack of resources that the domestic firms already face.

Conclusion

Overall signing more trade deals with other countries is likely to be the most effective policy in addressing the problems associated with the trade war.

The impact of the trade war is likely to be significant for Singapore as it is highly reliant on China and US for growth. The ASEAN economies are growing and to promote growth, if Singapore signs the trade agreements with these economies, they can prove to be alternative destinations for Singapore's exports and will help Singapore recover from the negative implications of the trade war. However, it takes time to reach consensus and further liberalise trade with ASEAN countries. In the short run, to address the unemployment that comes along with the recession in Singapore, the supply side policy like the jobs credit scheme is likely to be more effective as it helps employers to retain the workers by reducing the labour cost. The use of exchange rate policy like depreciation to promote economic growth is relevant for Singapore as it is an open economy. However, this is done at the expense of cost-push inflation since Singapore is heavily dependent on imports. The use of depreciation to boost growth will thus not be effective since the competitiveness of its exports will be limited.

Mark scheme

Level	Descriptors	Marks
L3	An analysis of the problems that Singapore will face due to the trade war and at least 3 well-developed policies that the Singapore government can implement to tackle the identified problems.	18 - 20
	An analysis of the problems Singapore will face due to the trade war and	15 - 17

	at least 2 policies that the Singapore government can implement to tackle the identified problems.	
L2	An underdeveloped explanation of the problems Singapore will face and an underdeveloped / descriptive explanation of the policies it can use (i.e. matched but underdeveloped problems and policies) Limited scope: consider only 2 policies and 1 problem OR 2 problems and 1 policy OR Mismatched or standalone policies that are well developed	12 - 14
	An underdeveloped explanation of the problems Singapore will face due to the trade war and / or policies that can tackle the macroeconomic problems. Mismatched problems and policies that are underdeveloped	9 – 11
L1	For an answer which shows some knowledge of the impact of a trade war and / or some knowledge of the policies. Answer that has basic theoretical errors.	5 – 8
	For an answer which is mostly listing policies used to tackle trade war and some impacts of trade war. Answer that has basic theoretical errors.	1 - 4
E3	Makes a stand as to which policy is appropriate at tackling the problems associated with the trade war. Substantiation includes consideration of the various strengths and limitations of the different policies in tackling the problems associated with the trade war. Considers the relative appropriateness of the policies applicable to the Singapore's context	4 – 5
E2	Some attempts to substantiate the appropriateness of the policies	2 – 3
E1	Makes a stand with no further substantiation on which policy is appropriate at tackling the problems associated with the trade war	1