



TAMPINES MERIDIAN JUNIOR COLLEGE  
**JC2 PRELIMINARY EXAMINATION**

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**H2 ECONOMICS**

**9757/01**

Paper 1

**16 September 2019**

**2 hours 15 minutes**

Additional materials

Answer booklet

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**READ THESE INSTRUCTIONS FIRST**

Write your name and Civics Group on all the work you hand in.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, glue or correction fluid.

Answer **all** questions.

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

Answer **all** questions.

### Question 1: The market for steel in China and US

#### Extract 1: The importance of steel

As nations around the world seek to improve their standard of living and lift populations out of poverty, it is inevitable that the demand for steel will increase. Steel is critical simply because no other material has the same unique combination of strength, formability and versatility. In addition, steel plays a critical role in virtually every phase in our lives. The rails, roads and vehicles that make up our transport systems use steel. Steel provides a strong framework and connections in the buildings where we work, learn and live. It protects and delivers our water and food supply. It is a basic component in technologies that generate and transmit energy.

Source: [www.worldsteel.org](http://www.worldsteel.org), 15 January 2017

**Table 1: Price of iron ore (USD per metric tonne)**

	<b>Mar 2015</b>	<b>Jun 2015</b>	<b>Sep 2015</b>	<b>Dec 2015</b>	<b>Mar 2016</b>	<b>Jun 2016</b>	<b>Sep 2016</b>	<b>Dec 2016</b>	<b>Mar 2017</b>
Price	64	58	55	47	48	56	59	71	86

Source: Deloitte CIS Research Centre, 2017

#### Extract 2: Changes in the iron ore and steel markets

Prices for commodities such as crude oil, gold and copper are falling. But iron ore, a key raw material needed for steel production, is bucking the trend thanks to China, the world's largest consumer of iron ore. Prices for iron ore are near \$80 per tonne, a 30 percent rise from late October. So far this month, prices are up 6 percent.

In 2017, China's economy grew at a faster pace for the first time in seven years, expanding by an inflation-adjusted 6.9 percent. That is partly thanks to higher exports. Heavy spending on infrastructure late last year provided an additional lift. This contributed to greater consumption of steel in China.

Rising prices of raw materials such as iron ore could dent profits at the world's major steel companies, which have been on the mend. Shinichi Okada, executive vice president at Japanese steelmaker JFE Holdings, expects the company's profit margin to shrink as prices for raw materials rise faster than the price of steel.

Many analysts, however, believe the Chinese economy will slow again in 2018, as debt-laden companies and individuals move to reduce their borrowing. In addition, China is pushing to curb steel production. In mid-November 2017, the government ordered steel companies to cut production in an effort to clean up the air in 28



northern cities. That also prevented a large surplus of steel and kept the price from falling.

Source: Nikkei Asian Review, 20 February 2018

### Extract 3: The steel market in the US

The United States is the world's largest steel importer (2017 ranking). In 2018, the US imported 30.8 million metric tonnes of steel, an 11 percent decrease from 34.5 million metric tonnes in 2017. US imports in 2017 represented about 9 percent of all steel imported globally, based on available data. The volume of US steel imports in 2017 was more than 25 percent larger than that of the world's second-largest importer, Germany in 2017.

Source: www.trade.gov, March 2019

**Table 2: Domestic production, apparent consumption and imports of steel in the US (million metric tonnes)**

	2014	2015	2016	2017
Domestic Production	88.2	78.8	78.6	81.6
Apparent Consumption <sup>1</sup>	117.0	104.7	99.7	106.1
Imports	40.3	35.4	30.0	34.5

<sup>1</sup>Apparent Consumption refers to domestic production plus imports minus exports

Source: www.trade.gov, March 2019

### Extract 4: US tariffs on steel could backfire

US President Trump has finally done it. After nearly a year of threatening to upend global trade, he has announced sweeping tariffs on steel. What this means is steel made in another country and shipped to the United States will be subject to a 25 percent tax. This is a hefty fee because Trump's goal is to incentivise US companies to buy steel from US producers so the domestic metal industry gets stronger. Trump argues that he needs to do this to save jobs and protect national security. His Commerce Department put out two lengthy reports recently arguing that the United States needs larger steel industries to have enough metal for F-18 and F-35 fighter jets and armoured military vehicles. Economically, this is a risky move for Trump. There will be consequences, and some are likely to be unpleasant.

Firstly, the prices of many products, including cars, are likely to rise. If you drive a car or truck, it probably has some steel in it. The whole goal of Trump's tariff is to get prices of this metal to rise domestically so it is profitable enough for US producers to make more steel and employ more people.

Secondly, the price increase of steel is likely to be passed on to consumers. There is a big debate about how hefty the price jumps are going to be. American steel producers argue that the price of a typical passenger car would rise by just \$35. But the auto industry laughs at that figure, saying it will be much higher, as there are

costs associated with finding new suppliers and potentially having to alter the manufacturing process, as not all metal is perfectly interchangeable.

Thirdly, China, Russia and even Canada are likely to strike back. Trump likes to talk about how China is dumping a lot of cheap steel into the United States, killing America's domestic metal industry. But the reality is that Canada - a close ally - sends by far the biggest volume of these metals to the United States. These are powerful nations that are likely to fight back. China, Canada and others could decide to retaliate right away by putting tariffs on some US goods coming into their countries. The most likely target is US agriculture products and airplanes. These are top US exports to other countries. A global trade war could easily unfold.

Fourthly, the economy's goal of 3 percent growth - and some jobs - could be in jeopardy. The economy has been on an upswing lately, and some experts predicted the United States could even hit Trump's goal of 3 percent growth this year because of the tax cuts. But a trade war, even a small one, threatens growth. If other countries hit core US industries such as aerospace, that would affect growth. American consumers, the driving force of the US economy, could also get angry if prices of many items jump.

The Trump administration argues that it is doing this to save good jobs. Steel jobs have declined by the thousands in the past decade. But the jobs saved in one industry could be offset by jobs lost in other industries if prices rise and buyers reduce spending on items such as cars. Former president Barack Obama put a tariff on Chinese tyres in 2009, but it backfired, many economists say. Obama touted the 1,000 jobs saved, but the Peterson Institute says that more than 3,000 jobs were lost in other industries.

Source: Washington Post, 1 March 2018



### Questions

- (a) (i) State the change in the price of iron ore between March 2015 and March 2017. [1]
- (ii) With the aid of a diagram, explain how the change in price of iron ore will change the profit of a steel producing firm. [3]
- (b) (i) With reference to Extract 1, explain the likely value of the price elasticity of demand for steel. [2]
- (ii) Using demand and supply analysis, discuss how the events in Extract 2 are likely to affect the total revenue for steel producers. [8]
- (c) Given the information contained in Table 2, identify whether the US is a net exporter or net importer of steel. Justify your answer. [2]
- (d) Rising steel prices have led to car prices rising (Extract 4). Explain **two** possible factors that determine the extent to which car prices will rise due to rising steel prices. [4]
- (e) Extract 4 mentions that the US has implemented tariffs on imported steel. In view of the possible impact of US steel tariffs on consumers, employees and producers, assess whether, on balance, protectionism can ever be justified.

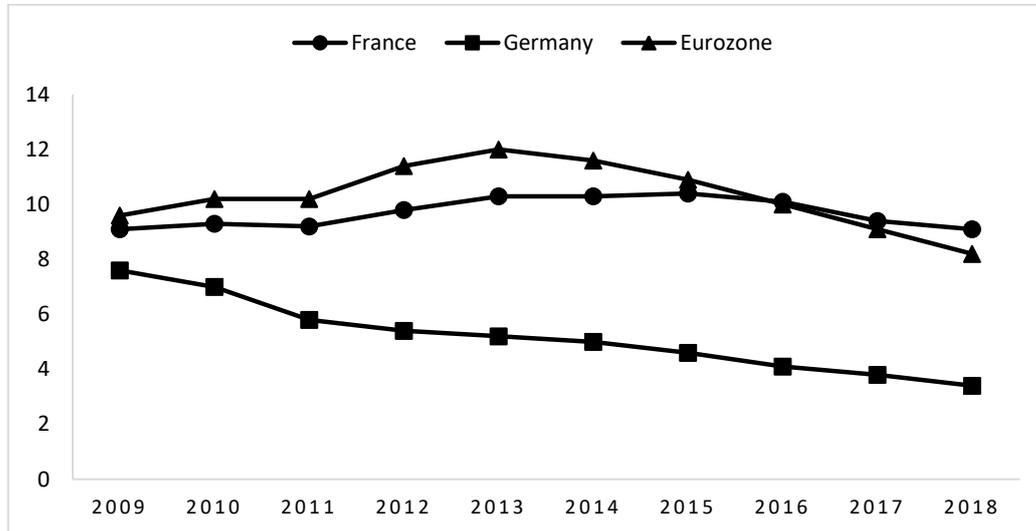
[10]

[Total: 30 marks]



## Question 2: Deflation and unemployment in the Eurozone

**Figure 1: Annual unemployment rate (%) in the Eurozone<sup>2</sup> and selected member states**



<sup>2</sup>The Eurozone consists of 19 countries in the European Union: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia, and Spain.

Source: Eurostat

### Extract 5: Anxiety rises over the Eurozone's falling prices and rising unemployment

Economists do not generally worry too much about short periods of deflation. However there have long been concerns that in the Eurozone, where growth is weak and a number of countries remain in recession, falling prices can become widespread and entrenched. Average unemployment across the Eurozone has also reached 11.5 percent. Across the Eurozone, youth unemployment is still running at just over 21 percent.

Harsh austerity measures introduced during the sovereign debt crisis, where several Eurozone countries experienced economic pain due to high government debt, persistent economic slack and the recent decline in energy prices were largely to blame for the decline in prices. Additionally, structural reforms to boost competition and regain competitiveness in the Eurozone countries also contributed to the decline in prices.

Such developments are likely to intensify the pressure on Mario Draghi, president of the European Central Bank (ECB), to press on with quantitative easing (QE). The ECB is the central bank responsible for monetary policy for the Eurozone member countries which have adopted the euro currency. Consequentially, these countries

are forbidden from deploying independent monetary policies to help battle economic downturns.

But some experts have little confidence that even a large-scale intervention will do much good. While QE could buy the Eurozone time, driving down long-term interest rates, it would not solve the longer-term challenges of restoring growth.

Source: Guardian, January 2015

### **Extract 6: Rise of Eurozone underemployment underlines jobs crisis**

High unemployment has scarred the Eurozone in the wake of the sovereign debt crisis and has been most acute in the bloc's weaker, southern economies such as Spain, Greece, Portugal and also France. Still, in recent months, the average Eurozone unemployment rate has fallen steadily to an eight-year low of 9.5 percent. "The improvement in the quantity of jobs has been offset by a significant deterioration in their quality", said Gilles Moec, European economist at Bank of America Merrill Lynch.

While the combination of cheap oil, a weak euro and more aggressive fiscal and monetary policies from the European Central Bank have spurred hopes of a stronger economic recovery, growth remains too slow and confidence too fragile for companies to add jobs in substantial numbers.

More than a fifth of Europe's part-time workers are underemployed, while the number who have given up looking for work altogether has increased. Across the Eurozone, 9.8 million part-time workers - or 22 percent - worked fewer hours than they would have liked to last year, according to Eurostat's annual poll of the EU labour market. In Greece the proportion rose to 72 percent, and 66 percent and 57 percent in Cyprus and Spain respectively. More than two-thirds of all underemployed workers were women.

Rising part-time employment, at the expense of full time work, is generally a mark of early stage recoveries, noted Bert Colijn at ING Group. "Employers give out temporary contracts before regular contracts and that shows during a job recovery", said Mr Colijn.

Source: Financial Times, April 2017

### **Extract 7: France may scrap high unemployment benefits**

France wants to trim back jobless benefits that can reach 7,700 euros (6,631 pounds) per month for those who lose high-paying positions. Unemployment benefits, which are a type of automatic stabiliser, in France constitute on average 68 percent of a worker's previous wages, compared with 56 percent in other nations of the Organisation for Economic Cooperation and Development (OECD) group. Employers regularly point to the unemployment benefit system, seen as among Europe's most generous, as one of the main reasons for France's chronically high joblessness.



Source: Reuters, February 2019

### **Extract 8: Technological progress and its policy responses**

Should robots pay taxes? As fears about the impact of automation grow, calls for a “robot tax” are gaining momentum. Earlier this month, the European parliament considered one for the Eurozone.

Automation is not new. In the late 16th century, an English inventor developed a knitting machine known as the stocking frame. By hand, workers averaged 100 stitches per minute; with the stocking frame, they averaged 1,000. As technology improves, it reduces the amount of labour required to produce a certain number of goods. Not only did wages rise in line with productivity, firms also reported higher profit margins. A tax on robots could be bad policy. Robot taxes could dissuade firms from investing in robots, which would lower economic growth and lead to less hiring and lower wage growth.

Technological improvement has also not produced extreme unemployment yet. That’s because automation can create jobs as well as destroy them. One recent example is bank tellers: Automated Teller Machines (ATMs) began to appear in the 1970s, but the total number of tellers has actually grown since then. However what is different this time is the possibility that technology will become so sophisticated that there would not be anything left for humans to do. What if your ATM could not only give you a hundred bucks, but sell you financial services?

As machines and algorithms get smarter, they will replace a widening share of the workforce, worsening income inequality. A robot tax could raise revenue to retrain those displaced workers, or supply them with a basic income.

Source: Reuters, March 2017

### **Questions**

- (a) With reference to Figure 1, compare the changes in unemployment rate for the Eurozone and the selected member states. **[2]**
- (b) Use aggregate demand and supply analysis to explain the causes of deflation in the Eurozone, as suggested in Extract 5. **[6]**
- (c) Using Extract 7, explain how automatic stabilisers work to offset fluctuations in economic activity. **[4]**
- (d) Discuss the main difficulties faced by a government from the Eurozone when attempting to resolve its unemployment problem. **[8]**
- (e) As fears about the impact of automation grow, calls for a “robot tax” are gaining momentum (Extract 8).  
Discuss the opportunities and challenges presented by technological progress to an economy. **[10]**



**[Total: 30 marks]**





TAMPINES MERIDIAN JUNIOR COLLEGE  
**JC2 PRELIMINARY EXAMINATION**

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**H2 ECONOMICS**

**9757/02**

Paper 2

**23 September 2019**

**2 hours 15 minutes**

Additional materials

Answer booklet

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**READ THESE INSTRUCTIONS FIRST**

Write your name and Civics Group on all the work you hand in.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, glue or correction fluid.

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

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

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

Answer **three** questions in total.

### Section A

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

- 1** There is a growth of speciality coffee shops in Singapore as incomes rise and coffee lovers develop more discerning tastes. Rising costs, including manpower, workers' training, equipment and rent, contributed to rising prices of coffee. While the price of a cup of coffee at a neighbourhood coffee shop increased by about \$0.30, the price of a cup of coffee at a speciality coffee shop increased by a larger extent.
- (a) Explain what might cause price elasticity of supply and income elasticity of demand to be different for different products. **[10]**
- (b) Discuss the different supply and demand factors and their likely importance in determining the change in the price of coffee beverages. **[15]**
- 2** It can be argued that markets fail when knowledge is imperfect or is not evenly shared by all parties in a transaction. This can be observed in various markets such as healthcare and used cars.
- Assess the extent to which the Singapore government should solely depend on the provision of information in overcoming the above sources of market failure. **[25]**
- 3** In the market for online grocery services, established large firms such as Fairprice compete via non-price strategies such as offering same day delivery. In addition, they face a high level of contestability with businesses looking to enter.
- (a) Explain the factors that are likely to influence a firm's decision to implement non-price strategies in the market for online grocery services. **[10]**
- (b) Discuss how the threat of potential competition will affect different economic agents. **[15]**



## Section B

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

- 4** In 2017, Singapore's GDP at 2010 prices grew by 3.6%, the total population grew by 0.1%, inflation (as measured by the consumer price index) was 0.6% and overall unemployment stood at 3.1%.

Source: [www.singstat.gov.sg](http://www.singstat.gov.sg), accessed 26 July 2019

- (a)** Explain how these statistics can be used to measure the change in the standard of living in Singapore. **[10]**
- (b)** Discuss the limitations of these statistics in both assessing the change in the standard of living in the Singapore economy in 2017 and comparing it with other countries. **[15]**
- 5** Explain the benefits of sustainable economic growth and discuss if demand management policies are more effective than supply-side policies in achieving sustainable growth. **[25]**
- 6** Globalisation has changed the volume, composition and direction of trade between Singapore and the rest of the world. Countries continue to look for ways to harness the benefits of globalisation.
- (a)** Explain how globalisation affects Singapore's pattern of trade. **[10]**
- (b)** Discuss the appropriateness of increasing productivity in order to harness the benefits of globalisation. **[15]**



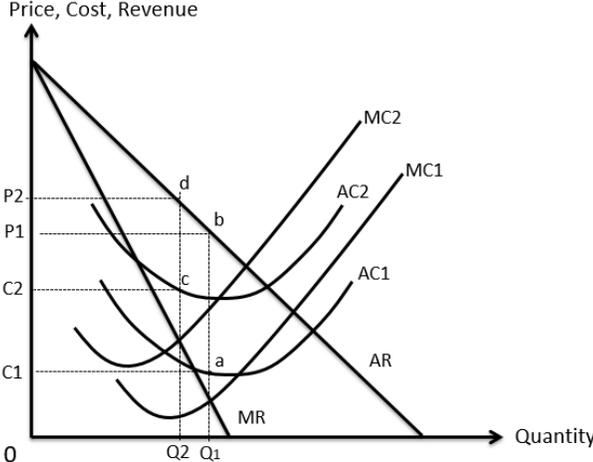
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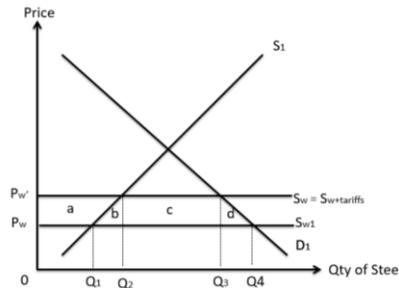
**TMJC Economics Unit 2019**  
**JC2 H2 Economics 9757**  
**JC2 Prelim Suggested Answer Package**

**Suggested answers for CSQ1**

(a)	(i)	<p>State the change in the price of iron ore from March 2015 to March 2017.</p> <ul style="list-style-type: none"> <li>Increased. [1]</li> </ul>	[1]
	(ii)	<p>With the aid of a diagram, explain how the change in price of iron ore will change the profit of a steel producing firm. ‘</p>  <ul style="list-style-type: none"> <li>[1] correctly labelled diagram illustrating <math>\uparrow AC</math> and <math>\uparrow MC</math></li> <li>Profit max output occurs at <math>MC=MR \rightarrow</math> profit maximizing output initially at <math>Q_1</math></li> <li>[1] <math>\uparrow</math> price of iron ore from (ai) <math>\rightarrow \uparrow MC</math> &amp; <math>\uparrow AC</math> as iron ore is a <u>variable factor</u> <math>\rightarrow</math> leftward/upward shifts of both MC and AC curves</li> <li>[1] <math>\downarrow</math> profits from <math>C1abP1</math> to <math>C2cdP2</math></li> </ul>	[3]
(b)	(i)	<p>With reference to Extract 1, explain the likely value of the price elasticity of demand for steel.</p> <ul style="list-style-type: none"> <li>Steel has few close substitutes “no other material has the same unique combination of strength, formability and versatility.” <math>\rightarrow</math> difficult to find a metal with such unique properties.</li> <li>OR Steel is a necessity as it “plays a critical role in virtually every phase in our lives” <math>\rightarrow</math> key resource used in many essential goods/services. [1m for a reason supported by case evidence]</li> <li>PED is likely to be <math>&lt;1 \rightarrow \uparrow P \rightarrow LTP \downarrow</math> qty dd [1m]</li> </ul>	[2]
	(ii)	<p>Using demand and supply analysis, discuss how the events in Extract 2 are likely to affect the total revenue for steel producers.</p> <p><u><math>\uparrow</math> Demand</u></p> <ul style="list-style-type: none"> <li>Economic growth in China + heavy spending on infrastructure <math>\rightarrow \uparrow</math> derived demand for steel, a key FOP for construction and infrastructure <math>\rightarrow \uparrow</math> Demand</li> <li><b>TR Analysis:</b> <math>\uparrow DD \rightarrow</math> <u>adjustment process</u> <math>\rightarrow \uparrow P + \uparrow Q \rightarrow</math> since <math>TR=P \times Q \rightarrow TR \uparrow</math></li> </ul> <p><u><math>\downarrow</math> Supply</u></p> <ul style="list-style-type: none"> <li>Production cuts by Chinese govt <math>\rightarrow \downarrow</math> supply</li> </ul>	[8]

	<ul style="list-style-type: none"> <li>• <b>TR Analysis:</b> <math>\downarrow</math>Supply <math>\rightarrow \uparrow</math>P + <math>\downarrow</math>Q <math>\rightarrow</math> As <math>PED &lt; 1</math> (explained in part (i)) <math>\rightarrow \uparrow</math>P <math>\rightarrow</math> LTP <math>\downarrow</math>Q <math>\rightarrow \uparrow</math>TR due to <math>\uparrow</math>P &gt; <math>\downarrow</math>TR due to LTP <math>\downarrow</math>Q <math>\rightarrow \uparrow</math>TR</li> </ul> <p><b>Combined Effect</b></p> <ul style="list-style-type: none"> <li>• <math>\uparrow</math>DD + <math>\downarrow</math>SS have both led to a reinforced increase in TR <math>\rightarrow</math> overall TR <math>\uparrow</math></li> </ul> <p><b>Evaluation</b></p> <ul style="list-style-type: none"> <li>• Long run: <math>\uparrow</math>TR due to <math>\uparrow</math>DD may be to a smaller extent due to slowing growth in China</li> <li>• Long run: Chinese steel producers aims to <math>\uparrow</math>productivity through using iron ore with a higher iron content <math>\rightarrow \downarrow</math>unit COP <math>\rightarrow \uparrow</math>SS <math>\rightarrow \downarrow</math>TR (assume <math>PED &lt; 1</math>)</li> <li>• Long run: <math>PED &gt; 1</math> as other alternatives can be used due to development of new material <math>\rightarrow \uparrow</math>avail of close substitutes <math>\rightarrow</math> TR <math>\downarrow</math> due to <math>\downarrow</math>SS</li> </ul> <p><b>Level 2: (4-6 marks)</b> Answers in this range will provide rigorous economic analysis of the overall change in total revenue as a result of a rise in demand <u>and</u> a fall in supply. Case material should be referenced from Extract 2.</p> <p><b>Level 1: (1-3 marks)</b> Answers in this range may only explain the changes in demand &amp; supply without analysis of total revenue OR may only analyse the effect of either a demand or supply factor on total revenue.</p> <p><b>For Evaluative Comment (1-2 marks)</b> For an evaluative comment that considers the extent of the overall change in total revenue via the use of a relevant elasticity concept or the extent of the shifts in demand and/or supply.</p>																										
<b>(c)</b>	<p>Given the information contained in Table 2, identify if the US was a net exporter or net importer of steel. Justify your answer.</p> <ul style="list-style-type: none"> <li>• US is a net importer of steel. <b>[1]</b></li> <li>• In all the years in Table 2, the amount of imported steel is greater than that of exported steel. <b>[1]</b></li> </ul> <p>Reference to data:</p> <table border="1" data-bbox="329 1480 1320 1690"> <thead> <tr> <th></th> <th>2014</th> <th>2015</th> <th>2016</th> <th>2017</th> </tr> </thead> <tbody> <tr> <td>Domestic Production</td> <td>88.2</td> <td>78.8</td> <td>78.6</td> <td>81.6</td> </tr> <tr> <td>Apparent Consumption*</td> <td>117.0</td> <td>104.7</td> <td>99.7</td> <td>106.1</td> </tr> <tr> <td>Imports</td> <td>40.3</td> <td>35.4</td> <td>30.0</td> <td>34.5</td> </tr> <tr> <td>Exports</td> <td>11.5</td> <td>9.5</td> <td>8.9</td> <td>10.0</td> </tr> </tbody> </table>		2014	2015	2016	2017	Domestic Production	88.2	78.8	78.6	81.6	Apparent Consumption*	117.0	104.7	99.7	106.1	Imports	40.3	35.4	30.0	34.5	Exports	11.5	9.5	8.9	10.0	<b>[2]</b>
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<b>(d)</b>	<p>Rising steel prices have led to car prices rising (Extract 4).</p> <p>Explain <b>two</b> possible factors that determine the extent to which car prices will rise due to rising steel prices.</p>	<b>[4]</b>																									

	<p><u>Possible points</u></p> <ol style="list-style-type: none"> <li><b>Proportion of costs due to costs of steel:</b> If a large proportion of the total cost of production is due to steel, the extent of the fall in supply will be large. This will result in a larger increase in steel prices.</li> <li><b>Impact on other costs due to switch to different type of steel:</b> Extract 4 highlights that with higher steel prices, this may result in higher costs for car producers as they may have to alter the manufacturing process to cater to the use of cheaper alternatives. If these costs are significant, the fall in supply may be larger. This will result in a larger increase in steel prices.</li> <li><b>PED:</b> The PED will determine the extent to which price will increase given the fall in supply due to rising steel prices. For example, if <math>PED &lt; 1</math> as cars in general may be considered a necessity due to its use as an essential means of transport, the fall in SS will result in a rise in price and a less than proportionate fall in qty dd. Price will rise to a large extent.</li> <li><b>Ceteris paribus may not hold:</b> Assuming c.p. does not hold, the rise in price of cars due to rising steel prices may be mitigated by other factors that cause car prices to fall such as a <math>\downarrow</math> demand for cars.</li> </ol> <p>Other possible factors that explain the extent of the change in car prices can be considered.</p>	
(e)	<p>Extract 4 mentions that the US has implemented tariffs on imported steel.</p> <p>In view of the possible impact of US steel tariffs on consumers, employees and producers, assess whether, on balance, protectionism can ever be justified.</p> <p>Overview: Students to present 2-3 points spread across thesis and anti-thesis and including a range of impacts on consumers, employees and producers. A final reasoned judgement that responds to the question is required.</p> <p><b>Introduction:</b></p> <ul style="list-style-type: none"> <li><b>[Define Protectionism]</b> Deliberate govt policy to erect trade barriers to shield domestic industries from foreign competition. It aims to switch expenditure, both domestic and foreign, to the domestic industries' goods and services.</li> </ul> <p><b>Thesis: There are positive impacts (advantages) of protectionism</b></p> <ul style="list-style-type: none"> <li><b>Argument 1: Protecting Employment</b> <ul style="list-style-type: none"> <li><b>Evidence:</b> "<i>he needs to do this to save jobs</i>" and "<i>Steel jobs have declined by the thousands in the past decade</i>" (Extract 4)</li> </ul> </li> </ul>	[10]



### Market for Steel in the US

- There may have been job losses in the US steel industry as other countries may have been able to produce steel at a lower cost e.g. China. → resulting in structural unemployment as employees retrenched from US Steel industry cannot find jobs elsewhere due to skills mismatch.
  - **Analysis:** Without protectionism, domestic production would be at Q1 at the world price, Pw. By derived demand, there would a low level of employment in the steel industry.
  - With an implementation of a tariff equal to Pw'Pw per unit of steel → ↑unit COP of foreign steel producers → ↓world supply to Sw+tariff → ↑P to Pw' → domestic consumers switch to relatively cheaper domestic steel → ↑domestic production to Q2 → by derived demand → ↑employment → “saving jobs”
  - **[Employees]** This ensures that employees in the steel industry are employed and earn an income. **Evidence:** “The whole goal of Trump’s tariff is to get prices of this metal to rise domestically so it’s profitable enough for US producers to make more steel and employ more people”.
  - **[Producers]** Producers also benefit from both higher selling price, Pw', as well as high quantity demanded of domestic steel, 0Q2. This increases the total revenue of US steel producers resulting in a rise in profits, c.p.
  - **Evaluation:** The extent to which employment may rise is dependent on the PES of steel. If PES>1 due to the availability of spare capacity (due to the loss of jobs in the industry), the tariffs will result in a rise in price which leads to a more than proportionate ↑qty ss of domestic steel → larger ↑derived demand for labour → ↑employment to a larger extent.
- **Argument 2: Prevent dumping**
    - **Evidence:** “China is dumping a lot of cheap steel into the United States, killing America’s domestic metal industry” (Ext 4)
    - (Using same diagram as above) As China is alleged to have been dumping cheap steel into the US, this may have caused a loss of jobs in the US steel industry.
    - Assuming subsidies given to Chinese producers of steel → ↑SS for Chinese steel producers → ↓P of Chinese steel → ↓world price and ↑world supply → ↓domestic production in the US.
    - **[Employees, Producers]** By using tariffs → (don’t have to repeat tariff analysis from argument 1) → US is able to save jobs and the US steel industry by ↑domestic production. US steel producers

will enjoy higher profits.

Students can also consider any other plausible arguments for protectionism.

**Anti-thesis: There are negative impacts (disadvantages/costs) of protectionism**

• **Impacts related markets e.g. automobile industry**

- **Evidence:** “the prices of many products, including cars, are likely to rise”
- With tariffs imposed on the steel market → as seen in above diagram, prices will rise to  $P_w'$
- **[Consumers/Producers] Consumers** of steel, who are **producers** of goods requiring steel e.g. automobiles producers will face higher price of steel. There is also a fall in consumer surplus of area A+B+C+D.
- $\uparrow P$  steel →  $\uparrow P$  of cars (already analysed in part (d)) and  $\downarrow$  output of cars
- **[Consumers]** Consumers of cars will face higher prices.
- **[Employees/Producers]** With a  $\downarrow$  output of cars, automobile producers' profits will  $\downarrow$ . In addition, falling output results in a  $\downarrow$  derived demand for labour in the automobile industry →  $\downarrow$  employment and wages.

• **Retaliation will cause unintended consequences which affects other US export industries**

- **Evidence:** “China, Canada and others could decide to retaliate right away by putting tariffs on some U.S. goods coming into their countries.”
- With China retaliating to US protectionism →  $\uparrow$  unit COP for US firms exporting to China → Chinese consumers switch to relatively cheaper Chinese goods →  $\downarrow X$
- **[Producers/Employees]** This will result in a fall in revenue of US exporting firms which will  $\downarrow$  their profits. By derived demand, there will be fall in employment in these export industries.
- **Evaluation:** If key US export industries such as the “aerospace” or “agriculture” industry (Ext 4) are affected by retaliation, this can lead to a more severe impact on producers/employees.

**Synthesis: Is protectionism justified in light of the impacts on consumers, employees and producers?**

- **[Criterion: Severity of problem → speed of policy]** If the extent of the loss of jobs in industries such as the US steel industry is significant as suggested by Extract 4, a short term, quick solution will be required and thus protectionism is justified. Not dealing with the resulting unemployment may be more costly for the government and may outweigh the negative impacts. Other options such as supply-side policies to either regain back the competitiveness in the steel industry or provide training to reskill workers to take up jobs in expanding industries may take too long.

	<ul style="list-style-type: none"> <li>• <b>[Criterion: context → using the context to determine size of benefits/costs]</b> As there is indication that any protectionism by US is likely to be met with retaliation by China and other economies, this suggests the negative impact of retaliation is quite certain and likely to be large. Furthermore, based on the size of the tariffs which is large (25%, Ext 4) retaliation is even more likely. In addition, the impact of related industries may be significant as steel is used by many industries for many products and infrastructure (Extract 1). The unintended negative consequences on related industries may be very significant. In relative terms, the size of the benefits may be smaller as the benefits are only to the producers and employees in the steel industry.</li> </ul> <p><b>Level 2: (5-7 marks)</b>  Answers in this range will provide rigorous economic analysis of the justifications for and against the use of protectionism. The effects of protectionism on consumers, employees and producers should be explained.</p> <p><b>Level 1: (1-4 marks)</b>  Answers in this range may only described the justification for and against protectionism OR may only provide an analytical response that is one-sided i.e. only considering either the reasons for or against protectionism.</p> <p><b>For Evaluative Comment (1-3 marks)</b>  For an evaluative comment that considers whether protectionism can be justified using a clear set of criteria to come to a reasoned judgement. Candidates should weigh the advantages and disadvantages of protectionism.</p>	
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Suggested answers for CSQ2

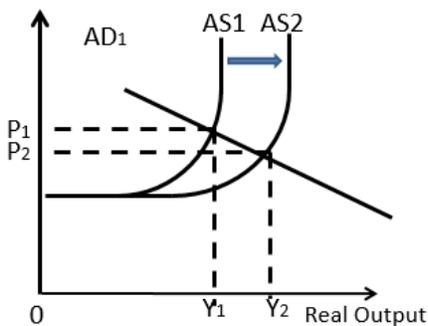
(a)	<p><b>With reference to Figure 1, compare the changes in unemployment rate for Eurozone and the selected countries.</b></p>	[2]
	<ul style="list-style-type: none"> <li>• Difference 1: Overall trend [1] Unemployment rate for France has been relatively stable (or has a small increase), while Germany's and Eurozone's unemployment rate were generally falling.</li> <li>• Difference 2: rate of change [1] While the unemployment rate for Germany was falling throughout, the unemployment rates for Eurozone and France was increasing before falling.</li> </ul>	
(b)	<p><b>Use aggregate demand and supply analysis to explain the causes of deflation in the Eurozone, as suggested in Extract 5.</b></p>	[6]
	<p>1) "Austerity measures introduced during the sovereign debt crisis" → Malign Deflation</p> <ul style="list-style-type: none"> <li>○ AD ↓ due to a ↓ AD component</li> <li>○ ↓ Government expenditure - austerity measures</li> </ul> <p><b>Explain with diagram showing how ↓AD → ↓GPL.</b></p> <div data-bbox="639 982 1000 1415" data-label="Figure"> <p style="text-align: center;">Fig 6a: 'Malign' Deflation</p> </div> <p><b>Elaborate with deflationary spiral (Ext 5: persistent slack).</b></p> <ul style="list-style-type: none"> <li>• At P1, AD2 &lt; AS → surplus</li> <li>• Firms face ↑ in inventories → ↓ production to meet increased AD → hire lesser factors of production i.e. workers &amp; raw materials</li> <li>• As more resources are available due to ↓ <b>competition for FOP</b> → firms are able to offer lower factor prices to hire lesser FOP → ↓GPL as profit-max firms produce lesser output.</li> <li>• New equilibrium @ E2 where total spending = total output → P1 falls to P2, Y1 falls to Y2</li> <li>• A fall in prices will cause <b>debt burdens to rise</b> for both households and firms who have borrowed in the past since many consumer and corporate debts are fixed → Repayments do not fall as prices fall →</li> </ul>	

real debt ↑

- This makes it harder to meet repayments and companies are more at risk of going bankrupt.
- As bankruptcies increase, layoffs ( $AD_2 \rightarrow AD_3$ ) could occur as firms aim to maximise profits. Workers who retain their jobs could also suffer from wage reductions  $\rightarrow$  delay consumption  $\rightarrow \downarrow C_d \rightarrow \downarrow AD$ .
- With persistent weak consumer & business confidence, **this can lead** further  $\downarrow C_d$  &  $\downarrow I \rightarrow AD$  **continues to fall**  $\rightarrow AD_2$  falls to  $AD_3$  then to  $AD_4$
- **Persistent fall in AD**  $\rightarrow$  creates a situation of **sustained excess supply** in the economy
- $\rightarrow$  **Sustained** fall in GPL  $\rightarrow$  “widespread & entrenched falling prices”, as suggested in Ext 5
- $\rightarrow$  **malign deflation**

- 2) “structural reforms to boost competition and regain competitiveness” & “declining oil prices”  $\rightarrow$  Benign Deflation
- Structural reforms:  $\uparrow$  Labour productivity  $>$   $\uparrow$  wages  
OR
  - Declining oil prices :  $\downarrow$  Prices of imported FOPs like oil
  - SRAS  $\uparrow$  due to  $\downarrow$  unit cost of production
  - $\uparrow$  Quantity or quality of FOP  $\rightarrow \uparrow$  LRAS

Explain with diagram showing how  $\uparrow$ SRAS or  $\uparrow$ LRAS  $\rightarrow \downarrow$ GPL



- falling prices of natural resources such as oil  $\rightarrow$  fall in imported inflation  $\rightarrow$  fall in unit COP  $\rightarrow \uparrow$  willingness & ability to produce more  $\rightarrow \uparrow$  productivity
- Structural reforms such as education/training  $\rightarrow \uparrow$  labour productivity as workers gain new competencies
  - $\uparrow$  productive capacity  $\rightarrow \uparrow$  AS from  $AS_1$  to  $AS_2$
  - $\uparrow$  AS  $>$   $\uparrow$  AD  $\rightarrow$  total output  $>$  total spending
  - surplus  $\rightarrow \uparrow$  inventories  $\rightarrow \downarrow$  production
  - $\downarrow$  GPL & real output  $\uparrow$
  - As  $\uparrow$  AS  $>$   $\uparrow$  AD persists  $\rightarrow$  persistent  $\downarrow$  GPL  $\rightarrow$  benign deflation occurs.

	<ul style="list-style-type: none"> <li>Given that Ext 5 suggested that the Eurozone is experiencing both falling prices and high levels of unemployment, it is likely that the main source of deflation in the Eurozone is Malign deflation, rather than benign deflation.</li> </ul>	
(c)	<b>Using Extract 7, explain how automatic stabilisers work to offset fluctuations in economic activity.</b>	<b>[4]</b>
	<ul style="list-style-type: none"> <li><b>Identification</b> of automatic stabilisers from extract 7: Unemployment benefits [1m]</li> <li><b>Explanation</b> with reference to Extract 7: (Explanation: 2mks &amp; Link to Qn: 1mk) <ul style="list-style-type: none"> <li>When the economy is experiencing negative growth <math>\rightarrow</math> NI <math>\downarrow</math> <math>\rightarrow</math> <math>\downarrow</math> real GDP per capita [1]</li> <li><math>\uparrow</math> entitlement of unemployment benefits <math>\rightarrow</math> <b>overall disposable income <math>\downarrow</math> to a smaller extent</b> compared to the case if there was no unemployment benefits [1]</li> <li><math>\downarrow</math> C is smaller <math>\rightarrow</math> multiplied <math>\downarrow</math> NI is smaller <math>\rightarrow</math> <math>\downarrow</math> volatility in growth <math>\rightarrow</math> <u>offset fluctuations in economic activity</u> (Link) [1]</li> </ul> </li> </ul>	
(d)	<b>Discuss the main difficulties faced by a government from the Eurozone when attempting to resolve its unemployment problem.</b>	<b>[8]</b>
	<p><b>1) Policy options to resolve unemployment problem:</b></p> <ul style="list-style-type: none"> <li>Expansionary Demand Management policies to address demand deficit unemployment <ul style="list-style-type: none"> <li>Fiscal Policy: <math>\uparrow</math> govt spending and/or <math>\downarrow</math> tax rates</li> <li>Monetary Policy aka Quantitative Easing <b>by ECB</b>: <math>\downarrow</math> interest rates</li> </ul> </li> <li>Supply side policies to address structural unemployment: <math>\uparrow</math> training and education subsidies</li> </ul> <p><b>2) Difficulties faced for demand management policies</b></p> <ul style="list-style-type: none"> <li>Expansionary DD management Policies: <b>low level of business confidence</b> (Ext 5) <ul style="list-style-type: none"> <li>Poor economic outlook <math>\rightarrow</math> <math>\downarrow</math> tax rates &amp; <math>\downarrow</math> i/r lead to Limited <math>\uparrow</math> C &amp; I since consumers rather save than spend, firms prefer not to invest in uncertain conditions</li> <li>Limited <math>\uparrow</math> AD <math>\rightarrow</math> limited <math>\uparrow</math> real output &amp; jobs created <math>\rightarrow</math> limited <math>\downarrow</math> in unemployment rate <math>\rightarrow</math> demand management policies are less effective.</li> <li>Extract 2: <math>\downarrow</math> in unemployment rate but <math>\uparrow</math> poor quality jobs <math>\rightarrow</math> <math>\uparrow</math> underemployment <ul style="list-style-type: none"> <li>EV: extent of underemployment varies across Eurozone. Extract 2: Underemployment rate in</li> </ul> </li> </ul> </li> </ul>	

		<p>Eurozone is 22%, while the rates in Greece, Cyprus &amp; Spain are 72%, 66% and 57% respectively. This signifies the different degrees in pace of economic recovery, which could be due to the different levels of business confidence experienced in the different Eurozone economies.</p> <ul style="list-style-type: none"> <li>○ Expansionary Fiscal Policy: <b>budget constraints</b>, as experienced during the sovereign debt crisis (Ext 5) <ul style="list-style-type: none"> <li>▪ Fiscal debt → limited ability to carry out expansionary fiscal policy to boost AD to increase demand for labour.</li> <li>▪ Fiscal debt → ↓confidence → ↑ outflow of FDI → ↓AD → worsen demand deficient unemployment <ul style="list-style-type: none"> <li>▪ EV: depends on fiscal health of the various Eurozone economy.</li> <li>▪ Extract 5: “sovereign debt crisis has been most acute in the bloc’s weaker, southern economies such as Spain, Greece, Portugal and also France”</li> <li>▪ Table 1: Germany’s unemployment rate is consistently lower than France and Eurozone. And the unemployment rate has always been falling.</li> <li>▪ Germany was not as deeply embroiled in the sovereign debt crisis as compared to the “southern economies”. This gives the country more fiscal ammunition to fight against the demand deficient unemployment which it could have been facing.</li> </ul> </li> </ul> </li> <li>○ Expansionary monetary policy: <b>Lack of independent monetary policy for Eurozone governments.</b> <ul style="list-style-type: none"> <li>▪ Individual Eurozone is not able to implement an expansionary monetary policy even if they are facing severe rates of demand deficient unemployment.</li> </ul> </li> </ul> <p><b>Difficulties faced for demand management policies</b></p> <ul style="list-style-type: none"> <li>○ SS-side policies: <b>depends on receptivity of workers</b>, made complicated by generous unemployment benefits (Ext 3)/ <b>opportunity cost argument / disincentive effect on work &amp; investment</b>, due to tight fiscal position faced, especially at the height of the sovereign debt crisis. (Ext 6)</li> <li>○ <b>Uncertainty</b> due to poor receptivity of workers complicated by high unemployment benefits offered (Ext 7) <ul style="list-style-type: none"> <li>▪ Education &amp; training all require a long time before they are completed</li> <li>▪ Workers might not be receptive or are unable to arrive at the competency required → ss-side policies less effective.</li> </ul> </li> <li>○ <b>Opportunity cost argument</b></li> </ul>	
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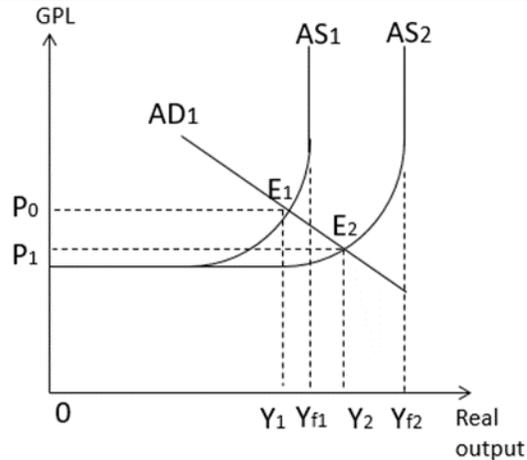
- If ↑ spending is financed by channeling funds from other uses
- This may incur a high opportunity cost due to amount of resources that have to be switched. (E.g., trade-offs in healthcare, especially in an aging Eurozone)
- If the loss of benefits from reduced spending in other areas is greater than the benefits gained from the supply-side policy → misallocation of resources.
- **Disincentive effect on work & investment**
  - If ↑ spending is financed by raising tax rates → create disincentives
  - If the cost of the disincentives is greater than the benefits gained from the supply-side policy → misallocation of resources.
- **Information Failure: govt is not able to identify root cause of unemployment → unsure of what policy to implement**

**3) Conclusion—Ranking**

- Depends on context of economy in the different Eurozone countries → different Eurozone countries have different difficulties
  - Figure 1: rate of recovery is different for different Eurozone economies. While the unemployment rate in France continued to worsen before recovering slightly, Germany’s unemployment rate has been improving since the Global Financial Crisis.
- Depends on root cause of unemployment
  - Some Eurozone countries could be facing multiple causes of unemployment. E.g., Spain is more likely to also face structural unemployment compared to Germany.

<b>Knowledge, Application, Understanding, Analysis</b>		
<b>L1</b>	<ul style="list-style-type: none"> <li>• Answers are largely descriptive or contain errors in the explanation on the possible difficulties that could be experienced by a government from the Eurozone.</li> <li>• Limited scope.</li> <li>• Limited or no use of relevant economic framework, including diagram and answers has limited or no reference to case material</li> </ul>	<b>1 – 3</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>• Answers provide correct identification and explanation on the <b>various difficulties</b> that can be experienced by a government from the Eurozone via a range of possible</li> </ul>	<b>4 - 6</b>

		<p><b>demand management and supply side policies.</b></p> <ul style="list-style-type: none"> <li>○ Demand Management Policies: Lack of confidence due to slow pace of recovery <ul style="list-style-type: none"> <li>○ Fiscal Policy: Budget constraint due to impact of sovereign debt crisis</li> <li>○ Monetary Policy: Lack of independent MP, as member states of Eurozone</li> </ul> </li> <li>○ SS-side Policies: Lack of receptivity among workers</li> <li>● <b>Reference to case material</b> is clearly applied.</li> <li>● Use of relevant <b>theory, framework</b> and <b>economic analysis</b></li> </ul>		
	<i>E</i>	<ul style="list-style-type: none"> <li>● Evaluative comment that makes a stand on the <b>extent of difficulties</b> that could be experienced by different governments from the Eurozone</li> </ul>	<b>1-2</b>	
<b>(e)</b>		<p><b>As fears about the impact of automation grow, calls for a “robot tax” are gaining momentum. (Extract 8)</b></p> <p><b>Discuss the opportunities and challenges presented by technological progress to an economy.</b></p>		<b>[10]</b>
		<p>Introduction: Interpret technological progress:</p> <ul style="list-style-type: none"> <li>● Refers to the overall process of invention, innovation and spread of use/adoption of technology or processes</li> <li>● Has the potential to create both opportunities and challenges for all the stake-holders in an economy.</li> </ul> <p><b>1. Opportunities/ positive impacts presented by technological progress to an economy</b></p> <p>a. <b>Economic Growth:</b> ↑ potential of profits earned (Ext 8) → ↑ incentives for firms to invest in automation based on MEI theory → technological progress → ↑ Improvement in methods of production via R&amp;D → ↑ individual market supply → if enough market supply curves ↑ → ↑ productive capacity of economy</p> <ul style="list-style-type: none"> <li>○ AS shifts right → potential growth (Yf1 to Yf2) → sustained growth (Y1 to Y2) assuming that AD was high enough</li> </ul>		



**EV:** Outcomes on potential growth can only be materialized in the long run, given the uncertainties involved in technological progress  
**EV:** Actual growth may not be materialized in the Eurozone, given the slow rates of economic recovery suggested → AD may not be high enough to support actual growth

- b. **Inflation:** Fall in GPL( $P_0$  to  $P_1$ ) → ensures that prices remain low and stable → ↑ business confidence → further ↑ in investment due to increase in expected returns, based on MEI theory → higher levels of potential growth  
**EV:** May aggravate extent of benign deflation experienced in Eurozone
- c. **Unemployment:** Creation of new jobs (Ext 8: emergence of ATMs created jobs for bank tellers) since demand for labour is a derived demand → ↓ demand deficient unemployment rate
  - **Employees:** ↑ income for households → ↑ purchasing power → ↑ ability of one to consume more goods and services to satisfy more wants → ↑ material SOL
- d. **Balance of payment:** Improvement in X competitiveness → improvement in current account, assuming that demand for export is price elastic → Improvement in BOP

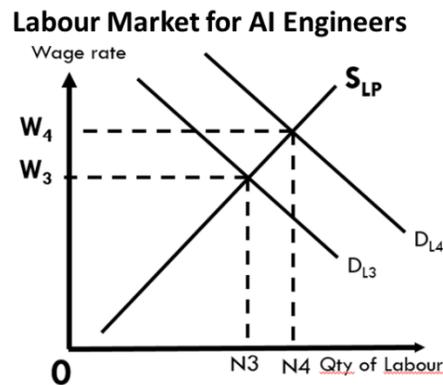
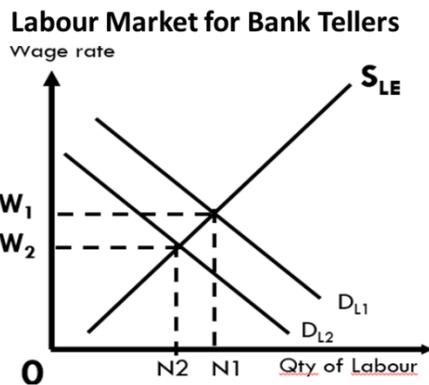
**(Note: must link opportunities to its consequences)**

## 2. Challenges/negative impacts presented by technological progress to an economy

- **Unemployment:** Sunset vs sunrise industries → ↑ structural unemployment
  - Improvement in production techniques (use of automation) → For example, Ext 8: “use of ATMs to offer a range of

financial services → replacing the workforce” → ↓ in demand for labour such as Bank Tellers, in Banking industry ( since labour is a derived demand)

- At the same time, development of new comparative advantage in production of automation services → ↑ in demand for automation services → ↑ in demand for labour (such as the engineers) in automation industry
- N2N1 low skilled workers (Bank Tellers) from Banking industry do not have relevant skills to take up the jobs in the automation industry → N2N1 low skilled workers are structurally unemployed



**EV on extent of structural unemployment experienced:**

- Extent of structural unemployment experienced in the economy depends on receptivity of workers to pick up new skills & competencies that are relevant in the face of technological progress. E.g., Germany, an engineering powerhouse might be less vulnerable to structural unemployment
- Extent of structural unemployment also depends on availability of tax revenue to subsidize training, especially if the govt implements a “Robot Tax”
- Extent of structural unemployment could also depend on the nature of the economy. If the bulk of the economy is driven by Services, where the nature of the job is not as easily replaced by technology, as compared to Manufacturing, the extent of structural unemployment experienced could be much lower.
- **Households:** ↑ income inequality → ↓ non-material SOL
  - workers who are not structurally unemployed → loss of income → ↓ wage rate from  $W_1$  to  $W_2$
  - High skilled labour who are able to take up new job → ↑ wage rate from  $W_3$  to  $W_4$
  - ↑ income inequality, from  $W_1W_3$  to  $W_2W_4$  → ↓ non-material SOL as stress levels and crime-rates ↑

### 3. Conclusion

- Extract 8: “As machines and algorithms get smarter, they’ll replace a widening share of the workforce” → Challenges > opportunities
- → some degree of state intervention is necessary to help workers to maximize benefits of technological progress
- For example, based on extract 8
  - “Robot Tax” → tax revenue to subsidize training for displaced workers → ↓ structural unemployment & extent of challenges without creating disincentives for firms to invest into automation to reap benefits of technological progress
  - “Minimum income/ wage” to protect low income earners → to buy them some time as they take time and effort to undergo training to gain new competencies which will enable them to take up new jobs as automation becomes more pervasive in the society

<b>Knowledge, Application, Understanding, Analysis</b>		
<b>L1</b>	<ul style="list-style-type: none"> <li>• Answers are largely descriptive or contain errors in the explanation on the possible opportunities &amp; challenges presented by technological progress</li> <li>• Limited scope.</li> <li>• No use of relevant economic framework, including diagram and answers has limited or no reference to case material</li> </ul>	<b>1 – 4</b>
<b>L2</b>	<ul style="list-style-type: none"> <li>• For a well-developed and balanced answer that discusses the <b>opportunities &amp; challenges</b> presented by <b>technological progress</b></li> <li>• Provides sufficient <b>scope</b> on the <b>macroeconomic impact</b> on an economy.</li> <li>• Reference to <b>case material</b> is clearly applied.</li> <li>• Use of relevant <b>theory, framework and economic analysis</b></li> </ul>	<b>5 - 7</b>
<b>E</b>	<ul style="list-style-type: none"> <li>• Provides a clear evaluative conclusion/judgement on the <b>extent of</b> and <b>overall impact</b> that could be experienced by an economy</li> </ul>	<b>2-3</b>

			<ul style="list-style-type: none"><li>• An unsubstantiated judgement without a clear stand or reasoning</li></ul>	<b>1</b>	
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## Suggested answers for Essay 1

### Part (a)

#### Introduction: Set direction of essay

Changes in price of a good can affect the responsiveness of quantity supplied for a good and changes in income can affect the responsiveness of demand for a good. The concepts of price elasticity of supply (PES) and income elasticity of demand (YED) measure the responsiveness and these concepts will also affect the changes in price of different products. These elasticity values differ for different products and we will examine the factors that affect these elasticity concepts.

#### Dev 1: Define PES and identify factors affecting PES

##### [Definition & formula]:

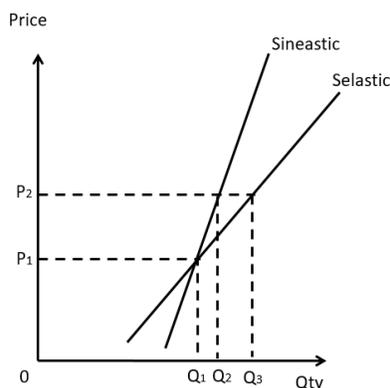
Price elasticity of supply measures the degree of responsiveness of quantity supplied to a change in the price of good, ceteris paribus. It is measured by the percentage change in quantity supplied of a good divided by the percentage change in price of the good.

##### [Sign & magnitude]:

According to the law of supply, there is always a direct relationship between price and quantity supplied, hence PES is positive. If  $PES > 1$ , this implies that a rise in price of a good will lead to a more than proportionate increase in quantity supplied for the good, while  $PES < 1$  implies that a rise in price of a good will lead to a less than proportionate increase in quantity supplied for the good.

##### [Factor 1: Ease of factor mobility]:

PES is affected by the ease of factor mobility. The greater the ease of factor mobility, the greater the magnitude of PES. Take for example, the PES of neighbourhood coffeeshop coffee is likely to be greater than 1 as due to relatively simple skillset, it is relatively easier for labour to move into the industry. As labour are more mobile, firms will be able to increase output more easily when price of the good increase as they would be able to summon labour easily away from other markets. However, for speciality coffee shop, it is harder to find a good latte artist or barista as it takes a lot to develop the skills. Hence, it is harder for labour to move into this industry from another. Thus, the PES of speciality coffee shop coffee is likely to be smaller than 1.



##### [Factor 2: Existence of spare capacity]:

In the short run, PES for speciality coffee shop coffee is likely to be smaller than 1 due to lack of spare capacity with shortages of both skilled workers and roasted coffee beans which will restrict firms' ability to expand production when price increases. This is because coffee beans for speciality coffee are

sourced from all over the world and are sometimes roasted on-site. However, PES for coffee shop coffee is likely to be greater than 1 due to the existence of spare capacity as coffee are made from pre-roasted coffee powder which are readily available.

**Devt 2: Define YED and identify factors affecting YED**

Income elasticity of demand measures the degree of responsiveness of demand of a good to a change in income, ceteris paribus. It involves a shift in the demand curve in response to changes in income. It is measured by the percentage change in demand of a good A divided by the percentage change in income.

**[Factors affecting sign/magnitude of XED]:**

**Sign:**

The sign of income elasticity of demand may be positive or negative.

Negative income elasticity of demand means that as income increases the demand for the good falls, ceteris paribus. Goods with negative income elasticity of demand are called inferior goods. Hence, an increase in income will cause the demand curve for inferior goods to shift to the left.

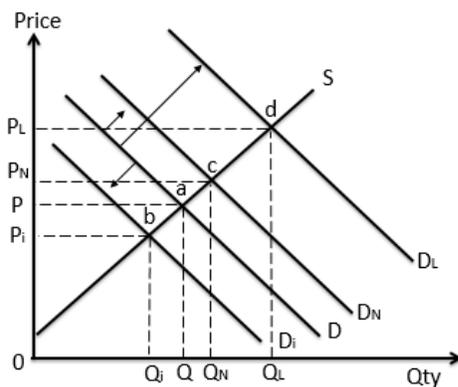
Positive income elasticity of demand means that as income increases the demand for the good increases, ceteris paribus. Goods with positive income elasticity of demand are called normal goods. Hence, an increase in income will cause the demand curve for normal goods to shift to the right.

**Magnitude:**

If the magnitude of YED is greater than one, this means that for a given increase in income, there will be a more than proportionate increase in the demand of the good. Demand is income elastic. The demand for luxury goods is income elastic. A given rise in the income will lead to more than proportionate increase in demand, causing a rightward shift in the demand curve from D to DL.

If the magnitude of YED is greater than zero but less than one, this means that for a given increase in income there will be a less than proportionate increase in the demand of the good. Demand is income inelastic. The demand for necessities is income inelastic. A given rise in the income will lead to less than proportionate increase in demand, causing a rightward shift in the demand curve from D to DN.

If the magnitude of YED is negative, it is an inferior good. A given rise in the income will lead to a fall in demand, causing a leftward shift in the demand curve from D to Di.



Speciality coffee shop coffee tend be have more unique coffee flavours and are more aesthetically pleasing with the use of latte art. Hence, the YED of speciality coffee shop is likely to be positive and more than 1 or we say that demand is income elastic. This is because speciality coffee shop coffee is a luxury product as it is a more luxurious coffee with higher quality coffee beans sourced from all over the world that is served at a venue with good ambience. It is a non-essential product. A decrease in income brings about a more than proportionate decrease in demand for speciality coffee shop coffee as people with lower purchasing power would forgo the quality and ambience. The YED of neighbourhood coffee shop coffee is positive and less than 1 or we say that demand is income inelastic. This is because neighbourhood coffee shop coffee is more likely a necessity to most people as their daily beverage. A decrease in income brings about a less than proportionate decrease in demand neighbourhood coffee shop coffee as not many people are able and willing to forgo coffee.

Hence, luxury items generally have a higher income elasticity of demand while essential items have a lower YED value.

**Conclusion: Link to (b)**

Such considerations of PES and YED of different products will be important in determining the change in coffee beverages which will be discussed further in (b).

Knowledge, Application, Understanding and Analysis		
L3	Clear economic analysis that explains the factors that explain the difference in price elasticity of supply and income elasticity of demand for different products.	8-10
L2	Underdeveloped answer or an inadequate attempt to explain the difference in price elasticity of supply and income elasticity of demand for different products.  Underdeveloped answer that only explains the difference in price elasticity of supply or income elasticity of demand for different products.	5-7
L1	Answer mostly irrelevant or inaccurate. Only contains a few valid points made incidentally.	1-4

**Part(b)**

**Introduction**

- Market for different coffee beverages – coffee in neighbourhood coffee shop and coffee in hipster coffee shop
- Coffee prices are determined by demand and supply for coffee. Demand refers to the quantities of a product that consumers are willing and able to buy at various prices per period of time, ceteris paribus. Supply refers to the quantities of a product that suppliers are willing and able to sell at various prices per period of time, ceteris paribus.
- Apply DD, SS, PED, PES and YED to explain why specialty coffee increased by a larger extent compared to a cup of coffee in a neighbourhood coffee shop.

**Thesis: Demand factors are more important in determining the change in the price of coffee beverages.**

**Explain 2 factors leading to an increase in demand for coffee**

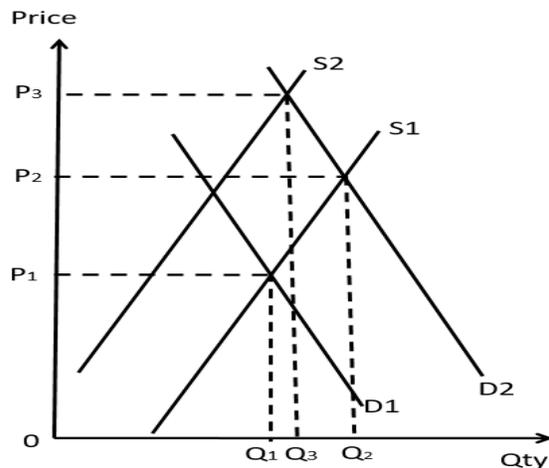
**a. Increase in income**

- Increase in disposable income due to rising income in Singapore → increase in consumers' purchasing power → consumers more willing and able to purchase coffee → increase demand for both neighbourhood coffee shop coffee and speciality coffee, assuming both coffee beverages are normal goods
- However, the extent of the increase in demand due to the increase in income would be dependent on the value of YED.
  - Larger increase in speciality coffee as  $YED > 1$ , compared to neighbourhood coffee shop coffee which is regarded as necessity & with  $YED < 1$ . Demand will increase less than proportionately as a result of an increase in income. Demand will shift rightwards by a smaller extent resulting in a smaller increase in price. On the other hand, for speciality coffee, they are likely to be considered luxury goods with  $YED > 1$ . Given an increase in income, it will lead to a more than proportionate increase in demand, shifting demand rightwards by a larger extent resulting in a larger increase in price.

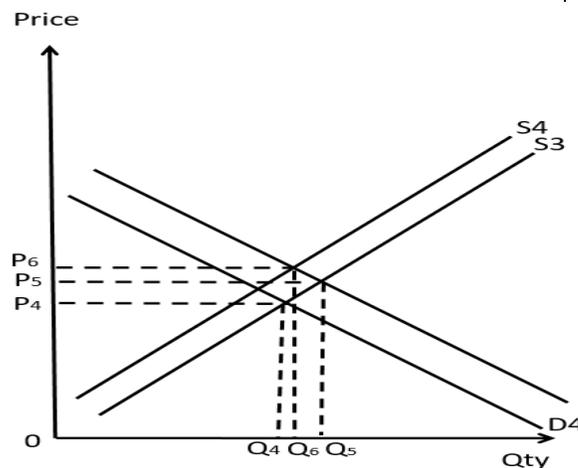
**b. Change in taste and preference**

As coffee lovers in Singapore develop more discerning tastes, there is a change in taste and preference away from neighbourhood coffee shop coffee towards speciality coffee. Hence, demand for speciality coffee will increase and shift right by a greater extent, resulting in a large increase in price.

**Explain the impact of the increase in demand for different coffee beverages on their prices**



Market for specialty coffee



Market for coffee shop coffee

**[adjustment process]** The increase in demand for coffee to  $D_2$  → creates a shortage at  $P_1$  → upward pressure on price → new equilibrium is achieved where equilibrium price and quantity has increased to  $P_2$  and  $Q_2$  respectively.

**[extent of increase in price is dependent on PES]**

However, the extent of the increase in price would be dependent on the PES of the different coffee beverages. As explained above, supply for speciality coffee is price inelastic. Hence, with the larger

extent of the increase in demand, this explains the larger increase in the price of speciality coffee. On the other hand, supply for neighbourhood coffee shop coffee is price elastic. Hence, with the smaller extent of the increase in demand, this explains the smaller increase in the price of neighbourhood coffee shop coffee.

#### **Reasons for why demand factors are more important**

- Country experience strong economic growth hence large increase in income and hence large rise in demand contributing to large ↑ price.
- Over the past few years, a series of studies have come out showing that drinking coffee has significant health benefits. Hence, a significant change in taste and preference towards coffee contributing to large ↑ price.

#### **Anti-Thesis: Supply factors are more important in determining the change in the price of coffee beverages.**

##### **Explain factors leading to a fall in SS of different coffee beverages**

Rising costs including manpower, workers' training, equipment and rent lead to higher unit cost of production. Holding the price of the good constant, a higher unit cost of production would result in a lower potential profit. Hence, at each possible price fewer units will be supplied as producers consider alternative goods to produce. There will be a leftward shift in the supply curve from S to S1.

##### **Explain the impact of the fall in supply on the market for different coffee beverages**

Hipster coffee shops are likely to face larger increase in unit cost of production as many are located in prime locations, require more skilled labour and uses more specialized equipment which are more costly. Thus, supply for hipster coffee shop coffee will fall and shift left by a greater extent, resulting in a larger increase in price of speciality coffee.

The extent of the fall in price would be also be dependent on the PED for the coffee beverages. Speciality coffee requires the use of special coffee blends and hence there is a lower availability of substitutes compared to neighbourhood coffee shop coffee that uses similar coffee powder. Hence, demand for speciality coffee is likely to be more price inelastic, which explains the larger increase in price of speciality coffee.

#### **Reasons for why supply factors are more important**

- Supply factor is more important than demand factor in determining the change in price of coffee as supply falls by a larger extent due to the substantial rise in cost of labour and rental cost due to Singapore's limited land and labour shortages.
- Arabica coffee bean prices will rise nearly 20 percent by the end of 2019 as Brazil's shift to an off-year in its biennial production cycle which swing the world into a global deficit. The overall outlook is somewhat similar for robusta beans, primarily used for instant coffee or added to blends as a cheaper ingredient. Robusta prices are expected to rise to \$1,775 per tonne by the end of 2019, a 16 percent increase. Supply falls by a larger extent due to the significant rise in price of coffee beans, a significant factor input in the production of coffee.

#### **Synthesis: Responding to key word: 'likely importance'.**

- **[Depends on the state of the economy]** Demand increase by a smaller extent due as economic growth is slowing down in Singapore. Supply factor is due to structural problems in the economy and hence the fall in supply will be larger and more persistent whereas demand factor is a cyclical factor. Hence, supply factors are more important than demand factors in determining the change in price of coffee in Singapore.
- **[Depends on the nature of the good and extent of the increase in the COP]** In some countries, speciality coffee beverages have become a necessity. Hence  $YED < 1$ , where a rise in income will lead to a less than proportionate increase in demand. Moreover, for speciality coffee, the production process requires more skilled labour and coffee beans. Hence, supply factors are more important than demand factors in explaining the change in price of coffee for speciality coffee.
- **[Question ceteris paribus assumption/Time period]** However, the above analyses only hold if the assumptions about the various elasticity values and extent of shifts in demand and supply are true. In the long run, such assumptions may not hold and price of coffee may even fall. For example, there could be a fall in price of coffee beans due to improvement in technology to harvest coffee beans that result in an increase in supply of coffee and hence a fall in coffee prices.

Knowledge, Application, Understanding and Analysis		
L3	A well-developed answer that demonstrates: <ul style="list-style-type: none"> <li>• Appropriate analysis on the change in price of coffee beverages using relevant demand, supply and elasticity concepts (e.g. PED, PES and YED)</li> <li>• Application to 2 markets – (e.g. neighbourhood coffee shop coffee and speciality coffee shop coffee)</li> </ul>	8-10
L2	For an answer that gives a descriptive explanation of impact on the price of coffee beverages. For an answer that only address the change in price of neighbourhood coffee shop coffee or specialty coffee shop coffee.	5-7
L1	For an answer that shows knowledge of demand, supply and elasticity concepts on market for coffee.	1-4
Evaluation		
E3	For a well-reasoned judgement on the extent of the importance of demand and supply factor in determining the change in the price of coffee beverages.	4-5
E2	For largely unexplained judgements	2-3
E1	For unsupported evaluative statements or judgement.	1

## Suggested answers for Essay 2

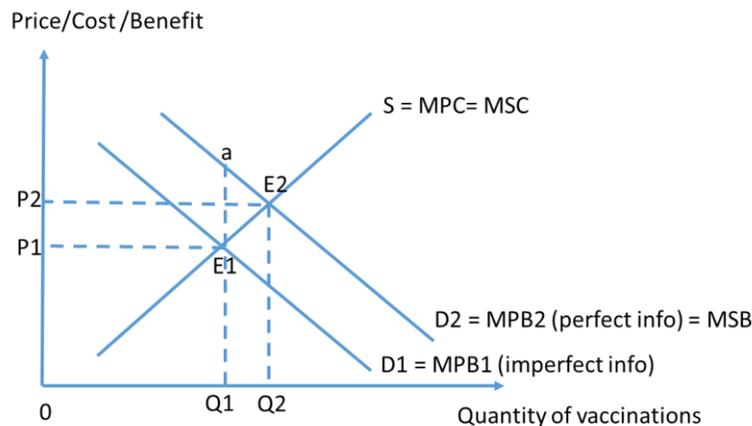
### Introduction:

- **Define key terms:** Market failure occurs whenever the price mechanism fails to allocate resources efficiently and equitably. Economic efficiency refers to both productive and allocative efficiency. ☒
- **Set direction of essay:** Under the conditions of perfect competition, perfect knowledge and the absence of externalities, markets operate efficiently. However, these conditions do not hold in the real world, as there is often imperfect knowledge, therefore market inefficiency arises.

### Dev't 1: Identify & explain the above sources of market failure

**Point 1:** Info failure (or imperfect info) leads to market failure as consumers fail to recognise the true benefit/cost of consuming a good to themselves and therefore under or overconsume it leading to allocative inefficiency.

- An example in the **healthcare market include vaccinations** against diseases.
- Consumers underestimate the true private benefit of being vaccinated due to inaccurate information regarding their effectiveness or underestimate the likelihood of them contracting illnesses over time. As such, consumer's MPB (perfect info) > MPB (info failure).



- Market eqm occurs where  $MPB$  (imperfect info) =  $MPC$ , with output  $Q1$ .
- Assuming no externality, socially optimal eqm occurs where  $MSB = MSC$ , with output  $Q2$ .
- There is an underconsumption of  $Q1Q2$  units of vaccinations and underallocation of resources into the market of vaccinations, hence there is allocative inefficiency.
- Deadweight loss due to underconsumption is represented by area  $aE1E2$ .
- Hence, market failure arises due to imperfect knowledge.

**Point 2:** Another subset of imperfect info is asymmetric info, where one party has more information than the other. This will cause an inappropriate amount of goods to be consumed and produced, leading to allocative inefficiency.

- An example would be the **used car markets**, where the used car sellers have more information about the condition of the used cars than potential buyers. Used car sellers

might hide some of this info in order to profit from the sale of used cars.

- Potential buyers take this into consideration and tend to lower the price they are willing to pay for used cars in view of the possibility that they would be purchasing used cars of a lower quality (lemon).
- At this lower price, sellers with good condition used cars (plum) are unwilling to offer the cars for sale, resulting in a used car market where only lemons are sold.
- Asymmetric information thus results in the used car market adversely selecting against higher quality used cars in favour of used cars of a lower quality. There is thus an **underproduction of plums** as none are sold. This results in an allocative inefficient outcome.

Hence, the government intervenes in the case of imperfect knowledge and asymmetric information to correct the above sources of market failure.

**Devt 2: Explain and assess provision of information as a policy tool to overcome above sources of market failure.**

**Point 3:** One of the policies govt can consider is providing more information to consumers through public education and campaigns to allow them to make more informed choices.

- In order to overcome the market failure associated with imperfect information, the Singapore government can provide more information about the benefits of vaccinations through campaigns.
- Greater awareness of the health benefits amongst consumers will raise the demand for vaccinations from  $D_1$  to  $D_2$  (actual MPB), correcting the underestimation of private benefits. Output for vaccinations will increase from  $Q_1$  to  $Q_2$  (socially optimal output level), correcting the underconsumption of vaccinations and eliminating deadweight loss of  $aE_1E_2$ . Hence, allocative efficiency is achieved.
- Another example to overcome the asymmetry of info in the market for healthcare would educating consumers about the pricing of various medical treatments in clinics and hospitals. Statistics of common procedures have been published and made known to the public. This reduces the asymmetry of information where doctors may have more information than their patients.

**Strengths and limitations of provision of information:**

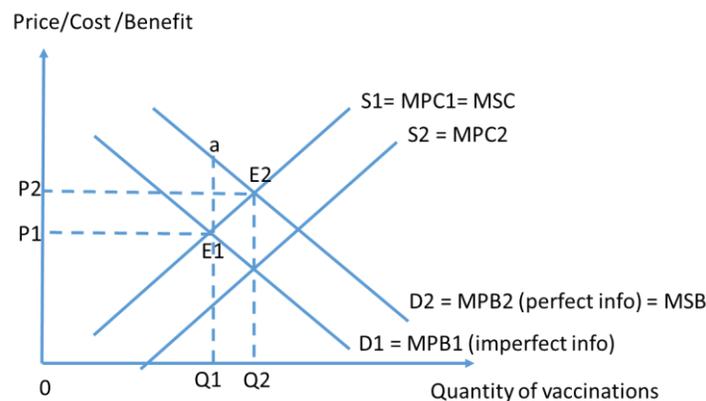
- While the sole use of this policy directly addresses the root cause of the problem (imperfect information), it largely depends on the receptivity of the target audience. Due to ingrained habits or stubbornness, people may not be receptive to the information given, reducing the effectiveness of the policy. The use of campaigns and public education also involve significant costs and should the cost of such policies outweigh the benefits gain, there will be a misallocation of resources.
- **EV:** Since Singapore has a relatively educated population, the people will likely be more receptive to useful health campaign messages.
- **EV:** Also, given Singapore's relatively high adoption of technology and electronic devices, dissemination of campaign messages through electronic mediums will likely be less costly.

- To complement this policy, Singapore government can also consider other policies such as subsidies and legislation.

**Devt 3: Explain and assess other policies to overcome above sources of market failure.**

**Point 4:** SG govt should not solely depend on provision of info. Subsidies can also be used to overcome market failure arising from information failure.

- For instance Singapore government implements various subsidy schemes to increase the consumption of healthcare. An example would be MediFund.
- A subsidy for healthcare will lower the unit cost of producing vaccinations, hence increasing the potential profit per unit and willingness of producers to supply vaccinations. Supply of vaccinations increase from  $S_1$  to  $S_2$ . Output increases from  $Q_1$  to  $Q_2$  (which is the socially optimal output level), eliminating underconsumption of vaccinations and deadweight loss  $aE_1E_2$ . Hence allocative efficiency is achieved.



**Strengths and limitations of subsidies:**

- Subsidies have an additional benefit of lower prices of healthcare, improving the accessibility and affordability of healthcare to lower income groups.
- However, government may not be able to accurately estimate the right amount to subsidise due to information failure. An oversubsidy will lead to an overconsumption of healthcare and possibly larger deadweight loss, leading to government failure.
- Subsidies are also costly and opportunity costs could be incurred where subsidy for vaccinations would lead to less government resources channelled to other developmental areas such as education and infrastructure.
- EV: While this policy requires substantial funding, Singapore has greater ability to finance this considering its accumulated budget surpluses from past years.
- EV: Government failure is a less likely outcome in Singapore given its small geographical size and use of technology for data collection to determine the right amount of subsidy more accurately.

**Point 5:** In order to address asymmetric info, SG govt should not just solely depend on provision of info, legislation may also be used to address adverse selection.

- An example would be the implementation of the Lemon Law in Singapore.
- It requires retailers to replace, exchange or give refunds for defective goods to the

consumer within 6 months of delivery date when they unknowingly purchase a faulty or low-quality product.

- When such a law has been implemented, used car sellers have greater incentive to repair used cars before transaction or scrap lemon cars.
- As such, consumers are now willing to pay a higher price once they learn that the market is no longer made up of lemon cars. This would ensure that prices are kept high enough that the sellers of high-quality cars do not exit the market and thus preventing the problem of adverse selection.

**Strengths and limitations of legislation:**

- This may lead to unintended consequences on consumers if higher cost of repairs are passed down in the form of higher prices or lower quality of service.
- There are high administrative costs involved in legislation, and difficulty in enforcement and ensuring compliance. High costs are incurred in sending government officials to check and monitor that laws are being followed. Legislation such as the Lemon Law also requires that consumers and producers are aware of the rules and regulation for it to be effective. There will be cost involved in communicating the legislation to the public.
- EV: Effectiveness of legislation depends heavily on government's ability to successfully enforce and monitor it to prevent abuse. Greater education of the law is needed to increase awareness and reduce abuse and misinterpretation. For Singapore with a well-educated population who can understand the law and a transparent legal system with effective monitoring, this policy is likely to be more effective.

**Conclusion/ Synthesis**

The extent to which the Singapore government **should solely depend on the provision of information** in overcoming the above sources of market failure will depend on:

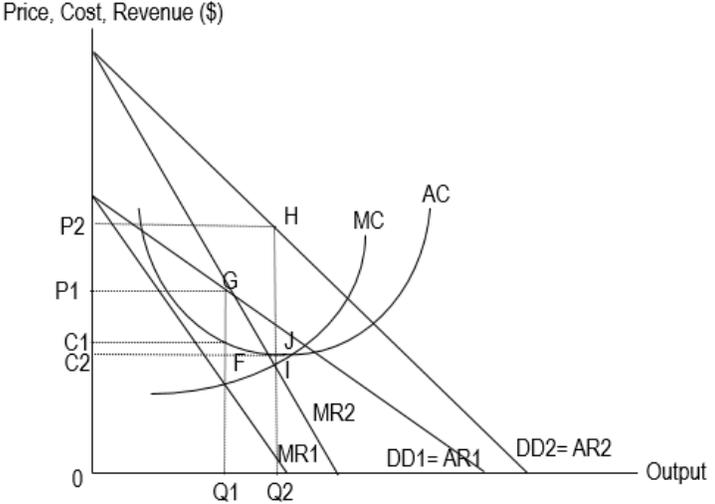
- **Root cause of problem:** If the root cause of market failure is just solely imperfect information, sole use of provision of info address this is likely to be effective. However for healthcare market, there is usually a combination of other issues including externality and inequity (accessibility of healthcare for lower income groups) besides imperfect info. Hence, provision of information can be supplemented with a flexible, means-tested subsidy that varies according to income can help address these other sources of market failure.
- **Severity of problem/ time period:** While provision of info directly address the problem, its outcomes take time to develop and are less certain. If the market failure is large and requires an urgent solution, the use of subsidies and legislation can deliver more certain outcomes in a shorter time period.
- **Depends on type of market failure/ nature of good:** The extent of information failure is likely to be greater for complex products (e.g. complicated healthcare procedures), hence there might be greater need for more powerful, mandatory measures such as legislation to correct the market failure.

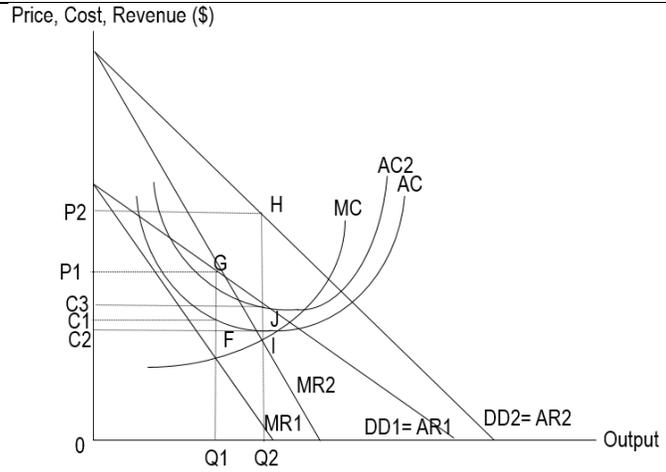
Knowledge, Application, Understanding and Analysis		
L3	<p>A well-developed answer that demonstrates:</p> <ul style="list-style-type: none"> <li>• Appropriate analysis for BOTH sources of market failure (info failure &amp; asymmetric info) with good application of examples as mentioned in the signpost.</li> <li>• Balanced argument on whether Singapore government should solely depend on provision of info to overcome BOTH market failures mentioned. Answers should also consider the degree of effectiveness of government intervention.</li> </ul>	15-20
L2	<p>For an answer that gives a descriptive explanation of two sources of market failure (info failure &amp; asymmetric info) and balanced argument on whether Singapore government should solely depend on provision of info to overcome market failures mentioned.</p> <p>OR</p> <p>Analytical one-sided answer in explaining one source of market failure &amp; one-sided argument for government intervention.</p>	9-14
L1	For an answer that shows some knowledge of the various sources of market failure and policies to address them.	1-8
Evaluation		
E3	For a well-reasoned judgement on the extent to which Singapore government should solely depend on provision of information.	4-5
E2	For largely unexplained judgements.	2-3
E1	For unsupported evaluative statements or judgement.	1

### Suggested answers for Essay 3

**Intro:** Firms are profit motivated → max profit by maximise TR and minimise TC.

**[Students just need to choose 3 of the following factors for elaboration.]**

Factor	Explanation
Benefit of implementing non-price strategies)	<p>Non-price strategies if effective will lead to higher demand/able to capture a larger market share and demand will become more price inelastic as it helps differentiate the firm's service to make it less substitutable. This will shift AR curve from AR1 to AR2 as shown in Figure 1. Also, as the demand is more price-inelastic, it will result in a steeper curve AR2.</p> <p><b>Explain with a diagram to change in profit-maximizing price &amp; output and hence the change in profits:</b>            The firm aims to maximise profit and will produce output at <math>MC=MR</math>.</p> <p><b>Elaborate on marginalist principle:</b>            If <math>MR &gt; MC</math>, producing 1 more unit adds more to revenue than to cost, firm should continue production to gain additional profits.</p>  <p>Original equilibrium was at output <math>Q_1</math>, price <math>P_1</math>. Supernormal profit was <math>P_1C_1FG</math>. With the increase in demand and with demand becoming more price inelastic, the profit will increase to <math>P_2C_2HI</math> with the increase in price and fall in AC at a larger output.</p>
Cost of implementing non-price strategies	<p>Incur higher cost from non-price strategies.            For example, cost of setting up/improving the online platform → increase FC → increase AC → AC shifts upwards to <math>AC_2</math> → profits fall from <math>P_2C_2HI</math> to <math>P_2C_3JH</math>.</p>



(Students can just draw the impact on 1 diagram)  
Figure 2

OR

For example, if firm hire more labour to improve the delivery network → increase VC → increase MC and AC → both MC and AC curves will shift upwards to MC2 and AC2 respectively. With the increase in MC, the new equilibrium price is P3 and the new equilibrium price is Q3. Moreover, with the increase in AC, the new profit will be indicated by P3C3JH in Figure 3.

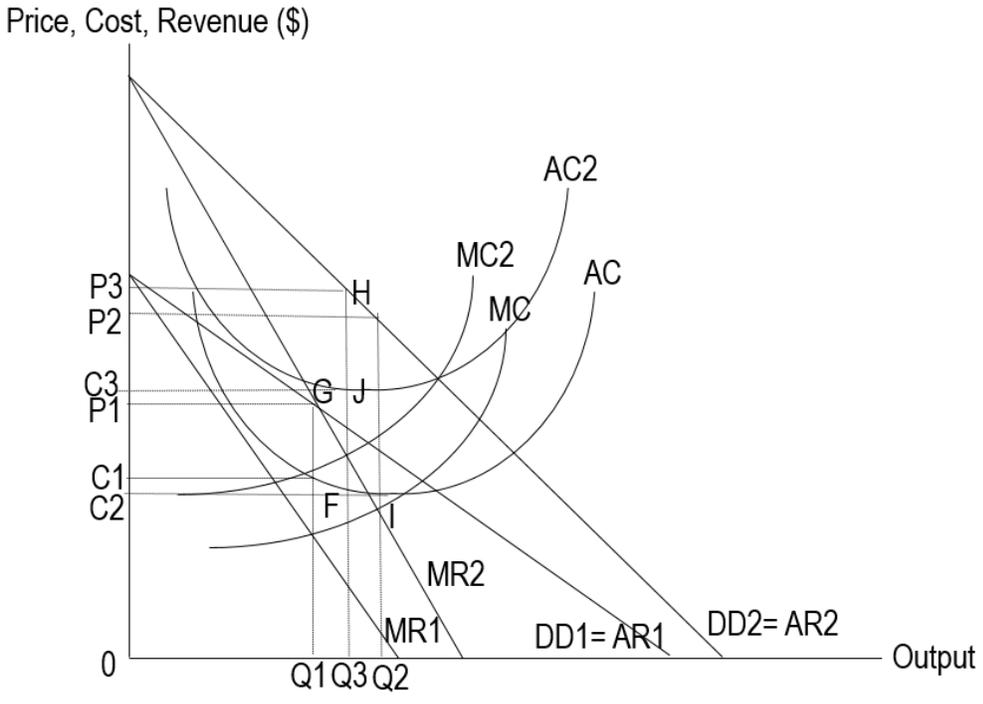


Figure 3

Constraint of firm	<p>Online grocery firms operate in an oligopolistic market structure. In markets which are dominated by a few large firms, the firms are mutually interdependent. This results in price rigidity. Hence, there is a need to employ non-price strategies.</p> <p><b>Assumptions made about the behaviour of its competitors:</b></p>
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	<p>Each oligopolist conjectured that its rival would match any price decreases it makes but not follow it in any price increase. Hence, the oligopolist faces a kinked demand curve. The upper portion of the demand curve is relatively more price elastic (quantity demanded will change more than proportionately, given a change in price) than the lower portion of the curve.</p> <p>If the firm were to decrease the price, it is likely that his rivals will react by cutting their prices by an equivalent amount. He therefore expects demand to be relatively price inelastic (change in quantity demanded increases less than proportionately) in response to a price fall, since he cannot hope to lure many customers away from his rivals. With price cuts all around, though each firm retains his market share, all gain lower sales revenue than before.</p> <p>On the other hand, if the firm were to increase the price, he expects his rivals to react to the price rise by keeping their prices stable. Hence he will lose customers to the other firms, and suffer a considerable decline in sales and revenue (more than proportionate fall in quantity demanded, hence the demand curve is more price elastic). Associated with each demand curve (AR) is its MR. This explains why at the kink of the demand curve, the MR is discontinuous.</p> <p><b>Linking the kinked demand curve theory to price rigidity and hence the best policy is to leave the price unchanged and employ non-price strategies</b></p> <p>There is no incentive for any firm to initiate price reductions since other firms will follow suit, thereby resulting in no gain in its market share. Conversely, if the firm increases its price, the rivals will not follow. Hence the first firm to raise its price will face a fall in its sales and market share. If the oligopolist's expectation is correct, sales revenue will be lost whether the price is raised or cut. Thus the best policy may be to leave the <b>price unchanged</b> at price OP1 and to <b>employ non-price strategies</b>.</p> <p><i>Students can also explain about the level of supernormal profits or resources that a firm has.</i></p>
Information	<p>The firms will need to gather information about the taste and preferences of their consumers so they can employ non-price strategies to cater to tastes and preferences of their customers. If effective, the non-price strategies will enable the firms to gain a larger market share and experienced a larger increase in DD and AR and demand will be more inelastic to earn larger supernormal profits as explained above. For example, if consumers value convenience and service → online grocers can offer same day delivery service. Hence firms will employ non-price strategies to increase profit further.</p> <p><i>Students can also explain that firms will gather information about rivals' decisions and strategies to decide whether they will employ non-price strategies.</i></p>

**Conclusion:**

The above factors are likely to influence a firm's decision to implement non-price strategies in the market for online grocery services. Firms will only employ non-price strategies if it increases profits.

The above factors show certain costs and benefits that will be incurred by firm in implementing non-price strategies. Whether to implement non-price strategies would therefore be influenced by the

marginal cost and benefit approach, given that all economic agents are assumed to be rational decision makers. The firm will only implement the non-price strategies if the marginal benefit is greater than the marginal cost. However, it is important to note that in reality, the marginal costs and benefits may be difficult to measure due to time lag, insufficient information and violation of the ceteris paribus condition.

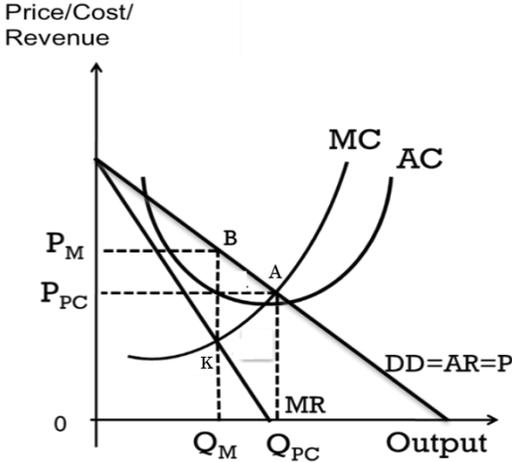
Knowledge, Application, Understanding and Analysis		
L3	Clear economic analysis that explains the factors that influence a firm's decisions to engage in non-price strategies with consideration on the impact of firm's profitability and good application to the market for online grocery services.	8-10
L2	Underdeveloped answer that explains factors that influence a firm's decisions to engage in non-price strategies.	5-7
L1	Some knowledge of factors that influence a firm's decisions.	1-4

### Suggested answer for (b)

Contestable markets are markets with a few dominant firms that behave in a competitive manner due to the threat of potential competition. The threat of potential competition in the market for online grocery services is made possible with lower barriers to entry such as lower start-up cost as there is no need to pay high rents for large physical shops. Degree of contestability has increased with digital app and technologies lowering market entry barriers across many industries.

Impact on producers (profits)	<p><b>The threat of potential competition will keep existing online grocery firms operating at lower prices and higher output levels, lowering profitability.</b></p> <ul style="list-style-type: none"> <li>(-) Existing firms will suffer a loss of profits if they limit prices below profit maximising level (for instance setting prices at P2 lower than P1 which is profit max price of P1), hence lowering supernormal profits of area P1P2AB and deterring potential entrants from entering industry.</li> </ul> <ul style="list-style-type: none"> <li>(+) However, existing firms may benefit from higher profits over the long term with successful R&amp;D. Existing firms have a greater incentive to channel supernormal profits</li> </ul>
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	<p>into R&amp;D, in both process and product innovation in order to stay ahead of competitors (both existing and potential).</p> <ul style="list-style-type: none"> <li>○ By engaging in process innovation, existing firms may develop better processes to improve the efficiency of their grocery delivery services firms (e.g. use big data to optimise delivery routes to save time and transport costs). Successful process innovation will increase efficiency of grocery deliveries and lead to cost savings. Assuming there is no change in total revenue, fall in total cost will increase profitability of existing firms.</li> <li>○ <b>[EV]:</b> However, it is likely that firms will pass the cost savings to customers in terms of lower prices in order to retain market share due to the presence of actual and potential competition present in the online grocery industry. This also increases the possibility of price wars between existing firms to retain market share. Assuming the service is price inelastic (due to brand loyalty and time needed for consumers to alter purchasing habits), a fall in price will lead to a less than proportionate rise in quantity demanded and fall in total revenue. If the fall in total revenue outweighs the fall in total cost, profits will fall instead.</li> <li>○ By engaging in product innovation, existing firms may develop better service offerings (e.g. 2 hour delivery, more user-friendly online platforms). This will increase the demand for firm's online grocery services and make it more price inelastic. Assuming no change in total cost, this will boost total revenue and profitability of existing firms.</li> <li>○ <b>[EV]:</b> The outcomes of R&amp;D are uncertain and may only develop over a long period of time. Moreover, the extent of supernormal profits retained by existing firms are reduced by limit pricing, so the extent of benefits as analysed above may not be as significant.</li> </ul>
<p>Impact on govt (efficiency, equity)</p>	<p><b>The threat of potential competition may reduce allocative inefficiency, dynamic inefficiency and inequity.</b></p> <ul style="list-style-type: none"> <li>• (+) With potential competition, firms are more incentivised to lower prices nearer to competitive levels (set price closer to MC) to deter new entrants. <ul style="list-style-type: none"> <li>○ Suppose the industry is dominated by a single firm (monopoly) with high level of market power. As a price setter, the profit maximising monopolist will produce where <math>MC=MR</math> with output <math>Q_m</math>. At this output, <math>P &gt; MC</math>. Consumers value the last unit of good more than the additional cost to produce it. Hence the goods is underproduced (<math>Q_m &lt; Q_{pc}</math>) and there is an underallocation of resources, leading to allocative inefficiency and a deadweight loss area of BAK.</li> </ul> </li> </ul>

	 <p>The graph illustrates the relationship between price/cost/revenue and output. The vertical axis is labeled 'Price/Cost/Revenue' and the horizontal axis is labeled 'Output'. The origin is marked '0'. There are four main curves: Marginal Cost (MC), Average Cost (AC), Demand (DD=AR=P), and Marginal Revenue (MR). The MC and AC curves are U-shaped. The DD=AR=P curve is downward sloping. The MR curve is steeper than the DD=AR=P curve. Point A is the intersection of MC and AC. Point B is on the DD=AR=P curve at output <math>Q_M</math>. Point K is on the AC curve at output <math>Q_M</math>. Point A is also the intersection of MR and MC. The price <math>P_M</math> is on the vertical axis corresponding to <math>Q_M</math> on the DD=AR=P curve. The price <math>P_{PC}</math> is on the vertical axis corresponding to <math>Q_{PC}</math> on the DD=AR=P curve. The output <math>Q_{PC}</math> is where MR intersects MC.</p> <ul style="list-style-type: none"> <li>○ With actual and potential competition faced by firms in the online grocery market, existing firms will set price below <math>P_M</math>, closer to <math>P_{PC}</math>. This reduces the extent of underproduction and underallocation of resources, hence reducing allocative inefficiency.</li> <li>○ Hence, there is less need for the government to intervene to correct market failure arising from market dominance (e.g. AC pricing, MC pricing). The resources needed for intervention could have been allocated to other developmental areas such as education and healthcare to benefit society.</li> <li>• (+) Moreover, since prices on online grocery services are lower, they become more affordable and accessible to lower income groups, hence helping to promote equity.</li> <li>• (+) Also, given that existing firms are more incentivised to engage in R&amp;D to improve their product offerings, there will be reduced dynamic inefficiency. Society will benefit from a higher rate of innovation and greater choice.</li> <li>• [EV]: However, this depends on firms' actions, whether firms truly improve product offerings (shorter delivery times, better shopping experience) or just focus on superficial "imaginary" differences such as branding and advertising.</li> </ul>
Impact on consumers (price, variety, choice)	<p><b>The threat of potential competition will keep ensure consumers enjoy lower prices and greater variety and choice.</b></p> <ul style="list-style-type: none"> <li>• (+) Consumers will benefit when firms pass down cost savings to consumers in terms of lower prices. Moreover, firms have an incentive to innovate to differentiate themselves leading to greater choice and variety of grocery services.</li> <li>• [EV]: However, firms may also choose to keep the profits and disuse them to shareholders instead.</li> <li>• If more resources are spent on engaging in superficial product differentiation, benefits to consumers are likely to be limited.</li> </ul>

**Conclusion:**

While the theory of contestable markets argues that the threat of potential competition is enough to keep incumbent firms 'on their toes', creating more competition for many large firms, **the overall impact on economic agents largely depends on:**

- **[Extent of potential competition]:** The greater the threat of contestability or potential competition, the more likely firms will behave in a competitive manner in terms of lower prices and reducing inefficiency, which largely benefits consumers and society. On the other hand, firms facing lower threat of potential competition will likely be more complacent and have less incentive to improve their product offerings.
- **[Determinants of contestability]:** While the development of technology has reduced the sunk costs and lowered barriers to entry in the online grocery market, it has not completely removed the sunk cost. Firms will still need to invest in a delivery fleet and warehouse storage, and there are substantial internal economies of scale to be reaped for large scale incumbent grocery operators, which may deter potential entrance of smaller players. Moreover, asymmetric information may also be another barrier to entry, as incumbents are likely to know more about the industry than potential entrants and will be unwilling to share their knowledge.
- **[Depends on firms' reactions]:** If incumbent firms collude and/or engage in anti-competitive behavior such as signing exclusive contracts with app developers and grocery suppliers to only exclusively provide them with the necessary technology know-how and essential raw materials (groceries), they can effectively keep out potential entrants and reduce the benefits of potential competition.
- **[Govt intervention]:** Effective government monitoring and intervention to ensure that the market works freely and efficiently and deter anti-competitive behaviour will help improve the impacts of potential competition. For example, government regulators may force incumbents to share their infrastructure or technology with potential entrants (as seen in telecommunications industry).

Knowledge, Application, Understanding and Analysis		
L3	A well-developed answer that demonstrates appropriate analysis to explain both positive and negative impacts of contestability on at least 2 different economic agents (consumers, firms , government).	8-10
L2	For an answer that gives a descriptive explanation of how contestability impacts economic agents. OR Analytical one-sided answer in explaining impacts of contestability on a limited scope of economic agents.	5-7
L1	For an answer that shows knowledge of contestability.	1-4
Evaluation		
E3	For a well-reasoned judgement on the extent to which threat of potential competition will impact various economic agents.	4-5
E2	For largely unexplained judgements.	2-3
E1	For unsupported evaluative statements or judgement.	1

## Suggested answers for Essay 4

### Part (a)

#### INTRODUCTION – Define Standard of Living

- Standard of Living
  - Standard of living of people in a country refers to their well-being. There are two aspects of standard of living, namely the material well-being and non-material well-being. The material well-being of an individual is determined by the quantity of goods and services enjoyed by an individual. The non-material well-being is the quality of life and is influenced by environmental factors such as degree of urban crowding and crime rates, as well as by socio-economic factors such as life expectancy, availability of health care and quantity of leisure.

#### BODY – Use of these statistics to measure change in SOL in Singapore (over time)

→ 'GDP at 2010 prices grew by 3.6%, the population grew by 0.1%'

- Explain 'GDP at 2010 prices'
  - Value of final goods and services produced within Singapore in a year measured at constant 2010 (base year) prices. Since GDP has been adjusted for price changes, it refers to the real value of GDP (where changes to its value reflect changes to the volume of goods and services produced and not changes in the price level, since it is kept constant at 2010's).
- Explain what it means by 3.6% and 0.1% (year-on-year stats)
  - $[\text{Real GDP}_{2017} - \text{Real GDP}_{2016}] / \text{Real GDP}_{2016} \times 100\% = 3.6\% \rightarrow \text{Real GDP}_{2017}$  is 3.6% higher than  $\text{Real GDP}_{2016}$
  - $[\text{Population}_{2017} - \text{Population}_{2016}] / \text{Population}_{2016} \times 100\% = 0.1\% \rightarrow \text{Population}_{2017}$  is 0.1% larger than  $\text{Population}_{2016}$
- Explain implications for SOL of population growth rate < Real GDP growth rate → ↑ real GDP per capita (Real GDP per capita grew at 3.6% - 0.1% ≈ 3.5%) → each person on average enjoys 3.5% increase in the volume of goods and services in 2017 compared to 2016 → improvement in material SOL + more opportunities and financial resources available to improve the quality of life for self and others either through private means or through the government via higher tax revenue contributions allowing the government to clean the environment & help the poor & disadvantaged by subsidising housing & healthcare → improvement in M & NMSOL
- Importance of per capita measure → if population increases faster than real GDP, MSOL on a per person basis MSOL is actually lower → hence real GDP not an accurate measure.

→ 'inflation (as measured by the consumer price index) was 0.6%'

- Explain CPI
  - The price of a fixed basket of goods and services commonly purchased by resident households expressed as an index number with respect to the price of the same basket in chosen base year → shows the change in price of the basket with respect to the base year
- Explain what is meant by 0.6% (year-on-year stats)
  - $[\text{CPI}_{2017} - \text{CPI}_{2016}] / \text{CPI}_{2016} \times 100\% = 0.6\% \rightarrow \text{CPI}_{2017}$  is 0.6% higher than  $\text{CPI}_{2016}$
- Explain implications for SOL of low inflation
  - Singapore goods becoming more internationally competitive increasing exports and growth; preserves real value of savings & real rates of return for savers + Improved confidence, encouraging firms to invest and boost long-term economic growth; Increased real incomes (if nominal wage growth > 0.6%) → link to improvement in SOL over time

→ 'overall unemployment stood at 3.1%'

- Explain what is meant by 3.1%
  - Unemployed / labour force (or employed + unemployed) X 100% = 3.1% → 3.1% of the people who are available for work and looking for a job i.e. the labour force, cannot find a job
  - Data is a proportion → static (at a point in time) → Cannot be used in itself to measure material SOL. Need info for 2016 to measure change in SOL
- Explain implications of high unemployment
  - more people without livelihood → ↓material SOL + Difficulties in making ends meet → ↑crime rates / social unrest and ↑social-emotional problems such as depression and stress → ↓NM SOL

	<b>Knowledge, Application/Understanding and Analysis</b>	
L3	For an answer that explains how statistics can be used to measure the change in both material & non-material standard of living over time	8-10 (9)
L2	For an answer that explains how statistics can be used to measure the change in either material (up to 7) or non-material standard of living (low L2) over time	5-7 (6)
L1	For an answer that shows knowledge of economic indicators and/or how they are measured.	1-4 (3)

**Part (b)**

**INTRODUCTION – Summarise approach to question**

- *Limitations of these statistics in assessing the change in SOL in 2017 (difficulties with comparisons over time) → smooth transition from (a)*
- *Uses of these statistics to make international comparisons of changes in SOL (over space)*
- *Limitations of these statistics in making international comparisons of changes in SOL (difficulties with comparisons over space)*

**BODY I – Limitations of these statistics in assessing the change in SOL in 2017**

**→ Real GDP per capita growth rate**

<b>Limitation</b>	<b>Solution</b>
<ul style="list-style-type: none"> <li>▪ <i>Does not take into account income distribution → increase in wealth concentrated in the hands of the wealthy few → rising income inequality not captured in data → Real GDP growth may not be equally enjoyed by all. If the greater availability of goods and services was extended mainly to the higher-income/higher-skilled, then there will be greater income inequality and material living standards can only be said to have improved for the higher-income/higher-skilled with little or no improvements (or even a worsening) for the lower-skilled.</i></li> </ul>	<ul style="list-style-type: none"> <li>▪ <i>GINI coefficient to measure income inequality → Hence data on <b>income distribution such as Gini coefficient</b> would have allowed a more informed assessment. <b>The closer the coefficient is to 0, the greater income equality there is, and the more accurate it is to say that real GDP per capita growth led to greater material well-being for everyone.</b></i></li> <li>▪ <i>Composite indicators such as <b>Human Development Index (HDI)</b> which takes into account real GDP per capita, literacy rate, life expectancy and infant mortality rate will allow a more informed assessment of</i></li> </ul>

<ul style="list-style-type: none"> <li>Does not adequately capture non-material SOL → The production of more goods and services could have led to <b>greater pollution and stress levels from longer working hours especially if the larger output was not because of higher productivity</b> → worsen quality of life through health and leisure of people → <b>improvement of M SOL at the expense of NM SOL</b> → <b>Overall SOL cannot be said to have improved</b></li> </ul>	<p>living standards. The numerical value varies from 0 to 1 where 1 is best possible score and zero is lowest possible score. These are included because people's welfare is influenced not only by the goods and services available to them but also by their ability to lead a long and healthy life and to acquire knowledge. However, still incomplete measure of SOL → not all encompassing because it does not take into account human rights, protection against violence and discrimination and opportunities for creativity, and issues like political, social and economic freedom</p>
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→ **Inflation Rate**

Limitation	Solution
<ul style="list-style-type: none"> <li>Low inflation (mildly increasing GPL) may not necessarily mean a higher SOL → Explain <b>possible</b> implications for SOL of <u>below-target inflation</u> <ul style="list-style-type: none"> <li>Sluggish growth + loss of confidence in CB + threat of deflation → link to rising real debt &amp; worsening of M. SOL &amp; NM SOL due to higher stress levels &amp; pessimistic economic outlook. Delaying of purchases in anticipation of lower future prices → adversely affects current M SOL</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Determine the cause of mild below-target inflation → If due to ↑AS alongside ↑AD (↑AD &gt; ↑AS) → less of a concern because slow increase in GPL is attributed to increases in productivity (possibly due to capital accumulation (I) &amp; developmental government spending (G)).</li> <li>Data on 2015 &amp; 2016 Inflation Rate → if inflation rate on downward trend + below inflation target of 2-3% → high possibility of deflation &amp; corresponding negative impact on SOL</li> </ul>

→ **Unemployment Rate**

Limitation	Solution
<ul style="list-style-type: none"> <li>A low unemployment rate does not necessarily mean a higher SOL → short-term displacement costs of high structural unemployment may be more than compensated by improvements in the supply side potential of the economy due to technological progress and increasing focus on newer/emerging comparative adv → ↑AD as goods become more competitive → economic growth and greater wealth in long run → higher overall SOL (although SOL for lower socio-economic rungs may be lower)</li> <li>Given unemployment data is static → cannot assess change in SOL</li> </ul>	<ul style="list-style-type: none"> <li>Determine the <b>cause</b> of unemployment – structural (tends to affect certain sectors) or cyclical (tends to affect all sectors) → provides better cross-sectional assessment of SOL</li> <li>Provide 2016 unemployment data to assess <u>change</u> in SOL</li> </ul>

**BODY II – Uses and limitations of using these statistics for international comparisons of changes in SOL**

**→ Real GDP per capita growth rate**

Use	Limitation	Solution
<p>Real GDP per capita growth rate <math>_{Singapore} &gt;</math> Real GDP per capita growth rate <math>_{US}</math> → faster rate of increase in material SOL in Singapore compared to US (can be any other country)</p> <p>&amp; (arguably) faster rate of increase in non-material SOL in Singapore compared to US</p>	<ul style="list-style-type: none"> <li>• Limitations that apply across time also make it difficult to use as an accurate comparison of SOL across countries</li> <li>▪ Different composition → If the greater volumes of output <b>mainly consisted of capital goods or artillery or goods meant for export and not of consumer goods and services</b>, then a faster <b>real GDP growth could not have been said to raise current material living standards</b> (although greater production of capital goods would lead to greater future material well-being) at a faster rate for Singapore compared to the US</li> <li>▪ Different size of non-marketed incomes → [more for comparing SOL of Singapore with developing country] The existence of a relatively large non-monetary sector in developing economies such as subsistence agriculture where production is not traded but meant for personal consumption means that the official income figures will underestimate the country's output and similarly mis-report the real GDP growth rates per capita, giving rise to an inaccurate comparison of changes in SOL bet countries.</li> <li>▪ Reliability of data [more for comparing SOL of Singapore with developing country] → less sophisticated data collection &amp; analysis → overstate/understate real GDP per capital growth rate. Under-</li> </ul>	<ul style="list-style-type: none"> <li>▪ HDI &amp; GINI (explained earlier)</li> <li>▪ <b>For limitations arising from different composition: Data on GDP composition</b> → if similar across both countries → fairer and more accurate comparison</li> <li>▪ <b>For limitations arising from different size of non-marketed incomes: estimate the non-market activities of developing countries and include them in the countries' national income statistics.</b> (However, it is difficult to impute a value for each non-market activity)</li> <li>▪ <b>For limitations arising from real GDP per capita growth rates merely allowing for international comparison of rates of change of MSOL: PPP-adjusted real GDP per capita</b> <ul style="list-style-type: none"> <li>- Conversion to the same currency using PPP exch rate is necessary because the nominal exchange rates may not take into account relative costs of living. If the nominal exchange rate undervalues the SGD relative to USD compared to the PPP exchange rate, Singapore's MSOL will be understated compared to US' because the nominal exchange rate understated the purchasing power of the SGD within the Singapore (or overstated the costs of living/typical basket of goods &amp; svc in Singapore)</li> </ul> </li> </ul>

	<p>reporting population growth rates → over-reporting of real GDP per capita growth rate → inaccurate comparison of changes in SOL bet countries</p> <ul style="list-style-type: none"> <li>▪ Only allows comparison of the rate of change of MSOL between countries → absolute comparison of MSOL difficult</li> </ul> <p>Other limitations include differences in size of black market economy, different base years in the computation of real GDP across countries, different quality of goods and services (which tend to be reflected in price but is made constant in real values)</p>	<p>rel to the US. (can highlight difficulties of identifying the typical basket of goods consumed across countries for PPP exch rate due to differences in culture, geography, lifestyle etc → even if it is possible to identify similar (ideally it should be identical!) goods, the quality of the goods differ, their weights in the basket differ)</p>
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→ Inflation rate

Use	Limitation	Solution
<p>Inflation rate<sub>Singapore</sub> &lt; Inflation rate<sub>US</sub> → Faster rate of increase in material SOL in Singapore compared to US bec <math>COL_{SG}</math> rising more slowly than <math>COL_{US}</math></p>	<ul style="list-style-type: none"> <li>• Limitations that apply across time also make it difficult to use as an accurate comparison of SOL across countries</li> <li>• Choice of base year / reliability of data → regular rebasing necessary to reflect the latest consumption patterns and composition of goods and services consumed by resident households. Base year basket needs to be representative of norms &amp; patterns. If basket chosen is not representative, inflation rates could be over or underestimated → inaccurate comparison of SOL across countries.</li> </ul>	<ul style="list-style-type: none"> <li>• Determine cause of inflation in each country (see above for overcoming limitations of using inflation rate to assess change in SOL over time)</li> </ul>

→ Unemployment Rate

Use	Limitation	Solution
<p>Unemployment rate<sub>Singapore</sub> &lt; Unemployment rate<sub>US</sub> → Higher material and non-material SOL &amp; in Singapore compared to US</p>	<ul style="list-style-type: none"> <li>• Limitations that apply across time also make it difficult to use as an accurate comparison of SOL across countries</li> <li>• Size of non-marketed</li> </ul>	<ul style="list-style-type: none"> <li>• Determine cause of Unemployment (see above for overcoming limitations of using unemployment rate to assess change in SOL over</li> </ul>

	<p><i>economy/black economy [more for comparing SOL of Singapore with developing country] → unemployment overstated for developing country &amp; SOL correspondingly understated → inaccurate comparison</i></p> <ul style="list-style-type: none"> <li>• <i>disguised unemployment where there are redundant workers who would not reduce total output if they are fired i.e. their MP = 0 and underemployment where workers are over-qualified → understate unemployment &amp; correspondingly overstate SOL → inaccurate comparison</i></li> <li>• <i>Different ways of computing unemployment rates → claimant count vs labour force surveys → inaccurate comparison</i></li> <li>• <i>Reliability of data → inaccuracies due to illegal claiming of unemployment benefits, sampling error → inaccurate comparison</i></li> </ul>	<p><i>time)</i></p> <ul style="list-style-type: none"> <li>• <i>For limitations arising from different size of non-marketed incomes: estimate the non-market activities of developing countries &amp; its corresponding employment (However, it is difficult to impute a value for each non-market activity)</i></li> <li>• <i>For limitations arising from underemployment → supplement with data that approximates productive employment such as job satisfaction, whether qualifications/experience match job requirements, whether remuneration matches qualifications/experience → if score is low → unemployment has been understated &amp; hence such supplementary data will allow a more accurate comparison of SOL between countries</i></li> <li>• <i>For limitations arising from disguised unemployment → supplement with data such as the MP of the last unit of labour → if MP = 0 or exceeds wages → unemployment has been understated &amp; hence such supplementary data will allow a more accurate comparison of SOL between countries</i></li> </ul>
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<b>Limitations Overview: Condensed</b>			
	Temporal only	Spatial only	Spatial & Temporal
Real GDP Growth Rate		<ul style="list-style-type: none"> <li>• Measures only rate of growth of M SOL [Soln: PPP-adjusted real GDP capita]</li> </ul>	<ul style="list-style-type: none"> <li>• NM SOL unaccounted for [Soln: HDI]</li> <li>• Income distribution unaccounted for [Soln:</li> </ul>

		<p>absolute data]</p> <ul style="list-style-type: none"> <li>• Different base year makes comparison of rate of change of MSOL inaccurate</li> <li>• Different composition</li> <li>• Different size of non-marketed economy [Soln: Input estimated value of non-marketed output]</li> <li>• Different size of black market economy [Soln: Input estimated value of black market economy]</li> <li>• Data reliability</li> </ul>	Gini]
Inflation Rate	<ul style="list-style-type: none"> <li>• Persistence of below-target inflation [Soln: Trend data]</li> </ul>	<ul style="list-style-type: none"> <li>• Data reliability – choice of base year</li> </ul>	<ul style="list-style-type: none"> <li>• Depends on cause [Soln: examine the cause]</li> </ul>
Unemployment Rate	<ul style="list-style-type: none"> <li>• Static data (proportion) → cannot do temporal comparison [Soln: Data for 2016]</li> </ul>	<p>Data reliability – sampling error &amp; different extent of disguised unemployment &amp; underemployment, different extent of non-market and black economy</p> <p>[Soln: Disguised UnM: supplement with marginal productivity data; Underemployment: supplement with data on job satisfaction, whether job requirements match experience/qualification, whether remuneration matches experience/qualification]</p> <ul style="list-style-type: none"> <li>• Different ways of computation</li> </ul>	<ul style="list-style-type: none"> <li>• Depends on cause [Soln: examine the cause]</li> </ul>

[EV: Judging

- the extent to which limitations of the statistics could be overcome by the solutions. This can be done by pointing out the difficulties in computing or using the solutions themselves, or whether there are even solutions.
- &/or the extent of the severity or significance of the limitations. For example: limitations with respect to data reliability will be less severe if comparing SOL between Developed Countries or between years that are relatively close ]

## **CONCLUSION**

**Stand:** *These stats cannot provide a complete assessment of both the standard of living in Singapore and in comparison with other countries.*

**Justification:** *computation & usage problems, lack of context, and they do not capture NMSOL*

### **Recommendation:**

- *Supplement with other indicators for a fuller, more informed picture. Most important indicators to include:*
  1. *Real GDP per capita (temporal i.e. over time) & PPP-adjusted Real GDP per capita (spatial i.e. between countries) → not the growth rates, but the absolute data*
  2. *Gini coefficient to capture income distribution*
  3. *HDI → composite index of life expectancy index, education index & GNI index*

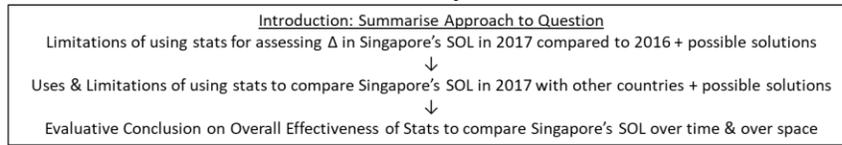
### **Reason for recommendation:**

- *Why real GDP per capita absolute data is highly recommended to be included:*
  - *One of the most commonly and accurately computed data*
  - *Provides direct information about the purchasing power of the citizens and hence the quantity of goods and services citizens can enjoy → single most powerful indicator of material SOL*
  - *Allows more opportunities to access improved NMSOL for private individuals*
  - *Allows more opportunities to access improved SOL both material and non material for the public through increased government expenditures financed by larger tax revenues on keeping the environment clean, establishing green belts/parks, subsidies for healthcare and education, subsidies for the poor to defray their cost of living. Larger budgets for infrastructural development and other forms of developmental spending such as that on skills training allows the low skilled to earn higher incomes → improvements in productive capacity → potential growth → improve SOL in the future*
- *BUT PPP-adjusted real GDP per capita does not take into account income distribution → hence complement with Gini coefficient*
- *It also creates more opportunities/potential for improvement in NMSOL BUT is not a direct measure of NMSOL → hence complement with HDI which could shed some light on why countries with the same PPP-adjusted real GDP per capita might have different HDI outcomes*

### **Further insights (optional):**

- *Recognise that a complete assessment of SOL might not be possible due to its normative nature → is material wellbeing adequately measured by volume of goods and services or should quality matter as well? HDI has been critiqued by many as an insufficient measure of SOL because it does not take account other factors such as opportunities for creativity, economic, social and political freedom etc*
- *Supplementary indicators are for the purpose of more accurate diagnosis of situation and problems which will then allow a targeted and accurate prescription of policies to address the problem of falling / lower SOL for the purpose of welfare maximisation & economic performance (since lower SOL can induce brain drain → unattractive to investments & hamper productivity & growth).*

### **Schematic Plan / Overview**



<p><u>Body 1: Limitations of using stats for assessing <math>\Delta</math> in Singapore's SOL in 2017 compared to 2016 + possible solutions</u></p> <ul style="list-style-type: none"> <li>▪ <b>Real GDP per capita growth rate:</b> <ul style="list-style-type: none"> <li>○ NM SOL not captured. Soln: HDI</li> <li>○ Y Distributn not captured. Soln: Gini Coefficient</li> </ul> </li> <li>▪ <b>Inflation rate &amp; Unemployment rate:</b> <ul style="list-style-type: none"> <li>○ Depends on Cause. Soln: Identify Cause</li> </ul> </li> <li>▪ <b>[Optional] Unemployment rate*</b> <ul style="list-style-type: none"> <li>○ Soln to overcome the limitation of 2017 UnM data being unable to assess <math>\Delta</math> in SOL between 2017 &amp; 2016: 2016 UnM data</li> </ul> </li> </ul> <p><small>*That UnM data is static and therefore itself cannot be used for assessing change in SOL over time should be highlighted in part (a).</small></p>	<p><u>Body 2: Uses + Limitations of using stats to compare Singapore's SOL in 2017 with other countries + possible solutions</u></p> <ul style="list-style-type: none"> <li>▪ <b>Real GDP per capita growth rate:</b> <ul style="list-style-type: none"> <li>○ Unable to make absolute comparison of MSOL. Soln: PPP-adjusted real GDP per capita</li> </ul> </li> <li>▪ <b>All 3 indicators:</b> <ul style="list-style-type: none"> <li>○ Data unreliability particularly when comparing with developing countries.</li> </ul> </li> <li>▪ <b>[Optional] Unemployment rate</b> <ul style="list-style-type: none"> <li>○ Different ways of computation</li> </ul> </li> </ul>
<p><u>Evaluative Conclusion</u></p> <p><b>[Stand]</b> Unable to provide complete assessment of Singapore's SOL over time and over space</p> <p><b>[Justification]</b> Computation &amp; Usage problems, lack of context &amp; do not capture NMSOL</p> <p><b>[Recommendations]</b> PPP-adjusted Real GDP per capita + Gini + HDI needed as well + reasons why</p> <p><b>[Further insights]</b> Recognise that a complete assessment of SOL is impossible due to its normative nature &amp;/or that more data allows a more informed diagnosis that helps inform policy</p>	

	<b>Knowledge, Application/Understanding and Analysis</b>	
L3	L2 + consideration of the severity of the limitations depending on different contexts such as length of time (for temporal comparison) & country (for spatial comparison) &/or possible solutions to overcome the limitations.	8-10 (9)
L2	For an answer that explains the limitations of using the statistics in assessing the change in the standard of living in the Singapore economy over time and over space.	5-7 (6)
L1	For answer that shows knowledge of how the statistics can be used to measure either material or non-material standard of living over space.	1-4 (3)

E3	<p>For an answer that uses analysis (such as the extent to which the limitations could be overcome) to support an evaluative appraisal about the usefulness of the statistics in assessing the change in the standard of living in the Singapore economy over time and over space.</p> <p>→ recognition that a complete and comprehensive assessment of SOL over time &amp; space is impossible because what quality of life/wellbeing constitutes is <b>normative</b></p> <p>→ recognition that the purpose of such comparisons is to <b>inform policy</b> for the purpose of welfare maximisation (social) &amp; economic performance</p>	4-5
E2	For answer that makes some attempt at an evaluative appraisal about the usefulness of the statistics in assessing the change in the standard of living in the Singapore economy over time and over space.	2-3
E1	For an answer that gives an unsupported concluding statement or appraisal about the usefulness of the statistics in assessing the change in the standard of living in the Singapore economy over time and over space.	1

## Suggested answers for Essay 5

### Introduction

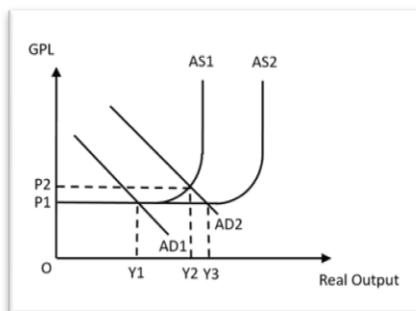
[Define sustainable growth] A rate of growth that can be maintained without creating significant economic problems, particularly for future generations. There is clearly a trade-off between rapid economic growth today, and growth in the future. Rapid growth today may exhaust resources and create environmental problems for future generations, including the depletion of oil and fish stocks, and global warming. It therefore implies a positive and stable rate of growth over an extended period of time.

### [Benefits of having achieved sustainable growth]

#### 1. [Improves material SoL]

An increase in AD causes spending to be more than output. A shortage results and there is a drawdown on inventories. As a result, firms will increase production by hiring more workers. As a result, there is a multiple increase in production, output and national income.

Due to an increase in AD and LRAS, there is an increase in real GDP (from Y1 to Y2 to Y3) → assuming population is constant → real GDP per capita rises → each person can enjoy a higher quantity of goods and services → material standard of living rises.



[Diagram 1]

[reduce cost of living] The increase in LRAS also reduces the risk of demand-pull inflation and therefore keeps the cost of living relatively lower, with GPL at P1 instead of at P2 → there will be greater purchasing power and a higher material standard of living.

[achieves other macroeconomic goals such as low unemployment] Increase in AD → increase derived demand for labour → reduces demand-deficient unemployment → increase in material standard of living

#### 2. [reducing the usage of finite energy resources would reduce the fall in LRAS]

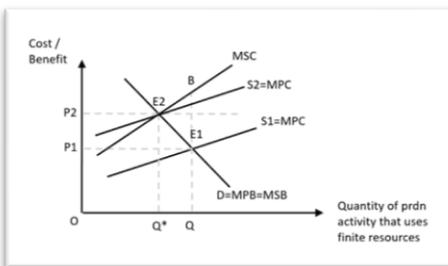
Sustainable growth may involve R&D in order to rely less on finite energy resources and rely more on sustainable sources of energy such as wind or solar energy.

- if finite resources were being depleted, LRAS would fall due to the fall in quantity of resources available
- however, with the turning toward the use of sustainable energy sources, LRAS would not fall, or may even rise

3. [Addresses negative externalities and improves non-material SoL]

Achieving sustainable growth could include the reduction of usage of finite resources such as fossil fuels (for example, through the implementation of policies such as carbon taxes)

Government can impose a tax equal to the marginal external cost at  $Q^*$ . This will lead to an increase in cost of production, reducing profit and therefore reducing the incentive to supply. Supply curve shifts left from  $S_1$  to  $S_2$ , which reduces the overproduction, thereby addressing market failure and reducing the deadweight loss ( $BE_1E_2$ ) to society.



[Diagram 2]

- improvement in quality of the environment eg in terms of air quality

Achieving sustainable growth will include achieving both actual and potential growth.

**[Explain how DD-mngt policies work (Exp MP) and how they achieve actual economic growth]**

A government may implement expansionary monetary policy. A reduction of interest rate will reduce cost of borrowing. Consumers will increase purchases of big-ticket items that are bought on credit. Consumption expenditure ( $C$ ) increases. The fall in cost of borrowing also reduces the cost of production for firms, increasing profit and increasing the incentive to invest. There is an increase in the Marginal Efficiency of Investment. Investment expenditure ( $I$ ) increases.

$C$  and  $I$  increases →  $AD$  increases. Assuming spare capacity, there is an increase in actual economic growth. [refer to diagram 1]

**Strength:** A fall in interest rate can cause an increase in 3 components of  $AD$ , namely  $C$ ,  $I$  and  $X-M$ . Therefore this could lead to a more significant increase in  $AD$ , thus causing a greater increase in actual economic growth, assuming there is spare capacity in the economy.

**Limitation:** there is a lack of certainty as a reduction in interest rate may not cause  $C$  and  $I$  to increase. There are other factors that influence the level of  $C$  and  $I$  other than interest rate.

[EV] If there is a negative business outlook, for example due to the trade war between US and China as well as the prospect of Brexit, the fall in interest rates may cause the policy to be ineffective.

**[Explain how DD-mngt policies work (Exp FP) and how they achieve actual economic growth]**

Govt can increase govt spending or lower taxes in order to increase AD and increase actual economic growth. If the govt lowers, personal income tax, disposable income and purchasing power rises, causing a rise in C. The rise in G and C will cause AD to increase and AD curve to shift to the right.

**Strength:** In terms of an increase in govt spending, there is a greater level of certainty as the ability to increase G is determined mainly by the govt's decision and its ability to finance the spending.

**Limitation:** the effectiveness of the policy to increase actual economic growth depends on the size of the multiplier. A smaller multiplier will only bring about a limited increase in national income. For example, the multiplier size in Singapore is small because of its high marginal propensity to save (mps) and high marginal propensity to import (mpm). The high mps is due to the Central Provident Fund Scheme, a compulsory national savings programme. The high mpm is due to Singapore's lack of its own natural resources.

**[Explain SS-side policies (subsidies for R&D in green technology) and how they help to achieve potential growth]**

A government can provide subsidies for R&D in green technology. The R&D will increase the level of technology as well as increase the quality of capital. Productive capacity increases and there is an increase in the long run aggregate supply curve, resulting in an increase in potential economic growth. [refer to diagram 1]

R&D in green technology such as in the use of solar energy will reduce the use of finite energy resources such as oil or coal. Therefore economic growth today would not exhaust resources and create environmental problems for future generations. There would be a reduction in the trade-off between rapid economic growth today, and growth in the future.

**Strength:** Besides achieving potential economic growth, R&D in green technology can also lower energy cost and therefore lower cost of production, shifting SRAS to the right and lowering cost-push inflation.

**Limitation:** The benefits of R&D may only be seen in the long run and the result may be uncertain. The R&D may not be successful and therefore the LRAS may not increase.

**[DD-mngt policies may not be more effective than SS-side policies in achieving sustainable growth]**

[EV]

-Explain limitations of DD-mngt policies (to show why they may not be more effective)

- (1) DD-mngt policies may not help to achieve potential economic growth. (This occurs for example when an increase in govt spending consists of spending on transfer payments, rather than on infrastructure) If only DD-mngt policies are used, demand-pull inflation would eventually result.
- (2) DD-mngt policies do not help to reduce the depletion of finite natural resources.

**[SS-side policies may not be more effective than DD-mngt policies in achieving sustainable growth]**

[EV]

-R&D takes a long time to be successful and subsidies for R&D would therefore involve large amounts of government spending over long periods. This could worsen budget deficits and the government may have to borrow funds in order to finance the R&D subsidies. This could cause high levels of public debt. The public debt may have to be paid for by future generations of taxpayers. Tax rates may have to be

increased in the future, thereby limiting the amount of economic growth that can be enjoyed by future generations. Whereas monetary policy in terms of reducing interest rates may require less funds for the policy to be implemented.

Conclusion

[EV]

[STAND] DD-mngt policies **may not be** more effective than SS-side policies in achieving sustainable growth. [JUSTIFICATION] Increasing the LRAS through subsidies of R&D in green technology can lead to actual growth (if economy is initially operating at the classical range), potential growth, as well as a reduction in the depletion of finite natural resources, thereby achieving all 3 aspects of sustainable growth. DD-mngt policies, however, may only be able to achieve actual growth.

[EV]

However, the increase in LRAS will only lead to actual growth to a limited extent. Therefore there is a need for a **combination** of both DD-mngt and long run SS-side policies to be implemented in order to achieve all aspects of sustainable growth.

[SUGGEST OTHER POLICIES] Also, besides macroeconomic policies, govt can use microeconomic policies such as carbon taxes to reduce the use of natural resources such as oil. → This would complement the use of SS-side policies such as subsidies in R&D, as R&D is a long run policy and therefore there is a need to implement carbon taxes which can be used in the short run.

<b>Knowledge, Understanding, Application, Analysis &amp; Evaluation</b>		
<i>Level</i>	<i>Descriptors</i>	<i>Marks</i>
L3	Well-developed analysis in BOTH the benefits and policies in relation to sustainable growth	15-20
L2	Sufficient analysis is provided but there may be limited scope in the answers	9-14
L1	For a descriptive answer that addresses the benefits and policies in relation to sustainable growth	1-8
E3	For an answer that provides analytical and well-reasoned judgements	4-5
E2	Some attempt at justification of the stand given	2-3
E1	For an unexplained statement about which type of policy is more effective	1

## Suggested answers for Essay 6

### Part (a)

#### Introduction

[Define Globalisation]

Globalisation refers to an increased flow of trade, capital and labour and these aspects will impact Singapore's pattern of trade, which include volume of trade, commodity composition of trade, and geographical composition of trade

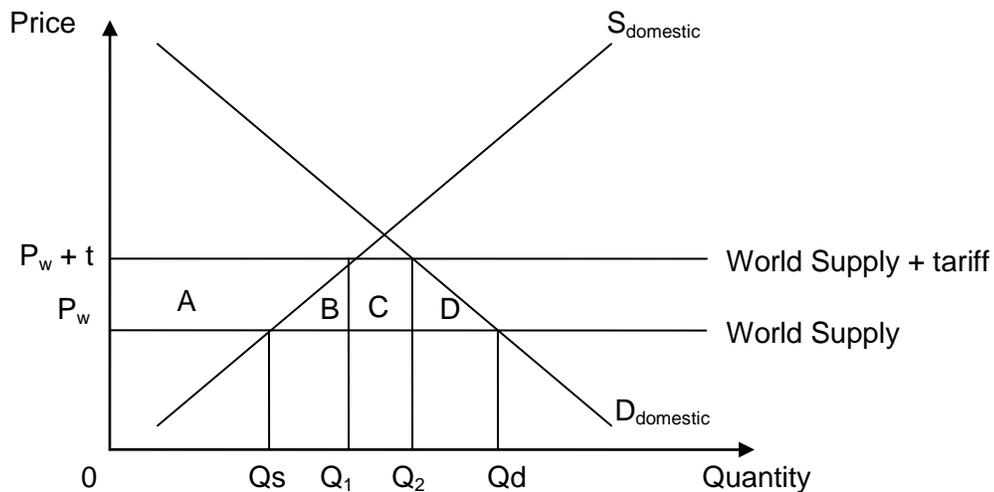
#### Changes in volume of trade

[Exports] One aspect of globalization could be the signing of more FTAs, where tariff and non-tariff barriers to trade have been reduced or removed. There is therefore greater access to more export markets (enlarged global market), leading to an increased volume of exports from Singapore

[Imports] Tariff barriers removed as economies become increasingly integrated → ↑ volume of trade as well as change geographical composition of trade if change trade partners as a result

[tariff diagram to illustrate ↑ in imports]

- With trade a small country like Singapore becomes a price-taker of the world price  $P_w$  of the product due to its negligible market power amongst the infinitely large number of sellers of the homogenous product worldwide. As such world supply  $S_w$  is perfectly price-elastic at  $P_w$ .



- With removal of the tariff, the market price falls by the full amount of the tariff to  $P_w$ . At the new price, domestic production reduces to  $Q_s$  and imports into Singapore are increased to  $Q_s Q_d$  → ↑ volume of trade.

-With globalization, firms are more able to engage in offshoring and outsourcing of their production processes, resulting in an increased volume of trade

## **Changes in Composition of trade**

[Define the theory of CA]

The Theory of Comparative Advantage states that even when one country has absolute advantage over other countries in producing both commodities, both countries can gain from trade if each country specializes in producing and exporting those goods that have a relatively lower opportunity cost compared with the other country and the terms of trade should lie between the domestic opp cost ratios.

-Globalisation has led to the inflow of skilled labour and FDI into Singapore, which changes its factor endowment and hence its composition of exports.

-Eg Singapore thus gains CA in industries such as biomedical sciences and aerospace, partly due to the inflow of skilled labour and FDI. This is due to the relatively lower opportunity cost that Singapore has of producing in such industries due to our factor endowment

- [Analysis] Globalisation era has seen a higher degree of exchange in capital, particularly in FDI in Singapore. Such FDI brought about technological progress, partly through the capital goods used by foreign firms in Singapore and the high skilled labour in Singapore (foreign talents or expatriates). This has led to an increase in the quality and quantity of capital and labour in Singapore. A congregation of highly productive capital and labour in Singapore sees Singapore gaining comparative advantage in high-tech, high skilled level products such as financial services and bio-medical services.

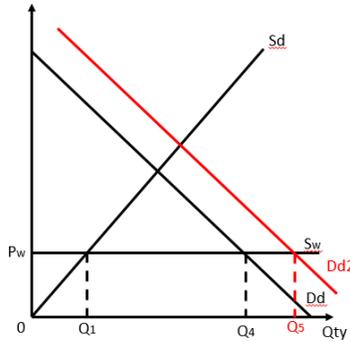
On the other hand, for example, the opening up of China allows this country with a high availability of labour to specialize in the production of labour-intensive low-end manufacturing goods. Such developments as a result of globalization bring about the shift in comparative advantage for Singapore from low tech to high tech products. The theory of CA predicts that countries that trade according to their CA will benefit (analyse with PPC/TPC diagram).

Thus, Singapore will export goods it has CA in and import goods that it does not have CA in e.g. low value manufacturing goods from China.

## **Changes in direction of trade**

With globalization, there is an increase in flows of FDI, causing investment expenditure and aggregate demand to increase, bringing about actual economic growth.

- When other countries experience an increase in national income, purchasing power rises and demand for normal goods rise, ceteris paribus. Assuming Singapore's exports are normal goods ( $YED > 0$ ), there will be a rise in demand for Singapore's exports by countries which have experienced economic growth. → there will be a rise in domestic  $D_d$  to  $D_{d2}$  in other countries
- ↑ volume of  $M$  into other countries (from  $Q_{1Q4}$  to  $Q_{1Q5}$ ) (diagram below)
- ↑ volume of Singapore's  $X$  to countries that experience economic growth

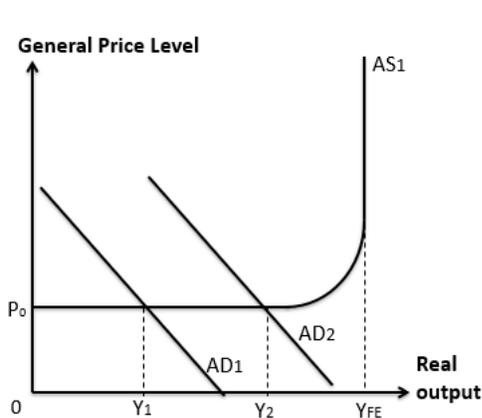


<b>Knowledge, Application/Understanding and Analysis</b>		
L3	L2 + consistent application to Singapore context + addresses all 3 aspects of pattern of trade – direction, composition, volume	8-10 (9)
L2	For an answer that explains how globalisation affects pattern of trade.	5-7 (6)
L1	For an answer that shows knowledge of globalisation and/or pattern of trade.	1-4 (3)

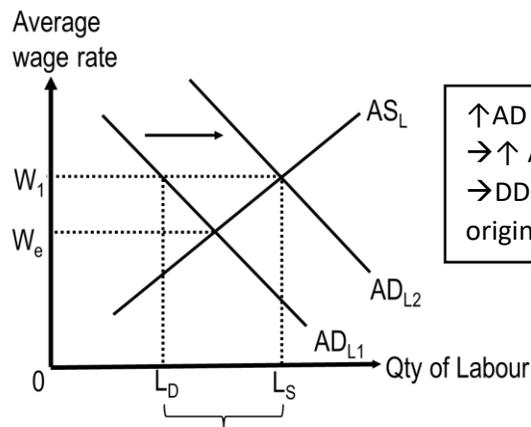
### Part (b)

#### Introduction

- Define productivity: relationship between output & factor inputs/efficient use of factor inputs.  
Measured by output per unit of input. Higher productivity  $\rightarrow$  higher output per unit of input  $\rightarrow$   $\downarrow$  unit COP  $\rightarrow$   $\uparrow$  SRAS &/or  $\uparrow$  productive capacity  $\rightarrow$   $\uparrow$  LRAS
- Methods of increasing productivity: Technological advancement to increase labour productivity (capital deepening), human capital development to increase labour productivity etc
- Benefits of globalisation:
  - increase in trade flows  $\rightarrow$   $\uparrow$  (X – M)
    - Improvement in BOT
    - Increase growth ( $\uparrow$ X  $\rightarrow$   $\uparrow$ AD  $\rightarrow$  AG)
    - Lower unemployment ( $\uparrow$ AD<sub>L</sub>  $\rightarrow$   $\uparrow$ DD-deficient UnM)
  - increase in capital flows  $\rightarrow$  FDI
    - skills and technology transfers bringing about both actual and potential growth ( $\uparrow$ I  $\rightarrow$   $\uparrow$ AD  $\rightarrow$  AG;  $\uparrow$ LRAS  $\rightarrow$  PG)
    - Higher incomes for skilled workers due to higher DD for FOPs by TNCs  $\rightarrow$  reduce Y inequality  $\rightarrow$   $\uparrow$ SOL
  - increase in labour flows  $\rightarrow$  inflow of labour
    - $\uparrow$ Quantity + Quality of labour  $\rightarrow$   $\uparrow$ Productive capacity  $\rightarrow$   $\uparrow$ LRAS  $\rightarrow$  PG

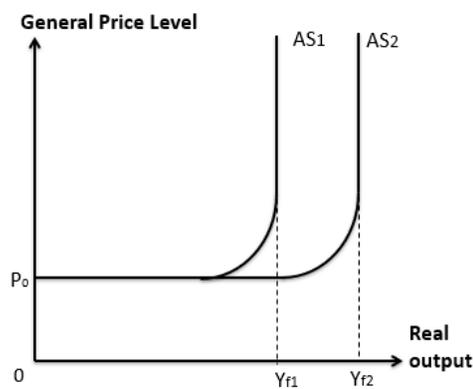


↑AD from AD1 to AD2 → ↑ Real o/p from Y1 to Y2 → AG



Demand-deficient unemployment

↑AD from AD1 to AD2  
→ ↑ AD<sub>L</sub> for AD<sub>L1</sub> to AD<sub>L2</sub>  
→ DD-deficient UnM  
originally @ W1 eliminated



↑LRAS from AS1 to AS2 → ↑ Full employment level of o/p from Y<sub>f1</sub> to Y<sub>f2</sub> → PG

### **Thesis: Increasing productivity is appropriate in order to harness the benefits of globalization**

- Higher output per unit input
  - Lower cost of production → ↑SRAS → ↓GPL → price stability
  - Lower firms' cost of production & increase profitability → ↑MEI → attract FDI → more K & technological inflows: ↑I → ↑AD → AG; ↑LRAS → PG. Higher incomes for skilled workers due to higher DD for FOPs by TNCs → reduce Y inequality + UnM → ↑SOL
  - Lower cost of production → exports priced more competitively → PED<sub>x</sub> > 1 → ↑X → Improve BOT
  - High quality human capital → competitive remuneration + more opportunities for upskilling & higher SOL → attract skilled labour → ↑Quantity + Quality of labour → ↑Productive capacity → ↑LRAS → PG
- Better quality products arising from higher productivity as the lowering of COP frees up more resources to be devoted to R & D into product development
  - More price-inelastic demand → Possible to charge higher prices and earn higher revenue → Generate higher VA → faster rate of EG

### **Antithesis: Increasing productivity is not appropriate in order to harness the benefits of globalisation**

- Costs of increasing productivity i.e. increasing productivity in itself harnesses the benefits of globalization but at the expense of low-skilled manpower & less productive/efficient industries → the growth brought about by increasing productivity **may not be inclusive**
  - Higher structural unM as technology/capital/high skilled labour displaces low-skilled labour
  - Less productive/efficient industries unable to compete with conglomerates/TNCs → losses → shut down → certain sectors suffer higher UnM

- High cost → govt might lack resources to finance policies that improve productivity → ↑ borrowing → worsen budget deficit → ↑ direct taxes in future → dis-incentivises work and investment → fail to attract FDI and skilled labour → makes policy ineffective
- If wages cannot keep pace with productivity increases because of corruption &/or unregulated labour market/labour exploitation / lack of fair wage policies → cross-country income disparity i.e. skilled labour is unfairly rewarded → eventual brain drain of skilled labour
- Other factors influencing FDI other than productivity include – pro-business environment, political stability, clean governance, low legal and regulatory risk → if these conditions are not met then capital inflows will be inhibited despite increasing productivity.

### **Conclusion**

- **[Key consideration for appropriateness: Budget]** Whether the government budget can finance the costs of increasing productivity is a key consideration when assessing the appropriateness of increasing productivity to harness the benefits of globalization → if it results in a large budget deficit, the consequent raising of direct taxes might cause an outflow of K & skilled labour preventing the economy from benefiting from globalisation
- **[Other consideration for appropriateness: method of raising productivity & nature of economy]** Whether increasing productivity is appropriate also depends on the appropriateness of the method to increase productivity, which in turn depends on the nature of the economy. Marginal benefit of training & education to increase labour productivity might be low in economies with ageing population → more appropriate to increase productivity through automation and infrastructural development, and development of capital intensive methods of production; or even policies to attract migration of skilled labour and inflow of FDI such as competitive income tax rates and corporate tax rates.
- **[Final stand on appropriateness of increasing productivity: appropriate & necessary but in itself insufficient]** Increasing productivity, if the budget allows and is fitting to the nature of the economy, is not only appropriate but also necessary because it brings in more export earnings, FDI inflows & skilled labour. However, by itself it is an insufficient means to harness the benefits of globalization because increasing productivity incurs high costs & other conditions should be present as well in order to harness the benefits of globalization. Hence it needs to be accompanied by clean governance, fair wage policy, pro-business environments, macroeconomic stability, as well as a welfare system to help inefficient firms/individuals cope with the costs of increasing productivity.

	<b>Knowledge, Application/Understanding and Analysis</b>	
L3	For a balanced response that explains how productivity might be appropriate to harness the benefits of globalisation, and also how it might not be appropriate given different conditions/circumstances.	8-10 (9)
L2	For a one-sided response that explains how increasing productivity is appropriate to harness the benefits of globalisation OR how increasing productivity <u>may not</u> be appropriate to harness benefits of globalisation	5-7 (6)
L1	For answer that shows knowledge of the benefits of globalisation and/or productivity.	1-4 (3)
E3	For an answer that uses analysis to support an evaluative appraisal about the appropriateness of increasing productivity to harness the benefits of globalisation.	4-5
E2	For answer that makes some attempt at an evaluative appraisal about the appropriateness of increasing productivity to harness the benefits of globalisation.	2-3
E1	For an answer that gives an unsupported concluding statement or appraisal about the	1

	appropriateness of increasing productivity to harness the benefits of globalisation.	
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