



**JURONG JUNIOR COLLEGE**

**2016 JC2 ECONOMICS 9732 (H2)**

**PRELIMINARY EXAMINATION**

**ANSWER BOOKLET**

## Suggested Answers for 2016 J2 H2 (9732) Economics Prelim Paper 1 Case Study

### Question 1

(a) Using Figure 1, compare the trend between U.S. per capita soda consumption and U.S. per capita bottled water consumption. [2]

- U.S. per capita soda consumption has a general falling trend whereas U.S. per capita bottled water consumption has a general rising trend. [1m]
- U.S. per capita bottled water consumption is projected to continue to have a rising trend, and U.S. per capita soda consumption is projected to continue to have a falling trend. [1m]

OR

- U.S. per capita soda consumption has a continuously falling trend whereas the general rising trend of U.S. per capita water consumption has a falling trend between 2007 and 2009. [1m]
- The rate of increase in U.S. per capita bottled water consumption is faster than the rate of decrease in U.S. per capita soda consumption. [1m]

(b) With reference to the likely market structure of the U.S. bottled water industry, comment on how a firm like Coca-Cola's Dasani may compete to maximise its profits. [6]

#### Explain the market structure of U.S. bottled water industry

- Firms in the U.S. bottled water industry operate in an oligopolistic market. There are a few large firms that are Nestle Waters North America, PepsiCo's Aquafina and Coca-Cola's Dasani, dominating the market with other smaller private players (Extract 2).
- The increasingly competitive market implies mutual interdependence among the firms where each firm considers others' reactions when setting prices, output, advertising budgets and other business models (Extract 2).
- Profit is the difference between total revenue and total cost. Profit is maximised when revenue is maximised and cost is minimised.

#### Explain price competition is not the main strategy to maximise revenue

- Price rigidity is a result of mutual interdependence of bottled water firms in a competitive oligopoly. Their behaviours depend on the actions of their competitors to a large extent.
- As shown in Figure 1 below, if the current price is  $OP_0$  and Coca-Cola's Dasani is to raise its price, its rivals will not follow suit. The firm will experience a fall in its revenue as quantity demanded falls more than proportionately. This results in a more price elastic demand curve  $D_1$  above  $OP_0$ .
- On the other hand, if Coca-Cola's Dasani lowers its price below  $OP_0$ , its rivals will be threatened and is likely to follow suit. The firm will experience a fall in its revenue as quantity demanded rises less than proportionately. This results in a more price inelastic demand curve  $D_2$  below  $OP_0$ . Such mutual interdependence results in a kinked demand curve.
- In this case, the firm is in equilibrium when it maximises profits when  $MC=MR$  along the discontinuous vertical portion, at  $E_1$ , giving rise to the equilibrium output  $OQ_0$  and price  $OP_0$ .
- Any change in price leads to lower revenue for the firm, and price competition is not preferred.

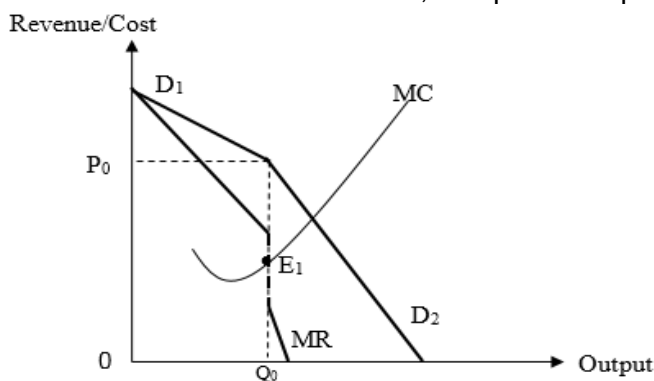


Figure 1

### Explain non-price competition to maximise revenue

- A bottled water firm like Coca-Cola's Dasani then engages in non-price competition to maximise its revenue. Non-price competition includes product development to create real differences and product promotion to create imaginary differences. This is very important for the firm to compete effectively in the market and to counter the non-price competition carried out by competitors.
- As a form of product development through R&D, Coca-Cola's Dasani developed an unsweetened, zero-calorie sparkling water beverage in lime, lemon, apple, and berry flavors (Extract 2). Such unsweetened, zero-calorie water captures a market where consumers are health-conscious and sugar-adverse. Other bottled water firms also engage in product development such as new bottle designs and exotic minerals to attract consumers (Extract 2).
- In addition, as a form of product promotion, Coca-Cola's Dasani launched a new ad campaign featuring actress Jennifer Aniston endorsing its bottled water Smartwater, changing consumers' taste and preferences in favour of its bottled water brand. (Extract 2).
- As a result of such non-price competition, the demand for Coca-Cola's Dasani's bottled water will increase, hence maximising revenue.

### Explain cost-cutting measures to minimise cost

- Possible cost-cutting measures include exploration of technologies and recovery systems (Extract 2). Such innovation helps to improve productivity, producing the same output using less factor inputs or using the same amount of factor inputs to produce a higher output, hence lowering the cost of producing bottled water.

### Conclusion

- In conclusion, both revenue maximisation and cost minimisation are needed for a firm to maximise profits. To maximise revenue, a bottled water firm like Coca-Cola's Dasani operating in a competitive oligopolistic industry mainly focuses on non-price competition due to price rigidity that renders price competition ineffective. Such non-price competition is usually in response to rivals' actions due to mutual interdependence. It is important that the firm be the first to come up with new products, advertising campaigns or promotions before the other firms follow suit.

Marking Scheme		
L2	Well-developed explanation of price and non-price competition, as well as cost-cutting measures, with strong use of case study evidence with a reasoned comment.  <u>Max 5 marks</u> for an answer that lacks explanation of kinked demand curve model diagram.	5-6
	Under-developed explanation of price and non-price competition, as well as cost-cutting measures, with some use of case study evidence.  <u>Max 4 marks</u> for an answer without comment on price competition and explanation of price rigidity.  <u>Max 3 marks</u> for an answer without case study evidence.	3-4
	L1 Smattering of valid points.	1-2

**(c)** Discuss the view that supply factors are likely to be more important than demand factors in explaining the extent of the change in sales volume of bottled water in the U.S. [8]

- According to Extract 1, there is a large increase in the sales volume of bottled water in the U.S. by about 4.7% from 2012 to 2013, and an expected 6.1% from 2013 to 2014.

### Explain change in supply of bottled water

- The bottled water industry has become increasingly profitable for potential entrants over the years as shown by its positive sales revenue (Extract 1), holding cost constant. This results in an increase in the number of sellers, hence increasing the supply of bottled water.
- There is also a fall in prices of factor inputs, such as polyethylene terephthalate used to make plastics bottles as well as silica used to make glass bottles. These lead to a fall in cost of production and rise in profits. Profit-maximising producers then have more incentives to produce, increasing the supply of bottled water.

#### Explain change in demand for bottled water

- The positive growth rate in the U.S. (Extract 1) implies that national income is increasing. Holding price and population constant, real GDP per capita increases and the purchasing power of an average consumer increases. Hence demand for normal goods such as bottled water increases.
- Tastes and preferences of health-conscious consumers change in favour of healthier bottled water compared to unhealthy soda that causes high blood pressure, diabetes and obesity (Extract 1). This increases demand for bottled water.

#### Explain supply factors are more important than demand factors

- Supply factors are more important than demand factors in explaining the large increase in sales volume of bottled water in the U.S. The increase in supply is likely to be more significant than the increase in demand. The overall rising obesity rate in the U.S. (Extract 1) implies that it takes time to change the mindsets, hence the taste and preferences of consumers to consume the healthier bottled water as there is still a large group of consumers who are inclined to consume soda and other sugary beverages.
- The increase in supply is likely to be more significant because the fall in prices of major factor inputs (plastic and mineral) used in bottled water production contribute to a substantial fall in cost of production. This is coupled with the increasingly profitable sunrise industry that results in the increased number of smaller private players to enter and increase the supply of bottled water (Extract 1).
- Overall, as shown in Figure 2, both the less significant increase in demand for bottled water from  $D_0$  to  $D_1$  and the more significant increase in supply of bottled water from  $S_0$  to  $S_1$  have a mutually reinforcing effect in the increase in equilibrium quantity from  $OQ_0$  to  $OQ_1$ . This explains the large rise in sales volume of bottled water in the U.S.

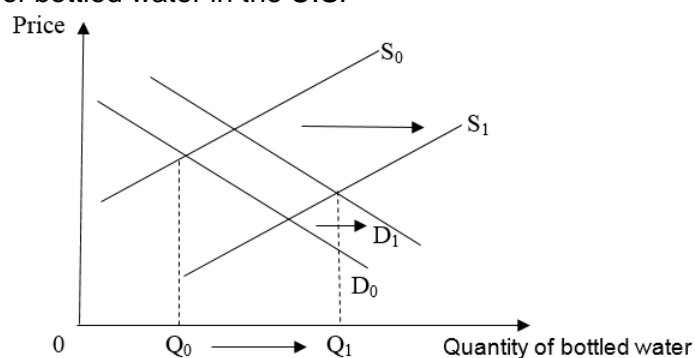


Figure 2

#### Explain extent of change in sales volume using PES and how PES is more important than demand

- The supply of bottled water is likely to be price elastic in the U.S. This is because the main factor inputs, of polyethylene terephthalate and silica sand in producing plastic and glass bottles that are largely produced in the U.S., have sufficient stocks available (Extract 1), indicating existence of spare capacity. Also the other factor inputs such as fuel, electricity can also be obtained with ease (Extract 1). Hence quantity supplied of bottled water is likely to be sensitive to price changes.
- As shown in Figure 3, the increase in demand for bottled water from  $D_0$  to  $D_1$  leads to a more significant increase in equilibrium quantity from  $OQ_0$  to  $OQ_e$  with supply of bottled water being price elastic ( $S_e$ ), as compared to a less significant increase from  $OQ_0$  to  $OQ_i$  if the supply is price inelastic ( $S_i$ ). This explains the large increase in sales volume of bottled water in the U.S.

- Given a highly price elastic supply (considered as a supply factor), the relatively small increase in demand is sufficient to result in a large increase in sales volume, hence the elasticity of supply is more important to explain the increase in sales volume.

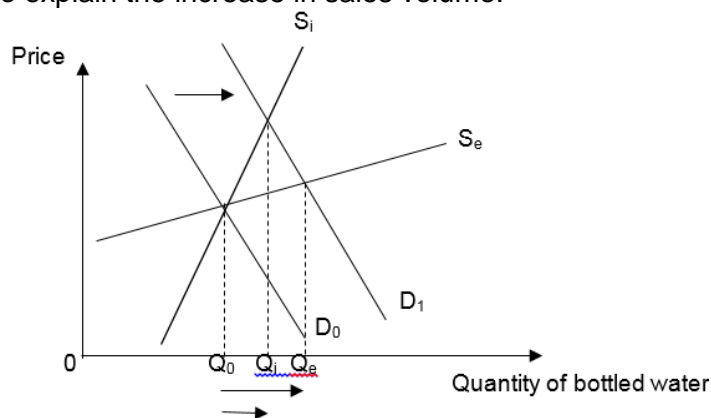


Figure 3

Explain extent of change in sales volume using PED and how supply is less important than PED

- The demand for bottled water is likely to be price elastic in the U.S. due to the availability of substitutes as a liquid refreshment beverage, such as energy drinks, sports drinks and other non-carbonated beverages (Extract 1). As the obesity rate in U.S. has been increasing (Extract 1), it can be implied that bottled water and the other sugary beverages are considered to be close substitutes for the majority of U.S. consumers. Hence quantity demanded for bottled water is likely to be sensitive to price changes.
- As shown in Figure 4, the increase in supply of bottled water from  $S_1$  to  $S_2$  leads to a more significant increase in equilibrium quantity from  $OQ_0$  to  $OQ_e$  with demand for bottled water being price elastic ( $D_e$ ), as compared to a less significant increase from  $OQ_0$  to  $OQ_i$  if the demand is price inelastic ( $D_i$ ). This explains the large increase in sales volume of bottled water in the U.S.
- Hence the price elastic demand is relatively more important than the increase in supply to explain the large increase in sales volume.

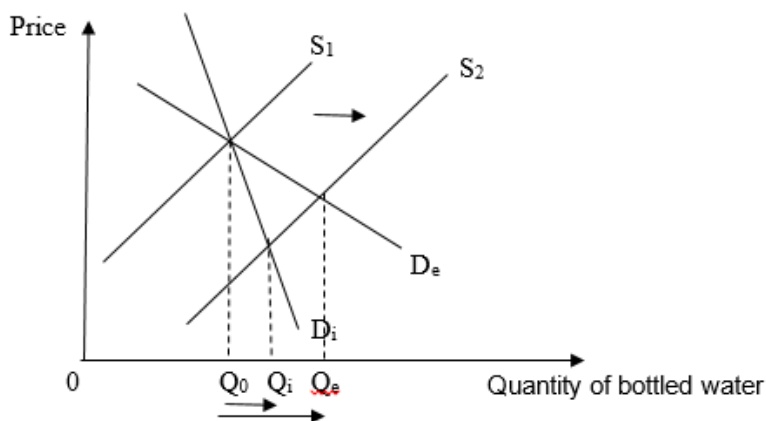


Figure 4

**Conclusion**

- Hence overall, the supply factors are more important than demand factors the U.S. bottled water industry. In addition, the price elastic supply of bottled water is more important than the increase in demand to explain the large increase in sales volume. Comparatively, the price elastic demand for bottled water is more important than the increase in supply to explain the large increase in sales volume.

**Marking Scheme**

L2	<p>Well-developed explanation of the relative importance of both demand and supply factors in accounting for the large increase in sales volume, with strong use of case study evidence.</p> <p><u>7 and 8 marks</u> for discussion that includes application of elasticity concepts, and how important these factors are in explaining the extent of change in sales volume.</p> <p><u>Max 6 marks</u> for discussion of demand and supply factors with synthesis of which effect dominates, without application of elasticity concepts.</p> <p><u>Max 4 marks</u> for well-developed explanation of either demand or supply factors.</p>	4-8
L1	<p>Under-developed explanation of the relative importance of both demand and supply factors in accounting for the increase in sales volume, with little use of case study evidence.</p> <p>OR</p> <p>Well-developed explanation of the relative importance of either demand or supply factors in accounting for the increase in sales volume, with little use of case study evidence.</p>	1-3

**(d) (i)** Explain why governments intervene in the market for clean water. [4]

Under-consumption of clean water due to the presence of positive externalities

- Governments intervene in the market for clean water as consumption of clean water generates positive externalities.
- The private costs of consuming clean water refer to the price paid for the clean water and the time spent to access the sources of clean water by an individual. The private benefits refer to the healthier well-being due to reduced episodes of diarrhea for an individual (Extract 3).
- The consumption of clean water generates positive externalities and external benefits are spilled over to the third-parties. For example, its consumption leads to healthier populations as the spread of water-borne diseases is lowered, hence increasing productivity of the workforce and contributing to economic growth positively (Extract 3).

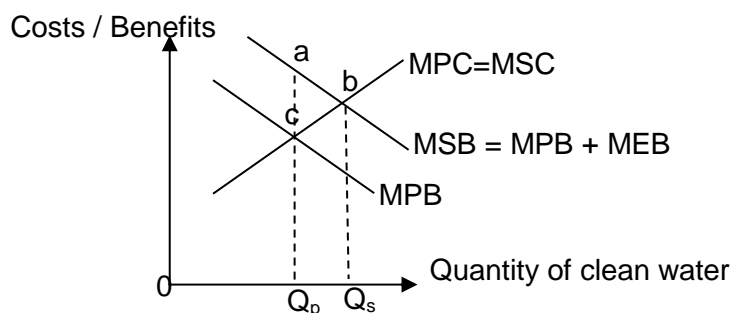


Figure 5

- As shown in Figure 5, the presence of external benefits leads to the divergence between social benefits and private benefits, so marginal social benefit (MSB) is higher than marginal private benefit (MPB) for each unit of output.
- Assume no negative externalities, the marginal private cost (MPC) is equal to marginal social cost (MSC).
- Utility-maximising consumers only consider their private costs and private benefits, ignoring the external benefits spilled over to the third-parties. Left to the free market, individuals will consume at  $OQ_p$  level where  $MPB=MPC$ .
- However, the socially optimum level of consumption should be at  $OQ_s$  where  $MSB=MSC$ .

- Since  $Q_p$  is more than  $Q_s$ , there is under-consumption of clean water, resulting in welfare loss as shown by the area  $abc$ , as the social benefit of an additional unit of clean water consumed is higher than its social cost.
- Hence governments intervene in the market for clean water to achieve an efficient allocation of resources.

#### Under-consumption of clean water due to imperfect information

- Clean water is a merit good that generates positive externalities, and whose consumption is deemed intrinsically desirable by the government. Consumers, especially those living in developing countries that lack access to clean water, have imperfect information on the actual private benefit of clean water. They do not have perfect knowledge of the health and non-health benefits from the consumption of clean water (Extract 3). This results in under-consumption and inefficient allocation of resources, thus governments intervene to correct the market failure in the clean water market.

#### Under-consumption of clean water due to income Inequity

- The poor consisting of the high number of poor households living in urban slums and in rural areas do not have the ability to pay for clean water, hence exacerbating inequalities of access and consumption of clean water (Extract 3). Such poverty issues result in the poor to consume at a level that is below the socially optimum level of consumption.

1m- explaining private benefits and costs, as well as positive externalities in the consumption of clean water, resulting in divergence  
 2m- explaining diagram (unregulated vs socially optimum level of consumption, and DWL)  
 1m- diagram  
 Students can also explain imperfect information and inequity as sources of market failure.  
 Mark as a whole for analysis.

(ii) With reference to the data, assess whether subsidies would be the most appropriate policy option for the government to achieve its microeconomic objectives. [10]

- The microeconomic objectives of the government are achieving efficient allocation of resources and equity.
- As mentioned in Extract 4, subsidising production of clean water that requires the use of sophisticated technology is part of World Water Council's efforts to increase water consumption.

#### **Thesis: Subsidies is the most appropriate policy to achieve microeconomic objectives**

- The production of clean water is not cheap given the use of sophisticated technology (Extract 4). Hence the government can subsidise private firms to lower their cost of production hence pass on the cost-savings to consumers in terms of lower prices.
- The government can give subsidies per unit, equivalent to the MEB at  $Q_s$ . This will lower the cost of consuming clean water, hence shifting MPC to the right to  $MPC'$  as shown in Figure 6 below. Consumption of clean water increases from  $Q_p$  to  $Q_s$ , which is the socially optimal level of output, and the deadweight loss is eliminated. Hence efficient allocation of resources is achieved.
- In addition, the lowering cost of consuming clean water will make such a basic necessity more affordable for the poor (Extract 4), hence narrowing the income gap and achieving equity.

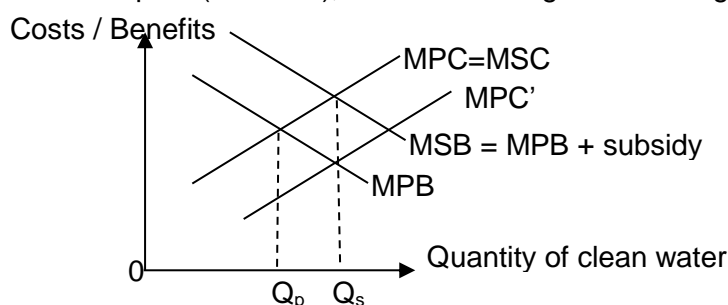


Figure 6

#### **Anti-thesis: Subsidies is not the most appropriate policy**

##### Limitation of subsidies

- It is difficult to measure the monetary value of external benefits accurately and hence the amount of subsidy given may not be able to attain an efficient allocation of resources. This is because external benefits are difficult to define in monetary terms due to the existence of both tangible and intangible benefits – for example, the benefits of increased in workforce productivity from the consumption of clean water on the economy are difficult to quantify. If MEB is underestimated, the government is only moving the equilibrium nearer to the socially optimum level, but not fully eliminating the market failure. If MEB is overestimated, there would be over-correction in the market and resource allocation would still not be efficient. In reality, it is not easy to measure the value of external benefits that are spilled over to the third parties.
- Moreover, subsidies are not appropriate for countries that have weak fiscal positions (Extract 4). For example, such a policy will worsen the budget deficit a country already has, and incur huge opportunity costs in terms of forgone spending on other welfare programmes such as redistribution of income policies, hence unable to narrow the income gap and achieve equity.

### **Explain that other policies are more appropriate**

#### Deregulation of the control of water supplies to private companies

- Deregulation of the control of water supplies to private companies (Extract 4) means that the government opens up the market to greater competition that spurs private firms to increase cost efficiency and productivity. This creates a more efficient system and allows more people access to clean water (Extract 4).
- Such deregulation aims to increase market supply, hence the access to clean water especially for high number of poor households living in urban slums and in rural areas (Extract 3) and drive down prices of clean water. As the cost of consuming clean water is lowered, MPC shifts to the right to MPC' as shown in Figure 6. Consumption of clean water increases from  $Q_p$  to  $Q_s$ , which is the socially optimal level of output, and the deadweight loss is eliminated. Hence efficient allocation of resources is achieved.
- Hence the increased competition through deregulation also ensures that poverty and local power inequalities will not exacerbate inequalities of access to water (Extract 3), whereby poor households are exploited with high prices of clean water. The lowering cost of consuming clean water through the deregulation will make such a basic necessity more affordable for the poor (Extract 4), hence narrowing the income gap and achieving equity.
- Limitation: However, this policy may not be appropriate as such a deregulation consolidates market players once cost-inefficient firms are driven out of the industry (Extract 4). As a result of the reduced number of market players, profit-maximising firms with higher market share will exploit consumers by charging higher prices for clean water, earning supernormal profits that are concentrated in the hands of the few dominant firms and aggravating inequity.

#### Public education

- Public education through campaigns aims to raise awareness on the responsible use and benefits of consuming clean water (Extract 4) such as being a more productive individual. Also, educating the people about the positive spillover effects to third parties will help the individuals internalise the external benefits. This increases the private benefits of consumers, shifting MPB to the right to MSB as shown in Figure 6, and consumers increase the consumption of clean water from  $Q_p$  to  $Q_s$ , which is the socially optimal level of output, eliminating the deadweight loss. Hence achieving efficient allocation of resources.
- Limitation: However, this policy may not be appropriate as it incurs high cost in implementation. It is also difficult to monitor whether consumers have changed their consumption pattern (Extract 4). Even if the campaign is successful in persuading consumers to consume more, the increase may not be very significant. Also, public education does not have a direct impact on achieving equity.

#### Signing water treaties



- Trade policy such as signing water treaties with neighbouring trading partners to import clean water supplies is another policy option. This allows countries to manage and monitor shared resources effectively, and is especially appropriate for countries that lack access to clean water (Extract 4). The import of clean water supplies into the country drives the price of consuming clean water. MPC shifts to the right to MPC' and consumption of clean water increases to Qs, the socially optimal level of output, hence achieving a more efficient allocation of resources.
- Limitation: However, this policy may not be appropriate as it takes time for treaties to be negotiated. Moreover, third-world developing countries need money to purchase clean water and may not have sufficient capital and/or resources available for exchange (Extract 4). In addition, signing water treaties does not directly achieve equity unless the agreement involves a fall in clean water prices for the importing country.

### **Conclusion and Evaluation**

- Subsidies is the most appropriate policy option in achieving the microeconomic objectives of the government to a small extent as it allocates resources closer to the socially optimal level of output and make clean water more affordable for the lower-income households, but it has its limitations. The use of subsidies needs to be complemented by other policy options to increase access to clean water at a lower price, and a combination of policies is hence more appropriate to achieve the microeconomic objectives.
- In addition, the appropriateness of policy depends on the budget position of the government. For example, subsidies is a less appropriate policy option for countries facing budget deficits as their weak fiscal positions will be aggravated (Extract 4).
- The appropriateness of policy also depends on the root cause of the problem. In third-world developing countries in which the root cause of under-consumption of clean water is due to lack of access to it by the high number of people living in urban slums and rural areas (Extract 3), a more appropriate policy option is perhaps deregulation or the signing of water treaties such that there is distribution of clean water to regions that are less accessible to clean water. However, in countries in which the root cause of problem is imperfect information regarding the private and external benefits of consuming clean water, a more appropriate policy option is definitely public education to change the mindset and consumption pattern of the people (Extract 4).

<b>Marking Scheme</b>		
L2	Well-developed explanation of how subsidies bring about efficient resource allocation and equity, with strong use of case study evidence, and explanation of two alternative policies.  <u>Max 4 marks</u> for answers without reference to case study evidence.  <u>Max 4 marks</u> for well-developed explanation of subsidies and one other policy, targeting same microeconomic objective.	4 – 6
L1	Under-developed explanation of how subsidies and alternative policy/policies bring about efficient resource allocation and equity, with some use of case study evidence. OR Well-developed explanation of subsidies only, with use of case study evidence.	1 – 3
E1	Underdeveloped analysis of the effectiveness of subsidies and the limitations of the other measures.	1 – 2
E2	Overall judgement that is well supported by case study evidence and application of relevant economic concepts based upon a combination of measures, root causes of problems and measures required etc.	3 – 4

### **Question 2**

- (a) With reference to Figure 2, compare the change in consumer prices of the Euro area with that of Britain between mid-2011 and January 2015. [2]

Consumer prices of the Euro area increased at a decreasing rate and fell in January 2015 whereas the consumer prices of Britain increased at a decreasing rate throughout the stated period [2].

- (b) From Extract 5, explain how you would decide whether governments are justified in imposing anti-dumping duties on the cheap Chinese goods. [4]

If the cheap Chinese goods are sold below its marginal cost of production in other countries, dumping occurs and governments are justified to impose anti-dumping duties [2]. On the other hand, if the cheap Chinese goods are due to overproduction as the Chinese economy slows down, and the low prices are not below the marginal cost of production, it is not dumping and governments are not justified in imposing anti-dumping duties [2].

- (c) State **two** possible reasons why wages do not fall when prices are falling in an economy. [2]

- ❖ Demand for workers are still increasing in the labour market as firms continue to employ workers.
- ❖ Supply of workers falls due to tighter immigration control.
- ❖ Wages are on contractual agreement over a period of time.
- ❖ Minimum wage legislation is in place.

Any 2 of the above or other valid reasons.

- (d) With the help of a diagram, explain the causes of deflation in various economies. [4]

- ❖ As indicated in Extract 6, the reduction in the price of crude oil reduces the cost of production as crude oil is a main source of energy. This will increase the profit margin of firms and increase the aggregate supply in the short run. Given aggregate demand curve  $AD_1$ , the AS curve shifts downwards from  $AS_1$  to  $AS_2$  as shown in figure 1 below, leading to a fall in the general price level from  $OP_1$  to  $OP_2$ .

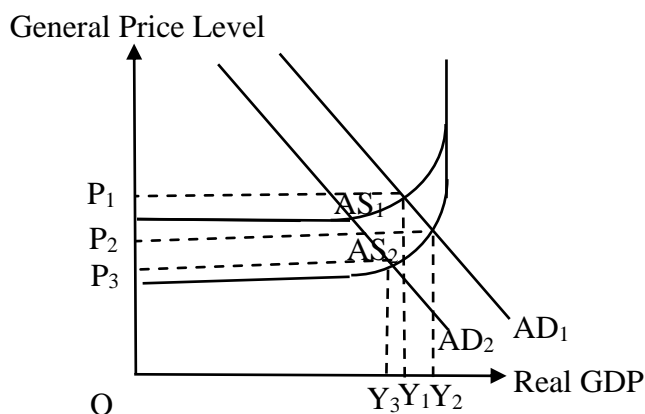


Figure 1

- ❖ On the other hand, the debt problem in the euro zone and austerity measures implemented (Extract 6) reduce government spending. In addition, the increase in tax rates and the lack of confidence reduce consumption and investment. Aggregate demand decreases, shifting AD curve to the left from  $AD_1$  to  $AD_2$ , leading to a further fall in the general price level from  $OP_2$  to  $OP_3$ .

3 M for explanation and 1 M for appropriate diagram.

- (e) Assess whether negative inflation is undesirable to an economy. [8]

Negative inflation may be caused by a reduction in the cost of production or a decrease in aggregate demand. Falling aggregate demand that leads to negative inflation and deflation is undesirable to an economy.

### **Negative inflation is undesirable to an economy**

#### **Reduced employment and output**

Extract 6 indicates that during deflation, i.e., a sustained fall in the general price level, consumers tend to postpone any purchases as they expect further price decreases. Aggregate demand decreases, pushing the general price level even lower. As prices and output fall, profit margins of firms are squeezed, forcing them to reduce costs such as wages and retrench workers. If the situation worsens, it can lead to firms' closure which worsens unemployment and further dampens aggregate demand, causing a downward spiral of the general price level. This will be undesirable to an economy.

#### **High real interest rate**

With general price level falling, real interest rate rises even if nominal interest rate remains the same. In addition, households and firms will find the real burden of financing mortgage payments increasing as they face falling prices of assets such as houses and commercial property. They also find that their bank loans now become higher than the prevailing value of their property, making it impossible to clear their debts even if they sell off their property.

#### **Defaulting of bank loans**

Negative inflation that leads further to a deflation would also cause property prices to fall. Since the real value of outstanding debt increases, some households and firms cannot service their loans, resulting in non-performing loans (Extract 6). If many households and firms default on their banking loans, this can lead to a banking crisis and will affect economic growth adversely.

### **Negative inflation may not be undesirable to an economy**

#### **Effect on BOP**

Negative inflation caused by a slowdown in the Chinese economy resulted in falling prices of commodities as shown by Extract 6. Price of exports would decrease and this will lead to a more than proportionate increase in the quantity demanded for exports since demand for exports is price elastic, resulting in an increase in export earnings. On the other hand, import expenditure will decrease as domestic goods are relatively cheaper. Hence, the current account balance would improve. BOP will also improve, ceteris paribus. However, this may invite protectionism from the trading partners.

#### **Effect on Singapore**

Although Singapore registered negative inflation as indicated in Extract 7, it was mainly due to the fall in housing rents and car prices, and the lower costs of petrol and electricity tariffs because of the falling global oil prices. Core inflation remains positive and the economy continues to enjoy economic growth. Thus, the negative inflation may not necessarily be undesirable so long as consumption and investment still increase.

### **Conclusion and Evaluation**

The desirability of negative inflation on an economy depends on the cause, extent and duration. If the negative inflation is due to a fall in aggregate demand and a deflation results like what happened in the euro zone, the economies are likely to be in recession and is undesirable. If inflation falls due to lower cost, the extent of negative inflation is minimal and does not lead to a deflation, it may not necessarily be undesirable if the economy is able to attain low unemployment rate and economic growth. A prolonged negative inflation tends to be undesirable to an economy as the extent of economic growth is affected.

L2	<p>7 – 8 M for a developed explanation of whether negative inflation is undesirable with relevant analysis and due reference to the data, including evaluation.</p> <p>Max 6 M for a developed two-sided explanation with some reference to the data.</p> <p>Max 4 M for a developed one-sided explanation.</p> <p>Max 4 M for an answer without relevant reference to the data.</p>	4 – 8
L1	Will show understanding of the desirability with limited economic concepts or no relevant reference to the data.	1 – 3

- (f) With reference to the data where appropriate, discuss whether governments should use negative interest rates or another policy measure during a recession with deflation. [10]

During a recession, an economy registers negative growth for at least two consecutive quarters and unemployment rate rises. Deflation will lead to further fall in aggregate demand if consumers and firms postpone their consumption and investment.

#### **Negative interest rates should be used**

- ❖ During a recession with deflation, it is difficult for a central bank to use expansionary monetary policy. Even if nominal interest rates are kept close to zero per cent, deflation implies that the real interest rates are positive. As the cost of borrowing is higher in real terms after taking into account of the price effects, consumer and firms will be deterred from spending. The increase in consumption and investment after a cut in interest rates will not be significant. Therefore, negative nominal interest rates are used by central banks to keep a low real interest rates. As indicated in Extract 8. European Central Bank (ECB), central banks in Denmark, Sweden and Switzerland have negative interest rates on any reserves above the minimum regulatory requirement deposited by the commercial banks with them, thus encouraging lending. An increase in lending implies a rise in C and I, and AD increases. National income will then increase by a multiple via the multiplier process, attaining actual economic growth. Production will rise and demand for labour will increase, thus reducing unemployment. The increase in AD will also help to raise general price level and address the deflation problem.
- ❖ Negative interest rates will reduce the net inflow of short-term capital. A decrease in the inflow of short-term capital reduces the demand for local currency while an increase in the outflow of short-term capital increases the supply of local currency in the foreign exchange market. Thus, the local currency depreciates against the foreign currency. As shown by Extract 8, the euro depreciated against the dollar by nearly 20% after the ECB introduced negative interest rates. Assuming the sum of the price elasticity of demand for exports ( $PED_x$ ) and the price elasticity of demand for imports ( $PED_m$ ) is greater than one, i.e.,  $|PED_x + PED_m| > 1$ , Marshall-Lerner condition is satisfied. Therefore, a depreciation of the exchange rate suggests that the net exports tend to increase, improving the current account balance.
- ❖ **Limitation:** However, loans may be limited during a recession as not many individuals or firms are willing to borrow as suggested by Extract 8. Moreover, the profit margins of commercial banks will reduce as lending rates fall but deposit rates are not able to be reduced much so as to get funds from savers. In addition, although negative interest rates will weaken the exchange rate and improve the price competitiveness of exports, the large economies are not enjoying rapid growth and their purchasing power remains weak. The prices of products by other countries tend to be low too as they may also experience deflation or very low inflation.

#### **Another Policy Measure should be used**

### Expansionary Fiscal Policy

- ❖ As suggested by Extract 6, in order to address a recession with deflation, governments should also use fiscal stimulus to spend on infrastructure such as transportation network, sewerage facilities, power stations, schools and hospitals. A reduction in personal income tax will increase disposable income of consumers and raise their purchasing power. This increases their ability to spend on more expensive items and consumption increases. A reduction in corporate income tax rate will increase the after-tax profits of firms, and increase their incentive to spend on capital goods as their expected return on investment is higher. Investment will then increase. The increase in G, C and I will lead to an increase in AD, and national income will then increase by a multiple via the multiplier process, attaining actual economic growth and creating jobs.
  - ❖ **Limitation:** However, the Greek government may find it difficult to adopt fiscal stimulus due to the government debt. The level of consumer and business confidence will also affect the extent of increase in C and I respectively after the tax cut.
- Or

### Quantitative Easing

- ❖ As suggested by Extract 6, ECB will start quantitative easing by buying government bonds from banks and injecting funds into the economy. This will encourage lending and stimulate the economy through the increase in C and I.
- ❖ **Limitation:** However, a lack of confidence in the economy will limit the amount of borrowing and spending.

### Conclusion and Evaluation

- ❖ The use of negative interest rates is a new approach and has its limitations. The interest rates charged by central banks on reserves are still minimal thus far so the effectiveness tends to be limited. Another conventional policy measure such as fiscal stimulus is to be used too. A combination of policy measures is required to address the root causes of the recession and deflation.
- ❖ Besides short-term measures, the governments should adopt long-term measures to ensure the economic fundamentals of their economies are sound instead of resorting to short-term measures. Supply-side policies should be adopted to restructure the economy, develop comparative advantage for the economy and embrace free trade to promote economic growth.

L2	Will provide a balanced argument and include the use of negative interest rates and another policy measure. There are relevant economic concepts and due reference to the data.  Max 4 M for an answer that explains the use of negative interest rates and comments on the limitations.	4 – 6
L1	Will be one-sided argument with limited economic concepts.	1 – 3

E2	Will apply relevant economic concepts to make a judgement based upon a combination of policy measures, root causes of the problem and long-term measures required etc.	3 - 4
E1	Will make a judgement but the application of economic concepts will be superficial.	1 – 2

**Suggested Answers for 2016 J2 H2 (9732) Economics Prelim Paper 2 Essay**

**1. Globalisation has resulted in rising incomes but the influx of cheaper imported steel forced some inefficient domestic steel producers to close down.**

**Assess the impact of the above effects of globalisation on the domestic steel market and the domestic car market. [25]**

<b>Mark Scheme</b>		
<b>L3</b>	Well-developed analysis of combined effects of globalization (different extents of shifts in demand and supply) on the domestic steel and car markets, using YED, PED & PES concepts. Analysis is supported with examples.	<b>15 - 21</b>
<b>L2</b>	Under-developed explanation of combined effects of globalization (different extents of shifts in demand and supply) on the domestic steel and car markets, using YED, PED & PES concepts. Analysis is supported with some examples.  For developed answers, with limited elasticity concepts. Max 14m: <ul style="list-style-type: none"><li>- D change with PES / S change with PED</li><li>- Without PED/PES.</li></ul> Max 12m: <ul style="list-style-type: none"><li>- Only address either domestic steel or car market with some elasticity concepts.</li></ul>	<b>9 - 14</b>
<b>L1</b>	For a descriptive knowledge of effects of globalisation on the domestic steel and car markets.	<b>1 - 8</b>
<b>Evaluation</b>		
<b>E2</b>	For an evaluative assessment based on economic analysis	<b>3 - 4</b>
<b>E1</b>	For an unexplained assessment or one that is not supported by economic analysis.	<b>1 - 2</b>

## **Introduction**

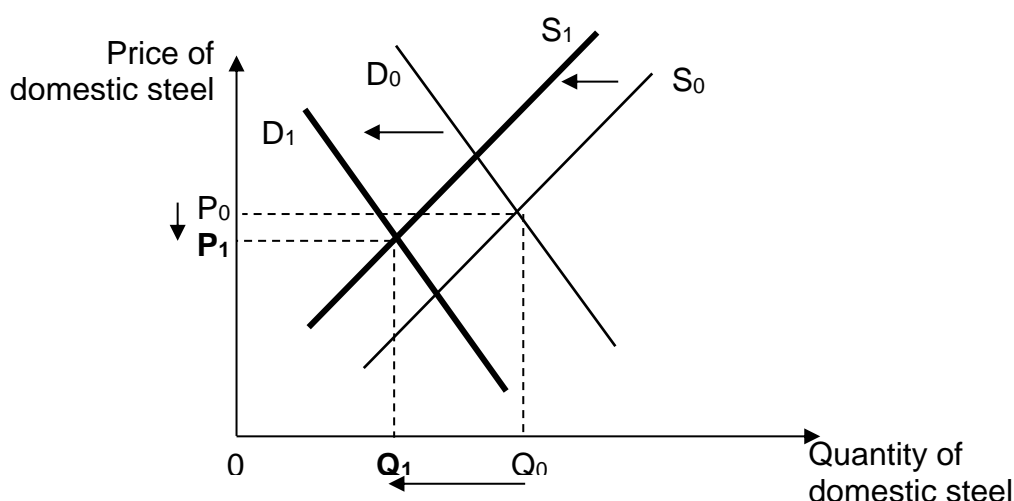
Globalisation is the increased integration of national economies into the global economy which results in both benefits and costs to the economy. The combination of the above effects of globalisation will affect the demand and supply of the domestic steel market and the domestic car market, and hence its equilibrium price and quantity.

### **Body 1a**

#### **Explain how effects of globalisation affect the domestic steel market**

The influx of cheaper imported steel which are substitutes to domestic steel will cause a fall in demand of domestic steel. However, with rising income, it will lead to an increase in derived demand for steel due to an increase in demand for car (normal good) which uses steel as a factor input. The net effect on demand for domestic steel is likely to be fall due to the influx (by large amounts) of imported steel. Taking USA as an example, its steel imports from China has surged sharply since 2011 and is projected to double by 2020.

The other effect of globalisation mentioned in the pre-amble is how foreign competition forced inefficient steel producers to close down which lead to a fall in supply of domestic steel.



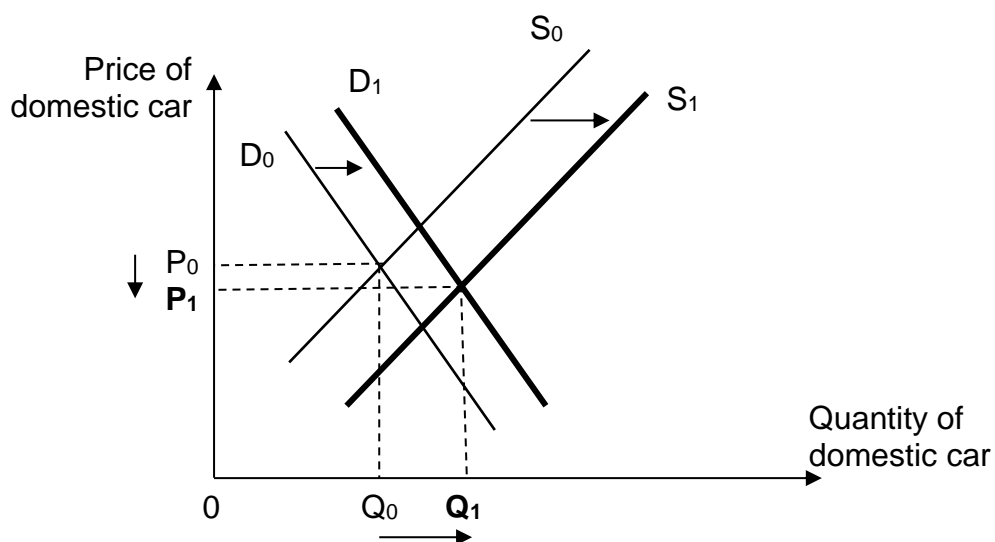
Hence, when demand falls and supply falls, the demand curve will shift leftwards from  $D_0$  to  $D_1$  and the supply curve will shift leftwards from  $S_0$  to  $S_1$ . It will result in a fall in quantity of domestic steel from  $Q_0$  to  $Q_1$ . However, the outcome on price is indeterminable. If the fall in demand is larger than the fall in supply, there will be a net fall in the price of domestic steel from  $P_0$  to  $P_1$ .

This is likely the case for US steel markets which is reported to face its worst import crisis in more than a decade putting up to half a million US jobs in the domestic steel industries at risk. This due to significant global excess steel capacity from steel producing countries like China, South Korea and India which results in exports of these surplus at below-market rates.

### **Body 1bi**

#### **Explain how effects of globalisation affect the domestic car market**

Rising income will increase consumers' purchasing power and their ability to spend, thus increasing the demand for cars which is a normal good. The imports of cheaper imported steel allows domestic car market to enjoy a lower cost of production should they switch from using domestic steel to cheaper foreign imported steel.



Hence, when demand and supply increase, the demand curve will shift rightwards from  $D_0$  to  $D_1$  and the supply curve will shift rightwards from  $S_0$  to  $S_1$ . It will result in an increase in quantity of domestic car from  $Q_0$  to  $Q_1$ . However, the outcome on price is indeterminable. If the increase in supply is greater than the increase in demand, there will be a net fall in the price of domestic car from  $P_0$  to  $P_1$ .

This is likely the case for the domestic car market as steel is a major factor input for the production of car, car producers can greatly benefit from the lower cost of production, resulting in higher profits and greater incentive to supply.

#### **Body 1bii** **Using YED Concepts**

As explained earlier, when income increases, the demand for normal goods will increase.

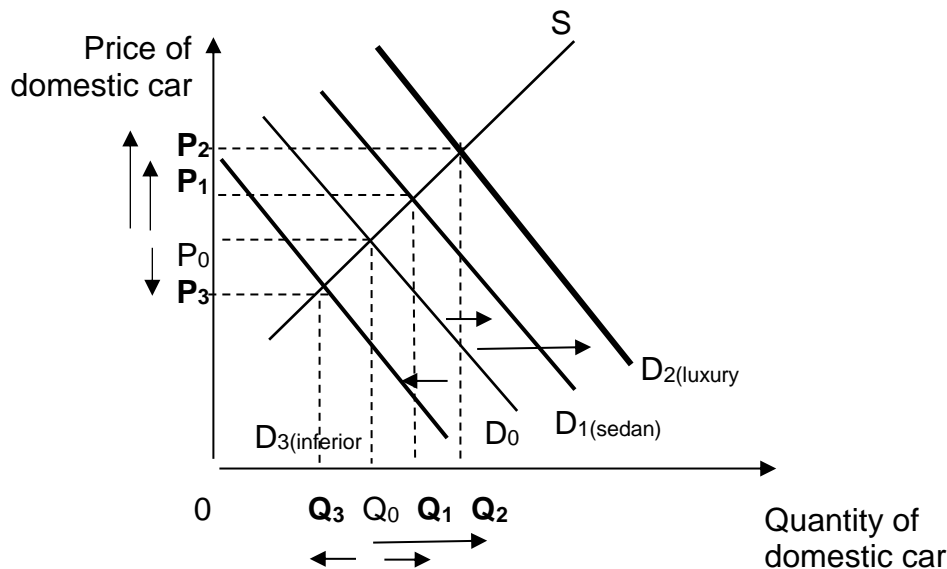
However, the extent of this increase in demand depends on the income elasticity of demand (YED) of the good. The YED for a good measures the responsiveness of the demand for a good to a given change in the level of income, *ceteris paribus*. Considering different car models as examples such as the luxury edition, regular sedan and inferior make. When level of income changes, YED is relevant in explaining the extent of its impact on its equilibrium price and quantity.

For luxury editions, the demand is income elastic ( $YED > 1$ ). The increase in demand due to the increase in level of income will likely be more than proportionate. The demand curve will shift rightwards by a large extent from  $D_0$  to  $D_2$ . This leads to a more significant increase in price from  $P_0$  to  $P_2$  and increase in quantity from  $Q_0$  to  $Q_2$ .

For a regular sedan, which is a necessity for motorists to use it as a basic mode of transportation, the demand is income inelastic ( $0 < YED < 1$ ) and the increase in demand due to the increase in level of income is less than proportionate. As such, the increase in demand would be to a lesser extent compared to a luxury good. The demand curve shifts rightwards from  $D_0$  to  $D_1$ . This leads to a less significant increase in price from  $P_0$  to  $P_1$  and increase in quantity from  $Q_0$  to  $Q_1$ .

For an inferior make with negative income elasticity ( $YED < 0$ ), the increase in level of income will cause demand to decrease. The demand curve shifts leftwards from  $D_0$  to  $D_3$ . This leads to a decrease in price from  $P_0$  to  $P_3$  and fall in quantity from  $Q_0$  to  $Q_3$ .



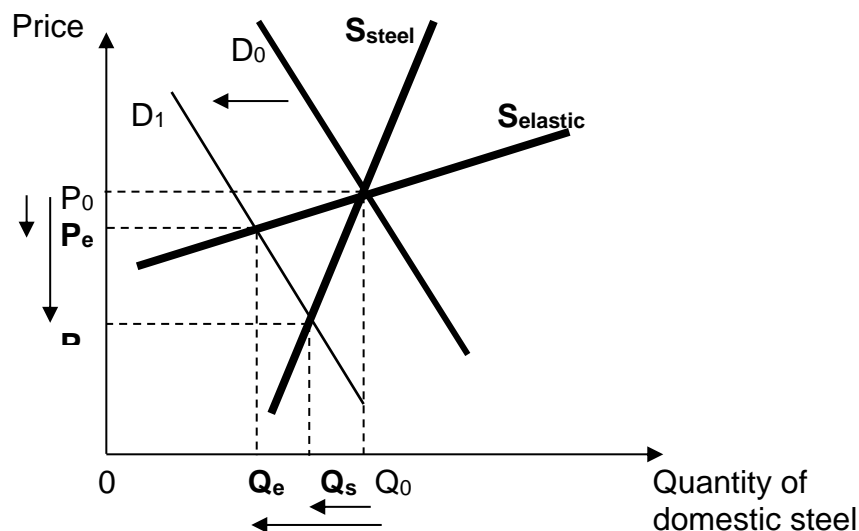


### **Body 2a**

#### **Explain how effects of globalisation affect the domestic steel market, using PES concept**

The price elasticity of supply (PES) measures the responsiveness of a change in the quantity supplied of a good to a given change in the price of the good itself, *ceteris paribus*. When demand shifts, PES is relevant in explaining the extent of its impact on its equilibrium price and quantity.

As explained earlier, there is a net fall in demand for domestic steel. The supply for domestic steel tends to be price inelastic because the steelmaking process takes a substantial amount of time and effort - from mining raw iron ore to the steelmaking process which converts liquid iron into steel.

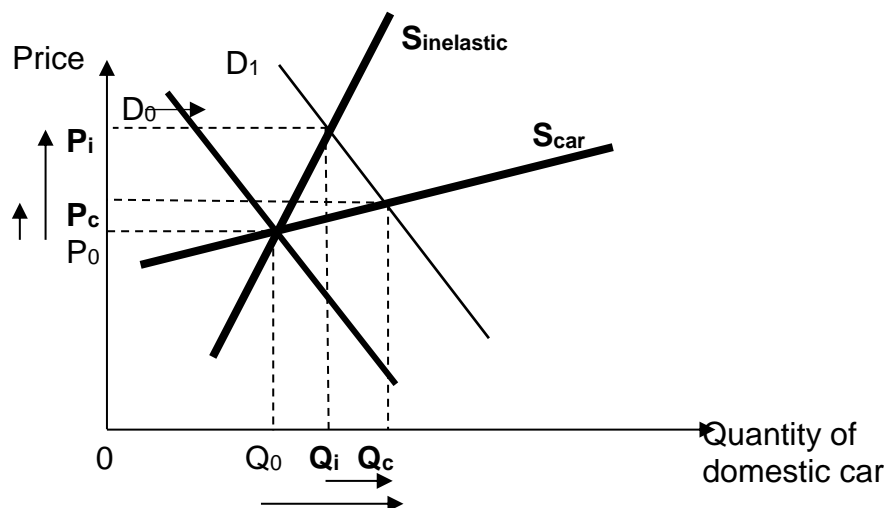


Hence, when demand falls, shifting the demand curve leftwards from  $D_0$  to  $D_1$ , for the domestic steel market which has an inelastic supply curve, it will result in a more significant fall in the price of steel from  $P_0$  to  $P_s$  and a less significant fall in the quantity of steel from  $Q_0$  to  $Q_s$ , as compared to a good that has an elastic supply.

## Body 2b

### Explain how effects of globalisation affect the domestic car markets, using PES concept

As explained earlier, there is an increase in demand for domestic car. The supply of domestic car tends to be price elastic because car being a manufactured good has a relatively greater ease in factor input mobility compared to the steel market.

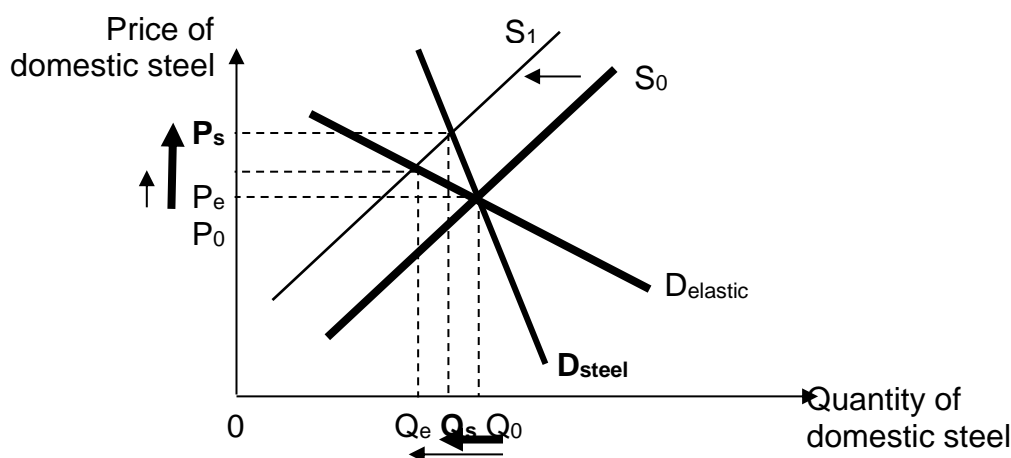


Hence, when demand increase, shifting the demand curve rightwards from  $D_0$  to  $D_1$ , for the domestic car market which has an elastic supply curve, it will result in a less significant increase in the price of car from  $P_0$  to  $P_c$  and a more significant increase in the quantity of car from  $Q_0$  to  $Q_c$ , as compared to a good that has an inelastic supply.

## Body 3a

### Explain how effects of globalisation affect the domestic steel market, using PED concept

The price elasticity of demand (PED) measures the responsiveness of a change in the quantity demanded of a good to a given change in the price of the good itself, ceteris paribus. When supply shifts, PED is relevant in explaining the extent of its impact on its equilibrium price and quantity. As explained earlier, there is a fall in supply of domestic steel. Due to the lack of available substitutes for steel as a raw material, the demand for domestic steel is likely to be price inelastic.

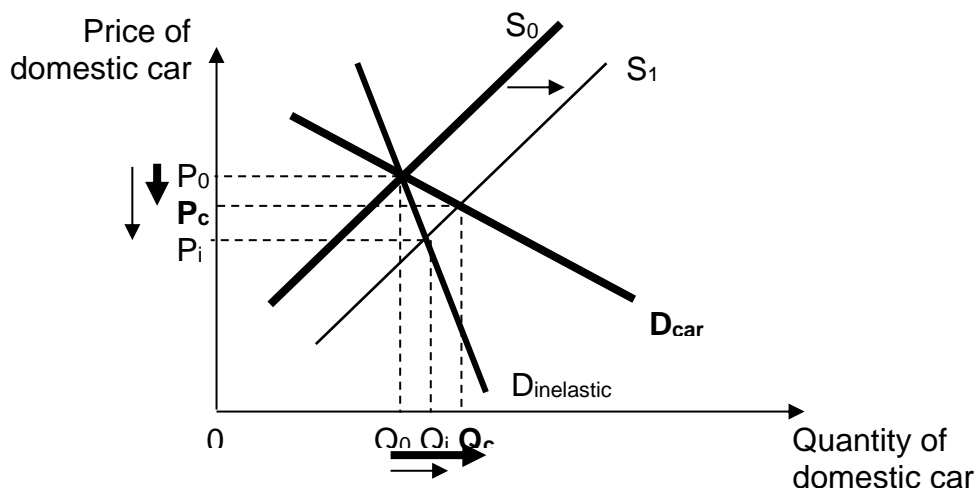


Hence, when supply falls, shifting the supply curve leftwards from  $S_0$  to  $S_1$ , for the domestic steel market which has an inelastic demand curve, it will result in a more significant rise in the price of steel from  $P_0$  to  $P_s$  and a less significant fall in the quantity of steel from  $Q_0$  to  $Q_s$ , as compared to a good that has an elastic demand.

### **Body 3b**

#### **Explain how net effects of globalisation affect the domestic car market, using PED concept**

As explained earlier, there is an increase in supply of cars. The demand of domestic car tends to be price elastic as the expenditure on car takes up a high proportion of an individual's income.



Hence, when supply increases, shifting the supply curve rightwards from  $S_0$  to  $S_1$ , for the domestic car market which has an elastic demand curve, it will result in a less significant fall in the price of car from  $P_0$  to  $P_c$  and a more significant rise in the quantity of car from  $Q_0$  to  $Q_c$ , as compared to a good that has an inelastic demand.

### **Evaluative Conclusion**

Nonetheless, the discussion of the effects of globalisation on the domestic steel and domestic car markets can only be done based on the assumption of *ceteris paribus*. However, the *ceteris paribus* assumption does not hold true in real life. In reality, there are various factors that take place simultaneously that may also have affected the price and quantity of these markets. For example, the market outcomes of the domestic steel and domestic car markets can be largely influenced by the objectives of government policies and strategies adopted by producers. In response to the call for protectionism, governments may impose protectionism measures against imported steel such as tariffs which will increase the domestic price of imported steel so as to protect domestic industries and local jobs. Car producers may also adopt various pricing, non-pricing and cost management strategies to maximise their sale revenue or profits.

Further, YED, PED and PES values are difficult to collect and as such these data may not be accurate. These data may be outdated and unreliable overtime due to changes in the degree of substitutability between foreign and domestic markets or the discovery of alternative raw materials to replace steel. In addition, different car models may also have different PED values which will lead to a different outcome as discussed earlier.

- 2 (a) Explain how barriers to entry affect price and output determination of firms. [10]
- (b) Assess the extent to which market dominance reduces the negative impact of a recession on firms. [15]

### Marking Scheme (a)

Knowledge, Application, Understanding and Analysis		
<b>L3</b>	Well-developed explanation of how barriers to entry affect price and output determination of firms.	<b>7 – 10</b>
<b>L2</b>	Under-developed explanation of how barriers to entry affect price and output determination of firms.	<b>4 – 6</b>
<b>L1</b>	For an answer that shows a descriptive knowledge of barriers to entry and of price and output behaviour of firms.	<b>1 – 3</b>

### Marking Scheme (b)

Knowledge, Application, Understanding and Analysis		
<b>L3</b>	For a developed answer showing how market dominance and other factors might both be relevant in reducing the negative impact of a recession on firms from different market structures.	<b>9 – 11</b>
<b>L2</b>	For an undeveloped answer showing how market dominance and other factors might both be relevant in reducing the negative impact of a recession on firms from different market structures. OR For a developed answer that showing how market dominance OR other factors might both be relevant in reducing the negative impact of a recession on firms from different market structures.	<b>6 – 8</b>
<b>L1</b>	For an answer that shows a descriptive knowledge of how characteristics of market structures influence the effects of recession on firms.	<b>1 – 5</b>
Evaluation		
<b>E2</b>	For an evaluative assessment based on economic analysis.	<b>3 – 4</b>
<b>E1</b>	For an unexplained assessment or one that is not supported by economic analysis.	<b>1 – 2</b>

## 2(a) Explain how barriers to entry affect price and output determination of firms.

### Introduction

- Barriers to entry (BTE) are obstacles that hinder the entry of new firms into an industry and limit the amount of competition faced by existing firms.
- BTE can be artificially created (e.g. government licenses) or natural (e.g. high capital outlay required). There are high barriers to entry in the market structures of monopoly and oligopoly.
- On the other hand, low barriers to entry exist in monopolistic competition and there are no barriers to entry or freedom of entry and exit in perfect competition. The degree of BTE is an important determinant in firms' pricing decision because it affects the number of firms in the industry. In turn, this plays a part in determining how much market power a firm has in terms of setting its prices or output.

### Market structure with high BTE: Monopoly/Oligopoly

- The existence of high BTE gives rise to monopoly power.
- Monopoly is a market structure in which a single firm dominates the market and produces a product which has no close substitutes. For a firm to maintain this monopoly position, there must be high barriers to entry e.g. legislation by government, patent rights and copyrights, secrecy, economies of scale, high transport costs or tariffs, control of essential resources, network effects etc.
- The degree of monopoly power depends on the ability of these BTE in preventing new firms from entering the industry. Monopoly power implies that the demand curve of the firm is downward sloping and relatively price inelastic due to a lack of close substitutes, and the **firm has the ability to set a relatively higher price** to increase revenue and thus profits.
- Referring to figure 1, equilibrium output of a monopolist is attained at profit-maximising output  $OQ_1$  where  $MR = MC$ . The monopolist is able to restrict output at  $OQ_1$  and charge price  $OP_1$  above marginal costs.
- With prices charged being above average costs, the monopolist earns supernormal profit of area  $CP_1AB$  (total revenue of  $OP_1AQ_1$  and total cost of  $OCBQ_1$ ). The monopolist can restrict output at  $OQ_1$  to maintain the relatively high price of its goods at  $OP_1$  above average costs to earn supernormal profits in both the short and long run – this is because it does not fear the entry of new firms to compete away these supernormal profits in the long run given the high BTE.

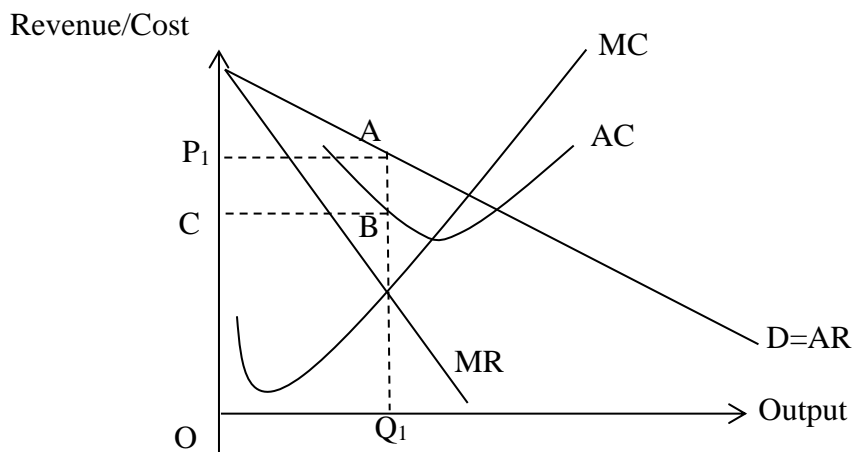


Figure 1

### Market structure with low BTE: Monopolistic Competition

- Monopolistic competitive (MPC) firms represent firms facing low BTE.
- Monopolistic competition is a market structure in which many small firms sell slightly differentiated products that are close substitutes of each other. As a result, a firm that raises its price will not lose all its sales and firms have some market power. Thus, each firm has some control over price and faces a downward sloping demand curve. However the firm's demand curve is relatively price elastic as each firm faces competition from a large number of close substitutes. A relatively small increase in the price of that product will lead many consumers to switch to one of the many close substitutes.
- Referring to figure 2, the MPC firm faces a demand curve  $D_1$ , and is maximising profit by producing at output  $OQ_1$  where  $MR_1 = MC$ , and uses its market power to set price at  $OP_1$  above marginal costs. The price  $OP_1$  is higher than average costs  $OA$  and thus, the firm earns supernormal profits represented by the area  $E_1P_1AB$ .
- In the long run, new firms will be attracted to enter the industry with low barriers to entry. As more firms enter, the existing firm will have more competitors, so demand for its products decreases and becomes more price elastic due to the greater availability of substitute products. This process continues until the demand falls to  $D_2$  and the firm maximises profit by producing at  $Q_e$  where  $MC = MR_2$  and the lower price  $OP_e$  is just sufficient to cover average cost. Consequently, the MPC firm earns only normal profits in the long run.
- Hence, although MPC firms can set prices, lower market power compared to a monopolist due to the presence of substitutes ensures that the extent to which prices are above marginal costs is smaller. Also, low BTE ensures that **price charged is equal to the firm's average costs in the long run** – short run demand that is consistent with higher prices will lead to other firms entering the industry and the firm's demand to fall, leading to a fall in price (from  $P_1$  to  $P_e$  here) and a fall in output (from  $Q_1$  to  $Q_e$  here).

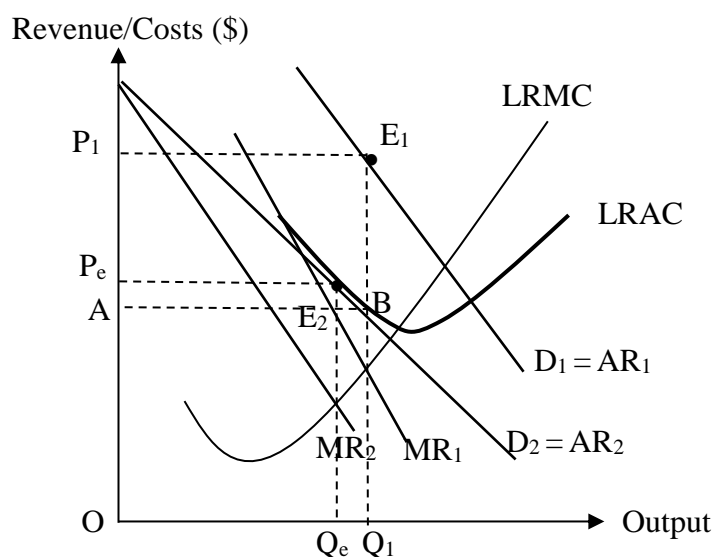


Figure 2

### Market structure with no BTE: Perfect Competition

- Perfectly competitive (PC) firms represent firms in industries with no BTE.
- With the absence of BTE is likely to lead to a situation where there are many firms in the industry. In addition, PC markets have homogeneous products, existence of perfect knowledge and perfect factor mobility. As a result, each seller produces a very insignificant amount of the entire market supply and thus **act as price takers** in the market.
- Referring to figure 3b, the market demand and market supply curve in a PC market determine the market price  $OP_1$  initially. Each profit-maximising PC firm will take this market price as given, producing output at  $MR=MC$  e.g. at  $Oq_1$  and earn supernormal profit as shown by area  $CP_1AB$  in the short run, illustrated by figure 3a.
- In the long run, due to the absence of BTE, new firms will be attracted to join the industry as the supernormal profit indicates that the returns from this industry are higher than other industries. Existing firms will also expand output but they can use bigger plants in the long run.

- As long as PC firms make supernormal profits, more firms will enter the industry and the market supply curve will keep increasing, shifting to the right. This causes market price to keep falling, reducing the supernormal profits earned by firms. Eventually, when the market supply curve shifts from  $S_1$  to  $S_2$ , reducing the market price to  $OP_2$ , all existing firms earn only normal profits and produce at minimum efficient scale of production (figures 3a & 3b). Thus, each profit maximizing PC firm will price its goods such that price equals marginal costs and average costs, earning only normal profits in the long run due to the absence of BTE. At this price, they can choose to sell the quantity they desire, e.g.  $Oq_2$  as determined by  $MC=MR$  in figure 3a.

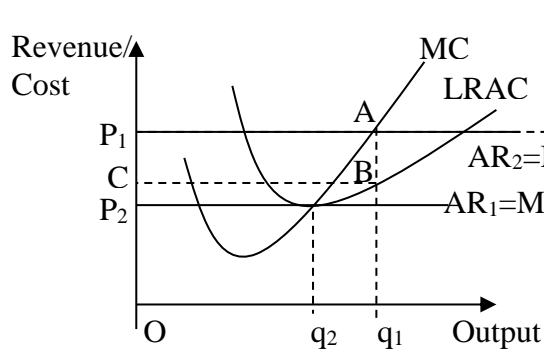


Figure 3a

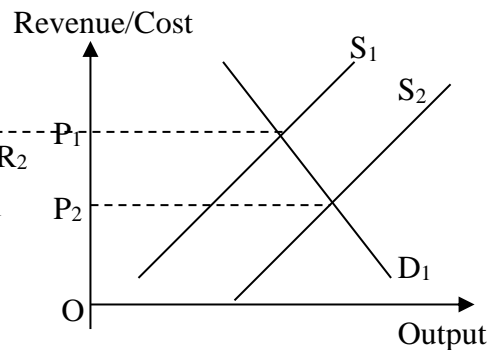


Figure 3b

(contrast between two market structures expected e.g. monopoly/oligopoly vs MPC or monopoly/oligopoly vs PC)

### Conclusion

- Thus BTE is an important factor affecting a firm's pricing and output decision in different market structures.
- For industries with high and low BTE, firms have the ability to set prices above marginal costs (though the extent of this varies with the level of BTE, e.g. MPC only being able to set prices equal AC in the long run). For industries with no BTE, firms are price takers and are unable to set prices above marginal and average costs in the long run.

**2(b) Assess the extent to which market dominance reduces the negative impact of a recession on firms.**

## **Introduction**

- A recession, i.e. two consecutive quarters of gross domestic product (GDP) contractions, imply a fall in national income, output and employment.
- Average consumers face a fall in incomes, and this has a significant bearing on firms' profitability, depending not only on the degree of market dominance but also on the types of good they produce and possible responses by firms in response to the recession.

## **Body**

### **Thesis: Degree of market dominance reduces negative impact of recession**

#### **Market dominance affects firm's ability to withstand decreases in demand and price and avoid closure**

- Less dominant firms in competitive industries are more susceptible to closure. The greater the degree of market power and market dominance with higher BTE, the greater the ability of the firm to maintain prices above average total costs (ATC) and preserve short run supernormal profits into the long run, which could mean that firms are more resilient to closure with a fall in demand and prices given a recession.
- For example, given the low BTE, monopolistically competitive (MPC) firms at long run equilibrium only earn normal profits. Any supernormal profit attracts rival firms to enter the industry, which reduces the demand for the products of incumbent firms and makes the demand more price elastic due to the greater availability of substitutes.
- With reference to Figure 2 in part (a), the profit-maximising price at  $OP_e$  will be where  $P=ATC$  in the long run.
- Given a recession, and assuming that the MPC firms produce normal goods, demand for goods sold by the firm falls and equilibrium prices fall as well. Since prices fall below ATC, firms then incur subnormal profit. In addition, if the price falls below average variable costs (AVC), then the MPC firm shuts down in the short run.
- Continued subnormal profit in the long run will lead to the MPC firms exiting the industry until the subsequent increase in demand for each of the other firms left in the industry causes the price of the good to rise back to equal ATC and restoring normal profits to firms again.
- On the other hand, monopolies and firms operating in oligopolistic industries may not face the prospect of subnormal profits and firm exit given a recession. For example, given the high BTE, monopolies can set prices above ATC and earn supernormal profits in the long run. When demand for the (normal) good falls in a recession, the price of the good will fall. However, this fall in demand and prices must be large enough to cause prices to fall from a level above ATC ( $P > ATC$ ) to one below ATC ( $P < ATC$ ) for firms to exit in the long run – if the fall in price is minimal or if the monopoly is pricing far above ATC ( $P \gg ATC$ ) to earn large supernormal profits, the monopolist only incurs a decrease in supernormal profits and does not have to exit the industry in the long run.
- Thus, firms that are less dominant e.g. MPC firms are more vulnerable to closure in a recession than firms that are more dominant e.g. monopolies, given differences in their ability to maintain prices above ATC and earn supernormal profit in the long run. Greater market dominance can thus reduce the negative impact of a recession.

#### **Market dominance affects firm's ability to conduct R&D**



- In addition, the long run supernormal profits earned by oligopolistic and monopolistic firms that are more dominant can be drawn upon to conduct research and development (R&D) during a recession.
- These could be to diversify their range of products or to increase the quality of the product and better cater to the tastes and preferences of consumers so that demand for the product can be increased to increase total revenue, or to increase the efficiency of the production process so that average costs are reduced. Such R&D to increase the profits of these firms would mean that they are less affected by the fall in demand caused by the recession.
- On the other hand, less dominant firms such as MPC firms only earn normal profits in the long run and thus lack the funds to conduct R&D. They thus lack the ability to improve their products or find innovative methods of production in order to boost profits and weather the recession.

### **Anti-thesis: Degree of market dominance does not reduce the negative impact of recession**

- However, market dominance may give rise to productive inefficiency resulting from X-inefficiency. Being sheltered by high BTE, oligopolistic and monopolistic firms can still make supernormal profits in the long run even if they are not using the most cost efficient method of production. As a result of this lack of competitive pressure, X-inefficiency sets in. Complacency and organisational slack lead to overstaffing, spending on prestige buildings, lack of effort in scrapping old production plants etc. Higher average and marginal costs are incurred as a result of this productive inefficiency.
- In such a situation, market dominance might actually lead to these inefficient firms still being more vulnerable to closure resulting from the fall in demand and price given a recession, since ATC is higher than they should be and it is more likely that prices fall below ATC to lead to firm exit of the industry in the long run.

### **Anti-thesis: Other factors reduce negative impact of recession**

#### **Nature of good produced by firm – Income elasticity of demand**

- However, firms only face a fall in the demand for their goods and a subsequent fall in price only if the goods they are producing are normal goods, i.e. those with positive income elasticity of demand ( $YED > 0$ ). If firms are producing inferior goods instead, i.e. those with negative income elasticity of demand ( $YED < 0$ ), then a recession would mean that they face an increase in demand, prices and total revenue.
- Furthermore, amongst firms producing normal goods, firms producing necessities (goods with income inelastic demand i.e.  $0 < YED < 1$ ) would be less vulnerable to recession than firms producing luxuries (goods with income elastic demand i.e.  $YED > 1$ ) since they experience a less than proportionate fall in demand for their goods in a recession.
- Hence, what is more relevant for the impact of a recession on firms might be the nature of the good produced rather than the market dominance enjoyed by the firms producing it. For example, if MPC firms produced inferior goods (such as lower quality home-brand products of supermarkets), they would benefit from the recession as demand for their goods increased – the lack of market dominance and ability to price above ATC in the long run is less relevant given this scenario.
- Similarly, if monopolies sold luxury goods such as designer wear, then a fall in demand would be more than proportionate to the fall in income – this might imply a greater vulnerability of these firms, despite their market dominance, since the fall in demand and prices is likely to be significant.

#### **Small firms more nimble and able to adapt to changing demand conditions**

- In addition, less dominant firms e.g. MPC firms tend to be smaller and hence might be more nimble and responsive to changes in market conditions e.g. the recession in this case. With closer contact to their customers, MPC firms might be better able to detect changes in demand conditions, and might hence possess the flexibility to quickly adjust resource inputs

to minimise costs and maximise revenue e.g. by diversifying their product range to include inferior goods or switch to inferior goods entirely during the period of recession.

- In contrast, market dominant firms such as those in oligopolies and monopolies tend to be large, and might need a longer time to detect and respond to the fall in demand caused by the recession, making them more vulnerable to its negative effects.

(Other plausible factors that reduce the impact of a recession accepted here: Fall in factor input costs accompanying recession reduces negative impact of recession for firms, Government intervention in recession especially for industries deemed essential e.g. banking sector, Effects of demand management policies by the government in response to a recession etc.)

### **Conclusion and Evaluation**

- Overall, likely that market dominant firms that face less competition are much less vulnerable to closure than firms in more competitive industries as due to their ability to price above ATC and preserve supernormal profits into the long run, which then provides necessary resources to counter the recession e.g. with R&D.
- However, it is also important to look at the type of products sold by the firms to determine the impact on demand when a recession hits.
- Often, the behaviour and performance of firms under recession conditions do not rely only on their market dominance, but instead the impact depends significantly on firms' adaptability and actions undertaken in response to the negative shock.

### **Duration and magnitude of recession**

- The duration and magnitude of the recession also matters in determining the extent to which firms experience a negative impact.
- If recession is mild and short-term, impact would be less damaging on firms operating in both competitive and less competitive industries.
- If recession is serious and prolonged, even the impact on firms with market dominance might also be detrimental and severe.

### **Government intervention**

- The different possible responses of the government to the recession could also imply differences in the impact of the recession on firms.
- Industries deemed essential to the workings of the economy may be more likely to receive such government intervention.
- For example, government intervention to bail out the banking sector during the 2008 financial crisis meant that many of these market dominant banks that faced closure due to the large negative shock survived instead.

## **3. Some governments provide healthcare for free, while others only subsidize it partially.**

- a) Explain the factors that a government should consider in deciding whether healthcare is under-consumed. [10]
- b) Assess the view that government provision of national defence and free healthcare is both necessary, and results in an efficient allocation of resources. [15]

**Marking Scheme (a)**

<b>Knowledge, Application, Understanding and Analysis</b>		
<b>L3</b>	Well-developed explanation of at least two factors that a government considers in deciding whether healthcare is under-consumed, including the explanation of positive externalities, and with application to specific healthcare examples.	<b>7 – 10</b>
<b>L2</b>	Under-developed explanation of factors considered by the government.  Max <u>5m</u> : for well-developed explanation of market failure due to positive externalities.	<b>4 – 6</b>
<b>L1</b>	For a smattering of valid points.	<b>1 – 3</b>

**Marking Scheme (b)**

<b>Knowledge, Application, Understanding and Analysis</b>		
<b>L3</b>	For a well-developed explanation of both sides of the argument on whether government provision of national defence and free healthcare is necessary, and whether this would result in allocative efficiency.	<b>9 – 11</b>
<b>L2</b>	For an undeveloped answer on the necessity of government provision of the two goods, and on whether this results in allocative efficiency.  Max <u>7m</u> : for a one-sided answer that explains why government provision of both goods is necessary and results in allocative efficiency, or the opposing view. OR For a well-developed answer on the degree of necessity of government provision, and whether this results in allocative efficiency, for only one of the goods.	<b>6 – 8</b>
<b>L1</b>	For an answer that shows a descriptive knowledge of merit goods and public goods.	<b>1 – 5</b>
<b>Evaluation</b>		
<b>E2</b>	For an evaluative assessment based on economic analysis.	<b>3 – 4</b>
<b>E1</b>	For an unexplained assessment or one that is not supported by economic analysis	<b>1</b>

- 3a) Explain the factors that a government should consider in deciding whether healthcare is under-consumed. [10]

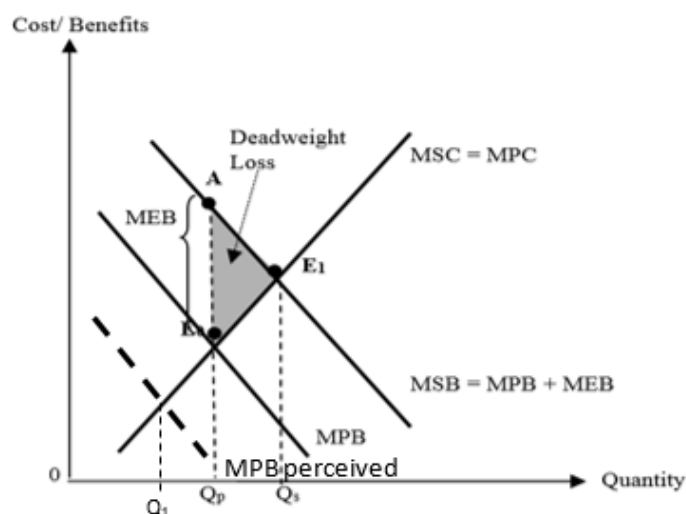
## Introduction

- Healthcare is considered to be a **merit good** as it is deemed desirable by the government and it generates positive externalities.
- Factors influencing a government's decision on whether healthcare is under-consumed include the existence of positive externalities, the existence of imperfect information, concerns regarding equity issues and market dominance.

## Body

### Existence of positive externalities

- The government may consider healthcare to be under-consumed if there are significant positive externalities. Positive externalities are benefits to third parties not directly involved in the production or consumption of the good. It is not reflected in the price of the good.
- Positive externalities from the consumption of healthcare include reducing the chances of spreading illnesses to others such as co-workers, and the external benefit to firms of an increase in productivity of the workforce leading to higher revenue and profits.



**Figure 1: Positive Externality generated in the healthcare market**

- Figure 1 illustrates the situation when the consumption of healthcare leads to positive externalities. The marginal private benefit (MPB) to an individual would be a better physical and mental health state for each additional unit of healthcare consumed. On the other hand, the marginal private cost (MPC) would be his healthcare costs incurred in visiting the doctor or medication fees for each additional unit of healthcare consumed.
- Marginal social benefit (MSB)** is the additional social benefit from the last unit of a good produced and consumed.  $MSB = MPB + MEB$  where MEB is the marginal external benefits.
- Due to the presence of positive externality, which is shown by the **marginal external benefit (MEB)** at a particular level of output, marginal social benefit (MSB) will be **greater** than marginal private benefit (MPB), i.e.  **$MSB > MPB$** . There is a **divergence of MPB and MSB**. This means that the benefits of consumption to society include not just the benefits to the consumer but also the benefits to others enjoying the positive spillover effects, shown as MEB.
- Assuming that  $MPC = MSC$ . Since consumers will only consider their private benefit and cost while ignoring the benefits to third parties, they will consume at the level **OQp** where  **$MPB = MPC$** . However, the **socially optimal level** of output occurs at **OQs** where  **$MSC = MSB$** .
- Since Qp is **less** than Qs, it means that the price mechanism on its own cannot achieve an optimal allocation of resources. The government will consider that there is **under-consumption** of the good. Between Qp and Qs, the social benefit of an additional unit of healthcare consumed is higher than the social cost, resulting in **welfare loss** equivalent to the shaded area.

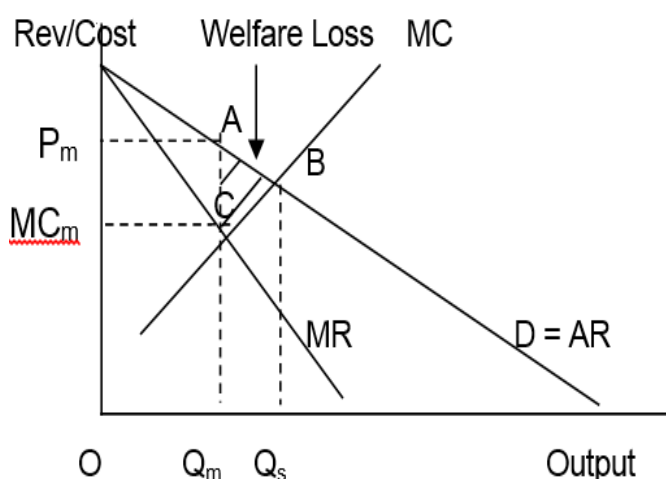
### Imperfect information

- Besides positive externalities, governments will also consider whether consumers have **imperfect information**. Individuals may not be able to value their private benefits and costs correctly. In particular, individuals may not be fully aware of the long term private benefits of consuming healthcare. For instance, they might be unaware of the importance of regular health screenings in detecting early signs of illness.

- If this is the case, MPB would be even lower at  $MPB_{perceived}$ , and the level of consumption would only be at  $Q_1$ . Hence, the government would consider the extent of under-consumption to be even more serious.

### Market dominance

- There might also be market dominance in the healthcare market. For instance, due to the existence of patent protection, only one firm might be allowed to produce a pharmaceutical product. As such, the firm enjoys very high market power.
- **A profit-maximising firm, operating under the conditions of monopoly or oligopoly for example, produces at the output where marginal cost and marginal revenue are equal. At this equilibrium output,  $P$  is greater than  $MC$ , which implies allocative inefficiency.**



**Figure 2: Welfare Loss under Imperfect Competition**

- Referring to Figure 2, the profit-maximising level of output is at  $OQ_m$ , where  $MR = MC$ . At  $Q_m$ ,  $P_m$  is greater than  $MC$ . This means that **society's valuation of the last unit of the good is higher than the opportunity cost of producing that unit of the good**. Hence welfare to society is not maximised. The **welfare loss** is represented by the shaded area.
- As such, the government will consider that consumers are under-consuming healthcare due to the firm restricting its output.

### Equity concerns

- The government might also be concerned about under-consumption of healthcare if there is income inequity. If there is high income inequality in the country, the poor might not have the ability to pay for healthcare, thereby consuming at a level that is below the social optimum.

### Conclusion

- In conclusion, there are many considerations that a government would take when deciding whether healthcare is under-consumed, and whether intervention is needed to achieve a more efficient allocation of resources.

**3b) Assess the view that government provision of national defence and free healthcare is both necessary, and results in an efficient allocation of resources. [15]**

### Introduction

- Government intervention in goods such as national defence and healthcare is common as the first is a public good while the second is a merit good. However, whether government provision of national defence and free healthcare is necessary and results in an allocative efficient outcome

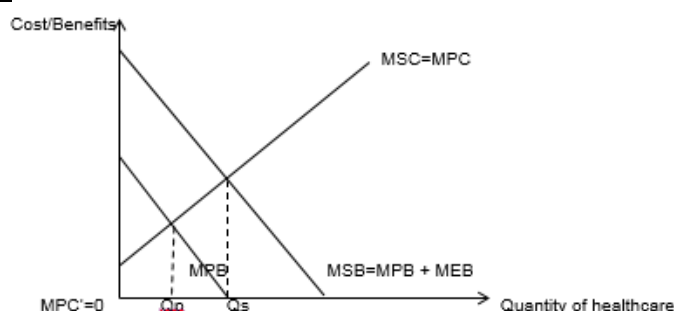
depends on multiple factors such as the extent of market failure, the extent of government failure, and other issues such as equity concerns.

**Thesis: Government provision of national defence and free healthcare is both necessary, and results in an efficient allocation of resources.**

**National defence**

- Government provision of national defence is necessary as it is a public good. A public good is one that has the characteristics of non-rivalry and non-excludability.
- National defence is non-rival in consumption as the consumption by one person does not diminish the quantity consumed by others, i.e. the same amount of protection is accorded to the next citizen by the defence force even as one more citizen is protected. Since national defence is non-rival, the **marginal cost of providing national defence to an additional user is zero**. By the allocative efficiency condition,  $P=MC$ , this means that the price of national defence should be zero. As such, there is no incentive for profit-maximising producers to produce national defence.
- In addition, national defence is non-excludable as it is **impossible, or prohibitively costly to exclude non-payers** from being protected from external threats by the defence force. As such, there will be a problem of **free riders**, and **demand will be concealed** as there is no incentive for consumers to indicate their preference for the good with their dollar votes.
- As such, there is complete market failure, and the free market does not provide national defence. Government provision of national defence, financed by taxes, is hence necessary.
- In addition, government provision of national defence results in allocative efficiency if the government is able to correctly estimate the socially optimum amount of national defence to provide.

**Free Healthcare**



**Figure 3: Government provision of free healthcare**

- Government provision of healthcare is necessary as a means of correcting the under-consumption problem due to positive externalities, as explained in part (a).
- With reference to Figure 3, in the absence of government intervention, consumers only consider their MPB and MPC of healthcare, and consume at  $Q_p$  ( $MPC=MPB$ ).
- However, the socially optimal consumption should be at  $Q_s$  where  $MSC=MSB$ .
- In this case, when the government provides healthcare for free, the MPC to consumers is reduced to zero, as the price that they pay for healthcare is zero. MPC shifts to  $MPC'=0$ .
- Intervention is necessary and results in allocative efficiency as consumers will thus consume at  $Q_s$ , where  $MPC'=MPB$ , thus achieving an efficient allocation of resources.
- In addition, government provision of free healthcare is necessary as it could help to resolve equity issues, as the poor would be able to have access to healthcare regardless of their ability to pay.

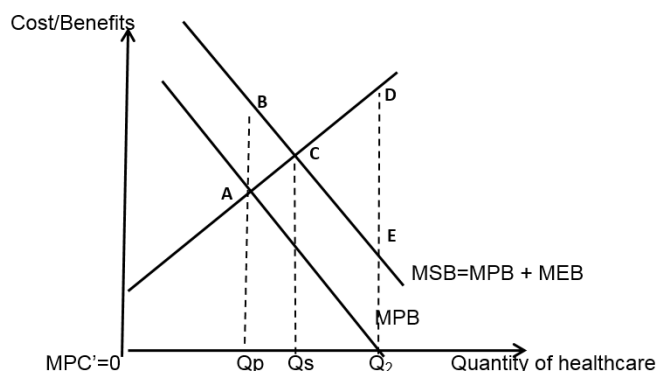
**Anti-thesis: Government provision of national defence and free healthcare is NOT necessary and/or it might not result in allocative efficiency.**

**National defence**

- The provision of national defence **might not result in allocative efficiency** if there is **government failure** – the government might over or under-estimate the amount of national defence to provide, thereby not achieving the social optimum. Over-estimation of the amount leads to an opportunity cost of government spending that could have been spent in other areas such as education, which is an inefficient allocation of resources.

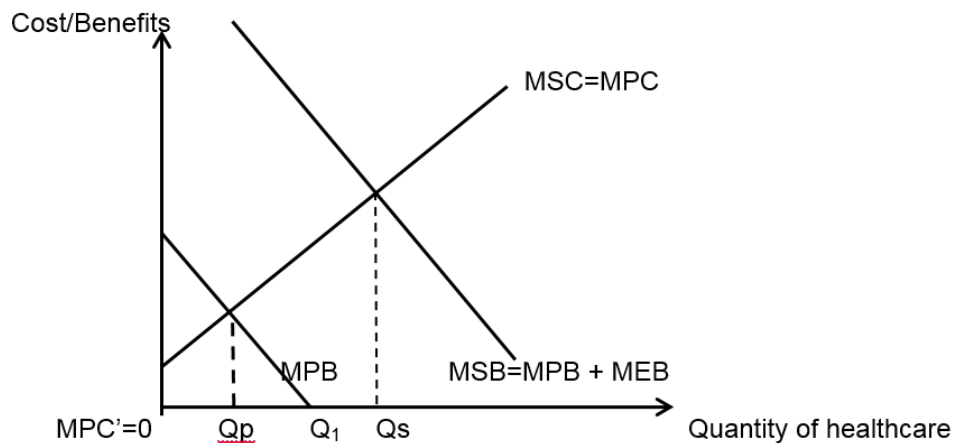
## Free Healthcare

- Government provision of free healthcare is **not necessary** as there are **other means of achieving the social optimum**. For example, cash grants, such as government top-ups to the Central Provident Fund account of citizens, serve to increase the marginal private benefit of consuming healthcare without affecting the price actually paid for it. When the cash grant is equivalent to MEB at  $Q_s$ , the MPB shifts to MSB, and  $Q_p$  increases to  $Q_s$ , hence achieving the social optimum level of consumption without making healthcare free.
- In addition, government provision of free healthcare **might not be efficient due to government failure**. A government might not be as cost effective as a profit-maximizing producer in producing healthcare, and bureaucracy and red tape could lead to a wastage of resources due to long waiting times and miscommunication regarding medical interventions required.
- Government provision of free healthcare might also not be efficient if the **extent of positive externalities is small**. Positive externalities could be limited in certain countries, especially developed countries, where high standards of living and good health are maintained through proper sanitation, good quality housing, and access to proper nutrition. As such, the benefits to third parties such as firms via improvements in productivity from an individuals' consumption of healthcare could be quite small, as productivity is already high. This is in comparison to developing countries where poor sanitation and lack of access to housing lead to large positive externalities in the consumption of healthcare. For instance, consumption of healthcare such as vaccination against typhoid diseases could lead to a quantum leap in productivity and a large reduction in the spread of disease within the community, causing large benefits to third parties such as firms and members of the community who did not consume or produce the vaccination.
- Alternatively, the extent of positive externalities could be **small if individuals have internalized the externalities**. For instance, years of public education campaigns could have convinced individuals to take into account not only the benefits to themselves, but to also exercise social responsibility by consuming healthcare services such as vaccinations and regular health checkups to prevent the spread of illnesses to others.
- As such, the free provision of healthcare by the government is likely to be very inefficient when the MEB is small. Free provision will lead to the opposite problem of over-consumption of healthcare. As seen in Figure 5, providing the good for free will actually lead to overconsumption of the good, as consumers will consume at  $Q_2$  where  $MPC'=MPB$ , which is higher than  $Q_s$ .



**Figure 5: Overconsumption of healthcare when provided for free**

- Between  $Q_s$  and  $Q_2$ , the additional cost to society of another unit of healthcare is higher than the additional benefit to society, leading to welfare loss area of CDE, compared to the original welfare loss area of ABC when consumption was as  $Q_p$ .
- This causes **greater inefficient allocation of an economy's resources**, resulting in a worse outcome than before.
- Moreover, government provision of free healthcare will be inefficient if it does not target the **root cause of the problem**. For instance, in developing countries, the root cause of under-consumption might be due to ignorance about the benefits of consuming healthcare. The perceived MPB could actually be very low. In this instance, referring to Figure 6, providing healthcare for free only increases their consumption to  $Q_1$  where  $MPC'=MPB$ .



**Figure 6: Under-consumption even when healthcare is free**

- However, the socially optimal level of consumption is at  $Q_s$  where  $MSC = MSB$ . Hence, providing healthcare for free only moves  $Q_p$  closer to  $Q_s$ . There is still underconsumption of healthcare. In such a case, the government needs to increase the MPB of the consumer through policies like public education to convince consumers of the benefits of healthcare services, in order to further increase their consumption.

### **Conclusion and evaluation**

#### **Stand and justification**

- Governments should give careful consideration to the **extent of market failure** when deciding whether to provide it for free. The provision of public goods such as national defence is necessary due to complete market failure, but it is not necessary for merit goods such as healthcare as the free market will provide the good. In addition, government provision of any good might not be efficient due to government failure. In the case of national defence, even though government provision might not be efficient, it is still better than no intervention at all as government provision helps to move consumption close to the social optimum. In the case of healthcare, governments should consider whether the improvement in productivity is significant enough to justify a full subsidy of the healthcare amount.

#### **Further evaluation**

- Governments should also give careful consideration to **other issues such as their budget** when deciding on their policies. For healthcare, free provision is likely to lead to severe wastage of resources as the government would be spending on healthcare for the rich, who could actually afford to pay. In addition, there are possible abuses of the system by unscrupulous medical professionals who can over-prescribe medical treatments and bill the government for them. As such, other policies like cash grants to the poor should be used instead in order to increase the consumption of healthcare in a more targeted manner, without burdening the government budget.

4 In 2014, Singapore's GDP grew 2.9% to \$390.1 billion and long-term capital inflows grew 18% to \$156.5 billion. However, growing pessimism about global economic performance has led to fears that export demand could decline in the years ahead.

- (a) Explain how a fall in export demand could affect the circular flow of income in an economy.

[10]



- (b) Assess whether these economic indicators of GDP data and long-term capital inflows are the best measures of standard of living in Singapore.

[15]

#### Marking Scheme (a)

Knowledge, Application, Understanding and Analysis		
<b>L3</b>	Well-developed explanation of how a fall in export demand could affect the circular flow of income in an economy.	<b>7 – 10</b>
<b>L2</b>	Under-developed explanation of how a fall in export demand could affect the circular flow of income in an economy.	<b>4 – 6</b>
<b>L1</b>	For an answer that shows a descriptive knowledge of the circular flow of income.	<b>1 – 3</b>

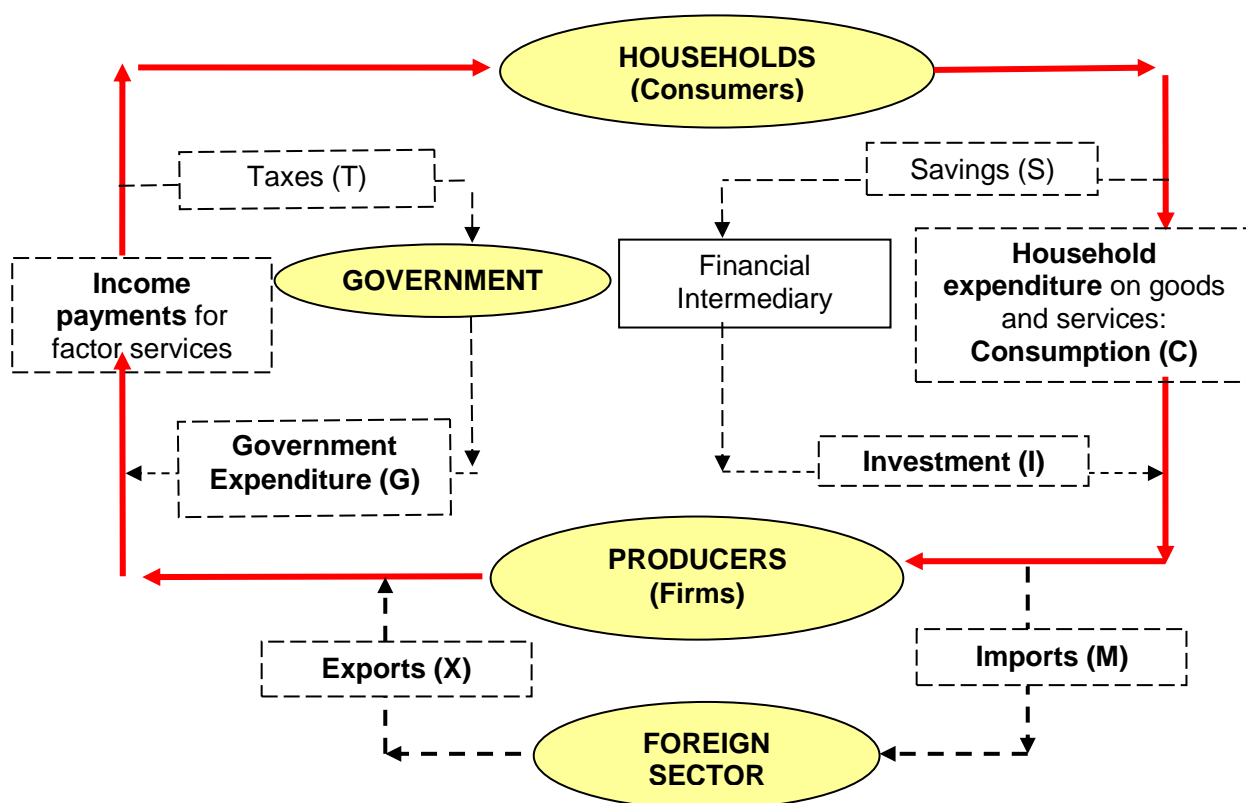
#### Marking Scheme (b)

Knowledge, Application, Understanding and Analysis		
<b>L3</b>	For a developed assessment of the uses and limitations of GDP and the capital account of the balance of payments as indicators of standard of living, with reference made to the Singapore economy.	<b>9 – 11</b>
<b>L2</b>	For an undeveloped assessment of the uses and limitations of GDP and the capital account of the balance of payments as indicators of standard of living, with some reference made to the Singapore economy.  Maximum of 8m if only one indicator used i.e. only GDP data or only long-term capital inflow data.	<b>6 – 8</b>
<b>L1</b>	For an answer that shows a descriptive knowledge of GDP and the capital account of the balance of payments as indicators of standard of living in a country.	<b>1 – 5</b>
Evaluation		
<b>E2</b>	For an evaluative assessment based on economic analysis.	<b>3 – 4</b>
<b>E1</b>	For an unexplained assessment or one that is not supported by economic analysis.	<b>1 – 2</b>

**4 (a) Explain how a fall in export demand could affect the circular flow of income in an economy. [10]**

- A fall in export demand represents a fall in injections into the circular flow of income. This will cause equilibrium level of national income to fall by a multiplied amount.

## Equilibrium in the circular flow



- The 4-sector model of the circular flow of income consists of (1) domestic households and firms, (2) financial intermediaries e.g. banks, (3) government and (4) foreign sector for which the country engages in both the import and export of goods and services.
- To produce goods and services, firms hire factors of production from households and these factor services by households generate their respective income payments. Households in turn spend their factor income on the consumption of the output of goods and services produced by firms.
- Thus, factor payments to households (firm output or household income) i.e. income expenditure stream, must be equal to the payment for final goods and services received by firms (household expenditure) i.e. income spending stream. **Expenditure must equal income in a circular flow.**
- Withdrawals in the form of savings (S), taxes (T) and import spending (M) reduces the income expenditure stream. On the other hand, injections (J) in the form of investment (I), government spending (G) and export earnings (X) increases the income spending stream. **As a result, equilibrium national income in the circular flow is where injections equal withdrawals (J=W).**
- Changes to J and W will lead to a multiplied change in national income via the multiplier (k) process. To illustrate this, we assume a four-sector economy that is below full employment, with marginal propensity to withdraw (mpw) from the circular flow equal 0.4, where mpw is made up of the marginal propensity to save (mps), tax (mpt) and import (mpm) i.e.  $mpw = mps + mpt + mpm$ .

## Adjustment process to new equilibrium level of NY with fall in export demand

- A fall in export demand of say \$100m would lead to an initial decrease in J of \$100m as X falls. As a result  $J < W$ . Since stocks increase and firms producing exports thus reduce output by \$100m, causing incomes to decrease by \$100m as less is paid out in terms of factor incomes since less factors of production (FOP) are hired. When households face this

reduction in income in the form of wages, rent, interest and profits (WRIP) of \$100m, \$40m less in withdrawals will be leaked out of the circular flow as savings, taxes paid and import spending since  $mpw=0.4$ .

- Households thus reduce their consumption of domestic goods and services by \$60m, which then further reduces income for firms producing consumer goods of \$60m. These firms thus reduce production to meet this further reduction in demand and hence hire less FOP. Owners of FOP are again face this reduction in income of \$60m in the form of WRIP, and further reduce withdrawals by \$24m and reduce spending on domestically produced goods by \$36m.
- This process of alternating spending and output decreases accompanying income reductions continues until decreases in income and consumption become insignificant due to the existence of withdrawals. The multiplier process then stops when multiple rounds of decrease in income and spending causes **W to decrease as Y decreases until  $J=W$  again**. The result is a multiplied decrease in the equilibrium level of national income Y.

#### **4 (b) Assess whether these economic indicators are the best measures of standard of living in Singapore. [15]**

##### **Introduction**

- Gross domestic product (GDP) shows the total value, before deduction of depreciation, of goods and services produced by all residing within the geographical boundary of a country during a specific period of time.

- Long term capital flows are recorded on the capital account of the balance of payments, and includes foreign direct investment (FDI) as well as portfolio investment.
- GDP and capital account balance as economic indicators allow for a measure of the standard of living in Singapore to a certain extent. However to get a fuller picture of both the qualitative and quantitative aspects of the standard of living (SOL) in Singapore, they need to be complemented by other indicators.

### **Use of Nominal GDP as a measure of SOL**

- Given Singapore's economic growth and increase in national incomes with GDP growing 2.9%, the purchasing power of citizens and amount of goods and services available for consumption could have increased, leading to a higher material SOL.

### **Measurement problems of GDP**

- However, measurement problems of GDP figures may arise when they are computed. Measurement problems due to inaccurate and unreliable information is unlikely to be large in Singapore, given the sophistication of the sampling techniques, data processing, compilation, presentation and interpretation used. On the other hand, the non-monetised sector in Singapore could be substantial and this could lead to GDP figures being an underestimation of the material standard of living of Singaporeans.
- Examples of the presence of an underground economy include the provision of private tuition services by many individuals who do not fully declare their incomes to the tax authorities, housewives who provide unpaid duties etc.
- As a result, GDP figures may not be a good indicator of changes in standard of living over time e.g. due to changes in accuracy of information gathered as survey techniques improve, changes in the size of the underground economy etc.

### **Conceptual problems of GDP as a measure of SOL**

- Even if GDP data is accurate, there are conceptual limitations to the use of GDP data as a measure of standard of living.
- Nominal GDP may not provide an accurate measure of material SOL i.e. of the amount of goods and services available to an average Singapore resident. This is because it does not take into account the effects of inflation which reduce the internal purchasing power of the currency, and it also does not take into account changes in population size. Increases in nominal GDP but with a greater rise in general price levels could actually mean a net fall in purchasing power of the average consumer, and hence material SOL may not have increased.
- Similarly, increases in nominal GDP accompanied by greater increases in population size would mean that the average consumer may not be enjoying a greater quantity of goods and services and thus does not indicate a rise in material SOL. Overall, real GDP per capita should be used instead of nominal GDP.
- Nevertheless, real GDP per capita does not take composition of output produced into account. An increase in the Singapore's real GDP per capita may be due to an increase in defence spending. Similarly, an increase in Singapore's real GDP per capita may be due to an increase in investment. This means that any rise in consumption and hence living standards will only be forthcoming in the future. The current standard of living does not improve since the amount consumed by the average Singapore resident has not increased, and material SOL is overestimated by the rise in nominal GDP or even in real GDP per capita. Thus, additional information on the real consumption per capita would be more useful.
- Also, a higher GDP figure could also be due to a higher level of income earned and a greater level of consumption by only a small minority of people in society, while the majority of Singapore residents may not see an improvement in their material SOL. Thus, indicators such as the Gini coefficient measuring income disparities is also needed in order to assess if the material standard of living for the average Singaporean resident has improved. In this case, the Gini coefficient after accounting for redistributions and transfers would be appropriate.

- In addition, SOL includes both quantitative and qualitative aspects – nominal GDP, or even real consumption per capita, does not fully account for changes in non-material SOL. For one, the increase in GDP does not take account of the working hours of the people. The Singapore workforce may have worked longer hours to produce the higher level of output. This reduction in leisure time and a more stressful working environment to produce the higher output could have had adverse effects on the non-material SOL of Singapore residents.
- Furthermore, GDP does not take into account the external costs imposed onto third parties generated by negative externalities in production that are uncompensated for and not reflected in the prices of goods and services e.g. pollution (air, water, waste) and congestion incurred in the process of increasing output and GDP in the country.
- Hence, to the extent that the higher levels of national income are achieved at the expense of greater amounts of negative externalities generated, non-material SOL could have been reduced even as material SOL seems to be rising with a higher GDP. Hence, it is also important to look at the level of pollution in a country, e.g. use of the Pollutant Standards Index (PSI) in Singapore.
- To make a better assessment of living standards over time, some alternative indicators can be used that enhance nominal GDP figures to better measure both material and non-material SOL of a country's citizens. For instance, Human Development Index (HDI) is a composite index of measures of life expectancy at birth, educational attainment and GDP per capita in PPP US\$. Another alternative indicator of living standards is Measure of Economic Welfare (MEW) in which the value of Net National Product (NNP) is adjusted by adding allowance for leisure and other non-marketed goods and services that improve welfare, and deducting 'regrettables' such as expenditure on defence and 'bads' like pollution.

#### **Use of long-term capital inflow as a measure of SOL**

- The increase in long term capital inflows by 18% indicates an improvement in the capital account and hence the balance of payments position of Singapore, assuming that there are no changes to the current account balance.
- With a greater inflow of foreign direct investment, aggregate demand increases and this gives a multiplied increase in national income via the multiplier effect. With an increase in output, the demand for labour increases and cyclical unemployment falls. This means that the purchasing power of citizens is likely to have increased as real GDP increased, indicating a rise in material SOL.
- In addition, the increased demand for Singapore dollar is likely to have increased with this net inflow of long-term capital, and an appreciation of the currency would also reduce the price of imported goods. This further gives a rise in material SOL as external value of the currency is increased and consumers can buy a greater quantity of imports.
- Non-material SOL may also be increased as a result. Crime rates may decrease as average citizens grow wealthier, reducing poverty and unemployment rates. With growth and increases in government tax revenues, the government has greater capacity to carry out income redistribution and reduce income inequalities that are the source of social discontent/unrest. Greater environment protection may be carried out to limit the external costs imposed onto third parties from production e.g. health costs arising from pollution etc. In addition, the government may be in a better position to implement policies that improve the provision of merit goods e.g. healthcare and education to increase life expectancy and literacy rates, and this could increase the non-material SOL of citizens as well.
- In the long run, with capital accumulation and transfer of foreign expertise and technology accompanying FDI, potential growth is achieved. Material SOL may be raised even further, which could then provide the basis for further increases in non-material SOL as highlighted above e.g. reduction in crime rates, generation of negative externalities, better healthcare provision and sanitation standards etc.

#### **Conceptual problems of long-term capital inflows as a measure of SOL**

- However, overall the usefulness of long-term capital flow is limited in measuring SOL, especially given the presence of indicators such as GDP – any increases in material SOL through increased FDI will be captured as increases in GDP.
- Moreover, an improvement of the balance of payments for Singapore as a result of the long term capital inflow does not provide sufficient information of the material well-being of the Singapore residents. The nature of the long-term capital inflow matters as well. For example, if the long-term capital inflow mainly consists of portfolio investment i.e. net purchase of long term securities (more than a year) such as bonds or in minority holdings of company shares, then increases in capital accumulation explained previously may not materialise since these do not represent net investment.
- On the other hand, if the long-term capital inflow were mainly FDI representing net purchase of real assets, then while current material SOL may not be raised substantially (since investment goods and not consumption goods form the bulk of the increase in output), future material SOL may be higher. Non-material SOL may also be higher in this case as a result of the higher material SOL as highlighted above e.g. improved literacy standards, reduced income inequality with government policy conducted as a result of greater resources being available with future growth etc.

## **Conclusion**

### **Combination of measures**

- In conclusion, both GDP and long-term capital inflows are useful but not sufficient to best measure the standard of living in Singapore.
- There are many quantitative and qualitative aspects of living standards to consider in measuring SOL in Singapore and even when improved, e.g. adjusting nominal GDP to real consumption per capita, they still need to be complemented by other measures, especially those on the non-material aspects of SOL such as income inequality, leisure time and pollution.

### **Relevance of measures for Singapore**

- While composite measures such as HDI and MEW thus tend to give a good overall measure of SOL, the “best” measure really depends on which particular aspects of SOL one are most pertinent for the policymaker.
- Given that Singapore has maintained a strong balance of payments surplus position for many years as well as steady nominal GDP growth rates of around 2-3%, these figures in 2014 represent a continuation of Singapore’s good economic performance over the years.
- Wider income disparities and other non-material aspects of SOL have however become the focus of policy in recent years, and thus measures that account for these could serve as “better” measures.

5. Over the past few years, Singapore’s economic restructuring journey to achieve growth has focused on raising productivity through promoting innovation, investing in human capital and tightening the inflow of foreign workers.

**(a)** Explain why governments are concerned with failing to achieve sustained economic growth.[10]

**(b)** With reference to Singapore, discuss whether raising productivity alone can be effective in achieving sustained economic growth and low unemployment. [15]

## **Marking Scheme (a)**

<b>Knowledge, Application, Understanding and Analysis</b>		
<b>L3</b>	Well-developed analysis of both the internal and external consequences of failing to achieve sustained economic growth.	<b>7 – 10</b>
<b>L2</b>	Under-developed explanation of the consequences of failing to achieve sustained economic growth.	<b>4 – 6</b>
<b>L1</b>	For an answer that shows descriptive knowledge of the consequences of failing to achieve sustained economic growth.	<b>1 – 3</b>

#### **Marking Scheme (b)**

<b>Knowledge, Application, Understanding and Analysis</b>		
<b>L3</b>	Well-developed explanation of the effectiveness of raising productivity and at least 1 other policy to achieve sustained economic growth and low unemployment, with strong reference made to the Singapore economy.	<b>9 – 11</b>
<b>L2</b>	Under-developed explanation of the effectiveness of raising productivity and other relevant policies to achieve sustained economic growth and low unemployment, with some reference made to the Singapore economy.  <u>Max 6 marks</u> for a well-developed explanation of how raising productivity achieves sustained economic growth and low unemployment, without limitations.	<b>6 – 8</b>
<b>L1</b>	For an answer that shows descriptive knowledge of the policies to achieve sustained economic growth and low unemployment.	<b>1 – 5</b>
<b>Evaluation</b>		
<b>E2</b>	For an evaluative assessment based on economic analysis. E.g.: root cause of problem, nature of economy etc	<b>3 – 4</b>
<b>E1</b>	For an unexplained assessment or one that is not supported by economic analysis.	<b>1 – 2</b>

**5 (a)** Explain why governments are concerned with failing to achieve sustained economic growth.[10]

#### **Introduction: Define sustained economic growth**

- Economic growth is the increase in real output in an economy.
- The economy experiences actual growth in the short run when there is a percentage annual increase in output actually produced.
- Potential growth is achieved when there is a percentage annual increase in the productive capacity of the economy.
- There must be a combination of actual growth (led by increase in AD) and potential growth (led by increase in LRAS) for sustained economic growth to be achieved.

- Governments are concerned with failing to achieve sustained economic growth due to the internal and external consequences of falling real GDP (negative growth) and/or unsustainable growth.

### **Explain internal consequences**

#### **1. Lower standard of living**

- With falling real GDP, holding population constant, real GDP per capita decreases, implying that there is decrease in purchasing power for an average citizen living in the economy. This leads to a decrease in amount of goods and services available for consumption, hence a decrease in quantitative standard of living in the economy.
- With falling real GDP, people are more concerned about being able to afford the material necessities of life. This means less and poorer quality housing; less easily available, less efficient and less comfortable transport; less educational opportunities and poorer quality education; less overseas holidays; less and poorer quality recreational and entertainment facilities; and lesser of other social amenities for the general population. All these decrease the qualitative standard of living in the economy.

#### **2. Further decrease in C and I, negative impact on growth and employment**

- With falling real GDP, firms' and consumers' confidence decrease. Businesses expect lower profits and this discourages them to invest. Households are less confident of future job security as well as expect lower incomes, hence they will decrease their consumption.
- Decrease in investments and consumption would lead to decrease in AD, hence further decrease in real GDP and further aggravating negative actual growth. As firms reduce production and decrease derived demand for labour, cyclical unemployment increases in the economy.
- The fall in investment also leads to fall in quantity of capital, further reducing productive capacity and hindering potential growth in the economy.

#### **3. Less equitable income distribution**

- Falling real GDP makes it more difficult for governments to alleviate poverty and bring about a more equitable distribution of income.
- With falling real GDP, the government collects a smaller amount of direct tax such as corporate tax (due to decreased profits of firms) and personal income tax (due to decreased incomes of consumers) as well as a smaller amount of indirect tax as people spend less on goods and services. With lower tax revenue, the government is unable to channel more resources to help the poor to reduce income inequality.

### **Explain external consequences**

#### **1. BOP worsens**

- With unsustainable growth, due to rise in LRAS not able to keep up with rise in AD, general price level in the economy is higher. The rise in GPL results in less price competitive exports. Assuming demand for exports is price elastic, there will be a more than proportionate fall in quantity demand, hence a fall in export revenue. Also, as consumers switch to consume the comparatively cheaper imported goods, demand for imports increases, hence a rise in import expenditure. Net exports decreases, worsening the current account of the economy.
- Due to fall in business confidence and an expectation of future fall in profits, there will be long term FDI outflow and capital account of the economy will also worsen.
- With both CA and KA worsening, BOP worsens.



## 2. Weaker and less stable exchange rate

- In the foreign exchange market, with the fall in export revenue and fall in long term capital inflow, the demand for domestic currency decreases. With the rise in import expenditure and the rise in long term capital outflow, the supply of domestic currency increases. Hence the domestic currency depreciates.
- This reduces expected rate of return for speculators, further worsening capital account through more short term capital outflow and less short term capital inflow. The weaker exchange rate can also lead to imported inflation as prices of imports increase in terms of domestic currency, resulting in price instability.

## Conclusion

- Hence governments are concerned with failing to achieve sustained economic growth due to the various internal and external consequences it results in, hence aim to make sustained economic growth a key macroeconomic objective in the economy.

**5 (b)** With reference to Singapore, discuss whether raising productivity alone can be effective in achieving sustained economic growth and low unemployment. [15]

### Introduction - Definition

- Productivity refers to quantity of output produced for each hour of work of the working population. Raising productivity means that workers become more productive, and the quantity of output produced in an hour of work increases.
- To achieve sustained economic growth, there must be both actual and potential growth. To achieve low unemployment, there must be a fall in cyclical and structural unemployment.

### Body - Thesis: Raising productivity is effective in achieving sustained economic growth and low unemployment

### Sustained economic growth

- The Singapore government aims to raise productivity through promoting innovation, investing in human capital and tightening the inflow of foreign workers.
- To promote innovation, the Productivity and Innovation Credit (PIC) Scheme is implemented for businesses to invest in a broad range of activities along the innovation value chain, in which firms can claim up to 400% tax deductions/allowances and/or 60% cash payout in their efforts of R&D to adopt more innovative and cost-efficient methods of production. These will improve the quality of capital and increase use of better and more labour-efficient technology and machines, hence raising productivity in Singapore.
- The Singapore government also invests heavily in human capital through schemes such as Skills Future Credit, Workfare Training Support and Continuing Education & Training (CET). Skills Future Credit aims to encourage individual ownership of skills development and lifelong learning, in which Singaporeans aged 25 and above will receive an opening credit of S\$500. Workfare Training Support encourages those 35 years old and above Singaporean and earn not more than \$1,900 per month, to attend training to upgrade their skills and improve their chances of being employed. The CET Masterplan is a comprehensive plan to prepare the Singapore workforce for the future and to maintain a competitive advantage by equipping Singaporeans with the skills for job opportunities in new growth industries. These improve the quality of labour, hence raising productivity in Singapore.
- In addition, the Singapore government has tightened the inflow of foreign workers. Foreign worker levy has been raised in the construction, manufacturing, marine, process and service sectors over the years. Such a raise of levy will increase the cost of hiring foreign workers, hence encouraging firms to reduce their reliance on cheap foreign workers and instead find ways to innovate and improve their produce processes. Firms will then send their workers for retraining and/or introduce other more productive ways of producing their output. These improve the quality of capital and labour, hence raising productivity in Singapore.
- With raising productivity, productive capacity of Singapore increases, hence increasing LRAS, achieving potential growth.
- Assuming the wage growth lags behind productivity growth, the lower unit cost due to raising productivity also makes Singapore more attractive to foreign investors as there is expectation of future increase in profits, thereby attracting more FDI.
- In addition, if average productivity in Singapore increases faster than its trading partners, Singapore's exports will be relatively more price competitive compared to its trading partners' products. Assume demand for exports is price elastic due to availability and closeness of substitutes, quantity demand for exports will increase more than proportionately, hence increase export revenue. Also, as consumers switch to consume the comparatively cheaper domestically-produced goods, demand for imports falls, hence a fall in import expenditure. Net exports thus increases. Also through more innovative production processes, quality of exports may increase, increasing the demand for them. Hence increasing export revenue and net exports, ceteris paribus.
- The increase in  $I$  and  $X-M$  increase  $AD$  and thus  $NY$  via the multiplier process, achieving actual growth.
- FDI also increases productive capacity in the long run as foreign MNCs bring along their better technology and management practices. Production can become more efficient and together with the rise in the quality of the labor force induces potential growth.
- As shown in Figure 1, a persistent increase in  $AD$  from  $AD_0$  to  $AD_2$  without a corresponding increase in  $LRAS$  will only lead to demand-pull inflation as the general price level rises from  $P_0$  to  $P_2$  with no further rise in real national income after  $Y_f$ .
- As potential growth takes place and  $LRAS$  shifts rightwards from  $LRAS_0$  to  $LRAS_1$ , the general price level decreases from  $P_2$  to  $P_1$  and real national income increases from  $Y_f$  to  $Y_2$ .
- With both actual growth and potential growth, non-inflationary sustained economic growth is achieved.

### General Price Level

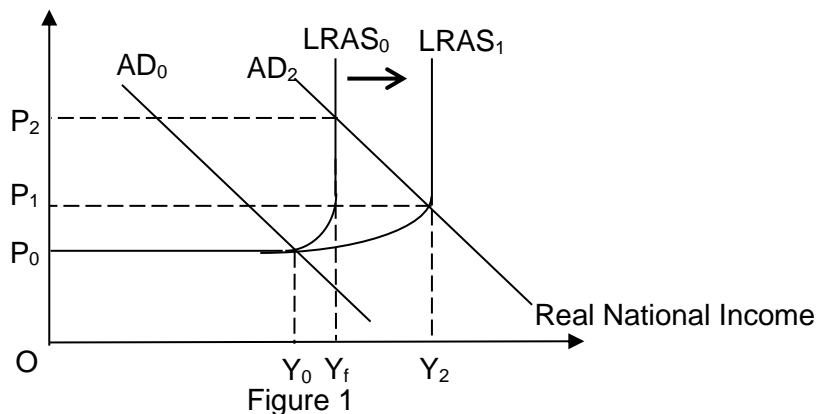


Figure 1

#### Low unemployment

- The increase in AD results in a multiple increase in NY via the multiplier process. Firms will expand production and increase derived demand for labour, hence reducing cyclical unemployment.
- As explained above, the Singapore government implementing retraining schemes such as Skills Future and CET will help equip workers with the relevant skills required in the labour market. This reduces the mismatch of skills between the demand and supply of labour, hence reducing structural unemployment.
- With the fall in cyclical and structural unemployment, low unemployment is achieved.

#### **Anti-Thesis: Raising productivity may not lead to sustained economic growth and low unemployment**

##### Limitations of raising productivity

- The measures to raise productivity in Singapore are long-term, costly and have uncertain effects as they are dependent on a few factors.
- The mindset of workers and their receptiveness and also the quality of training will affect the success of the training. The less educated or older workers may not have the ability to learn new skills and the more educated ones may not be receptive towards the need for re-training. Some may just be resistant to the idea of a job change.
- If the improvement in labour productivity is focusing on low-skilled jobs, then the extent to which FDI inflow may not be substantial as Singapore, as a knowledge-based economy mainly attracts high-value added FDIs.
- If the increase in productivity to increase LRAS is slower than the increase in AD, it will lead to demand-pull inflationary pressures which will not be desirable for the Singapore economy.
- Increased automation due to promotion of innovation will lead to higher structural unemployment due to the mismatch of skills between the demand and supply of labour.
- It is also more difficult to raise labour productivity in some sectors such as the retail and construction sectors where it is harder to replace labour with machinery. As such, firms in these sectors have been very dependent on labour-intensive method of production encouraged by the cheap foreign labour due to the liberal foreign labour policy in the past. Now, with the introduction of foreign workers levy, firms are forced to cut down on the use of labour and use more capital-intensive method of production to cut down the cost of production. However, in the short run, it may not be possible to substitute machines for labour and hence the use of more costly foreign workers will lead to higher cost of production resulting in higher cost-push inflation in Singapore. Higher inflation reduces Singapore's export competitiveness and may affect Singapore's growth and employment.

#### Other policies need to be implemented

##### Expansionary fiscal policy

- In order to achieve sustained growth, it requires AD to be sufficiently high to absorb the potential output produced. However a policy focusing on productivity is a long-term supply-side policy aimed primarily at shifting the LRAS and not at increasing AD. If the growth of AD does not keep

pace with potential growth due to weak external demand for example, unemployment rate will rise.

- Therefore, expansionary fiscal policy should be used to increase AD. This might be more important especially in periods of recession.
- For example, the Singapore government increases its spending on infrastructure development, including building of more general hospitals such as Sengkang General Hospital and Ng Teng Fong General Hospital, and building of Changi Terminal 5, and expanding the MRT network with the Downtown Line and Thomson-East Coast Line.
- Reduction in personal income tax would stimulate consumer spending through an increase in disposable income and purchasing power. Reduction in corporate tax from 20% to 17% increase the after-tax profits and thus encourage investment.
- The increase in C, I and G will increase AD which in turn causes NY to increase by multiple times through the multiplier process, achieving positive actual growth. Firms expand production and increase demand for labour, reducing cyclical unemployment and achieving low unemployment.
- This expansionary fiscal policy also has supply-side effect due to capital accumulation from the infrastructure development. Hence increasing the productive capacity and LRAS, achieving potential growth. With both increase in AD and LRAS, sustained economic growth is achieved.

#### Limitations of EFP

- However, the effectiveness of EFP in promoting growth depends on the size of the multiplier k. Singapore's multiplier effect tends to be small due to a high marginal propensity to withdraw (MPW) as a result of a high mps and mpm. Her compulsory savings scheme, the Central Provident Fund (CPF), results in a high mps. Due to Singapore's limited resources and her consequent import-dependence for both finished goods and raw materials, she has a high mpm. The final increase in NY and hence the increase in production and employment is limited.
- In addition, there may be resource crowding-out. As government spends on building infrastructure projects and engages scarce resources, resources such as labour will be drawn away from the private sector. The shortage of labour will drive up wages hence increase cost of production, leading to lower profits earned. Firms in the private sector will cut down on their investment, and the fall in I may offset the rise in G, hence the increase in production and employment is limited.

#### Exchange rate policy

- The modest and gradual appreciation of SGD makes exports more expensive in terms of foreign currency and imports cheaper in terms of SGD. Assuming Marshall-Lerner condition  $|PED_x + PED_m| > 1$ , net exports will fall, resulting in fall in AD and GPL, curbing demand-pull inflation. It also makes imported raw materials cheaper in terms of SGD, reducing cost of production and curbing cost-push inflation.
- The modest and gradual appreciation of SGD also reflects strong economic fundamentals of the Singapore economy due to strong export growth and stable economy, hence boosting business confidence. With the strong business confidence, together with the fall in inflation, Singapore attracts FDI due to the rise in expected profits, resulting in increase in I. This increases AD and NY multiple times via the multiplier process, achieving positive actual growth. As firms expand production and increase derived demand for labour, cyclical unemployment is also reduced.
- In the long run, a rise in FDI leads to capital accumulation in the economy. In addition, FDIs may bring in better quality machinery, technology, skills and expertise which will enhance quality of capital and labour. Productive capacity is thus expanded, increasing LRAS and achieving potential growth. With both increase in AD and LRAS, sustained economic growth is achieved.
- Also, in times of higher unemployment (e.g. during the 2009 Global Financial Crisis), MAS adopted a one-time off depreciation of SGD through the 0% appreciation stance, resulting in a fall in price of exports in terms of foreign currencies and a rise in price of imports in terms of SGD. Assuming Marshall-Lerner condition  $|PED_x + PED_m| > 1$ , X-M increases, resulting in AD increase and multiple increase in NY via the multiplier process. This induces firms to increase production and increase derived demand for labour, lowering cyclical unemployment and achieving low unemployment.

### Limitation of ERP

- Managing the ER has some challenges as the government needs to know when to intervene, what ER they should aim to maintain, and how persistently they should try to maintain that rate. However, they may not have up-to-the-minute and reliable information about the state of the global economy and the various interactions in the foreign exchange market. If the SGD is too strong, it will erode its export competitiveness and worsen the BOP.
- As explained above, modest and gradual appreciation of SGD results in a fall in X-M. hence a multiple fall in NY via the multiplier process assuming Singapore economy is operating near/at full employment level.

### Conclusion and Evaluation

#### State stand and justify

- Due to its limitations, raising productivity alone is ineffective in achieving sustained economic growth and low unemployment.

#### Combination of policies

- The Singapore government needs to ensure that there is sufficient AD to support productivity growth. Thus it is necessary to complement the long term policy of raising productivity with concurrent implementation of demand-management policies such as expansionary fiscal policy and exchange rate policy to manage short-term macroeconomic fluctuations.

#### Nature of economy

- As labour is scarce and exports take up a large proportion of Singapore's national income, raising productivity is to a large extent effective for Singapore achieve sustained economic growth and low unemployment especially in the long run.
- A high quality labour force is also one of our main selling points to foreign investors, and as a small and open economy, Singapore relies heavily on FDI for capital and job creation.
- Since our productivity growth has been lagging behind our neighbouring countries, it is imperative that the Singapore government continuously fine-tune the supply-side policy to make Singapore more productive and competitive.

#### Root cause of problem

- It is important to examine the root cause of the problems so that the effective policy can be implemented. If there are external factors, such as a rise in food and oil prices, that affected Singapore growth and employment negatively, the more effective policy is to maintain a modest and gradual appreciation to ward off imported inflation.
- If the root cause of problem is the structural issues, which is the most likely reason, as Singapore restructures towards a knowledge-based economy, then raising productivity will be the more effective policy to achieve sustained economic growth and low unemployment through improving quality of labour and reducing structural unemployment.

**6. Discuss the view that opening an economy to free trade and migration flows mitigates the economic problem of scarcity and achieves a country's macroeconomic goals. [25]**

Knowledge, Application, Understanding and Analysis		
<b>L3</b>	For a well-developed explanation of how free trade and migration flows could mitigate the problem of scarcity and achieve macroeconomic goals, as well as how they could be limited or even harmful towards these aims.	<b>15-21</b>
<b>L2</b>	For an under-developed explanation.  <u>Max 14m</u> for a well-developed one-sided answer that covers how free trade and migration flows mitigates the problem of	<b>9-14</b>

	<p>scarcity and achieves macroeconomic goals OR how they are limited in achieving/harmful towards these aims.</p> <p><u>Max 14m</u> for a well-developed answer that addresses either free trade OR migration flows but not both.</p> <p><u>Max 9m</u> for an answer that only has a well-developed explanation of the theory of CA, linking to mitigating scarcity due to consumption beyond PPC.</p>	
<b>L1</b>	For a descriptive explanation regarding free trade and migration flows.	<b>1-8</b>
<b>Evaluation</b>		
<b>E2</b>	For an evaluative assessment based on economic analysis	<b>3-4</b>
<b>E1</b>	For an unexplained assessment or one that is not supported by economic analysis	<b>1-2</b>

### **Introduction**

- Free trade refers to the free movement of goods and services across country borders. It involves specialization according to the Theory of Comparative Advantage (CA). Migration flows refers to the free movement of labour across country borders. This could include both skilled and unskilled labour.
- The economic problem of **scarcity** arises from **limited resources and unlimited wants**. Trade could limit the problem of scarcity as it would be possible for countries to consume beyond their production possibility curve (PPC). In addition, scarcity could be mitigated by an increase in quality or quantity of resources, or an improvement in technology, that enables an economy to expand its PPC and thereby **satisfy more wants**. Macroeconomic goals refer to both internal and external objectives such as economic growth, full employment, low and stable inflation, healthy balance of payments, and stable exchange rate.

**Thesis: Opening an economy to free trade and migration flows mitigates the economic problem of scarcity and achieves a country's macroeconomic goals.**

**Explain how opening an economy to free trade mitigates scarcity and achieves macroeconomic goals**

**(i) Theory of CA: consume beyond PPC**

- According to the Theory of CA, when countries specialize and trade according to their comparative advantage, they can consume beyond their PPC – thereby mitigating the problem of scarcity.
- The Theory of CA states that trade between nations is beneficial to both if there is a **difference in relative opportunity cost** and **each specializes according to their comparative advantage**. The opportunity cost of producing good X is the amount of the other good which has to be sacrificed in order to produce an additional unit of X.
- The gains due to specialisation and trading according to comparative advantage can be illustrated through a numerical example. To explain the theory, assume that both countries have the **same amount of resources** and each devotes half of its resources to the production of each of two goods, textile and computers. There is **no transport cost, no trade barriers, perfect factor mobility and constant costs**.

**Table 1: Before Specialisation and Before Trade**

Country	Amount of resources	1 unit of resource can produce	
		Computers	Textile
Singapore	2	30	20
China	2	10	15
Total	4	40	35

- From Table 1, we can see that using 1 unit of resource, Singapore can produce 30 units of computer and 20 units of textile. Hence the opportunity cost of producing 1 unit of computer is **2/3 unit of textile**. China can produce 10 units of computer and 15 units of textile. Hence the opportunity cost of producing 1 unit of computer is **3/2 unit of textile**.

$$\text{Singapore:} \quad 30C = 20T$$

$$1C = 2/3T \quad \text{or} \quad 1T = 3/2C$$

$$\text{China:} \quad 10C = 15T$$

$$1C = 3/2T \quad \text{or} \quad 1T = 2/3C$$

- The **opportunity cost** of producing **1 unit of computer** is **lower for Singapore** than China. Singapore needs to give up only 2/3 units of textile compared to 3/2 units of textile if China were to produce computers.
- This could be because China has an **abundance of labour**, thus the **labour-intensive production of textiles is less costly for China than Singapore**. Similarly, due to the **skilled labour and advanced technology** in Singapore, the **production of electronics like computers would be less costly**. Hence, Singapore should specialise in the production of computers. Similarly, China should specialise in textiles.

**Table 2: After Specialisation and Before Trade**

Country	Computers	Textile
Singapore	$1.5 \times 30 = 45$	$0.5 \times 20 = 10$
China	0	$2 \times 15 = 30$
Total	45	40

- Table 2 shows that Singapore partially specialises. She uses 1.5 units of resources to produce computers and 0.5 unit of resources to produce textiles. China uses all its resources for textile production.
- After specialization, it will benefit both countries to trade with each other as long as the **terms of trade lies between the 2 countries' opportunity costs**. In this case, the terms of trade for 1 computer can lie between  $2/3T < 1C < 3/2T$ .
- **Assume** that the terms of trade is  $1C = 1T$ , and Singapore exchanges 12 units of computer for 12 units of textile with China.

**Table 3: After Specialisation and After Trade**

Country	Gun	Textile
<b>Singapore</b>	$45 - 12 = 33$	$10 + 12 = 22$
<b>China</b>	$0 + 12 = 12$	$30 - 12 = 18$
<b>Total</b>	<b>45</b>	<b>40</b>

- A comparison between Tables 1 and 3 shows that there is **increase in world production of both goods**. Also, Singapore has gained 3 units of computers and 2 units of textiles. China gains 2 units of computers and 3 units of textile after trade.
- It can be seen that with specialisation and trade, both Singapore and China are now better off with an increase in consumption that is beyond what both countries can initially produce. In fact, they both **consume beyond their PPC – mitigating the problem of scarcity**.

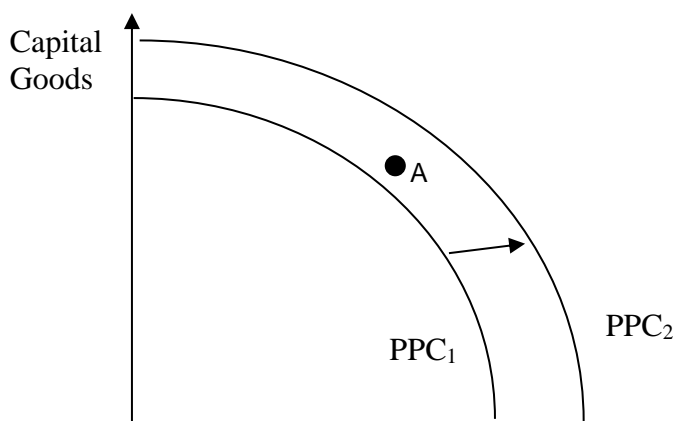
**(ii) Achieve macroeconomic goals: EG, full employment, healthy BOP**

- Opening an economy to free trade leads to an increase in access to the world market, which can **increase the demand for a country's exports and hence a country's export revenue**. This is especially pertinent for countries like Singapore with a small domestic economy that relies on exports to drive its growth. The resultant increase in net exports (X-M) will increase **aggregate demand (AD)**, hence increasing **national income by a multiple** and achieving **actual growth**.
- In addition, as production increases, there is increased demand for labour, which helps the economy to achieve **full employment**. Moreover, the increase in X-M results in an **improvement of the current account** of the balance of payments.

**Explain how opening an economy to migration flows mitigates scarcity and achieves macroeconomic objectives**

**(i) Increase in quantity and quality of labour resources**

- Opening an economy to migration flows could mitigate scarcity from an increase in labour resources, for instance the **increase in quantity of foreign workers** entering the Singapore economy. In addition, desirable factors such as low personal income tax could also attract skilled labour, which improves the quality of labour.
- The improvement in quality and quantity of labour will lead to an increase in productive capacity of an economy, thereby **shifting the PPC to the right from  $PPC_1$  to  $PPC_2$** . This mitigates the problem of scarcity as point A, which was not previously attainable given the country's resources, will now be attainable, hence satisfying more wants.





**(ii) Achieves macroeconomic objectives - EG, price stability, improve BOP**

- The increase in quantity and quality of labour as previously mentioned helps an economy to achieve potential growth as the **productive capacity of the economy increases**. In addition, as LRAS increases, the general price level of a country falls, curbing demand-pull inflation.
- In addition, the fall in general price level helps to reduce the price of exports. Assuming the demand for exports is price elastic, the quantity demanded of exports will increase more than proportionately, thereby increasing export revenue and net exports. This **improves the current account** and balance of payments.

**Anti-thesis: Opening an economy to free trade and migration flows DOES NOT mitigate the economic problem of scarcity and achieves a country's macroeconomic goals.**

**Explain why opening an economy to free trade does NOT mitigate scarcity or achieve macroeconomic goals**

**(i) Limitations of Theory of CA: trade might not occur**

- Opening an economy to free trade might not actually allow a country to consume beyond PPC as the **assumptions behind the Theory of CA might not hold**. For instance, if transport costs between two countries are too high, opening both economies to free trade does not actually result in specialization and trade, as the transport costs prohibit the exchange of goods and services. Hence, both countries would still produce and consume within their respective PPC, and this would not mitigate the problem of scarcity.

**(ii) Unfavorable terms of trade: might not consume beyond PPC**

- In addition, even if the assumptions behind the Theory of CA hold, **the terms of trade might not be favorable** to both countries. From the earlier example, the acceptable terms of trade is  $2/3T < 1C < 3/2T$ . If the terms of trade was set at  $1C=3/2T$ , this would be exactly the same as China's own opportunity cost of production. China would not experience any difference in their ability to consume – in fact the maximum they could consume would be along their PPC, even with trade, hence not mitigating the problem of scarcity.

**(iii) Vulnerability to external shocks: recession, cyclical Ue, imported inflation**

- In addition, opening an economy to free trade exposes the economy to certain risks such as being **vulnerable to external shocks**. For instance, Singapore was greatly affected by the recent Global Financial Crisis in 2008. The fall in income and purchasing power of her major trading partner US caused a fall in demand for Singapore's exports, thereby leading to a **fall in her net exports and AD**. Singapore's **national income fell by a multiple**. This led to a recession in the Singapore economy. Moreover, it also led to **cyclical unemployment** as the fall in production led to a fall in demand for labour. The fall in X-M also **worsens BOP**.
- In addition, if **prices of traded commodities such as oil rises** due to instability in oil producing countries like Iraq, this can lead to an increase in cost of production in importing countries like Singapore, leading to **imported inflation**.

**(iv) Loss of CA: structural Ue**

- Countries that are open to free trade may also experience a **loss of comparative advantage**. For instance, Singapore lost its comparative advantage in low-skilled manufacturing (e.g. textiles and consumer electronics) to countries such as Vietnam and China which have a much larger pool of unskilled workers. As such, Singapore experienced an **outflow of FDI towards these countries** in terms of a **relocation of such industries** to Vietnam and China, thereby causing unskilled workers in Singapore to experience unemployment. Since these workers do not possess the required skills to work in high value-added industries such as biotechnology, they may become **structurally unemployed**.

**Explain why opening an economy to migration flows does NOT mitigate the economic problem of scarcity or achieve macroeconomic aims**

**(i) Brain drain: PPC might not shift outwards**

- Opening an economy to migration flows could lead to the **opposite problem of brain drain** as skilled workers leave in search of better opportunities elsewhere. This has especially been the case in African countries, where doctors and engineers are leaving for better-paying jobs in the USA. As such, the quantity and quality of the labour force could deteriorate, thus **hindering potential growth**. This would not mitigate the problem of scarcity.

**(ii) Aims not achieved: PG, healthy BOP**

- Macroeconomic aims might not be achieved as the fall in productive capacity leads to a **stagnation of potential growth**. In addition, the deterioration of the quality of the labour force could lead to a **fall in FDI inflow** as firms expect higher costs of production and lower profits, thereby **worsening the BOP**.

## **Conclusion and Evaluation**

### **Stand and Justification**

- In general, opening an economy to free trade and migration flows is **not guaranteed** to mitigate the problem of scarcity or achieve macroeconomic objectives. Countries that are more likely to experience positive outcomes are countries like Singapore – which use **policies to amplify the potential benefits and reduce potential costs** from trade and migration.
- For instance, Singapore uses supply side policies to encourage R&D (e.g. via the Productivity and Innovation Credit Scheme), which helps to develop new sources of comparative advantage and improve the quality of exports, so as to ensure continued demand for our exports to achieve objectives like growth. In addition, the maintenance of low personal income tax rates and continued government spending on improving healthcare and education helps to ensure that we attract skilled workers – helping to mitigate scarcity and achieve our macroeconomic goals.

### **Further Evaluation**

- Whether opening an economy to free trade and migration flows will help also depends largely on the **state of the global economy**. If the world economy is in a recession, being open to trade could actually lead to severe negative consequences on a country's growth and balance of payments as export demand falls.
- In addition, **advancements in technology** also matter – while transport costs might have been prohibitively high in the past, restricting the volume of trade among countries, transport costs have now fallen to an extent where trade can now occur even with countries that are far away. This **enhances the probability of reaping benefits** such as expansion of world production and consumption beyond PPC. In addition, improvements in transportation technology has led to a large increase in migration flows, amplifying the positive effects of migration if a country can attract labour inflows.