

JC2 PRELIMINARY EXAMINATION 2016**H2 ECONOMICS
PAPER 1****9732/01
15 AUGUST 2016
1400 – 1615 hrs****TIME 2 hour 15 minutes**

Additional Materials: Writing Papers

READ THESE INSTRUCTIONS FIRST

Write your name and CTG on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use highlighters or correction fluid.

Answer **all** questions.

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

Answer all questions.

Question 1

Utility Market

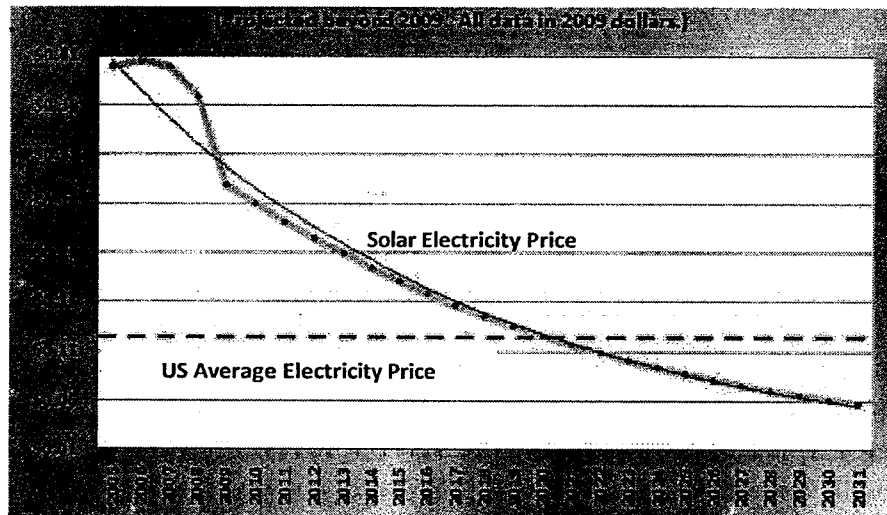
Extract 1: Power growth slows

Utility companies operating in competitive U.S. utility markets are struggling to make money as falling electricity consumption threatens their profits and forces the utility firms to rethink their long-held business models.

For decades, utility demand climbed steadily, often in lock-step with the economy, providing utility firms with a reliable increase in sales plus a profit that is typically set by state regulators. But the economic crash in the last decade has poked a hole in that business model. Power demand is flat lining, energy efficiency programmes are eroding the likelihood of future growth and the spread of rooftop solar systems is serving as a warning to large utility suppliers that they no longer hold their customers captive. However, it is unlikely and uneconomic for a large number of customers to go from the traditional power supply to solar systems without any subsidies until 2030 or beyond.

Source: Darius Dixon, <http://www.politico.com/>, 24 October 2014

Figure 1: Prices of solar power vs. average electricity prices



Source: DOE NREL Solar Technologies

Extract 2: Exelon Will Acquire Pepco and Form Largest Utility Firm in the US

Exelon Corporation announced on Wednesday that it will acquire Pepco Holdings in a \$6.8 billion all-cash transaction to create a mega-utility serving the Mid-Atlantic and Midwest.

Exelon and Pepco already have regional synergies in the Mid-Atlantic that should allow the companies to streamline some back office functions and share lessons learnt across the two companies' urban utility firms that have invested in technologies such as smart meters, distribution automation and advanced outage management systems. Expanding regulated businesses and diversifying operations reduce risk profiles. Many utility firms look to expand their regulated businesses to increase the stability and predictability of cash flows, while also maximising operational efficiency and spreading operating and maintenance costs over a wider customer base.

The merger is subject to approval from the Federal Energy Regulatory Commission, an antitrust review, and approval by public service commissions in the states where Pepco operates. The companies hope to close the deal in the second or third quarter of 2015.

Source: Katherine Tweed, <http://www.greentechmedia.com/>, 30 April 2014

Extract 3: Revenue Decoupling for Utility Firms

Electric utility firms are responsible for delivering electricity to every home, business, and public building in the United States. It's no easy task, especially when outside forces—technology, innovation, and policy and economic changes—make the old ways of doing business obsolete.

Utility firms are facing this dilemma today. The old business model—one based on selling more and more electricity—doesn't work anymore. As demand for energy falls, it will take a suite of policy and business tools to keep utility firms strong and dependable—and keep the lights on for consumers.

Revenue decoupling is one way to work around this problem. At a basic level, revenue decoupling is an accounting tool that ensures utility firms collect the amount of revenue they are allowed by state regulators. Decoupling essentially separates the link between utility profits and its sales revenue to create profit sustainability for utility firms.

What we pay for electricity depends on a rate approved by regulators. This rate is based on the anticipated amount of energy customers will use in the future; regulators and utility firms must plan ahead so that they can develop a plan to provide steady power that covers their cost of production at the same time. Without decoupling, utility firms will collect revenue based on only predicted usage numbers.

But the actual amount of energy customers use and the actual amount of money utility companies bring in may be higher or lower than forecasted for a host of reasons, including the implementation of energy efficiency measures, increased energy conservation, local power generation like small wind and solar, and even weather.

For example, if states have a decoupling policy in place, and actual electricity sales were higher than expected, the company would lower rates slightly the next year to refund customers the extra money they paid. If electricity sales were lower than what the utility firms and regulators expected, the company increases rates slightly the next year to make up the difference.

Decoupling benefits utility firms by relieving the need to sell increasing amounts of energy to cover the costs of generation and infrastructure investments and the costs of providing electricity to customers. It also encourages greener technologies. Reduced energy consumption caused by energy efficiency can help reduce carbon dioxide emissions and protect against climate change. Decoupling allows these to exist without harming the companies' finances.

In our rapidly changing energy world, it is unclear what the utility market of the future will look like, and what types of services it will provide. However, it's clear that the current business model which relies on selling more and more electricity is no longer compatible with today's energy landscape. Furthermore, a utility firm which is increasingly worried about selling certain amounts of energy to cover its operating costs will be more and more resistant to changes to its business model in the future.

Decoupling can break this reliance on increasing electricity sales revenue and open the door to new ways for utility firms to remain economically strong.

Source: <http://fresh-energy.org/>, 3 October 2014

Extract 4: U.S. state policies to reduce carbon emissions from power plants

Power plants are currently the nation's largest source of greenhouse gas emissions — especially the dangerous carbon emissions known to increase global warming. In June 2014, President Obama proposed the Clean Power Plan, which will require states to reduce carbon pollution from power plants, cutting emissions to 30% of 2005 levels by 2030. These 50 states must adopt and enforce effective carbon pollution reduction measures for its own electricity sector. These approaches include:

- Emission caps. Plant-level greenhouse emissions to be reduced by caps and targets that set specific reduction goals.
- Public benefit funds. This invests in research and development for energy efficiency and renewable power
- Plant-level reductions in dangerous emissions have happened in states with decoupling programme that separates the link between utility profits and its sales revenue

Some policies adopted by the states may have been ineffective because they are too vague or insufficiently publicised and enforced. More successful policies tend to have specific, concrete goals that can be objectively measured. Of course, it is important to acknowledge that emission levels are influenced by the characteristics of power plants themselves, as well as by state policies. On average, plants that are older or rely primarily on coal for fuel have significantly higher emissions. In contrast, lower emissions on average occur at plants with independent system operators and at plants that are part of regional transmission organisations where energy transfers are more efficient.

Source: Journalist's resource, 15 October 2014

Questions

- (a) Compare the price of the solar electricity with that of the average electricity price in US from 2010 to 2030. [2]
- (b) Explain how the provision of subsidy to the producers of solar systems will affect the following markets:
- (i) Solar power
- (ii) Traditional power supply [4]
- (c) Explain two possible sources of market failure that exist in the utility market. [6]
- (d) Discuss the likely factors that Exelon Corporation would have considered when deciding to acquire Pepco Holdings. [8]
- (e) With reference to the data where appropriate, discuss whether revenue decoupling such as that proposed in the US would be the most appropriate way of reducing carbon emission by the power plants. [10]

[Total: 30]

Question 2

Emerging Asia

Extract 5: Asia to remain the Global Growth Leader

Growth in Asia-Pacific will continue to outperform the rest of the world thanks to robust domestic consumption spurred by healthy labour markets, low interest rates and the recent fall in oil prices, according to the International Monetary Fund (IMF). Furthermore, the global recovery, albeit moderate and uneven, will continue to support demand for Asia's exports.

There are reasons to be cautious, however, with the balance of risks tilted to the downside, the IMF warned. Risks include significantly slower-than-expected growth in China or Japan and persistent U.S. dollar strength, which could ramp up debt servicing costs for firms with sizable dollar-denominated debt and curtail demand.

"Debt levels — including foreign currency-denominated debt—have increased rapidly in recent years, and Asia is now more vulnerable to financial market shocks," the IMF said.

On the flip side, lower energy prices present an upside risk for Asia's growth if more of the savings on oil import bills is spent. "The decline in oil and food prices provides a window of opportunity to further reform or phase out subsidies, thereby improving spending efficiency and shielding public spending from future commodity price fluctuations," it said.

Source: Ansuya Harjani, IMF: Asia will remain the global growth leader, www.cnbc.com, accessed 06 May 2015

Extract 6: Policy Priorities for Emerging Asia

Emerging Asia (Southeast Asia, China and India) has made remarkable progress over the past four decades. To ensure that the new growth strategies do indeed lead to sustained growth, countries in Emerging Asia need to shift away from growth that is driven primarily by factor accumulation, to growth based on productivity increases driven by improvements in the quality of human and other capital and by innovation.

It is therefore critical for Emerging Asia to undertake the necessary reforms to ensure sustained and robust productivity growth. Some of the policy priorities that will help Emerging Asia to sustain long-term growth and consequently become advanced economies include:

Institutional development

- Institutional capacities to provide human capital, infrastructure and innovation need to be created and strengthened to support the transformation to increasingly sophisticated industries.
- Institutions that support efficiently functioning markets, competition, and a favourable investment and business development climate are critical.
- Institutional capacities to sustain financial and macroeconomic stability are equally important to ensure that resources are allocated efficiently.

Change in the character of "Factory Asia"

The development of middle-income ASEAN countries and China has been characterised by a high reliance on exports of manufactured goods to advanced economies whose production is distributed across regionally-based global value chains ("Factory Asia").

The participation of most middle-income Emerging Asia economies in global value chains is still largely limited to assembly and other less sophisticated, lower-productivity stages. Furthermore, there is need to intensify efforts to assist small and medium enterprises (SMEs) in accessing credit and in integrating into global value chains.

While a number of forces, including rapidly rising wages in China and most ASEAN countries, may curb the growth in demand from advanced economies for manufacturing exports, that trend is likely to be at least partly offset Emerging Asia's rising share of world consumption, and growing economic integration among Asian countries. As a result, Factory Asia is likely to remain of major importance in world manufacturing and a major contributor to regional GDP and economic growth. It will, however, probably evolve towards greater emphasis on supplying regional markets.

Service sector development

Development of the services sector, especially in modern services, will be critical to the success of efforts by middle-income ASEAN countries to become advanced economies. Services provide critical support to their participation in the global value chain, and modern services are essential to their ability to move up the value chain. Service sector development will also be important to the achievement of broader goals, such as reducing poverty and meeting the needs of the growing middle classes. The potential contributions of services to economic development have been further increased by technological changes and liberalisation of trade and investment that have greatly expanded the scope for international trade in services.

Regulatory barriers that limit entry, stifle competition and inhibit investment have been major obstacles to the development of services sectors in developing Asian countries.

Regional co-operation and integration

Regional initiatives to promote co-operation and greater integration can potentially increase the prospects for Emerging Asia in becoming high-income advanced economies.

- Regional integration will enable more efficient division of labour and allocation of resources in the region.
- Regional integration can help to make up for the constraints arising from the limited scale afforded by domestic markets alone.
- Regional co-operation and integration will help to facilitate capital account liberalization.
- The regional initiatives provide incentives for national liberalisation efforts. For example, the prospect of cross-border competition in banking is already spurring banks and their supervisors in individual countries to greater efforts to improve their efficiency and competitiveness.

Source: Economic Outlook for Southeast Asia, China and India 2014: Beyond the Middle-Income Trap

Table 1: Selected Data for China, India and Vietnam, 2014

	China	India	Vietnam
Final Consumption Expenditure (% of GDP)	51	69	70
Gross Capital Formation (% of GDP)	46	32	27
Exports (% of GDP)	22.6	23.2	86.4
Imports (% of GDP)	18.9	25.5	83.1

Source: World Bank

Questions

(a) Using economic analysis, explain how each of the following drives growth in Asia.

(i) low interest rates

(ii) fall in oil prices [4]

(b) With reference to Extract 5, state how the 'persistent US dollar strength' affects the capital and financial account on the balance of payments of Asian countries. [1]

(c) The decline in oil and food prices provides a window of opportunity to further reform or phase out subsidies' (Extract 5).

Explain **one** benefit of the phasing out of fuel and food subsidies to governments of the Asian economies. [2]

(d) Using the information contained in Table 1, explain how current and future living standards of the three countries may be affected. [5]

(e) Assess whether a smaller country such as Vietnam benefits more from a greater regional cooperation and integration than larger economies like China and India, using both the case study and your own relevant knowledge. [8]

(f) Discuss the view that Emerging Asian economies need to shift to growth based on productivity increases driven by improvements in the quality of human and other capital and by innovation in order to achieve sustained growth. [10]

[Total: 30]

H2 Case Study Suggested Answers

Question 1

- (a) **Compare the price of the solar electricity with that of the average electricity price in US from 2010 to 2030.** [2]
- Price of solar electricity falls while the average electricity price remains constant.
 - Before 2020, price of solar electricity > average electricity price but after 2020, it's the other way.
- (b) **Explain how the provision of subsidy to the producers of solar systems will affect the following markets:**
- (i) **Solar power**
- With the subsidy given to producers, COP of solar power will fall → SS of solar power rises. [1m]
 - Price of solar power falls while quantity transacted rises. [1m]
- (ii) **Traditional power supply** [4]
- Traditional power supply and solar power are substitutes, hence as price of solar power falls, consumers will switch from using traditional power to solar power → demand for traditional power falls. [1m]
 - Price of traditional power falls, quantity transacted falls. [1m]
- (c) **Explain two sources of market failure that exist in the utility market.** [6]
- Two sources of market failure:
 - due to presence of negative externality
 - market dominance.
 - Clear explanation of how each source lead to market failure. [3m for each source of market failure.]
 - Presence of negative externality:
 - State the negative externality presence and therefore the divergence between MPC and MSC. [1m]
 - State the free market and socially optimum output equilibrium. [1m]
 - Explain the welfare loss due to over production and there leading to market failure. [1m]
 - Market dominance
 - State that utility firms have large market power due to high BTE. [1m]
 - State the free market and socially optimum output equilibrium. [1m]
 - Explain that $P > MC$ and the welfare loss due to under production and therefore leading to market failure. [1m]
- (d) **Discuss the likely factors that Exelon Corporation would have considered when deciding to acquire Pepco Holdings.** [8]
- Exelon wants to acquire Pepco likely because it wants to increase its profits, hence it has to consider how the acquisition can lower its costs and increase its revenue.
 - Factors to consider to reduce costs:
 - The extent of fall in its COP due to the possible sources of EOS reaped.
 - Technical, Managerial, Financial
 - The potential increase and availability of funds for R&D, such as greener technologies (Evidence from Extract 2 and 3)

- Factors to consider to increase revenue:
 - The potential increase in market share → higher demand
- At the same time, Exelon also has to consider the possible adverse impact on the company:
 - Possibility of diseconomies of scale as the firm gets too big → increase the costs
 - The possible increase in government intervention to prevent consumers being exploited as the firm's market power rises.
- If at the time of acquisition, Pepco is not doing too well, the potential increase in funds may not be huge for Exelon. And the increase in market share will not be much too. But it would also mean Exelon will not go into diseconomies so fast.
- On the other hand, if Pepco is actually doing well, the benefits of Exelon acquiring Pepco will likely outweigh the costs if Exelon is able to manage the company well.

Level	Descriptors	Mark Range
L1	Merely stating some factors without explanation.	1 – 3
L2	Clear explanation of the factors (both the benefits and costs of acquisition) to be considered, with reference made to Extract 2	4 – 6
E1	Statement/conclusion on whether the acquisition is beneficial to the company	1
E2	Reasoned conclusion on whether the acquisition is beneficial to the company	2

(e) With reference to the data where appropriate, discuss whether revenue decoupling such as that proposed in the US would be the most appropriate way of reducing carbon emission by the power plants.

[10]

- Revenue decoupling is appropriate:
 - It ensures stable revenue for the utility companies to cover the high COP, hence firms would be willing to engage in R&D to develop greener technology.
 - Firms wouldn't need to waste resources on trying to increase sales and thus able to channel the funds for R&D.
 - It doesn't discriminate against the older power plants which are emitting higher level of carbon.
 - Unlike emission caps, government doesn't need to estimate the external costs of carbon emission and then sets a target which may not coincide at the socially optimum output level. → the possibility of government failure in correctly estimate the external costs.
 - Also, this policy will not drain government's budget like the Public benefit funds. The funds for R&D will come from the utility firms themselves.
 - This policy is also easier to enforce. Additionally, no much publicity is needed for this policy.
 - This is a long term policy.
- However,
 - There won't be much increase in revenue thus no increment in profits. As such, if cost of production goes up, firms' profit will fall, resulting in not willing to engage in R&D for greener technologies.

- Due to imperfect knowledge, firms can wrongly estimate the power usage and thus charging the consumers at the wrong rates which may not cover their COP.
- R&D doesn't guarantee success. If the R&D is not successful, resources are wasted and firms may therefore stop their R&D.
- Revenue decoupling is an appropriate policy as the benefits outweigh the costs.
- However, the results may be seen only in the longer run, hence the US government should still have some ST policies to reduce the carbon emission

Level	Descriptors	Mark Range
L1	Merely stating the advantages and disadvantages of revenue decoupling. No mention of whether the policy is appropriate.	1 – 3
L2	Clear explanation of why revenue decoupling is more appropriate than other policies.	4 – 6
E1	Statements on whether revenue decoupling is the most appropriate.	1 – 2
E2	Reasoned conclusion on whether revenue decoupling is the most appropriate.	3 – 4

Question 2

(a) Using economic analysis, explain how each of the following drives growth in Asia.

(i) low interest rates

(ii) fall in oil prices

[4]

(i) Low interest rates \rightarrow cost of borrowing $\downarrow \rightarrow I \uparrow$

Low interest rates \rightarrow opportunity cost of spending $\downarrow \rightarrow C \uparrow$

AD $\uparrow \rightarrow$ NI \uparrow by a multiple \rightarrow actual growth

(ii) Fall in oil prices \rightarrow cost of production $\downarrow \rightarrow$ producers motivated to increase production \rightarrow SRAS $\uparrow \rightarrow$ NI \uparrow

2m for each part

(b) With reference to Extract 1, state how the 'persistent US dollar strength' affects the capital and financial account on the balance of payments of Asian countries. [1]

Capital and financial account worsens Or capital outflow in the capital and financial account – 1m

(c) 'The decline in oil and food prices provides a window of opportunity to further reform or phase out subsidies' (Extract 1).

Explain one benefit of the phasing out of fuel and food subsidies to governments of the Asian economies. [2]

Governments can channel funds to other areas like infrastructural development and education to stimulate/develop the economies \rightarrow results in more efficient use of funds

Governments can reduce spending and hence improve fiscal balance \rightarrow helps to reduce fiscal deficit if any or helps to build up fiscal surplus and allows governments to be in better position to stimulate economy in the case of any future recession/sluggish growth

Any clear explanation of how removal of subsidies benefits ---2m

(d) Using the information contained in Table 1, explain how current and future living standards of the three countries may be affected. [5]

Total final consumption expenditure figures more than 50% of GDP \rightarrow current consumption is high and hence material well-being of the people is high.

Vietnam's imports constitute $>80\%$ of its GDP and consumption figure is 70% of GDP \rightarrow a high current living standard especially if most of these imports are consumer goods and services.

Future living standards of the countries are likely to be affected by their high current consumption. A high level of current consumption means fewer resources can be channelled to investment \rightarrow reduced capacity in the future to produce goods and services to meet consumers' demand \rightarrow future standard of living is compromised.

Proportion of GDP devoted to capital goods (Gross capital formation as a % of GDP) is very low in India and Vietnam, and hence these two countries' future living standards are most likely to be compromised.

However, in Vietnam, if a large proportion of its imports are capital goods → capacity to produce more goods and services in the future can increase → living standard may not be as badly affected as that in India.

[Also accept the point that if India's trade deficit persists it may point to a slower growth → future standard of living will be adversely affected]

Explanation confined to only current or future living standards --- max 3m

No reference to the data, purely theoretical answer explaining what is living standard and that with more consumer goods living standard is high --- max 2m

Reference to data to explain both current and future living standards --- 4-5m

- (e) **Assess whether a smaller country such as Vietnam benefits more from a greater regional cooperation and integration than larger economies like China and India, using both the case study and your own relevant knowledge.** [8]

Greater regional cooperation and integration will benefit emerging Asian economies, whether big or small

- More efficient allocation of resources within the region → All countries can consume beyond their PPCs.
- Access to the regional market → more opportunities for domestic firms to reap economies of scale and Xs ↑
- Capital account liberalisation → FDIs ↑ → NI ↑

Smaller countries like Vietnam may benefit more

- Trade plays a significant role (Xs and Ms make up a larger proportion of the Vietnam's GDP)
Greater cooperation and integration → volume of trade increases → benefits the small and open country significantly.
- Market for Vietnam's exports expands due to access to the regional market → export-driven growth. Bigger countries, like China and India, can rely on domestic consumption to drive growth instead of depending on exports. Firms in Vietnam can now operate on large scale and enjoy economies of scale as they now produce for a much bigger market.
- More inward FDIs → make up for the lack of funds for large scale investment projects in a small country like Vietnam (lower level of investment in the country compared to China) → both actual and potential growth.
Inward FDIs also bring in a lot of other benefits like technical know-how and managerial skills.

However, extent of benefits depends on:

- Openness of the economy
- Type of goods that the country imports and exports

Conclusion:

All Emerging Asian economies will benefit with greater regional cooperation and integration and smaller economies that are more open to trade and capital flows are likely to benefit more.

Level	Descriptors	Mark Range
L1	Explanation of benefits of greater cooperation and integration without much reference to small countries like Vietnam	1 – 3m

L2	Balanced answer with clear explanation of why small countries may or may not benefit more	4 – 6m
E1	Statement/conclusion on whether small countries benefit more	1m
E2	Reasoned conclusion on whether small countries benefit more	2m

- (f) **Discuss the view that Emerging Asian economies need to shift to growth based on productivity increases driven by improvements in the quality of labour and other capital and by innovation in order to achieve sustained growth. [10]**

To achieve sustained economic growth in Emerging Asian economies both AD and AS must increase.

AD in Emerging Asian economies is robust and will continue to grow due to

- Global recovery
- Demand in the regional market ↑

Need to increase AS. Otherwise, NI of these countries will increase up to the full employment level and inflationary pressure will then set in.

Emerging economies need to increase AS by increasing productivity

- Improving quality of labour and capital, and innovation → productivity and productive capacity ↑ → AS ↑ and entire AS curve shifts to the right → NI ↑ → economies enjoy both actual and potential growth.

But much depends on the structural reforms that must take place in these economies

Challenges for Emerging Asian Economies

- Development of institutional capacities to provide human capital, infrastructure and innovation
- Development of favourable investment and business environment
- Change in the participation of these economies in global value chains
- Development of service sector to provide the critical support to these economies' participation in the global value chain.

Conclusion:

As AD increases and will continue to increase, Emerging Asian economies need to shift to growth based on productivity increases driven by improvements in the quality of labour and other capital and by innovation. However, efforts must be channelled to ensure the structural reforms take place or else these countries would not be able to successfully raise productivity and achieve innovation needed to sustain growth.

Level	Descriptors	Mark Range
L1	Mere analysis of increase in AS without recognizing increase in AD and the challenges/problems that countries must address	1 – 3m
L2	Thorough analysis of the need to increase productivity in the light of increase in AD and the challenges the countries faced and arriving at a conclusion	4 – 6m
E1	Evaluative statements made regarding the need for growth based on productivity increases	1 – 2m
E2	Explained conclusion regarding the need for growth based on productivity increases	3 – 4m



H2 Economics Prelims Essays Suggested Answers

- 1 The recent strong economic growth and the advancement in technology have had major impact on the demand for and supply of air travel.

Assess how the markets for low cost carriers and full cost carriers might be affected by the above. [25]

Low cost carrier	Full cost carrier
<ul style="list-style-type: none"> Economic growth – increase in household income – for inferior goods (low cost carrier may be perceived as inferior compared to their full cost counterparts) – DD for air travel decreases 	<ul style="list-style-type: none"> Economic growth – increase in household income – for normal goods – DD for air travel increases For normal and necessity goods – higher degree of need for the good – consumers like businessmen would likely face an income inelastic DD curve – for a given increase in income, DD for air travel increases by less than proportionate For normal and luxury goods – lower degree of need for the good – consumers like holiday-goers would likely face an income elastic DD curve – for a given increase in income, DD for air travel increases by more than proportionate
<ul style="list-style-type: none"> Advancement in technology – higher productivity – lower AC – SS increases 	
<p>Inferior goods</p> <ul style="list-style-type: none"> Decrease in DD Increase in SS <p>Impact on the market</p> <ul style="list-style-type: none"> Decrease in eqm P – explained using the price adjustment mechanism The impact on eqm Q depends on the extent of the shift of the 2 curves <ul style="list-style-type: none"> If DD decrease > SS increase → eqm Q decreases If DD decreases < SS increase → eqm Q increases If DD decrease = SS increase → eqm Q remains unchanged 	<p>Normal and necessity goods</p> <ul style="list-style-type: none"> Increase in DD (by less than proportionate) Increase in SS <p>Normal and luxury goods</p> <ul style="list-style-type: none"> Increase in DD (by more than proportionate) Increase in SS <p>Impact on the market</p> <ul style="list-style-type: none"> Increase in eqm Q The impact on eqm P depends on the extent of the shift of the 2 curves <ul style="list-style-type: none"> If DD increase > SS increase → eqm P increases If DD increases < SS increase → eqm P decreases If DD increase = SS increase → eqm P remains unchanged
<ul style="list-style-type: none"> Diagrams drawn to illustrate the impact on P and Q on the different types of goods 	

Note:

- Technology can also affect the DD (and not just the SS)

- 2 (a) Explain how barriers to entry determine a firm's pricing and output decisions. [10]

Define barriers to entry

Barriers to entry refer to any impediments that prevent new firms from entering an industry and limit the competition faced by existing firms.

Explain how high barriers to entry determine a firm's pricing and output decisions

- Industry with high barriers to entry, may only have a few large firms dominating the market (oligopolies) or it may only have 1 firm in the market (monopoly)
- Firms in the industry will therefore have strong market power and can have control over the market price. Each firm will have the market power to set its own price or quantity to be sold but not both at the same time. If the firm decides to set the price in the market, then it would have to leave the resulting quantity demanded & sold to the market to determine. If the firm decides to raise its price, quantity demanded will fall. Alternatively, the firm can restrict output in order to raise the price. This implies that the demand curve (AR curve) that the firm faces is downward sloping.
- The higher the BTEs, the more price inelastic is the demand curve and the lower the BTEs, the more price elastic the demand curve.
- Each firm's MR curve is below the AR curve as price needs to be reduced if firm wants to sell an additional unit of the product.
- If the firm aims to maximise profits, the firm will produce at a level where the extra revenue earned from selling the last unit is just equal to the extra cost of producing that last unit, i.e. where $MR = MC$.
Reason: When $MR > MC$, an additional unit produced adds more to the revenue than to the cost and hence profits can still increase by producing the extra unit. When $MR < MC$, an additional unit produced adds more to the cost than to the revenue, hence reducing the firm's profit and thus the firm will not produce the extra unit.
- At this output level, where $MR = MC$, $P > MC$; since $AR (AR = P)$ is above MR.

Explain how the absence of barriers to entry determine the price and output decisions

- In a perfectly competitive market where there are no barriers to entry, new firms can easily enter the industry. There will be many firms in the industry.
- Each firm will only contribute an insignificant proportion of the total market supply and so has no power to influence the market price. The firm is a price taker, selling its product at the market-determined price which is determined by the total demand and supply in the market.
- The demand curve of each firm is perfectly price elastic. $AR = MR$
- The profit-maximising firm will produce the output level where $MR = MC$. Since $MR = AR = P$, the firm produces where $P = MC$

Conclusion

Barriers to entry determine the shape of a firm's AR/DD curve and this influences the firm's pricing and output decisions.

- (b) **Discuss the likely benefits to society if the barriers to entry were removed. [15]**

Introduction

Removal of barriers to entry leads to increased competition in the market. Both consumers and producers can benefit from this.

Development

Benefits from removing barriers

- Increase in number of firms operating in the industry → firms produce at or near $P=MC$ → remove or reduce the extent of allocative inefficiency caused by market dominance
- Since P is equal to or closer to MC , consumer surplus is maximised or the extent to which producers rob consumers of their surplus is reduced
- New firms enter the industry → each firm's demand fall → AR curve of each firm shifts to the left → p and q falls → TR falls and supernormal profits are competed away → all firms earn supernormal profits → there is a more equitable distribution of income in society as there is no sustained redistribution of income to the producers
- With an increase in competition, X-inefficiency is also avoided – as the firm is kept on its toes and would not face a lack of motivation from staff, lax cost controls and undertake unnecessary spending

Costs of removing barriers

- With an increase in the number of firms – incumbent's supernormal profits are eroded – limits their ability to conduct R&D to discover cost-efficient methods of production, or to innovate – dynamic efficiency is reduced
- In the case of a natural monopoly which faces a falling AC and MC over a large range of output, removing barriers may lead to them making losses as their TR cannot cover their TC – this is because the firm has to produce on a large scale in order to reap substantial EOS -- once the natural monopoly is prevented from doing so, it shuts down, and consumers are deprived of the good

Conclusion

- There may be costs to society when BTE is removed but it also makes sense if government comes in to intervene to ensure the benefits to society is maximised

- 3 (a) Explain why markets fail in the case of public goods and in the consumption of alcohol.

[10]

Explain why market fails in the case of public goods

- State that public goods are goods that exhibit 2 characteristics:
 - Non excludable
 - Non rivalrous in consumption
- Explain the implication of each characteristics.

	Non-excludability	Non-rivalrous in consumption
Definition	A good is non-excludable when it is impossible or very costly to exclude non-payers from consuming it.	A good is non-rivalrous in consumption when the consumption of the good by one person does not reduce the amount of satisfaction of the next person consuming the same good.
Implication	Non-payers can also enjoy the good or service, leading to the free ridership problem . Consumers will not reveal their preferences and there will be no effective demand .	To provide the good for an additional consumer, no additional resources are needed. Thus, the marginal cost of producing an additional unit of good for the next person is zero. As society aims to be allocative efficient, price equals marginal cost, and since the marginal cost is zero, $P=0$. There is no incentive for producers to supply the good at all.
As a result	There will be no price signal and the good or service will not be provided by the free market. There is no resources are allocated to the provision of public goods.	

- Explain that in the case of public goods, there is complete market failure. As there is no signal of effective demand and supply in the market, no resources will be allocated to the production of the good in the free market. Hence there is complete market failure.

Explain why market fails in the case of consumption of alcohol

- State that alcohol is considered as a demerit good because the government deems consumption of alcohol as undesirable.
- State also that there is a tendency for overconsumption of alcohol as consumers are not fully aware of the cost of consuming alcohol and that consuming alcohol generates large amount of negative externalities.
- Explain the possible negative externalities generated from the consumption of alcohol.
 - In consumption of alcohol, there are negative spill-over effects such as accidents caused by drunk driving, ruckus caused by highly intoxicated people.
- Explain how the presence of negative externalities lead to market failure.
 - The presence of negative externalities leads to the divergence between MSC and MPC as MEC on third parties not accounted for.

- alcohol. [Illustrate with diagram]
- o State the welfare loss, hence there is market failure.

Alternative explanation

Explain how due to presence of imperfect information, consumers are unaware of the full extent of the costs of consuming alcohol, thus undervalues the MPC, leading to over allocation of resources for the consumption.

- (b) Evaluate the policies that the Singapore government can adopt to correct these causes of market failure. [15]**

Introduction

- State that as market fails in the case of public goods and in the consumption of alcohol, there is a need for government intervention to correct the market failure.

Development

- Policy adopted to correct market failure in the case of public goods:
 - o Direct provision by the government
 - When there exists complete market failure, as in the case of public goods, there is a need for direct provision.
 - Since goods/services like national defence and law enforcement are non-excludable and non-rivalrous in consumption, there exists a missing market and no producer will be willing to produce the good/service even though provision of the good/service benefits the society.
 - Thus in order to ensure efficient allocation of resources the government directly provides for the good.
 - However, it is difficult for government to have complete knowledge of the right amount of the good to be provided. (information failure)
 - In addition, such policy puts a strain on government's budget which can be used to develop other sectors, which are important to aid economic growth in the country
- Policies adopted to correct market failure in the consumption of alcohol:
 - o Legislation to discourage consumption of alcohol
 - Legislative Acts such as ban of the sales of alcoholic drinks after 10.30pm.
 - This policy reduces supply of alcohol after 10.30pm, thus the quantity available for consumption falls. Hence curbing the over consumption problem.
 - Such Acts may also increase the cost of getting access to alcohol. Thus increasing the MPC of consuming alcohol. As MPC rises, the quantity consumed by consumers to maximised their net private benefit will fall, Hence solving the over consumption problem.
 - This policy is simple to implement, relatively easy to administer. And any sellers who break the law will be heavily punished.
 - However, there will be high enforcement cost, such as the high cost involved in getting law enforcers to conduct regulatory checks.

- Taxation
 - Imposing taxes equivalent to the marginal external cost at the socially optimal level of output increases MPC to MSC, reduces consumption of alcohol (illustrate and explain using diagram the shift of MPC curve to MSC curve)
 - However, due to complexity and inaccurate information, it is hard to measure and quantify the amount of negative externalities given off due to consumption of alcohol, hence it's difficult to impose the correct value of tax to fully internalize the different types of negative externalities exhibited.
 - In addition, if the consumers are alcohol addicts, their demand for alcohol will be highly price inelastic. Thus, it will require a very high amount of tax to reduce alcohol consumption.
- Campaigns to increase the awareness of costs of consuming alcohol
 - Educating people on the costs of consuming alcohol to increase their awareness and thus closing the gap of imperfect information.
 - As consumers have more knowledge of the costs of alcohol consumption, their MPC will increase and as such the quantity they consumed will fall. Problem of over-consumption is thus solved.
 - However, it is difficult to change the mindset of people, some people may think that precaution measures are not necessary.
 - Nonetheless, such policy is needed for long term impact.

Conclusion

- Effectiveness of intervention in these markets depend on the severity of market failure and the appropriateness of intervention.
- If extent of market failure is small, less intervention is required, for e.g if MEC is small, perhaps some efforts to raise awareness is sufficient, as opposed to large taxes which might unnecessarily distort the workings of the free market.
- Even in the case of public goods, effectiveness of direct provision cannot exist alone as strict regulation and monitoring are also required in order for resources to be efficiently allocated. i.e. army and police force are given sufficient funds for operation and not for resources to be unnecessarily wasted.
- Presence of good governance would prevent government failure and ensure a greater success of the implementation of the policies.

- 4 Explain the conflicts that exist between the major macroeconomic objectives and discuss the extent to which exchange rate policy alone can be effective in achieving these macroeconomic objectives in Singapore. [25]

Introduction

- Explain the 4 macroeconomic objectives
- The 4 macroeconomic objectives can be achieved by demand management policies and/or supply-side policies. Use of demand management and supply-side can sometimes lead to conflicts in achieving the macroeconomic objectives.

Development

1. Use of expansionary demand management policies such as EFP can lead to conflict between macroeconomic goals <use graph to illustrate>.

Conflict 1: When the government tries to achieve actual growth (and full employment), it will lead to demand-pull inflation

AD rises along upward sloping portion of AS curve (actual growth) → economy has little excess resources → competition for resources by producers bid up factor prices → translates into higher COP is then passed on to consumers through higher consumers prices + exports become less price competitive.

→ Employment goals achieved at the expense of higher inflation and possibly worsening BOT.

2. Use of supply-side policy can lead to conflict between macroeconomic goals.

Conflict 2: When the government tries to achieve potential growth, it will lead to structural unemployment

Successful supply-side measures increase quantity and improve quality of factors of production → potential output increases → productivity ↑, COP ↓, GPL ↓ and export competitiveness (price and product) ↑, possibly improving BOT.

→ ↑productivity through automation and labour-saving innovations increases structural unemployment.

Note: Other conflicts are also acceptable

3. Exchange rate policy can be effective in achieving macroeconomic objectives in Singapore.

Singapore is a small and open economy. Small size and lack of resources → need to import resources and final goods and services from overseas → Increasing import prices is one main source of inflation.

Appreciation of SGD: Pm of final goods and services ↓ in SGD → GPL ↓ directly

Pm of intermediate goods and raw materials ↓ in SGD → COP ↓ → GPL ↓ → helps to curb **imported inflation** in Singapore

Moreover, Singapore's exports have high import content → Improved price competitiveness of SG's exports, BOT improves → net exports ↑, AD ↑, Y ↑ by multiples (**actual growth**). With improvement in BOT, it will also **improve the current account**.

SG's ERP stance of stable, appreciating currency reduces exchange rate risks and is conducive for international trade and investment → attracts FDI (**improves capital and financial account**) → benefits: capital accumulation, skills and technology transfer → LRAS shifts right (potential output increases), makes **sustained growth** possible.

4. Exchange rate policy alone may not be effective in achieving macroeconomic objectives in Singapore

- Appreciation of SGD lowers import prices only through the currency effect. The effects of an external shock such as a sharp increase in oil prices may not be fully mitigated by currency appreciation and can translate into higher COP, threatening export competitiveness.
- Stable, long-term appreciation alone is not sufficient to attract FDIs. Other factors such as

- Inflationary pressures from domestic sources such as higher wages from a tight labour market, wealth effect from appreciating asset prices causing increase in domestic consumption cannot be addressed through appreciating the SGD.
- Structural unemployment cannot be solved by ERP as the root cause of the problem is the mismatch of skills due to the changing structure of the economy. As such, it is more appropriate to use supply-side policies to tackle the problem.
- Demand for SG's export and direct investment into SG depend on world income levels as well as the level of optimism in the world economy. These factors are external and cannot be influenced by domestic policies.
- In addition to capital accumulation, which may be encouraged through ERP, SG also needs to develop her workforce through **other supply-side measures** such as education, training and re-training, to achieve sustained growth. ERP alone is insufficient.

Conclusion

In the case of Singapore, because of the characteristics of Singapore economy, ERP has proven to be effective in achieving our macroeconomic aims and it is our main policy to stable prices. With price stability, our macroeconomic objectives can be achieved. However, ERP alone is definitely not effective enough because it is important to look at the root cause of the problems before using the appropriate policies to achieve the macroeconomic aims.

5 Economists are concerned that the Chinese economy is too dependent on exports and investments for growth.

- (a) Using the circular flow of income, explain how an increase in exports and investments can affect China's national income. [10]

Requirements:

- Circular flow of income – identify that exports and investments are J
- Process to bring national income back into equilibrium
- Multiplier process

In a circular flow of income, the national income equilibrium is determined when total planned injections equal to total planned withdrawals. Injections include investment, government spending and exports revenue while withdrawals consist of savings, taxes and imports expenditure. When injections do not equal to withdrawals, a state of disequilibrium will exist. This will kick in a process to bring the economy back into equilibrium.

An increase in exports and investments will increase the total injections. As $J > W$, there will be unplanned running down on stocks. Firms then step up production and increase the demand for factors of production. As firms hire more resources, they also pay out more factor income. As national income and purchasing power starts to increase, it will induce more consumption. **Since one person's spending becomes another person's income, national income will increase by multiples assuming that value of MPC is between 0 and 1.** Furthermore, households will not only spend more on domestic goods, they will tend to save more, pay more taxes or buy more imports, thus increasing the amount of withdrawals. Withdrawals will continue to rise until it is equal to injections. The equilibrium is thus achieved at a higher national income.

- (b) Discuss whether a country's high rate of economic growth achieved by depending heavily on exports and investments is desirable. [15]

Requirements:

- Balanced discussion with a good scope of analysis:
- Advantages of economic growth
- Disadvantages of
 - o Too heavily dependent on external factors for growth
 - o High growth rates
- Evaluation/judgement

It is desirable for a country to achieve high rate of economic growth by depending on exports and investments

- Able to tap on international market that enables the demand for domestically-produced goods to expand → volume of trade increases → firms can now operate on large scale and enjoy economies of scale → lower cost of production
- FDI allows for transfer of technological knowledge and skills from foreign firms to domestic firms, thereby improving productivity
- Increase in X and I increases AD and LRAS, thus achieving actual and potential growth, and increasing employment level
- Higher national income → higher purchasing power → higher material SOL
- This is especially desirable for an economy with relatively small domestic market. Eg. Singapore relies on trade and investment for growth → X revenue is a significant component of AD → enables it to depend on increase in X revenue (rather than C) to achieve high growth rate. There is also a need for FDIs to invest in this small domestic economy to help promote sustained growth in the economy

However, there are situations where it may be undesirable for a country to achieve high rate of economic growth through exports and investments

- Vulnerable to external shocks - If country Z's trading partners faced a recession → their NY falls → demand less imports from other countries → translates to less X revenue and I spending in country Z → AD falls → RNY falls by multiples & higher unemployment level → undesirable as country Z's growth is dependent on the state of other countries
- If most goods and services produced in the country are exported, left very little for domestic consumption → undesirable as material SOL is compromised
- With more investments entering the economy, there may be a changing structure of the economy as it changes from labour intensive to capital intensive industries. Structural unemployment may result if the workers' skill level did not keep pace with the advancement of technology/ if there is a displacement of low-skilled workers through automation and improvement in quality of technology → labour not used fully → undesirable because there will loss of potential output and income
- Not sustainable to maintain such high growth rates → Rapid depletion of non-renewable resources → may compromise growth in the future
- Deterioration of the environment (higher pollution and waste level) → lower SOL

Evaluation

An investment or export-driven economy such as China has to depend on the state of the global economy and foreign demand for its products. If consumption cannot increase to play a much larger role in aggregate demand, then this rapid growth will slow down or even stop at some time in the future. With prospects for export growth weakening, such economy needs to rebalance its growth away from potentially volatile net exports toward a more sustainable path driven by domestic demand.

- 6 (a) Explain how the concept of opportunity cost can be used in explaining why countries trade with each other. [10]

Introduction

- Countries trade with each other because there are benefits to trading. The gains from trade can be partially explained by the principle of comparative advantage, which allows a country to specialise in producing goods at a lower opportunity cost, given its labour, natural resources and technology.
- World output will increase due to specialisation and countries can now trade in their exports with their trade partners to obtain imports which they would have to incur a higher opportunity cost if they were to produce the goods themselves. Thus, when countries are able to exploit the differences in opportunity cost of production, they can consume beyond their production possibility curve and enjoy a higher standard of living.

Development

1. Production gains can be achieved through specialising production in goods which the country can produce at lower opportunity cost.
 - A country has comparative advantage (CA) over another country in the production of a good if it can produce it at a lower opportunity cost, i.e. if it has to forego less of other goods in order to produce it.
 - Differences in opportunity costs arise, e.g. as countries have different endowments of factors of production and different level of technology, the ability to produce goods differ between countries. What this means is that the opportunity cost of producing goods that requires different factors of production varies from country to country. Example of Singapore's CA in production of goods requiring high-skill labour and advanced technology.
 - Differences in opportunity cost would lead to specialisation, i.e. due to differences in factor endowments and therefore differences in opportunity cost, a country should specialise in producing and exporting the goods in which it has a comparative advantage in because the opportunity cost of producing them is lower.
 - <Use a simple example to illustrate>
 - Suppose a two country, two good model, and the two countries (China and Singapore) spend equal amount of resources into producing both cloth and hard disk within the country :

Country	Cloth (m)	and	Hard Disks (units)
China	500	and	250
Singapore	400	and	800
Total output	900	and	1050

In this case, to produce 1 unit of cloth, China gives up producing 0.5 unit of hard disk. For Singapore, to produce 1 unit of cloth, the country has to give up producing 2 units of hard disk. China therefore incurs lower opportunity cost in producing cloth, and Singapore would incur a lower opportunity cost in producing hard disks. Suppose the two countries completely specialise their resources in producing the good whereby they have a comparative advantage:

Country	Cloth (m)	and	Hard Disks (units)
China	1000	and	0
Singapore	0	and	1600
Total output	1000	and	1600

In this case, the output of cloth would increase by 500 units and output of hard disk increase by 1600 units.

2. Countries can benefit from the exchange of goods at a mutually beneficial trade price that was set in between the opportunity cost of production of the two goods in the two countries.
- Subsequently, Singapore and China can engage in trade to exchange their outputs. To do that, countries would have to agree on a mutually beneficial exchange ratio (i.e. terms of trade). The terms of trade is defined as the rate at which two goods will be exchanged in trade, i.e. the amount of a good or service that must be given up (opportunity cost) to buy a unit of another good or service.
 - A mutually beneficial exchange ratio is one where each country will now be able to import the goods in which it does not have a CA in, at a lower opportunity cost (as compared to if it tries to produce the good itself).

In this case, the TOT for 1 unit of cloth must be set between 0.5 and 2 units of hard disk. Suppose the TOT is fixed at 1 unit of cloth for 1 unit of hard disk and China exports 450 cloth in exchange for 450 units of hard disk:

Country	Cloth (m)		Hard Disks (units)
China	550	and	450
Singapore	450	and	1050
Total output	1000	and	1600

Singapore will enjoy an additional 50 units of cloth and 200 units of hard disk compared to the pre-specialisation and trade, and China enjoys an additional 50 units of cloth and 250 units of hard disk.

- As a result, both countries get to consume beyond what they can produce for themselves if they do not trade, allowing the two countries to enjoy a higher standard of living.

Conclusion

In conclusion, countries trade because they can benefit from the exchange, and this was made possible due to differences in opportunity costs of producing the two goods within the two countries.

- (b) To what extent does this concept explain the pattern of trade between Singapore and the rest of the world? [15]

Introduction

- Examining Singapore's pattern of trade requires one to consider Singapore's trade partners as well as the volume and composition of goods and services that Singapore imports and exports.
- Singapore's top export destinations in order of trade value are Hong Kong, China, Malaysia, Indonesia and Other Asia. The top import origins are China, Malaysia, the United States, Other Asia and South Korea.
- The concept of opportunity cost can be useful in understanding the composition of goods and services that Singapore imports and exports.

Development

1. Singapore's pattern of trade can be explained through the concept of opportunity cost.

- The openness of Singapore implies that it has a high degree of exchange in capital, particularly in FDI. Such FDI has brought about significant technological progress through the capital goods used by foreign firms. Singapore also has a highly skilled labour force (both foreign talents and an educated domestic workforce).
- The congregation of technology, as well as highly productive physical and human

Singapore is a net exporter of chemical products, machinery, and transport equipment. In terms of invisible trade, Singapore exports high-skilled-labour intensive services such as in the areas of Bio-Medical Research & Development, as well as financial services.

- In particular, Singapore has a large oil refining industry. Singapore imports crude oil to refine into oil-based products like diesel and petroleum. While much of the products are exported, some are for domestic use, which is why Singapore is a net importer. While Singapore does not have any oil resources, it still has a comparative advantage in capital-intensive, high-tech, and high-skilled oil refining. Therefore, it would seem that the concept of opportunity cost does explain Singapore's export pattern.
- At the same time, Singapore incurs higher opportunity cost in producing land- and low-skilled-labour-intensive products. Hence, the lack of specialisation in these areas explains why Singapore is a net importer of non-oil products like food, beverages and tobacco and animal and vegetable oils.

2. Singapore's pattern of trade can also be explained by other factors besides the concept of opportunity cost.

Demand-side reasons

- Intra-industry trade (trade in the same industry) may also take place despite similar opportunity costs in production due to differences in taste and preferences. There are differences in taste and preferences due to different lifestyles, technological innovations and improved product design. This means that there will be trade between Singapore with other countries in goods and services in the same industry. E.g. Singapore export banking services (e.g. DBS, OCBC, UOB) to other countries but we also import banking services from other countries (e.g. HSBC, Citibank).

Historical/Geographical Reasons

- As Singapore is a transshipments hub as well as a famous hub for entrepot trade, much of its imports are re-exported out of Singapore. Often Singapore is only a temporary destination for goods meant for re-export. Such transshipment trade is not related to comparative advantage and hence the concept of opportunity cost, but are more due to Singapore's locational or geographical, positional advantage along major shipping routes.

Conclusion

<candidates should take a stand and provide reasons>

- The concept of opportunity cost does explain many aspects of Singapore's trade pattern. While the openness of the economy as well as the government's supply-side policies have been fairly successful in shaping Singapore's comparative advantage (lower opportunity cost) in producing technology, physical and human capital, and knowledge-intensive products and services, Singapore government's strategy of always anticipating and preparing its productive capability for the emerging products and services have also been fairly important in influencing the pace of change in its comparative advantage (changes in opportunity cost) and hence in the changes in Singapore's trade pattern.
- Furthermore, as the pace of countries' exchange through the Trans Pacific Partnership quickens, trade barriers are increasingly reduced or eliminated. As such, Singapore will increasingly import from countries which can produce the good or service at lower opportunity costs and export to countries that incurs higher opportunity costs in production. This should further open up the Singapore economy to many other export and import markets which should further affect Singapore's trade patterns through changes in opportunity costs.

