

### **ACJC Preliminary Examination 2017 Paper 2 Question 6**

The “fourth industrial revolution” characterised by artificial intelligence, robotics and Internet of Things (IoT) will see robots manufacture cars and drive them, 3D machines print products and call centres being handled by virtual agents. Singapore’s ageing population is a cause for concern in an increasingly digital and technology-driven economy.

- (a) Explain the potential benefits and challenges of free trade agreements for an economy. [10]
- (b) In view of the ‘fourth industrial revolution’, discuss whether the macroeconomic and trade policies adopted by the Singapore government need to be adjusted to maintain a current account surplus in its balance of payments. [15]

#### **Suggested Approach**

- (a) **Explain the potential benefits and challenges of free trade agreements for an economy.** [10]

#### **Suggested Approach**

- As free trade agreements are a double-edged sword, students can explain each potential benefit against its challenge instead of structuring an answer where all benefits are explained first followed by all challenges
- Time is more efficiently used when students adopt a benefit1 – challenge1, benefit2 – challenge2,.. approach
- Students should use countries at different stages of economic development or with different characteristics as examples for illustration

Benefits	Challenges
Consumers enjoy lower prices and more variety of goods <ul style="list-style-type: none"><li>• Increase consumer surplus and consumer welfare</li></ul>	Challenge to reduce the potential increase in structural unemployment in industries that produces goods that are substitutes to the cheaper imported goods and prevent market dominance <ul style="list-style-type: none"><li>• Consumers switch from domestic goods to import substitutes</li><li>• Less efficient firms may make losses and shut down</li></ul> Potential development of market dominance <ul style="list-style-type: none"><li>• ‘Dumping’ by trade partners or imports from trade partner with strong comparative advantage may lead to market dominance</li></ul>
Producers enjoy lower cost of production through cheaper imported of raw materials <ul style="list-style-type: none"><li>• Increases price competitiveness of exports and domestic substitutes of imported goods</li><li>• Increase profitability of firms</li></ul>	

<p>Lower or removal of protectionistic barriers for exports lead to increase in export demand</p> <ul style="list-style-type: none"> <li>• Increase in export demand allows firms to specialise and enjoy economies of scale</li> <li>• Increase the profitability of exporting firms and those firms in the industries that support these firms</li> </ul>	<ul style="list-style-type: none"> <li>• as firms increase their scale of production, there is threat of diseconomies of scale as production exceeds the minimum efficient scale output level</li> <li>• this poses a challenge to firms to overcome the threat of rising unit cost of production to remain price competitive</li> </ul>
<p>economy can specialise and depend on the export of goods with comparative advantage for economic growth, these industries will enjoy higher profits and wages</p>	<p>If an economy has few industries with comparative advantage, they will be vulnerable to the external shocks in these industries</p> <p>Challenge is to be more resilient and less dependent on a few industries for economic growth</p>
<p>Improves the current account balance (increase a current account surplus or decrease a current account deficit) through increase in export revenues</p>	<p>Challenge for an economy is to develop sufficient industries with comparative advantage to ensure its export revenues to be greater than its import expenditure</p>
<p>Lower cost of production arising from FTAs can increase SRAS contributing to lowering or keeping inflation rates low</p>	<p>Depreciation of an economy's currency or inflation in FTA countries can cause increasing import prices</p> <p>Challenge to reduce the effects of rising import costs to raising domestic inflation rates</p>
<p>Increase in export markets with increase in export revenues (such that <math>X - M &gt; 0</math>) increases AD generating increase in employment, economic growth and household incomes which will through the multiplier effect, generate further increase in domestic consumption and national output. Positive economic sentiments will encourage more consumption and investments contributing to further economic growth</p>	<p>As economy expands and operates closer to its productive capacity, the challenge for the economy is to prevent high rates of inflation or keeping inflation rates within their targets (healthy and low inflation rates)</p> <p>Whilst FTAs can bring about economic growth, it can also bring about negative economic shocks for an economy, causing falling AD and eventually recession in the economy</p> <p>The challenge for the economy will thus be to ensure it is able to sustain its economic growth.</p>

## Mark Scheme

### Question 6a

Level	Description	Mark
<b>3</b>	<ul style="list-style-type: none"><li>• well explained benefits and challenges of FTAs to an economy</li><li>• well-structured answer</li><li>• benefits are well classified: consumers, firms and economy</li><li>• ability to analyse the relationship between benefits and challenges</li><li>• excellent economic analysis</li><li>• well applied to countries at different stages of economic development or with different characteristics</li></ul>	<b>8 - 10</b>
<b>2</b>	<ul style="list-style-type: none"><li>• largely descriptive explanation with some application of economic analysis</li><li>• lacking in organisation of ideas, answer lacks structure</li><li>• may not see relationships between benefits and challenges</li><li>• lacking in application to real world</li></ul>	<b>5 - 7</b>
<b>1</b>	<ul style="list-style-type: none"><li>• a listing of the benefits and challenges</li><li>• poorly or no organisation of ideas</li><li>• unexplained statements i.e. lacking in reasoning</li></ul>	<b>1 - 4</b>

- (b) In view of the ‘fourth industrial revolution’, discuss whether the macroeconomic and trade policies adopted by the Singapore government need to be adjusted to maintain a current account surplus in its balance of payments. [15]

### Suggested Approach

- students need to analyse the question well and take note of the key phrases that defines the question
    - **fourth industrial revolution**: decision of whether to make adjustments to policies should be considered in view of the effects and impact of this revolution
    - policies **adopted** – refers to CURRENT policies
    - **adjusted** – not about implementation of policy but making changes to existing policies hence arguments should be on why CHANGES need to be made or not instead of why the policy should be adopted or not
    - remember the **end point** of your arguments: MAINTAIN a current account surplus
- 
- as an introduction,
    - students may clarify what is the fourth industrial revolution
    - briefly, how this revolution is relevant to (or impact) Singapore
  - effects and impact of fourth revolution on Singapore
    - the fourth industrial revolution basically means more advanced, intelligent and sophisticated technology will be driving the next wave of innovations in both production methods and products
    - impact on production
      - use of robotics in manufacturing and service sectors
        - substituting robots for labour
        - traditional labour intensive manufacturing may now be less labour intensive and more capital intensive with more consistency in productivity in terms of quantity and quality
        - narrows the comparative disadvantage that Singapore has in some light manufacturing industries which Singapore can now develop as an area of comparative advantage or at least is able to support some domestic firms operating in these industries
      - 3D machines print products
        - Eliminates the need for expertise to modify, calibrate and maintain machines to produce precision and customised products for prototyping or for consumption
        - lowers personnel cost of production of such precision and customised products
      - call centres being handled by virtual agents
        - reduction in outsourcing of provision of such services to low wage labour abundant countries
      - Internet of Things (IoT)
        - Eliminates or reduce the need for brick and mortar shop fronts for commerce and retail

- Increases productivity and lowers cost of production for all services that can be conducted online 24/7
  - Allows for just-in-time orders and decreases the need for large inventories hence cutting warehousing costs
  - Efficient logistic solutions lowers cost of production as movements of inputs to finished products are made more efficiently
- Impact on product and service markets
  - Consumer electronic devices with more processing power
  - Robotics and its related markets
  - Data storage and internet related hardware and software
  - Data analysis and software programming services
  - . . .
- Singapore's current account surplus is contributed, to a large extent, by a surplus in the balance of trade in goods
- (Policy targets) To maintain a surplus in the BOP current account, Singapore has to maintain its strong surplus in the balance of trade in goods and improve its balance of trade in services (currently a small deficit) and also to reduce the deficit in the primary balance
- to maintain a strong surplus in the balance of trade in goods
  - Singapore's comparative advantage is determined by the skill level of her labour force and level of technology that the economy can harness and adopt
  - Singapore's comparative advantage lies in its state of technology which means she will lose them as fast as new technologies emerge hence, Singapore needs to be in the forefront of technology for her export goods and services to be relevant and competitive
  - With the fourth industrial revolution, Singapore needs to create new areas of comparative advantage as new products and new production methods have to be adopted for Singapore's exports to remain competitive in the world markets
- Review of trade policies
  - Continue to remain a free port with no protectionistic barriers to trade (except for some areas like the car market) as Singapore is dependent on imports of raw materials and semi-finished goods to value-add to them for re-export
  - If goods from other countries can be imported freely into Singapore, it is likely that our trade partners will reciprocate by allow Singapore's good to have easier access to their markets
  - Continue to sign free trade agreements with countries from different regions to diversify our export markets (from emerging countries to developed countries)
  - As Singapore is small and lacking in resources, she is dependent on imports for consumer goods and inputs for production, hence, it is extremely crucial for her export revenues to be very large to support her import expenditure
  - Ensuring a large external market is therefore a necessity for Singapore with or without the fourth industrial revolution
- Review of macroeconomic policies (should be confined to those that will have an impact on maintaining a BOP current account surplus)
  - To maintain and increase **export competitiveness**
    - Fiscal policy – government expenditure

- Adjustment – divert more or increase expenditures in ICT infrastructure to enable firms to adopt up-to-date technologies to ride the wave of the fourth industrial revolution
  - To lower cost of production and improve price competitiveness of exports
- Fiscal policy – tax concession, subsidies, corporate tax rate
  - Continue to keep corporate tax rate competitively low to encourage foreign direct investments or foreign collaboration and joint ventures with domestic firms to leap frog into the fourth industrial revolution (to benefit from the transfer of knowledge and expertise of successful firms of the 'new' industries)
  - Adjustment - Tax concessions to be given to new firms or start-ups in industries that will develop and export products or services that leverage on technologies of the fourth industrial revolution
  - Adjustment – divert more funds for subsidies to encourage
    - adoption of up-to-date technologies
    - innovation to create new or enhance existing products and services (creating new areas of comparative advantage) for the fourth industrial revolution
- monetary policy – continue to be centred on exchange rate as the balance between export prices and import prices in favour of export competitiveness continues to be relevant and necessary to maintain a current account surplus
- create a complementary labour force to **support new export industries**
  - adjustment – increase or higher subsidies for skills training in areas related to the fourth industrial revolution to attract more to move out of current industries to new industries
- to improve **primary income balance** (reduce deficit)
  - Fiscal Policy – government expenditure
    - Adjustment – increase expenditure to set up institutions or departments to provide consultancy and expertise to help local firms go regional i.e set up branches in emerging economies
  - Emerging economics are playing catch-up in the technology race hence it should be profitable for established local technology related firms to venture abroad
  - Target successful local firms in technology related industries or technology based service industries (banking, accounting . . .) to venture abroad
  - Increase in primary income inflow to reduce the deficit in this account balance
- points of evaluation
  - the speed at which new technologies and new products are created makes it difficult for firms and the labour force to catch up, the government will need to put in place aggressive campaigning and adopt moral suasion (soft approach) measures to get firms and individuals to respond, with more urgency, to the government's policy to realise the intended outcomes of the macroeconomic policies
  - Singapore with her greying population, will find it difficult to increase occupational mobility from the old economy to the new digital and technology-driven economy, more must be done to change the mindset of older workers to want to be reskilled for the fourth industrial revolution

- the fourth industrial revolution should be advantageous to Singapore
  - production will be more capital intensive and Singapore is facing declining growth in her labour force hence increasing labour cost may not be a constrain for firms and export price competitiveness may be enhanced
  - to create comparative advantage in service industries that is digital and technology driven as it requires labour skilled in those areas of which Singapore has control over and has in relative abundance compared to the other resources
- it is difficult for the government to identify which industries should be supported (through subsidies and tax concessions) as it is difficult to predict which new technology or new product will be successful and will remain profitable in the long run to contribute to maintaining a surplus in the trade in goods account

## Mark Scheme

### Question 6b

Level	Description	Mark
<b>3</b>	<ul style="list-style-type: none"> <li>well-developed explanation of policies and their intended outcomes (policy targets)</li> <li>good use of examples for illustration</li> <li>good economic analysis and discussion of policies with judgement</li> <li>consistently addressing the question: fourth industrial revolution, need for adjustments, BOP current account surplus</li> <li>well-balanced discussion (with and without need for adjustments)</li> <li>at least 2 well discussed macroeconomic policies and trade policies</li> </ul>	<b>8 - 10</b>
<b>2</b>	<ul style="list-style-type: none"> <li>largely descriptive with some application of economic analysis</li> <li>some discussion of policies but may not follow through with judgement on need for adjustment</li> <li>discussion may be balanced but lack depth</li> <li>poor reference to question: fourth industrial revolution and Singapore</li> <li>at most 2 policies are well explained or 3 policies but poorly explained (a mixture of macro and trade policies or only macro policies)</li> </ul>	<b>5 - 7</b>
<b>1</b>	<ul style="list-style-type: none"> <li>a listing of the different macro and trade policies</li> <li>discussion is related to but no reference to question</li> <li>largely a display of knowledge without reasoning, mainly unexplained statements</li> </ul>	<b>1 - 4</b>

### Evaluation

Level	Description	Mark
<b>3</b>	<ul style="list-style-type: none"> <li>well considered conclusion that is built upon earlier discussion</li> <li>a well-structured essay that addresses the question</li> <li>judgements made based on economic analysis</li> </ul>	<b>4 - 5</b>
<b>2</b>	<ul style="list-style-type: none"> <li>weak attempt at conclusion to address question</li> <li>some attempt at providing reasons for evaluative statements</li> </ul>	<b>2 - 3</b>
<b>1</b>	<ul style="list-style-type: none"> <li>unsupported statement of judgement</li> </ul>	<b>1</b>