

**ACJC Preliminary Examination 2017 Paper 2 Question 4**

- 4 The subcommittee on Energy Resilience and Sustainable Growth that Singapore should price energy to reflect its total cost. This involves exploring various options, including a carbon tax and emissions trading regimes.

Economic Strategies Committee, 2011 (Ministry of Finance)

Discuss the appropriate policies that the Singapore government can adopt in order to achieve sustainable economic growth. [25]

**Approach:** Explain the meaning of sustainable economic growth, including how a rapid growth rate might create problems in terms of the environment, inequity and structural unemployment. Discuss appropriate policies for Singapore to achieve sustained economic growth, which can then be sustainable as well through the use of policies that addresses the problems created by rapid growth.

**Sustainable economic growth means a rate of growth which can be maintained without creating other significant economic and environmental problems, especially for future generations.**

- This includes achieving sustained economic growth by increasing the AD alongside the LRAS.
- Given Singapore's nature of a small economy with few natural resources, there is a huge need to pursue sustained growth by relying on the external economy.
- Hence, Singapore pursues demand-management policies that promote our exports; as we are dependent on trade to increase our AD.
- Furthermore, the Singapore government attempts to create a pro-business environment in order to attract Foreign Direct Investments so as to increase our AD and also LRAS.
  
- However, there is a *trade-off* between rapid economic growth today and growth in the future. The rapid growth today may cause certain problems, which might render the high rates of growth unsustainable in the long term.
- Rapid growth today may exhaust resources and create environmental problems for future generations, including the depletion of oil and fish stocks, and global warming.
- **High economic growth would mean an increase in national output and production, which may involve burning of more fossil fuels for energy, or the exhaustion of natural resources (over-mining, deforestation, over-fishing etc.).**
- This can result in greater pollution, and an unsustainable pace of resource depletion.
- Furthermore, a rapid growth rate could result in higher income inequality as well as structural unemployment. These would result in a worsening SOL, material and non-material.
- These undesirable effects arise from the likely uneven growth, as certain sunrise sectors thrive and grow, while other sunset sectors shrink.
- Thus, creating income inequality between workers and entrepreneurs of these sectors.
- This also extends to the skilled and unskilled workers, who will face growing wage differentials.
- Workers from the sunset industries may also find it difficult to find jobs and enter these growing industries due to a mismatch of skills.
- Therefore, achieving sustainable economic growth requires Singapore to enjoy a sustained rate of growth, but also adopt policies to address the significant trade-offs that are created.

**Idea 1: The Singapore government can adopt a range of demand-management policies to achieve a sustained rate of growth in Singapore.**

Demand management policies can be appropriate to maintain a steady rate of actual growth, through increasing the AD. However, it is also very crucial in managing the Singapore economy during certain economic fluctuations or shocks to the economy.

	Exchange rate policy	Fiscal policy	Trade (related)
Longer term (sustaining increase in AD)	<u>Modest and gradual appreciation</u> <ul style="list-style-type: none"> <li>✓ Price of imported raw materials or secondary products will be lower → reduce COP → increase SRAS → prevents imported-inflation</li> <li>✓ Dampens excessive increase in (X-M) → AD rises at a consistent, moderate rate → Prevents demand-pull inflation that will cause loss of export competitiveness</li> </ul>	<u>Prudent and deliberate use of FP</u> <ul style="list-style-type: none"> <li>✓ Promote business friendly-environment by: Providing good infrastructure (air, land and sea transport networks, communication networks like Wi-Fi) + Ensuring a skilled and efficient labour force + Stable and reliable government + fiscal policy tools of               <ol style="list-style-type: none"> <li>(1) Tax rebates and credits</li> <li>(2) Maintaining a low corporate tax of 17% (compared to other countries) → increased attractiveness to FDI → higher I → steady increase in AD + capital good accumulation → LRAS rises → Actual and potential growth → sustained growth</li> </ol> </li> <li>✓ Gov expenditure is more targeted, with supply-side effect as well as improving social needs.</li> <li>✓ Example: Improvements in public transport, and developing the heartlands into vibrant homes and communities.</li> </ul>	<u>Signing more FTAs</u> <ul style="list-style-type: none"> <li>✓ Seek new trade partners or new trading terms through actively signing and renewing FTAs</li> <li>✓ Bilateral agreements and as part of ASEAN</li> <li>✓ Example: the establishing of Asian Economic Community</li> <li>✓ Promoting export competitiveness through supply-side policies (encouraging enterprise, retraining)</li> <li>✓ E.g. IRAS new scheme in 2017: startups and SMES benefit from partial and total tax exemption</li> </ul>
Strengths / Limitations	<ul style="list-style-type: none"> <li>○ Appropriate for Singapore's small and open economy, but may not have the ability to manage domestic shocks like high wage costs.</li> </ul>	<ul style="list-style-type: none"> <li>○ Constrained by size of government budget → but that's why Singapore uses it prudently, more to attract FDI &amp; provide for improving social infrastructure and increasing the SOL of the populace.</li> </ul>	<ul style="list-style-type: none"> <li>○ Highly suitable for a small &amp; trade-reliant country</li> <li>○ But depends on willingness of other countries</li> <li>○ Time-consuming to establish contracts and agreements</li> </ul>

Short term / cyclical policies (countering shocks or economic fluctuations)	<u>Zero appreciation stance / slight depreciation</u> ✓ Price of X in foreign currency falls + price of M in local currency rises → stimulate X demand and dampen M → rise in net X → Rise in AD → rise in NY (via multiplier effect, <i>Assume: Marshall-learner condition holds (<math>PED_x + PED_m &gt; 1</math>)</i> → sustained EG despite slowdown  ✓ <i>Example:</i> SGD estimated to slide to S\$1.39 by end of 2015 after Monetary Authority of Singapore (MAS) reduced the slope of its appreciation against a basket of currencies by a percentage point.	<u>Expansionary FP</u> ✓ Rise in G → rise in AD → increases real NY through multiplier effect → sustained EG, despite economic fluctuations ✓ With supply-side effects, e.g. transport, infrastructure → increase in productive capacity → increase in LRAS → achieving potential EG ✓ <i>Example:</i> SG gov announced in 2015 that infrastructure spending will grow by 50% to reach S\$30b. Through projects such as development of Changi Airport's new Terminal 5. These reinvestments into SG's infrastructure are to meet Singapore's future economic and social needs.  ✓ Cut in personal income tax → higher disposable income → encourage C → increase AD → Actual EG ✓ Cut in corporate tax → higher after-tax profits → increased funds → increase domestic I and attract FDI → capital goods accumulation and domestic firms benefit from transfer of skills and knowledge from FDIs → increase AD and LRAS → Actual and potential EG → sustained EG	<u>Review export sectors and develop new ones</u> ✓ Seize the opportunity to broaden export sectors so as to reduce vulnerability to industry-specific shocks (e.g. oil crisis) ✓ <i>Example:</i> Tax cuts / incentives for promoting and developing identified industries: the Aircraft Leasing Scheme (ALS) aims to encourage companies to develop aircraft leasing capabilities and grow the aircraft leasing industry, by giving such firms a preferential tax rate of 8% in the short run.
Strengths / Limitations	○ Possibility of inflation but low risk, due to general slowdown and thus falling prices of commodities globally ○ Can lead to speculative attacks and weaker confidence if used for too long	○ Government will need to undertake a budget deficit, but is feasible as they have budget surplus due to prudent use in usual times	○ Time-consuming, to restructure economy → needs to be used more proactively and in advance rather than reacting to economic shocks only

(Note: students can write the trade (related) policy under supply-side policies as well)

Transition: Although the abovementioned demand management policies are able to ensure Singapore can enjoy actual growth, and possibly potential growth through greater investments, they are not so targeted in terms of increasing the SRAS or LRAS to ensure sustainable growth.

**Idea 2: It is also appropriate and necessary for the Singapore government to use a range of supply-management policies to achieve a sustained economic growth.**

**(a) The Singapore government investing directly in R&D to develop new areas of comparative advantage will be appropriate in ensuring long-term export competitiveness to increase AD for sustained growth.**

- **Diversify sectors:** For instance, SG government starts to broaden its key sectors to include high-skilled manufacturing industries such as aviation, aerospace etc. → in LR, able to better mitigate economic shocks and maintain a steady export revenue in order to sustain its EG.
- **Reduce energy reliance:** develop / maintain the existing areas of comparative advantage in less-energy and machine-heavy industries, by focusing more on the services sector rather than manufacturing. These services and skills-based industries, such as medical tourism and the financial services / insurance sectors, which may be less energy-intensive and hence reduces Singapore's pollution levels.
- **Capitalize:** endeavor to develop a comparative advantage in clean energy / green technology sectors.

(Note: idea of the developing C.A. in clean energy / green technology sectors, or retraining to reduce structural unemployment / income inequality can also be explained under policies to address "sustainability" separately)

**(b) Policies to lower cost of production can be appropriate to maintain competitiveness for sustained growth, by increasing SRAS to mitigate inflationary pressures and increase NY.**

- **Grants given to increase productivity:** For instance, EDB grants given for firm-level projects which aim to increase efficiency in terms of labour use, as well as energy and water, through enhancing current operations or adopting of technologies.

Transition: Nonetheless, while these policies together are appropriate and effective in ensuring sustained economic growth, the Singapore government will still require some additional policies to mitigate the harms that rapid economic growth can bring about for sustainable economic growth. The trade-offs created in terms of environmental damage due to production methods, or income inequality and structural unemployment, need to be managed by a separate host of policies.

**Idea 3: Thus, Singapore needs to enact policies in order to mitigate the harms resulting from high and sustained economic growth, in order for growth to be sustainable.** (Aka link policies to reducing the possible harmful effects caused by rapid economic growth.)

### Environment

(Student must explain how these policies can allow Singapore to manage her resources and environment, despite growth and strain on resources / pollution. Not required to draw negative externality diagram. Student can focus on maintaining good water and air quality, as Singapore does not really have much natural resources to manage)

- 1) Pricing energy right: carbon tax
  - Idea: increase cost of using petroleum and products which emit a large amount of carbon
- 2) Emissions trading scheme (tradable permits)
- 3) Legislation for industry standards (cleaner production methods)
- 4) R&D / incentivize use of cleaner energy (solar) and green technology
  - EDB launched SolarNova in 2014, to accelerate solar energy use by promoting demand across government agencies. SolarNova utilizes the solar leasing business model where a private firm will install, own and operate the solar systems and sell electricity to government agencies.

### Limitations

- 1) Singapore faces physical constraints in terms of the type of alternative energy sources it can use:
  - SG's small size: lack of ability to use nuclear or hydro or geothermal power → can mainly explore solar power. May be better to improve energy efficiency and emission standards of existing power plants and machineries.
- 2) Singapore is already adopting cleaner energy sources to fuel electricity demand: limited effectiveness of introducing a carbon tax
  - Moved away from petroleum products such as diesel and fuel oil to more environmentally-friendly fossil fuel alternative: natural gas
  - Petroleum products' share in 2015 has been whittled to 0.7 per cent, down from 23.1 per cent in 2005.
  - Natural gas now makes up 95.5 per cent of Singapore's fuel mix, up from 74.4 per cent in 2005, according to the latest statistics from the Energy Market Authority (EMA)
  - Natural gas emits about 35 per cent less carbon dioxide than the petroleum-based oil that Singapore was using, and it does not emit polluting particulates and sulphur dioxide into the atmosphere.

### Inequity

(Student must explain how any 1 possible policy will help to reduce income inequality, through lowering the Gini coefficient or reducing inequity by redistributing resources more fairly. Any skills training or upgrading must relate to idea of helping the lower income find higher-paying jobs. This helps to ensure that growth benefits everyone, and thus will not erode incentives to work / cause social unrest etc., which will weaken investor confidence or reduce labour productivity. These may threaten future economic growth.

- 1) Workfare Income Supplement (cash and CPF payouts of up to \$3600 per year to help with expenditure needs and retirement savings of older lower-wage workers and persons with disabilities (PWDs) who work)
- 2) Workfare Training Scheme (e.g. provision of an **Enhanced Grant** provides a 95% course fee subsidy, as well as 95% absentee payroll funding for companies who have sent eligible workers)
- 3) Progressive Wage Model (a clear career pathway for their wages to rise along with training and improvements in productivity and standards, in the industries of landscaping, cleaning and security)
- 4) Progressive taxes: higher tax rates for higher income earners and no/lower tax rates for lower income earners (e.g. 22% for those earning above \$320,000 yearly and 0% for those earning under \$20,000)
- 5) Benefits-in-kind: subsidizing essential merit goods like healthcare, education and public housing, especially for the lower income group (e.g. Community Health Assistance Scheme for visits to GP clinics, Financial assistance schemes in schools)

### **Structural unemployment**

(Student must explain how any 1 possible policy will help to reduce structural unemployment, through equipping the unemployed with relevant skills. This helps to prevent wastage of scarce resources / cause a shrinking of the labour force due to discouragement, which may decrease productivity capacity and hence limit future growth.

- 1) Workforce Development Authority
- 2) SkillsFuture

### **Conclusion**

- Although it is inevitable for some costs and problems created by growth, the Singapore government can also consider how to turn these threats into opportunities, such as through developing alternative energy sources sectors.
- Worthwhile endeavor to develop alternative energy sources sectors, as this has the added benefit of reducing Singapore's vulnerability to shocks in oil prices (and the resulting slowdown in the oil and gas related sectors in recent years)
- With a more turbulent economic climate globally, and slowing growth rate in recent years, it is timely for Singapore to review and enact suitable policies that can help her continue growing in a sustainable way in the next few years.
- The Singapore government needs to balance achieving a certain rate of sustained growth, in order to be able to finance the other policies that mitigate environmental and social problems. The recent years have seen slower growth and hence tax revenue streams are less steady. Yet, the government has increased social spending (e.g. on lower income group) and expenditure in terms of promoting solar energy. Fiscal sustainability would be an important consideration, and impose some constraint on the government's choice of appropriate policies.
- Appropriateness of policies will depend on the type and causes of challenges faced by the Singapore economy, e.g. weak productivity growth and global economic slowdown. Thus, the government must exercise flexibility in deciding on a suitable mix of policies to ensure long term and sustainable economic growth.

Level	Knowledge, Analysis, Application	Marks
High L3	<ul style="list-style-type: none"> <li>• Clear and thorough explanation of sustainable economic growth, where the considerations of potential problems (environmental, inequity and/or structural unemployment) are well-discussed</li> <li>• Balanced and detailed discussion of <u>at least 3</u> macroeconomic policies to increase AD and LRAS</li> <li>• Macroeconomic policies are illustrated by suitable AD/AS diagrams to show both increase in NY and Yf</li> <li>• Answer contains a good discussion of microeconomic policies (carbon tax or emissions trading) in order to manage the environmental impact of economic growth</li> <li>• Answer could also contain policies to reduce inequity and make reference to supply-side policy reducing structural unemployment</li> <li>• Careful and consistent attempt to address the question on “appropriate policy”, “sustainable growth” and “Singapore”</li> <li>• Answer is well-substantiated by real life examples, well-contextualized to Singapore</li> <li>• Student is able to suggest how Singapore can capitalize on green technology / environment-related industries as part of our growth strategy</li> </ul>	18-20
Low L3	<ul style="list-style-type: none"> <li>• Clear explanation of sustainable economic growth, where the considerations of environmental impact and resources are evident but could be clearer</li> <li>• Balanced discussion of <u>at least 3</u> macroeconomic policies to increase AD and LRAS, although some could have been more detailed</li> <li>• Macroeconomic policies are supported by suitable AD/AS diagrams, but perhaps could be used more effectively to illustrate sustainable growth</li> <li>• Answer contains discussion of microeconomic policies (carbon tax or emissions trading) in order to manage the environmental impact of economic growth, but could be more integrated</li> <li>• Some attempt to address the question, but could have been more consistent or contextualized</li> <li>• Answer is well-substantiated by real life examples, but may not be the best examples relating to Singapore</li> </ul>	15-17
High L2	<ul style="list-style-type: none"> <li>• Some attempt to explain sustainable economic growth, but could be clearer or more detailed</li> <li>• Balanced and detailed discussion of <u>at least 2</u> macroeconomic policies to increase AD and LRAS</li> <li>• Answer contains some mention of microeconomic policies (carbon tax or emissions trading) in order to manage the environmental impact of economic growth, but quite brief or abrupt (not really linked to idea of sustainable growth)</li> <li>• Some attempt to address the question, although mainly in the conclusion</li> <li>• Answer is substantiated by some real life examples, but not consistent or well-contextualized to Singapore</li> </ul>	12-15
Low L2	<ul style="list-style-type: none"> <li>• Some attempt to explain sustainable economic growth but may be brief or consist of small conceptual errors</li> <li>• Balanced discussion of <u>at least 2</u> macroeconomic policies to increase AD and LRAS</li> <li>• Macroeconomic policies are illustrated by suitable AD/AS diagrams to show both increase in NY and Yf</li> </ul>	9-11

	<ul style="list-style-type: none"> <li>• Answer does not make reference to microeconomic policies (carbon tax or emissions trading) in order to manage the environmental impact of economic growth: more of a “sustained” growth answer</li> <li>• Poor attempt to apply economic concepts to the question: more of a regurgitation of macroeconomic policies</li> <li>• Answer contains few examples, which are general and not so appropriate for question</li> </ul>	
High L1	<ul style="list-style-type: none"> <li>• Unable to demonstrate an accurate understanding of sustainable growth</li> <li>• Some knowledge of macroeconomic policies to increase AD and LRAS</li> <li>• However, answer may contain conceptual errors about macroeconomic policies or sustainable economic growth or lacks economic analysis and depth</li> <li>• Points made appear incidental and does not address the question</li> </ul>	5-8
Low L1	<ul style="list-style-type: none"> <li>• Unable to demonstrate an accurate understanding of sustainable growth</li> <li>• Almost no knowledge of macroeconomic policies to increase AD and LRAS</li> <li>• Mere listing of points without economic analysis and depth</li> <li>• Significant conceptual errors about macroeconomic policies or sustainable economic growth</li> <li>• Points made appear incidental and does not address the question</li> </ul>	1-4

Level	Evaluation	Marks
L3	<ul style="list-style-type: none"> <li>• Answer shows critically evaluates a range of policies, or provide insightful perspectives on policy options regarding sustainable economic policies.</li> <li>• Able to synthesise economic arguments to arrive at well-reasoned judgements and decisions in a good summative conclusion that is well-applied to Singapore.</li> </ul>	4-5
L2	<ul style="list-style-type: none"> <li>• Answer shows some attempt to evaluate or provide a summative conclusion.</li> <li>• Relevant judgement in relation to question but does not provide sufficient elaboration for judgment or base it on sound analysis.</li> </ul>	2-3
L1	<ul style="list-style-type: none"> <li>• Unsupported evaluation statement or judgment.</li> </ul>	1