

YISHUN INNOVA JUNIOR COLLEGE

Question 1: Medical Tourism Trends

Extract 1: International Medical Tourism Market

Growing demand for health services is a global phenomenon, linked to economic development that generates rising incomes and education. Demographic change, especially population ageing and older people's requirements for more medical services, coupled with epidemiological change, i.e. rising incidence of chronic conditions, also fuel demand for more and better health services. Waiting times and/or the increasing cost of health services at home, coupled with the availability of cheaper alternatives in developing countries, has led to new healthcare consumers, or medical tourists, to seek treatment overseas. The international medical tourism market is expected to grow by US\$131.35 billion by 2025, with an average annual growth rate of 20%.

Source: National Library of Medicine, 8 May 2022

Extract 2: Technology Trends

Artificial intelligence

Hospitals and agencies are now leveraging ad companies that use AI in order to target potential patients anywhere in the world. This includes people who engage in or view content on the internet related to medical tourism and medical procedures. With the growth of targeted advertisements on people's internet browsers and social media platforms, AI has aided in increasing the number of medical tourists.

Telehealth

Technology has enabled the advancement of telehealth, where healthcare services can be delivered remotely. Telehealth can range from the digital transmission of diagnostic scans to videoconferencing sessions between patients and physicians. Healthcare is no longer limited by physical geography.

For patients seeking health services overseas, barriers to treatment planning and both pre and post-operation consultations have been alleviated by telemedicine, where patients are able to obtain the procedure in a foreign country and receive follow-up care at home. Telehealth has encouraged patients to obtain medical procedures abroad, and virtual communication has allowed for seamless care to take place. This minimises some of the concerns of receiving health services abroad.

Source: Medical Device Network, 15 Jun 2021

Table 1: Current expenditure on health (% of GDP): United States & South Korea

Country	2017	2018	2019	2020	2021
United States	16.8	16.6	16.7	18.8	17.8*
South Korea	7.1	7.5	8.1	8.4	8.8*

* Projected

Source: Organisation for Economic Co-operation and Development (OECD)

Extract 3: Effects of Medical Tourism

Medical tourism can contribute to wider economic development, which is strongly correlated with improved population health status as a whole, e.g. increased life expectancy, reduced child mortality rates. Encouraging foreign direct investment in healthcare infrastructure and related industries (eg pharmaceutical and hospitality) and medical tourist inflows with correspondent revenue can create additional resources for investment in health care. Furthermore, medical tourism may slow or reverse the outmigration of health workers, particularly of specialists.

However, unless properly managed and regulated on the policy side, the financial benefits of medical tourism for health systems may come at the expense of access to and use of health services by local consumers. Governments and industry players would do well to remember that health is wealth for both foreign and local populations. In addition, medical tourism does escalate other detrimental impact on the country. For instance, the natural greenery or forest cover of a region is compromised in order to accommodate more buildings, hospital facilities, roads, treatment or diagnostic centers etc. In addition, there is a continuous discharge of polluted air, solid-toxic medical waste, litters of sewage consisting of oil and chemicals. Also, with patient travels, there is significant risk of corresponding bacterial travel. Recent superbug research has created significant alert.

Adapted: National Library of Medicine, 4 May 2011 and Medical Tourism Magazine

Extract 4: South Korea: Increased Medical Travellers in 2021

The South Korean government data shows that the number of medical travellers visiting South Korea expanded 25% between 2020 and 2021, despite the Covid-19 pandemic. The data shows medical tourist patients from the US and China accounted for 39% of the total medical tourists. The number of foreign travellers who visited South Korea for health check-ups skyrocketed by 278.9%, and those for integrated internal medicine, 64.7%, and ophthalmology, 55.2%. In contrast, medical tourists for cosmetic surgery remained almost unchanged, and those for dermatology fell 22.3% in 2021.

The Korea Tourism Organization, partnered with the Medical Tourism Association, the world's leading medical travel expert, to expand healthcare offerings to a wider international patient base. Thanks to a partnership agreement with leading local healthcare facilities – Seoul National University, Seoul St. Mary's, Asian Medical and Samsung Medical — oil-rich Arab nations have been sending their patients to Korea for gastrointestinal diseases, and cardiovascular, cancer, infertility, orthopedic and spinal pain concerns. In turn, Korean hospitals are doing their share to transfer medical systems to counterparts in Saudi Arabia. Under a project called the Medical Systems Twinning Project, one of six agreements between the two health ministries, Korea has agreed to establish hospitals – among them for brain imaging techniques and neuroscience research – in the Middle East country and bring educational and management expertise to their medical staff.

Source: LaingBuisson, 5 Jul 2022 & Medical Tourism Magazine, Jan 2020

Extract 5: India's Medical Tourism Industry

India offers less expensive treatment options compared to the US and UK without compromising the quality of healthcare services. The treatment costs in India are around a quarter of those in America.

In terms of alternate medical treatment, the Indian medical treatment systems of yoga, ayurveda and rejuvenation therapy are among the most ancient methods of medical treatment in the world. Various relevant data on Foreign Tourist Arrival was analysed to study the existence of price elasticity in medical tourism. It was estimated that the elasticity of demand with respect to price of tourist location is -0.6 to -0.8.

The Ministry of Tourism has taken several initiatives to promote India's medical tourism industry:

- Medical Visa was introduced in June 2005
- In 2018, the government established a dedicated fund of US\$641 million for enhancing 12 Champion Services Sectors, with medical value travel being one of them. The e-tourist visa launched in September 2014 to ease the visa regime was subsequently expanded to include medical visits.
- The Marketing Development Assistance Scheme offers financial assistance to approved tourism service providers.
- Publicity materials, such as brochures, intended to promote medical and health tourism have been circulated in target markets by the Ministry of Tourism. Medical tourism has been announced on various international forums.

To make India a brand in the medical tourism sector, what India needs, according to Dr. Mansukh Mandaviya, is a system to obtain feedback/testimonials from tourists travelling to the country for medical purposes. Critical factors such as trained medical professionals and doctors, fluency in English, availability of the latest medical technology and affordable medical treatment have helped India emerge as a hub for medical tourism.

Source: Journal of Emerging Technologies and Innovative Research, Feb 2021 & India Brand Equity Foundation, 24 Jun 2022

Questions

- (a) With reference to Table 1,
- (i) Compare the current expenditure on health as percentage of GDP [2] between United States and South Korea.
 - (ii) Using a production possibility curve diagram, explain the likely impact of [4] US government continued expenditure on healthcare on its economic growth.
- (b) The South Korean government data shows that the number of medical travellers visiting South Korea expanded 25% between 2020 and 2021, despite the Covid-19 pandemic.
- Discuss whether demand or supply factors have a greater impact on the [8] number of foreign patients visiting South Korea.
- (c) With reference to Extract 5, account for the value of price elasticity of demand [2] of India's medical tourism services.
- (d) Explain a possible measure that governments can adopt to mitigate the [4] adverse effects of increased medical tourism.
- (e) Discuss the possible policy options that the Indian government can adopt to [10] increase medical tourism revenue.

[Total: 30]

Suggested Answers

(a) With reference to Table 1,

- (i) Compare the current expenditure on health as percentage of GDP [2]
between United States and South Korea.

General Trend: Both United States and South Korea registered positive increase in current expenditure on health as percentage of GDP between 2017 and 2021.

Refinement: US current expenditure on health (% of GDP) fell marginally from 2017 to 2018 (or from 2020 to 2021) while that of South Korea continued to increase gradually from 2017 to 2021.

or

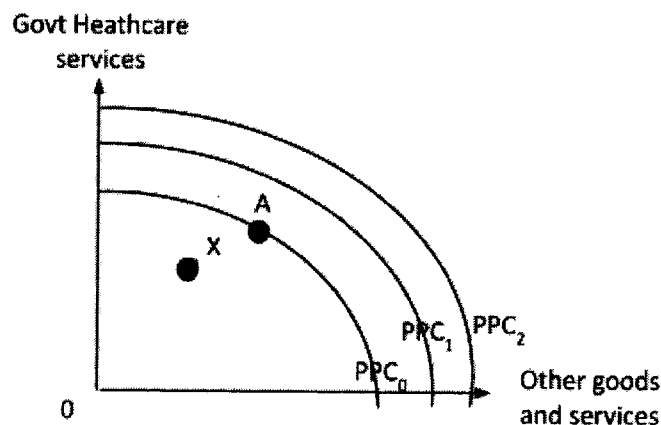
Level: United States consistently registered a higher level of current expenditure on health as percentage of GDP as compared to South Korea.

Markers' comments:

Most candidates were able to provide the correct general trend change observed. However, there were some who described every time point in the table, which was not required. A minority inaccurately described the general trend as an increasing trend instead of an increased trend.

- (ii) Using a production possibility curve diagram, explain the likely impact of US government continued expenditure on healthcare on its economic growth. [4]

State that US government consistently allocated about 16-18% of GDP on healthcare expenditure. Thus, boosting both actual and potential economic growth.



Impact on actual and potential economic growth

Actual economic growth

- ↑ US government continued expenditure on healthcare
- greater utilisation of resources
- higher employment rates

↑ actual economic growth, movement from point x within the PPC to a point, say pt A, on the PPC_0 .

Potential economic growth

If the continued healthcare expenditure by US government
 higher labour productivity or lengthen productive working life of US residents
 greater outwards shift of PPC_0 to PPC_2

However, if the above benefit is outweighed by the tradeoffs incurred (eg lower R&D grant provided, higher opportunity costs in terms of lower government expenditure in education)

smaller outwards shift of PPC_0 to PPC_1

Markers' comments:

Some candidates stumbled in this question. Many candidates did not explain the concept on increased actual economic growth (movement from a point within the PPC to a point on the PPC). For candidates who conducted PPC analysis, almost all focused on the outwards shift of PPC (i.e. increased in potential economic growth).

Candidates need to improve on:

- Labelling of axes (eg goods and services, not expenditure)
- Clarify their concepts on PPC and AD/AS

- (b) The South Korean government data shows that the number of medical travellers visiting South Korea expanded 25% between 2020 and 2021, despite the Covid-19 pandemic.

Discuss whether demand or supply factors have a greater impact on the [8] number of foreign patients visiting South Korea.

Introduction

Identify the demand and supply factors that resulted in the 25% increase in number of medical travellers visiting South Korea between 2020 and 2021, despite the Covid-19 pandemic.

Main Body Point 1: Explain 2 demand factors that lead to an increase in the number of medical travellers visiting South Korea between 2020 and 2021

- Ageing population + rising incomes & education in developed economies heighten consumers' interest in individual health and quality of life ↑ DD for for medical services longer waiting time in home country
- [More affordable options compared to home country] Availability of cheaper alternatives in South Korea Shift of taste and preferences of foreign patients towards consuming healthcare services in reputable overseas medical institutions
 ↑ DD for medical services in South Korea as medical services is a normal good thus leading to increase in number of foreign patients visiting South Korea

- COVID-19 pandemic changes patients' attitudes towards the use of telehealth services + coupled with advancement in technology trends
Hospitals leveraging on artificial intelligence to advertise to potential patients anywhere in the world
↑ DD for medical services in South Korea
- The Korea Tourism Organization, partnered with the Medical Tourism Association, the world's leading medical travel expert, to expand healthcare offerings to a wider international patient base. Thanks to a partnership agreement with leading local healthcare facilities – Seoul National University, Seoul St. Mary's, Asian Medical and Samsung Medical — oil-rich Arab nations have been sending their patients to Korea for gastrointestinal diseases, and cardiovascular, cancer, infertility, orthopedic and spinal pain concerns ↑ DD for medical services in South Korea

Demand for medical services is price inelastic

- Basic necessity for patients who are able to afford the services to improve health and quality of life

Main Body Point II: Explain at least one supply factor that lead to an increase in the number of medical travellers visiting South Korea between 2020 and 2021

Advancement in technology trends Hospitals can leverage on telehealth eg videoconferencing sessions between patients and physicians decreasing costs of medical procedures for foreign patients ↑ SS for medical services

- Foreign and public investment in healthcare infrastructure in South Korea
↑ SS for medical services
- Wider supply of medical services (eg health check-ups, cosmetic surgery)
- Medical tourism may reverse the outmigration of health workers, especially specialists in South Korea ↑ SS for skilled healthcare personnel ↑ SS for medical services

Other acceptable SS factors:

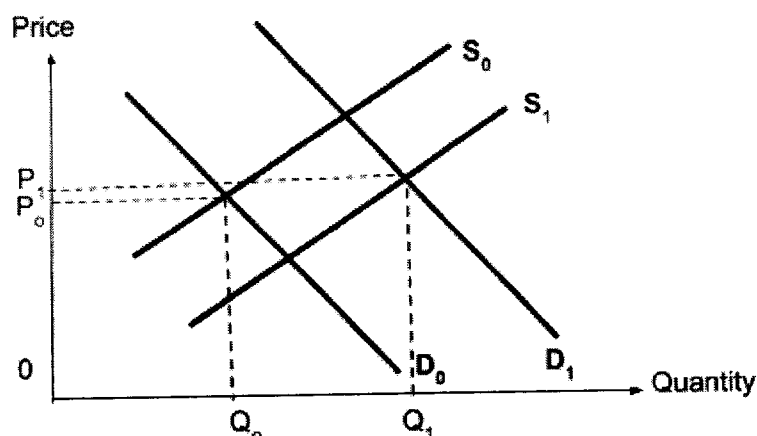
Decreasing costs of air travel

[Optional] Supply for medical services is price inelastic

- Long training period for medical personnel, in particular, specialists

Explain your stand: \uparrow in DD + \uparrow in SS

- ⇒ Compounding increase in number of foreign patients visiting South Korea
- ⇒ Explanation on the adjustment process



Evaluation [2m]: Justify your stand to which whether demand or supply factors have a greater impact on the number of foreign patients visiting South Korea

\uparrow in DD $>$ \uparrow in SS

As COVID cases eases globally, there is now further easing of community and border measures, thus the demand of medical services by foreign patients would continue to rise. Due to price inelasticity of supply of South Korea's medical services, there will be a limit to which how fast the supply of medical services can be further expanded. Thus, demand factors plays a greater impact on the number of foreign patients visiting South Korea.

Markers' comments:

Majority of the candidates were able to identify the demand and supply factors. Stronger candidates were able to explain that the key demand factors were ageing issues and rising incomes of the foreign patients whilst the supporting demand factor was the taste and preferences of the foreign patients favouring South Korea as the choice destination of medical treatment. Weaker candidates tend to be confused between increase in demand and increase in quantity demanded. These candidates were also confused with the demand/supply factors affecting South Korea and their own home country.

Level	Description	Marks
L2	For a well-developed answer that demonstrates good economic understanding on whether demand or supply factors play a greater impact on the number of foreign patients visiting South Korea.	4-6
L1	For an under-developed answer on whether demand or supply factors play a greater impact on the number of foreign patients visiting South Korea.	1-3

	Evaluation	Marks
E1	An unsupported judgement which are neither supported nor relevant to the context of the question.	1
E2	Well-explained judgement and/or an evaluation with some economic justification.	2

- (c) With reference to Extract 5, account for the value of price elasticity of demand [2] of India's medical tourism services.

Price elasticity of demand (PED) refers to the degree of *responsiveness* of quantity demanded of a good to a given change in the price of the good itself, *ceteris paribus*.

The price elasticity of demand of India's medical tourism services is price inelastic.

Possible reasons:

- Degree of necessity: It is necessity for patients to improve their health and quality of life
- Lack of close substitutes within similar price range

Markers' comments:

Most candidates were able to identify that the demand for India's medical tourism services is price inelastic. A minority struggled with identifying and explaining the correct factor affecting price elasticity of demand.

- (d) Explain a possible measure that governments can adopt to mitigate the [4] adverse effects of increased medical tourism.

Approach

Explain the adverse effects of increased medical tourism [1m]

Explain one possible measure that governments can use [3m]

Explain the adverse effects of increased medical tourism [1m]

- Rise in negative externalities or rise in MEC
Increased in medical tourism detrimental impact on the country
Eg 1: rise in air, noise, water pollution
Eg 2: with patient travels, there is significant risk of corresponding bacterial travel

Explain one possible measure that governments can use [3m]

Use of market-based instruments such as indirect taxation by governments to mitigate the adverse effects of increased medical tourism

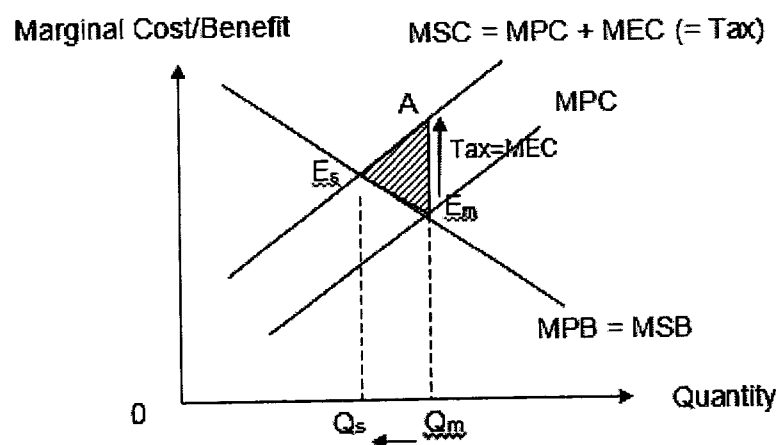
Imposition of indirect taxes on increased medical tourism aim to **tackle the root cause** of over-production of medical tourism. This is because through rational decision making in the **free market**, producers and consumers **ignore external**

costs and only account for their self-interests by considering private benefits and costs.

By levying an indirect tax, the burden of this tax can be shared by both producers and consumers, hence **forcing them to internalize the negative externalities incurred**.

The presence of negative externalities of production causes the MPC and MSC to diverge. By imposing an indirect tax that is equal to the amount of MEC, this will increase the unit cost of production and reduce the willingness of producers to produce medical tourism services at each and every price level, hence shifting the MPC curve upwards by an amount equal to the size of the per unit tax towards the MSC.

The imposition of the indirect tax has caused the market output to be reduced to coincide with the socially optimal output, thereby eliminating the welfare loss ABC. With the indirect tax imposed, the medical service producers could pass on some of the tax burden to the foreign patients. This forces the foreign patients to internalise the marginal external cost. This will then reduce their demand and remove the deadweight loss.



Other Policies are acceptable: Legislations / Rules and Regulations, Research and Development efforts, Public Education and Campaigns

Markers' comments:

Stronger candidates were able to explain the rise in third parties effect and subsequently explained the appropriate measure that government can employ to mitigate the adverse effects of increased medical tourism. Commonly explained measures were indirect taxation and grant given for R&D efforts. Weaker candidates explained the policy measure with little application to case extracts.

- (e) Discuss the possible policy options that the Indian government can adopt to increase medical tourism revenue. [10]

Approach

Main body 1: Explain and comment the policy option(s) that Indian government can adopt to increase domestic supply for medical tourism.

Main body 2: Explain and comment the policy option(s) that Indian government can adopt to increase foreign demand for medical tourism.

Evaluation: A mix of supply-side and demand management policy can be used.
Apply to case context

Introduction

The international medical tourism market is expected to grow by US\$131.35 billion by 2025, with an average annual growth rate of 20%. In many developing countries, including India, medical tourism is one of the top expanding export category.

In the medical tourism industry, medical tourists travel from one country to another to receive higher quality and advanced healthcare. The Indian government can adopt appropriate policy options to augment demand and supply for medical tourism and its related industries eg accommodation, transportation & food and beverages. These efforts will boost medical tourism revenue.

Main Body Part I: Explain and comment the policy option(s) that Indian government can adopt to increase domestic supply for medical tourism

- Use of Expansionary Fiscal Policy ↑ G

In 2018, the Indian government established a dedicated fund of US\$641 million for enhancing 12 Champion Services Sectors, with medical value travel being one of them.

the above can be used to

- Further investment in building infrastructural of hospitals, upgrading of medical facilities and equipment
- R&D grant on using AI and robotics for surgery improve accuracy and reduce time to recover from surgery

Increased productivity Lower unit costs of operating Increase dynamic efficiency of the industry ↑ firm's competitive edge, improve international ranking of the hospital(s) & credentials of doctors ↑ SS for Indian medical tourism services as well as ↑ DD of foreign patients for Indian medical services ↑ medical tourism revenue

- Use of Expansionary Fiscal Policy ↑ G

Development of tourism and leisure facilities and services are also very important for medical tourists. Aside from the medical tourists that receive services related to their surgeries, medical tourists and their companions have a high possibility of pursuing recreational activities after their medical care. Thus, tourist and leisure facilities and services must also be developed continually to attract medical tourists

Increase in domestic supply of tourism related industry eg accommodation
 ↑ medical tourism revenue

- Use of Expansionary Fiscal Policy ↓ T
 - Tax incentives to the medical service providers Expansion of hospitals supply of bed capacity ↑ medical tourism revenue
 - Import duty reduction on medical equipment DD for medical equipment Increased productivity and efficiency of the industry ↑ medical tourism revenue

Comment

(+) Targeted to the medical tourism industry able to increase supply of domestic medical services

(-) Both increase in G (eg on infrastructure projects) and cut in T, faces time lag such as impact lag which might restrict its effectiveness.

- Use of supply-side policies to increase competition in the medical service industry Along with the fame of its medical staff, the level of medical facilities is of most importance to medical tourists. Indian government can:
 - Support Indian hospitals to gain accreditation by Joint Commission International (JCI), International Society for Quality in Healthcare (ISQua) and other international standards high standards attained by the relevant hospitals
 - Registration of doctors and nurses, small doctor-patient ratio
 - Switch from the hospital service model (standard model that involves the patient receiving diagnosis and treatment at a hospital, then recovering and resting at the hospital or hotel) to the medi-resort service model that involves treatment and recovery occurring in a resort that is equipped with medical facilities.
 [Note: the above point can be used to explain why DD for medical services increases]
 - Lower barriers to entry eg licensing requirements, to enable foreign hospitals' to entry into domestic medical services market.
 - Improve skills training of medical personnel

↑ supply for medical tourism ↑ medical tourism revenue

Comment

- (+) The switch to the medi-resort service model should enable India to reap the benefits of rising tourist expenditures and expand its tourism related industries.
- (-) Supporting medical services industry to gain international accreditation may be a costly lengthy process.

Main Body Part II: Explain and comment the policy option(s) that Indian government can adopt to increase foreign demand for medical tourism

- Price competitiveness: India offers less expensive treatment options compared to the US and UK without compromising the quality of healthcare services. The treatment costs in India are around a quarter of those in America.

- Supply-side policy to facilitate ease of entry of medical travellers: Medical Visa was introduced in June 2005. The e-tourist visa launched in September 2014 to ease the visa regime was subsequently expanded to include medical visits.
- Use of supply-side policy to improve digital engagement of patient services via upskilling of tech skills eg use of artificial intelligence & Information and Communication Technology
- Improve the legal system: Establish law to protect patient privacy, evenness of enforcement, able to seek legal recourse for medical malpractice, transparency in financial billing process to foreign patients
- Marketing strategies: Publicity materials, such as brochures, intended to promote medical and health tourism have been circulated in target markets by the Ministry of Tourism. Medical tourism has been announced on various international forums.
- Marketing strategies: In terms of alternate medical treatment, the Indian medical treatment systems of yoga, ayurveda and rejuvenation therapy are among the most ancient methods of medical treatment in the world. India is able to offer a good blend of both modern, alternative and traditional forms of medicine such as Ayurveda which maybe effective in the management of certain chronic diseases.
improve information flows on alternative therapy treatments availability.
- Establish a system to obtain feedback/testimonials from tourists travelling to the country for medical purposes. Critical factors such as trained medical professionals and doctors, fluency in English, availability of the latest medical technology and affordable medical treatment have helped India emerge as a hub for medical tourism

↑ demand for medical tourism ↑ medical tourism revenue potential to become a leading exporter of services & be integrated into a much larger tourism eco-system.

Comment

- (+) Demand for India's medical services is less price elastic. Able to compete with other foreign medical service provider – more competitive/affordable pricing & good quality treatment offered.
- Combined effect: ↑ DD > ↑ SS ↑ TR

Evaluation/ Reasoned Judgement

Medical Tourism doesn't only provide benefits to international patients; it extends a wide spectrum of benefits to many industries in India such as the healthcare industry, travel & tourism, commercial sector. Both positive and negative impacts of medical tourism on healthcare, economic, social and environmental sectors create opportunities and challenges for this growing industry which require cohesive collaborative work between various stakeholders.

For Indian medical tourism to flourish continually, the tourism, health, information and communication departments need to work in tandem for efficient patient care. These include building and promoting the image of India as a high-quality medical tourism destination, creating and promoting new combination of medical tourism products,

keeping up the high standard of quality treatments at a reasonable price, providing informative material online and offline and making it available to potential customers.

Or

Policymaking by governments in developing countries, including India, focused mostly on developing supply-side capacities and increasing competitiveness of the medical tourism industry. This often leads to the detriment of local and community health needs in absence of regulatory controls. Inherently, there remains an underlining tension between medical tourism policy goals of economic growth and the need to maintain resilience and equity in domestic public health systems. Further, the need to establish international quality standards for international medical treatment, harmonizing legal, trade, migration and economic frameworks associated with multinational tourism services, and ensuring that patient choice is optimal for both domestic and tourism-seeking populations, continue to be critical concerns that need to be addressed by the broader global medical tourism industry. Critical in this approach should be an honest assessment of how medical tourism not only contributes to national economic output, but also how it can negatively impact domestic healthcare costs, access and affordability to treatment

Markers' comments:

Stronger candidates discussed the policies options that boost foreign demand for medical tourism as well as how domestic supply could be augmented. Weaker candidates provided rehearsed answer with little application to question context or data provided in the case study. A few candidates wrongly argued that the Indian government should provide subsidies to foreign patients.

Level	Description	Marks
L2	For a well-developed answer that demonstrates good economic discussion on the appropriate policy options that the Indian government can adopt to increase medical tourism revenue.	5-7
L1	<p>For an under-developed discussion on the possible policy options that the Indian government can adopt to increase medical tourism revenue.</p> <p>Some attempt to address the question but concepts related to how the policies work and/or its linkages to increase in supply and demand of medical tourism are not well-explained and/or there is limited reference to the case materials.</p> <p><u>Note:</u> For a well-developed answer that discuss policy options to increase supply or increase demand for medical tourism – max 4 marks</p>	1-4
	Evaluation	Marks
E2	Well-explained judgement and/or an evaluation with some economic justification.	2-3
E1	An unsupported judgement which are neither supported nor relevant to the context of the question.	1

Question 2: Benefits and Challenges of Globalisation

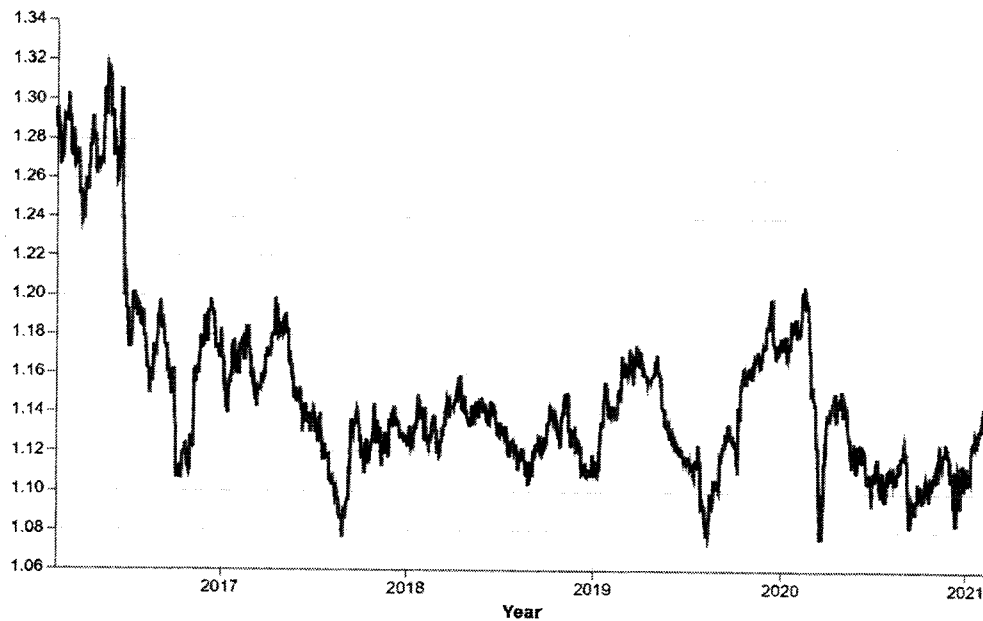
Extract 6: How Brexit impacts globalisation

Key beliefs of globalisation like trade and immigration were among the factors that pushed the UK towards “Brexit” [a term used to describe UK’s decision to exit the European Union (EU)], leading many experts to wonder whether globalisation is still welcome in today’s world. UK’s vote to leave the EU in 2016 was a clear reminder that the UK public wasn’t happy with these policies, which experts said showed dissatisfaction with globalisation.

The EU, which comprises 27 European countries including the UK, allows free trade and free movement of people amongst its member countries. Experts warned that Brexit could disrupt trade links with the EU and jeopardize jobs in the UK.

Source: <https://www.cnn.com>, 28 Jun 2016

Figure 1: Euro/ Pound exchange rate 2016- 2021



Source: Bloomberg

Table 2: UK’s annual inflation rate

Year	Annual inflation rate (%)
2016	0.7
2017	2.7
2018	2.5
2019	1.8

Source: <https://www.ons.gov.uk>

Extract 7: Damage of Brexit on UK

The economy has slowed, and many businesses have moved their headquarters to the EU. Business investment diminished by 11% between 2016 and 2019. Some international businesses have moved out of UK. Brexit's biggest disadvantage is its damage to the UK's economic growth. Most of this has been due to the uncertainty surrounding the final outcome. Uncertainty over Brexit slowed the UK's growth from 2.4% in 2015 to 1.6% in 2019. The UK government estimated that Brexit would lower the UK's growth by up to 6.7% over 15 years.

The British pound [UK's currency] fell immediately after the Brexit vote. That helps exports but increases the prices of imports. It has not regained its pre-Brexit high.

Source: The Balance, 24 Jan 2022

Extract 8: UK productivity, competitiveness and standard of living

The public debate over Brexit had not been based on a factual understanding of the state of the UK economy. The problems facing the UK were not caused by the EU but lies at home. Hence, leaving the EU will not eliminate these problems. The real issue is a pattern of persistent weaknesses in UK competitiveness, and its consequences for citizens. The lack of effective action on upgrading UK competitiveness has been a fundamental failure of the UK government. Brexit could trigger long over-due action by the UK government to boost productivity to enhance competitiveness. This rather than a wave of new trade agreements outside of the EU should be what UK should focus on.

UK prosperity has been lagging. GDP per capita remains well below other Western European countries in level and growth. Wage gains have stagnated, and the UK's standard of living has continued to lag peers. Prosperity has been uneven. Since the 1990s the UK registered the greatest income inequality of any European OECD country.

Changes in prosperity over the long term depend on productivity. Productivity is the central measure of competitiveness and a key driver of a nation's standard of living. The UK's weaknesses in productivity is the root cause of the nation's disappointing economic performance. UK productivity is lower than other peer countries in OECD.

The UK is underperforming because of weaknesses in competitiveness fundamentals. Infrastructure quality is weak and insufficient to support further growth. There are major skill shortages, especially in so-called 'middle skills'. UK spending on innovation lags leading European and global peers. Companies compete mostly on price and cost, rather than on

advanced innovation-based strategies. And it is the performance of exporters outside of London that drags down the country's overall productivity record.

Source: <https://www.hbs.edu>, September 2018

Extract 9: Impact of globalisation

Globalisation has long been a key driver of economic growth for many countries. It allows countries to produce and consume at more optimal levels through increased specialization and greater competition. Producers can enjoy economies of scale and reduce costs through the enlargement of markets. Consumers benefit from lower prices, and access to a wider variety of goods and services. International trade also helps to foster healthy competition, thus spurring technological progress and productivity growth.

Small economies must continue to embrace globalisation as they depend on global markets, free trade and free capital flows to sustain their livelihood. A willingness to adopt new technologies is key to helping these economies capture opportunities.

On the whole, however, countries' experience with globalisation have been mixed, with the gains and losses being unevenly spread out at the international and national levels. With respect to the gains from international trade, these have accrued mainly to regions with a high concentration of export-oriented industries while the wage gap between skilled and unskilled workers has widened with globalisation and the introduction of new technologies, resulting in rising inequality.

In recent years, concerns about the negative side effects of globalisation led to a shift towards trade protectionism as anti-globalisation sentiments rises in more countries.

Source: BIS Papers chapters in Bank for International Settlements (ed.), 2018

Extract 10: Coronavirus pandemic will cause a 'much bigger wave' of protectionism

Governments around the world will turn increasingly protectionist as they try to limit the economic damage from the coronavirus pandemic, a trade expert said.

"As the economic distress increases, the response by many governments will be to assist favored industries, favored sectors or sectors where they're particularly concerned about catastrophe, especially in jobs. And they will respond, most likely, by pursuing protectionism," she explained.

"But for each individual country, that's the solution that makes sense — so restrict trade, focus domestically, keep your own people as employed as you can and then don't worry about anyone else," she added. "But, of course, the net result is everyone else is worse off."

Source: <https://www.cnbc.com>, 9 Apr 2020

Questions

- (a) (i) With reference to Table 2, state what happened to the general price level of the UK from 2016 to 2019. [1]
- (ii) With the use of a diagram, explain how the change in exchange rate of the British pound observed in Figure 1 can lead to the change in general price level stated above. [5]
- (b) Explain how the UK's current account of the balance of payments is likely to be affected in the long run by international businesses moving out of the UK. [2]
- (c) Explain how "uncertainty over Brexit slowed the UK's growth". [4]
- (d) Discuss whether the government should boost productivity rather than sign new trade agreements to improve the UK's standard of living. [8]
- (e) Using economic analysis and the evidence provided, discuss whether countries should continue to embrace globalisation or pursue trade protectionism. [10]

[Total: 30]

Suggested Mark Scheme

(a)	(i)	With reference to Table 2, state what happened to the general price level of the UK from 2016 to 2019.	[1]
		It has increased.	
	(ii)	With the use of a diagram, explain how the change in exchange rate of the British pound observed in Figure 1 can lead to the change in general price level stated above.	[5]
		Generally, depreciation increase in general price level (1 mark) Depreciation price of imports increases, including imports of raw materials and intermediate goods for production of goods and services rise in firms' cost of production fall in firms' profitability firms cut down production fall in SRAS upward shift of the SRAS curve rise in GPL imported inflation OR Depreciation fall in price of exports in terms of foreign currency and increase in price of imports in terms of domestic currency improvement in UK's BOT if the Marshall-Lerner condition ($PED_x + PED_m > 1$) holds increase (X-M) increase AD rightward shift of the AD along the upward-sloping or vertical portion of AD (assuming the economy is operating near or at full employment) increase in GPL demand-pull inflation Explanation of imported inflation or demand-pull inflation (3 mark) Diagram (1 mark)	
(b)		Explain how the UK's current account of the balance of payments is likely to be affected in the long run by international businesses moving out of the UK.	[2]
		Fall in investments from overseas less profits repatriated overseas by foreign firms improvement in income balance improvement in current account balance, c.p.	
(c)		Explain how "uncertainty over Brexit slowed the UK's growth".	[4]
		Uncertainty difficulty for firms to predict profitability of future investment projects slow down the pace of I slower increase in AD slower rise in RNY slower actual growth Slower increase in I slower increase in productive capacity slower increase in LRAS slower increase in the full employment level of RNY slower potential growth overall rate of increase in RNY is lower	

	<p>OR</p> <p>Uncertainty expectations of profitability of future investments lower firms cutback on investment spending</p> <p>Uncertainty households withhold spending on goods and services as they increase precautionary savings fall in C fall in I and C fall in AD</p> <p>Uncertainty depreciation fall in price of exports and increase in price of imports increase (X-M) increase AD [as seen in a(ii)]</p> <p>Fall in AD likely to outweigh the increase in AD increase AD likely to be lesser slower increase in RNY</p> <p>Max 3 marks for an explanation that shows fall in RNY: Uncertainty firms reduce I or C fall in AD Fall in I fall in productive capacity over time fall in LRAS fall in RNY</p>	
(d)	<p>Discuss whether the government should boost productivity rather than sign new trade agreements to improve the UK's standard of living.</p>	<p>[8]</p>
	<p><u>Problems facing the UK economy</u></p> <p>Less competitive internationally as compared to its peers (due to lower productivity) hurt export competitiveness and country's ability to attract FDI</p> <p>Loss of vital trade links with other EU, increased outflow of FDI due to Brexit</p> <p>adverse impact on its BOP, economic growth in both the short and long term and employment and therefore its current and future SOL</p> <p><u>UK should boost productivity to improve its SOL</u></p> <p>As it is suffering from lower international competitiveness, boosting productivity is important in to improve SOL</p> <p>Boost productivity, e.g. through the upgrading the skills of its workforce or increase spending to encourage firms to adopt more up-to-date technology increase in output produce with the same amount of input lower unit COP lower prices of goods, including exports exports more competitive boost (X-M) increase AD rise in NY actual growth</p> <p>Boost productivity increase in productivity capacity increase LRAS potential growth</p> <p>increase AD & LRAS sustained increase in RNY increase in ability of the UK households to consume more goods and services improve their material SOL, and government can also increase their spending on merit goods like education and healthcare with higher tax revenue collected improve their non-material SOL</p> <p><u>Limitations of boosting productivity</u></p> <p>Effects of policy likely to be seen in the long term</p>	

Requires substantial government funding if UK government facing budget constraint, might need to give greater priority to spending particularly in those areas that address its weaknesses in competitiveness fundamentals as mentioned in Extract 8, since it is crucial for improvement in SOL in the long term and forgo or limit spending in other areas as a trade-off

UK should sign new trade agreements to improve its SOL

Given that EU is an important market for its exports and the loss of more preferential terms for its exports to these markets signing new trade agreements, especially other non-EU countries, will help the UK to compensate for loss of export market share to EU due to Brexit by growing its export market share in these other trading partners

Sign new trade agreements lower tariff barriers for UK exports lower prices of UK exports to these markets expand export market increase (X-M) increase AD increase in RNY

At the same time, to mitigate the outflow of FDI, sign new trade agreements and facilitate more capital flows | increase LRAS

sustained increase in RNY higher SOL as seen above

Limitations of signing trade agreements

While signing trade agreements will help to improve on UK exports' access to its trading partners' markets, its exports need to be sufficiently competitive to be able to compete with the exports from other countries

The lack of competitiveness of its exports is an issue that UK needs to deal with

Currently, as mentioned in Extract 8, the UK companies compete mostly on price and cost, rather than on advanced innovation-based strategies, and this is not a sustainable way for them to boost their exports in the long term.

Conclusion

The UK government need to complement the policy of signing new trade agreement with measures to boost productivity. Given the prospect of trade links with the EU being disrupted and the need to increase FDI inflow into the UK, the UK government should sign new trade agreements in the short term. However, it is also important to boost its productivity to ensure it is able to compete internationally in the long term as well.

Level	Description	Marks
2	For a balanced and well-developed answer that explains how boosting productivity and signing new trade agreements can improve UK's SOL with good use of the case materials.	4-6
	For an answer that only link to material aspect of SOL – max 5	

			For a one-sided answer that only explains how boosting productivity or signing new trade agreements can improve SOL with good use of the case materials – max 4		
	1		For a descriptive or less developed answer that explains how boosting productivity and signing new trade agreements can improve UK's SOL. Or for an answer with no link to SOL – max 3	1– 3	
	E2		A valid, well-argued evaluative judgement with an appropriate substantiation that is relevant to the issues raised in the context.	2	
	E1		Relevant point conclusion that is not elaborated nor substantiated.	1	
(e)			Using economic analysis and the evidence provided, discuss whether countries should continue to embrace globalisation or pursue trade protectionism.		[10]
			<p><u>Countries should continue to embrace globalisation as there are microeconomic and macroeconomic benefits to be reaped</u></p> <p>As seen in Extract 9 para 1 & 2, some of these benefits include:</p> <ul style="list-style-type: none"> • It has enabled countries to reap benefits from trade based on the Theory of Comparative Advantage which highlights that if countries specialise in producing goods where they have comparative advantage (based on their factor endowment) and subsequently exchange for goods they have comparative disadvantage in, there will be an increase in economic welfare for all participating economies with countries being able to increase the consumption beyond their PPC. • It allows to reap internal economies of scale. Increased specialization and trade from globalisation allow a country to produce a good at a lower average cost of production when firms engage in mass production due to expansion of their markets overseas. This leads to a gain of larger market share and profits for the firms and increased consumer welfare as firms pass on the cost savings to them in terms of lower prices. • Freer trade will also enable to domestic firms to compete directly with foreign firms. As such, firms will have greater incentive to engage in R&D to improve their methods of production, thereby boosting a countries' pace of technological advancement and growth in the long run. <p><u>Evaluation</u></p> <p>However, the extent of benefit might differ across economies. Extract 9 suggests that small and export-oriented economies, whose exports take a larger proportion of the AD, should continue to embrace globalisation as they are more likely to benefit than economies with large domestic market.</p>		

However, not all countries think likewise. Some countries experience significant costs to globalisation, if not addressed appropriately, can outweigh the benefits (Extract 9 para 4). One important issue that countries need to be mindful of is that the gains of globalisation are not evenly distributed, with income gap widening, threatening its SOL eventually. As a result, some countries are turning to trade protectionism to address the problem.

Countries may pursue trade protectionism for the purpose to maintain/increase domestic production and employment level

With a weak global economic environment in recent years threatening the growth and employment and worsening inequity of many countries even further, there is for more tendency for countries to pursue trade protectionism. Thus, trade barriers are used in these countries to increase domestic production and employment level, avoiding the macroeconomic problem of high unemployment and low economic growth.

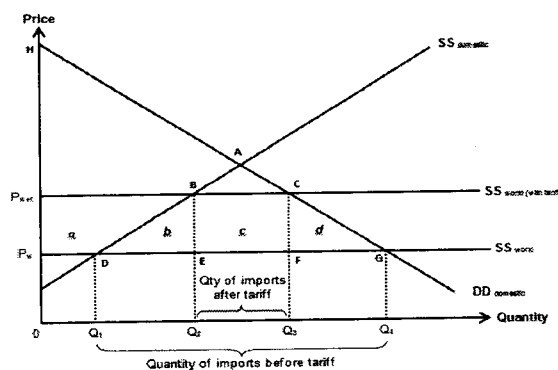


Figure 1: Effects of Imposition of Tariffs

For example, a country can impose tariff on the imports from its trading partners to protect its domestic industries from competition. This encourages the its citizens to substitute imports of with those produced by domestic industries instead. As shown in Figure 1 above, the imposition of tariff increases its domestic production from $0Q_1$ to $0Q_2$, preventing the firms from losses and retrenchments of workers, thus avoiding a fall in actual growth and unemployment.

Evaluation

There might be a need for trade protectionism in the short term to protect employment, especially in industries that are crucial for the economy, especially those with sizeable employment in the country so that massive unemployment can be prevented (Extract 10 para 2).

But the costs to pursuing trade protectionism in the long term are very high. Countries that engage in protectionism are likely to face retaliation from its trading partners as this policy is likely to make them poorer. Eventually all parties will suffer from a reduction in exports and therefore lower growth and employment. Hence, the net result is everyone is worse off (Extract 10 para 3).

Conclusion

In general, countries can benefit globalisation if the government pursue the right set of policies. Besides engaging in polices that enhances its benefits, such as signing trade agreements, governments also need to ensure that the costs are manage with appropriate policies, so the costs do not outweigh the gains.

Trade protectionism is not a viable long-term solution to address most of the problems a country faces. While there are short term gains from protectionism, the costs of trade protectionism are higher in general as the net result is a reduction of world trade volumes which can negatively impact the country in the long run.

Level	Description	Mark
2	For a balanced and well-developed answer that explains the benefits and/or costs of embracing globalisation and pursuing trade protectionism with good reference to the case materials. For a one-sided answer that only explains the benefits and/or costs of embracing globalisation or pursuing trade protectionism – max 5	5-7
1	For a descriptive or less developed answer explaining the benefits of embracing globalisation and the costs of pursuing trade protectionism.	1-4
	Evaluation	
E2	A valid, well-argued evaluative judgement with an appropriate substantiation that is relevant to the issues raised in the context.	2-3
E1	Relevant point conclusion that is not elaborated nor substantiated.	1

1	The sales volume of electric cars increases despite the rise in material cost. High petrol prices also encouraged drivers to switch away from petrol cars to electric cars. Governments are considering providing subsidies to encourage adoption of electric cars.
(a)	Explain why sales volume of electric cars increases despite the rise in material cost. [10]
(b)	Discuss whether providing subsidies is the best way to further increase sales volume of electric cars. [15]

Suggested Answers for 2022 H2 Prelim Exam – Essay Q1

Question Analysis (3'Cs' Approach):

Command	Explain Making clear of causal links, supported by economic analysis. Economic analysis: Demand and supply framework
Content	Rise in material cost how does it affect the market of electric cars? Demand and Supply factors to explain why sales volume of electric cars increase (Qty) What are demand and supply factors? What are the relevant elasticity factors? What framework and tools of economic analysis to use?
Context	No specific context

Question Approach:

This question tests on the demand and supply factors to explain why sales volume of electric cars increase despite rising material cost. Besides demand and supply factors, there can be application of elasticity concepts such as PES and XED.

Suggested Answer:

Introduction (Explain impact of rising material cost on Qty):

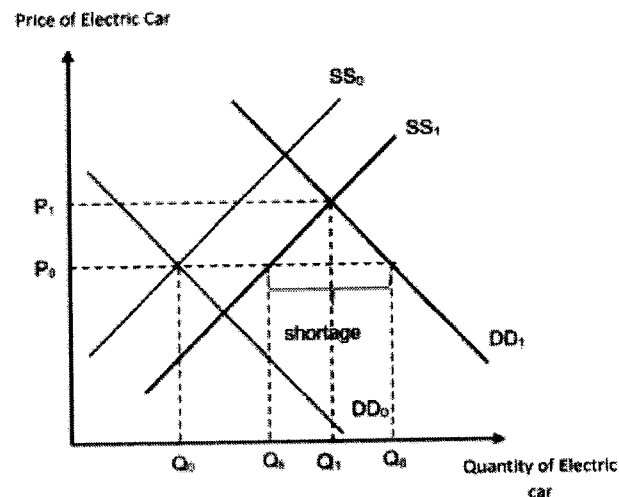
- Sales volume of electric cars is also known as equilibrium quantity. It is determined by market forces such as demand and supply factors.
- A rise in material cost such as car body parts can lead to a higher COP of electric cars, profitability falls, producers less willing and able to produce at every price level, hence supply falls and quantity (sales volume) of electric cars will decrease, ceteris paribus.
- However, there are other demand and supply factors changes that will lead to increase in quantity of electric car (sales volume of electric cars).

Body Paragraph 1: Increase in demand

- As mentioned in the preamble, factors like high prices of petrol and more awareness that electric cars generally emit lesser pollution during its usage compared to petrol cars lead to a change in taste and preferences towards electric cars. Since petrol cars required the use of petrol to keep these cars moving, with the rise in petrol prices, it will lead to an increase overall cost to own a petrol car and also more pollutive when driven around, car owners might prefer switching over to electric cars that are more environmentally friendly and not subjected to immediate changes in petrol prices. Demand for electric car is likely to increase. The demand curve shifts rightwards from D_1 to D_1 , Qty increases.

Body Paragraph 2: Increase in supply

- Overall supply of electric cars is likely to increase despite rising cop.
- Due to improvement in technology such as better lithium-ion batteries and more energy efficient car batteries with breakthrough in research and development for electric cars producers find it profitable producers are more willing and able to supply at all price levels supply for electric car is likely to increase. The supply curve shifts rightwards from S_0 to S_1 , Qty increases.
- Furthermore, there could be an increase in number of sellers and expansion of the electric car market besides Tesla, Hyundai, more petrol car companies such as Ford, Volkswagen and Nio are also expanding into the electric car market, hence increasing the number of sellers now with more producers are willing and able to supply at all price levels supply for electric car is likely to increase. The supply curve shifts rightwards from S_0 to S_1 , Qty increases.



Body Paragraph 3: Simultaneous DD SS shift

- Considering that there is an increase in demand and other factors that will increase and decrease supply simultaneously, Qty is indeterminate and the outcome of qty is dependent on direction and relative extent of shift.
- Supply is likely to overall still increase as rising material cost such as more costly car body parts does not contribute largely to the overall cost of production of an electric car. The largest component of production lies on the lithium-ion batteries where its cost has drastically decreases which also encourage more car companies that solely sell petrol cars to also venture into electric car market. Overall, leading to supply of electric car increases.

- Demand increases and supply increases, overall equilibrium quantity of electric car will increase despite rising cost of materials.

As seen from the diagram above, the increase in demand and an increase in supply leads to a reinforced increase in quantity of electric car.

Body Paragraph 3: Cross elasticity of demand and price elasticity of supply

- While the demand increase and supply increase could contribute to rise in sales volume of electric cars due to the reinforced effect, XED and PES concepts could be used to explain why quantity increase despite rising material cost.
- The **cross elasticity demand for electric car with petrol car is positive and likely to be $XED > 1$, which shows that they are relatively close substitutes** as both petrol cars and electric cars are able to satisfy the same wants of the consumers by being comfortable form of transportation to consumers destinations without any much differences. Hence when prices of petrol cars increase, it will lead to more consumers are switching over to electric cars, it will lead to a more than proportionate increase in demand for electric cars, leading to rightward shift of demand and thus sales volume of electric cars will increase more than proportionately.
- The **supply of electric car is also relatively price elastic** due to the development of technology and streamline of the production process that speeds up the production time for electric cars as it take lesser time to produce. Thus with any increase in price of electric car due to a fall in supply (such as rising material costs), it will lead to a more than proportionate increase in quantity supplied as car producers are able to respond quickly to the changes in prices.
- Therefore, with demand for electric cars is close substitute for petrol cars and supply being price elastic, it can also lead to an increase in sales volume of electric car.

Conclusion

In conclusion, a rise in demand, coupled with an overall increase in supply despite rising material cost are the main reasons behind the increase sales volume of electric cars. In addition, electric car being a close substitute to petrol cars where its XED is > 1 and its supply being relatively price elastic will allow producers respond quickly to any increase in prices of electric car sale volume to increases.

Mark scheme

Knowledge, Understanding, Application and Analysis		
L3	<p>For a well-developed answer that thoroughly explains how rising material cost affect supply and other possible demand and supply factors to explain for sales volume of electric cars increasing.</p> <p>Answer demonstrates excellent knowledge and understanding of demand and supply analysis, including simultaneous shift and concepts on elasticity.</p>	8 - 10
L2	<p>For an under-developed answer that explains how explains how rising material cost affect supply and other possible demand and supply factors to explain for sales volume of electric cars increasing.</p> <p>Answers may not have included including simultaneous shift and concepts on elasticity.</p>	5 - 7
L1	<p>For a largely irrelevant or smattering answer that demonstrates little/some knowledge & understanding of how rising material cost affect electric car market and limited use of relevant demand and supply factors to explain increasing sales volume of electric cars.</p> <p>Answer may contain conceptual errors.</p>	1 - 4

Marker's Comments

Discuss whether providing subsidies is the best way to further increase sales volume of electric cars. [15]

Question Analysis (3'Cs' Approach):

Command	'Discuss' (whether) 2 sided arguments + Stand. Support answers with economic analysis
Content	Consider 2-3 ways that can further increase sales volume of electric cars including subsidies. Explain how subsidies works to increase qty of electric cars. Consider the limitations/disadvantages. Explain how other ways work to increase qty of electric cars and consider their limitations/disadvantages. What are the criteria to determine which is the best way to further increase sales volume of electric cars?
Context	Electric cars

Question Approach:

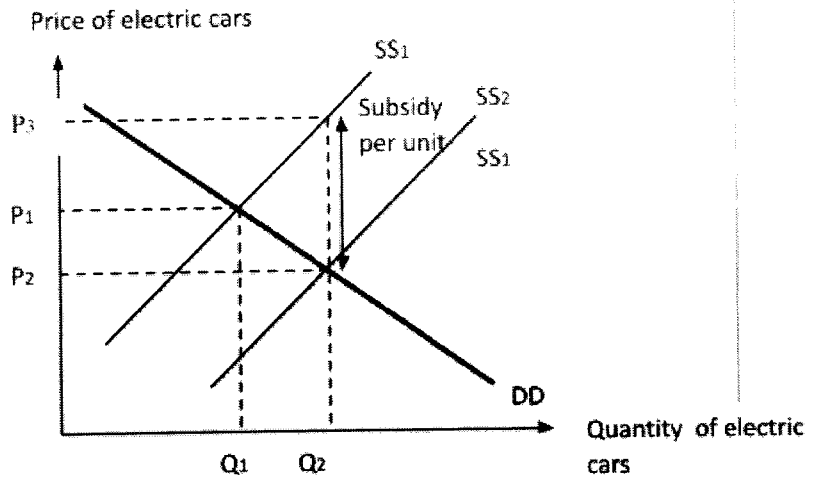
This question tests on subsidies works to increase sales volume of electric cars and compare it with other ways that government could use to increase adoption of electric cars by consumers. Students have to decide on the criteria to determine which is the best way to further increase sales of electric cars.

Suggested Answer

Introduction	Petrol prices kept rising and governments trying to encourage consumers to adopt electric cars over petrol cars to push for net zero carbon and achieve sustainable growth. Given electric cars emit less pollutants when used compared to petrol cars, governments would like to see increasing number of car owners to switch to electric cars. One of the ways that governments are considering adopting was to provide subsidies to improve society's welfare. This essay seeks to discuss the ways that would further increase the sales volume of electric cars.
Body 1:	The objective of subsidy is to encourage overall consumption of electric car hence further increasing sales volume. A production subsidy is a payment made by the government to producers to encourage the production of electric cars, but it is not made in exchange for any goods or services. Government can consider subsidizing the production of lithium-ion batteries in electric cars. When the government gives a subsidy to the producer, it will decrease the marginal cost of production. Since the supply curve is affected by the marginal cost of production, the supply will increase, shifting the supply curve rightwards from SS1 to SS2 as shown in Figure below. Due to the subsidy given, consumers benefit from the lower prices (i.e. they used to pay P1 but now pay

P2) and producers now can sell at higher quantity of Q2 instead of Q1, thus further increasing sales volume of electric cars.

Figure 2: Impact of subsidy on a market



For the subsidy to be effective in increasing the sales volume, the price elasticity of demand for electric cars has to be relatively price elastic. Thus, when price of electric car falls, quantity demand will increase more than proportionately leading to a significant increase in sales volume. However, when electric cars demand is price inelastic, the amount of government subsidy given has to be significantly large to have a substantial increase in sales volume.

Body 2:
(change in T& P)

Another way to increase sales volume of electric cars would be public campaigns and education to raise awareness of climate change and target car owners and educate them on the pollution level of petrol car vs electric car. These might change the taste and preferences of car owners, encouraging car owners to switch to electric cars from petrol cars. Leading to an increase in demand for cars, rightward shift of demand, under ceteris paribus condition, it will lead to further increase in sales volume of electric cars.

Limitation:

Education and campaigns are limited in its outreach as car owners might not be persuaded by just the bigger picture of climate change and being sustainable or greener as proportion of income spent on car could be large amount for some consumers, hence it might not be a large contributing factor to their choice of cars as electric cars are generally still more expensive compared to petrol cars. Mindset about consuming responsibly will take time to take effect.

Government can also consider increasing the amount of charging points and improve the infrastructure to charge electric cars such as allocating more parking spaces for electric cars or lanes dedicated to electric car, EV-ready HDB towns. These might change the taste and preferences of car owners,

	<p>encouraging car owners to switch to electric cars from petrol cars. Leading to an increase in demand for cars, rightward shift of demand, under ceteris paribus condition, it will lead to further increase in sales volume of electric cars.</p> <p>Limitation: Development of charging infrastructure could be challenging in large countries with rural areas. Drivers who need to use electric cars for long distance travel, hence it might not enable consumers to switch easily to electric cars.</p> <p>Overall: Such initiatives will incur opportunity cost and divert funds away from more pressing issues may have an undesirable impact on the society welfare as a whole as electric car adoption might not be the priority of the government though it can improve standard of living due to less pollutive environment.</p>
<p>Body 3: (Encourage investments)</p> <p>Regulation:</p> <p>(Indirect way: Regulation: stricter emission targets for car producers)</p>	<p>Government can also encourage investments into green technology as they achieve a sustainable economic environment with net zero carbon emission to deal with climate change. Encouraging more car maker companies to also step up their research and development into creating more models of energy efficient electric cars thus increasing supply.</p> <p>China imposed regulations which mandated car manufacturers to require them a certain percent of all vehicles sold by a manufacturer each year must be battery powered instead of petrol. To avoid financial penalties, every year manufacturers must earn a stipulated number of points, which are awarded for each EV produced based on a complex formula that takes into account range, energy efficiency, performance, and more. The requirements get tougher over time, with a goal of having EVs make up 40 percent of all car sales by 2030. Hence producers will need to step up production into the developing more electric vehicles, thus supply increase.</p> <p>Government can use regulations such as tightening pollutant thresholds to clearly distinguish the petrol cars and cleaner alternative cars such as electric cars that are more energy efficient and less pollutive to be on the roads. This would encourage car makers to invest and step up their production of such electric cars instead of just focus on improving petrol car models. It would increase supply of electric cars and differentiating into different models such as standard or sports version.</p> <p>Government regulations might be easier to implement and more cost efficient compared to subsidies. However, it also takes time for car makers improve on the efficiency of electric cars creating real differences.</p>
<p>Conclusion</p>	<p>However, which is the best way depends on the available government budget allocated towards such green and sustainable outcome. With limited amount of government budget, education and regulation that does not require large cost incurred in monitoring is better than providing subsidies to increase adoption of electric cars thereby increasing the sales volume of electric cars.</p>

Furthermore, subsidies might not be translated into cheaper prices of cars where demand is relatively price inelastic for example in Singapore. As the proportion of income spent on cars is relatively large, hence, to significantly increase the adoption of electric cars in Singapore, it might not be made successful with just provision of producer subsidy, it has to be complemented with better infrastructure to support electric cars to increase the sales volume of electric cars.

The best way is to use range of ways that complement each other where the market seeks to increase sale volume of electric cars via an increase demand and supply of electric cars.

Mark Scheme

Knowledge, Understanding, Application and Analysis		
L3	For a well-developed answer that shows thorough knowledge of ways to increase sales volume of electric cars anchored on economic analysis and its limitations. Consider ways that affect both demand and supply. There is good application to the electric car context.	8 - 10
L2	For an under-developed answer explains ways to increase sales volume of electric cars anchored on economic analysis and its limitations. One-sided answer: Consider way that affect either demand or supply.	5 - 7
L1	For an answer that shows some knowledge of the ways to increase sales volume of electric cars.	1 - 4
Evaluation		
E3	For an answer that arrives at an analytically well-reasoned judgement.	4-5
E2	For an answer that makes some attempt at evaluation, but does not explain adequately their judgement.	2-3
E1	For an answer that gives an unexplained, unsupported evaluative statement.	1

Markers' Comments:

YIJC PRELIM SUGGESTED ANSWER P2Q2

2. Bubble tea lovers in Singapore have the highest spending power of US\$342 annually, with the bubble tea industry earning a profit margin of around 75%. The industry has enough room for larger and smaller players to co-exist and flourish. The emergence of new players who are good at branding, supply chain and cost management could pose an increasing challenge to existing local players.

- a) Explain how the market structure in which bubble tea industry operate is likely to affect the firm's pricing and output decisions. [10]
- b) Discuss the potential benefits and problems that are likely to be experienced by the consumers and producers with the entrance of new competitors. [15]

Question Analysis:

- a) Explain how the market structure in which bubble tea industry operate is likely to affect the firm's pricing and output decisions. [10]

Command	Explain how (Process)
Content	Structure (Characteristics) affecting the price and output of the firms
Context	Bubble Tea industry (Oligopoly)
Trigger	Structure of bubble Tea industry
End	Price and output decision

Paragraph Development:

Point	The Bubble Tea industry operates in an Oligopoly market structure and therefore the mutual interdependence characteristics in the firm results in price rigidity among the firms, affecting their pricing and output decisions.
Example	Bubble Tea firms tend to not engage in pricing competition where their main competitive strategies are non- price competition in their consistent attempt to differentiate and diversify their products.
Economic Analysis	Mutual interdependence between the firms in Oligopoly would have resulted in the firms experiencing a kinked demand curve where: <ul style="list-style-type: none"> - Increase in price above P1 would be along a $PED > 1$ demand curve - Leads to a more than proportionate decrease in quantity demanded - Fall in TR

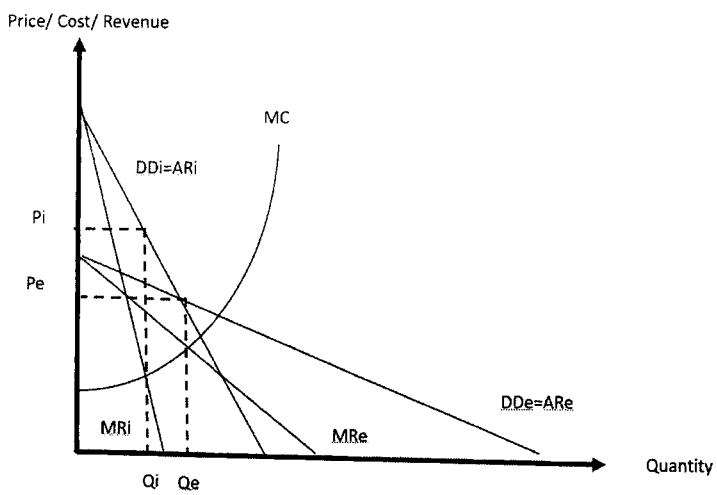
YJC PRELIM SUGGESTED ANSWER P2Q2

	<ul style="list-style-type: none"> - Decrease in price below P1 would be along a price inelastic demand curve where $0 < PED < 1$ - Leads to a less than proportionate increase in quantity demanded - Fall in TR <p style="text-align: center;">OLIGOPOLY - KINKED DEMAND CURVE</p> <ul style="list-style-type: none"> In addition, the presence of the disjoint MR also meant that: <ul style="list-style-type: none"> - Any changes in the MC between MC1 and MC2 - There would be no changes in the P and Q where price and output would remain at P1 and Q1.
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Link to ATQ	Given the mutual interdependence nature of the Bubble Tea firms, there is often price rigidity and firms are generally unwilling to change prices.
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Point	The Bubble Tea industry operates in an Oligopoly market structure and the dominating firms in the industry tend to have differentiated products/ strong brand loyalty where $0 < PED < 1$ compared to the small firms operating in the Monopolistic Competitive Market Structure.
Example	Large dominating firms in the Bubble Tea industry like Liho, Koi and Gong Cha have their own unique drinks and often the consumer loyalty results in the presence of weak substitutes allowing them to have a price inelastic demand for their products.
Economic Analysis	<p>Ability to product differentiate:</p> <ul style="list-style-type: none"> - Weak substitutes relative to if the firms were operating in an MC market structure where products are mostly homogenous - Price inelastic demand (Oli) - Poli is higher than Pmc

YJC PRELIM SUGGESTED ANSWER P2Q2

	<p>- Tendency to charge at a higher price level as an Oligopoly than that of a firm in MC</p> 
<p>Link to ATQ</p>	<p>The level of market dominance will have an impact on the price set by the firms, when the demand for the good is more price inelastic, the price will be higher and the output will be lower.</p>

<p>Point</p>	<p>The Bubble Tea industry operates in an Oligopoly market structure where they tend to engage in non-price competition as a strategy to compete against others.</p>
<p>Example</p>	<p>The firms in the bubble tea industry frequently differentiates their product, varying in the quality and variety of their product. E.g. Liho is known for their Cheese infused milk topping, Koi diversifies to different fruity tea dependent on season, Chi Cha San Sen who is known for the quality tea used, especially with every cup of tea made from controlled brewing technique, Playmade with their highly diverse toppings where their bubbles come in different flavours.</p>
<p>Economic Analysis</p>	<p>The output of the bubble tea industry is homogenous but highly diversified.</p> <ul style="list-style-type: none"> - Competitive environment has created the incentive to R&D - Supernormal profits has created the ability to R&D - Product differentiation is a common scene in the bubble tea industry. - Highly diverse and quality output in the bubble tea industry.

YJC PRELIM SUGGESTED ANSWER P2Q2

Link to ATQ	Output in the bubble tea industry is highly diverse and of high quality and variety due to the competitive environment and frequent product differentiation.
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Level	Descriptors	Mark s
3	<p>Expect a good knowledge of the facts and theory of the rational decision making by consumers, clear evidence of the ability to use the market structure in the bubble tea industry to explain the impact on prices and output with accurate reference to the question.</p> <p>Provision of a well-balanced discussion where the impact is on both price and output.</p>	8-10
2	<p>Expect an accurate although undeveloped explanation of the facts relating to the use of market structure in the bubble tea industry to explain the impact on prices and output together with an explanation of the theory, and evidence of some ability to discriminate and form elementary judgements.</p> <p>BUT do not expect a clear logical presentation. There will not be much evidence of the ability to recognise unstated assumptions, nor to examine the implications of a hypothesis, nor the ability to organise ideas into a new unity.</p> <p>Max 5: For one set of analysis</p>	5-7
1	<p>Answer shows some knowledge but does not indicate that the meaning of the question has been properly grasped, Basic errors of theory or an inadequate development of analysis may be evident.</p>	1-4

YJC PRELIM SUGGESTED ANSWER P2Q2

Bubble tea lovers in Singapore have the highest spending power of US\$342 annually, with the bubble tea industry earning a profit margin of around 75%. The industry has enough room for larger and smaller players to co-exist and flourish. The emergence of new players who are good at branding, supply chain and cost management could pose an increasing challenge to existing local players.

Explain how the market structure in which bubble tea industry operate is likely to affect the firm's pricing and output decisions. [10]

Discuss the potential benefits and problems that are likely to be experienced by the consumers and producers with the entrance of new competitors. [15]

Question Analysis:

Command	Discuss (Considerations of both sides of the analysis)
Content	Entrance of new competitors-> consumers and producers (Benefits and Problem) Consumers: C.S, PQQV Producers: P.S, Profits (Revenue/ Cost)
Context	Bubble Tea Industry
Trigger	Entrance of new competitors who are good at branding, supply chain and cost management
End	IMPACT: Benefits and Problems Consumers: C.S, PQQV Producers: P.S, Profits (Revenue/ Cost)

YJC PRELIM SUGGESTED ANSWER P2Q2

Paragraph Development:

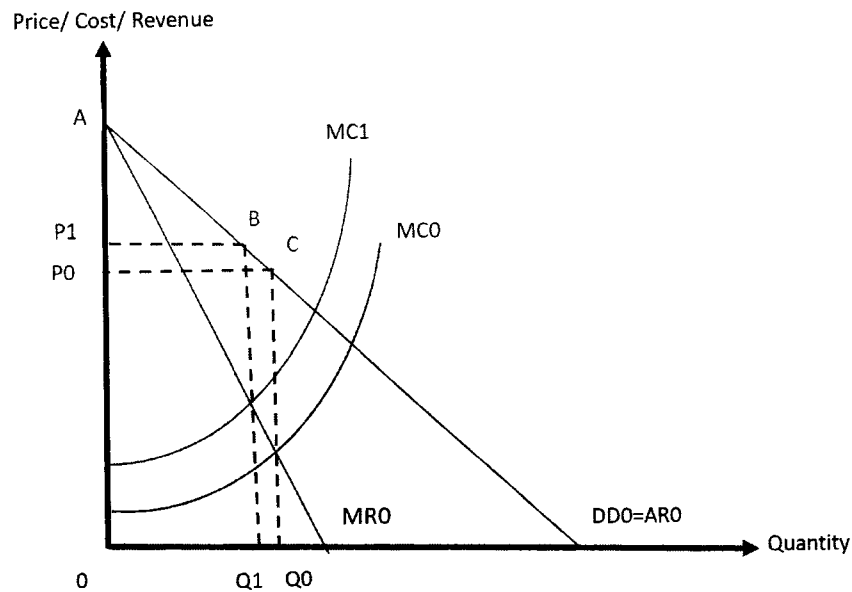
Point	With the entrance of new competitors, consumers would benefit more as the competition would drive down prices and improve on the quality of output.
Economic Analysis+ Example	<p>Price/ Cost/ Revenue</p> <p>Increase in competition:</p> <ul style="list-style-type: none"> - Increase in number of substitutes - Demand for the bubble tea of the incumbent firms will fall since the share of the consumer market has to be shared among more firms - DD0 to DD1 <p>Consumers: Benefits</p> <ul style="list-style-type: none"> - Prices charged will be lowered (P0 to P1) - Variety available to the consumers will be higher with more firms around - Quality of the Bubble Tea will improve with more product differentiation mentioned in part a) - E.g. Liho is known for their Cheese infused milk topping, Koi diversifies to different fruity tea dependent on season, Chi Cha San Sen who is known for the quality tea used, especially with

YJIC PRELIM SUGGESTED ANSWER P2Q2

	<p>every cup of tea made from controlled brewing technique, Playmade with their highly diverse toppings where their bubbles come in different flavours.</p> <p>Producers: Problems</p> <ul style="list-style-type: none"> - Prices charged will be lowered (P0 to P1) - Quantity sold lowered (Q0 to Q1) - TR falls from (0P0AQ0 to 0P1BQ1) - Firms might be earning lesser profits as seen in the diagram from the original supernormal profit of C0P0AC to normal profit.
<p>Link to ATQ</p>	<p>Higher competition is often seen to be desirable for consumers while not so for incumbent firms in the industry, however, this is also dependent on the firm's ability to maintain the consumer market, if the demand does not fall significantly given the branding and consumer loyalty, the implications on the fall in demand would be lesser and producers' impact via the fall in TR and Profits might be lesser.</p> <p>However, like what was mentioned in the pre-amble, where new competitors are good at branding, supply chain and cost management, this could mean that the competitors could be better at meeting the taste and preferences of the consumers where the demand would fall significantly. In addition, the ability to manage supply chain and cost meant that the new firms are able to enjoy more cost savings and charge at a lower price level, increasing the quantity demanded for the BBT as well. Eventually impact on the incumbent producers</p>

<p>Point</p>	<p>Higher competition often suggests lesser ability to reap internal economies of school which is detrimental to both consumers and producers.</p>
<p>Example</p>	<p>With a lowered output, bubble tea firms in the industry might be unable to enjoy cost savings from specialization via technical economies of scale. When the production level is too low, the bubble tea firm is unable to specialise the production process and the employee might have to take order, prepare and seal the drink, henceforth unable to specialise and reap internal EOS.</p>
<p>Economic Analysis</p>	<p>Increase in number of competitors:</p> <ul style="list-style-type: none"> - Decrease in demand for specific firms due to the sharing of the consumer market - Decrease in Q - Decreases in the ability to reap internal economies of scale - Increase in average cost and the marginal cost of production - MC0 to MC1

YJC PRELIM SUGGESTED ANSWER P2Q2

**Consumers: Problems**

- Higher Price level from P_0 to P_1
- Lesser quantity (Q_0 to Q_1)
- Fall in the consumer surplus in accordance to the firm's diagram (P_0AC to P_1AB)

Producers: Problems

- Lowered ability to reap internal EOS
- Higher AC
- Lower profits made by producers

Link to ATQ

With more competition and firms in the industry, the ability to reap internal EOS is a significant problem as the pre-able mentioned that the new competitors are good at branding, supply chain and cost management, meaning that their cost might already be lowered. Without the ability to reap internal EOS, the incumbent firms would incur a higher cost, earn lesser profit while being unable to compete with the new firms that are more effective in their cost management.

YJC PRELIM SUGGESTED ANSWER P2Q2

Conclusion:

Stand	Essential, consumers tend to benefit more from the increased competition in the market while producers tend to suffer more problems from the increased competition.
Substantiate	The extent of the problem is dependent on the ability of the firms to make its product remain demanded in the market in spite of the new competition. Example where Koi is able to maintain the consumer loyalty through the quality drinks created and service provided, even when new firms in the market like Chi Cha San Sen enters with their quality drinks, the impact on the fall in demand for Koi might be insignificance.
Suggest	Time period could be another element of discussion where in the short run, the competition might seem to be a problem for the producers who are unable to respond in time to the new competition. However, in the long run once the firms are able to respond to the new competition, the impact of the competition on the firms might not be significant.

Knowledge, Understanding, Application and Analysis	
<ul style="list-style-type: none"> ● Answer is relevant to question requirements and covers sufficient breadth (the potential benefits and problems that are likely to be experienced by the consumers and producers with the entrance of new competitors) ● Answer has sufficient depth: <ul style="list-style-type: none"> ○ Rigorous and detailed economic analysis with the use of economic framework and clear explanation about the benefits and problems. ○ Consideration of both consumers and producers ○ In the context of entrance of new competitors. ○ Relevant and accurate use of economic concepts; 	8-10
<ul style="list-style-type: none"> ● Answer is mostly relevant to the question requirements with sufficient breadth: <ul style="list-style-type: none"> - Adequate explanation of (the potential benefits and problems that are likely to be experienced by the consumers and producers with the entrance of new competitors) that contain minor inaccuracies; ● Economic analysis is accurate but incomplete or lacks precision. ● Relevant diagrams are used but might not be accurately explained or applied to support economic analysis. <p>MAX 6: - Good explanation of the impact on 1 economic agent (with rigour and use of real-world examples to illustrate)</p> <p>MAX 6: - Good explanation of the either the benefit or problem on the economic agent (with rigour and use of real-world examples to illustrate)</p>	5-7

Y11C PRELIM SUGGESTED ANSWER P2Q2

<ul style="list-style-type: none"> • Adequate explanation of only one either the impact on one agent or one sided discussion with just the benefit/ cost without economic framework. • Unclear and/or inaccurate economic analysis. 	1 – 4
Evaluation	
<ul style="list-style-type: none"> • Takes a clear overall stand that is comprehensively justified by providing convincing evaluative comments on the relative importance of the factors covered in the body and supported by economic analysis. 	4–5
<ul style="list-style-type: none"> • Takes a clear overall stand that is only partially justified and explained or the arguments were unconvincing and/or inaccurate at times OR • Provides evaluative comments but overall stand is unclear OR • Provides insightful opinions which are however not directly relevant to the requirements of the question. 	2–3
<ul style="list-style-type: none"> • Make an overall stand: potential benefits and problems that are likely to be experienced by the consumers and producers with the entrance of new competitors given a specific assumption/ context 	1

3 To ensure the success of vaccination as a tool in COVID-19 pandemic prevention and control, a high vaccination rate in a country is required. However, despite the vaccines being provided free of charge, vaccine hesitancy is still prevalent in some countries due to the spread of misinformation.

(a) Explain how consumers act rationally to decide whether to take the COVID-19 vaccine and the likely impact of their decisions on resource allocation in the COVID-19 vaccine market. [10]

(b) Discuss how government intervention in the market for vaccines could lead to social welfare being maximised and consider how likely such intervention will achieve this aim. [15]

Suggested Answer

Part (a)

Introduction

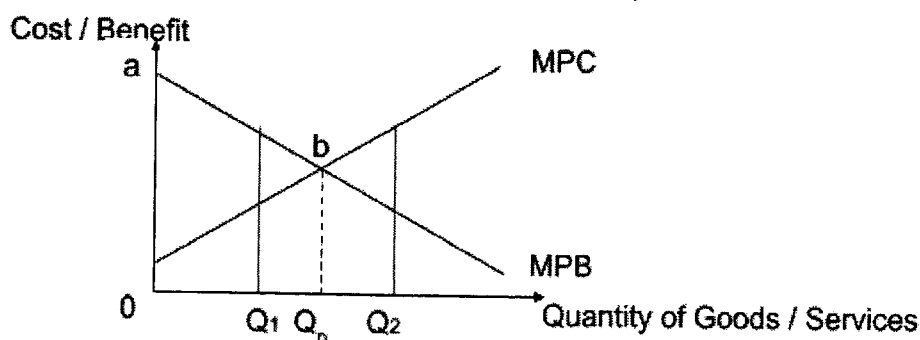
A rational consumer seeks to maximise his satisfaction or net benefit. In deciding whether to consume a good, the consumer will apply the marginalist principle and consider the marginal private benefit (MPB) and marginal private cost (MPC) of consuming the good. The MPB reflects consumers' additional benefit (i.e. satisfaction or utility) from consuming the last unit of the good / service. The MPC reflects consumers' additional cost to consume the last unit of good / service.

How consumers act rationally to decide whether to take vaccine

The consumer will take his MPB and MPC into account in deciding whether to take COVID-19 vaccine. The MPB of consuming the vaccine is the protection and savings on medical costs he enjoys due to lowered chances of falling ill after being infected with the virus and minimizing the risk of spreading the virus to his household. The MPC is the cost of vaccination incurred. Other than the explicit cost, i.e. the price of the vaccine, it also includes the opportunity cost, the next best alternative forgone in terms of other goods, e.g. food, he could have purchased with that amount of money. He could also have spent the time allotted for the vaccination on other activities like watching a movie instead.

With reference to Figure 1, if his MPB higher than MPC, at Q_1 , the consumer will proceed to take the vaccination. However, if his MPB is less than his MPC, at Q_2 , the consumer will decide not to take the vaccination. Hence, the consumer will consume up to the point where $MPB = MPC$ at Q_p . At this point, the consumer maximises his net benefit as seen by the area abc.

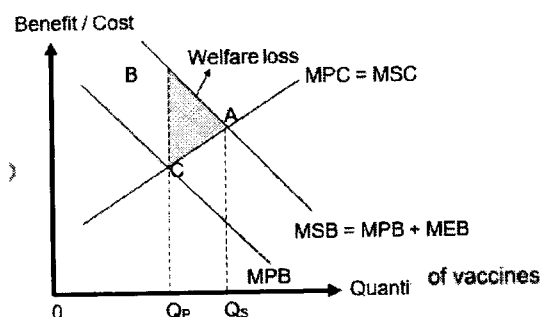
Figure 1: Private optimum output



How positive externalities can lead to under-allocation of resources

However, consumption of the vaccination generates positive externalities, which third party can enjoy (external benefit) as well. Vaccinations help prevent the spread of viruses to the community at large. Those in the community are now less likely to be infected as there is one less person who has the potential to transmit the virus. The community will benefit from saved medical expenses, and the economy benefits since less man-hours is lost to workers being ill. This external benefit is not taken into account by the consumers in their decision making as they only consider their MPB. The existence of marginal external benefit (MEB) results in a divergence between MPB and the marginal social benefit MSB as seen in the diagram above, where the MSB lies above the MPB, with the vertical distance between MPB and MSB representing MEB. The socially optimal output, Q_s , is where $MSC = MSB$. Between Q_p and Q_s , $MSB > MSC$. As such, at output Q_p , society values an additional unit of vaccination more than what it would cost society. Society desires more consumption of vaccination, hence, when the decision is left to the market, there is under-consumption of vaccination by Q_p amount or there is an under-allocation of resources. By summing the excess of MSB over MSC for the units Q_p amount, we arrive at a monetary measure of welfare loss (also known as deadweight loss) of area ABC to the society.

Figure 2: Presence of positive externalities



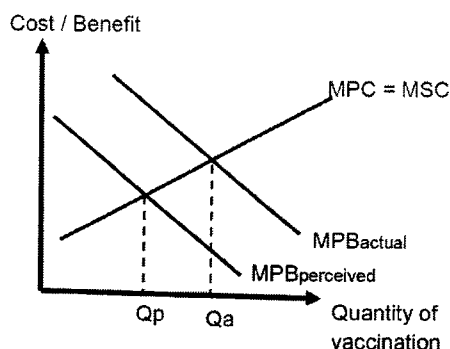
How under-valuation of MPB can lead to under-allocation of resources

In addition, due to imperfect information, consumers might not have an accurate valuation of their MPB as they are not fully aware of the benefits (to himself) of getting vaccinated as they get to avoid the potential complications caused by the viruses. Therefore, consumers may under-estimate the actual marginal private benefit (MPB_{actual}) of getting vaccinated, resulting in a perceived marginal private benefit ($MPB_{perceived}$) that is lower than MPB_{actual} . With accurate valuation of the MPB, quantity of vaccination consumed would be at Q_a . However, consumers are consuming at output level Q_p . Hence, there is an under consumption of vaccination due to imperfect information and there is under-allocation of resources in the market for vaccines.

(Note:

Alternatively, it is also possible to analyse that inefficient allocation of resources arises from $MPC_{\text{perceived}}$ being higher than MPC_{actual} .)

Figure 3: Presence of imperfect information



Conclusion

A rational consumer would weigh his MPB against MPC in deciding whether to take the vaccine as his aim is to maximise his own net benefit. However, such a process might not generate an outcome that is socially optimal as the consumers' valuation of his private benefit might not be accurate or does not take into the external benefit, resulting in the MPB being lower than the MSB. As a result, there is under-consumption and under-allocation of resources in the market.

Suggested Mark Scheme

Level	Knowledge, Application, Understanding and Analysis	Mark
L3	For an answer that demonstrates developed explanation on how a rational consumer decides whether to consume vaccine using the marginalist principle and resource allocation in the vaccine market is inefficient due to the presence of positive externalities or imperfect information.	8 - 10
L2	For an answer that demonstrates underdeveloped explanation on how a rational consumer decides whether to consume vaccine using the marginalist principle and resource allocation in the vaccine market is inefficient due to the presence of positive externalities or imperfect information. Max 5 marks: A one-sided answer that explains how a rational consumer decides whether to consume vaccine using the marginalist principle. Or	5 - 7

	A one-sided answer that explains how the allocation of vaccine is inefficient due to the presence of positive externalities or imperfect information.	
L1	For an answer that shows limited knowledge of rational decision making and market failure and contains major concept errors in understanding and shows lack of coherence.	1 - 4

Part (b)

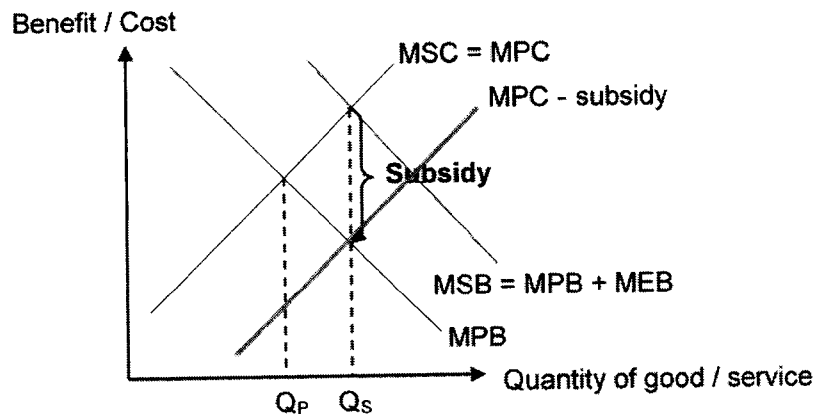
Introduction

As there is under-allocation of resources in the vaccine market, government intervention is required in the market to ensure that there is efficient allocation of resources so that welfare to society can be maximized.

How subsidies work to achieve efficient allocation of resources

Subsidies is a policy which could be used to tackle market failure in the vaccine market.

Figure 4: Effect of subsidy



With reference to Figure 4, the government can provide a per-unit subsidy that is equal to the MEB at the socially optimal level of output, $0Q_S$. The amount of per-unit subsidy is equal to the vertical distance of MEB (Distance between MSB and MPB_{actual}) at $0Q_S$. The subsidy provided has the same effect as decreasing the unit cost of consuming the vaccine. Thus, the subsidy shifts the consumer's MPC vertically downwards by the full amount of the subsidy to coincide with MSC. This is illustrated by MPC - subsidy. If the subsidy is calculated to accurately reflect the MEB at $0Q_S$, consumers will consider the true social benefit of consuming the vaccine and increase consumption to the socially optimal level $0Q_S$. Thus, allocative efficiency is attained.

How effective is subsidy

Subsidies aim to tackle the root cause, presence of positive externalities of under-consumption. This is because through rational decision making in the free market, producers and consumers ignore external benefits and only account for their self-interests by considering private benefits and costs. A subsidy is effective since it targets this root cause as these external benefits are internalised.

If amount of subsidy imposed is correctly estimated to reflect monetary value of MEB generated, the amount of vaccines consumed or produced in market will coincide with the socially optimal level. However, this requires an accurate estimation of the MEB. Under-valuation of MEB implies that although consumption of the vaccines is increased by the given subsidies, it is not sufficient to bring output to the socially optimal level to maximise society's welfare. An over-valuation of the MEB implies that although output is increased, it will result in over-consumption and welfare is again not maximised. However, this does not seem to be the concern of some governments as their purpose is to encourage all those who are eligible to consume by giving full subsidization of the vaccine.

(Note:

Alternatively, it is possible to argue that MEB in this case is so large that it justifies a full subsidization by the government.)

How public education works to achieve efficient allocation of resources

However, despite full subsidization of the vaccine there are some who are still reluctant to take the vaccines. Hence, there is still a need to for the government to embark on education campaigns to correct the imperfect information in the market for the vaccines. Education campaigns are aims at making consumers more aware of the full benefits of consuming the vaccines to themselves. Hence, consumers' perceived benefits increase to the level of actual benefits. For instance, there advertisements in different languages put up on various platforms by the Singapore government to encourage Singaporeans to take the vaccines. With public education by the government, consumers perceive the benefits of consuming the vaccines becomes higher, thus narrowing the gap between the perceived and actual benefits of vaccination.

With reference to Figure 3, if such public education campaigns are successful, the private benefit for health care services would increase from $MPB_{\text{perceived}}$ to MPB_{actual} which will cause consumption to increase from $Q_{\text{perceived}}$ to Q_{actual} , reducing the extent of underconsumption and reducing the extent of market failure.

How effective is public education

Education campaigns targets the root cause of imperfect information and is hence likely to be effective in reducing the extent of underconsumption. However, its effectiveness depends on receptiveness of the public to the content of the education campaigns thereby causing the outcomes from public education to be uncertain.

There could also be a possibility whereby education campaigns convinced the mass of the importance of the external benefits of healthcare services and alter their decision-making process in the long run. For instance, they could be convinced of the external benefits of 'herd immunity' and integrate it into their valuation of benefits. This could increase the MPB of consuming vaccination, thereby increase the equilibrium quantity of vaccination consumed to the social optimal level.

Due to the time taken to educate the mass it is likely to be more effective as a long-term preventive measure. However, given the nature of the pandemic, governments would need to boost the take-up rate of the vaccines substantially over a short period of time.

However, the effectiveness of this measure can be affected by the extent of the spread of misinformation. If it has caused a large information gap, resulting in a greater divergence between MPB_{actual} and $MPB_{\text{perceived}}$, then it is unlikely to be sufficient to address the issue of imperfect information. In such cases, the use of legislation to curb the spread of misinformation might be necessary to ensure that the information gap can be closed, thereby reducing the extent of the deadweight loss and increasing social welfare.

How regulation works to achieve efficient allocation of resources

The government might need to implement other measures like regulation. For example, in Singapore, the government put in place a regulation that only those who are vaccinated are allowed to enter public places like the shopping malls. This is similar to vaccine passes implemented in other countries to encourage more of their citizens to get vaccinated more quickly. By doing this, it will raise MPC relative to the MPB if one does not get vaccinated or increases the MPB relative to the MPC if one gets vaccinated. This then incentivize the rational consumer to make the decision to get vaccinated after weighing their MPB against their MPC. With higher consumption of the vaccines, the output can move closer to the socially optimal level, increasing social welfare.

How effective is regulation

For regulation to be effective, strong enforcement on the part of the government is required. The necessary mechanism for monitoring and checking for compliance by the public has to be in place. There should also be stiff penalties imposed for non-compliance. Hence, the effectiveness of this policy is subjected to whether the government has sufficient resources and the ability to ensure that appropriate punishment can be meted out to those who do not comply. For countries that are able to do so will likely be able to increase consumption of the vaccine sufficiently thereby increasing social welfare.

(Note:

Alternatively, legislation to address the spread of misinformation is another example that can be used.)

Conclusion

While government intervention in the form of subsidy and public education can be implemented to address the problems of positive externalities and imperfect information, the effectiveness of these measures in achieving efficient allocation of resources are dependent on various factors, like the ability of the government to estimate to MEB and willingness of the public to change their mindset. However, timing is an important consideration in this context. Given the urgency in controlling the spread of the virus,

these measures are not sufficient and many governments adopted additional measures like regulation to boost take-up rate of the vaccines quickly.

Suggested Mark Scheme

Level	Knowledge, Application, Understanding and Analysis	Mark
L3	For an answer that is well developed with the use of economic analysis to explain how at least two policies can be used in the vaccine market to achieve efficient allocation of resources and consider the factors that affect the effectiveness of the measures.	8-10
L2	For an underdeveloped answer that explain how the policies can be used in the vaccine market to achieve efficient allocation of resources and consider the factors that affect the effectiveness of the measures. Max 6 marks: A one-sided answer that is well developed with the use of economic analysis to how a policy can be used in the vaccine market to achieve efficient allocation of resources and consider the factors that affect the effectiveness of the measure. Or A one-sided answer that is well developed with the use of economic analysis to explain how two policies work to achieve efficient allocation of resources.	5-7
L1	For an undeveloped answer that shows some knowledge of the policies or some of their limitations. Answers may contain conceptual errors.	1-4
Evaluation		
E3	For an answer that uses economic analysis to support evaluative comments about whether the policies would achieve efficient allocation of resources to maximise welfare to society.	4-5
E2	For an answer that gives a stand with some support on whether the policies would achieve efficient allocation of resources to maximise welfare to society	2-3
E1	For an answer that gives a judgement without substantiation.	1

2022 H2 Prelim Essay Q4

Rapid population ageing and a shrinking labour force in Japan are major challenges for achieving further increases in its living standards and ensuring the financial sustainability of its public social expenditures.

- (a) Explain how Japan's rapid ageing population affects its future economic performance.
[10]
- (b) Discuss the economic policies which might help the Japanese government to mitigate the adverse impact of its rapidly ageing population. [15]

Part a**Suggested Answer****The 3Cs to Question Interpretation:**

Command Word	Concept Word	Context Word
Explain how	future economic performance	Japan's rapid ageing population
Elaborate with economic rigour (including graphical analysis)	Future economic performance <ul style="list-style-type: none"> • Internal: Potential Economic Growth, Unemployment Rate, Inflation Rate • External: Healthy Balance of Payment Use of AD/AS analysis	Application to Japan context

Introduction

Population ageing in Japan has progressed more rapidly as compared to other countries. Currently, Japan has the highest old-age dependency ratio of all countries, with a ratio in 2017 over 50 persons aged 65 and over, for every 100 persons aged 20 to 64 and this ratio is projected to rise to 79 per hundred in 2050. This essay will explain the impact of Japan's rapid ageing population on its future economic performance. Japan's future economic performance includes the key macroeconomic objectives that are sustained economic growth, low unemployment rate, low inflation rate and favourable balance of trade (BOT).

Body I: Impact on potential economic growth

Japan's working-age population (persons aged 15-64) has been declining trend since the late 1990s and this decline is likely to feed through a considerable decline in the total labour force over the next few decades.

With higher retirement figures and insufficient younger people entering the workforce to replace these workers, the quantity of workforce will drop further fuelling the fall in LRAS from AS_0 to AS_1 .

Coupled with shrinking labour force, older workers may not be able to keep pace with technological changes and changing work requirements Falling labour productivity

Thus, the fall in both quantity and quality of labour would limit potential economic growth as Y_{f_0} falls to Y_{f_1}

Fall in potential economic growth

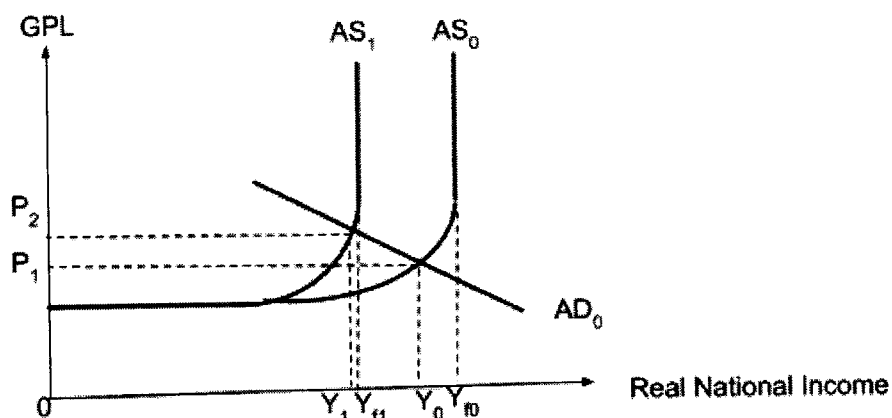


Figure 1: Falling quantity of labour force in Japan

Body II: Impact on future balance of payment & potential economic growth

However, the longer working lives could help limit the decline in Japan's workforce and boost social security contributions to finance rising health and pension expenditures.

Successful R&D that provide robotics solutions eg greater automation in manufacturing and services sector that reduce the need for physical work

rise in labour productivity and expansion of service sector

gain comparative advantage in say, robotics design and manufacturing

increases in future trade surplus healthy balance of payments in future

falling cyclical unemployment as firms expand output and increase their derived demand for labour

increases potential economic growth

Body III: Impact on future price stability

In the longer run, the fall in labour force > fall in demand for labour

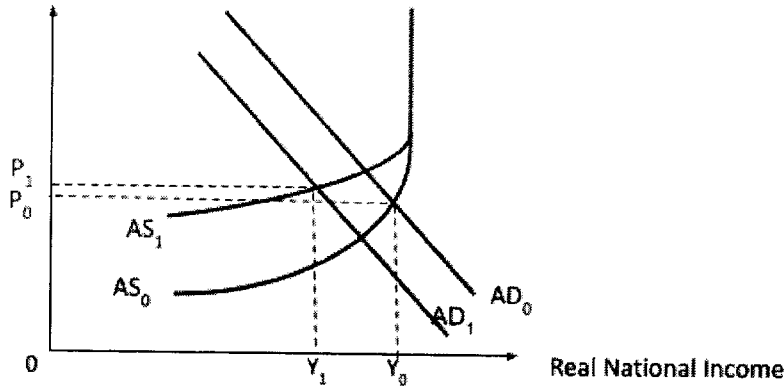
rise in nominal wages in future across the various labour markets

rise in the unit costs of production of all firms

firms will pass on the increase in unit cost of production to consumers

increase in GPL increase in cost-push inflation in the future

General Price Level



Body IV: Impact on future financial sustainability

Rapid ageing population

Increase in number of retirees increase pension expenditure
 strain on financial sustainability of Japan's social security system

Conclusion

Overall, the impact of Japan's rapid ageing population on its future economic performance is likely to be adverse.

Examiners' Comments:

Mark Scheme

Level	Knowledge, Understanding, Analysis, Application	Marks
L3	Knowledge + Application + Analysis A balanced and well-developed answer on Japan's rapid ageing population positively and negatively impact it's future economic performance.	8 – 10
L2	Knowledge + Application An under-developed answer on how Japan's rapid ageing population positively and negatively impact it's future economic performance. Max 6m – only adverse impact on both internal and external economic performance is considered.	5 – 7

	Max 5m - only adverse impact on either internal or external economic performance is considered.	
L1	Knowledge An undeveloped answer where points are merely stated or listed without elaboration on the marginalist principle used by both consumers and producers. May contain theoretical errors.	1 - 4

- (b) Discuss the economic policies which might help the Japanese government to mitigate the adverse impact of its rapidly ageing population. [15]

Part b

Suggested Answer

The 3Cs to Question Interpretation:

Command Word	Concept Word	Context Word
Discuss	Economics policies to mitigate the adverse impact	Japan's rapid ageing population
Requires 2 sided arguments and eventually make a reasoned judgement on the basis of your analysis.	Discuss at least 2 economics policies that might help to mitigate the adverse impact of its rapidly ageing population. Comment on the appropriateness/ effectiveness of the proposed economic policies.	Application to Japan context

Introduction

- Briefly state the adverse impact of rapidly ageing population: shrinking labour force, lower labour productivity growth, reduced potential economic growth
- Identify the economic policies that might help mitigate the adverse impact of ageing population.
 - Policies that could increase employment levels or rise labour productivity
- Comment whether the proposed economic policies could successfully mitigate the adverse impact of its ageing population

Body I: Economics policies that increase the quantity of labour

1. Further increases in employment of older labour would help to limit the steep fall in total labour force that Japanese is projected to face over the next 20-30 years.

Proposed economics policy: Extend retirement age

- Extend retirement age
 - In the short run, the Japanese government should seek to extend mandatory retirement age which can be phased in progressively every two years. The government can also increase the re-hiring of older

workers above age 70. Do note that the Japanese government has increased the mandatory retirement age to 70 years old in Apr 2021.

Comment: Gradually increase the mandatory retirement age as this will reduce the risk that older workers are re-hired as non-regular workers.

- o In the longer term, the Japanese government should consider abolishing the mandatory retirement age altogether as done in Australia, Canada, New Zealand and United States where these countries set law to ban mandatory retirement age.

Comment:

But unless the wage systems are reformed, employers will continue to resist raising the mandatory retirement age. One of the biggest difficulties in hiring older workers arises from their high wages due to the seniority-based wage system. The seniority-based pay system rewards worker for each additional year of service. However, this makes older workers expensive relative to their productivity which creates a barrier to their continued employment.

In terms of employees' perspectives, many older workers face a substantial pay cut following mandatory retirement and may end up being rehired in jobs that do not fully utilised their skills, which undermines their job satisfaction, motivation and well-being.

Limitations: Japan already has rates of labour force participation for older people that are among the highest of OECD countries, especially for older men. Thus, limited room to increase employment rates for older men.

2. Issues facing Japan currently:

- Situation of many older women who have been involved in non-regular work at younger ages (Non-regular jobs include part-time, temporary, dispatched, and contract workers.)
- Many women leave employment following marriage and child birth.

Proposed policy: Rise women labour force participation rate

- Boost opportunities to combine work and care for children and elderly parents in order to help women to (re-)entree and stay longer in the workforce.
- Enhance the availability of high-quality childcare; reducing long working hours and increasing working-time flexibility, in part by better enforcing the Childcare and Family Care Leave Law.

Comment:

- Partially offset the negative effects of population ageing on the size of workforce
- Help to bolster incomes and pensions at older ages. This is particularly important in Japan, where relative poverty rate of people aged over 65 years is 19.6% against 12.5% on average in the OECD.
- Contribute significantly to the fiscal sustainability of social security

However, poor quality jobs and working conditions undermine reforms to lengthen working lives. Excessive work hours for many Japanese workers as well as a lack of autonomy and support from colleagues.

Body II: Economics policies that boost labour productivity

- In view of rapid ageing population and an uncertain global economic environment, productivity-driven growth can deliver sustainable and inclusive economic development and improve Japan's standard of living over time.
- Define productivity: Productivity is measured by the output per worker per period of time or output per man-hour.
- Policies to boost labour productivity: Supply-side policy such as human capital development, tax incentives /subsidies, subsidize firms' R&D initiatives etc

Proposed policy: Interventionist Supply-side policy – Human capital development

- Investment in human capital eg education
 - i. Investing in skills is critical to improve productivity and respond to labour market changes. Adapting and upgrading the skills of older workers as well as making the best use of their skills represent a major challenge for Japan. It would help to overcome labour shortages, increase labour productivity and ensure workers have the right skills for an increasingly digital and globalised labour market.
 - ii. Invest in lifelong learning to support the good foundation skills among older and younger Japanese adults and reduce inequalities in training participation by age, skill and type of employment contract.
A key determinant is the skills obtained at a younger age through education and training as well as those skills acquired through participation in further training. The learning content of jobs also has an important impact on skills development over the life cycle. Some skills

are likely to decline over age, although experience may compensate for this decline.

↑ in labour productivity

↑ productive capacity and potential economic growth

↑ AS

Comment:

With advances in technology and automation, jobs increasingly involve sophisticated tasks, require analysing and communicating information. Hence, poor proficiency in information-processing skills not only restrains employment opportunities but also limits access to many services. More than ever, lifelong learning is of key importance, for all workers in all kinds of jobs. Workers in low-technology sectors and those performing low-skilled tasks must learn to be adaptable, because they are at higher risk of losing their job, as routine tasks are increasingly performed by machines, and companies may relocate to countries with lower labour costs. In high-technology sectors, workers need to update their competencies and keep pace with rapidly changing techniques. The job prospects of older workers will be increasingly dependent on the skills they have acquired and kept up to date over their careers.

As in other developed countries, high-skilled workers in Japan tend to participate more often in work-related training than the low skilled. In general, worker who have already built up a substantial stock of human capital learn more easily and their rates of return to learning tend to be higher. Thus, the need to train workers over the whole working life cycle rests on the continuous adoption of new technologies and forms of work organisation which are changing the skills needed in jobs. Training needs are also linked to changing jobs, functions or duties within the company.

Body III: Fiscal Policy

- Payroll levies: Payroll levies on employers are used in some countries as a way to pool resources from employers and earmark them for expenditure on vocational training. It is expected that they help avoid the “free-riding” of some companies, stemming from the fact that some employers invest considerably in their workforce (with expected benefits for the whole economy).

Comment (Limitations):

Some companies may use the funds for other activities and charge them to training. The net impact of these levies also remains unclear, as the policy may encourage employers to provide more internal training than they otherwise would have. These schemes may also not be sufficiently targeted, eg to promote training for the more disadvantaged groups, namely those with a low skill level and those who have a poor previous participation in further training. Further, if not targeted at SMEs, they are likely to benefit more large companies as these have more capacities to identify training needs of their workers and organise training.

- Develop further the **recognition and certification system** of prior learning acquired at work as well as a **qualifications framework**. This would help to standardise training and make it more transferable between companies for workers of all ages. A qualification framework would help achieve this and both actions should be carried out in partnership with employer and worker representatives.
- Set stronger incentives for employers to invest in training and to include social partners for the implementation of a lifelong learning strategy. In particular, SMEs have few resources for workforce development and lack instruments to identify their skills needs. Thus, government support for training eg subsidies, in particular of non-regular workers and targeted at SMEs should be leveraged up.
- Provide training in transversal skills irrespective of age. This includes investing in ICT skills as well as in soft skills for all age groups.

Comment:

One major obstacle to training over the lifecycle is that in many cases training needs are not identified. Some Japanese firms provide mid-career interviews and counselling but their focus remains on future employment and pay options after reaching a certain age instead of identifying training needs and gaps to help promote job mobility within and across firms. The government has taken several small steps in recent years to encourage firms to assess training needs of their workers including a subsidy to employers who introduce mechanisms that provide employees with opportunities for career consultations and access to certified career consultant agencies.

Body IV: Other policies

- Japan is promoting the establishment of career and lifelong learning counselling in companies. Practically, employers can introduce a mechanism “The Self-Career Doc system” that periodically provides employees with opportunities for various career workshops and career consultations, based on human resources development policies. In this

way, employees can independently promote their own career development. In Japan, certified career consultant agencies have been established since 2001.

- Hello Work (Japan's Public Employment Services) provides special counselling and guidance and job replacement services for older job seekers aged 55 and above. Even with Hello Work's help, more can be done to improve job matching and placement for this group. On one hand, older jobseekers are often steered towards occupations of low quality for which there are shortages and which younger workers show little interest. On the other hand, Hello Work counsellors find it difficult to change the negative attitude of some older jobseekers to new jobs. Hello Work could complement caseworker's judgement with qualitative guidelines and data-intensive approaches.

Comment:

Takes time to influence mindsets and change societal norms.

Conclusion

Since each policy comes with its own set of limitations, it is critical that the Japanese government designed policies to raise the labour force participation rate for women and older workers in the short run. In the longer term, the government should design policies to boost labour productivity.

Examiners' Comments:

Mark Scheme

Level	Knowledge, Understanding, Analysis, Application	Marks
L3	Knowledge + Application + Analysis A balanced and well-developed answer that discuss the economic policies that mitigate the adverse impact of Japan's rapidly ageing population. Comment on the appropriateness/ effectiveness of these economics policies.	8 – 10
L2	Knowledge + Application An under-developed answer that discusses the economic policies that mitigate the adverse impact of Japan's rapidly ageing population. However there exists gaps in analysis and/or with limited application of context given.	5 – 7

L1	Knowledge An undeveloped answer where economics policies are merely stated or listed without elaboration to Japan context. May contain theoretical errors.	1 – 4
Evaluation		
E3	Well-reasoned judgement Justified conclusion and evaluation regarding whether the government interventions are appropriate/effective with the use of a clear set of criteria. Might question any unstated assumptions to arrive at this well-reasoned judgement.	4 – 5
E2	Largely unexplained judgement Some attempt at a conclusion or evaluation regarding whether the government interventions are appropriate/effective. However, the response does not explain adequately their judgement or base it on a clear set of criteria.	2 – 3
E1	Unsupported judgement Mere stating of stand. An unexplained, unsupported evaluative statement on whether the government interventions are successful in maximising social welfare.	1

5 Global inflation has been revised upwards due to rising food and energy prices.

(a) Explain the conflicts between the government macroeconomic goals. [10]

(b) Discuss the other factors that can influence government choice of policies to tackle the rising prices. [15]

Suggested answer for part (a)

Introduction:

- Government aims to achieve the following 4 macroeconomic goals: High and sustainable economic growth, low inflation (price stability), low unemployment and healthy balance of payments.
- Possible conflicts may arise in achieving the 4 macroeconomic aims.

Body:

1. Low inflation vs actual growth/low unemployment

Conflict arises when the economy aims to achieve low inflation and actual growth/unemployment. For example, as Vietnam experience growth from 6.2% to 7.0% growth and fall in unemployment from 2.33% to 2.21% from 2016 to 2018, her inflation rate increases from 2.6% to 3.5% for the same period. This is because as AD increase close to full employment from AD1 to AD2 to AD3 as seen in Fig 1, this will lead the real national income increases from Y1 to Y2 to Y3, hence achieving actual growth in the short run. In addition, the increase in AD will also result in an increase production level as firms will need to step up production to meet the higher demand. This result in a higher need for factor of production and increase in the hiring of factor of production like labour, thus reducing the cyclical unemployment.

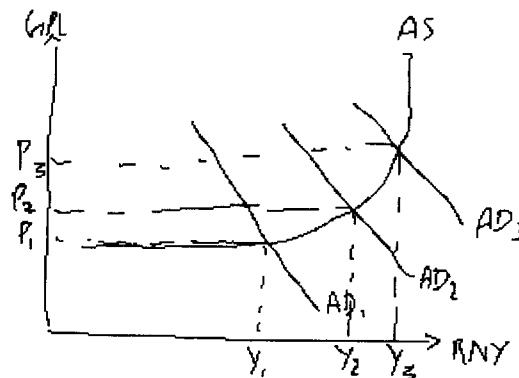


Fig 1:
Impact of rising
AD on GPL &
RNY

However, the trade off to economic growth and low unemployment is that general price level increases as AD increases close to full employment level, causing demand pull inflation. As AD increases, the economy moves closer to the full employment, thus resulting in higher competition for the depleting available resources. This pushes the price of resources up and results in firms experiencing a rising cost of production. The firms will then transfer the rising cost of production to the consumer therefore prices charged for their commodities will rise. GPL will therefore increase as real output increases. Hence, this explains for the conflict in achieving low inflation and actual growth/low unemployment.

2. Low inflation vs healthy balance of trade

When export revenue is increasing due to the increase in export demand and/or import expenditure is decreasing due to fall in import demand, this will result in an increase in net export and improving the balance of trade. However, the increase in net export will lead to the increase in AD. As AD increases as seen in figure 1, the economy moves closer to the full employment, thus resulting in higher competition for the depleting available resources. This pushes the price of resources up and results in firms experiencing a rising cost of production. The firms will then transfer the rising cost of production to the consumer therefore prices charged for their commodities will rise and GPL increase.

3. Economic growth vs low structural unemployment

Economic growth involves changes in production both in terms of the goods produced, and techniques used and the skills required. Hence the more rapid the rate of growth, the more rapid the rate of change in production techniques. People may then find their skills are no longer relevant or their jobs may be replaced by machines. Workers may thus find themselves unemployed as their skills do not match the available jobs. For instance, when the economy experience economic growth, firms are more likely to invest in machines such as self check out/in machines in retails stores or hotels, as well as technology like cashless payment technology to streamline their production process and increase productivity, these new machines and technology increases the productive capacity and LRAS of the economy, achieving economic growth. Yet at the same time, workers may not have the relevant skills to operate these new machines and technology, resulting in them being unemployed. Thus there is a mismatch of skills and opportunities as economic growth brings about a change in the structure of the economy, causing the conflict in achieving economic growth and low unemployment.

Conclusion:

In aiming to achieve the 4 macroeconomic objectives, government is likely to face the possible conflicts: low inflation vs actual growth/low unemployment, economic growth vs low structural unemployment, economic growth vs healthy BOP and low inflation vs healthy BOP. Hence, there is a need for government to implement the relevant macroeconomic policies to help achieve the macroeconomic objectives.

Knowledge, Application/Understanding and Analysis		
L 3	Answer shows a thorough and complete analysis of at least 2 possible conflicts between the various macroeconomic goals of EG, inflation, unemployment and balance of trade, with appropriate use of examples.	8-10
L 2	Answer shows an under-developed analysis of possible conflicts between the various macroeconomic goals of EG, inflation, unemployment and balance of trade, with some or no use of examples. Max L2 – 5m if only 1 conflict is given	5-7
L 1	Full of conceptual errors and mere listing of possible conflicts between the various macroeconomic goals.	1-4

Suggested answer for part (b)**Introduction**

To tackle rising price, government can consider using contractionary demand management policies such as contractionary fiscal policy or increasing interest rate or appreciation of exchange rate as well as possible use of supply side policies such as subsidizing of factor of production or encourage adoption of technology etc. However, as mentioned in part a, there are possible rise in conflict between the macro goals so the government will need to take into consideration whether the possible rise of conflict when choosing the appropriate policy to use. Apart from taking into consideration the possible rise of conflict in macro goals, the government will also take into consideration of other factors such as the root cause of the rising prices, openness of the economy and the time lag etc.

Factor 1: Root cause of the rising inflation

As mentioned in the preamble, the recent inflation that most economies are experiencing is mainly due to the rising food and energy price. The rise in the food and energy price is due to the supply disruption caused by the border and movement restriction during the COVID-19 period as well as the rise in political conflict such as Russia – Ukraine war, which resulted in both fall in global food and oil supply. This resulted in the rising cost of production of all processed food items as well as transportation cost, so resulting in a rise in cost push inflation. As such, the government should choose to adopt short run supply-side policies such as subsidy for fuel or energy so as to help reduce the cost of production for the firms and increase the SRAS, thus reducing the general price level.

Whereas the use of demand management policy such as contractionary fiscal may have limited effectiveness in reducing the inflationary pressure caused by rising food and oil prices. As the government adopt contractionary fiscal policy like increase income tax, which cause household disposable income and purchasing power to reduce. This will then reduce the consumption level and AD, thus reducing the general price level. But the reduction of consumption may be limited as the food and energy are essential for survival, so the reduction in consumption for food and energy may not reduce significantly. Hence resulting in a limited reduction in AD and GPL, so limiting the effectiveness to tackle the inflationary pressure as the policy does not tackle the root cause of cost-push inflation.

Factor 2: Openness of the economy

If the economy is experiencing rising inflation mainly due to the rising AD, then the government may need to the degree of openness of the economy. As economies (such as Singapore and Hong Kong) which have a small domestic market often depend more on exports to boost their aggregate demand and the rise of the demand-pull inflation. Domestic consumption is small in relation to total aggregate demand. Due to the small relative size of domestic consumption and domestic investment and but a larger dependency of export, so the use of the contractionary fiscal policy of increase income tax and corporate tax or the use of monetary policy of increase in interest rate will have limited impact on aggregate demand. As the increase in interest rate will increase the cost of borrowing, which reduces consumption and investment. This will reduce the AD and GPL but the fall in AD is limited as the component of C and I contributing to the AD is relatively small. This will limit the increase in of AD and render the interest rate policy and fiscal policy to less effective than the exchange rate policy which will influence the larger component of AD mainly the net export. Whereas for an economy like China and US where they have a large domestic market, the fiscal and monetary policies will be more effective in reducing demand-pull inflation.

At the same time, if the small economies lack natural resources to produce, there will be a high dependence on imports both for production and consumption. So the adoption of the appreciation exchange rate policy will also be able to help reduce the rising imported price. As the exchange rate appreciation will lead to a fall in price of imported factor of production reduce the imported cost of production. Hence reducing the inflationary pressure due to rising imported price.

Factor 3: Time lags of various policy instruments

Fiscal tools such as changes in level of government expenditure, tax rates, changes in types of taxes have to be approved through parliamentary process. As a result these tools suffer from longer time lags compared to monetary policy instruments such as interest rates which will take less time for changes to take place. As such, there is a need to consider the speed at which a problem needs to be addressed. In some cases, a short term policy may be implemented in order to reduce the impact due to the urgency of the problem before long term policies are undertaken in order to resolve the underlying cause of the problem.

Possible conclusion/ evaluation:

- Government policy decisions are based on a multitude of factors thus conflict is not the sole factor. However, the rising global food and energy prices may have increased the attention of governments to the importance of the root cause of the inflation.
- Choice of policy may even be influenced by political interests such as political objectives of ruling parties.

Knowledge, Application/Understanding and Analysis		
L3	Answer provides a thorough and complete explanation on how at least 2 considerations that the government has will affect the choice of policy in tackling rising prices/inflation, with appropriate use of example	8 - 10
L2	Answer provides an under-developed explanation on how the considerations that the government has will affect the choice of policy in tackling rising prices/inflation, with some or no use of example	5 - 7
L1	Answer that only explain and evaluate how the macro policies can reduce inflation, no clear link to factor of consideration. Full of conceptual errors and mere listing of the considerations that the government has will affect the choice of policy in tackling rising prices/inflation.	1 - 4
E3	Good attempt to provide well-reasoned evaluation/opinions, supported with clear explanation/evidence on the overall extent.	4 - 5
E2	Some attempt to provide synthesis/conclusion but lack clear substantiation/elaboration.	2 - 3
E1	Listing of opinion/conclusion, without any substantiation.	1

- 6 (a) Explain one internal cause and one external cause of a balance of trade deficit of a country. [10]
- (b) Discuss whether protectionism is the most appropriate policy to improve balance of trade. [15]

Suggested answer for (a)

Introduction:

A balance of trade deficit could be a result of a fall in the export revenue of domestically produced goods and/or an increase in import expenditure on foreign goods. This could occur because of internal and/or external reasons.

Explain an internal cause of BOT deficit:

Higher domestic inflation relative to the rest of the world will reduce export competitiveness of a country and can cause a balance of trade deficit.

For example, India has been experiencing rising rates of inflation since the start of 2022. Assuming prices of other countries' goods and services rise at a slower rate than India, a higher increase in domestic prices in India relative to the foreign prices will cause domestic households in India to increase demand for imported goods and services instead of domestically produced ones, thereby causing import expenditure to increase. At the same time, more expensive exports will cause foreigners to lower quantity demanded for the exports. Since the demand for India's exports is likely to be price elastic due to availability of substitutes from other countries, the increase in price will lead to a more than proportionate fall in quantity demanded, causing export revenue to fall, ceteris paribus. The falling export revenue and rising import expenditure worsen India's trade balance and cause its balance of trade deficit to widen in 2022.

Explain an external cause of BOT deficit:

With globalisation and freer trade flows, competition from emerging economies may lead to the loss of comparative advantage of the more developed countries which can cause a balance of trade deficit.

If the country's domestically produced goods are seen to be of a relatively lower quality or relatively higher priced compared to foreign goods, local consumers will switch to buying the relatively better quality of cheaper imported goods. This will result in a rise in demand for imports and import expenditure. On the other hand, foreigners will also buy

less of the domestically produced goods resulting in a fall in demand for the country's exports and export revenue. The fall in export revenue and rise in import expenditure will lead to a worsening of a country's trade balance. For example, the abundance of labour, land and other raw materials in China has resulted in a lower opportunity cost in the production of low-end manufactured goods than the developed countries like the US. This would mean that the Chinese low-end manufactured goods are more price competitive than the US goods. US will experience a fall in export demand and a rise in import demand. A loss in comparative advantage will thus lead to falling export revenue and rising import expenditure which worsen US's trade balance and resulted in a balance of trade deficit.

Conclusion:

Thus, both internal and external causes may cause a balance of trade deficit.

L3	A well-developed analytical explanation of both internal and external causes of balance of trade deficit. Answer shows excellent application with real world examples.	8-10
L2	An undeveloped explanation of the causes of balance of trade deficit. Max 5m for a well-developed answer that only explains either internal or external cause of balance of trade deficit.	5-7
L1	A descriptive answer that shows some knowledge of the causes of balance of trade deficit. Largely listing of causes which are only briefly explained and/or answer contains errors.	1-4

(b) Discuss whether protectionism is the most appropriate policy to improve balance of trade. [15]

Suggested answer for (b)

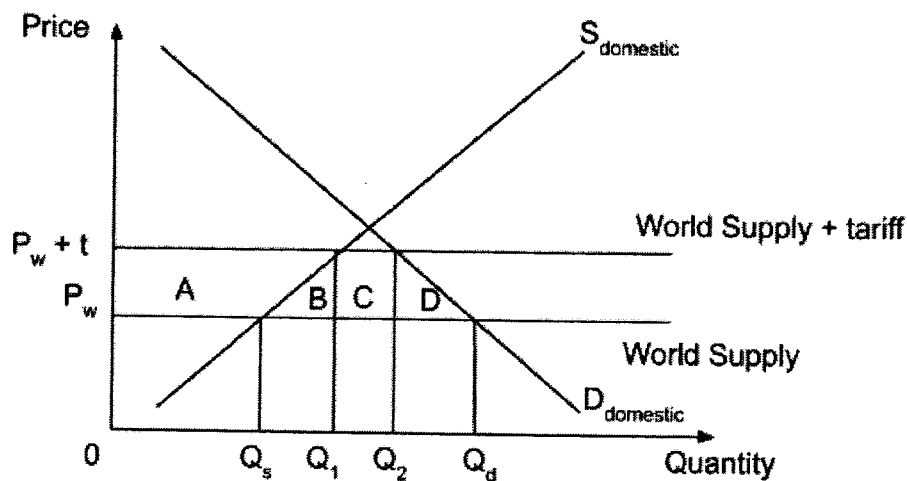
Introduction

To improve balance of trade, a government can adopt either expenditure-reducing or expenditure-switching policies to increase the export revenue of goods and services and/or decrease the import expenditure on goods and services. This essay will discuss how protectionism, contractionary fiscal policy, and supply-side policy can improve balance of trade. The appropriateness of these measures depends on the root causes of the balance of trade deficit, economic conditions, nature of the economy and the unintended consequences/ trade-offs in macroeconomic goals.

Policy 1: Explain how protectionism can improve balance of trade.

Protectionism is a form of expenditure-switching policy which aims to switch the expenditure of domestic households from foreign to domestic goods to reduce imports and/or switch the expenditure of foreign households to goods produced by the country to increase its exports.

For example, the US government imposed 200% import tariffs on solar panels imported from China. With the imposition of import tariff, t , the price of imported good increases from P_w to $P_w + t$, as shown in diagram below. As import prices increase, consumers will switch to cheaper domestically produced substitutes, and this will reduce the quantity demanded of imports from $Q_d - Q_s$ to $Q_2 - Q_1$. Assuming the demand for imports are price elastic (there are close substitutes produced by domestic firms), the increase in the price of imports will reduce the quantity demanded by more than proportionately leading to a fall in import expenditure. *Ceteris paribus*, balance of trade improves.



Limitations

- However, import tariffs may reduce export revenue if the export industry is reliant on imported raw materials. So, the overall impact on the trade balance is dependent on whether producers in the export industry can switch to cheaper domestic supplies. If the firms in the export industry use the imported raw materials that experience an increase in the price, the cost of production will increase and thus lead to an increase in the price of exports. If the demand for exports is price elastic, the quantity demanded for exports would decrease more than proportionately and thereby reducing export revenue. The overall impact on the net export would most probably be an improvement of the trade balance as the impact on the import expenditure is direct while the impact on the export revenue is more indirect where the imported raw materials may only take up a small portion of the total cost of producing the exports.
- The imposition of tariffs leads to the loss of consumer welfare. Consumers are worse off as domestic consumption of the good falls from OQ_d to OQ_2 and they have to pay a higher price of $P_w + t$. The loss in consumer surplus is more than the gains to both producer and the government, leading to a welfare loss to the society shown by area (B+D).
- Rise in price of imported raw materials will also lead to a rise in the cost of production SRAS falls RNY falls and imported cost-push inflation occurs (unintended consequences)

Policy 2: Explain how contractionary fiscal policy can improve balance of trade.

A government may adopt contractionary fiscal policy (an expenditure reducing policy) to improve the balance of trade by reducing its import expenditure. For example, the US government can reduce government expenditure on education, healthcare, etc. and/or raise taxes to reduce aggregate demand. A rise in income tax will reduce the personal disposable income and ability to purchase goods and services. A rise in corporate tax will reduce the expected after-tax profits, hence reduces the incentive for firms to invest. Fall in G, C and I fall in AD firms will face an unplanned rise in inventories and therefore reduce production and require lesser factors of production and this will result in a fall in national income. With lower national income, there will be lower induced consumption from households and this will result in a downward multiplier process with a multiplied fall in the national income. As purchase of imports is dependent on the national income, the fall in national income will result in a fall in import expenditure which will help to improve BOT, ceteris paribus.

Limitations

- However, there may be conflict in macroeconomic goals depending on the state of the economy. If the economy is operating below full employment, this policy

may result in a rise in unemployment. Moreover, the fall in AD may fuel business pessimism and may induce firms to further cut down on investment. Therefore, besides reducing current RNY and employment, such policies also run the risk of reducing potential growth.

- Contractionary fiscal policy will be more appropriate if the economy is initially experiencing inflationary pressure, as a fall in AD will be able to cool down the economy and lower GPL. This will improve the price competitiveness of exports and will also encourage consumers to switch towards domestically produced goods which are now relatively cheaper than imports.
- If the consumer confidence and business outlook are very strong, the policy may not be able to reduce the consumption and investment expenditure significantly fall in RNY and hence import expenditure may not be significant limited improvement in BOT
- The extent of fall in import expenditure will also depend on the marginal propensity to import (MPM). For countries who have large MPM values i.e. $MPM > 1$, there will be more than proportionate fall in the demand for imports more significant improvement in BOT, ceteris paribus.

[Alternative policy: students can also explain how depreciation of currency can improve net exports and hence improve BOT.]

Policy 3: Explain how supply-side policy can improve balance of trade.

A government can adopt supply-side policies to increase its export revenue and hence improve balance of trade. For example, the Singapore government can provide grants, subsidies or tax incentives to encourage innovation and investment in research and development (e.g. the Productivity Solutions Grant which provides funding for firms that adopt technologies to improve productivity). These policies lower the cost of conducting R&D, incentivizing firms to conduct more R&D, enabling firms to improve the quality of its products and increase the demand for its exports. Moreover, with better production methods or processes, the firms will be able to improve productivity and generate more output with the given inputs, thus lowering unit costs of production. This will improve the price competitiveness of the exports and result in a rise in quantity demanded of exports. Assuming demand for the exports is price elastic (i.e. many close substitutes in the global market), there will be a rise in export revenue as the higher revenue gained from the more than proportionate rise in quantity demanded will outweigh the loss in revenue from the fall in price of exports. This will improve the balance of trade, ceteris paribus.

Limitations

- However, the time taken for supply side policies to take effect tend to be long and the outcome is uncertain.

- In addition, investments in R&D may worsen the balance of trade position in the short-run as it may involve high import expenditures on capital goods from foreign countries, leading to a worsening of the BOT in the short-run.
- This policy is costly and can drain the government's resources, diverting resources away from other areas of competing needs.

Conclusion/ Evaluation

- The appropriateness of these measures depends on the root causes of the balance of trade deficit, economic conditions, nature of the economy and the unintended consequences/ trade-offs in macroeconomic goals. To minimize the limitations that each policy possesses, the government can adopt a combination of expenditure reducing policy, expenditure switching policy and supply-side policies.
- Protectionism such as import tariffs is a quick-fix measure that can improve the balance of trade in the short run when economy is experiencing a large and persistent BOT deficit. But, the improvement in trade deficit brought about by the protectionist policy is likely to be short-lived if the root-cause for the BOT deficit is not addressed.
- If BOT deficit arises due to demand-pull inflation, then expenditure reducing policies like contractionary fiscal policy would be more appropriate than protectionism via import tariffs which can further increase the level of inflation in the country. If the root cause of the BOT deficit is lack of export competitiveness, then supply-side policies to improve the competitiveness of the exports will be more appropriate. However, as the effects of supply-side policies take time, and there may be other causes of the BOT deficit, other short-run policies may be required to complement the supply-side policies.

Level	Descriptor	Marks
L3	For a well-developed explanation of at least 2 policies (including protectionism) to improve balance of trade. Answer shows excellent application to real world examples.	8-10
L2	For an under-developed explanation of policies to improve balance of trade, with some attempt to show application. For a one-sided answer with a well-developed explanation of only one policy – max 6.	5-7
L1	Smattering of valid points. Descriptive ideas of how policies work which are not linked to improvement of balance of trade.	1-4
Evaluation		

E3	For an answer that arrives at an analytically well-reasoned judgement.	4-5
E2	For an answer that makes some attempt at evaluation but does not explain adequately their judgement.	2-3
E1	For an answer that gives an unexplained, unsupported evaluative statement.	1

