ANDERSON SERANGOON JUNIOR COLLEGE
JC2 PRELIMINARY EXAMINATION
Higher 1

ECONOMICS	**8823/01**
Paper 1	**30 August 2022**
Additional Materials: Answer Booklet	3 hours

READ THESE INSTRUCTIONS FIRST

An answer booklet will be provided with this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional answer booklet ask the invigilator for a continuation booklet.

Please start your answer to each question on a fresh page of the answer booklet.

Answer **all** questions.

The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of **8** printed pages.

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Answer all questions

Question 1: Global healthcare

Extract 1: Prioritising health – A prescription for prosperity

For the past century or more, health improvements from vaccines, antibiotics, sanitation, and nutrition, among others, have saved millions of lives and been a powerful catalyst for economic growth. Better health promotes economic growth by expanding the labour force and by boosting productivity while also delivering immense social benefits. However, in recent years, a focus on rising healthcare costs, especially in mature economies, has dominated the policy debate, whereas health as an investment for economic return has largely been absent from the discussion.

Source: McKinsey & Company, 8 July 2020

Figure 1: Total healthcare expenditure per capita (US$), 2011–2019
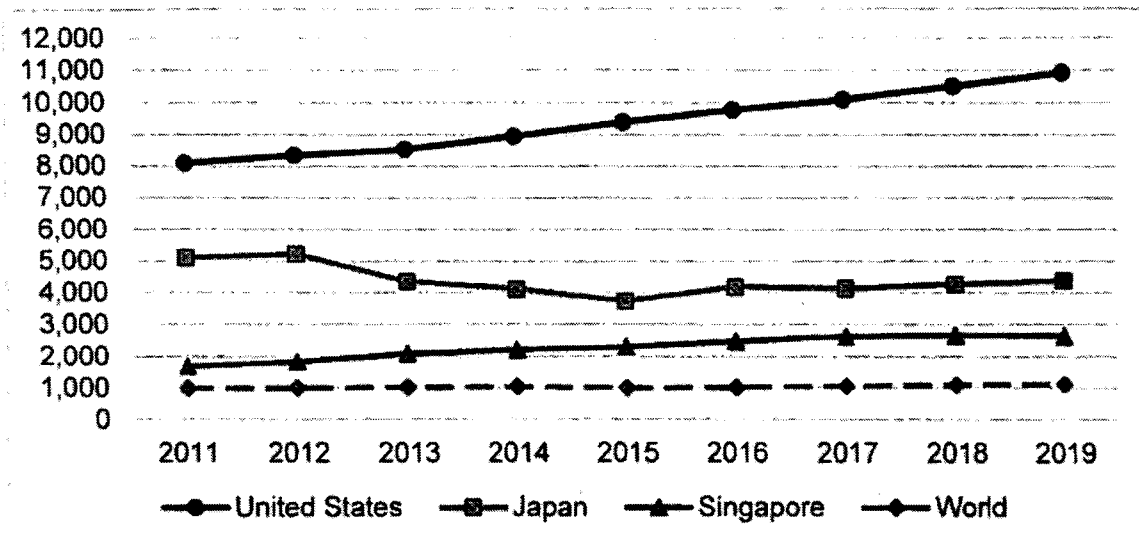
Source: The World Bank, accessed 21 July 2022

Extract 2: Economics of the United States healthcare system

The healthcare sector is in many ways the most consequential part of the United States (US) economy. It is a fundamental part of people's lives, supporting their health and well-being and a prerequisite for a well-functioning economy. Unfortunately, the problems with US health care are substantial. Healthcare expenditure is growing as a share of the economy and government budgets in ways that appear unsustainable. This growth represents a range of factors, from adoption of new technologies for new healthcare treatments and services and higher utilisation of medical services. Some of these changes are desirable: As a country gets richer, spending a higher share of income on health may be optimal. Countries with a higher level of output per capita tend to have a higher level of health expenditures per capita. In addition, as the population ages, health deteriorates and healthcare spending naturally rises.

Source: Brookings Institution, 10 March 2020

Extract 3: Generic Drug Price Tags: Too High. And Too Low

It often takes multiple generic drug companies to achieve the promised-for downward pressure on prices where generic drugs are chemical copies of the original brand name drug with the same active ingredients. The United States Food and Drug Administration (FDA) gives patent and exclusivity and protection to brand manufacturers to allow them to profit from their innovation and research for several years. During this time, no generic drug company can compete with the brand. Once the patent has expired, generic drug companies can enter the market through a shortened FDA approval process. For some classes of generic drugs, prices are so low that manufacturers may leave the marketplace. For many generic drugs critical to patient care, there are no more savings to squeeze out, says Martin VanTrieste, President and CEO of Civica Rx, a nonprofit company that manufactures generic drugs. "If we continue to do that, they will go away." Some manufacturers already produce them at a loss, he adds.

Sources: Medical News Today, 28 June 2021 and Managed Healthcare Executive Publication, 13 July 2021

Table 1: Price elasticity of demand for drugs in Taiwan and the United States

	Taiwan	United States
Brand name drugs	(-) 1.72	(-) 0.55
Generic drugs	(-) 0.55	(-) 1.72

Source: Frontiers in Pharmacology, 2 August 2021

Extract 4: Why intervene in pricing of healthcare?

For most commodities, pricing is determined based on supply and demand. But healthcare is far from being a classic market for goods and services. Unlike other commodities, consumers of healthcare usually know far less and do not have complete information. This makes consumers less sensitive to prices. However, prices provide important signals to healthcare providers, given that they determine the level of financial resources to deliver healthcare services.

Important externalities also exist in healthcare, implying that investments have broad benefits for communities and the public. Successfully treating someone with tuberculosis, for example, benefits not only the patient but also the community in which he lives. In this instance, price setting can be used to ensure adequate funding for public health goods, such as uncompensated hospital care that benefit communities; thus, prices should reflect the value of services to society.

Sources: World Health Organization and the Organisation for Economic Co-operation and Development, 2019

Extract 5: Greater focus on preventive care to rein in soaring healthcare costs in Singapore

A national programme focusing on preventive care will be launched to help rein in soaring healthcare costs and reduce the burden on patients' families, said Health Minister Ong Ye Kung. With healthcare expenditure expected to triple in the coming decade to almost $60 billion a year by 2030, Mr Ong said it will make a huge difference if chronic illness can be prevented or delayed. "If we can prevent chronic diseases and severe diseases, we will age more gracefully, with much better quality of life. The burden on our family will be much less, the entire healthcare system will

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be more sustainable, and our whole nation's fiscal position will be more sustainable," said Mr Ong, who added that preventive care will be a key priority this year for the Ministry of Health. Mr Ong noted that the Government is also spending a lot on healthcare, by investing in infrastructure and in recruiting doctors, nurses and other healthcare workers to run them.

The heavily subsidised national screening programme which offers tests for chronic illnesses like diabetes, and for three cancers, is capped at $5 for Singaporeans. It is free for the Pioneer Generation. Mr Ong said tackling the chronic disease problem requires patience, as it takes at least five years before some results can be seen, and 10 years for its effects to be felt. "Ultimately, that is the most effective solution to make the population healthier and reduce the pain and suffering we and our families go through as we age," said the Health Minister. He added that the key is to act early, which can be achieved through health screening promotion and campaigns. "If health screenings were done and problems discovered early, and acted on them, it would have made a huge difference to their health", he said.

Source: The Straits Times, 12 February 2022

Questions

(a)   Using a production possibility curve diagram, explain the opportunity cost that arises when a country decides to prioritise healthcare.   [3]

(b)   With reference to Figure 1, compare the total healthcare expenditure per capita for the United States, Japan and Singapore, with that of the world from 2011 to 2019.   [3]

(c)   Using a diagram, explain one demand and one supply factor that will affect the market for healthcare in the United States and comment on whether the change in price is likely to persist.   EV   [8]

(d)   (i)   Suggest possible reasons for the difference in the price elasticity of demand values between brand name and generic drugs in Table 1 for Taiwan and the United States.   [4]

     (ii)   Discuss the usefulness of the price elasticity of demand values in Table 1 for generic drug companies in the United States in deciding if they should continue to promise a downward pressure on prices as stated in Extract 3.   [8]

(e)   Explain why "public health goods" such as hospital care do not fulfil the characteristics of a public good.   [4]

(f)   Using Extract 4 and with the aid of a diagram, explain one reason why market prices do not reflect the true price of services to society in the healthcare market.   [5]

(g)   Extract 5 mentioned various ways to influence demand and supply in the market for healthcare in Singapore.

     Discuss the view that providing subsidies is the best way to correct market failure in the healthcare market.   [10]

[Total: 45]

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Question 2: Ageing population, productivity and inclusive growth

Figure 2: Output growth in Japan and the OECD (Annual % change)
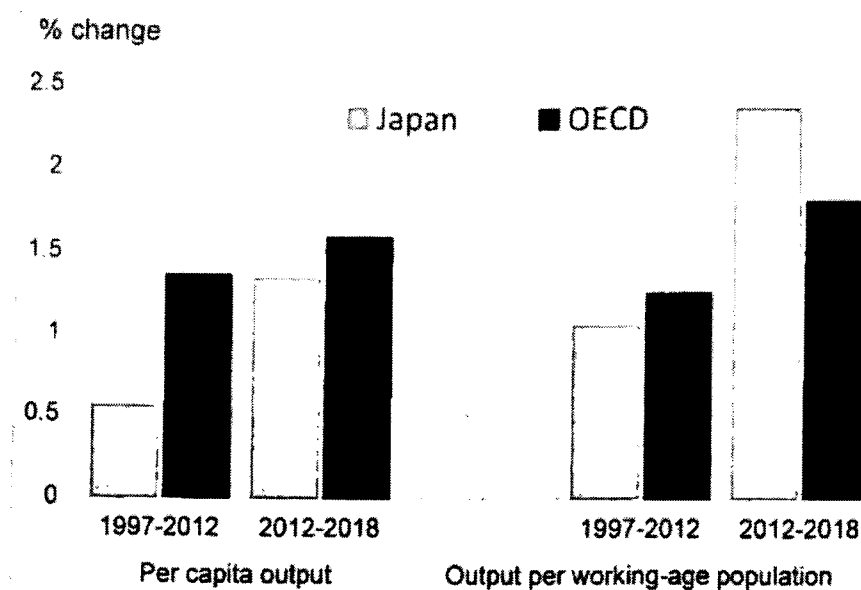
Source: conversableeconomist.com, 6 April 2019

Extract 6: Why productivity growth is faltering in ageing Europe and Japan

Many countries are experiencing a combination of declining birth rates and increasing longevity. In other words, their populations are ageing. And graying populations pose serious issues for people, policymakers, and society. Health care costs rise, pension payments increase and there are also fewer people producing goods and services relative to the total population. The impact of population ageing is enormous and multifaceted. Empirical research shows that, on average, productivity tends to increase until workers are in their forties and starts to decrease later in their working career. This brings about the idea that the changing age composition of the workforce might indeed have an impact on macro-economic productivity growth. A population where the majority of workers are past their prime working age could act as a drag on overall productivity.

Ageing population also influences a pattern of economic behavior in the society. As people get older and reach their retired age (approximately 60-65 years old), their behaviour switches to spending less due to income constraint and fixed spendings only on necessary goods and services. On one hand, a smaller base of spenders i.e. working population, with the complement of a bigger base of elderly of retirees, brings about a decrease in aggregate consumption. On another hand, less aggregate income results in lower domestic savings, which limits new investment.

One way to alleviate those strains would be to increase the amount of goods and services each worker produces—that is to boost productivity. Productivity is a major driver of economic growth. When it is rising, more goods and services are produced from the same amount of input. Economists suggest that some of the effects of total factor productivity erosion from workforce ageing might be offset by policies such as broadening access to medical services to improve the overall population health, improving workforce training, reforming labour markets to make it easier for older workers to change jobs; and promoting technological innovation to improve overall productivity—among other things, through increased spending on research and development.

Source: imf.org and t20japan.org

Table 2: Selected economic indicators for Japan (2018 - 2020)

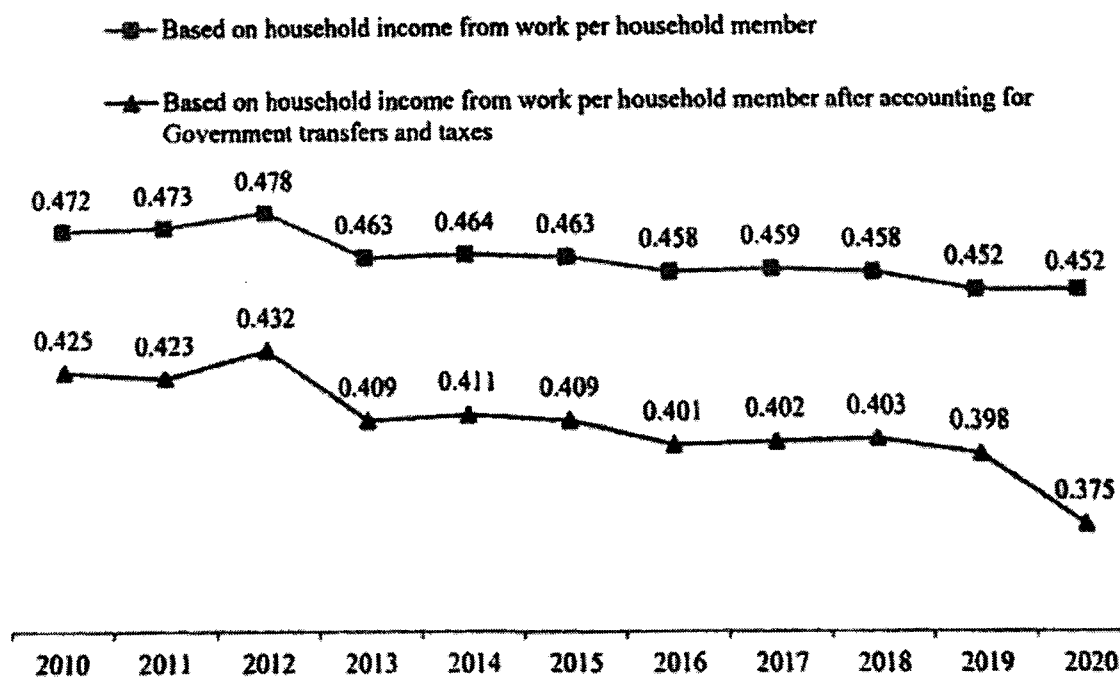|	2018	2019	2020
Real GDP growth rate (%)	0.8	0.2	-4.2
Productivity growth rate (%)	0.6	1.0	1.2
Total hours worked (% change)	0	-1.3	-5.7
Unemployment rate (%)	2.3	2.8	2.8
CO2 emissions per capita (in metric tons)	9.02	8.74	8.26

Source: OECD and Statistica, accessed 18 August 2022

Hot

Extract 7: Impact of technology on productivity and wages in Singapore

Technological advances have been key in raising sustainable income levels over the longer-term, but their potential distributional effects in relation to wage growth and employment prospects can be a cause for concern. Research shows that technological advances led to higher productivity and wage improvements, but gains are skewed towards higher-skilled workers, such as Finance and Insurance, and Professional and Business services. Meanwhile, the impact of technology is less evident in others, for instance, the construction sector where the sector is labour-intensive and potentially has less scope for automation. More importantly, advances in technology could have resulted in greater substitutability between labour and capital over time, for instance, newer labour-substituting technologies – adoption of more sophisticated robots in the assembling lines. This in turn raises productivity, but not necessarily for employment and wages. More broadly, this suggests that strategies that focus solely on productivity growth to spur wage gains may not be sufficient.

Source: amro-asia.org, September 2018

Figure 3: Gini coefficient of Singapore (2010 – 2020)

—■— Based on household income from work per household member

—▲— Based on household income from work per household member after accounting for Government transfers and taxes

Series ■: 0.472 (2010), 0.473 (2011), 0.478 (2012), 0.463 (2013), 0.464 (2014), 0.463 (2015), 0.458 (2016), 0.459 (2017), 0.458 (2018), 0.452 (2019), 0.452 (2020)

Series ▲: 0.425 (2010), 0.423 (2011), 0.432 (2012), 0.409 (2013), 0.411 (2014), 0.409 (2015), 0.401 (2016), 0.402 (2017), 0.403 (2018), 0.398 (2019), 0.375 (2020)

Source: Singapore Department of Statistics, accessed August 2022

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Extract 8: Singapore should focus on economic growth rather than redistributing a smaller pie as it reopens

When Singapore was hit by the full brunt of the pandemic over 2020, the Government provided huge policy support measures for households and companies. This not only prevented workers from being displaced but stopped growth-oriented companies from ceasing operations altogether. Overall unemployment rate was at 3%. This support has continued in sectors recovering at a slower pace such as aviation and the tourism industry. In order to achieve this, Budget 2020 saw the roll out of four supplementary budgets in quick succession to tide the country over needed COVID-19 restrictions.

However, there are questions over the sustainability of such an approach given the Singapore economy's contraction of 5.4% in 2020. Resorting to tapping on past reserves have also raised concerns over financing extra government expenditure which has resulted in a smaller pie. There is no doubt the extraordinary assistance has placed a floor beneath the lowest income households over this recession and saved many from destitution.

Given that the global economy is facing resurging rates of COVID-19 infections due to the Delta variant, Singapore's growth prospects face strong headwinds and could be varied and unpredictable. China's growth forecasts have been slashed by investment banks last week. While US GDP growth rose at 6.5 per cent year-on-year in the second quarter, this came well below expectations. In such an environment, wanting to have more to redistribute in the future requires our economy to ready our sails when the winds pick up, and enable every Singaporean to reach their fullest potential. We need to grow the pie so each portion can be bigger. This is why Prime Minister Lee Hsien Loong's National Day message focusing on inclusive growth is a useful one. His emphasis on supporting low-wage workers to reskill to seize new opportunities to achieve job progression and income wage strikes a pragmatic tone.

In Singapore, the lingering adverse economic impact of COVID-19 coupled with maturing conditions that have slowed growth even before the pandemic, had thankfully resulted in earlier government policies to restructure the economy. The challenge is transforming the economy to meet challenges of Industry 4.0 through digitalisation to create higher-value, higher-paying jobs. It was fortuitous that the digitalisation drive started in earnest a few years before the pandemic because it enabled more businesses to work remotely and safely when firms had to make that overnight leap with the imposition of a circuit breaker last April. Companies that embraced digitalisation were better prepared to source alternative revenue streams on e-commerce platforms, transform their business models to reduce operational costs and reach out overseas remotely to explore new market opportunities and trade collaborations.

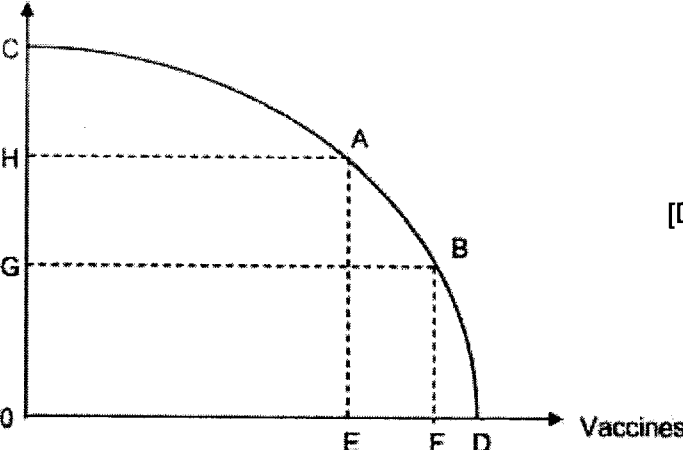*Source: www.channelnewsasia.com, 22 August 2021*

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Questions

(a) With reference to Figure 2, summarise the main changes of Japan and OECD's per capita output and output per working-age population, over the period shown. [3]

(b) (i) Extract 6 states that the impact of population ageing is enormous and multifaceted. Using AD-AS analysis, explain how an ageing population affects a country's economic growth. [7]

(ii) Explain two possible reasons why Japan's productivity growth remained positive from 2018 – 2020 (Table 2), despite an ageing population. [4]

(c) (i) Comment on the effectiveness of the indicators in Table 2 for making conclusions about living standards in Japan from 2018 to 2020. [8]

(ii) Explain how the Japanese government might make use of interest rate policy to improve its living standards in 2020. [4]

(d) Discuss the 'potential distributional effects' on employment and wages from the adoption of technology. [9]

(e) Extract 8 states that Singapore should focus on economic growth rather than redistributing a smaller pie.

Discuss the extent to which you agree with the view above. [10]

[Total: 45]

Anderson Serangoon Junior College
2022 JC2 H1 Economics
Preliminary Examination
**Suggested answers**

Question 1: Global healthcare

(a)	Using a production possibility curve diagram, explain the opportunity cost that arises when a country decides to prioritise healthcare.	[3]

Assuming that resources are fully and efficiently utilised and operating at the boundary of the PPC. When a country decides to prioritise healthcare over housing by **reallocating more resources to produce vaccines**, it will be producing at **point B instead of point A.**

With the production of an additional EF units of vaccines, a country would have to give up HG units of housing. Hence, the **opportunity cost** of prioritising healthcare to a country, is the benefit that could been gained from having **HG units of housing.** | |
| (b) | With reference to Figure 1, compare the total healthcare expenditure per capita for the United States, Japan and Singapore, with that of the world from 2011 to 2019. | [3] |
| | **All 3 countries'** total healthcare expenditure per capita were **higher** than the world's average.

While **Singapore and US's** total healthcare expenditure per capita **rose** more than the world's, **Japan's** total healthcare expenditure per capita **fell.**

US's total healthcare expenditure per capita **grew the most over the period,** followed by Singapore's total healthcare expenditure per capita, compared to the increase in world's total healthcare expenditure per capita. | |
| (c) | Using a diagram, explain one demand and one supply factor that will affect the market for healthcare in the United States and comment on whether the change in price is likely to persist | [8] |
| | There will be a **rise in demand** for healthcare services due to the **higher utilisation of medical services and rising income** (Extract 2). Higher utilisation of medical services could be due to the possible increase in awareness of the benefits of certain healthcare services. This change in taste and preference towards these healthcare services will result in a rise in demand for the healthcare | |

services as more consumers are willing and able to consume them. Furthermore, with rising income levels, purchasing power of consumers will rise. Since healthcare services are deemed as normal goods, an increase in income levels would result in an increase in the demand for healthcare services as well. The above reasons will cause the demand curve to shift rightwards from D_0 to D_1.

At the same time, **the "adoption of new technologies for new healthcare treatments and services"** (Extract 2) will lead to a **rise in supply for healthcare** services. With the new medical technologies being adopted, the cost of provision of healthcare services will fall and this will result in the healthcare service providers' increased willingness and ability to provide them. Hence the supply of healthcare services in the market will rise and this causes the supply curve to shift rightwards from S_0 to S_1.

The rise in demand and rise in supply of healthcare services will certainly result in an **increase in the equilibrium quantity**. However, the impact on the equilibrium **price is indeterminate** and will depend on the extent of the shifts in demand and supply. If the rise in demand outweighs the rise in supply for healthcare services, the resultant shortage of healthcare services will lead to an increase in its price. But if the rise in supply outweighs the rise in demand, resultant surplus of healthcare services will lead to a decrease in its price instead.

The extent of **rise in demand is likely to be greater than the rise in supply of healthcare services,** since efforts to publicise the benefits of healthcare services may have been stepped up and consumers, especially health-conscious ones, will be more receptive to consume more healthcare services as they now know of the benefits, such as early detection and prevention of illnesses, that they bring. Furthermore, income levels of US consumers may have risen significantly given that the country has reopened its borders and the economy is rebounding and recovering from the pandemic. On the other hand, the adoption of new technologies for new healthcare treatments and services may not have a big impact on supply, especially in the short run as healthcare providers would need time to learn how to utilise these technologies. Hence, their function in helping to lower the cost of provision of healthcare services results in a time lag in the increase in supply.
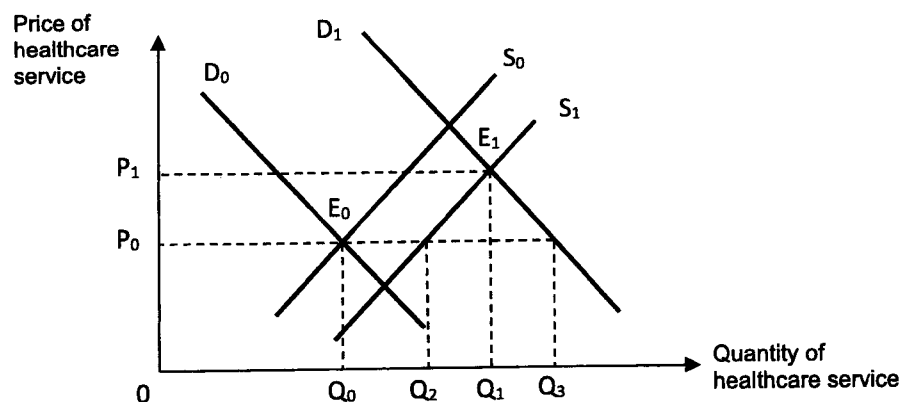
Suppose the market is initially at equilibrium E_0 with price P_0 and quantity Q_0. The increase in demand will cause the demand curve to shift rightwards from D_0 to D_1 and the rise in supply causes the supply curve to shift rightwards from S_0 to S_1.

Since the **rise in demand is likely to outweigh the rise in supply,** at the original price P_0, there will be a **shortage of Q_2Q_3 units,** leading to an upward pressure on

	prices. As price increase, quantity supplied will increase (movement along S_1) and quantity demanded will fall (movement along D_1) until a new equilibrium is achieved at the E_1. The **equilibrium price** of healthcare services will **increase from P_0 to P_1** while the **equilibrium quantity will increase from Q_0 to Q_1**. Comment Given that the "population ages, health deteriorates and health-care spending naturally rises" (Extract 2), **demand for healthcare services will likely rise further over time** as more of these services are needed and are essential to provide better quality of life for the elderly. As such, the **rise in price** of the healthcare services should **continue to persist**.	
(d)(i)	Suggest possible reasons for the difference in the price elasticity of demand values between brand name and generic drugs in Table 1 for Taiwan and the United States	**[4]**
	In Taiwan, **demand for brand name drugs is price elastic** (-1.72) while **demand for generic drugs price inelastic** (-0.55). However, it is the opposite case in the United States where **demand for brand name drugs is more price inelastic while demand for generic drugs is price elastic**. In Taiwan, brand name drugs take up a **larger proportion of income** than generic drugs, hence demand is more price elastic. For generic drugs in Taiwan, it could also be seen as a necessity, hence demand is price inelastic. However, in the US, brand name drugs **have less substitutes** than generic drugs as Extract 3 mentioned that US FDA gives patent and exclusivity and protection to brand manufacturers hence no generic drug company can compete with the brand, hence demand for brand name drugs in the US is price inelastic. In US when the patent has expired, generic drug companies can enter the market, thus more substitutes of generic drugs, making demand for generic drugs price elastic.	
(ii)	Discuss the usefulness of the price elasticity of demand values in Table 1 for generic drug companies in the United States in deciding if they should continue to promise a downward pressure on prices as stated in Extract 3.	**[8]**
	Generic drug companies like all producers are **profit-maximising** with the objective of **increasing total revenue and lowering total cost**. P1: PED values in Table 1 are useful Table 1 shows that the demand of generic drugs in the US is price elastic (PED >1) and quantity demanded is highly responsive to price changes. When drug companies drop prices to honour their 'promise of a continued downward pressure on prices' with the purpose of making 'drugs critical to patient care' accessible and affordable to low income patients and to increase income equity, quantity demanded rises more than proportionately. Generic drug producers outprice their competitors, such as the brand name drug producers, and are able to gain a bigger market share. With reference to the diagram below, when price drops from P_0 to P_1, generic drug producers benefit more from the larger rise in quantity demanded from Q_0 to Q_1, as the rise in TR from the increase in quantity demanded (Area B) outweighs that of the loss in TR (Area A) due to the fall in prices. Assuming cost of production and total cost (TC) remain constant, generic drug producers continue to enjoy healthy profits as TR > TC and sustain their operations.	
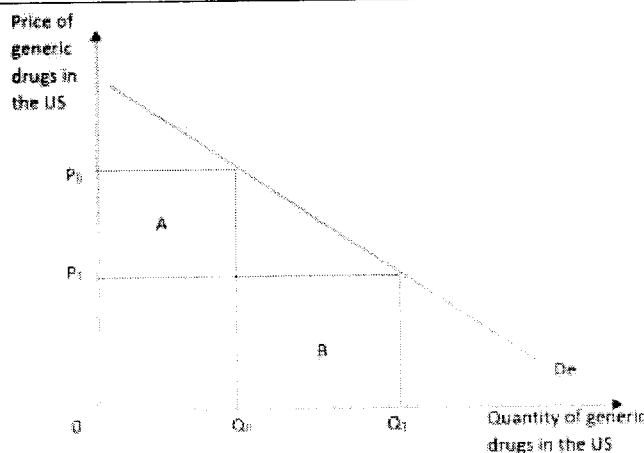
P2: However, PED values might not be useful

Extract 3 states that "prices are so low that manufacturers may leave the marketplace" and "for many generic drugs critical to patient care, there are no more savings to squeeze out", suggest that when prices are lowered, despite the rise in TR, the cost of production due to higher prices of raw materials such as chemicals, cost of R&D or labour cost could have increased more and even outweighed that of the rise in TR. Hence, instead of making profits, firms make losses as the rise in TC > rise in TR and leave the market and "go away" due to such challenges.

Evaluation
While the PED value is useful, it is also dependent on whether the generic drug companies are able to manage costs (TC) in the short and long run to continue to enjoy higher TR and profits due to the drop in price and gain a larger market share.

In addition, producers must be mindful that the PED value could change over time due to changes in technology and R&D where new substitute drugs could be invented, reducing the effectiveness of the existing generic drug. PED could also be less than 1 in the long run as brand name drugs could lower prices over time such that they are able to match the prices of the generics in a price war.

Overall, generic drug producers need to constantly monitor their prices and costs to manage competitiveness and stay afloat in the pharmaceutical industry.

Mark scheme

Level	Descriptor	Marks
L2	Detailed two-sided explanation about the usefulness of the PED value in Table 1 when price is lowered and with the use of a diagram. Answers display an awareness that profits = TR - TC and there is clear explanation linking prices to TR and an understanding of how TC affects profits. *One-sided detailed explanation on the usefulness of PED value with the use of a diagram – give up to max of 4m.*	4-6
L1	Brief explanation about the usefulness of PED values when generic drug company lowers price with gaps in analysis. One-sided explanation or no mention of TC and profits.	1-3
EV	Valid evaluative comment that considers the degree of usefulness of the PED value to drug producers.	1-2

(e)	Explain why "public health goods" such as hospital care do not fulfil the characteristics of a public good.	[4]
	Hospital care do not fulfil the characteristics of a public good because it is rivalrous and excludable in consumption. **Rivalrous** in consumption means the consumption of the good by any individual reduces the amount of the good available for consumption by other individuals. One patient's consumption of hospital care **reduces the quantity and quality of hospital care** available for an additional patient due to the **limited number of medical beds, staff and equipment** available in the hospital. **Excludability** in consumption means that it is technically possible or not extremely costly to exclude any individual from the benefits of a good once it is provided. It is **possible to exclude non-payers** from benefiting from the services of hospital care. **Admission** to hospitals **require registration** and thus it is possible for hospitals to turn away patients who do not pay. Thus, as hospital care possesses the characteristics of rivalry and excludability, it is not a public good.	
(f)	Using Extract 4 and with the aid of a diagram, explain one reason why market prices do not reflect the true price of services to society in the healthcare market.	[5]
	Positive externality Assuming a perfectly competitive market, the demand curve reflects the marginal private benefits (MPB) of consuming healthcare services which is the additional health benefits and improved health condition of the consumer. The supply curve reflects the marginal private costs (MPC) of consuming healthcare services such as the additional cost of the healthcare service such as medical consultation fees. In the free market, consumers being rational and self-interested will seek to maximise their utility. They consider only their private costs and benefits. This means that the market equilibrium price, where demand meets supply or when $MPB = MPC$, is at P_m. However, the consumption of healthcare services generates positive externalities, i.e. marginal external benefits (MEB) to third parties. This is seen in Extract 4 where "successfully treating someone with tuberculosis, for example, benefits not only the patient but also the community in which he lives". The third parties could be employers of consumers who received the tuberculosis treatment. As their employees gain better health from the treatment and become more productive at work, employers benefit from lower costs and higher profits. These employers do not pay for these benefits received. This external benefit is ignored by the consumers who are only concerned with pursuing their own self-interest. The MEB results in a divergence between MSB and MPB. Hence, the marginal social benefits (MSB) curve is above the MPB curve and $MSB=MPB+MEB$. However, the socially optimal price of healthcare services is at P_s, where $MSB=MSC$. As $P_m<P_s$, market prices do not reflect the true price of services to society in the healthcare service market.	

Costs, benefits
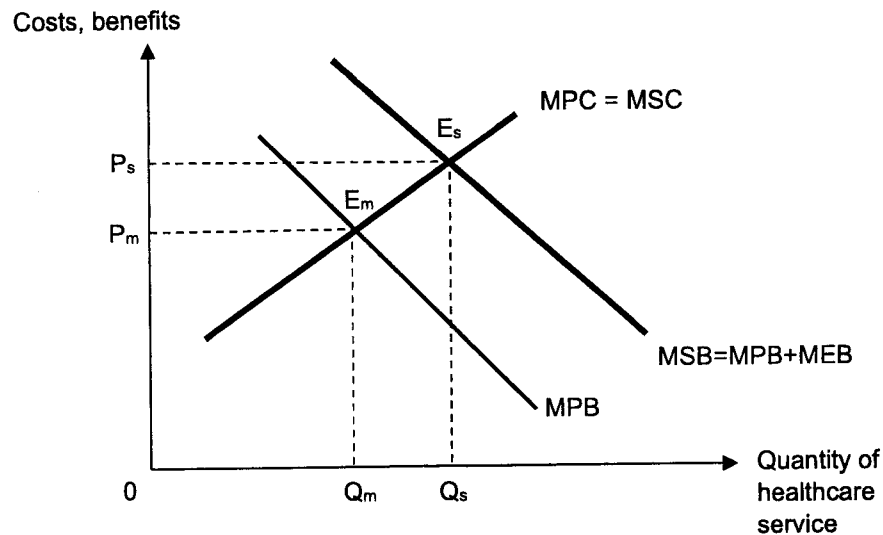
OR

Imperfect information

The demand curve reflects the perceived marginal private benefits ($MPB_{perceived}$) of consuming healthcare services which is the additional health benefits and improved health condition of the consumer. The supply curve reflects the marginal private costs (MPC) of consuming healthcare services such as the additional cost of the healthcare service such as medical consultation fees.

In the free market, consumers being rational and self-interested will seek to maximise their utility. They consider only their private perceived costs and benefits. This means that the individual's perceived price, where demand meets supply or when $MPB_{perceived} = MPC$, is at $P_{perceived}$.

However, there exists imperfect information as "consumers of healthcare usually know far less and do not have complete information" (Extract 4), hence failing to recognise true benefit of healthcare service consumption to themselves. More specifically, consumers tend to overlook the actual benefits of consuming healthcare services such as the earlier detection of illnesses or medical conditions that may not be apparent in the early stages of the illness or condition.

The imperfect information results in divergence between MPB_{actual} and $MPB_{perceived}$, where $MPB_{actual} > MPB_{perceived}$.

However, the true price of healthcare services to the individual is at P_{actual}, where $MPB_{actual} = MPC$.

As $P_{perceived} < P_{actual}$, an individual's perceived price does not reflect the true price of the service to the individual in the healthcare service market.

Costs, benefits

(g)	Extract 5 mentioned various ways to influence demand and supply in the market for healthcare in Singapore. Discuss the view that providing subsidies is the best way to correct market failure in the healthcare market.	**[10]**

Introduction

As positive externalities and imperfect information exist in the healthcare market, the market fails to achieve efficiency in resource allocation. There will be under-consumption of healthcare because its benefits to society is under-valued by the consumers and firms. There are many ways in which the government can intervene to improve resource allocation and this includes giving a subsidy or to increase consumption of healthcare via promoting health screening or provision of information in the country.

Body

P1: When positive externalities and imperfect information exist, the consumption of healthcare by the market will be less than socially optimal. This means there is under-allocation of resource in the healthcare market. Presence of positive externalities as explained in part (f) leads to a divergence between MPB and MSB where MSB > MPB. Market output (Qm) is less than socially optimal level of output (Qs) and there is under-allocation of resources to the healthcare market. In addition, with imperfect information MPBactual > MPBperceived where Qactual > Qperceived and there is further under-consumption of healthcare and greater DWL.

P2: Governments can thus provide a subsidy per unit of output to producers of healthcare that is equal to the amount of MEB at Qs. This reduces the cost of production and incentivises firms to increase provision of healthcare, supply rises from MPC to MPC + subsidies and this leads to a fall in price of healthcare back to Pm and increase consumption to Qs.

Costs, benefits
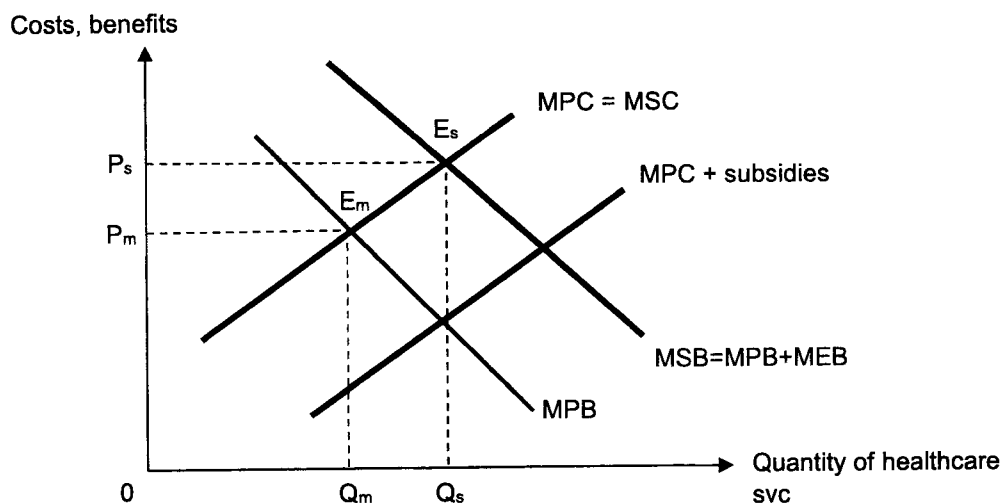
Advantages of subsidies

Subsidies is a flexible policy that can be adjusted precisely in accordance to changing marginal external benefits and hence more accurate in attaining the socially efficient level of output as long as the government has perfect information to calculate the right amount of subsidies to provide. In extract 5, the subsides for chronic illnesses like diabetes were capped at $5 for Singaporeans'. However, this amount could be adjusted to better reflect the true cost of the illness on the society, if diabetes becomes a more serious problem, worsening productivity and being a greater burden on the family. There is also difficulty in computing how much subsidy to provide, and at best only an estimate. In the event that the government provides too much subsidies, there will be a problem of over-consumption and greater deadweight loss. However, because the government can alter the amount of subsidy, it could start by giving a small amount of subsidy and later increase if the amount is not sufficient to bring about efficient outcomes.

Limitations to subsidies

In addition, the effectiveness of the subsidies depends on PED for healthcare. If the PED is high where people are responsive to the effects of subsidies for the treatment, the fall in relative price will lead to larger increase in quantity demanded. Otherwise, in a country with a larger proportion of elderly folks who might be more resistant to treatments, PED could be < 1 and more subsidies would have to be given for the consumption of the treatment to reach Qs and this thus increases government expenditure where opportunity cost is involved. The government needs to weigh the benefits of spending on subsidy against the value of alternative benefits forgone had the tax revenue been used to finance other expenditures like healthcare, housing etc.

P3: Another measure that governments could adopt to correct market failure in healthcare is to increase demand for healthcare by focusing on preventive care and provide health screenings to close the gap between actual and perceived demand.

To address the market failure from imperfect information in healthcare, governments can provide information via health screenings about the true benefits of healthcare and reduce under-consumption. Extract 5 states that "If health screenings were done and problems discovered early, and acted on them, it would have made a huge difference to their health" suggests that providing information can help consumers value the actual benefits of healthcare services. By raising the

awareness about the actual benefit of healthcare services, consumers' perceived benefit of healthcare services is increased, leading to a higher consumption of healthcare services. If the screenings are successful, the divergence between perceived and actual benefit of consuming healthcare services will be removed (i.e., MPBperceived shifted to MPBactual). The socially optimal quantity of healthcare services consumed will then be achieved.
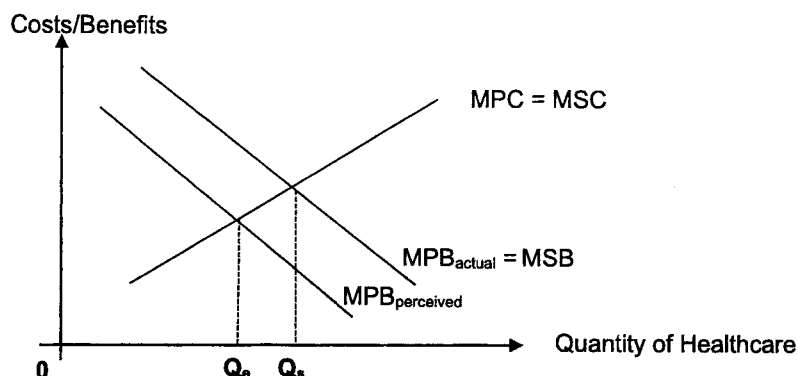
Advantage of provision of information
Provision of information addresses the root cause of the problem, which is information failure. By correcting the source of the problem, it can also prevent the problem from persisting in the future, and the provision of information then serves as a longer-term solution. It also merely provides market participants with more information but does not artificially distort the workings of the free market. This is favourable, especially from the perspective of proponents of the free market

Limitations of provision of information
However, the outcome of such information campaigns is uncertain. Extract 5 states that "tackling the chronic disease problem requires patience, as it takes at least five years before some results can be seen, and 10 years for its effects to be felt." In addition, it is difficult to change the mindset of people and thus, such measure may take a long time, if ever, to be effective. On the same note, provision of information is usually prolonged and use scarce resources which could have been put to better use elsewhere

Students can also explain direct provision of healthcare by "government's investing in infrastructure and in recruiting doctors, nurses and other healthcare workers to run them" → increase SS of healthcare to Qs.

P4: Evaluation

The use of subsidies for healthcare will be able to improve resource allocation in a short time period and outcomes are more certain as compared to provision of information as it takes a longer time to change mindsets and to convince consumers about the true benefits of consuming healthcare services. Furthermore, the subsidy amount can also be adjusted to accurately reflect the possibly changing MEB amount and is a flexible approach for the government.

Although subsidies may be more costly, the Singapore government have always adopted a prudent approach to public finances and hence should have the sufficient budget to bear the cost of the healthcare subsidy in the immediate term. However, the Singapore government cannot solely rely on subsidy to correct the market failure especially if there is another root cause of the market failure, which is imperfect information.

Hence, it is recommended that the Singapore government adopts a combination of subsidy as well as the provision of information, especially in the long term, to tackle the different root causes and bring healthcare consumption to the socially optimal level.

Mark scheme

Level	Descriptor	Marks
L3	Detailed explanation (HAL) of two policies.	5-7
L2	Some explanation (HAL) of two policies but with gaps in analysis.	3-4
L1	Brief explanation of policies with many errors.	1-2
EV	Valid evaluative comment that considers which is the best policy to address market failure in healthcare using evaluative criteria.	1-3

Question 2: Ageing population, productivity and inclusive growth

(a)	With reference to Figure 2, summarise the main changes of Japan and OECD's per capita output and output per working-age population, over the period shown.	[3]
	Output per capita and output per working age population of Japan and OECD have **all increased.**	
	Output per capita of OECD **increased more** than Japan's in both periods.	
	Output per working-age population of Japan **increased sharply** and overtook the rate of increase of OECD's in 2012-2018.	
(b)(i)	Extract 6 states that the impact of population ageing is enormous and multifaceted. Using AD-AS analysis, explain how an ageing population affects a country's economic growth.	[7]
	On average, productivity tends to increase until workers are in their forties and starts to decrease later in their working career. A population where the majority of workers are past their prime working age could act as a drag on overall productivity (Extract 6). This may result in a **fall in productive capacity** and **LRAS shifts left from $LRAS_1$ to $LRAS_2$,** negatively affecting **potential growth as full employment level of output falls from Yf_0 to Yf_1.**	
	As people grows older and reach their retired age (approximately 60-65 years old), their behavior switches to spending less due to income constraint and fixed spendings only on necessary goods and services. Smaller base of spenders i.e. working population and the bigger base of elderly of retirees bring about a decrease in aggregate consumption. This would result in a **fall in AD from AD_1 to AD_2.** As AD falls, firms would experience a surplus/unplanned inventory accumulation causing a downward pressure on price, signalling them to step down production.	
	This will result in a multiplied fall in real national income, assuming the economy is operating below the full employment level. There will therefore be **negative actual growth as real GDP falls from Y_1 to Y_2.**	
	Figure 1	

(ii)	**Explain two possible reasons why Japan's productivity growth remained positive from 2018 – 2020 (Table 2), despite an ageing population.**	**[4]**
	Despite the effects of an ageing population and the impact on the drag on productivity, Table 2 shows that Japan's productivity growth was positive and continued to grow over the period from 2018 – 2020. Any two reasons could be found in Extract 6: 1) "Broadening access to medical services to improve the overall population health" – Improvement in the healthcare system and the health of individuals can reduce the number of sick days among the working-age population. It can also extend retirement age of elderly folks to increase the quantity of the labour force and allow workers to stay longer in the labour force. 2) "Improving workforce training by reforming labour markets to make it easier for older workers to change jobs" - Improving education and training will also raise workers' productivity and increase their flexibility and mobility to reduce onset of structural unemployment. Government can provide educational facilities to increase accessibility to education. This ensures that sufficient training is provided and there a consistent supply and flow of skilled labour (e.g. scientists and engineers) to promote research and development. 3) "Promoting technological innovation to improve overall productivity"— Adopting ICT solutions, use of technology and high-tech equipment enhance business and production processes to reduce cost of production. Labour productivity increases as workers are more efficient and more output can be produced with the same amount of labour input. 4) "Increased spending on research and development." - Encouraging more firms to engage in R&D to fine tune their production processes or to encourage innovation and invention encourages more efficient production methods and greater productivity growth. The **combined effects of these policies on labour productivity outweighs that of the productivity slowdown due to ageing population.** AS continues to rise, allowing productivity growth to continue to be positive.	
(c)(i)	**Comment on the effectiveness of the indicators in Table 2 for making conclusions about living standards in Japan from 2018 to 2020.**	**[8]**
	Table 2 shows that there's a fall in real GDP growth rate. This means that the income in Japan has fallen, resulting in a lower purchasing power of the people. As their ability to consume goods and services decline, their material standard of living falls too. However, the indicators in Table 2 also show that the hours worked declined, suggesting more leisure hours and possibly improved non-material standard of living. CO_2 emissions per capita has also fallen, suggesting better quality of the environment and hence better non-material standard of living. Based on Table 2, it may therefore seem like whilst material standard of living has fallen, non-material standard of living rose. Nevertheless, the lower pollution could be a result of the reduction in economic activity/production, in which case the effect on the environment is just temporary and not sustainable. Similarly, although it could be argued that leisure hours increase, in a period of declining income and poor economic outlook, it is unlikely for the people to be at ease and have improved	

non-material standard of living. Hence it cannot be concluded that the non-material standard of living has improved based on the data.

There's also a need to consider the change in population in the country. Even though real GDP growth rate is falling, if the population growth rate falls even more, the real GDP per capita may instead rise. Hence information on population growth is needed to determine the change in material standard of living.

In addition, it cannot be concluded with certainty that material standard of living falls for the majority of the population. There's a lack of adequate information about the income distribution in the country as well. Even though the real GDP falls, it wasn't clear whether the fall in real GDP is experienced by the majority of the population or a small group of individuals. Hence, it cannot be concluded that material standard of living definitely falls for the median citizen and there is a need to include Gini Coefficient data to determine the distribution of income in the country.

In conclusion, the data in Table 2 is not effective to give a conclusion about the standard of living in Japan. There's a need for more information such as population growth, income inequality as well as contextual information such as the reasons for pollution reduction. There may also be a need to look at more all-rounded and holistic indicators of both material and non-material standard of living such as the HDI which measures life expectancy at birth and education other than the PPP-adjusted gross national income per capita and MEW which measures national output but adjusted to include an assessment of the value of leisure time, the amount of unpaid work in an economy and the value of the environment damage caused by industrial production and consumption.

Mark Scheme

Level	Descriptor	Marks
L2	Good interpretation of data and analysis/elaboration. 2-sided answer.	4-6
L1	Some analysis of how the given Table provide indications of the standard of living in Japan.	1-3
EV	Well-supported judgment	1-2

(ii) Explain how the Japanese government might make use of interest rate policy to improve its living standards in 2020. **[4]**

Economic growth rate in Japan in 2020 was negative at -4.2%, indicating a fall in national output and real GDP. As the economy was performing poorly, the Japanese government may intervene by carrying out expansionary monetary interest rate policy to increase both material and non-material SOL.

The government could reduce increase rates to reduce the cost of borrowing for consumers and investors. Opportunity cost of consumption and returns on savings are lower, leading to a rise in consumption. Investors also expect higher profits due to lower costs of investments and investors pump more funds into their projects, leading to a rise in investments. The rise in C and I would increase AD, creating a shortage of goods and services in the economy. Producers respond by increasing output and hiring more workers. Thus, there will be a rise in national income and employment in the country via the multiplier and household income rises and people in the country will be able to purchase more goods and services for their consumption, leading to a rise in material SOL.

The rise in consumption and investment expenditure could also be on healthcare services and products or investing in green technology that can help the

	environment positively. These would lead to improvement in quality of life and thus a rise in non-material SOL.	
(d)	**Discuss the 'potential distributional effects' on employment and wages from the adoption of technology.**	**[9]**
	Adoption of technology could lead to more unemployment among the lower-skilled labour but higher employment among the higher-skilled labour.	

Extract 7 states that advances in technology could have resulted in greater substitutability between labour and capital over time, such as adoption of more sophisticated robots in the assembling lines. In the manufacturing sector, the use of robotics and advance automation reduces the demand for low-skilled labour as this new technology could perform many repetitive and routine tasks that were previously done by human labour. Those workers who lost their jobs due to automation do not possess the skills that are needed in the expanding new industries such as computer industry. As such, they are not able to find jobs in the sunrise industries. Hence due to structural rigidities in the labour market such as occupational immobility, **structural unemployment occurs.**

However, adoption of technology also creates more new jobs for those well-versed in information technology. Technologies like the Web, artificial intelligence, big data and improved analytics created more new jobs. Occupations such as these - software engineers, computer support workers, network systems administrators and analysts, computer systems analysts – are the result of the advances in technology and there is great demand for such highly skilled workers in the labour market. **Employment opportunities thus increase for such high-skilled labour.**

There can also be potential distributional effects on wages. Workers who are displaced by technology and do not possess the skills required in emerging new industries will experience a **fall in demand for their service**. At the original wage level, there'll be surplus of workers, causing a downward pressure on wages. On the other hand, there is an **increase in demand for highly skilled workers**. Since the supply of high-skilled workers is price inelastic as it takes time to acquire the complex skills, the increase in demand will cause their wages to increase more significantly. Thus, there will be a **widening income gap between skilled and unskilled workers.**

Conclusion
Overall, the extent to which distributional effects on employment and wages would occur also depends on how **widespread and rapid the adoption of technology by a country** is and the **proportion of skilled labour vs unskilled labour** a country has. In countries such as Singapore, the rate of adoption of technology may be high, and even though the labour force is relatively educated, not many are well-versed in the specific IT skills demanded by the sunrise industries, resulting in a significant distributional effect on employment and wages.

Nevertheless, Singapore has **past reserves that can be tapped** on to support the low-skilled workers. The **government support via subsidies for retraining** would help the unemployed acquire new skills which will reduce structural unemployment and help them gain higher wages in future. And as mentioned in Extract 7, technological advances have been key in raising sustainable income levels over the longer-term. Nevertheless, the receptiveness of the workers towards such retraining programmes would ultimately determine the extent of distributional effects on employment and wages.

Also, although widening income gap seems to be coinciding with a time of accelerating technological changes, it does not necessarily mean that there is certainty in this causal relationship as technology also brings about reduction in poverty due to economic growth. Certainly advancements in technology has left some with no jobs and incomes. To minimise the harm, governments could provide appropriate support for those affected so that they could benefit from the benefits brought about by advancements in technology.

Mark Scheme

Level	Descriptor	Marks
L2	Thorough analysis of how adoption of technology may result in distributional effects on employment and wages	4-6
L1	Some idea or some analysis on how adoption of technology may result in distributional effects on employment and wages	1-3
EV	Well-supported judgment	1-3

(e) **Extract 8 states that Singapore should focus on economic growth rather than redistributing a smaller pie.**

Discuss the extent to which you agree with the view above. **[10]**

There are many priorities that a country can pursue ranging from economic growth at all cost to slower but more inclusive growth as suggested by redistribution. The benefits of focusing on economic growth include increasing national income, improving standard of living for all in our country, growing our budget surpluses and building our reserves. On the other hand, redistribution achieves inclusive growth by supporting the lower income and lower skilled workers in the country. The priority goal that the country chooses to focus on depends on the external and domestic economic conditions in the country.

P1: Singapore should focus on economic growth rather than redistributing the pie

Post covid-19 when economic growth was slow and unemployment was high due to the slowdown in global trade, Singapore should focus on economic growth to reap the **benefits of economic growth** for the economy:

1) Increase tax revenue
It is important to focus on higher economic growth in view of the economic conditions now that the pandemic is over such that we can continue to build our reserves. We require generating a pool of income and tax revenue and by focusing on economic growth, tax revenues collected by the government can increase. In turn, economic growth may help to reduce inequality in income distribution as the tax revenues can be redistributed to the poor in the form of subsidies, narrowing the income gap. The poor will then get access to basic necessities and less people will be at risk of poverty.

2) Attract FDI and capital inflows for long term growth
Extract 8 states that "Singapore's growth prospects face strong headwinds and could be varied and unpredictable and China's growth forecasts have been slashed by investment banks last week, while US GDP growth rose at 6.5 per cent year-on-year in the second quarter, this came well below expectations." The weak external prospects suggests that (X-M) and I might fall. Hence if the government can focus on stimulating domestic growth or opening up more export markets, high and stable economic growth could in turn improve investors' confidence and investment climate and attract more FDI and capital inflows into the economy which generates growth.

Singapore **should not focus on redistributing the pie** because:

During the covid 19 pandemic, the Singapore government has already provided huge policy support measures for households and companies through the use of government transfers and tax rebates. These policies include direct government subsidies to lower–income groups such as the Workfare Income Supplement (WIS) scheme, top-ups to earnings and CPF accounts, as well as one-off financial support for households experiencing a loss of income that tap on the COVID-19 Support Grant, not to mention waivers on HDB loans and support for charities. These not only prevented workers from being displaced but stopped growth-oriented companies from ceasing operations altogether. From figure 3, it can also be seen that gini coefficient numbers has dropped significantly to 0.375 after accounting for government transfers and taxes, hence redistribution and income inequity is not the most urgent issue that needs to be addressed by the government.

In addition, the sustainability of long-term redistribution on government budget is questionable. Government transfers increases government expenditure while reducing personal income and corporate taxes reduce government's tax revenue, overall government budget falls (G<T). Extract 8 says that the policy has resulted in the Singapore government tapping on past reserves which can lead to long term implications on the economy. With the threats of the pandemic now over, government should thus focus on economic growth to grow a bigger pie.

P2: Singapore should not focus on economic growth but redistributing the pie

Nevertheless, focusing on **economic growth alone can lead to costs** such as:

(i)   Price Instability
Excessively high rates of economic growth can result in demand pull inflation. This is because when increases in AD are not matched by a sufficient increase in AS, the increase in AD will cause a shortage of final goods and services exerting upward pressure on general price level. This will lead to an increase in the general price level but no increase in real output once the economy is near or at full employment level. This is undesirable as it causes the economy to 'over-heat' or suffer from demand-pull inflation. We will explain the importance of price stability (low inflation) in later chapters.

(ii)   Rise in Structural Unemployment
If an economy is experiencing excessively high growth rate, this can result in rapid structural changes to the economy. This is because growth in the economy usually involves changes in production both in terms of the goods produced, techniques used, and the skills required. Hence, the more rapid the rate of growth is, the more rapid the rate of change in production techniques. Adjustments to growth makes some occupations, places, and certain types of capital obsolete. People may find that their skills are no longer relevant, or their jobs are replaced by machines, and they are unable to find new jobs. Those who cannot move to new locations or learn new skills will become structurally unemployed. Workers may thus find themselves unemployable or forced to take low-paid, unskilled work to make ends meet.

Singapore should **always keep an eye on redistribution** because:

Being a developed country, there are tendencies of widening income gap if no deliberate efforts were made to help the lower income group especially due to a tendency for structural unemployment to set in as a result of widespread and rapid

adoption of technology. Hence, it is important to be constantly keeping a look out for this group of individuals such that their **material and non-material** can be maintained. Upskilling and raising income for these groups of people in society leads to a rise in purchasing power and ability to consume goods and services. In striving for inclusive growth, we hope to increase **material SOL** for all segments of society.

As seen from the data, overall unemployment rate was maintained at a low of 3%, and gini coefficient fell from 0.398 in 2019 to a historic low of 0.375 in 2020 after accounting for government transfers and taxes as shown in figure 3. This suggests the effectiveness of the use of government policies in Singapore to ensure redistribution and inclusive growth. Extract 8 also states that "there is no doubt the extraordinary assistance has placed a floor beneath the lowest income households over this recession and saved many from destitution". Hence, redistribution and inclusive growth should always be one of the priorities of the Singapore government.

Evaluation
The pursuit of economic growth and distribution, however do not have to be mutually exclusive and can be achieve simultaneously if the government uses supply-side policies. Governments could set up retraining and upgrading facilities and subsidise course fees for the low-income group. The low-income workers who attend such upgrading courses would be able to obtain better paying jobs and enjoy higher material SOL. In addition, the skills upgrading courses also improve the productivity of workers and the productive capacity of the country. LRAS increases, enabling the country to attain potential growth. Therefore, the supply-side policy could be useful to achieve inclusive growth.

Whether the government pursues redistribution of income or economic growth as a priority **depends on the economic condition in the economy**. During covid when economic conditions are weak, redistribution in the **short run** can help to improve material SOL. However in the **long run**, governments should always focus on pursuing economic growth for the benefits that it brings to the country. Hence, pursuing **inclusive growth should be a long-term priority** of the Singapore government.

Mark scheme

Level	Descriptor	Marks
L3	Good address of the issues in the preamble with specific links made to benefit and/or costs of distribution and economic growth.	5-7
L2	Some explanation of the benefits and/or costs of distribution and economic growth.	3-4
L1	Cursory address of the question with no links made to benefits and/or costs of distribution and economic growth.	1-2
EV	Valid evaluative comment on achieving inclusive growth and the priorities of the government goals using relevant criteria (ie. prevailing economic conditions and urgency of issue, time period)	1-3