ANDERSON JUNIOR COLLEGE

JC2 PRELIMINARY EXAMINATION 2018

Higher 1

ECONOMICS 8823/01

Paper 1 29 August 2018

3 hours

READ THESE INSTRUCTIONS FIRST

Write your name, PDG and index number in the spaces provided on all the work you hand in.

Write in dark blue or black pen on both sides of the paper.

You may use an HB pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.

Begin your answer to **each question** on a **fresh sheet** of writing paper.

At the end of the examination, **fasten your answers to each question separately**. Fasten **this cover page** in front of your answers **to Question 1**.

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

Name: _____ **(** **)**

PDG: _____

Question Number	Marks Awarded
1	/45
2	/45
Total Marks	

This document consists of **8** printed pages and 1 blank page.

[Turn over]

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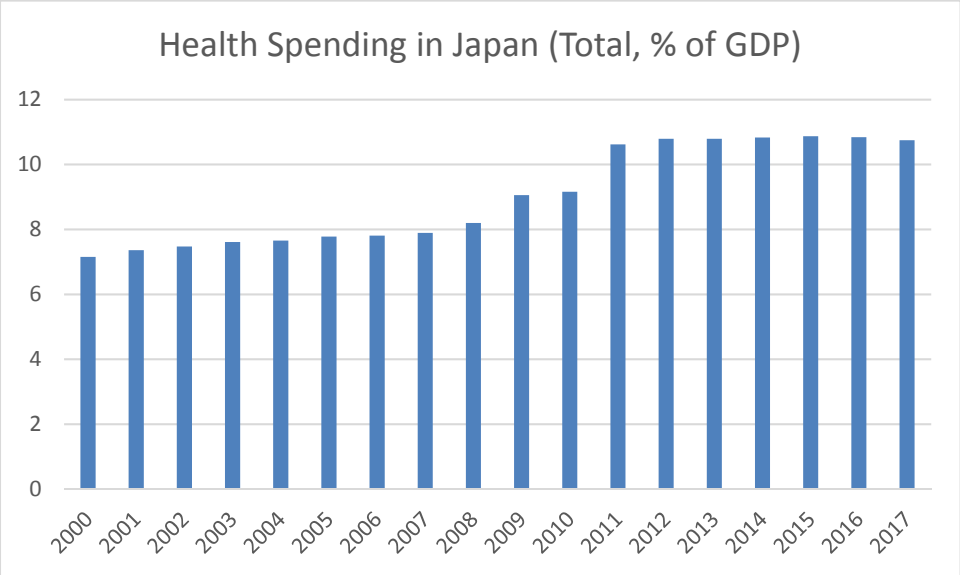
Answer **all** questions.

Question 1: Aging population: Burden or opportunity?

Figure 1: Health Spending in Japan



Source: *OECD*

Extract 1: Japan's demographic time bomb is getting more dire, and it's a bad omen for the country

An aging population like Japan's poses numerous problems. The government will have to spend more on healthcare, and that, coupled with a shrinking workforce and tax base, is a recipe for economic stagnation. It also means, among other things, that there will not be enough young people to care for the elderly.

"An aging population will mean higher costs for the government, a shortage of pension and social-security-type funds, a shortage of people to care for the very aged, slow economic growth, and a shortage of young workers," Mary Brinton, a Harvard sociologist, told Business Insider last year.

Source: *Business Insider*, 6 June 2018

Extract 2: Nursing care workers hard to find but in demand in aging Japan

As the nation's population rapidly greys, ensuring there are enough nursing care workers to meet growing demand has become a pressing issue. There has actually been a rise in nursing care workers. However, this has failed to keep pace with the rapidly growing demand, resulting in a nursing care industry with a chronic shortage of manpower. Considering Japan's declining workforce, the labour shortage in the industry is expected to worsen over time.

The government seeks to add 250,000 more nursing care workers to the system from 2017 by improving their working conditions and increasing their average monthly pay by 10,000 yen. But the state has not made clear how it will finance this.

The government also plans to create new nursing care facilities to accommodate 500,000 more users by the beginning of 2020. This, however, has been questioned by industry experts who argue that in densely populated urban areas, the lack of workers is more acute than the shortage of facilities.

The increasing difficulty in finding enough workers has led more facilities to rely on temporary staff dispatched from agencies, and some have reduced services. To lessen the burden on staff, some nursing care facilities are starting to use robotics, including wearable units for elderly people and care workers.

Source: *Japan Times*, 27 June 2016

Extract 3: Japan's shrinking population not burden but incentive

Prime Minister Shinzo Abe said Japan's aging, shrinking population was not a burden, but an incentive to boost productivity through innovations. Abe's comments on Wednesday came days after official data showed that Japan has 34.6 million people aged 65 and older, or 27.3% of the population - the highest proportion among advanced nations.

"I have absolutely no worries about Japan's demography," Abe said at a Reuters Newsmaker event, noting that nominal gross domestic product had grown despite losing 3 million working-age people over the last three years. "Japan may be aging. Japan may be losing its population. But these are incentives for us," he said. "Why? Because we will continue to be motivated to grow our productivity," Abe added, citing robots, wireless sensors, and artificial intelligence as among the tools to do so. "So, Japan's demography, paradoxically, is not an onus, but a bonus."

Abe has focused on mobilising women and the elderly to compensate for a shrinking workforce rather than tackle head-on the politically touchy topic of immigration, although some changes are being considered on that front.

Source: *Reuters*, 21 September 2016

Extract 4: Aging Japan: Robots may have role in future of elder care

Robots have the run of Tokyo's Shin-tomi nursing home, which uses 20 different models to care for its residents. The Japanese government hopes it will be a model for harnessing the country's robotics expertise to help cope with a swelling elderly population and dwindling workforce. Allowing robots to help care for the elderly - a job typically seen as requiring a human touch - may be a jarring idea in the West. But many Japanese see them positively, largely because they are depicted in popular media as friendly and helpful. Plenty of obstacles may still hinder a rapid proliferation of elder care robots: high costs, safety issues and doubts about how useful and user-friendly they will be.

The Japanese government has been funding development of elder care robots to help fill a projected shortfall of 380,000 specialised workers by 2025. Authorities and companies in Japan are also eyeing a larger prize: a potentially lucrative export industry supplying robots to places such as Germany, China and Italy, which face similar demographic challenges now or in the near future. A few products are trickling out as exports: Panasonic Corp has started shipping its robotic bed, which transforms into a wheelchair, to Taiwan.

Source: *Reuters*, 28 March 2018

Extract 5: A home from home for Japan's elderly

There are some key ways in which the nursing care sector in Japan has evolved to preserve its quality of care even as the hyper-ageing society ramps up its eldercare facilities. A quarter of its people are 65 or older now. By 2040, this group will make up more than a third of its population. Growing in tandem is the number and types of long-term senior care facilities available in Japan.

The most common is the tokuyo, a publicly funded facility that provides nursing care to seniors who have serious physical or mental disabilities. There were 566,600 beds in these facilities last year, up from around 300,000 in 2000.

Family members have traditionally cared for the elderly but nursing homes became affordable with the introduction of Japan's long-term care insurance (LTCI). Such a system is designed to shift the responsibility of supporting the elderly away from the family and into the public domain. This is key as more of the elderly requiring long-term care, and for longer periods. Yet, there was a lack of adequate caregiver support. The principles of this system include: supporting the independence of the elderly rather than just providing care, and allowing users to benefit from a range of services from institutions of their choice. This has led to a competitive market of service providers, mostly private players, springing up in the last decade.

Source: *Straits Times*, 31 July 2016

Questions

(a) (i) Describe the trend for health spending in Japan from 2000 – 2017. [1]

(ii) Discuss how far the concept of price elasticity of demand may account for the above trend in health spending. [9]

(b) With reference to data, discuss the likely effects of a shrinking workforce in Japan and technological advancement on the robotics market. [8]

(c) Explain two possible changes that may occur to the demand curve of healthcare workers given the introduction of robots. [4]

(d) What is the main characteristic of a normative economic statement? Identify one example of such a statement from Extract 3. [2]

(e) Is a publicly funded nursing facility an example of a public good? Provide reasons for your answer. [4]

(f) (i) Explain why the operation of a free market may lead to the under-provision of nursing facilities and how a subsidy can help to address the problem. [7]

(ii) Discuss the factors that the Japanese government should consider in allocating resources towards the development of elder care robots. [10]

[Total: 45]

Question 2: Addressing deflation, fostering inclusive growth

Table 1: Key economic data for Singapore

	2013	2014	2015	2016
GDP per capita (current US$)	56,389	56,958	54,941	55,243
Economic growth rate (% change in real GDP)	5.1	3.9	2.2	2.4
Inflation rate (CPI, annual change in %)	2.4	1.0	-0.5	-0.5
Productivity growth rate (% change)	0	-0.9	-1.5	-0.5
Budget balance (% of GDP)	1.3	0.1	-1.2	-1.2
Life expectancy at birth (years)	82.4	82.6	82.9	83
Value of SGD (average rate per US$)	1.251	1.267	1.375	1.382
Gini coefficient before accounting for government transfers & taxes	0.463	0.464	0.463	0.458
Gini coefficient after accounting for government transfers & taxes	0.409	0.411	0.409	0.401

Source: Singstat.gov.sg, accessed 17 Aug 2018

Extract 6: Guarding against deflation in Singapore

The Monetary Authority of Singapore (MAS) should be ready to adjust its monetary policy further if deflation takes root in the city state, the International Monetary Fund (IMF) said. Consumer prices in Singapore have declined every month since November 2014, the longest slump on record.

Deflation has become a grave concern for economies around the world. While deflation points to deeper structural issues for economies like Japan and Europe, economists say that Singapore has less to worry about as its economy is not suffering from a chronic lack of demand. Singapore's deflationary reading last month was driven by fluctuating COE prices and falling accommodation costs, in addition to lower oil prices. However, the prices of household durables, education, and recreation had been holding up.

Core inflation, that is derived from a consumer basket that excludes the costs of accommodation and private road transport still holds at 1% despite the city-state hitting its 21st month of declines in consumer price index (CPI).

Source: *Business Times*, 10 May 2016

The CPI is calculated using a weighted average of prices for a typical bundle of goods and services purchased by households.

Extract 7: Why deflation is bad

Prices in the eurozone are falling. Figures released on January 7th showed that consumer prices in the year to December fell by 0.2%, marking the return of deflation for the first time since 2009. Weak demand, driven by austerity, debt and a lack of economic growth is dragging down prices. Concerns about deflation traps and downward spirals abound. One common

explanation is that in anticipation of falling prices, consumers delay purchases, causing them to fall still further.

Source: *The Economist*, 7 Jan 2015

Extract 8: Singapore's monetary policy

Most countries, including the United States and China, adopt an interest rate policy where central banks raise or cut interest rates. Singapore is the only major economy in the world to use the exchange rate, guiding the Singapore dollar higher or lower.

The MAS says the exchange rate is the best tool for a small, open economy like Singapore. It is a more effective way to manage inflation, as much of the country's consumer goods are imported. The MAS has effectively given up control of domestic interest rates. Instead, borrowing costs are largely determined by US interest rates and investors' expectations of the future movement of the Singapore dollar.

Source: *Straits Times*, 13 Oct 2015

Extract 9: Tapping on the Inclusive Growth Programme

As part of the Ministry of Manpower's Lean Enterprise Development Scheme, the Inclusive Growth Programme (IGP) helps businesses develop more efficient processes through automation and re-designing work processes to enhance productivity. Administered by NTUC's Employment and Employability Institute (e2i), the IGP also benefits workers through gains-sharing by companies. Since its launch in 2010, e2i has partnered industry associations and small medium enterprises (SMEs), with a commitment to impact some 105,000 workers with an average wage increase of 18%.

In line with SkillsFuture, the Ministry of Manpower, together with Workforce Singapore, the Ministry of Education and other economic agencies in government, are developing an integrated system of education and training to provide all Singaporeans with the enhanced opportunities to acquire greater skills proficiency, knowledge and expertise. By enabling a highly-skilled and competitive workforce, it has allowed Singaporeans to secure better jobs, higher incomes and enjoy higher standards of living. With the fast pace of technological advancements and stronger global competition for jobs, skills upgrading and deepening are essential for Singaporeans to maintain a competitive edge.

Source: www.mom.gov.sg website, accessed 3 August 2018

Extract 10: Five priorities in achieving inclusive growth

There are ways to implement a fair and progressive fiscal policy to encourage enterprise and innovation without shifting the burden of taxes to the poor or the middle class, said Deputy Prime Minister Tharman Shanmugaratnam. He outlined five priorities in achieving both innovation-driven and inclusive growth.

Tax credits and subsidies for upskilling are another example of a policy that supports equity as well as innovation and growth. It helps workers who face dislocation in the market; it leads to skills accumulation across society; everyone benefits.

A second priority in tax policy concerns property taxes. It is the most efficient tax; that is, the least damaging to income growth. There is in fact more scope in many of our economies to increase taxes on immovable property: land as well as developed real estate.

A third priority is in ensuring fair subsidies for public services, targeted at those who need it most. Healthcare financing is especially the challenge in more mature societies, and those which are getting older. Fair and targeted subsidies are at the heart of ensuring both social equity and sustainable budgets — and if we don't address this well, we will see taxes go up even more as our societies age.

A fourth priority is to mitigate the regressive feature of consumption taxes (Goods and Services Tax or Value Added Tax). They are efficient taxes, but on their own they hurt the poor more. That's why in most countries we try to offset their impact on the poor.

Fifth, in the same vein of achieving progressivity in our tax systems, a dollar cap on total personal income tax deductions is a useful reform. We have recently instituted this in Singapore. As the OECD (Organisation for Economic Cooperation and Development) points out, those who get the most benefit from some tax allowances are the rich, and in many countries we need a way to cap total tax deductions so as to preserve the progressivity of income tax.

Source: *Today*, 25 July 2016

Questions

(a) **(i)** Compare Singapore's budget balance for 2015-2016 with 2013-2014. [2]

(ii) To what extent can it be concluded from Table 1 that the standard of living in Singapore in 2016 is better than in 2013? [5]

(b) **(i)** With the help of a diagram, explain why Singapore experienced falling consumer prices in 2015 and 2016. [3]

(ii) Explain whether the data suggests that the "slump" in consumer prices (Extract 6) is likely to continue. [4]

(c) With reference to Extract 6, suggest how it is possible that overall consumer prices fell despite prices of household durables, education, and recreation holding up. [3]

(d) **(i)** How does the value of the Singapore dollar in 2016 compare to its value in 2013? [1]

(ii) Suppose that deflation takes root in Singapore. Discuss the merits of managing the problem by depreciation, rather than using interest rates. [8]

(e) Discuss the reasons why the Singapore government seeks to achieve innovation-driven and inclusive growth. [7]

(f) Using the extract and/or your own knowledge, discuss the effectiveness of achieving inclusive growth in Singapore through the use of fiscal policy and supply side policies. [12]

[Total: 45]

End of paper

Anderson Junior College
JC2 2018 H1 Economics
Preliminary Examination

Case Study Question 1 – Aging population: Burden or opportunity?

<table>
<tr><td>a</td><td>(i)</td><td>Describe the trend for the health spending in Japan from 2000 – 2017.

Trend: increasing from 2000 – 2017</td><td>1</td></tr>
<tr><td></td><td>(ii)</td><td>Discuss how far the concept of price elasticity of demand may account for the above trend in health spending.

P1: The concept of PED may account for the above trend
Shrinking workforce → fall in SS → price increase. As 0 < |PED| < 1 (lack of substitutes) → increase in price will lead to a less than proportionate decrease in quantity demanded → increased in total expenditure → account for the increase in health spending

P2: However, the concept of PED may not account for the above trend
→ Limitation of ceteris paribus assumption or PED could actually be more than one (|PED| > 1 due to substitutes available such as robotics) → price increases → increase in price will lead to a more than proportionate decrease in quantity demanded → total expenditure will actually decrease → cannot account for the increase in health spending

In addition, other factors may account for the above trend
Increase in demand due to aging population (Ext 1) → increase demand → equilibrium price and quantity increase → total expenditure increases

EV: Make a stand and justify
E.g., demand factor more significant as population “rapidly greys” (Ext 2)
E.g., more information needed, for instance on the PED value

Mark scheme:

<table>
<tr><th>Level</th><th>Knowledge, Application, Understanding and Analysis</th><th>Marks</th></tr>
<tr><td>L2</td><td>An answer that clearly explains with economic framework on how PED may account for the trend</td><td>4-6</td></tr>
<tr><td>L1</td><td>An descriptive answer with multiple basic conceptual errors on how PED may account for the trend</td><td>1-3</td></tr>
<tr><td colspan="3">Evaluative comment</td></tr>
<tr><td colspan="3">Up to 3 further marks for an evaluative appraisal of possibly which factor is the main factor</td></tr>
</table>
</td><td>9</td></tr>
<tr><td>b</td><td></td><td>With reference to data, discuss the likely effects of a shrinking workforce in Japan and technological advancement on the robotics market.</td><td>8</td></tr>
</table>

Shrinking workforce (Ext 1) → fall in supply of labour → wages increase
Thus demand for robotics which are substitute for labour will increase (Ext 4: funding development of elder care robots to help fill a projected shortfall of specialised workers) → shift DD curve to the right

Tech advancement → fall in unit COP → more profitable → increase in SS → shift SS curve to the right

P1: increase in DD > increase in SS → equilibrium P and Q increase
It takes time to develop and create robotics suitable for different types of healthcare services, coupled with the aging population. It is likely that increase in demand will outweigh the increase in supply in the SR. Hence, equilibrium price and quantity will increase (Fig 1).

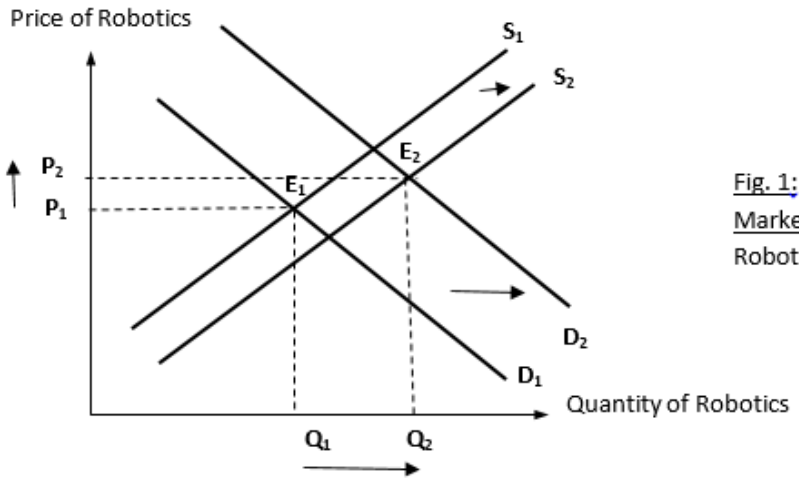


Fig. 1: Market for Robotics

P2: increase in DD < increase in SS → equilibrium P falls, Q increases
Once the technology is fully developed, they may be able to produce more robotics. Hence it is likely that increase in supply will outweigh the increase in demand in the LR. Hence, equilibrium price will decrease while equilibrium quantity will increase (Fig 2).

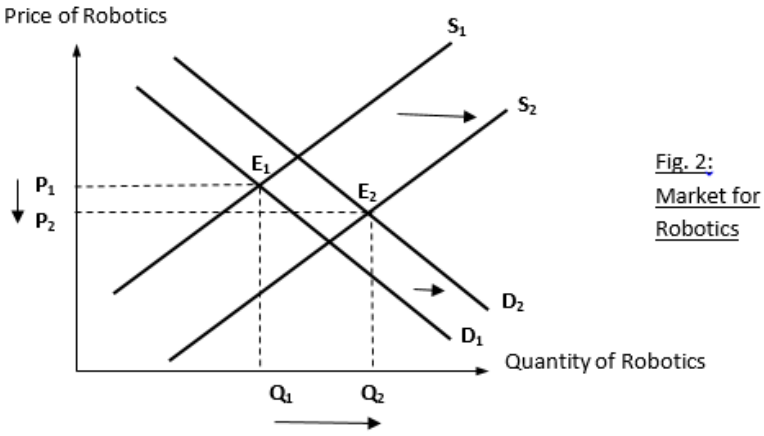


Fig. 2: Market for Robotics

Evaluation
Ext 2: With the rapidly aging population and, as the robotics are seen as a close substitute to the workers, demand for the robotics will increase significantly. However, given the existing technology, supply of robotics is

unlikely to increase significantly. Hence the increase in demand is still likely to persist and outweigh the increase in supply. Hence, equilibrium price and quantity will increase.

Level	Knowledge, Application, Understanding and Analysis	Marks
L2	An answer that clearly discusses the different impact on the robotics market	**4-6**
L1	An answer that is descriptive without much economic framework linking the factors to the robotics market	**1-3**
Evaluative comment		
Up to 2 further marks for an evaluative appraisal of possibly which factor is the most significant and hence eventual impact on the market		

c **Explain two possible changes that may occur to the demand curve of healthcare workers given the introduction of robots.** **4**

Robots are deemed as substitutes for healthcare workers (Ext 4: development of elder care robots to help fill a projected shortfall of 380,000 specialised workers) → increase in supply of robots causes fall in price of robots → increase in quantity demanded of the robots → fall in demand for the healthcare workers → leftward shift of the demand curve.

With the introduction of robots, there are now more substitutes available, therefore demand for healthcare workers also becomes more price elastic/less price inelastic → demand curve becomes gentler / less steep.

d **What is the main characteristic of a normative economic statement? Identify one example of such a statement from Extract 3.** **2**

A normative economic statement expresses value judgements (opinions) about economic fairness or what the outcome of the economy and policy measure(s) *ought to be*.

One example is "So, Japan's demography, paradoxically, is not an onus, but a bonus".

Other accepted statements:
- "Prime Minister Shinzo Abe said Japan's aging, shrinking population was not a burden, but an incentive to boost productivity through innovations."
- "I have absolutely no worries about Japan's demography."

e **Is a publicly funded nursing facility an example of a public good? Provide reasons for your answer.** **4**

Public goods exhibit both characteristics of non-excludability (NE) and non-rivalry (NR) in consumption.

Excludability → an elderly's consumption of the nursing facility is made contingent on payment, while other individuals who do not pay for the

		nursing facility can be effectively excluded from enjoying the benefits → can exclude non-payer from staying in the public nursing home **AND** Rivalry in consumption → the consumption of the nursing facility by one elderly reduces the amount of benefit that is available to others. **Conclusion** → since publicly funded nursing facilities do not fulfil characteristics of NE and NR, they are not an example of a public good.	
f	**(i)**	**Explain why the operation of a free market may lead to the under-provision of nursing facilities and how a subsidy can help to address the problem.** In deciding how much nursing facilities to consume, rational consumers will only **weigh their marginal private benefit (MPB) against marginal private cost (MPC)** of consuming nursing facilities in order to **maximise their utility**. The private benefits include the utility gained/ care given, while the private costs include the cost of nursing facilities. Taking these private benefits and private costs into consideration, consumers will then decide to consume nursing facilities **up till Q_e where their MPB = MPC** in order to maximise their utility (Fig 1). In addition, when consuming nursing facilities, **positive externalities** are incurred. Positive externalities are the benefits to third parties that are not taken into account by those who undertake the activity such as lessening the burden on the families who are the third party, higher productivity for the family members as they do not have to take time off to take care of elderly (Ext 5: "shift the responsibility of supporting the elderly away from the families"). Presence of externality leads to a divergence between marginal social benefits (MSB) and MPB. Due to the divergence, **MSB is greater than marginal social cost (MSC) at Q_e, indicating that society values an additional unit of the nursing facilities more than what it would cost society to consume it**. The socially optimum level of nursing facilities is at Q_s, where **MSB is equal to MSC**. As Q_e is at a lower level than Q_s, there is under-consumption of nursing facilities. The price mechanism thus under-allocates resources to the market for nursing facilities, resulting in a net loss of welfare to society, known as **deadweight loss, which is indicated by the shaded area ABE**. Society as a whole could be made better off if the level of nursing facilities were to be increased to the socially efficient level, Q_s.	**7**

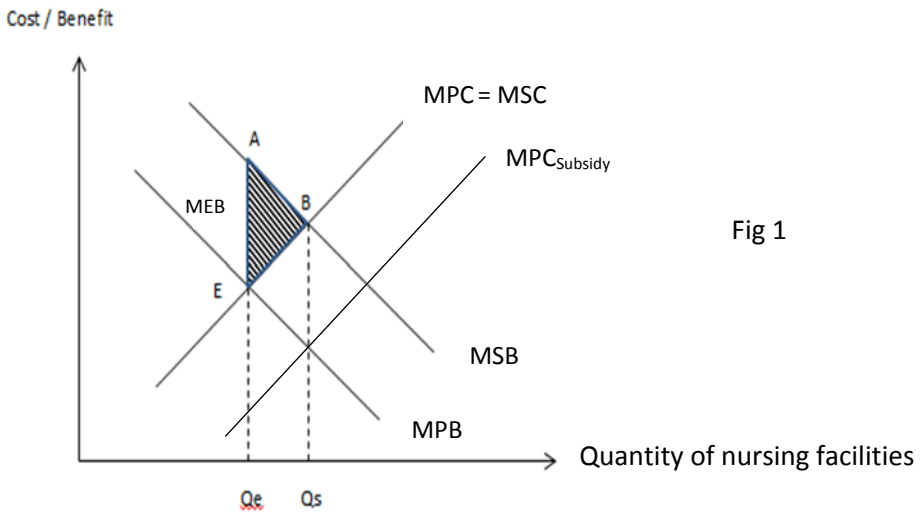


Fig 1

The government can provide a **subsidy which is equal to the marginal external benefit at Qs**. The subsidy causes consumers to internalise the positive externality. The subsidy provided will **lower the cost of consumption**, hence causing **the MPC curve shifts rightwards from MPC to MPC$_{with\ subsidy}$.** The socially optimal quantity of nursing facilities, Qs, will thus be consumed. Thus, the subsidy corrects the market failure.

f	**(ii)**	**Discuss the factors that the Japanese government should consider in allocating resources towards the development of elder care robots.** The objective of a government is to maximise social welfare, which is achieved when production takes place up to the quantity where marginal social benefits (MSB) is equal to marginal social cost (MSC). In deciding how to allocate its resources towards development of robots for elder care, the Japanese government would consider various factors such as its constraints, the benefits and costs from allocating additional units, as well as gather information and consider the perspectives of relevant stakeholders. One factor that the Japanese government needs to consider is the constraints it faces, as the constraints will limit the available choices and their associated benefits and costs. These constraints include the budget constraint and the priority of economic aims. For example, if Japan is facing budget deficit, the amount of resources that they can allocate to the development of elder care robots will be limited. Moreover, it also depends if they have other pressing issue such as worsening of growth which would require them to allocate resources towards, hence fewer resources available for the development of elder care robots. Another factor that the Japanese government needs to consider will be the benefits from the development of elder care robots such as achieving efficiency and equity in the economy. Positive externality could arise due to the consumption of elder care robots such as easing the manpower shortage and promoting higher rates of economic growth as the younger generation would be more able to focus better at work and be more productive once their parents are cared for by these robots, (Ext 4:	**10**

		"robotics expertise to help cope), resulting in under-consumption of elder care robots. Hence, allocating recourse to the development of elder care robots would help to achieve allocative efficiency. In addition, the development of elder care robots by the government would also ensure that people who require it will be able to access it such as the lower-income elderly, hence achieving equity. Another factor that the Japanese government needs to consider will be the benefits from the development of elder care robots such as achieving economic growth. The government could generate export revenue from the sale of elder care robots (Ext 4: potentially lucrative export industry). With increasing export revenue, net exports will increase, ceteris paribus. Hence aggregate demand will increase, leading to multiplied increase in real national income, hence achieving actual growth. Another factor that the Japanese government needs to consider will be the costs from the development of elder care robots such as the cost of development (Ext 4: high costs, safety issues and doubts). Development of elder care robots will incur high costs such as recruiting the professionals and purchase of high technology material such as microchips. They will also need to spend on research and development to ensure that the robots are safe for usage. Moreover, they will need to increase production for the rapidly aging population. Hence production cost is likely to increase significantly which will be a strain of the budget. In addition, the government will need to consider the opportunity cost incurred. If they were to allocate the resources to the development of elder care robots, it will mean that they have fewer resources available for other areas such as education and healthcare, hence worsening the efficiency in other markets like education. Another factor that the Japanese government needs to consider will be the perspectives of others such as the consumers who are the elderly in this case. Elder care is typically seen as a job which requires a human element (Ext 4: a job typically seen as requiring human touch), and if the consumers are not receptive to this idea, there may be low demand for such elder care robots. In this way, the government should not allocate much resources to this development. On the other hand, there is generally warm reception to robots by many Japanese (Ext 4: "many Japanese see them positively). There may be an increase in demand, and hence the government should be allocating more resources towards the development. Finally, after determining the MSB and MSC, the Japanese government would weigh them to make its decision. It would allocate resources towards developing more robots if the marginal social benefit is greater or at least equal to the marginal social cost as the addition to total benefit is greater than or at least equal to the addition to total cost. This would then allow it to maximise social welfare. **EV: Make a stand and justify** In conclusion the Japanese government makes decisions by considering the factors that affect their costs and benefits and then weigh MSB and MSC to allocate resources to maximise social welfare.	

The most significant factor may be constraint that the Japanese government is facing. If they are facing a budget deficit or facing more pressing issues such as slow growth, shrinking workforce and tax base (Ext 1), they may want to focus on boosting economic growth first. With economic growth, it will allow them to collect more tax revenue which could then be channelled to developing elder care robots eventually.

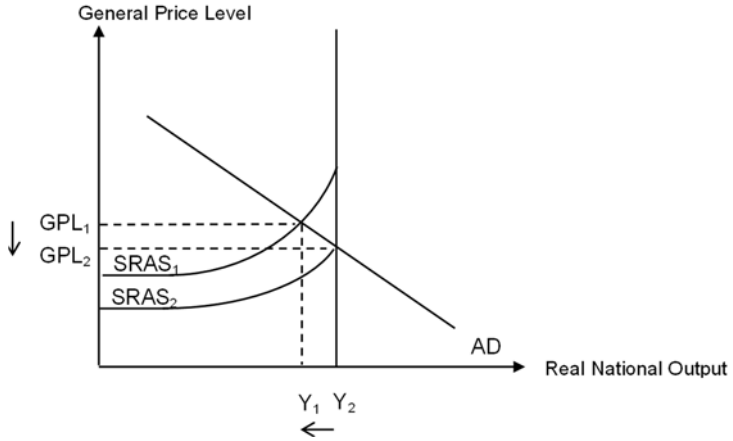
The most significant factor would also depend on whether the Japanese government has implemented other policies to improve the economy concurrently. It is very likely that the government may be looking at other macroeconomic stabilisation and growth policies while addressing the issue of an aging population and promoting elder care. This being the case, the most significant factor to consider would then be the perception of the public towards elder care robots or the direct benefits that elder care robots might have on the healthcare sector, rather than unintended positive impacts on the wider economy (because the latter would not be obvious).

Mark scheme:

Level	Knowledge, Application, Understanding and Analysis	Marks
L3	An answer that clearly explains the different factors that a rational manufacturer would have to consider, including the constraints, benefits and costs.	5 – 7
L2	An answer that is descriptive without much economic framework linking the factors to be considered to costs and benefits.	3 – 4
L1	An answer that merely identifies the factors.	1 – 2
Evaluative comment		
Up to 3 marks for an evaluative comment on which factors are the most significant or how the factors may evolve given a change in the external environment, etc.		

Question 2: Addressing deflation, fostering inclusive growth

(a)	**(i)**	**Compare Singapore's budget balance for 2015-2016 with 2013-2014.**	**[2]**
		Singapore's budget balance was in deficit and the deficit was constant in 2015-2016 whereas the budget balance was in surplus from 2013-2014 and the surplus was decreasing.	
	(ii)	**To what extent can it be concluded from Table 1 that the standard of living in Singapore in 2016 is better than in 2013?**	**[5]**
		Standard of living (SOL) consists of both material and non-material aspects. The material aspect refers to the quantity and quality of goods and services available for consumption whereas the non-material aspect refers to the more intangible aspects of life such as amount of leisure time, quality of the environment etc. **P1: Can be concluded from Table 1 that SOL is better** • Real GDP growth has been positive throughout 2013 to 2016. Assuming that population growth is largely constant and the rate is lower than that of real economic growth, real GDP growth per capita would then also be positive throughout. This suggests that RNY per capita is higher in 2016 than in 2013. With higher purchasing power, the people are able to purchase more goods and services, thus leading to a higher material SOL. • Gini coefficient after government transfers and taxes is lower in 2016 than in 2013, decreasing from 0.409 to 0.401. This implies that inequity has reduced and income distribution has improved. There is more inclusive growth which should allow for higher material SOL. • Life expectancy at birth, as shown in Table 1, is higher in 2016 compared to 2013. Higher life expectancy may indicate greater access to healthcare services and lower levels of environmental pollution, which indicates higher non-material standard of living. **P2: Cannot be concluded from Table 1 that SOL is better** • Lack of information on other indicators for non-material SOL (e.g. level of externalities, literacy rates and leisure hours). • Lack of information such as population growth rate or GDP deflator to accurately determine real GDP per capita for material SOL **Conclusion** • Assuming that population growth rate did not outstrip real economic growth rate, the material SOL in Singapore would have improved. Given that it is likely that the non-material SOL in Singapore has also improved, overall SOL in Singapore in 2016 is better than in 2013 to a large extent.	
(b)	**(i)**	**With the help of a diagram, explain why Singapore experienced falling consumer prices in 2015 and 2016.**	**[3]**
		Lower oil prices (Extract 6) → Fall in COP since oil is a factor of production used across many industries as a main source of energy →	

		Rise in SRAS from $SRAS_1$ to $SRAS_2$ → Fall in GPL from GPL_1 to GPL_2 → Thus Singapore experienced falling consumer prices.  	
	(ii)	**Explain whether the data suggests that the "slump" in consumer prices (Extract 6) is likely to continue.**	**[4]**
		P1: "Slump" in consumer prices is likely to continue • Inflation rate was -0.5% for 2015 and 2016. If oil prices, COE prices and accommodation costs continue to fall, the slump in prices will continue. • Furthermore, deflation causes expectations of future prices to fall, leading to a fall in C and therefore, a fall in AD, causing GPL to fall. The fall in GPL can **spark another round of expectation of future prices falling,** thus causing the slump in prices to **continue.** **P2: "Slump" in consumer prices not likely to continue** • Given that the budget balance was negative from 2015 to 2016, the government may be increasing its expenditure significantly → overall AD increase → GPL likely to increase • Given negative productivity growth from 2015-2016, there may be increase in unit COP → fall in SRAS → GPL increases **Conclusion** "Slump" in consumer prices is unlikely to continue. Extract 6 suggested that the prices of household durables, education and recreation have still been holding up.	
(c)		**With reference to Extract 6, suggest how it is possible that overall consumer prices fell despite prices of household durables, education, and recreation holding up.**	**[3]**
		The CPI is calculated using a **weighted average of prices** for a typical bundle of goods and services purchased by households. Weights are assigned to the basket of goods; COE, accommodation, household durables, education and recreation depending on the share of income spent on each good.	

		COE prices and accommodation costs have fallen. With the larger weights assigned to them, it will have a greater impact on the overall CPI by a larger extent. As compared to the rise in household durables, education and recreation, they have relatively smaller weights and hence lesser impact on the overall CPI. The fall in CPI due to the fall in COE prices and falling accommodation costs outweighs the rise in household durables, education and recreation. This results in an overall fall in consumer prices despite prices of household durables, education and recreation holding up.	
(d)	**(i)**	**How does the value of the Singapore dollar in 2016 compare to its value in 2013?**	**[1]**
		SGD has depreciated against the USD or value of SGD has fallen against the USD.	
	(ii)	**Suppose that deflation takes root in Singapore. Discuss the merits of managing the problem by depreciation, rather than using interest rates.**	**[8]**
		It is better to manage deflation in Singapore by depreciating the exchange rate as compared to decreasing interest rate because of Singapore's **small size** and **openness to trade & capital flows**. A depreciation of the currency will decrease the foreign price of exports. The lower exchange rate results in a decrease in the foreign price of exports and an increase in the domestic price of imports. In the long run, when firms are not bounded by contracts and are able to switch to cheaper alternatives more easily, |PEDx + PEDm| is likely to be greater than 1 and since MLC holds, **net exports (X-M) will increase**, **reducing deflation.** The Singapore economy is a 'small and open economy' (extract 8); **very reliant on trade and the external economy**. For instance, export revenue (X) takes up approximately 180% of GDP. This shows that a rise in net export revenue will have more significant impact on AD as compared to increase in C or I (brought about by cuts in interest rate). In addition, higher import prices also leads to higher domestic prices. As there is a high import content of domestic demand where 'much of the country's consumer goods are imported' (Extract 8) in Singapore due to her small economy and her lack of natural resources, a higher imported inflation is likely to have a substantial impact on the overall inflation rate Hence, depreciating the exchange rate is more effective to tackle deflation, as it is relatively controllable by the central bank, and has a significant impact on Singapore's small, open economy. On the other hand, it is **not advisable** for the Singapore government to decrease interest rate to tackle the problem of inflation.	

Firstly, a decrease in interest rate may have **limited effect in inducing investment** as the main types of investment in Singapore are foreign direct investment and government investment. The former is not likely to be affected by domestic interest rate as they may have external sources of funding and other determinants of investment, such as expected rate of return, political stability and quality of the workforce in Singapore, are likely to be more important to foreign investors. The latter tend to consist of long-term projects and hence, it is not likely to be influenced by a decrease in interest rate.

In addition, Singapore being a small economy, her domestic market is small. Therefore, domestic consumption constitute an **insignificant share** of GDP, hence any increase in C is not expected to have a huge impact on reducing inflation.

Because of Singapore's openness to capital flows, it is **difficult for MAS to influence interest rates**. Small changes in the difference between domestic and foreign interest rates can cause large, quick movements of capital. This may have destabilising effects of the exchange rate. Hence interest rates are determined not by the MAS, but by foreign rates and expected movements in the S$. Hence, the Singapore economy is **an interest rate taker.**

However, there are some possible downsides of having a depreciation of the Singapore exchange rate in tackling deflation. As the Marshall-Lerner condition may not hold in the short run (as consumers require time to seek alternatives), a depreciation of the S$ may instead decrease net exports, AD and the general price level. This instead worsens deflation.

Given the Open Economy Trilemma, Singapore cannot have free capital mobility while controlling both interest rates & exchange rate. Since it chooses free capital mobility and a managed exchange rate, it must give up control over interest rates. Given the nature of the Singapore economy, the choice is clear to opt for exchange rate policy instead of interest rate policy. As global oil prices are falling, Singapore is less likely to suffer from imported inflation. Therefore, the merits of choosing a depreciation to curb deflation are significant.

Mark scheme:

Level	Knowledge, Application, Understanding and Analysis	Marks
L2	For an answer with well-balanced approach, sufficiently developed analysis and good reference to case material.	4-6
L1	Very superficial analysis. Mere listing of points. Inaccurate knowledge of concepts. One-sided answer.	1-3
Evaluative comment		
Up to 2 marks for an evaluative comment for evaluative comments with justification.		

(e)		**Discuss the reasons why the Singapore government seeks to achieve innovation-driven and inclusive growth.**	**[7]**
		Singapore government seeks to achieve innovative driven and inclusive growth as it helps Singapore maintain a competitive edge and helps ensure equity. Inclusive economic growth involves actual growth and potential growth. In addition, it involves government policies to ensure that gains from economic growth are equitably distributed across society. Innovation helps to achieve both actual and potential growth: Process innovation can help improve the quality of resources to improve the production process, hence i**ncreasing productive capacity** of the economy. Thus, LRAS increases, shifting the LRAS curve to the right. Increase productivity → knock on effects → unit COP decreases → increase in SRAS and shift to the right. **Any 2 points with EV** **Reason 1: Innovation-driven and inclusive growth can lead to higher employment and productive efficiency** – Innovation-drive and Inclusive growth means sustainable growth by creating job opportunities for all. This means reducing both demand deficient unemployment and structural unemployment. – An increase in actual growth due to inclusive growth indicates an increase in aggregate demand (AD). In order to meet the increase in AD, firms will have to employ more factors of production including labour. This leads to an increase in demand for labour and a fall in demand deficient unemployment. – In the pursuit of inclusive growth, the government focuses on investing in human capital so as to create opportunities for all segments of the population, reducing structural unemployment. – Extract 10: "It helps workers who face dislocation in the market; it leads to skills accumulation across society; everyone benefits". – The government will also subsidise programmes to upgrade the skills of the workers so as to create a more productive workforce and retrain workers who skills are redundant so that they can take up jobs in other sectors. – By ensuring that there is productive employment for all, this means **that scarce resources are fully utilized**, allowing the economy to operate closer to the maximum output it can achieve, leading to **productive efficiency.** **Reason 2: Innovation-driven and inclusive growth can lead to low inflation** – Innovation-driven and Inclusive growth leads to non-inflationary growth, which includes both actual and potential growth. Inflation refers to a sustained increase in general price level. As inclusive growth focus on the pace of growth, the increase in AD is in tandem with the increase in aggregate supply (AS). As the increase in general price level is now matched with an increase in	

real national income, inflation rate remains low as there is spare capacity to produce more goods and services in the economy.
– To achieve inclusive growth, the government focuses on policies to increase labour productivity. This will mean a fall in the unit cost of labour, an increase in short-run AS (SRAS), bringing about a fall in wage push inflation in the country.

Reason 3: Innovation-driven and inclusive growth can lead to high standard of living and more equitable distribution of income

- Innovation-driven and inclusive growth helps to create opportunities for all segments of the population and distributes the dividends of increased prosperity, both in monetary and non-monetary terms, fairly across society.
- Economic growth is defined as an increase in Gross Domestic Product (GDP), which is the total monetary value of the final goods and services that is domestically produced within a year.
- An increase in real GDP means more goods and services are produced. At the same time, there is an increase in households' income leading to higher purchasing power and more consumption of goods and services leading to a higher material standard of living.
- By providing training for all Singaporean, there will be "greater skills proficiency, knowledge and expertise". This makes Singapore to be an attractive investment destination and thus attract foreign investment → Higher I → Higher AD→ Higher RNY → higher economic growth.
- With higher economic growth, the government is able to generate more tax revenue. By aiming to achieve inclusive growth, the government is likely to spend more on education subsidies as a means to create productive employment and more on healthcare programs so as to redistribute wealth by making these merit goods more affordable to lower-income households. This contributes to a higher literacy rate and life expectancy, leading to a higher non-material standard of living.
- At the same time, the distribution of increased prosperity means that the standard of living for every individual is likely to increase and the value of the Gini coefficient falls.

Conclusion/EV

- The most important reason for innovation-driven and inclusive growth is to enable a higher SOL for all Singaporeans.
- Due to the nature of SG economy → small and open → labor is our only resources → need to focus on productivity growth to increase SOL across segment → criteria especially productivity growth range from 0 to -1.5% from table 1 → supported by extract 9: "by enabling a highly-skilled and competitive workforce, it has allowed Singaporeans to secure better jobs, higher incomes and enjoy higher standards of living".
- The heart of the Inclusive Growth Programme is to enable a broad-based growth in most sectors, enabling a higher SOL for all citizens.

Or

- Nature of SG economy → small country with tight labor market →

need to continuously innovate to gain an edge over other countries → to ensure that X stays competitive → and to stay relevant in this era that is filled with technological disruption → so as to achieve export-led growth

- As evident in extract 9 "With the fast pace of technological advancements and stronger global competition for jobs, skills upgrading and deepening are essential for Singaporeans to maintain a competitive edge".

Or

- Singapore has already moved from a phase of rapid catch up growth to a phase of trend growth (predicted to be 2% growth till 2030). Relying solely on adopting technology is no longer sufficient to boost our economic growth. To maintain trend growth, Singapore government must focus on innovation.
-
- Moreover, SG economy → Nation faced a tight labour market so can't increase the size of labour force to boost growth --> besides, also facing ageing population → if nothing is done → Potential growth will decrease → Therefore enhancing productivity through innovation-driven growth → the way to go to ensure a sustained growth for SG.

Mark scheme:

Level	Knowledge, Application, Understanding and Analysis	Marks
L2	For an answer with well-balanced approach, sufficiently developed analysis and good reference to case material.	3-5
L1	Very superficial analysis. Mere listing of points. Inaccurate knowledge of concepts. One-sided answer.	1-2
Evaluative comment		
Up to 2 marks for an evaluative comment on which reasons are the most significant for the Singapore government to achieve innovation-driven and inclusive growth		

(f) **Using the extract and/or your own knowledge, discuss the effectiveness of achieving inclusive growth in Singapore through the use of fiscal policy and supply side policy.** **[12]**

Introduction
Inclusive growth is economic growth that is distributed fairly across society and creates opportunities for all.

How Fiscal Policy works to achieve inclusive growth.
FP → Spending on infrastructure → increase AD → increase RNY (actual growth).
Better infrastructure → increase productivity → increase LRAS → potential growth.
With higher RNY, govt collects more income tax revenue → redistribute to lower income grp in terms of subsidies on healthcare and school education. Extract 10 mentioned providing more targeted subsidies for

those who require it most.→ Inclusive growth
Based on a progressive tax system, tax revenue generated from the high income earners can be redistributed to those in the lower income earners.

Effectiveness
Correlation between trend in budget balance in Singapore and the Gini coefficient (Table 1). Increasing government spending in terms of education, housing and healthcare subsidies might have resulted in a smaller value of the Gini coefficient, which means a more equitable distribution of income. Also, Gini coefficient after accounting for government transfers & taxes are lower than that of Gini coefficient before government transfers and taxes. This clearly shows that fiscal policy is effective in achieving a more inclusive growth.

Limitations
However, deciding on the right amount of subsidies and how the subsidies should be channelled is administratively costly and will put a further strain on the government budget. Singapore's budget balance was in deficit and the deficit was constant in 2015-2016.

How SS side policies work to achieve inclusive growth
Ss-side policy like tax credits and subsidies for upskilling are another example of a policy that supports equity as well as innovation and growth, as mentioned in the last extract. Upskilling improves productivity → increase LRAS and potential growth.

Also, SS side policy helps to reduce occupational immobility of the workers in the sunset industries, low wage workers can now take up jobs in other sectors where wages are higher. Therefore, attending retraining courses will also help low-wage workers receive higher income in future, achieving inclusive growth.

Effectiveness
As shown Table 1, the negative productivity growth rate has fallen in 2016, this implies that existing SS side policies to boost productivity is somewhat effective.

Limitations
However, it is difficult to change the mindset of workers and encourage them to go for retraining. It is also difficult to forecast the future economic needs and hence come up with appropriate and relevant courses.

In conclusion, both fiscal and supply-side policies are required to achieve inclusive growth. Fiscal is better and more immediate than SS side policies to reduce income gap but SS side policies solutions are more sustainable. Particularly, supply-side policies such as subsidies for upskilling are the more effective measure to help low-wage workers in the long run. However, sustained effort is needed to continue to promote upskilling as it takes time to change people's mindset. Property and income taxes are still needed nevertheless to provide the budget for the subsidies.

Optional:
Property taxes mentioned in the last extract also helps to achieve equity

as those who own more expensive property will be required to pay more than those who don't. The tax revenue can also be channelled to other services to promote equity, helping to achieve inclusive growth.

However, there're other issues with this measure as it has been argued that some of those who own large property are asset-rich but cash-poor hence fulfilling property tax payment may be an issue.

Level	Knowledge, Application, Understanding and Analysis	Marks
L3	For a well-developed answer with good scope and depth of how fiscal policy and supply side policies help to achieve inclusive growth in Singapore	6-9
L2	For an underdeveloped answer that contains some analysis of how fiscal policy and supply side policies help to achieve inclusive growth in Singapore	3-5
L1	For an answer that shows some consideration of how inclusive growth can be addressed but answer is lacking in scope and/or rigour.	1-2
Evaluative comment		
Up to 3 marks for an evaluative comment on which policy is the most appropriate for Singapore in achieving inclusive growth		