# **Question 1: Healthcare Issues**



Figure 1: Singapore's labour cost index

#### Extract 1: Firms offering higher pay due to manpower crunch, thus driving up costs

Rising manpower costs and the lack of available manpower, resulting from border restrictions to curb the spread of Covid-19, are some of the top challenges that companies face. This was found through an annual survey by the Singapore Business Federation (SBF), which polled companies here on how the pandemic has affected their business this year and their outlook going forward.

SBF's chief executive officer Lam Yi Young said in a media briefing on Wednesday (Dec 8) that companies have had to increase their wages to retain their workers or get others to jump ship, leading to higher manpower costs. "I think it's very much driven by overall shortage of skilled workers in particular sectors. Companies, on one hand, are worried about rising manpower costs, but they feel they have no choice but to pay more in order to get the people they need, which then leads to even higher manpower costs," Mr Lam said.

Adapted from *Todayonline*, 8 December 2021

# Extract 2: Healthcare spending on the rise because of higher utilisation, rising manpower costs

Singapore's healthcare expenditure is set to continue to increase, Health Minister Gan Kim Yong said in Parliament on Thursday (Mar 5). He said that Singapore's national health expenditure increased from S\$13 billion in 2012 to S\$22 billion in 2017, or about 11% per annum.

Breaking this down, Mr Gan said, "part of this increase was due to increased utilisation. As our population ages and grows, demand for healthcare services also increases. Singapore is also utilising more healthcare than in the past, even after accounting for ageing and population growth. This is partly the result of making healthcare more accessible and affordable to all, earlier diagnosis, closer monitoring and follow-ups for medical conditions."

Another part of the growth in national health expenditure can be attributed to higher manpower costs. "On one hand, our healthcare workforce expanded significantly between 2012 and 2017. On the other hand, our healthcare workers' salaries also increased as we implemented pay adjustments to attract and retain our healthcare workers," Mr Gan said.

"Keeping everyone healthy is a team effort, and we are all part of the team. So let us all play our part to keep Singapore and Singaporeans in good health," he said.

Adapted from *CNA*, 5 March 2020

# Table 1: Price elasticity of demand values for selected healthcare products and services in the United States

Pharmaceutical Products	Emergency Services
- 0.44	- 0.04

Source: Journal of Health Economics, September 2017

# Extract 3: A refresher on price elasticity

Setting the right price for your product or service is hard. It depends on price elasticity of demand. Many managers assume they understand the full picture based on their experience pricing their products in the marketplace, that they know how consumers will respond to almost any price change. More likely, a company has a small sample of consumer responses to certain price changes, such as what happens when price is raised or lowered by 5 - 20%. More extreme changes in price may elicit significantly different consumer responses. Furthermore, what consumers have historically been willing to pay for a particular product is not necessarily what they are willing to pay today or tomorrow. Understanding the why behind consumer behaviour is critical to predicting how they will respond in the future.

Adapted from Harvard Business Review, 21 August 2015

# Extract 4: Promoting overall healthier living while targeting specific sub-populations

Preventive health care helps detect or prevent serious diseases and medical problems before they can become major. Annual check-ups, immunisations, and flu shots, as well as certain tests and screenings, are a few examples of this. Encouraging the use of preventive healthcare services can keep patients healthy, and stop them from getting sicker, so that payers do not have to pay for higher cost treatments and services.

The payers that effectively encourage the use of preventive health care will begin to see savings because they are paying less for costly treatments of chronic diseases, expensive healthcare utilisation, and the inflated costs of hospital stays. In the US, according to the CDC\*, chronic diseases that are avoidable through preventive care services account for 75% of the nation's health care spending and lower economic output in the US by \$260 billion dollars a year.

Considering this, the Ministry of Health (MOH) in Singapore will take a life-course approach to drive population health. It will redouble efforts to promote overall healthier living, while taking targeted health measures for specific segments of society. This includes the Screen for Life (SFL) programme. The SFL is a national screening programme that offers eligible Singapore Citizens and Permanent Residents (PRs) subsidised screenings, recommended based on age and gender.

SFL aims to encourage Singapore Citizens and PRs to go for regular screenings and follow-up. With early detection and appropriate intervention, it can prevent or delay the onset of certain diseases such as diabetes, as well as complications related to them. From 1 September 2017, MOH and the Health Promotion Board (HPB) have enhanced subsidies for SFL to encourage more Singapore Citizens to go for the recommended health screenings and have the necessary follow-up.

\*The Centers for Disease Control and Prevention (CDC) is part of the U.S. Public Health Service of the Department of Health and Human Services.

Source: Various

# Questions

- (a) Using Figure 1, summarise the trend of Singapore's labour cost for the period given. [2]
- (b) Extract 1 states that "Rising manpower costs and the lack of available manpower, resulting from border restrictions to curb the spread of Covid-19, are some of the top challenges that companies face."

Is the above statement a positive or a normative statement? Explain your answer. [2]

- (c) Using a demand and supply diagram, explain one factor in Extract 1 that accounts for the rise in labour prices in Singapore. [4]
- (d) With reference to Extract 2, discuss the impact of the ageing population and increased manpower costs on the market for Singapore's healthcare services. [8]
- (e) Explain why the price elasticity of demand values for pharmaceutical products and emergency services differ and comment on whether these values are reliable. [6]
- (f) Using Extract 4, explain why there is a divergence between the actual and perceived marginal private benefits in the market for preventive care. [3]
- (g) (i) Explain how the existence of positive externalities in the market for preventive care leads to market failure. [5]
  - (ii) With reference to the data provided and/or using your own knowledge, discuss whether the "subsidised screenings" from the Screen for Life (SFL) programme is the best approach to address the market failure above.

[10]

[Total: 40]

#### **Question 2: Infrastructure Spending in the United States (U.S.)**

#### Extract 5: Senate passes \$1 trillion infrastructure bill

The Senate gave overwhelming approval on Tuesday to a \$1 trillion infrastructure bill to rebuild the nation's deteriorating roads and bridges and fund new climate resilience and broadband initiatives, delivering a key component of President Biden's agenda.

This would be the largest infusion of government spending into infrastructure projects in more than a decade, touching nearly every facet of the American economy and fortifying the nation's response to the warming of the planet. The measure would provide \$65 billion to expand high-speed internet access; \$110 billion for roads, bridges, and other projects; \$25 billion for airports. It would also renew and revamp existing infrastructure and transportation programs set to expire at the end of September.

This comes amidst news that unemployment rate declined to 5.2 percent in August 2021. The number of unemployed people edged down to 8.4 million. Both measures are down considerably from their highs at the end of the February-April 2020 recession.

Source: The New York Times, 10 August 2021 and US Bureau of Labor Statistics, 9 September 2021

#### Questions

(a)	State one component of AD. [1]			
(b)	Using AD/AS analysis, explain the impact of the "government spending into infrastructure projects" (Extract 5) on the U.S. economic growth			
	(i)	in the short run.	[4]	
	(ii)	in the long run.	[3]	
(c)	) Explain a possible opportunity cost incurred when the U.S. government decided to spend trillion on infrastructure.			

[Total: 10]

(a)	Using Figure 1, summarise the trend of Singapore's labour cost for the period given. [2]
	Singapore's labour cost increased but had a sharp decline in July 2020.
	Marker's Comments
	<ul> <li>Most candidates could identify the increasing trend for labour costs and the fall in labour cost from Jan /March 2020 to July 2020 period.</li> <li>However, those candidates that gave period-by-period price changes without giving the general trend were faulted for their responses.</li> </ul>
(b)	Extract 1 states that "Rising manpower costs and the lack of available manpower, resulting from border restrictions to curb the spread of Covid-19, are some of the top challenges that companies face."
	Is the above statement a positive or a normative statement? Explain your answer. [2]
	It is a positive statement. It is possible to find evidence to verify whether the rising manpower costs and lack of manpower are the top challenges for companies by conducting surveys with companies.
	OR
	It is a normative statement. The understanding of a "top challenge" is a subjective one and involves a value judgement of what makes a challenge the top one. This understanding can differ from company to company.
	Marker's Comments
	<ul> <li>[CK] The question was poorly attempted, with most showing minimal understanding of what is a positive or a normative statement.</li> <li>[AP] Answers with a definition without application to context were awarded only one</li> </ul>
	mark.
(c)	Using a demand and supply diagram, explain one factor in Extract 1 that accounts for the rise in labour prices in Singapore. [4]
	Extract 1 states that the "lack of available manpower, resulting from border restrictions," is a challenge for firms. Foreign workers make up a portion of the supply of workers in Singapore. Thus, the government policy of border restrictions would inhibit these foreign workers from coming to work in Singapore and the number of workers available would be reduced, causing a fall in the supply of labour. As seen in Figure 1 below, this causes a leftward shift of the supply curve from $S_0$ to $S_1$ .

	Wage S1
	$W_1$ $W_0$ $W_1$ $W_0$ $U_1$ $W_0$ $U_1$ $W_0$ $U_1$ $W_0$ $U_1$ $W_0$ $U_1$ $W_0$ $U_1$
	Figure 1: Fall in Supply of Labour
	At the original wage (which is the price of labour), $W_0$ , a shortage of workers now results since the quantity demanded of labour exceeds the quantity supplied. This causes an upward pressure on the wage rate to eliminate excess demand. As wages rise, by the law of supply, more labour is willing to work. As wages rise, by the law of demand, firms would be less willing and able to hire labour. Wages will increase until quantity demanded of labour is equal to the quantity supplied of labour at $W_1$ . Thus, labour prices have increased from $W_0$ to $W_1$ .
	<ul> <li>Marker's Comments         <ul> <li>[AR] Most students cited one of the following reasons for the rise in labour prices - 'overall shortage of skilled workers in particular sectors', 'rising manpower costs', 'lack of available manpower'. All these vaguely suggest a fall in the supply of labour. The reason for a fall in supply of labour is the government policy of border restrictions which reduces the supply of foreign workers in Singapore. Students need to briefly explain the impact of such a policy rather than merely quoting from the extract.</li> </ul> </li> </ul>
	<ul> <li>[QA] A sizeable group of students wrongly claimed that there is a rise in demand for skilled workers due to an 'overall shortage of skilled workers in particular sectors'. Do read the extract carefully to see that it all boils down to border restrictions in the first place, as foreign workers make up a sizeable portion of Singapore's labour supply.</li> </ul>
(d)	With reference to Extract 2, discuss the impact of the ageing population and increased manpower costs on the market for Singapore's healthcare services.[8]
	With an ageing population, there is an increase in the demand for healthcare services (Extract 2) as the elderly require more medical check-ups, treatment, and care. As they form an increasingly greater proportion of Singapore's population, the demand for healthcare services will increase. This is seen in the rightward shift of the demand curve from $D_0$ to $D_1$ in Figure 2.
	Also, manpower is an input cost. With the increase in manpower or labour costs, the average cost of production for healthcare will increase. This causes supply to fall as firms now find it less profitable to provide healthcare. This is seen in the leftward shift of the supply curve from $S_0$ to $S_1$ in Figure 2.



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	'all' Moreover, affordability is about price which affects quantity demanded instead of
	<ul> <li>demand for healthcare service.</li> <li>[AR] Some students are still drawing two separate diagrams of a single shift instead of one diagram showing simultaneous shifts. Latter will clearly show the final equilibrium quantity depending on the extent of shifts in both demand and supply curves.</li> <li>[AR] Students need to indicate clearly the two endpoints with reference to diagram: equilibrium price and quantity have both <u>RISEN</u> from P0 to P1 &amp; Qo to Q1 respectively.</li> </ul>
(e)	Explain why the price elasticity of demand values for pharmaceutical products and emergency services differ and comment on whether these values are reliable. [6]
	From Table 1, the price elasticity of demand (PED) value for pharmaceutical products is -0.44. This means that a 1% rise in the price of pharmaceutical products will lead to a less than proportionate fall in quantity demanded of 0.44%. In contrast, the PED value for emergency services is -0.04. This means that a 1% rise in the price of emergency services will lead to a less than proportionate fall in quantity demanded of 0.04%.
	The demand for emergency services is more price inelastic than the demand for pharmaceutical products. This is because emergency services are likely to be regarded as of greater necessity than pharmaceutical products. While consumers may feel that there is a possibility to get by without taking medication, it is almost impossible for them not to have an emergency service when needed. Thus, the PED value is larger for pharmaceutical products than for emergency services.
	However, the PED values given in Table 1 may not be reliable because the data may not be accurate. As stated in Extract 3, consumer habits may change over time and this would compromise the validity of the PED values, rendering them unreliable. There may be changes in the PED value, especially for pharmaceutical products depending on the latest developments in the efficacy and usefulness of such products, and these can cause the PED value to deviate from Table 1, making them unreliable for firms to make decisions to increase total revenue.
	OR
	PED values may not be reliable because ceteris paribus assumption may not hold true in reality. Many factors could affect the quantity demanded, making the calculation of PED difficult. For example, a rise in the quantity demanded of pharmaceutical product could be due to an increase in income, or an increase in the price of alternative treatment methods. The cause of the change in the quantity demanded of pharmaceutical products cannot be easily attributed to any one factor in reality. Hence calculation of PED values may be inaccurate and thus unreliable.
	<ul> <li>Marker's Comments         <ul> <li>[AR] Many answers failed to make full use of the data in Table 1. Answers merely stated the values were below 1 and thus, demand was price inelastic. Only the better answers went on to apply the values in table 1 to show the different degrees of responsiveness for pharmaceutical products and emergency services.</li> <li>[CK] When using a determinant to explain the difference between the PED values, weaker responses used time period as a determinant. This was not accepted as time period is used to explain why PED values differ across different time period for the same product.</li> </ul> </li> </ul>
	<ul> <li>It is not used to explain why PED values differ across different goods.</li> <li>[CK] Answers that used number and closeness of substitutes as a determinant were often not well explained. Many students gave wrong examples of substitutes to pharmaceutical product (e.g., there are many different brands of medicine). This is not accurate as the</li> </ul>

	-	<ul> <li>different brands of medicine are still pharmaceutical products and not substitutes. Better responses often made use of more accurate examples of substitutes, such as traditional Chinese medicine or home remedies.</li> <li>[CK] A number of students do not seem to understand what it meant to comment on whether the values are reliable and thus did not score.</li> <li>[AR] Most were still able to address the question by giving relevant points such as time lag, small sample size and ceteris paribus assumption not holding true. However, few were able to elaborate fully on their idea and many ended up listing multiple points.</li> </ul>	
(f)	Using Extract 4, explain why there is a divergence between the actual and perceived marginal private benefits in the market for preventive care. [3]		
	In th enjo early of th by c and high	e market for preventive care, the perceived marginal private benefit is that consumers can y reductions in medical bills for treatment of illnesses if they are able to detect the issues and address them before they become serious. However, consumers may not be fully aware e likelihood of getting such illnesses or how much reduction in medical bills they are enjoying onsuming preventive care. Thus, they will underestimate the actual marginal private benefit, this causes a divergence between the two, with the actual marginal private benefit being er than the perceived marginal private benefit.	
	Mar	ker's Comments	
	-	<b>[AP]</b> The question was well attempted, however many failed to recognise that there was an underestimation of benefit that led to perceived benefit being lower than actual benefit. <b>[QA]</b> A good number of students wrote excessively for this question. They went on to explain how the market failed even though it was not required.	
(g)	(i)	Explain how the existence of positive externalities in the market for preventive care leads to market failure. [5]	
		Assuming a perfectly competitive market, the demand curve reflects the marginal private benefits (MPB) of consuming an additional unit of preventive care such as the prevention of illnesses while the supply curve reflects the marginal private costs (MPC) of producing an additional unit of preventive such as the wages paid to doctors and nurses and cost of medical equipment. This is seen in the diagram below.	
		MPC=MSC (Supply)	
		A	
		Ps MEB B Pm	
		МЅВ	
		MPB (Demand)	
		Qm Qs Quantity of Preventive Care	
		In the free market, consumers and producers being rational and self-interested will seek to maximise their utility and profits. They consider only their private costs and benefits when	

	deciding how much to consume. This means that the free market equilibrium, where demand meets supply or when MPB = MPC is at $Q_m$ .
	However, the consumption of preventive care generates positive externalities, i.e. marginal external benefits (MEB) to third parties such as a healthier workforce since fewer workers have severe illnesses. Employers can also earn higher profit from the increased productivity due to a healthier workforce. Extract 4 supports this by further showing that added together, the US could avoid losing \$260 billion a year if workers did not suffer these chronic illnesses. The firms are the third parties as they do not pay for the benefits. This external benefit is ignored by the consumers who are only concerned with pursuing their own self-interest. The MEB results in 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 level of consumption of preventive care is at $Q_s$ where MSC=MSB. As $Q_m < Q_s$ , there is under-consumption of preventive care.
	$Q_mQ_s$ represents an under-consumption of preventive care, that is, the price mechanism under-allocates resources to the market for preventive care. From $Q_e$ to $Q_s$ , the MSB is greater than the MSC, indicating that the additional benefit to society is more than the cost to society of producing these units. By summing the excess of the marginal social benefit over the marginal social cost for $Q_mQ_s$ , we arrive at a monetary measure of total deadweight loss to society equal to the area ABE. Thus, society welfare is not maximised when society under-consumed preventive care and the market fails.
Mar	<ul> <li>ker's Comments</li> <li>[AR] Many students were able to answer this question well.</li> <li>[CK] Some students identified the wrong deadweight loss area and/or did not explain how the deadweight loss was derived.</li> <li>[CK] Some students confused the use of terms and explained positive externality as if it were an imperfect information situation.</li> <li>[AP] While students understood the concept of positive externality, some did not cover the application well as they did not clearly link the externality to the preventive care itself.</li> <li>[AR] Some students did not explain the marginal private costs with good examples.</li> </ul>
	They only said "the MPC refers to the cost of producing preventive care". This is insufficient demonstration of application.
(ii)	With reference to the data provided and/or using your own knowledge, discuss whether the "subsidised screenings" from the Screen for Life (SFL) programme is the best approach to address the market failure above.[10]As given in Extract 4, Singapore's Screen for Life programme includes subsidised screenings. The government can provide a subsidy per unit of output that is equal to the marginal external benefit at Qs. As shown in the diagram below, the MPC curve shifts downwards from MPC to MPC <sub>subsidy</sub> . The subsidy will reduce the cost of production as seen in the downward shift of the MPC curve and this will lead to a rise in supply of preventive healthcare. At Pe, a surplus is created, and this creates a downward
	<b>pressure on price</b> as firms wish to clear excess stock. This causes a fall in quantity supplied and an increase in quantity demanded. As a result, the price of preventive care will fall to $P_1$ and the quantity of preventive care consumed will increase to the socially optimum quantity, $Q_s$ . Thus, the subsidy corrects the market failure.



	Annotation	Level	Marks	
	A + A	L2	7	
	A + C	L2	6	
	C + C or A	L2	5	
	C	L2	4	
	K + K	L1	2-3	_
	K (knowledge only)	L1	1	
Evaluation				
Marks		Descriptor		
3	Answer that weighs the two linked to the context of the que	policies and constion.	omes to a reas	oned judgement
2	Limitation of 1 policy well-e. explained.	xplained OR	2 policy limitat	ions adequately
1	Limitation of 1 policy adequate	ely explained a	nd addresses th	e question.
rker's Commer	nts			
on address	sing the issue of positive e	estion carefull externalities.	y. The question Yet, many stu	n was solely foo udents talked a



	- <b>[AR]</b> Most students do not show a clear understanding of the Price adjustment process and Multiplier process.		
	(ii)	in the long run. [3]	
		Furthermore, in the long run, construction of roads and infrastructure can increase the quantity of capital stock in the economy. This causes an increase in the productive capacity of the economy as there an increase in the maximum possible output an economy can produce at full employment level.	
		General Price Level AS <sub>0</sub> AS <sub>1</sub>	
		$0 \xrightarrow{I_1 I_2 I_3} AD_1$ $Y_0 Y_{t0} Y_1 \xrightarrow{I_1} F_1$ Real GDP	
		Thus, as seen in the diagram above, the AS curve shifts rightwards from AS <sub>0</sub> to AS <sub>1</sub> , resulting in a decrease in general price level falls from P <sub>0</sub> to P <sub>1</sub> . Real national output rises further from Y <sub>0</sub> to Y <sub>1</sub> , depicting actual economic growth. The full employment level of output increases from YF <sub>0</sub> to YF <sub>1</sub> , representing potential economic growth.	
	Mar Ans the i of fa	ker's Comments wers were varied in quality in terms of clarity of concept. Good answers were able to explain ncrease in Government expenditure on infrastructure would increase the quality or quantity ctors of production (FOP).	
	Con - -	<ul> <li>[AP] No context application on why the LRAS increased. Students need to link it to the Government expenditure on infrastructure.</li> <li>[CK] Some students explained that the multiplier process was triggered due to a change in LRAS, resulting a change in real national output/income. This is incorrect as the multiplier process is only activated when there is a change in AD.</li> <li>[AR] Students were penalised when they failed to identify the increase in Real National Output/income.</li> </ul>	
(c)	Exp \$1 ti The infra on ir univ	Iain a possible opportunity cost incurred when the U.S. government decided to spend       [2]         Ising a limited budget. Suppose she has to choose to spend the \$1 trillion dollars between structure and on paying off university student debts. Since the government chose to spend the frastructure, the opportunity cost, which is the next best alternative forgone, is paying off the ersity student debts.	
	Mar	<ul> <li>ker's Comments         <ul> <li>[AR] Many students were able to explain and apply the opportunity cost concept.</li> <li>However, most did not identify that government also face constraint and choice that have to be made. Hence, only a few scripts were awarded the full two marks.</li> </ul> </li> </ul>	