Question 1: Education in Singapore

Table 1: Government Expenditure on Education in Singapore

Year	Expenditure on Primary schools (S$ Thousand)	Expenditure on Tertiary education (S$ Thousand)
2012	1,946,159	3,846,318
2013	2,185,580	4,367,236
2014	2,263,510	4,170,881
2015	2,457,901	4,302,171
2016	2,563,211	4,569,272
2017	2,731,770	4,427,056
2018	2,823,567	4,608,243
2019	2,738,444	4,307,399
2020	2,674,257	4,155,545
2021	2,944,535	4,225,708
2022	3,165,939	4,285,779

Source: SingStat, accessed 12 September 2023

Extract 1: Benefits of education are societal and personal

Education is associated with a wide range of benefits to both individuals and society. Education builds human capital as it increases individual's capabilities, enhancing economic productivity and facilitating the development and adoption of frontier technologies.

People with higher levels of education enjoy premium in employability and earnings. They are more likely to find employment, remain employed, learn new skills on the job, and earn more over their working life relative to those with lower levels of education.

The economic benefits are not limited to individuals. Educated citizens earn more, pay higher taxes over a lifetime, and cost less for their governments in terms of social entitlements and welfare. Not only are the economic returns greater at the tertiary level, but growing evidence also points to the importance of high-quality early childhood education and care given its long-term social and economic benefits, such as supporting learning in later grades, increasing equity and social mobility, and reducing poverty. By fully recognising the power of education, policy makers could better address diverse societal challenges.

Source: Adapted from OECD review*, 29 November 2022*

Extract 2: Rising demand for preschools but not enough teachers

Young parents are increasingly sending their kids to infant care as they have limited alternative care arrangements for their child. Parents in the past used to rely on grandparents or domestic helpers to take care of the young babies. However, there is a trend of more grandparents returning to the workforce or pursuing their personal interests, and also a shortage in getting new domestic helpers into Singapore. With the continuous government investment in

developing the preschool sector, many young parents' confidence in the infant care centres have also increased. In addition, many parents are returning to the workplace post-pandemic. These various reasons have drove up the demand for places at preschools and infant care centres.

However, early childhood education centres may not have enough teachers to cope with the better business. Early childhood education providers are actively recruiting teachers to meet the increased demand, dangling competitive pay packages and better welfare benefits. Beyond the standard qualifications, many early childhood education providers want candidates with passion and have a genuine desire to work in the sector. However, the tight labour market has posed huge challenges to the hiring efforts. Some early childhood education providers have tweaked some of its work processes to ensure that their existing teachers are not overwhelmed.

Source: Adapted from Channel News Asia, 15 February 2023

Extract 3: The Preschool sector in Singapore

Preschools in Singapore can generally be classified into two categories: Schools that are funded by the Government, or "government-supported" preschools, and those that are not whereby they are run by private operators.

For children who are Singapore citizens aged five to six, the preschool participation rate is 97 per cent in 2022, according to the Early Childhood Development Agency (ECDA). Enrolling a child into a kindergarten programme in government-supported preschools costs around S$160 a month while fees at schools run by private operators can reach S$3,000. There is a belief that private preschools provide services that are comparatively more "premium" but experienced educators in the industry said that the definitive differences between both are not as straightforward in recent years due to an increase in government funding and regulatory standards.

Source: Adapted from Today Online, 11 September 2023

Extract 4: Developing the Preschool sector in Singapore

Prime Minister Lee Hsien Loong noted in his National Day Rally speech that a "major shift" has been made to improve preschool education in recent years. "We want to start earlier in a child's life because these years make a big difference to a child's development. A good preschool education can make a crucial difference," he explained. Indeed, the early years are important for a child's development, as the foundational literacy and numeracy skills developed enables them to have a smoother transition from preschool to formal education in primary schools, a fact that many parents are unaware of.

Singapore's annual spending of about S$1 billion on early childhood education will more than double over the next few years, as the Government looks to make preschools more affordable. This includes plans to increase the number of government-supported preschools to 80 per cent over time. There will also be an increase in the quantum of preschool subsidies across the board, announced Mr Lee. Currently, just over half of all preschool places are government-supported.

Source: Adapted from Channel News Asia, 18 August 2019

Questions

(a) **(i)** With reference to Table 1, compare the government expenditure on primary school education and tertiary education over the period 2012-2022. [2]

(ii) Explain one possible opportunity cost for the government expenditure on education. [2]

(b) Using Extract 1 and a production possibility curve diagram, explain the impact of an increase in education expenditure on the Singapore economy. [3]

(c) Using Extract 2 and a diagram, explain how two demand factors would affect the preschool education sector in Singapore. [5]

(d) Using price elasticity of demand (PED), explain how the challenges in recruitment (Extract 2) is likely to affect the total revenue of a preschool education provider in Singapore. [6]

(e) Using Extract 3 and your own knowledge, explain one advantage and one disadvantage of joint provision in the preschool sector. [4]

(f) **(i)** Assess whether imperfect information is the main reason for government intervention in the preschool education sector. [8]

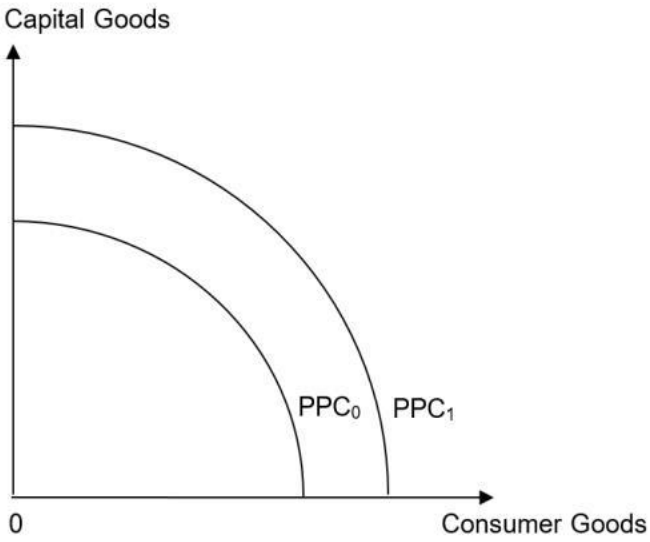
(ii) Discuss the view that subsidies is the best policy for the government to achieve a more efficient allocation of resources in the market for preschool education. [10]

[Total: 40 marks]

End of Paper

Suggested Answers

(a)	**(i)**	With reference to Table 1, **compare** the government expenditure on primary school education and tertiary education for Singapore over the period 2012-2022.	[2]
		• **Both** government expenditure on primary school education and tertiary education for Singapore have **generally increased** from 2012 to 2022. [Similarity - 1m] • However, the government expenditure for **tertiary education** is **consistently/always higher** than the expenditure on primary school education. OR The expenditure on **Primary Education** (62.7%) **increases to a greater extent** than that of Tertiary Education (11.4%) [Difference – 1m] *Note: Rate of change is not acceptable as a difference.*	
		Marker's comments • Some students are giving descriptive answers (e.g. overquoting data), giving year-by-year descriptions, and has not shown the ability to process data • Common mistakes: - Only providing one point of comparison, which only warranted one mark - Providing two separate trend descriptions instead of comparing a similarity and difference in trend - Stating anomalies in trend over specific years rather than comparing difference in both trends over the entire time period. - Stating that "expenditure on Primary Education increases at a faster rate / had a higher rate of increase than that of Tertiary Education – students should note that just because the extent of increase is greater, does not mean that the rate of increase is faster. One looks at magnitude and the other at speed. - It is a mistake to comment on the extent of "fluctuations" (for e.g. primary school expenditure fluctuated more") when ALL trends fluctuate.	
	(ii)	Explain one possible **opportunity cost** for the government expenditure on education.	[2]
		• Opportunity cost refers to the value of the next best alternative forgone as a result of a decision made. [Definition-1m] • The expenditure spent on education could have been used to develop more healthcare services such as building more polyclinics and hospitals for Singaporeans. [Example-1m] *Note: Student should name only one best alternative foregone and not many different possible choices*	
		Marker's comments • Most students were able to give an example of one opportunity cost for government expenditure on education, although quite a significant number did not define opportunity cost, or had errors in their definition (e.g. "cost incurred of the next best alternative forgone", "next best opportunity forgone"). • Those who gave multiple options of the next best alternative were not credited. For instance, the next best alternative foregone is healthcare "AND" defence shows that the student did not understand the meaning of the NEXT BEST alternative.	

(b)		Using Extract 1 and a **production possibility curve** diagram, explain the impact of an increase in the education expenditure on the Singapore economy.	[3]
		According to Extract 1, education "increases individual's capabilities, enhancing economic productivity and facilitating the development and adoption of frontier technologies", [1] which leads to a **more productive workforce / increases the quality of labour and contributes to new innovative technological advancements** in the economy. [1] This **increases the productive capacity** of the economy, leading to a **parallel outward shift** of the PPC curve from PPC_0 to PPC_1, as shown in the diagram below. [1]  Fig 1: Parallel outward shift of PPC *[Students can get full credit even if they did not specify identify both more productive workforce and technological advancements, but **must** mention at least one. Pivoted outward shift of PPC is also acceptable.]* *OR* *Students who chose to look at the trade off between spending on education and spending on other forms of public good were acknowledged on the analysis marks but there was no evidence from Extract 1 to back up this analysis. Hence, they were unable to secure the full 3 marks.* *1m for evidence* *1m for explaining implications of increased education expenditure* *1m for impact on PPC with diagram*	
		Marker's comments • Quite poorly answered. • Good answers showed understanding of factors that cause PPC to shift outwards (in this context, an improvement in productivity and quality of labour), which they were able to apply to the context of the question. • Considerable number of students chose to explain how an increase in education in expenditure came at an expense of lesser output being produced in other sectors, which did not receive full credit as the question explicitly asks to use evidence from Extract 1. • Common mistakes - Many students are still labelling the axes of PPC incorrectly ("qty employed, resources for education, resources for healthcare. Singapore economy, education expenditure"), indicating a lack of understanding of what the PPC represents. Students should note that the axis of PPC has to be labelled as **a good/service.**	

		- PPC is not about expenditure and hence it is incorrect to label the axis as education "expenditure" - Considerable number of students had logical gaps in their analysis: "e.g. as people earn more and pay higher taxes due to being more educated, it increases Singapore's economy and causes PPC to shift outwards…" → people earning more doesn't lead to PPC shifting outwards! PPC is about the possible combinations of maximum output that can be produced by an economy. - Instead, students should make the link from receiving more education / better quality education to improved skills of the workforce, which increases the quality of labour and shifts PPC outwards, as they have a greater capacity to produce more goods and services.	
(c)		Using Extract 2 and a diagram, explain how two demand factors would affect the preschool education sector in Singapore.	[5]
		Demand Factors: **Decrease in availability of alternative care arrangements**: • Some grandparents are returning to the workforce or pursuing their personal interests or/and • Shortage of domestic helpers Parents whose alternative care arrangements are no longer available would have to resort to sending their young children (toddlers) to preschools and cause the **rise in demand** for preschool services. [First demand factor explained – 1m] *Note: Grandparents returning to workforce and shortage of domestic helpers should not be seen as different demand factors.* **Increase in the confidence in the quality of preschools**: The preschool standards have improved due to continuous government investment to employ and train competent preschool teachers. Parents will feel more assured that their children will be well taken care of at the preschools which will lead to a **rise in demand** for preschool services. [Second demand factor explained – 1m] Both the two factors will cause the **rightward shift of the demand curve** from D_0 to D_1, ceteris paribus. **OR** Some parents have ceased their work from home arrangements and have to physically return to the workplace. This will mean that parents have to make care arrangements for the young children, and this will also drive up the demand for preschool services. Note:	

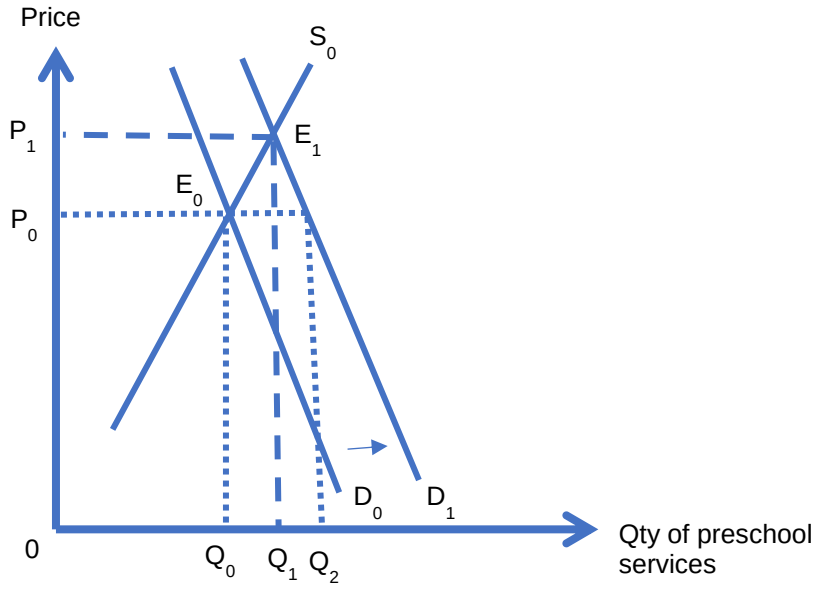


Fig 2: Market for preschool sector (Clearly Labelled Diagram – 1m)

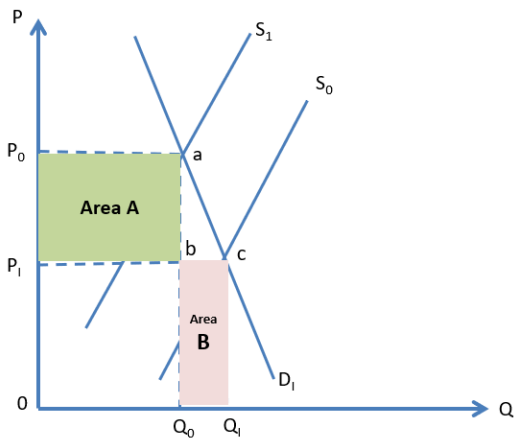
At the original price P_0, quantity demanded (Q_2) exceeded quantity supplied (Q_0) and there is an overall shortage and **upward pressure on the equilibrium price**. This causes quantity demanded to fall and quantity supplied to increase. The process continues until a new equilibrium is reached at E_1. [Price Adjustment Process – 1m]

Overall, the increase in demand would cause the **price of preschool services to rise from P_0 to P_1** and the **quantity traded of preschool services to increase from Q_0 to Q_1. [Link back to question – 1m]**

2m – Explanation of the two demand factors
1m – Price Adjustment Process
1m – Clearly Labelled Diagram
1m – Explanation on the overall impact on the preschool sector in Singapore

Marker's comments

- The question requires students to explain how TWO demand factor affects the equilibrium price and quantity of preschool education (product market). Some students misinterpreted the question and thought they had to explain the impact on the market for preschool teachers (labour market).
- Some students overlooked the requirement to explain TWO demand factors.
- A handful of students are still making basic errors such as drawing upward sloping demand curves and downward sloping supply curves, which was worrying.
- Some students did not explain the overall impact (i.e. Change in Market Price and Market Quantity Traded) in the preschool education sector).
- Most students were able to identify at least 1 correct demand factor and were able to cite appropriate extract evidence to support their explanation. However, students should avoid merely citing evidence without economic interpretation.
- Tip: When the question requires economic analysis on how demand or supply factors affect the market, it is implicit that explanation of the price adjustment process is required.
- Some students committed mistakes of identifying the shortage incorrectly. You should make reference to the original Price P_0. Pls review the price adjustment process and how to explain it accurately.

(d)		Using price elasticity of demand (PED), explain how the challenges in recruitment (Extract 2) is likely to affect the total revenue of a preschool education provider in Singapore.	[6]
		From Extract 2, the challenges in recruitment have led to preschool education providers increasing hiring efforts by "dangling competitive pay packages and better welfare benefits", which means an **increase in cost of production** of preschool education. This leads to a **fall in supply** with a leftward shift of supply curve from S_0 to S_1 [1], causing price to increase. The price elasticity of demand (PED) measures the degree of responsiveness of quantity demanded of a good to a change in the price of the good itself, ceteris paribus. Preschool education has a **high degree of necessity** to many young working parents in recent years / **limited close substitutes** for preschool education**.** [1] As such, the demand for preschool education is **price inelastic, with $\|\mathbf{PED}\|$ < 1**, such that an increase in price of preschool education will lead to a less than proportionate fall in quantity demanded of preschool education. [1] Since TR = PxQ, there will be an **increase in total revenue** [1] of a preschool education provider in Singapore, since the gain in revenue due to the rise in price is **larger** than the loss in revenue due to a fall in quantity demanded (area A>B) [1].  [1] Fig 3: Increase in TR given $\|\mathbf{PED}\|$ **< 1** <u>OR Alternative answer: DD for preschool education is price elastic</u> Also accept if students justify that demand for preschool education is **price elastic**, as there is a **high availability of substitutes** for **a single preschool education provider** such MOE Kindergartens, Sparkletots, or Montessori. Hence when price increases, **quantity demanded falls by more than proportionate** and hence **TR would decrease**. + Area Analysis 1m – Fall in supply 2m – Reason for value for PED 2m – Impact on revenue 1m – Diagram	
		Marker's comments	

		• The better responses paid attention to the case evidence and chose the right evidence to link the challenges in recruitment to a fall in supply. • Some student erroneously analysed the LABOUR market for preschool sector and referred to the wages of teachers instead. Pls read the question carefully to avoid such mistakes. The challenges in recruitment is the trigger event. It is the causation that led to a change in total revenue for the preschool provider. • [Theory] Be mindful of proper phrasing. The DEMAND for preschool education is PRICE INELASTIC. The PED value for preschool education is LOW. These are acceptable. It is unacceptable is to say "The PED for education is price inelastic". • [Theory] A increase in PRICE leads to a less than proportionate decrease in QUANTITY DEMANDED, ceteris paribus. Note the cause-and-effect. it is not the same as a change in quantity demanded brings about a less than proportionate change in price. • It is recommended that students should draw and label their diagram clearly. Draw bigger diagrams and do not wrap words around the diagram. • Also, any drawn diagrams MUST be accompanied with analysis. A diagram drawn but not explained is as good as not drawing it. Do not draw diagrams and then leave it to the examiner to interpret it. • TIP: When a question involves both PED and TR, it is likely that you need to estimate the value of PED by using relevant case evidences.	
(e)		Using Extract 3 and your own knowledge, explain one advantage and one disadvantage of joint provision in the preschool sector.	[4]
		Joint provision in the preschool sector refers to the government supplementing the preschool education sector with government-supported preschools. <u>Explanation of 1 advantage</u> [2m] One advantage of joint provision is **added variety** for consumers, as parents can choose between sending their child to a private preschool or a government-supported preschool. *or* One advantage of joint provision is **greater equity**, as government-supported preschools tend to be subsidised by the government and are thus more affordable than private preschools (Extract 3: "around S$160 for government-supported preschool" vs reaching S$3000 for private preschools). *or* Through joint provision, the government has **direct control** over the supply of the preschool education. By controlling the supply of these preschool education, the government controls not just the **quantity** but also the **affordability** (Extract 3: government-supported preschools are more affordable than private preschools) and **quality** of the preschool education. <u>Explanation of 1 disadvantage [2m]</u> However, one disadvantage of joint provision is the **opportunity cost** faced by the government, as usage of funds into the operation of / subsidising government-supported preschools means lesser funds are available for spending in other areas such as defence or healthcare. *Or* The **absence of a profit motive** by government-supported preschools could also mean a lack of incentive to keep costs low, and to improve on its	

production and quality of service. There may be a sense of complacency, knowing that losses will always be paid off from taxpayers' money (unlike a privately owned firm which has to bear the cost of a failed business).

2m – explanation of one advantage of joint provision

2m – explanation of one disadvantage of joint provision

*Note: **Cap at 2 marks** for a generic explanation that is not contextualised to preschool sector*

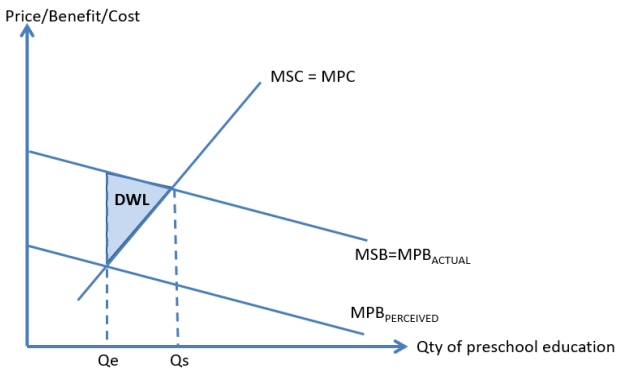
Marker's comments

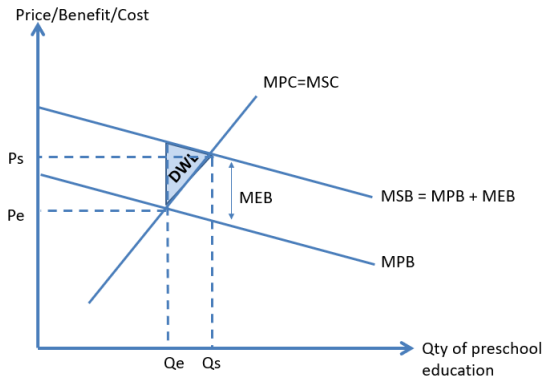
- The better responses provided adequate elaboration instead of merely citing case evidence. There should be sound inferencing how joint provision brings about an advantage and a disadvantage.

(f) **(i)** Assess whether imperfect information is the main reason for government intervention in the preschool education sector. [8]

Question Requirement:

- Requirement 1: Explain how imperfect information is a reason for government intervention in the preschool education sector
- Requirement 2: Explain how positive externalities is a reason for government intervention in the preschool education sector
- Take a stand as to which is the main reason and provide justification

Requirement	Suggested Answer
Requirement 1 Explain how imperfect information is a reason for government intervention in the preschool education sector	There is imperfect information in the consumption of preschool education, which calls for government intervention. Based on Extract 4, due to ignorance, many parents are "unaware" of the full extent of private benefits of preschool education to their child, such as developing literacy skills that would allow their child to make a smoother transition to primary school. As a result, $MPB_{PERCEIVED}$ of consuming preschool education is lower than the MPB_{ACTUAL} as seen in the figure below.  Fig. 4: underconsumption of preschool education due to imperfect information The market equilibrium quantity will be at Qe where $MPB_{PERCEIVED}$ = MPC. However, the socially optimal output where social welfare is maximised is at Qs where MSB = MSC. Since Qe is less than Qs, there is underconsumption of preschool education. For the quantity in between Qe and Qs, MSB is more than

			MSC. This causes a deadweight loss of the shaded area as social welfare is not maximised. Hence, the market fails due to allocative inefficiency, necessitating government intervention.			
		Requirement 2 Explain how positive externalities is the reason for government intervention in the preschool education sector	Besides imperfect information, the presence of positive externalities in the consumption of preschool education is another reason why the government would intervene. Based on Extract 1, consumption of preschool education "increases individual's capabilities", which benefits third parties such as **future employers**, as individuals who consume preschool education become **more productive and contribute more to their future jobs**. These third parties do not pay to receive these benefits. (Also accept other reasonable benefits to others third parties: E.g., preschool education "support learning in later grades", benefiting their **peers in tertiary education** or **future coworkers** whom they share knowledge with.) The positive externalities cause MSB to diverge from MPB in the figure below as MSB = MPB + MEB. We assume that there are no negative externalities in the preschool education sector, i.e., MEC = 0. Thus, MSC = MPC.  Fig. 5: underconsumption of preschool education due to positive externalities The market equilibrium quantity will be at Qe where MPB=MPC. This is because self-interested consumers and producers will only consider their private benefits and costs in their consumption and production decisions. However, the socially optimal output where social welfare is maximized is at Qs where MSB = MSC. Since Qe is less than Qs, there is underconsumption of preschool education. For the quantity in between Qs and Qe, MSB is more than MSC. This causes a deadweight loss of the shaded area as social welfare is not maximized. Hence, the market fails due to allocative inefficiency. Or		

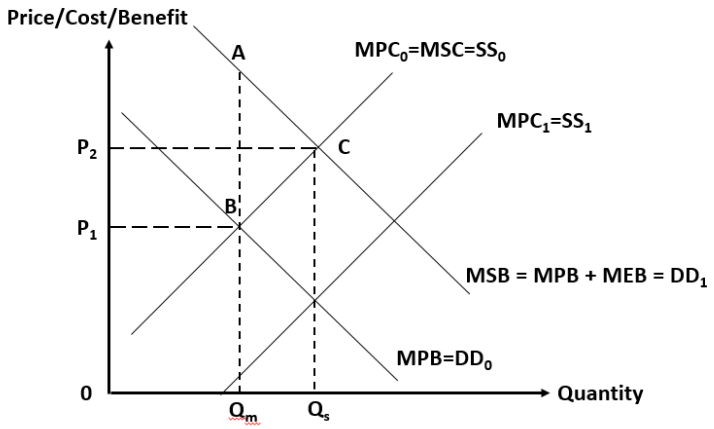
	However, inequity could be the reason instead. Given that preschool education is an essential good, everyone, including the low-income should have access to preschool education. However, the market would only allocate preschool education to people who are willing and able to pay the market price. This means that low-income households which are not able to pay the market price would not receive preschool education. Thus, inequity could also be a reason for the government to intervene in preschool education. *Note: Given the phrasing of the question, inequity is acceptable as an alternative **reason for government intervention** (although it is not considered a source of market failure).*
Evaluative Conclusion	In conclusion, going forward, positive externalities is more likely to be the main reason for the government intervention in preschool education. This is because Extract 1 suggests that preschool education generates significant positive externalities into the long-term, such as improving the productivity of economy. On the other hand, the underestimation of private benefits of preschool education is likely to be less significant over time, given the ready access of information in Singapore. (Also accept if students provide a reasoned justification that imperfect information is the main reason for government intervention: i.e. Extract 4 suggests that many parents are unaware of the private benefits of consuming preschool education to their child, suggesting that the extent of imperfect information is likely to be large.)

Level	Knowledge, skills and application	Marks
L2	Well-explained market failure analysis; explanation of both positive externality and imperfect info with reference to context of preschool education. Also accept if students explain imperfect info and inequity as reasons for government intervention Thorough explanation of one source of inefficiency, max 4m	4 - 6
L1	Underdeveloped explanation of both positive externality and imperfect info	1 - 3
	Evaluative Comment	
E	Explained judgement regarding whether imperfect information is the main reason for government intervention	1 - 2

Marker's comments

- A handful of students did not seem to know who are the third parties who experience positive externalities for pre-school education (incorrectly identifying the students or the parents):

		- "students who do not pay for education benefit…" → they are the **consumers** of preschool education! - "Parents who do not consume preschool education benefit…" → they **pay** to receive these benefits! - "foundational literacy and numeracy skills developed enable them to have a smoother transition to primary schools" → these are **private benefits** to the child himself! • For imperfect information, a considerable number of students analysed the government-supported preschool sector, explaining that "parents underestimate the benefits of enrolling their child into govt supported preschool, hence there is an underconsumption of govt supported preschool" → the question focuses on the preschool sector as a whole. Hence, students should not be segregating the sector into "govt supported preschool" versus "private preschools". • Some students explained that parents "overestimate the benefits of private preschool leading to its overconsumption", which did not make sense! → Tip: Goods/services that generate positive externalities such as education, healthcare, housing tend to be under-consumed rather than overconsumed! • A handful of students referenced "government's imperfect information…" which was NOT relevant to the question, which focuses on consumers' imperfect info. • Quite a few students wrote what is required for (f)(ii) (for example, explaining how subsidies work) in (f)(i), indicating an incorrect interpretation of the question. • A handful of students mixed up both sources of market failure in their explanation and/or diagram, which should be avoided. • It is worrying that some students still do not know how to draw their diagrams correctly which is fundamental economic framework and it shows poor content knowledge. • Students are reminded to explain how the DWL area comes about. Do not just shade the area and not explain it. • Very few students evaluated why one of the two source of market failure is the MAIN reason for government intervention. Merely stating one of the two reasons are the main reasons with evaluative reasoning will not garner the evaluation marks. Students are reminded to provide justification why your judgment is sound. • Students are reminded to manage time better. A number of students did not attempt this question nor the last question, which constitutes the heaviest weightage.	
	(ii)	Discuss the view that subsidies is the best policy for the government to achieve a more efficient allocation of resources in the market for preschool education.	[10]
		Question Requirement: 1. Explain how subsidies and at least one other policy solves the problem and achieve a more efficient allocation of resources and its corresponding limitations	

		2. Take a stand as to which is the best policy and justify why (based on time period or context, etc.)	
		Introduction (Optional)	From f(i), we understand that there are two main sources of market failure for the preschool education sector. Imperfect information and positive externalities result in market failure in the preschool education sector.
		Policy 1: Explain how subsidy works + limitation	From Extract 4, the government will be increasing the quantum of preschool subsidies across the board for all preschool education operators. Referring to Figure 6 below, when subsidies equivalent to MEB are given to producers to help to lower their cost of production and reduces the MPC and shifting the MPC curve downwards from MPC_0 MPC_1. The new market equilibrium quantity is at Q_s (where MPB=MPC*). The new market equilibrium quantity coincides with the socially optimal quantity Q_s (where $MSB=MSC_1$). Hence, the under-allocation of resources to preschool education sector is thus corrected and the deadweight loss is eliminated, achieving allocative efficiency.  Fig. 6: Market for preschool education with positive externality **Limitation of subsidies**: There is likely to be imperfect info on part of government. As it is difficult to monetise the external benefits of early childhood education to the society, government may wrongly estimate the amount of subsidy to be given. Too little subsidies may not reduce MPC and market output of preschool services significantly, such that Q_m may remain well below Q_s. Or A limitation of subsidies is that it involves the use of government funds that rely on tax revenues. These funds have alternative uses, each of which has an opportunity cost. For example, by subsidising preschool education, government may be less able to provide for other important services like healthcare or defence. Or In order to finance the subsidies, the government may have to impose high tax rates on citizens. This may in turn have disincentive effects on work, investment and hence adverse effects on the economic growth of the country.
		Policy 2: Explain how public education works + limitation	Government can provide information to correct the MPB from MPB(Perceived) to MPB(Actual) and help consumers make informed choices. The government can use public education to encourage the consumption of preschool education - for example raise awareness on the benefits of preschool education through campaigns, holding public talks and exhibitions. In Extract 4, when PM Lee highlighted the crucial

			difference of good preschool during his National Day Rally speech, it is a form of persuasive public education. Assuming the education campaign is successful and increase the amount of correct information, consumers would alter their perception of preschool education, thus moving the $MPB_{Perceived}$ to MPB_{Actual} in Fig. 4 in f(i). When $MPB_{Perceived}$ is corrected to MPB_{Actual} for preschool education which were under-consumed, the socially optimal amount Q_S where MSB=MSC will be achieved since consumers will consume up to where MPB_{Actual}=MPC. Hence, deadweight welfare loss is eliminated, and allocative efficiency is achieved. **Limitation of public education:** Public education is a long-drawn process (i.e. time lag) that requires time to change pre-existing mind-sets, which can be challenging especially. For example, despite knowing the potential benefits of preschool education, some young families, especially the less affluent families, may not go for them. Hence, the effectiveness of public education is very much dependent on how receptive to new or more information people are.
		Policy 3 (Not encouraged): Explain how joint provision works Note: Joint provision is very similar to subsidies. In addition, it does not address the root cause of imperfect information	In Singapore, the government has also addressed the underconsumption of preschool education by jointly providing preschool services. Apart from private preschool education, the government has provided the shortfall Q_mQ_s by subsidising government-supported preschools heavily. In the case of preschool education, the Singapore government has chosen to provide the shortfall directly. This causes MPC_0 to shift to MPC_1 (refer to Fig 6) and the market equilibrium to increase from Q_m to Q_s. This eliminates the entire deadweight loss, hence correcting market failure. **Limitation of joint provision:** Joint provision, like subsidies also involves the use of government funds that rely on tax revenues. These funds have alternative uses, each of which has an opportunity cost. For example, by subsidising preschool education, government may be less able to provide for other important services like healthcare or defence.
		Evaluative Conclusion	In conclusion, since full subsidy only targets one source of market failure in preschool education, that is, positive externalities, subsidy or even joint provision on their own are clearly not the best policy. Instead, what is best is likely to be a set of complementary policies that target the different sources of market failure in the industry. Education campaigns to encourage consumption of preschool education is complementary to subsidies as education is the only policy that addresses imperfect information directly. Moreover, a strong education foundation in the early years of children will boost the children's development for the formal education and also ensure that the Singapore government cut down the reliance of subsidies that could be used to support other areas of the economy such as healthcare and national defence.

Level	Knowledge, skills and application	Marks
2	A well-developed discussion on the effectiveness of subsidy and an alternative policy in SG's preschool education sector with sufficient use of analytical tools. Thorough discussion of using subsidy in Singapore's preschool education sector – max 4m Thorough discussion of subsidy and joint provision in Singapore's preschool education sector – max 6m No discussion of education – max 6m No mention of imperfect information – max 6m	4-7
1	An under-developed discussion on the effectiveness of subsidy and an alternative policy in Singapore's preschool	1-3

	education sector with insufficient use of analytical tools (very little reference to economics framework).	
E	Evaluation that considers whether the policies are effective in addressing the market failure problems. A conclusion will be provided.	1-3

Marker's comments

- More poorly attempted than (f)(i)
- When this is a question part, it is a hint that the two question parts are related. Hence when part (i) suggests that imperfect information is one of the reasons for government intervention, it is implied that at least one of the proposed solutions should address imperfect information at its root cause.

- Quite a few students made careless mistakes by analysing the issue as a negative externality problem rather than a positive externality situation. They hence drew a diagram where MPB = MSB and tried to illustrate how subsidies work using this diagram, indicating possible confusion in their concepts.

- Some students drew upward sloping benefit curves and downward sloping cost curves.

- For students who did draw an accurate diagram, some of their explanations contained gaps (e.g. did not explain that subsidy = value of MEB at Qs to bring about allocative efficiency, or simply stating that "subsidy lowers COP and increases consumption of education, eliminating DWL and achieving allocative efficiency" with little reference to the diagram). More rigour in economic analysis is expected. Pls review your notes.

- There were also gaps in explanation of imperfect info (e.g. "education increases perceived MPB to actual MPB" → no link to how Qe increases to Qs as a result!). Some students did not explain what is Qe nor Qs in either f(i) or (ii) and did not state the condition to arrive at these output.

- A handful of students go straightaway into describing the limitations of policies WITHOUT first explaining how the policies work to bring about an allocatively efficient outcome.

- A handful of students explained subsidies using a simplistic DD-SS framework (e.g. subsidies lowering COP and increase SS) → this is not appropriate as there are positive externalities in the market for preschool education, hence the market failure framework (with MSB/MSC) has to be reflected.

- Few students were able to recognise that there is a need for policies that tackle both sources of market failure.

- Significant number of students chose compulsory consumption as the second policy, which was not the best choice, as (f)(i) hints that there are two sources of market failure. Hence, students should choose a policy that targets imperfect information directly.

- A handful of students chose free provision as a second policy, which is not appropriate as free provision is essentially a subsidy, but a full subsidy! This narrows the scope of analysis.

		- A few students wrote about price ceiling as the second policy, which is inappropriate as the policy's objective is to increase consumption of education, which a price ceiling does not achieve! - [Tip] Draw clear and well labelled diagrams. Do not scrimp and draw a small diagram. The diagrams are important tools to support your economic analysis. - To gain evaluation marks, there is a need to make a judgement on the statement in the question. Stating and explaining the advantages and disadvantages for each policy will NOT contribute to the evaluation requirement. - Students need to be mindful that providing contextual economic analysis and evaluation is extremely important for all case study questions.