

- 2 Introduced in 2015, all Singaporeans aged 25 years and above received an opening credit of \$500 in their SkillsFuture account. Singaporeans can make use of these credits to deepen existing skills or reskill into new areas outside of their current field.

Source: SkillsFuture website

- (a) Explain why a government may need to intervene in the market for skills training. [10]
- (b) Discuss whether the provision of subsidies is the best policy to address the market failure in the skills training market. [15]

**a) Explain why a government may need to intervene in the market for skills training. [10]**

**Question Analysis for part (a)**

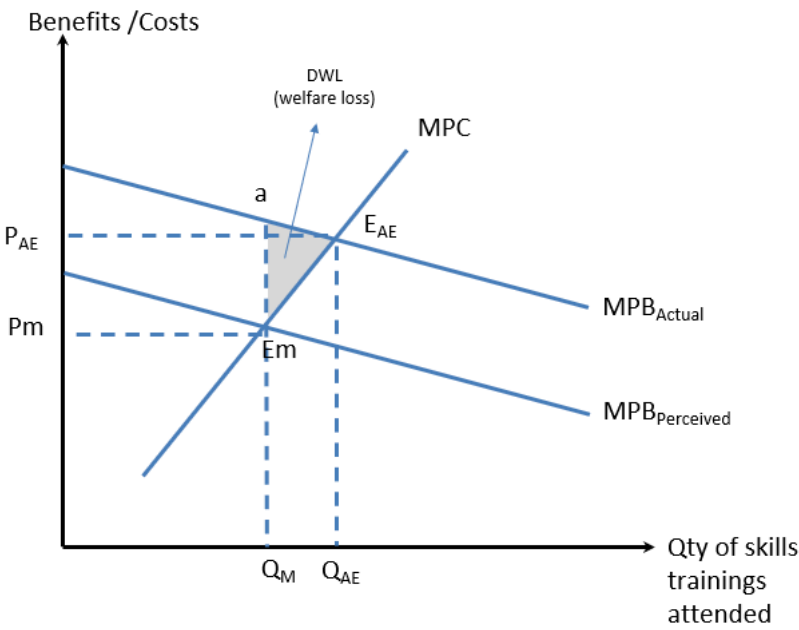
<b>Focus (F):</b>	Provide explanation to illustrate how can skills training cause positive externalities in consumption and imperfect information in consumption & thus cause market failure
<b>Skill (S):</b>	"Explain" requires economic reasoning, analysis and diagrammatic illustration of how skills trainings cause resources to be allocated undesirably and thus welfare loss to society.
<b>Context (C):</b>	Skills Training market, no specific country

**Suggested answer for part (a)**

<b>1. Introduction:</b> identify the sources of market failure and unpack key terms in question	<ul style="list-style-type: none"> <li>Market failure occurs when the price mechanism, operating without any government intervention, fails to allocate scarce resources efficiently to maximise society's welfare. Market failures provide one of the major justifications for government intervention in the economy.</li> <li>Source of market failure for skills trainings <ul style="list-style-type: none"> <li><b>Positive externalities in consumption</b></li> <li><b>Imperfect information in consumption</b></li> </ul> </li> </ul>
<b>2a. Body:</b> Explain positive externalities          Explain the divergence between private benefits and social benefits.	<p><u>Positive externalities in consumption</u></p> <ul style="list-style-type: none"> <li>Positive externalities arise when the production or consumption of a good generates benefits to a third party not involved in the production and consumption of the good, and the third party does not pay for the benefit enjoyed.</li> <li>In the case of the consumption of skills trainings, it generated positive externalities in consumption. Once a consumer (labour) is trained, he would possess specific skills learnt from the trainings. Others, such as firms (3<sup>rd</sup> parties) who employed the trained labour will thus benefit from improvement in the firm's productivity, (e.g. producing more outputs with same number of employees).</li> <li>As market decisions made by economic agents are guided by the <b>pursuit of self-interest</b>. In deciding whether to be pursue skills trainings, and consumer (labour) will only take into account his private marginal cost (MPC) and private marginal benefit (MPB).</li> <li>MPB: Additional gain in wages earned as a skilled labour</li> <li>MPC: Additional cost includes time spent in one's pursue of skills training, or the skills training course/ workshop fee</li> </ul>

<p>As well as the market equilibrium</p> <p>Explain under-allocation of resources in comparing the market equilibrium to the social optimal outcome.</p>	<ul style="list-style-type: none"> <li>Based on the price mechanism, the market equilibrium level of skills training consumed is where marginal private cost (MPC) equates to the marginal private benefit (MPB), (i.e. <math>MPB = MPC</math>). □ market equilibrium output, <math>Q_m</math>.</li> <li>However, this consumer (labour) would not consider the positive externalities that could be generated from his skills training on the third parties. In this case, consumer (labour) who are went for skills training will create a more productivity working environment in the workplace, firms may benefit from more high production, or better-quality goods/ services produced, eventually raising the profit margin for firms. The more consumers (labour) who attended skills trainings, the higher the chances of third parties (such as firms) benefitting from higher labour productivity. (i.e. the marginal external benefits, <math>MEB &gt; 0</math>).</li> <li>Hence, there is a divergence between the marginal social benefit, MSB and marginal private benefit, MPB, where MSB lies above that of MPB. This is so as societal benefits account for the private benefits and external benefits (i.e. <math>MSB = MPB + MEB</math>) and since <math>MEB &gt; 0</math>, thus <math>MSB &gt; MPB</math>.</li> <li>Assuming that there is no external cost in the consumption of skills trainings, MPC thus equates to MSC (i.e. <math>MPC = MSC</math>).</li> <li>As such, at the market equilibrium <math>Q_m</math>, <b>society values the skills trainings more than what it would cost to society. (i.e. at <math>0Q_m</math>, <math>MSB &gt; MSC</math>).</b> Thus, at market equilibrium, resources are not allocated efficiently to achieve the socially efficient level which should be at <math>0Q_s</math> where <math>MSB</math> equates to <math>MSC</math> (i.e. <math>MSC = MSB</math>).</li> </ul> <div data-bbox="510 1164 1324 1792"> </div> <ul style="list-style-type: none"> <li>By price mechanism, thus there will be under-allocates of resources into the market of skills training i.e. too little skills trainings attended when left by market to allocate resources.</li> <li>There is an <b>under-consumption</b> of skills trainings resulting in the welfare to society not being maximized. Society could have gain welfare equivalent to area <math>EmEsA</math> (shaded area) if they increase quantity of skills trainings attended to <math>Q_s</math>. Therefore, government intervention is justified in</li> </ul>
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	the case skills trainings to increase the consumption to the socially optimum level of output (i.e. $Q_s$ ).
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<p><b>2b. Body:</b> Explain imperfect information</p>	<p><b><u>Imperfect information</u></b></p> <ul style="list-style-type: none"> <li>• In this case, consumers (labours) may be <b>unaware of the true benefits</b> to themselves should they opt to attend skills training. <ul style="list-style-type: none"> <li>◦ This could be because they have <b>insufficient information</b> on the benefits of attendings skills trainings and so made inaccurate decision. For instance, they may not be aware the additional amount of wage increment one may get after undergoing skills training or the likelihood of promotion.</li> <li>◦ Thus, Consumers (labours) underestimated the actual private benefits <b>to themselves</b>.</li> </ul> </li> <li>• Hence, the consumer's perceived benefits of skills training being lower than the actual benefits. (<math>MPB_{perceived} &lt; MPB_{actual}</math>)</li> <li>• The market equilibrium consumption level is therefore at <math>Q_M</math> where <math>MPB_{perceived} = MPC</math>, while the allocative efficient consumption level is at <math>Q_{AE}</math> where <math>MPB_{actual} = MPC</math>.</li> <li>• Hence, as <math>Q_M</math> is lower than <math>Q_{AE}</math> (the allocative efficient consumption level), there is a potential welfare gain of area <math>AEsEm</math> if consumption was increased by <math>Q_M Q_{AE}</math>.</li> <li>• Therefore, there is an under consumption of skills training consumed by <math>Q_M Q_{AE}</math></li> </ul> 
<p><b>3. Conclusion:</b></p>	<ul style="list-style-type: none"> <li>• Society as a whole could be made better off if more labour attend skills training to the allocative efficient level, <math>Q_{AE}</math>. Thus, there is under consumption of skills trainings due to the presence of positive externalities and imperfect information, government intervention is justified to intervene to ensure resources allocated desirably.</li> </ul>

### Marking scheme for Q 2a

<b>Knowledge, Application, Understanding and Analysis</b>		
<b>L3</b>	<ul style="list-style-type: none"> <li>For a clear &amp; thorough explanation of how skills training causes market failure by relating to positive externalities (in consumption) and imperfect information (in consumption).</li> <li>Good use of diagrams. <i>(encouraged to draw for both sources of market failure respectively)</i></li> <li>Contextually accurate and focused with sound application to skills training market.</li> <li>Answer is supported with a cohesive diagrammatic analysis.</li> </ul>	8-10
<b>L2</b>	<ul style="list-style-type: none"> <li>For an answer that shows understanding of market failure and an application of theory to explain why market fails but insufficiently developed</li> <li>Only 1 economic justification explained (either positive externality or imperfect information).</li> <li>some accurate reference to the context of skills training market</li> <li>Answer may be supported with diagram but limited explanation and reference to it.</li> </ul>	5-7
<b>L1</b>	<ul style="list-style-type: none"> <li>For an answer that shows descriptive knowledge of market failure in relation to positive externalities/ imperfect information or answer with conceptual errors.</li> <li>Answer has incidental/ no reference to the context of skills training.</li> </ul>	1-4

**b) Discuss whether the provision of subsidies is the best policy to address the market failure in the skills training market. [15]**

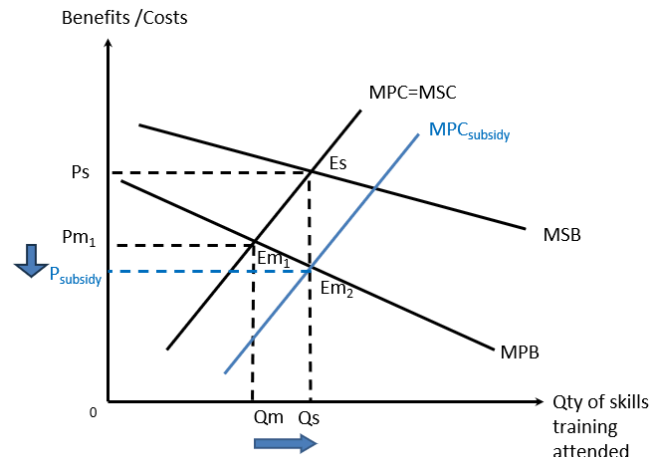
**Question Analysis for part (b)**

Focus (F):	A comparison of subsidising skills trainings to other policies on whether it is the best form of govt intervention to deal with the various causes of market failure arising from the market of skills trainings.
Skill (S):	"Discuss" requires a balanced argument and a reasoned judgement
Context (C):	Skills training market

**Suggested answer for part (b)**

<p><b>1. Introduction:</b></p> <p>Identify the issue and possible government measures Explain the purpose of government intervention.</p>	<ul style="list-style-type: none"> <li>• <i>Issue: under-consumption of skills training in free market due to</i> <ul style="list-style-type: none"> <li>o <i>High external benefit generated in the consumption of skills training – positive externality in consumption</i></li> <li>o <i>Imperfect information - insufficient and inaccurate information</i></li> </ul> </li> <li>• <i>Possible government intervention:</i> <ul style="list-style-type: none"> <li>o <i>subsidy</i></li> <li>o <i>public education</i></li> </ul> </li> <li>• <i>Purpose of government intervention: resource allocation to be allocative efficient to society</i></li> </ul> <p>Subsidy is a form of government intervention due to the high external benefit to society and imperfect information which will cause skills training to be under-consumed. Through government intervention, government hopes to reduce imperfect information and under-consumption due to ignorance of external benefits and encourage the consumption of skills training to the socially optimum level of output. While many governments would use subsidy, there are other measures such as compulsory consumption and public education used to ensure the consumption is at an allocative desirable level.</p>
<p><b>2a. Body:</b></p> <p>Explain how subsidising skills training works and relate to the purpose of government intervention</p>	<p><b>1. Subsidy to consumers (labour)</b></p> <ul style="list-style-type: none"> <li>• <i>Subsidy to consumers (labours) □ lower out of pocket expenses that consumers pay for the skills trainings □ fall in their MPC □ MPC shift rightward □ subsidies will thus lower the price consumers pay for skills training from <math>P_M</math> to <math>P_{subsidy}</math>. More consumers will be able to attend skills training as it is more affordable, causing output to also increase from <math>Q_M</math> to <math>Q_S</math>. The new market equilibrium is now at <math>MPC_{sub} = MPB</math>, the new market output hence coincides with the socially optimal output <math>Q_S</math>.</i> <ul style="list-style-type: none"> <li>o The subsidy or voucher given is meant to lower the price which consumers (labour) pay to encourage a higher consumption level. The amount of subsidy is usually based on the value of the external benefits (MEB) generated at the socially optimal level of output, <math>Q_S</math>.</li> <li>o E.g.: Besides the \$500 top up to Singaporeans SkillsFuture account for skills upgrading in 2015, in 2024, additional subsidy such as the <u>SkillsFuture Mid-Career Enhanced Subsidy</u> (for Singapore Citizens aged 40 and above) was implemented where it can cover up to 90% of the course fee. It recognises that mid-career Singaporeans may face greater challenges in undertaking training, hence <u>provides additional subsidies to encourage them to upskill and reskill</u> to adapt to changing job requirements.</li> </ul> </li> </ul> <p><i>Note to student: At this output, <math>Q_S</math>, the producers of skills training (will receive a unit price of <math>P_S</math> (as <math>P_S = P_{subsidy} + \text{subsidy of } E_m \text{ to } E_S</math> from</i></p>

government), where consumers only pay  $P_{\text{subsidy}}$ , hence skills trainings becoming more affordable.



(Note: Alternative answer on subsidy given to producers: education institutions conducting skills training can also be accepted. Students need to however explain how the subsidies to producers can lead to the lowering of skills training fee before linking to MPC concept to address under-consumption of skills training.)

**Evaluation & transition statement**

**Identify when subsidy may be effective –**

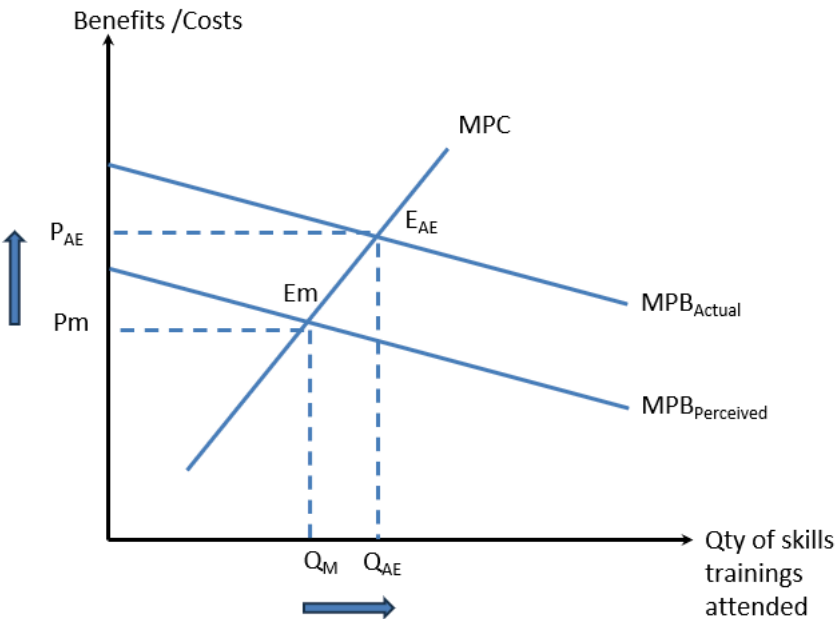
**Strengths:**

- **Reach specific target beneficiaries directly and achieving unintended positive outcomes such as reducing income inequity** - the grants and subsidies provide assistance directly to targeted beneficiaries (subsidy given to consumers). This can also improve the income distribution between the higher and lower skilled labour when lower skilled labour upskilled which enable to take on high-skilled jobs which may offer higher wages too.

However, even with the subsidy provided to consumers, there may still be some poorer consumer (labour) who may still find the subsidised skills training course fee unaffordable. Hence, government may need to consider how else to better make skills training more affordable for such individuals. This may require government to offer other forms of financial assistance such as the application for scholarship or education loan scheme to provide a more comprehensive financial support.

**Limitations:**

- **Government budget constraints** - High government expenditure is required to finance the subsidy as well as build physical infrastructure such as education institutions to support the skills training programme. Thus, not all governments may have the financial capability to finance this measure □ may result in government raising taxes (e.g. corporate tax and income tax) or reallocate funds away from other public projects to finance the subsidy. □ This is **especially so for poor and developing countries with more limited tax revenue** □ extent of subsidies may be less □ therefore, even with subsidies, it is still unable to reach the social optimal level.
- **Insufficient information to determine amount of optimal subsidy** - It may be difficult to measure or value the exact external benefit of consuming a good that generates positive externalities (indicated by  $E_s E_{M2}$  in the diagram). However, such limitation may be minimised overtime as government review the measure to adjust the subsidy amount to correct the market

	<p>failure. Take Singapore for example, in 2015, subsidy given to each Singaporean labour was only \$500. Across the years, government has reviewed its measure and enhanced the effectiveness of the measure by offering more subsidy through SkillsFuture Top-Ups.</p> <p><b>Transition statement:</b> While subsidy can help to ensure that skills training can be more affordable, it may not be the most effective measure in achieving allocative desirable if consumers (labour) are unaware of how important skills trainings can be for themselves. Thus, subsidy alone is not enough as consumers (labour) might still <b>under consumed skills training due to imperfect information</b>. There is a need to complement subsidy with public education to increase address insufficient and inaccurate information.</p>
<p><b>2b. Body:</b></p> <p>Explain how public education works to correct the causes of market failure</p>	<p><b>3. Public Education (Campaigns, advertisements to inform people the importance of skills training)</b></p> <p>Government could reduce imperfect information through campaigns and advertisement to educate people the benefits of skills trainings. This aims at getting people to understand the need to go for skills training, thus increasing qty of skills trainings consumption.</p> <p>If consumers are aware of the actual benefits of attending skills training, there will be no difference between actual and perceived benefits/costs. This will ensure consumption at the allocative efficient level, <math>Q_{AE}</math>.</p> 
<p><b>Evaluation</b></p> <p>Consider if subsidy is the <b>best</b> form of government intervention by comparing it with public education</p>	<p><b>Strength:</b></p> <ul style="list-style-type: none"> <li>✓ Tackles the problem of imperfect information. It reduces the chance of poor decision being made due to imperfect information and increases the demand for skills training.</li> <li>✓ This may be important for countries facing income inequality issue, where consumers (labour) who may lack the knowledge about the true benefits of attending skills training for themselves, such as the job</li> </ul>

	<p>opportunities that they will be available for them, helping them to break out of the poverty cycle.</p> <p><b>Limitations:</b></p> <ul style="list-style-type: none"> <li>□ Uncertain in the policy outcome as mindset take times to change.</li> <li>□ Without support of firms (esp. for lower-skilled jobs), consumers (labour) may still choose not to take on skills trainings as consumers (labour) may incur significant opportunity cost should they attend trainings instead of working to draw current (low) wages. There is no assurance of success even in the longer term and the market may still fail to achieve the allocative efficient outcome in such circumstances.</li> </ul>
<b>3. Conclusion:</b>	<ul style="list-style-type: none"> <li>• In dealing with the market failure of under-consumption of skills trainings, <b>subsidy may be the best form of government intervention to ensure affordability</b> and hence encourage greater consumption for skills training. <ul style="list-style-type: none"> <li>o This is especially so at the initial phase where PED for skills training is elastic. By ensuring skills training affordability, it can bring about a more than proportionate increase in the qty demanded for skills training (i.e. more individuals may be swayed into consuming skills training if course fee is reduced).</li> </ul> </li> <li>• However, subsidy may not be the best form of government intervention to <b>deal with the market failure due to imperfect information</b>. <ul style="list-style-type: none"> <li>o Government should use <b>public education to create a mindset change</b> towards skills trainings, this would thus lead to one viewing skills trainings as essential at some point of one's career.</li> </ul> </li> <li>• In instances where there are <b>multiple sources of market failure</b>, government may be better off considering a <b>multi-pronged approach</b> by using both measures, subsidy as well as public education. By doing this, government can better achieve allocative efficiency in the market for skills training.</li> </ul>

### Marking scheme for Q 2b

<b>Knowledge, Application, Understanding and Analysis</b>		
<b>L3</b>	<ul style="list-style-type: none"> <li>• A thorough and detailed analysis of how subsidy and one other policy is used to correct the market failure.</li> <li>• The tools of analysis is clear, diagram is strongly encouraged (with complete labelling)</li> <li>• Minimal conceptual inaccuracies.</li> <li>• Examples provided are relevant and appropriate.</li> </ul>	8-10
<b>L2</b>	<ul style="list-style-type: none"> <li>• An incomplete analysis of how subsidy works to address market failure (capped marks)</li> <li>• OR incomplete analysis of subsidy and one other policy are used to correct the market failure.</li> <li>• The tools of analysis is somewhat clear but incomplete, diagrams are not effectively used in the answers.</li> <li>• Several conceptual inaccuracies.</li> <li>• Examples are relevant but may not be the most appropriate.</li> </ul>	5-7
<b>L1</b>	<ul style="list-style-type: none"> <li>• An answer that provides a mere listing of the measures to solve market failure but not in depth/ weak with significant errors on conceptual explanation.</li> </ul>	1-4



	<ul style="list-style-type: none"> <li>An answer that uses the inaccurate economics framework or wrong tools of analysis.</li> </ul>	
<b>Allow up to 5 additional marks for Evaluation</b>		
<b>E3</b>	<ul style="list-style-type: none"> <li>Provided reasoned judgment with justifications through the strengths &amp; limitations of the policies</li> <li>Assessment supported by sound economic analysis in discussing whether subsidy is the best form of government intervention by <u>comparing it with other</u> measures (summative statement).</li> </ul>	4-5
<b>E2</b>	<ul style="list-style-type: none"> <li>Some attempts at providing a reasoned judgement with justification, coherence in presenting the limitations of the policies</li> <li>Synthesis provided attempts to address the question but lacks some gaps in terms of coherence</li> </ul>	2-3
<b>E1</b>	<ul style="list-style-type: none"> <li>Simplistic evaluative statements that listed the limitations of policies</li> <li>Does not have a synthesis / overall conclusion</li> </ul>	1

