Sample Answers for Case Study 1

(a)	(i)	Describe the trend in the share of total paid car rides for business commuters in the US.	[1]
		*The **proportion** of market share for taxi rides is falling and for Uber rides is rising. [1m]*	
(b)		Using economic theory, explain how the "surge multiplier" can address "an excessive number of Uber car ride requests."	[4]
		*When too much demand for Uber car ride, there will be disequilibrium in the market where demand for Uber car rides will increase and a **shortage [1m] where quantity demanded exceeds quantity supplied** of Uber rides will be resulted at the initial price**.** This shortage will result to an **upward pressure on price** and this **increase in price will act as a signal [1m] for commuters to decrease their quantity demanded** for Uber rides. Uber car drivers, recognising the increase in price will also be more **incentivised to increase their quantity supplied [1m]** of Uber rides until the **new higher equilibrium is reached [1m]** where the equilibrium price and quantity for Uber rides increase to address the shortage.*	
(c)		"Taxi drivers are not happy with the impact Uber is having on their business as Uber is attacking on all fronts." Discuss how the combined effects of a decrease in price for Uber car rides and a fall in petrol price may affect taxi drivers' revenue.	[8]
		Change in demand *A decrease in price for Uber car rides means an increase in quantity demanded for Uber car rides. As mentioned in Extract 1, "Uber is essentially synonymous with taxis", which means that Uber car and taxi rides are close substitutes. The XED between Uber car and taxi rides will be highly positive especially during peak hours {not required of H1 students to mention XED}. This means that there will be a more than proportionate fall in demand for taxi rides from D_1 to D_2 in Figures 1 and 2 below. Assuming ceteris paribus, taxi drivers' revenue will fall.* *Change in supply* *With a fall in petrol price, as petrol is needed for driving taxis, cost of production will fall and taxi drivers will be motivated to increase the number of taxi rides since there is an opportunity to make more profits (which is total revenue minus total cost) there will be an increase in supply of taxi rides from S_1 to S_2 as shown in Figures 1 and 2. Assuming if the demand for taxi is relatively price elastic as there are alternative transportation means such as buses, trains and Uber cars, the increase in supply ceteris paribus, will cause a fall in price of taxi rides and the quantity demanded for taxi rides will increase more than proportionately. This would mean that the total revenue for taxi drivers may increase instead.* *Combined effect on total revenue (TR):* ***There will be negative impact on total revenue for taxi drivers** if the fall in demand is greater than the increase in supply, as shown in Figure 1. The demand curve for taxi rides will therefore shift left to a greater extent to D_2 than the increase in supply to S_2. The outcome in taxi rides market will be a*	

fall in equilibrium price to P_3 and a fall in equilibrium quantity to Q_3. Hence, the total revenue for taxi drivers will fall from $0P_1E_1Q_1$ to $0P_3E_3Q_3$.

There will be positive impact on total revenue for taxi drivers *if the fall in demand is smaller than the increase in supply, as shown in Figure 2. The demand curve for taxi rides will therefore shift left to a smaller extent to D_2 than the increase in supply to S_2. The outcome in taxi rides market will be a fall in equilibrium price to P_3 but a rise in equilibrium quantity to Q_3. Hence, the total revenue for taxi drivers will rise from $0P_1E_1Q_1$ to $0P_3E_3Q_3$*
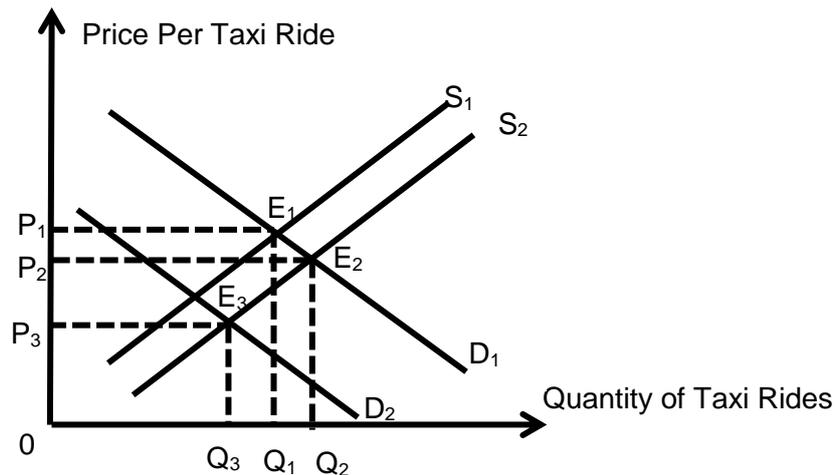
Figure 1: Market for Taxi Rides – Negative impact on TR
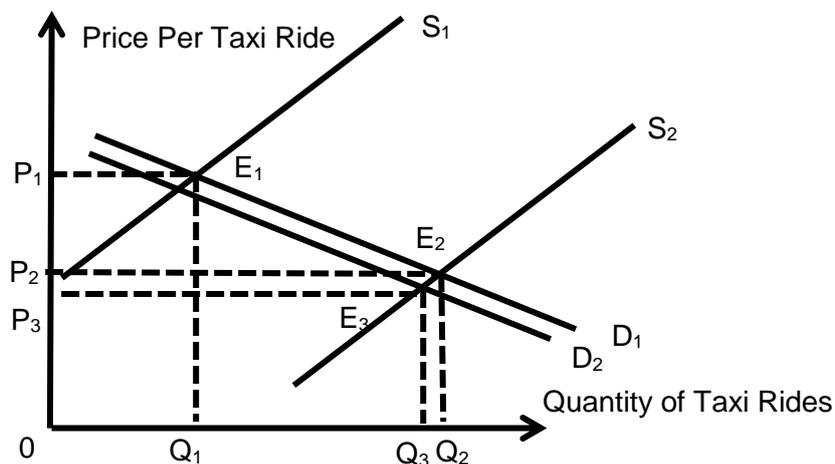
Figure 1: Market for Taxi Rides – Positive impact on TR

<u>*Evaluation*</u>

Make a stand on which impact is more likely:
More likely for a fall in tax revenue because:
- *Petrol price may not form the bulk of taxi driver's cost of providing the taxi service, as mentioned in Extract 2. There are other significant costs such as taxi rental and tax as mentioned in Extract 3 where taxis are*

charged tax, which go to the city and the Metropolitan Transport Authority (MTA). Hence, even with a fall in petrol price, the cost of driving a taxi may not have fallen significantly and will not justify a significant fall in supply.
- *The fall in demand for taxi rides may be greater as the fall in petrol price will also increase the supply of Uber car rides, thereby further lowering the price of Uber car rides and causing further switching away from Uber car rides to taxi rides.*

Other possible evaluative points:
- *On evaluation the taxi drivers' revenue may change depending on the substitutability between Uber and taxi rides. For instance, during non-peak hours, commuters might be indifferent between either travelling via Uber or taxi, and the XED value for Uber and taxi may be less positive, the demand for taxi rides may not fall as significantly even if the price for Uber rides fall. Hence, taxi drivers' revenue may not fall as significantly, ceteris paribus.*
- *In addition, as the above analysis encompasses the use of demand/supply and elasticities analysis, there is a need to bear in mind that ceteris paribus conditions may not hold in reality and the elasticities data may not accurately portray the degree of responsiveness of all commuters. With the complexities in the real world context, the impact on taxi drivers' revenue may also be affected by other changing economic conditions such as income of individual commuters (the use of YED (for H2 students) may then come into play) and government policies.*

Level Marks		
L3	Good use of demand, supply and various elasticity concepts to analyse the various <u>combined</u> impacts on taxi drivers' revenue.	5-6
L2	An underdeveloped attempt to use the demand and supply framework to explain the <u>combined</u> impacts on taxi drivers' revenue.	3-4
L1	Brief explanation of demand and supply factors and its implication with errors.	1-2
Evaluation Marks		
E2	Judgement with clear justification	2
E1	Judgement without justification	1

(d)	(i)	**With reference to Extract 2, distinguish the likely price elasticity of supply between taxi and Uber car rides.**	[2]
		Supply for taxis will be <u>relatively more</u> price inelastic <u>than that of Uber</u>. [1m]	
		This is due to <u>the PES determinant of mobility of factors of production</u> identified in Extract 2 where it's mentioned that in order for a person (the factor of production [labor] that provides the taxi rides service,) to become a taxi driver, he has to pass a test and pay rental fee. <u>As compared</u> to Uber rides, a person [labour] can easily become an Uber driver without having his	

		license check or the need to pass any test. [1m]	
	(ii)	**Extract 3 mentioned that tax was imposed on taxis and Uber car rides respectively.** **Using your answer for (d)(i) and appropriate diagrams, explain the difference in tax burden for drivers and commuters between taxi and Uber car rides.**	**[5]**
		The imposition of tax will cause the supply for taxi and Uber car rides to fall and the SS curve to shift to the left [1m] as shown on both Figure 3 and Figure 4 below for the Uber rides marker and taxi rides market respectively. Price Per Uber Car Ride Price Per Taxi Ride Figure 3: Tax Burden in Uber Car Rides Market Figure 4: Tax Burden in Taxi Rides Market **2 marks for diagram* *As the supply for Uber rides is more price elastic due to the ease of becoming Uber driver to provide the service, the supply curve for Uber market will be relatively gentler in slope as compared to that in the taxi rides market. Assuming that the demand for both Uber and taxi rides are relatively more price elastic with a gentler slope in both markets, consumer will bear a greater tax burden of $P_1E_2AP_2$ to that of the Uber driver' tax burden of $P_2AE_3P_3$ as shown on Figure 2 in the Uber car rides market. [1m] As compared, in the taxi rides market; due to the relatively more price inelastic supply curve that that of demand, the consumer will bear a lesser tax burden of $P_1E_2AP_1$ than the taxi drivers' tax burden of $P_2AE_3P_3$ as shown on Figure 3. [1m]*	
(e)	**(i)**	**Using Extract 4, explain the positive externality that may arise when commuting via Uber rides. [H1 only]**	**[2]**
		As mentioned from extract 4, when commuting via Uber rides, this will incentivise consumers to purchase lesser automobiles. Third parties such as pedestrians [1m] will face with external marginal benefit of lesser likelihood of vehicle accidents and a reduction in their medical bills [1m] for treatment.	

		OR *As consumers commute via Uber rides and buy fewer cars, this opens up the remarkable possibility of converting parking spaces to new and environmentally sound uses. The parking spaces could be converted into parks for third parties like non-Uber users [1m] to enjoy and these non-Uber users will enjoy an external marginal benefit of healthier living with lesser pollution and a reduction in their medical bills. [1m]*	
	(ii)	**In light of the issues raised in the extracts, discuss the desirability of Uber.**	H1:8 H2:10

Desirable – Greater Allocative Efficiency & Consumer Welfare
In extract 1, it was mentioned that surge multiplier helps to attract more drivers to drive during peak hours. The surge multiplier works according to the theory of price mechanism and uses price as a signal to allocate resources (drivers) efficiently to meet the needs for paid car rides in the market. This may address the shortage of drivers in the short run and provides more alternatives for consumers at the market price. This raises consumer welfare and their material standard of living as there is now increase in more services available at a lower price for consumption.

Desirable – Lesser Externalities from Congestion Problem in NYC & creation of jobs
Extract 4 mentioned that if the commuters who substituted to using Uber are consumers who are previously using their private car for commuting, then this will reduce the congestion problem faced by NYC. The EMC such as higher medical bills from road accidents from negative externalities caused by over usage of road can be effectively reduced. The deadweight loss to society will be reduced as the society will be better off with introduction of Uber.

In addition, the launch of Uber app also allows more existing car owners to be employed as Uber drivers as mentioned in extract 4. With rising population in NYC, this may mean that there will be more demand for travelling via paid car rides and will lead to a rise in derived demand for more Uber drivers. In addition, with more people employed, the purchasing power of consumers will be increase and consumption will increase leading to increasing in aggregate demand. This will lead to unplanned inventory depletion and assuming US is operating with spare capacity in its economy, there will be a rise in actual growth and fall in demand-deficient unemployment in the economy. Extract 4 also mentioned that Uber brings about greater productivity and efficient use of capital in the economy, this may lead to increase in both short run and long run aggregate supply of the economy and hence even greater actual and potential growth for US.

Not desirable (For H2) - Market Dominance by Uber and reduction in consumer welfare
There is however, likelihood that the Uber company may act like a monopoly in future as extract 4 mentioned that Uber has the market power to compete unfairly via its use of app and surge multiplier that is not regulated by the government. Uber may end up dominating the paid car rides sector and charge a higher price of P>MC when it has gained a huge enough market share as supported by the rising proportion of its share in the market on Figure 5. If this were to happen, there will be allocative*

inefficiency in the market and deadweight loss of shaded area EBA. Consumers will then have to suffer a fall in their consumer welfare due to the higher price charged as shown on the diagram below. If the barriers to entry remains high in the future with Uber getting patent for its car-booking technology yet continue to keep their average cost minimal, they may be able to earn a supernormal profits of area $CP^*E^*E_0$ at the expense of the riders, hence, worsening the equity issues in US.
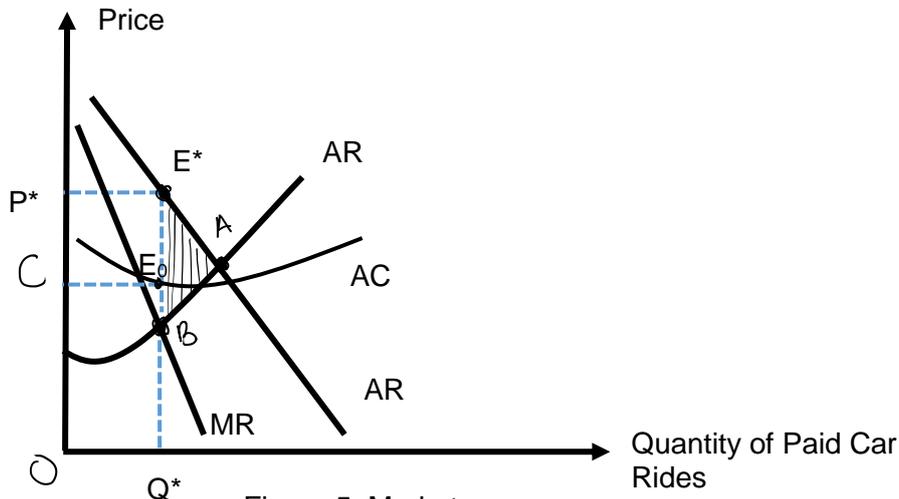

Figure 5: Market Dominance by Uber

Not desirable (For H2) – Lower Dynamic Efficiency and Lesser Innovation on Paid Car Rides Services
In extract 2 it was also mentioned that taxi drivers suffer a fall in revenue due to entrance of Uber. Coupled with the higher cost of providing taxi services as mentioned in the extract 2 where taxi drivers needed to incur cost of rental which may increase its average cost. And this may reduce the profits that the taxi drivers earn and will limit the ability of the taxi company to earn supernormal profits. The taxi company will be unlikely to product innovate and there will be no dynamic efficiency in the market and there will be lesser variability in terms of paid car rides services for consumers, hence reducing consumers' overall welfare. Consumers may also suffer if the taxi company decided to charge a higher price to consumers in order to prevent a further fall in TR especially if demand for taxi is price inelastic during peak hours.

Not desirable – Greater Allocative Inefficiency in Mass Transit Sector
In extract 3, it was also mentioned that Uber has caused a fall in taxi drivers' revenue as commuters substitute to commuting via Uber rides. This will mean that there will be lesser tax collected by government from the taxi drivers and lesser funds available for the public transport and infrastructures and may result to allocative inefficiency in the mass transit sector (under-production of mass transit and infrastructure services). Consumers' welfare may be compromised and less subsidy for mass transit may translate to higher price of mass transit and will lead to higher price for consumers, lowering their consumer welfare.

Evaluation
On evaluation, the existence of Uber is largely desirable as market dominance by Uber is unlikely. As cited in extract 4, the technology that

Uber is using is not exclusive and can be easily replicated. This suggests that the paid car rides industry is highly contestable and with a relatively low barriers to entry. This will motivate more competition in the future to drive down the price of goods and services with consumers benefitting most in terms of greater variety. Society will also benefit as Uber brings about increasing rides that will lead to more sales tax collected by the government that can help improve the mass transit infrastructure in US. With more quality transit infrastructure, the non-material SOL of consumers can be further enhanced. The introduction of Uber can remain desirable as long as government regulate through stringent checks on licensing to Uber drivers. Such regulations may help address/minimise the negative externalities by ensuring that sufficient Uber drivers are providing paid car rides services by complying with safety protocols on the roads, yet not adding to the congestion problem in NYC.

Mark Scheme for H1

Level Marks		
L3	*Clear discussion of desirability in terms of consumers, producers and society/government's perspectives with good reference to case evidence.*	*5-6*
L2	*Some two sided perspectives of desirability with some brief references to extracts.*	*3-4*
L1	*Brief mentioning of desirability without clear explanation or linking to context. Answer is largely one-sided with errors.*	*1-2*
Evaluation Marks		
E2	*Judgement with clear justification*	*2*
E1	*Judgement without justification*	*1*

Mark Scheme for H2

Level Marks		
L3	*Clear discussion of desirability in terms of consumers, producers and society/government's perspectives with good reference to case evidence.*	*6-8*
L2	*Some two sided perspectives of desirability with some brief references to extracts.*	*4-5*
L1	*Brief mentioning of desirability without clear explanation or linking to context. Answer is largely one-sided with errors.*	*1-3*
Evaluation Marks		
E2	*Judgement with clear justification*	*2*
E1	*Judgement without justification*	*1*

Sample Answers for Case Study 2

a (i)	**Describe the trend in merchandise trade as a percentage of world GDP from 2000 to 2014.**	[1]
	The merchandise trade as a percentage of world GDP generally increased. (1m)	
(ii)	**Using economic theory, account for the trend identified in (a)(i). (only for H1)**	[2]
	*There is an **increasing awareness** of the benefits of specialising based on **comparative advantage.** (1m) The theory of comparative advantage states that even if one country has absolute advantage in production of two goods, specialisation and trade will still benefit both countries as long as each has a comparative cost advantage, i.e. incur lower opportunity cost in producing one good. (1m) Increasing awareness of the benefits of specialising based on comparative advantage thus accounts for the increasing trade activity.*	
b	**Using the concept of opportunity cost, explain one effect on firms and one effect on the government in the home country arising from dumping by a foreign country.**	[6]
	Effect on firms in the home country: *Consumers in the home country turn to the cheaper goods dumped by the foreign country. As demand for the goods by the foreign firm is price elastic, the lower price charged will result in a more than proportionate increase in quantity demanded for foreign goods, increasing expenditure on these goods. Demand for domestically-produced goods will fall, lowering total revenue received by firms in the home country. (1m) The opportunity cost of continuing operation is forgone revenue from selling alternative goods that require similar inputs to production. (2m) **OR** the opportunity cost of shutting down operation is totally forgoing the revenue generated from selling the good and the brand image that the firms may have built up. (2m)* *Effect on government in the home country:* *As consumers spend less on domestically-produced goods, AD falls and hence real national income falls. The government will therefore receive lower tax revenue. (1m) The opportunity cost of cutting spending on infrastructure due to the lower revenue is forgoing higher rate of growth from better connectivity. (2m) **OR** the opportunity cost of imposing tariffs on the foreign goods is forgoing good trade relations between the countries. (2m)*	
c (i)	**What evidence suggests that the world is heading towards deglobalisation?**	[1]
	From 2011 onwards, there is a consistent decline in merchandise trade as a percentage of GDP. (1m)	
c (ii)	**With the aid of a diagram, explain why in 2015 there was deflation despite an improvement in the trade balance as shown in Table 1.**	[4]
	An improvement in the trade balance, which means an increase in X-M, will result in an increase in AD, as illustrated by a rightward shift in AD curve from AD to AD' as shown in the diagram below. This is expected to result in an increase in GPL from P to Pt. (1m) *However, Extract 6 implied that Singapore has been embracing globalisation and technology, and firms and workers are encouraged to improve and upskill themselves. With better productivity due to advancement of technology and better quality of labour, the country's productive capacity increases as illustrated by the shift of LRAS from AS to AS'. The deflation observed must have occurred due to the increase in LRAS outweighing the increase in AD, causing the GPL to fall from P to P'. (2m) Hence the observed deflation from P to P' occurs.* *(1m for dig.)*	
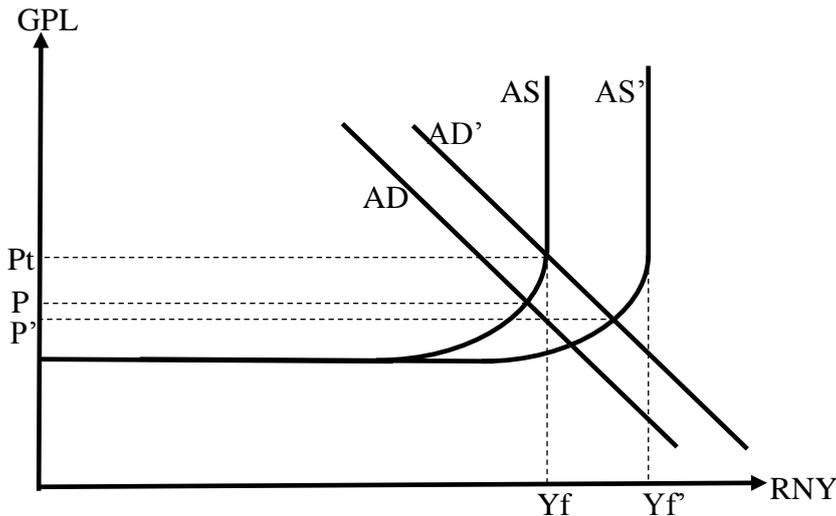
d.	**Discuss how the change in exchange rate in Table 1 and measures undertaken in Extract 6 might impact Singapore's export competitiveness.**	**[8]**
	Table 1 showed that Singapore dollar depreciated against US dollar. As the demand for Singapore's exports is likely to be price elastic given the availability of substitutes in the global market, reduction in foreign price of exports due to the depreciation will result in a more than proportionate increase in the quantity demanded of exports, increasing Singapore's export revenue as our price competitiveness improve. However, given that Singapore has limited resources, demand for imported inputs is price inelastic. As depreciation will result in an increase in domestic price of imported inputs, the increase in price will result in a less than proportionate fall in quantity demanded of inputs. This results in an increase in expenditure on imported inputs, increasing cost of production. This will result in a fall in SRAS and hence a rise in GPL. Assuming Singapore's inflation rate is higher than other countries', Singapore will lose export price competitiveness. **EV:** Overall, the depreciation is likely to cause an improvement in Singapore's export price competitiveness. Cost of production may have risen due to increase in price of imported inputs. However, the firms' total cost of production does not only comprise cost of imported inputs – there are rental and cost of labour as well. Hence the increase in cost of production is unlikely to totally offset the reduction in foreign price of exports due to the depreciation. The increase in cost of production will **reduce the extent of fall in the foreign price of exports** due to the depreciation, hence still maintaining export price competitiveness. Examples of the supply-side policies mentioned in Extract 6 are 'creating the basic conditions for the markets to operate properly' and the model of tripartite partnership between unions, employers and the government. Creating basic conditions for the markets to work properly such as protection of property rights and granting of patents to R&D outcomes encourage investment. As firms are more willing to carry out investment spending, better capital equipment in the long run will reduce cost per unit of output, improving price competitiveness of exports. The same granting of patents could also encourage R&D in product innovation, improving non-price competitiveness. However, these measures may only impact Singapore's export competitiveness in the	

long run. In addition, the stated measures alone may not suffice in encouraging positive outcomes on R&D. **EV:** Other measures such as deliberate efforts to improve the quality of human capital may enhance the success of the R&D efforts.

The model of tripartite partnership between unions, employers and the government ensures that the rate of wage increase is in line with the rate of productivity improvements, hence helping to maintain competitive wages and cost and eventually, competitive prices of goods and services.

However, despite our tripartite arrangement, as stated in Extract 6, Singapore continues to face competition from both developing and developed countries. It stated that starting salaries for graduates in Japan are lower than in Singapore, making us lose price competitiveness to an extent, as our wage cost is still higher. In addition, Singapore is facing a tight labour market, making it difficult to prevent wage increases as we move towards the full employment level. Hence there is a limited extent to which such tripartite arrangement can continue to contribute to Singapore's export competitiveness.

EV: Overall, though it has been argued earlier that depreciation may help improve Singapore's export competitiveness, particularly for the service sector, it is not a long-term measure. The supply-side policies raised may have a longer-lasting positive outcome on Singapore's export competitiveness in the long run. That being said, a range of supply-side policies should be adopted and modified to continually address the main challenges facing Singapore so as to better maintain Singapore's competitiveness in the long run.

Knowledge, Application, Understanding and Analysis		
L3	For an answer with well-balanced approach and accurate economic analysis.	5-6m
L2	For an answer that is balanced but limited/underdeveloped in explanation.	3-4m
L1	Very superficial analysis. Mere listing of points. Inaccurate knowledge of concepts. Or one-sided answer.	1–2m
Allow up to 2 additional marks for Evaluation		
	Evaluative comments with justification.	2m
	Evaluative comments, unexplained.	1m

e.	**With reference to the data, do you agree that "economic decisions cannot be left to the market"?**	[10]
	Thesis: Certain economic decisions cannot be left to the market.	

As stated in Extract 7, gases and particulates that Chinese factories pumped out in their production of export goods affected the health and well-being of many people in many countries who are not involved in the production process in China. These are the external costs that are not taken into consideration by those who undertake the economic activity. The producers in China only consider their private cost and private benefit such as the cost of raw material and expected profits from the sale of the good respectively. If left to the free market, the level of production will be at Qe, where PMB equates PMC, as shown in the diagram below. As the producers do not take into account the external cost inflicted to third parties as a result of their production, there is a divergence between social marginal cost and private marginal cost. At Qe, SMC is greater than SMB, indicating that society values an additional unit of the good produced less than what it costs society to produce it. The socially optimum level of production is at Qs where SMB equates SMC. There is therefore a situation of over-production and this caused deadweight loss shown by the shaded area below. Hence there is a need for the government to intervene and regulate the industry.
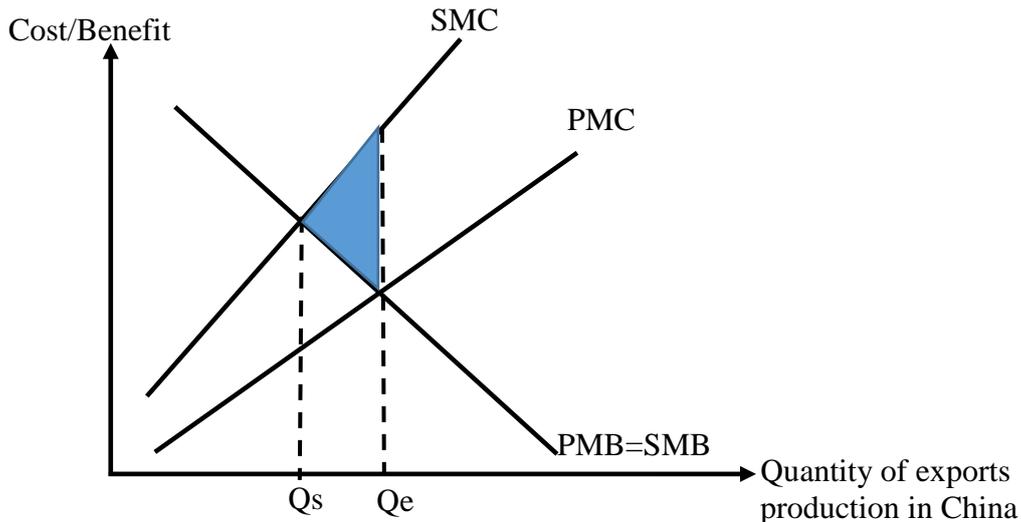
Extract 6 also stated that globalisation and technological advances are disrupting industries and displacing workers. In light of globalisation, as another country acquire comparative advantage in the good that we're producing, Singapore will lose price competitiveness and our workers will be retrenched. Technological advances means that better capital equipment can now replace manual labour and employers may be willing to purchase those capital equipment as it can generate higher output per unit of time with less human error and also because of the rising labour costs in the country. If left to the free market, workers are who are displaced from their jobs will face structural unemployment due to occupational immobility. There is allocative inefficiency as the unemployed resource are not utilised to generate output. This situation may not self-correct itself in the free market due to imperfect knowledge of the areas of expansion in the economy or due to lack of financial ability to go for retraining. The government, having an overall view of the areas of expansion in the economy will need to step in to encourage retraining of workers in the relevant industries by lowering the cost of such retraining.

Optional: Students can also talk about income inequality as a source of market failure.

Anti-thesis: Other than intervening to address market failure, economic decisions should largely be left to the market.

Imposing quotas and tariffs to protect the local economy (Extract 5), for example will result in complacency as firms rely on the government to lower its cost and face no competitive pressure to be productively efficient. In contrast, as supported in Extract 6, with free markets, due to high degree of competition, efficiency can be attained as economic agents are under pressure to perform, and both businesses and workers have the incentives to improve. Due to the competition, firms face pressure to adopt the least-cost technique of production. This is productively efficient. As the same time, some firms may be willing to undergo R&D to improve quality of products. This will achieve dynamic efficiency.

The government may also have imperfect information in making economic decisions, possibly leading to government failure. In Extract 8, though it was stated that government funded or instigated initiatives have resulted in the emergence of successful, job-creating new industries, this approach is increasingly questioned and subjected to various cost-benefit analysis issues. As stated in Extract 8, it is difficult to determine the criteria that define sectors of high potential, difficult to identify the method to help those sectors grow, difficult to decide on the outcomes that need to be

seen to justify government funding and to hold someone accountable. All these difficulties mean that it is highly possible that a lot of government funding may be allocated to certain sectors (than is necessary) and that these sectors may not generate a high enough returns to justify the use of government revenue. And this inevitably means that the country would incur a high opportunity cost of the use of such funds, crippling the country's ability to improve other aspects of living such as spending on healthcare and education.

In addition, as stated in Extract 8, too much of government focus on short-term innovation may damage long-term ability to innovate and grow. This could possibly be due to high amount of government revenue required to fund such industries, as analysed earlier. This could 'damage long-term ability to innovate' due to either of the following reasons: the government's ability to maintain such government-driven approach is limited in the long run due to rapid use of government budget and lack of returns on funding or the fact that too much government-driven projects make it hard for innovation to come from the private sector as there isn't much support for free market innovations through appropriate grants or incentives.

Conclusion: Though there is certainly a case for government intervention in the free market especially when it comes to addressing market failure and attaining macroeconomic objectives especially in periods of poor economic outlook or in situations of unfair competition like dumping, there is a limit to which the government should intervene under other circumstances as it may still be subjected to government failure due to imperfect information. In addition, as stated in Extract 6, governments cannot generate wealth by themselves and need to use the power of free markets to their advantage. This means that certain economic decisions should still be left to the free market. Nevertheless, even so, **the government's role of creating "the basic conditions for the markets to operate properly" (Extract 6) stays.**

For H2

Knowledge, Application, Understanding and Analysis	
L3	For an answer with well-balanced approach. There is good reference to case material, backed with adequate economic analysis.	7-8m
L2	For an answer that is balanced but limited/underdeveloped in explanation. There is some reference to case material.	4-6m
L1	Very superficial analysis. Mere listing of points. Inaccurate knowledge of concepts. Or one-sided answer.	1–3m
Allow up to 2 additional marks for Evaluation	
E2	Evaluative comments with justification.	2m
E1	Evaluative comments, unexplained.	1m

For H1

Knowledge, Application, Understanding and Analysis	
L3	For an answer with well-balanced approach. There is good reference to case material, backed with adequate economic analysis.	5-6m
L2	For an answer that is balanced but limited/underdeveloped in explanation. There is some reference to case material.	3-4m
L1	Very superficial analysis. Mere listing of points. Inaccurate knowledge of concepts. Or one-sided answer.	1–2m
Allow up to 2 additional marks for Evaluation	
E2	Evaluative comments with justification.	2m
E1	Evaluative comments, unexplained.	1m

Essay Q3

2.   **Street lighting and the early morning rides on the Mass Rapid Transit (MRT) into the city area are provided free by the government in Singapore.**

(a)   **Explain the economic case for the free provision in each of the above markets.**
                                                                                    [10]

(b)   **Discuss the limitations of providing MRT rides for free to achieve an efficient allocation of resources.**   **[15]**

(a) Introduction
A government may provide a good or service without charge because it improves resource allocation in the market.

Street lighting
- Street lighting is a public good with the two properties of non-rivalry in consumption and non-excludability.
- Property of non-rivalry in consumption: Additional users of street lighting do not diminish the benefit to other users. This also implies that the total cost of lighting remains the same whether one or more users use the light ie the marginal cost (MC) to society of an additional user is zero.
- Property of non-excludability in consumption: street lights shine for all. It is impractical to allocate lighting only to people who pay for it. The cost of implementing such an arrangement if at all possible, will be too costly to be feasible.
Implications
- There is no market for street lighting. Due to non-excludable nature, everyone will wait for someone to pay for street lighting (free-rider problem). Thus there is no effective demand to spur firms to supply street lighting.
- Since the MC of lighting to an additional user is zero, the efficient price is zero. Reason: Even if a price could be imposed upon users, it would deter some from using street lighting that does not impose any further cost to society. A potential gain in consumer welfare is not realised: society is not maximising its welfare if a price is charged because consumption is inefficiently restricted.
- Hence, for the above reasons, there is an economic case for government to provide street lighting free.

Early morning rides
- Commuters taking early morning train rides generate positive externalities beside private benefits (more comfortable ride due to less crowding and higher chance to find a seat)
- Positive externalities: early commuters generate sales for shops (3rd party) located near work places as they are likely to have breakfasts before reporting for work or do some shopping.
Implications
- A subsidy equal to EMB to increase consumption to Qs where MSB=MSC will improve allocative efficiency.
- If EMB equal to *ab* as in figure 1, then a subsidy equal to ab will shift PMC curve to PMC=SMC with subsidy, and the efficient price will be zero and Qs where SMB=SMC will be consumed. This is the economic case for zero pricing for early MRT rides.
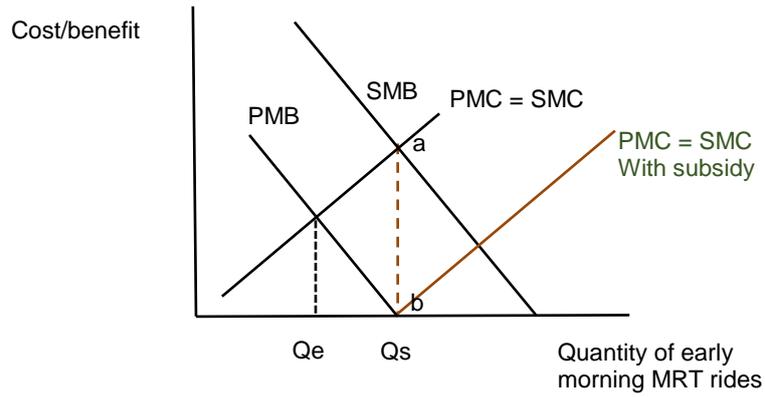
Figure 1

Knowledge, Application, Understanding and Analysis		
L3	Both the cases for street lightings and free MRT rides are well-explained and justified. Diagram for zero pricing of early MRT rides	7 – 10m
L2	Both the cases for street lightings and free MRT rides are explained and justified. No diagram for zero pricing of early MRT rides	5 – 6m
L1	For an answer that contains conceptual errors and some irrelevant points.	1 – 4m

(b) Discuss the limitations of providing MRT rides for free to achieve an efficient allocation of resources. [15]

Introduction

- There are some limitations of providing MRT rides for free to achieve an efficient allocation of resources.

- (i) Due to imperfect knowledge on the part of government the positive externality could be significantly over-estimated (*estimated ab versus actual bc*). Reason: Hard to assess divergence between PMB and SMB due to changing demand condition in the rail transport market eg external benefit of ac difficult to assess due to uncertainty over the extent commuters will shop/have breakfast. A subsidy of ac causes over-consumption by Q1-Qs resulting in a deadweight loss (area abd) greater than the deadweight loss at Qe without subsidy which is the area edf. In this case, there is no improvement in the allocation of resources.
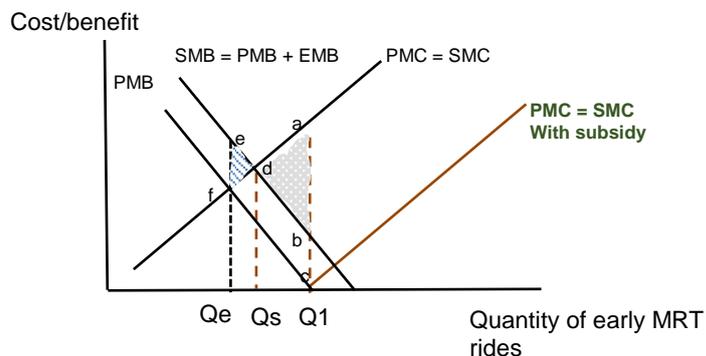

Figure 2

- (ii) The subsidy uses tax revenue that could be used for spending in other areas (eg healthcare). The opportunity cost of forgone healthcare services could be greater than the benefits of removal of the deadweight loss caused by the externality of early morning rides. This results in loss of allocative inefficiency.

- (iii) The government may be compelled to raise taxes (eg GST) to finance the subsidy but then this cause supply curves to shift left in other markets and create deadweight losses. Thus create inefficient outcomes in other markets. And moreover, it conflicts with the goal of equity if the poor are disadvantaged by the relatively higher tax burden on them.

- (iv) Even if the government early morning free-ride scheme works to improve efficiency of use of train services, it does not however incentivise the rail transport providers to provide better/improved services (eg increase supply of carriages) or to innovate to reduce congestion during peak hours.

Conclusion

- Free MRT rides for early morning travel may or may not achieve an efficient allocation of resources in the market for rail transport. It depends on ability of the government to assess benefits and costs reliably. Moreover, achieving allocative efficiency may conflict with the goal of equity if taxes have to be raised to sustain the fiscal burden. However, this is not necessarily inevitable: if the economy continues to grow, higher tax revenue collection can fund the train subsidy without a trade-off (ie without sacrificing other areas of government spending).

- To avoid paying for the scheme and the distortionary effects of the taxes, perhaps the government should extract a larger portion of the rail transport providers' profit as tax as a means to fund the free early morning ride scheme or specify (regulate) that the firms set aside a certain portion of their profits aside to fund the free-ride scheme.
- A sustainable solution might be for the government to encourage more firms in the city area to begin work earlier than the usual starting 9am time period. This will help increase the efficient use of train services as the passenger load is spread out over a longer duration of time period.

Knowledge, Application, Understanding and Analysis		
L3	Discussion of the free early ride scheme covers at least 3 points of limitations (scope) and well-explained (depth). Accompanying diagram is well-labelled and referred to as part of an analytical answer.	9 – 11m
L2	Discussion of 2 points of limitations is adequately made and analysis applied mostly in a relevant way. Diagram may be missing.	6 – 8m
L1	A limitation identified with some explanation hampered by incorrect content knowledge. Wrong QA.	1 – 5m
Allow up to 4 additional marks for Evaluation		
E2	Judgment is based on economic analysis and adequately substantiated	3 – 4m
E1	For an unexplained assessment, or one that is not supported by economic analysis.	1 – 2m

Essay Q4

4. A successful economy has been traditionally characterised by sustained positive growth rates, low inflation rates, low unemployment rates and a healthy balance of payments.

   (a) Explain the domestic and external causes of a high rate of inflation for an economy. [10]

   (b) Discuss whether the above traditional measures of success are sufficient for an economy today. [15]

(a)

Possible domestic causes
- Demand-pull inflation (diagram)
  - Rapidly rising domestic income
    - E.g., China and its high growth
    - Significant rise in C as a result of higher income + consumer optimism → coupled with rise in I in response to + in anticipation of high C
    - If economy is near or at full-employment → significant upward pressure on prices of scarce resources → higher prices of g/s → increase GPL significantly
- Cost-push inflation (diagram)
  - Implementation of / A significant rise in GST
    - E.g., Malaysia implement GST across many g/s in 2015
    - Increases all firm's production costs → passed on in the form of higher prices of g/s → increase GPL significantly
  - Domestic government policies
    - E.g., Singapore tightened foreign worker policies in recent years
    - Increase in foreign worker levies + reduction in Dependency Ratio Ceiling (DRC) → higher cost of labour → higher COP → Singapore's falling birth rate and increasing reliance on foreign workers → significant impact expected for increase in COP → passed on in the form of higher prices of g/s → increase GPL significantly
    - Heightened restrictions in entry requirement for foreigners → fall in SS of workers in Singapore → drive up wages → higher COP → passed on in the form of higher prices of g/s → increase GPL significantly

Possible external causes
- Demand-pull inflation (diagram)
  - Global economic recovery
    - E.g., Post-Global Financial Crisis of 2008/09
    - Economies around the world start to pick up in their economic growth → rising incomes around the world → rising X of countries such as Singapore → small and open economy → significantly drives up AD → assuming near or at full-employment → increase GPL significantly
  - Rapidly rising income of other countries
    - E.g., emerging economies like China and India
    - Significant rise in M as a result of higher income + consumer optimism → significant rise in X for countries exporting to such economies → significantly drives up AD → assuming near or at full-employment → increase GPL significantly

- Cost-push inflation (diagram)
  - Increase in oil prices
    - E.g., sky-high oil prices in 2008
    - High price of oil → fuel for power generation + fuel for most transportation + factor of production for many g/s → rise in COP of most g/s → increase GPL significant (imported inflation) for countries which are net oil-importers (e.g., Singapore)
  - Similarly, rises in other commodity prices

Other acceptable answer includes:
-An increase in FDI (external cause) leading to investment in capital goods may bring about an increase in AD assuming economy operating at full employment level.

Knowledge, Application, Understanding, Analysis		
L3	A well-developed explanation of at least 3 causes, which encompasses both domestic and external causes. There is also consideration of both demand-pull and cost-push inflation. Diagrammatic analysis and concrete examples are also used. There is clear attempt to explain why "high".	7-10
L2	An underdeveloped consideration of at least 2 causes, with at least one domestic cause and one external cause. There might be inconsistent/incomplete attempts to use diagrammatic analysis and/or concrete examples.	5-6
L1	A weak explanation overall. May be lacking in scope and depth. Multiple errors may be present. May have rehearsed answers to the question as a "demand-pull" vs "cost-push" question for this question. No use of diagrams and examples.	1-4

(b)

Introduction
- "Traditional measures of success" → growth rates, inflation rates, unemployment rates and balance of payments
- However, today more measures of success are needed, e.g., measurements of income distribution (e.g., Gini coefficient) and non-material SOL (e.g., pollution level, literacy rates, life expectancy, etc)

Thesis: Traditional measures of success continue to be useful.

- Measure of economic growth
    - Definition of economic growth (actual and potential)
    - How is it measured?
        - Typically measured using GDP
            - Define GDP (per capita)
        - Typical target: sustained + positive
    - Why is measuring economic growth important?
        - Related to SOL
            - "Positive" → indicates increase in amount of g/s produced for an economy → more g/s available for consumption → improve mSOL
            - "Positive" → also means rising household incomes → greater purchasing power to satisfy material needs → improve mSOL
            - "Sustained" → actual and potential growth in tandem → continued consumption levels over time
            - May have some impact on nmSOL too → if greater tax revenue collected and channelled towards sectors like education and healthcare
        - Positive impact on other macroeconomic indicators
            - Reduces demand-deficient unemployment with actual growth
            - Reduces demand-pull inflation with potential growth
    - Therefore, measuring economic growth continues to be useful

- Measure of unemployment
    - Definition of unemployment
    - How is it measured?
        - Typically measured using unemployment rate
            - Define labour force: available for and actively searching for work
            - Define unemployment rate
        - Typical target: low
    - Why is measuring unemployment important?
        - Related to SOL
            - "Low" → minimise wastage of human resources → production as close to the PPC as possible → maximise production of g/s in an economy → ensures mSOL not compromised
            - "Low" → reduce government payment of unemployment benefits + allow more tax collection → reduce strain on scarce government resources + channel towards sectors (e.g., education, healthcare) that may yield positive outcomes on nmSOL
        - Positive impact on other macroeconomic indicators
            - High unemployment rates often related to social unrest → "low" will help maintain social stability → may be attractive to foreign investors → positive impact on growth (through FDI, I and AD)
    - Therefore, measuring unemployment continues to be useful

- Measure of inflation
    - Definition of inflation
    - How is it measured?
        - Typically measured using inflation rate
            - First CPI, then changes in CPI over time
        - Typical target: low
    - Why is measuring inflation important?
        - Related to SOL
            - "Low" → income more likely to rise faster than price levels → increase in real GDP (per capita) → value of money is maintained → able to enjoy more g/s
        - Positive impact on other macroeconomic indicators
            - "Low" → reduces uncertainty in decision making → firms can make investment plans more accurately → investor confidence → further stimulate growth (through FDI, I, AD) and unemployment
    - Therefore, measuring inflation continues to be useful

- Measure of BOP
    - Definition of BOP
    - How is it measured?
        - Typically measured using BOP
        - Typical target: healthy (i.e., not large and persistent BOP deficit)
    - Why is measuring BOP important?
        - "Healthy" → indication of external stability (long-term goal) + avoid the problems of large and persistent BOP deficit (example)
        - Positive impact on other macroeconomic indicators
            - Improves investor confidence → further stimulate growth (through FDI, I, AD) and unemployment
    - Therefore, measuring BOP continues to be useful

Antithesis: Not enough to rely on traditional measures; other supplementary measures are needed

- Measure of income distribution
    - Definition of income inequity
    - How is it measured?
        - Gini coefficient (briefly describe what it is)
        - Should aim for: low value
    - Why is measuring income distribution important today?
        - *Why traditional measures of success may be too narrow*: success of an economy may not mean an even distribution of benefits across individuals in the country → income growth concentrated in the hands of a minority
        - *Why important today*: globalisation → increased trade, capital and labour flows → further aggravates the income gap (e.g., between workers in sunrise/sunset industries, between low-skilled and high-skilled workers)
        - Price mechanism allocates g/s to those who are willing and able to pay → resources will inevitably be channelled to production of g/s demanded by the rich while the poor may be unable to meet even basic needs
        - Extreme income inequity can lead tensions in society between the haves and the have-nots → social stability and impact on FDI
    - Therefore, measuring income distribution should supplement traditional measures of success

- Measure of extent of negative externalities generated
  - Definition of negative externalities
  - How is it measured?
    - Depends on what the negative externalities are, e.g., level of pollution
    - Should aim for: low value
  - Why is measuring extent of negative externalities generated important today?
    - ***Why traditional measures of success may be too narrow***: success of an economy can come at the expense of environmental well-being, e.g., resource-depletion, pollution
    - ***Why important today***: increasingly materialistic society → rising demand for ever more g/s (globally) → translates into ever-rising demand for non-renewable resources + massive rise in production of g/s which may produce negative externalities
    - Increasing global economic activity is placing heavy stresses on the Earth's natural systems → rapidly rising carbon emissions + global warming at alarming levels + depletion of natural resources → negatively impacting nmSOL
  - Therefore, measuring extent of negative externalities generation should supplement traditional measures of success

- Measure of extent of healthcare provisions
  - How is it measured?
    - Life expectancy; infant mortality rates
    - Should aim for: high; low
  - Why is measuring extent of healthcare provisions important today?
    - ***Why traditional measures of success may be too narrow***: traditional measures tend to focus more on mSOL and emphasise less on nmSOL
    - ***Why important today***: people living longer due to rising global incomes and access to better nutrition → people are living longer lives → quality of life can only be enjoyed with a long, healthy life → quality of healthcare matters now more than before
    - Poor healthcare provision may result in chronic illness and spread of diseases → need to measure standard of healthcare available to individuals in an economy to get a full picture of SOL
    - Healthcare is also a fundamental driver of economic growth → high level of productivity + attractive to FDI → increase both AD and AS → further augment mSOL
  - Therefore, measuring extent of healthcare provisions should supplement traditional measures of success

- Other possible measures:
  - Access to education (literacy rates)
  - Composition of GDP (for example, defence expenditure as percentage of GDP)
  - Level of crime and social unrest
  - Level of political stability and democracy/freedom
  - Amount of leisure hours
    → must use the same stems of elaboration

Conclusion/Evaluation
- Make a stand: traditional measures of success continue to be relevant, but one should also consider supplementing them with other measures for a more holistic picture of a country's development

- Justify: traditional measures tend to be rather narrow in scope and tend to neglect income distribution and aspects of nmSOL, the latter two of which are gaining traction in the form of "inclusive growth" and "sustainable development"
- Extension
  - Weigh importance of measures
    - Developing countries may still continue to place more emphasis on traditional measures, since they tend to be still struggling to keep these stable and favourable in the longer term
    - Developed countries, having achieved long-term stability in traditional measures, may turn their focus away from "growth at all cost" towards a more socially-responsible trajectory of development
  - Recommendation
    - Composite measures that aim to marry both traditional and updated measures of success may be more appropriate, e.g., HDI aims to capture both mSOL (through PPP-adjusted real GNI per capita) and nmSOL (proxied by life expectancy at birth, mean of years of schooling for adults and expected years of schooling for children), though it is limited by a lack of measure of income distribution

Knowledge, Application, Understanding, Analysis		
L3	A well-developed and balanced discussion. Consideration of at least 3 traditional measures and at least 3 other measures of success for the top marks in this range. Explicit mention on what the specific "measures" of success might be. There should also be clear explanations of why the traditional measures may be inadequate, and why alternative/ supplementary/complementary measures may be needed underlined today.	9-11
L2	An underdeveloped but balanced explanation which seeks to explain why the various measures of success may be valid. There is attempt to explain what to measure, how to measure (must link to macroeconomic indicators) and why the need to measure (can be linked to macroeconomic goals).	6-8
L1	A cursory explanation overall. Multiple conceptual errors may be present. One-sided.	1-5
Allow up to 2 additional marks for Evaluation		
E2	Explained assessment based on economic analysis	3-4
E1	Unexplained assessment not supported by analysis	1-2