



Case Study 3 – 2015 C2 H2 Economics Time Assignment (TA) 2

Into the New Public Transportation Era

Extract 1: Higher Profits for SBS Transit

Local bus and train operator SBS Transit posted that the core bus operation continued to suffer losses amounting to S\$13.5 million in 2014 due to higher financing cost arising from increasing staff cost and the continued renewal and expansion of the bus fleet. SBS said its bus operation's reduced losses was helped by increases in average daily ridership.

SBS Transit, however, was glad that better rental from retail space, higher advertising sales and a full year of Downtown Line non-core operations had helped the company to still report an overall net profits of \$14.4million.

Source: Adapted from Channel News Asia 10 Feb 2015

Table 1: Bus Fare Structures in 2014

Distance	Fare Per Ride (cents)		
	Adult	Students	Senior Citizen
Up to 3.2km	77	38	56
3.3km - 4.2km	87	43	64
4.3km – 5.2km	98	48	71

Source: Land Transport Authority Website

Extract 2: Transition for Singapore Bus Industry

Transportation, communication, sewage, water and electric systems are all a part of infrastructure. These systems tend to be high-cost investments. In general, infrastructure is location-specific and cannot be moved from place to place. Transport infrastructure development, not only serves as a main form of transporting people from one place to another, but is also crucial for economic growth as it helps to boost productivity and reduce congestion too.

Under the current privatized industry model, the Public Transport Council (PTC) is tasked with the twin responsibility of safeguarding the interests of the public and ensuring the long-term viability of public transport operators. It is an independent body that regulates bus services, bus service operators, ticket payment services, and bus and rapid transit system fares. However, under this current system, it is more difficult for operators to increase capacity and improve service standards responsively, as they are expected to cover their own capital and operating expenses and yet earn their returns from fare revenue which is highly regulated by PTC, and so they may not run quality services if these are assessed not to be profitable. The privatized model has served Singapore well, but with the changes in the social and operating environment, a "Government contracting model" would serve us better going ahead.



Under this new plan, the government hopes to promote greater competition and efficiency among operators, since they now have to compete for the right to run the services, the government will have greater ability to maintain the affordability of public transportation fares for commuters. In addition, the government can expand bus routes based on demand from commuters and not on profit considerations. All this, over time, will result in the provision of better services at a lower cost and thereby benefiting commuters.

As part of the new bus industry model, the Government will own all bus infrastructure such as depots, as well as operating assets such as buses and the fleet management system. This will lower the barriers of entry to the market due to lower capital outlay, and thus attract more bus operators. This helps to facilitate the transition between operators, should the incumbent is not re-contracted for whatever reason. It is thus a hybrid model.

Nonetheless, some critics have commented that despite competing for the routes under the contracting model, the moment the company is engaged, they have again effectively become a monopoly in the bus services for that area for that contracted period of time. Also, others commented that it is unfair that the financing for the bus infrastructure should come from tax payers, while some agreed with the existing model for the industry, however, it should just be highly subsidized to benefit the people. Although Singapore will likely see more new bus operators coming into the industry, for the two major incumbents in the market – namely SMRT and SBS Transit – it will take a number of years before they face serious competition. Then, it will really mark the truly new era for the public transport industry in Singapore.

Adapted from Land Transport Authority New Release 21 May 2014

Extract 3: Competitive Contracting of Bus Services: The Historical International Experience

Great Britain: London has the largest public transportation bus system in the world, operating more than 6,000 buses. Between 1970 and 1985, real bus costs per vehicle kilometre rose 79 percent. In response, the British Parliament enacted legislation that ultimately led to the conversion of the entire system to competitive contracting. For the period from 1985 to 2001, real costs per vehicle kilometre for the bus system fell by 48 percent in real terms while the service was expanded by 26 percent and productivity went up by 91 percent. Ridership increased by 30 percent since the beginning of the competitive contracting program. Overall, it is estimated that in the absence of contracting, costs for London Transport would have been \$15 billion higher.

Finland: In the early 1900s, the Helsinki Metropolitan Area Council competitively contracted its bus services in the city capital area. In 1994, the council put 20 percent of the regional services up for competitive bid. 23 companies responded to the request and the result was a 33.2 percent decrease in costs and for the first time, regional fares were reduced by an average of 3 percent. Encouraged by these results, the council contracted out the remaining regional services by 1996. The results was an annual cost savings of 29.2 percent and the price of the regional fare was reduced by 6 percent. In addition, the vehicle quality provided by the companies also improved after the implementation of competitive contracting, with the average age of buses dropping from 4.9 years to 3.2 years.



Adapted from Allegheny Institute Report #06-02 April 2006

Extract 4: Worker's Party on Overhauling Singapore's Public Transport Model

Worker's Party has, since 2006, called for the MRT and public buses servicing major trunk routes to be brought under a National Transport Corporation (NTC), which will oversee and provide universal transport services. This refers to the nationalization of the public buses services. This is the process of taking a private industry or private assets into public ownership by a national government or state. As such, NTC should aim to provide safe, affordable, accessible, efficient and reliable universal public transportation services, on the basis of cost and depreciation recovery. As a not-for-profit corporation owned by the government, NTC will serve the needs of the public and not that of listed company shareholders.

WP's proposal recognizes public transport in Singapore as an inherent natural monopoly with high capital outlay. The people would expect no less from NTC, in terms of efficiency and cost-effectiveness, compared to the way any other statutory board is managed by the government. To incentivize their performance, the bonuses and pay increases of NTC executives should be pegged to the achievement of key performances indicators such as containment of cost and on-time services of bus, and there could be negative consequences for not meeting them.

Adapted from Overhauling Singapore Public Transport System July 2011

Questions

- (a) Using the data, explain why SBS has "non-core" businesses. [2]

- (b) Explain using a diagram how the losses of SBS Transit's core bus operation will change when there is an increase in average daily ridership. [3]

- (c) (i) Explain the types of cost found in the phrase "increasing staff cost and the continued renewal and expansion of the bus fleet" (Extract 1). [2]
(ii) Explain when should SBS Transit decide to shut down its operations. [2]

- (d) Comment on whether it is a case of price discrimination for the difference in bus fare for the adults and children. [3]

- (e) Discuss if market dominance is the only reason for government to intervene in the bus services market. [8]

- (f) Assess whether the "Bus Contracting model" delivers better outcomes for bus commuters and existing bus operators. [10]



Suggested Answer:

(a)	Using the data, explain why SBS has "non-core" businesses.	[2]
	<p>SBS is a private company that is driven by profit-motive (1m).</p> <p>It is making losses from its core business (\$13m). As a big firm it could diversify its revenue stream or sources of revenue from non-core businesses e.g. rentals of shop space at bus interchanges /advertising- bus panels/bus stops. This revenue advantage from product diversification (1m) helps the firm to make an overall net profit of \$14m in 2014.</p> <p>Markers' Notes:</p> <ul style="list-style-type: none"> • No key words (diversification) , just descriptive → 1m • To get 0m, there is no mention of profit or revenue sources. <p>FYI :</p> <p>Other examples of diversifying revenue streams through offering a wider range of products and services</p> <ul style="list-style-type: none"> • SPH's core business is selling newspaper. It has non-core businesses such as radio broadcasting station (kiss 92) and book publishing (LKY memoirs). • Big Banks offer a range of services to diversify their revenue streams e.g. insurance (Aviva); Securities investment services (OCBC securities); property development (UOL). 	
(b)	Explain using a diagram how the losses of SBS Transit's core bus operation will change when there is an increase in average daily ridership.	[3]
	<ul style="list-style-type: none"> • Revenue curves increased due to "increases in average daily ridership and average fare" which is increase in number of consumers (1m). • Diagram showing rise in AR/MR and reduction in loss (1m). • Explain the "reduced loss" – state the area clearly (1m). 	



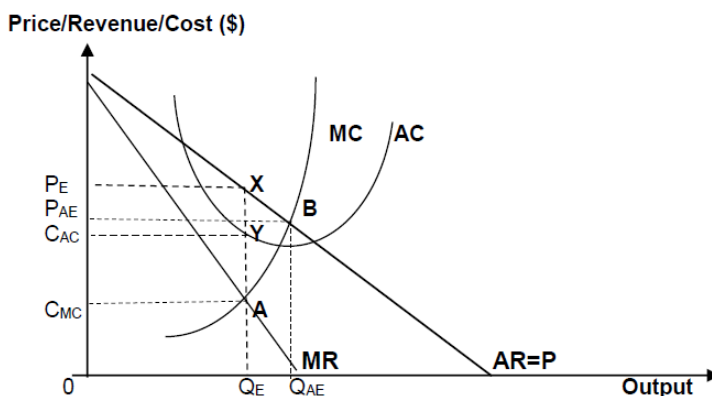
	<p>Markers' Notes:</p> <ul style="list-style-type: none">- No contextual evidence of “reduced losses” → max 2m- If students drew profit to profit, max 1m for the explanation for increase demand <p>Note: Can accept loss to less loss only as extract said “reduced losses”.</p>	
<p>(c)</p>	<p>(i) Explain the types of cost found in the phrase “increasing staff cost and the continued renewal and expansion of the bus fleet” (Extract 1).</p> <ul style="list-style-type: none">• “increasing staff cost” – It is a variable cost which rises directly with level of output or services. OR More bus drivers hired to provide more bus services to cater to higher ridership (1m)• “continued renewal and expansion of the bus fleet” – It is a fixed cost as cost incurred does not vary directly with output level. OR Such costs do not vary directly with the no of bus passengers. (1m) <p>Markers' Notes:</p> <ul style="list-style-type: none">- If students use “both” and the explanation is strange or wrong, 0marks.- If students tag the correct costs with definition, students can have 2marks <p>(ii) Explain when should SBS Transit decide to shut down its operations</p> <ul style="list-style-type: none">• SBS will shut down only if its revenue is unable to recover all of its total variable cost required to continue its services. This is because the firms is not even covering its production costs and should thus immediately shut down• By shutting down a firm avoids all variable costs. Given that the fixed cost must be paid regardless of whether a firm operates they should not be considered in deciding whether to produce or shut down.	<p>[2]</p> <p>[2]</p>
<p>(d)</p>	<p>Comment on whether it is a case of price discrimination for the difference in bus fare for the adults and children.</p>	<p>[3]</p>
	<p>Thesis: Yes it is a case</p> <ul style="list-style-type: none">• For the same service of bus ride and does not cost a bus operator less to fill a seat with a child i.e. student than an adult, the latter pay a higher bus fare than the former and thus is a form of price discrimination. (1m)	



	<ul style="list-style-type: none"> • 3rd degree PD : They are charged different fares due to the difference in price elasticity of demand since a similar ticket price takes up lower proportion of income to a working adult and higher for a child i.e. student. (1m) *Accept number <p>Anti-Thesis : No it is not the case (1m)</p> <ul style="list-style-type: none"> • However, it might be the case of government intervention to help parents who have to pay for their kids' (students') fare so as to cope with higher cost of living. • It might not be a be the case as children may take up less space than adults and thus indeed cost less to transport. <p><i>Note: Most children/students are assumed to have no stable income – getting pocket money from parents or some older ones from some part-timed job.</i></p>	
(e)	<p>Discuss if market dominance is the only reason for government to intervene in the bus services market.</p>	[8]
	<p>Introduction:</p> <ul style="list-style-type: none"> • Define market dominance. • State government intervenes in the bus service market not only due to market dominance but also to correct externalities and income inequality. <p>Body: Thesis: Government intervenes due to market dominance</p> <p>Market Dominance (with framework) <i>Ext 2, para 5, "for the two major incumbents in the market – namely SMRT and SBS Transit"</i></p> <p>(1) Restrict output, charge higher than competitive prices A market with dominant firms are allocative INEFFICIENT as their level of production is at the point where $P > MC$, without price regulation.</p> <p>This implies that if an additional unit of good is produced by the monopolist, the marginal benefit (Price) of this unit of good will exceed the marginal cost. Hence society will be better-off if this additional unit of good is produced.</p>	



Figure 1: Allocative Inefficiency of Market Dominance



Note: if students use the diagram that compares monopoly to perfect competition, they need to state clearly that it is a yardstick or benchmark and does not mean that bus services industry is a monopoly.

- With reference to the figure, at the profit maximising equilibrium where $MR=MC$ and MC is rising, the equilibrium price and output is P_E and Q_E respectively and profit is $PE_{C_{AC}}YX$.
- However, the price is larger than marginal cost, $P_E > C_{MC}$, this means the consumers place a higher value of additional units of the good produced than what it costs the firm to produce it. It is still possible to allocate resources in such a manner as to make someone (the consumer) better off without making someone else (the firm as they are making excessive profits) worse off till the allocative efficient output Q_{AE} where $P = MC$ is achieved at point B. Hence there is underproduction $Q_E - Q_{AE}$.
- For the amount of goods $Q_E - Q_{AE}$, the incremental welfare gain is represented by the area BXQ_EQ_{AE} while the incremental cost is BAQ_EQ_{AE} . Since benefits foregone outweigh costs not incurred, the society suffers from a welfare loss of ABX for $Q_E - Q_{AE}$ of goods not being produced.

FYI: In this context, the diagram is good for analyzing impact of more competition versus less competition mainly on output. As for price, there is the assumption there is price regulation. Fares are “highly regulated” by PTC.

(2) Sub-standard level of service

Lack of competition lulls the firm into complacency and hence unresponsive to the ‘demands of consumers’ in terms of expectations of quality of service.

Example: frequent breakdown of services due to use of old buses; poor timing or scheduling leading to long waiting time for buses.

Market dominance leads to misallocation of resources and exploitation of consumers welfare (i.e. consumers do not get the BEST deal in terms of pricing, product and output)

(B) Anti-Thesis:

Positive externalities (with framework)

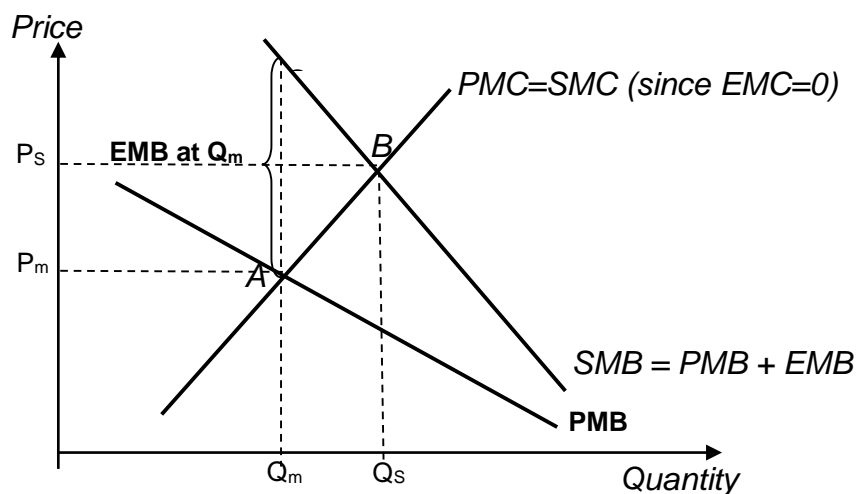


Evidence: “it is also crucial for economic growth as it helps to boost productivity and helps to reduce congestion too.

Positive or beneficial spill-over effects on third parties e.g. employers (higher productivity due to punctuality of their workers; faster deliveries etc); other road users (less congestion – save time, costs because less traffic jams. Overall productivity rises and hence contributing to higher economic growth.

Note: Students could use this as a solution for negative externality.

Figure 2: External benefit from having public transport system



- As seen in Figure 2, the presence of an external benefit causes a divergence between private and social benefits, with SMB above PMB as $SMB = PMB + EMB$.
- Assuming perfect competition, market equilibrium quantity of vaccine is Q_m , where $PMB = PMC$, as consumers and producers of public transport system only consider their own benefits and costs.
- However the socially efficient quantity of such a service should be at Q_s where $SMB = SMC$, where the full costs and benefits and costs to society are considered. Q_s is more than the market equilibrium quantity, Q_m where $PMB = PMC$. Thus there is underproduction of public transport by the quantity $Q_s - Q_m$.
- Since total social benefits forgone exceeds the total social costs not incurred for underproduction $Q_s - Q_m$, area ABC represents the deadweight welfare loss due to underproduction of $Q_s - Q_m$.



Income inequality

Evidence: "Under this new plan, the government will have greater ability to maintain the affordability of public transportation fares for commuters. In addition, the government can expand bus routes based on demand from commuters and not on profit considerations."

The market system will not respond to the needs and wants of those with **insufficient purchasing power or income** to have any impact on market demand because what matters in a market based system is **effective demand** or demand backed by purchasing power.

Consequently, goods and services do not necessarily flow to those who need them the most e.g. basic transportation for the low incomes/poor who cannot afford to buy a car or use a cab to travel for work or leisure. Hence, the government intervenes to keep fares **AFFORDABLE** to ensure an equitable or "fair/fairer" allocation of resources for essential or merit goods such as public bus services

Improve mobility of labour

Evidence: "Transport infrastructure development, not only serves as a main form of transporting people from one place to another"

Without good public bus services, there will be issue of factor immobility issues. Labor will not be able to move around geographically to find jobs that best fit their ability so that resources of the country will be fully utilized and the country can be operating on the PPC.

To attain Macro-goals

Evidence: "it is also crucial for economic growth as it helps to boost productivity"

This means that it is possible to increase LRAS and thus potential growth. At the same time, with a better infrastructure, it is also possible to boost I to increase AD and LRAS achieve actual and potential growth.



Conclusion:

Market dominance is not the only reason for government to intervene in the bus services market which is an essential service to be made available to the people and also to support economic growth.

Level	Descriptor	Marks
L3	Excellent analysis that includes well explained-diagram(s) with good reference to the case and balanced coverage of 2-3 reasons. Conclusion to achieve the 'last' mark. <i>Note:</i> <ul style="list-style-type: none">• <i>It's an 8m question so need not have 2 other sources to get L3. E.g. L3 can be awarded to students with excellent analysis on market dominance (diagram) and positive externalities – that are analytically explained even without use of diagram OR income inequality.</i>• <i>L3 at max 7m (6+1 including the evaluation mark) can be awarded to students with excellent analysis with framework on the 3 reason even without diagram.</i>	7-8
L2	Includes at least market dominance and an at least 1 anti-thesis point (1 point each side) Covered only market dominance with reasonable analysis; lopsided. <i>*A well explained answer without any case use will be capped at low L2.</i>	4-6
L1	Descriptive answer or answer out of point	1-3



(f)	Assess whether the “Bus Contracting model” delivers better outcomes for bus commuters and existing bus operators.	[10]
Introduction		
Body		
Thesis: Yes		Anti-thesis: No
(a) Better outcomes for bus commuters (1) Higher output (closer to AE or competitive output) (2) Productive efficiency and lower fares (3) Better quality or standard of service since government takes over the fixed capital outlay	(a) No better outcomes for bus commuters (1) Consumers might not get a better price or lower fares (2) Consumers might not get better services Any evaluation?	
(b) Better outcomes for bus operators	(b) Profitability of incumbent firms hit	
Conclusion		
<p>Introduction: This aims to assess whether the “Bus Contracting model” delivers better outcomes for bus commuters and existing bus operators.</p> <p>Body: Thesis: Yes (a) Better outcomes for bus commuters (1) Higher output (closer to AE or competitive output) <i>Extract 2, para 3: government can expand bus routes based on demand from commuters and not on profit considerations.</i> Analysis: It is a move away from having a private firm being the monopoly in a hybrid model. The market is made more contestable and thus moving closer towards the allocative efficient point as the barriers of entry is being lowered and thus there are more competition. The existing model is a DUOPOLY (close to a monopoly model). In theory it approximates a monopoly with a very high market share (2-FIRM market concentration ratio = 100). With reference to Figure 1 in part e, as mentioned, a profit-maximising firm sets price at P_E and produces Q_E and earns a supernormal profit of $PEC_{AC}YX$. This output is below the socially efficient output since $P > MC$. By introducing competition, the government can induce the producer to increase the output (by offering more bus routes services for bidding by bus operators) to the socially optimum level Q_{AE} where $P=MC$. (2) Productive efficiency and lower fares With evidence from other countries: <i>Great Britain: “For the period from 1985 to 2001, real costs per vehicle kilometre for the bus system fell by 48 percent in real terms while the service was expanded by 26 percent and productivity went up by 91 percent.”</i></p>		



Finland: “for the first time, regional fares were reduced by an average of 3 percent”

Lower fares possible

This could translate into lower fares in the long run. As bus operators become more efficient they could bid for future bus contracts at lower prices. Thus, the government could pass on the lower cost of contracting out services to commuters in the form of lower fares.

Thus compared to nationalization, in Extract 4 para 2, where there is a need to further monitor the cost-effectiveness, this hybrid model is automatically deals with the cost issues as they can attain higher level of productive efficiency.

(3) Better quality or standard of service since government takes over the fixed capital outlay

This is a major advantage of this new model.

A key drawback of the old/existing model is the lack of incentive for incumbent bus operators to invest heavily in expanding and renewing bus fleets and building bus infrastructures to upgrade their services e.g. depots to better serve their customers due to the high capital outlay which eats into their profits.

The high initial capital outlay or fixed cost of investment in new buses and bus infrastructure is now borne by government subsidy (i.e. taxpayers fund fixed capital investment) under the new model. Thus this model free the bus operators from having to invest in such expensive capital assets. They can instead concentrate on providing good quality day to day services to commuters e.g. ensuring better frequency and arrival times. At the end of the day, commuters benefit from better quality services.

Evidence: “the vehicle quality provided by the companies also improved after the implementation of competitive contracting, with the average age of buses dropping from 4.9 years to 3.2 years.”

(b) Better outcomes for bus operators

Firms do have to take care of expensive investment in fixed capital assets e.g. new buses. More profitable e.g. SBS transit make losses on core business in 2014. Don't have to rely so much on growing NON-CORE businesses to cover losses.

Raised Productivity: The money intended for investment in new capital assets can be diverted to increase their profits by focusing on raising productivity. E.g. spend on training and skills upgrading for their staff; innovation such as new and better equipment to monitor bus schedules.

(B) Anti Thesis: No

(a) No better outcomes for bus commuters

(1) Consumers might not get a better price or lower fares

Commuters already enjoyed a highly regulated price set by PTC

Extract 2, Para 2: First, this is already a highly regulated market. Fares are regulated by PTC. Existing fares are already low enough or affordable for commuters.



Any further fall in fares would have to come from lower bidding prices of contracts. This in turn would depend on productivity gains made by incumbents. Thus, in the SHORT RUN, any improvement in fares is unlikely and insignificant.

Evaluation: Barriers of entry may not be lowered enough to have substantial competition for the two existing dominant firms

Evidence: “for the two major incumbents in the market – namely SMRT and SBS Transit – it will take a number of years before they face serious competition.”

FYI: SMRT submitted the lowest bid because they have an advantage as the incumbent e.g. low transition costs

(2) Consumers might not get better services

Evidence – Extract 2, last para: Competition is only at the tendering process. After the bus company won the tender, they are effective back to being a monopoly for the routes in that region.

As a “localised monopoly” (monopoly of a particular route), firm might become complacent due to the lack of competitive pressures to provide good service to commuters. Hence become X-inefficient. This maybe the case, if the incumbent firm is interested only in making short-run profits (i.e. a hit and run operator).

Evidence : “the moment the company is engaged, they have again effectively become a monopoly in the bus services for that area for that contracted period of time”

Evaluation: In theory yes, but in reality unlikely because the market is now made much more contestable through a relatively short 5-year bidding contract. The incumbent stands to lose the contract once it expires if it cannot meet consumer’s expectations. Given the rigorous selection process (only firms with good track record are shortlisted) there is very little chance of hit and run firm entering this market.

FYI: The announcement that the first contract has been awarded to London Tower Transit even though they didn’t submit the lowest bid suggest that LTA is careful to award contract to firm with proven track record.

(b) Profitability of incumbent firms hit

For the incumbents, profits likely to be hit because of less scope for internal economies of scale and less opportunities to grow NON-CORE businesses.

Economies of scale – unlike the existing duopoly model, there is less scope for reaping economies of scale from increasing scale of operations, because the market is shared by more competitors. For SBS and SMRT, they might even have to scale down their operations and lose some economies of scale as well as revenue stream from non-core businesses.



Profits might not improve if they are not allowed to enjoy other sources of revenue stream such as rentals from shops at bus interchange, since the infrastructure does not now belong to the operators but the government.

Conclusion:

This new model is a hybrid system, combining the best of both worlds i.e. privatisation (more competition and efficiency) and the nationalisation (more equitable and affordable). Hence, in the longer term, if it succeeds, it is likely to deliver better outcomes for consumers. Consumers get to enjoy better services at more affordable prices.

However, whether the existing bus operators (i.e. The duopolists: SBS and SMRT) can make more profits would depend very much on their ability to become more efficient in reducing costs (raise productivity) to increase their profits. This is because the scope for increasing their revenue is severely curtailed in the new model.

Level	Descriptor	Marks
L3	Balanced discussion + excellent analysis + good reference to the case: covered positive and negative impact on both consumers and bus operators.	7-8
L2	Answers tend to be lopsided or insufficient use of economics analysis or with lack of reference to the case <i>*A well explained answer without any case use will be capped at low L2.</i>	4-6
L1	Descriptive answer or answer out of point	1-3
Evaluation		
E2	Conclusion with substantiation	2
E1	Conclusion without substantiation	1