

Essay Question 2:

The Singapore government announced in the 2018 Budget that the goods and services tax (GST) would rise from 7% to 9% sometime between 2021 and 2025. The intended consequence of this change is to raise tax revenue. However, following the coronavirus (Covid-19) outbreak in 2020, the incomes of many households fell.

- (a) With the aid of diagrams, explain why an increase in GST and a fall in the incomes of many households are each expected to cause a fall in expenditure on luxury goods. [10]
- (b) Discuss whether the increase in GST is likely to raise tax revenue and whether it will lead to unintended consequences. [15]

Part (a):

Command word/phrase	<i>With the aid of a diagrams, explain why</i>	To utilise economic diagram(s) and economic reasoning (demand, supply, and price elasticities) to explain the changes on consumer expenditure (CE)
Content	<i>Increase in GST</i> <i>Fall in incomes of many households</i> <i>Expenditure</i>	Show understanding of the concept of taxation and its impact on CE with application to PED. Explain impact of changes in income on CE with application to YED. $CE = P \times Q$
Context	<i>Luxury goods</i>	PED for luxury goods is likely to be greater than 1. YED for luxury goods is likely to be greater than 1.

Suggested Answer:

Introduction Consumer expenditure is the product of price and quantity. How an increase in GST and a fall in the incomes of many households will impact consumers' expenditure (CE) on luxury goods is dependent on the shifts of demand or supply, and also relevant elasticity concepts such as price elasticity of demand (PED) and income elasticity of demand (YED).	✓ T: Defined CE ✓ R: Addressing intent of Qn
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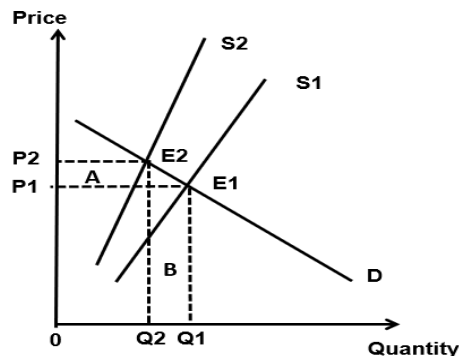
Two Requirements:

1. Impact of an increase in GST on expenditure of luxury goods

a) Explain the change in CE due to changes in SS factor:

- GST is an indirect tax paid through the producers / sellers on the consumers' behalf.
- \uparrow GST by 2% points $\rightarrow \uparrow$ unit COP of luxury goods $\rightarrow \downarrow$ supply of luxury goods from S1 to S2 as shown in Figure 1 \rightarrow shortage occurs at initial price OP1 which exerts an upward pressure on prices $\rightarrow \uparrow$ price of luxury goods from P1 to P2 & \downarrow Quantity from Q1 to Q2 where the market clears \rightarrow the changes in CE depends on PED.

Figure 1:



- PED refers to the degree of change in quantity demanded in response to a change in the price of the good, ceteris paribus. PED differs between goods and for a specific good, between consumer groups, determined by extent of substitutes, importance in consumption and consumers' income.
- Demand for luxury goods such as electronic products can be considered price elastic as unlike necessities, they are goods that consumers can do without it.
- Given that $PED > 1$ for luxury goods $\rightarrow \uparrow$ in price from P1 to P2 as shown in Figure 1, cause a more than proportionate \downarrow in quantity demanded from Q1 to Q2 $\rightarrow \uparrow$ CE (Area A) due to \uparrow price $<$ \downarrow CE (Area B) due to \downarrow Qty \rightarrow overall \downarrow CE from OP1E1Q1 to OP2E2Q2

2. Impact of a fall in the incomes of many households on expenditure of luxury goods

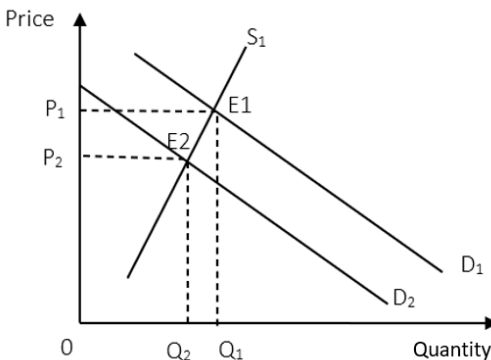
b) Explain the change in CE due to changes in DD factors:

- \downarrow incomes of many households $\rightarrow \downarrow$ purchasing power $\rightarrow \downarrow$ DD if it is a normal good.

✓ **EA/ R:** Explain the impact of increase in GST on SS for luxury goods.

✓ **EA/ R/ C:** Applied the concept of PED to analyse changes in CE.

✓ **EA/ R/ C:** Explain the impact of fall in the incomes of many households on

<ul style="list-style-type: none"> ○ Since a luxury good is a normal good, there will be a fall in its demand. ○ The impact on demand for a good or service is dependent on the nature of the good or service. The extent of change in demand would depend on the income elasticity of demand (YED). ○ Income elasticity of demand measures the degree of responsiveness of demand for a good to a change in incomes, ceteris paribus. ○ Since $YED > 1$ for luxury goods \rightarrow A fall in income will result in a more than proportionate \downarrow in DD for luxury goods from D_1 to D_2 as shown in Figure 2 $\rightarrow \downarrow$ equilibrium price from P_1 to P_2 & equilibrium quantity from Q_1 to Q_2 $\rightarrow \downarrow$ CE from $OP_1E_1Q_1$ to $OP_2E_2Q_2$ since $CE = P \times Q$ and the extent of fall in CE will be significant since DD falls by a greater proportion compared to the fall in incomes. <p style="text-align: center;">Figure 2:</p>  <p>Conclusion: Both an increase in GST and a fall in the incomes of many households are expected to cause a fall in expenditure on luxury goods.</p>	<p>DD for luxury goods.</p> <p>✓ EA/ R/ C: Analysed changes in CE</p> <p>✓ R: Link to answer the qn</p>
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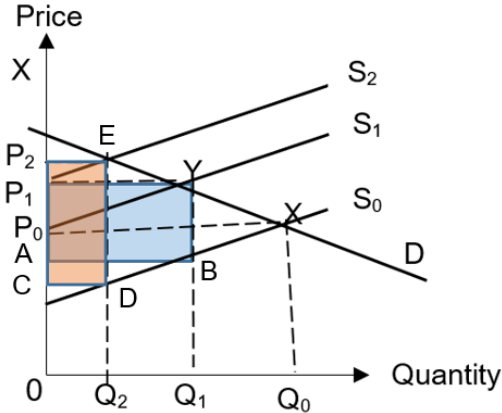
Level	Knowledge, Application/Understanding and Analysis	Marks
L3	<ul style="list-style-type: none"> • For a well-developed analysis on how each event leads to a fall in expenditure (CE) on luxury goods, with the use of well-labelled and well-explained diagrams. • Application and analysis of the relevant elasticity concepts, PED and YED to explain the fall in CE 	8 – 10
L2	<ul style="list-style-type: none"> • Relevant answer but theory may be incompletely explained. • Attempts to apply elasticity concepts e.g., PED, YED, but lacks adequate analysis. 	5 – 7

	<ul style="list-style-type: none"> Some ability at graphs but incomplete explanation. Partial analysis of events on the luxury goods on either changes in demand or changes in supply and link to CE. 	
L1	For an undeveloped answer that <ul style="list-style-type: none"> is descriptive, lacking in application of economic theory, and/or contains serious and pervasive conceptual errors, and/or is largely irrelevant. 	1 – 4

Part (b):

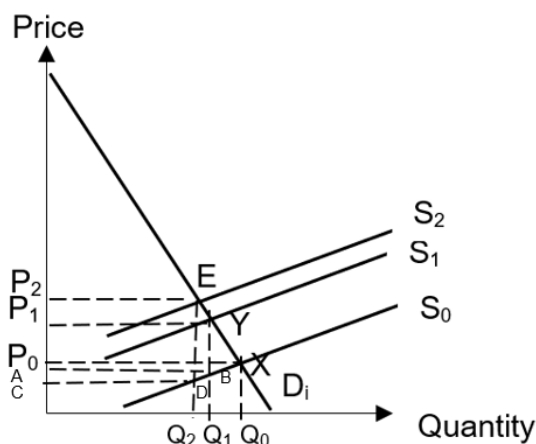
Command word/phrase	<i>Discuss whether...</i>	To examine and present the different aspects of a problem or subject, and give a judgement
Content	<i>Increase in GST ... raise tax revenue</i> <i>Unintended consequences of an increase in GST</i>	Explain impact of increase in GST on tax revenue with application to PED. Apart from the intended impact on tax revenue, students can analyse plausible unintended consequences on the low-income group households.
Context	<i>Preamble: Singapore</i>	No specified context in the question itself. However, students are encouraged to bring in examples from Singapore.

	Introduction <ul style="list-style-type: none"> Impact of increase in GST (indirect tax) - fall in supply of goods and services, equilibrium price increases, quantity falls. Impact of the increase in GST on tax revenue depends on the nature of the good (PED). 	✓ T: Defined GST as a type of indirect tax ✓ R: Addressing intent of Qn
	1. Impact of an increase in GST on tax revenue collected <ul style="list-style-type: none"> □ \uparrow GST by 2% points $\rightarrow \uparrow$ unit COP of goods further $\rightarrow \downarrow$ supply of goods further from S1 to S2 $\rightarrow \uparrow$ price of goods further to P2, instead of P1 & further \downarrow Quantity from Q1 to Q2 □ Amount of tax revenue received by the government = tax per unit x quantities of the good taxed □ The amount of tax revenue collected is influenced by the PED of a good 	✓ EA/ R: Explain the impact of increase in GST on SS for luxury goods.

	<p>a) Impact on tax revenue when the demand of a good is price elastic.</p> <ul style="list-style-type: none"> <input type="checkbox"/> The demand for organic food and luxury cars is likely price-elastic. For organic food, consumers can switch to other substitutes such as non-organic food instead. For luxury cars, as expenditure on these goods take up relatively a high proportion of one's income, demand is likely price-elastic. When demand is price-elastic, an increase in price would lead to a more than proportionate fall in quantity demanded for the good, ceteris paribus. <input type="checkbox"/> With reference to Figure 3: <input type="checkbox"/> Initial tax revenue is given Area A <input type="checkbox"/> New tax revenue is given by Area B <input type="checkbox"/> When the demand for a good is price elastic, even if the government increases the amount of GST, there could still be a fall in tax revenue collected, as Area $P_2EDC < \text{Area } P_1YBA$. <p style="text-align: center;"><u>Figure 3:</u></p>  <p>b) Impact on tax revenue when the demand of a good is price inelastic</p> <ul style="list-style-type: none"> <input type="checkbox"/> Demand for necessities or goods that are addictive in nature such as cigarettes is likely price inelastic. Therefore, a rise in price of such goods is likely to lead to a less than proportionate fall in quantity demanded, ceteris paribus. Customers of such goods are less likely to change their consumption pattern, especially in the short run. With price-inelastic demand, the increase in tax would lead to a less than proportionate fall in equilibrium quantity but a sharper increase in price. <input type="checkbox"/> With reference to Figure 4: <input type="checkbox"/> Initial tax revenue is given Area A <input type="checkbox"/> New tax revenue is given by Area B 	<p>✓ EA/ R/ C: Applied the concept of PED to analyse changes in tax revenue</p>
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- When the demand for a good is price inelastic, there will be an increase in tax revenue collected when the government increases the amount of GST, as Area P2EDC) > Area P1YBA.

Figure 4:



c) Overall impact on tax revenue when GST is increased from 7% to 9%

- The overall change in tax revenue depends on the mix of goods sold in the country.
- **[E/ Criterion]** In a country where the Gini coefficient is larger, which suggests wider income inequality in the country, majority of the goods and services sold could be necessities rather than luxury goods.
- **[E/Reasoning]** GST is a regressive tax. This means the percentage of income paid as taxes falls as income increases. Since the lower income households spend a larger proportion of their income on necessities in comparison with the higher income households, the burden of the GST on the lower income households will be greater than on higher income households.
- **[E/Opinion]** Hence, in a country where there is greater income inequality, majority of the expenditure will be spent on necessities rather than luxury goods, resulting in an overall increase in tax revenue collected.
- Singapore's Gini coefficient is relatively high at 0.4, compared to Scandinavian countries when their Gini coefficient is around 0.3. Hence, this increase in GST from 7% to 9% is likely to result in an increase in tax revenue collected, ceteris paribus.

✓ **EV:** Made evaluative judgement about overall change in tax revenue collected with CORe

	<p>2. Whether this increase in GST will lead to unintended consequences</p> <ul style="list-style-type: none"> □ This GST hike from 7% to 9% is likely to lead to significant unintended consequences on the lower income group than on the middle- and higher-income groups since GST has a regressive impact, taking a larger proportion of the earnings of lower income households. □ As prices of essentials such as house brands increase, individuals from lower income groups may be rationed out, resulting in greater inequity in the society. □ [E/ Criterion] However, the actual impact will also depend on government policies, especially when the government is likely to enjoy an overall increase in tax revenue with this hike in GST from 7% to 9%. This increase in tax revenue from the rise in GST can fund more targeted schemes to help the low-income households such as the provision of GST vouchers. □ [E/ Reasoning] The Singapore government has promised to increase the GST cash pay-outs to the lower income group to help with the rising prices caused by the GST hike. In Singapore, the GST vouchers are also progressive in nature as the payout is higher, the lower the household income or the smaller the HDB flat that the family resides in. This GST cash pay-outs will increase their disposable income to help them cover the higher expenditure on the various products, especially necessities/essentials, □ [E/ Opinion] thereby mitigating the extent of unintended consequences on lower income group. □ [E/ Criterion] The extent of unintended consequences also depends on sellers' corporate social responsibility in their pricing decisions. [E/ Reasoning] As in the case in 2007 when the GST was increased from 5% to 7%, some big firms like the supermarket NTUC FairPrice absorbed the GST increase for the first few months, cushioning the effect of the increase in price for their customers. [E/ Opinion] If this is done in the next GST hike, the extent of unintended consequences on lower income group can again be mitigated. 	<ul style="list-style-type: none"> ✓ EA/ R/ C: Explain the unintended consequences of a GST hike ✓ EV: Made evaluative judgement about extent of unintended consequences with CORE
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	<p>Conclusion: Whether the increase in GST will raise tax revenue and whether it will lead to unintended consequences will depend on a range of factors.</p> <ul style="list-style-type: none"> ○ [E/C] The coronavirus outbreak in 2020 could result in negative economic growth in the country. [E/Re] This fall in incomes for many households can increase the value of PED for some goods & services as the proportion of income spent on these goods, including some necessities/essentials increases. Consumers become more sensitive to price increases, possibly resulting in overall fall in expenditure. [E/O] Since GST is an indirect tax on expenditure, the amount of tax revenue collected could fall. ○ [E/C] The effectiveness of GST cash pay-outs to alleviate the extent of unintended consequences, especially in low-income group, depends on the increase in cost of living relative to the value of the vouchers provided, as well as the sustainability of the policy. [E/Re] Apart from the GST hike, cost of living for low-income group could be rising due to climate change which resulted in a fall in harvest for farmers resulting in a significant increase in price of food. [E/O] While GST vouchers can help alleviate the financial burden on the low-income households, the root cause of the widening income gap will have to be addressed in the longer term, which in the case of Singapore is primarily due to the widening wage gap between the highly skilled and low skilled workers (heavy reliance on low-wage foreign labour). 	<p>✓ EV: Made summative conclusion with COrE</p>
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Mark Scheme:

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	<p>For a well-developed answer that has:</p> <ul style="list-style-type: none"> ● Good scope – explains how an increase in GST could plausibly affect tax revenue and whether it will lead to unintended consequences. ● Good rigour – utilises appropriate demand and supply analysis, together with real-world examples, with the use of well-labelled and well-explained graphs. 	8 – 10

L2	<p>Relevant answer but theory may be incompletely explained.</p> <p>Attempts to apply elasticity concepts but lacks adequate analysis.</p> <p>Uses economic framework to explain impact of increase in GST on tax revenue (only); OR</p> <p>Uses economic framework to explain the unintended consequences only.</p>	5 – 7
L1	<p>A smattering of valid point with no relevant framework applied / largely descriptive answer with very little or no economic framework applied.</p> <p>Glaring conceptual gaps in explanation whereby question requirements are not clearly addressed.</p>	1 – 4
Level	Evaluation/Synthesis	Marks
E3	<p>2 explained evaluative judgements PLUS a summative conclusion</p> <p>Insightful judgment substantiated with analyses, including but not limited to the following considerations:</p> <ul style="list-style-type: none"> • context: degree of income inequality in Singapore • underlying assumptions: changes in government and/or corporate policies 	5
E2	<p>2 evaluative judgements, 1 of which is explained.</p> <p>Judgment substantiated with analyses that were explained mostly in the body.</p>	3-4
E1	<p>Unsupported evaluative statements or 1 explained evaluative judgement.</p>	1-2