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91399



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Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Level 3 Economics 2024

91399 Demonstrate understanding of the efficiency of market equilibrium

Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of the efficiency of market equilibrium.	Demonstrate in-depth understanding of the efficiency of market equilibrium.	Demonstrate comprehensive understanding of the efficiency of market equilibrium.

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should attempt ALL the questions in this booklet.

If you need more room for any answer, use the extra space provided at the back of this booklet.

Check that this booklet has pages 2–14 in the correct order and that none of these pages is blank.

Do not write in the margins (// // // //). This area will be cut off when the booklet is marked.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

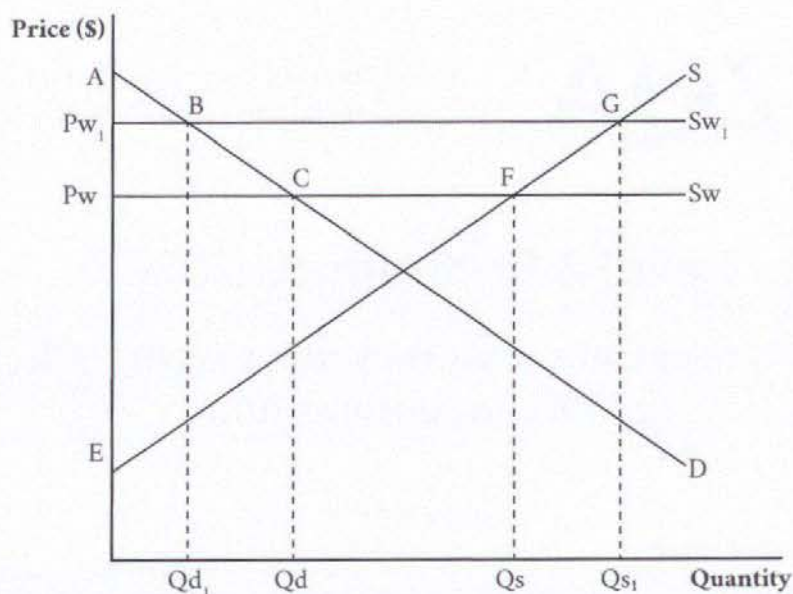
Excellence

TOTAL 21

QUESTION ONE: Increase in the world price

Graph One shows the world price increasing for a product that New Zealand exports.

**Graph One: The market for a New Zealand export product
– impact of an increase in world price**



- (a) (i) Complete Table One by using the labels in Graph One to identify the prices and quantities.

Table One

	Before world price increase	After world price increase
Price NZ consumers pay	P_w	$P_{w'}$
Price NZ producers receive	P_w	$P_{w'}$
Quantity consumed by NZ consumers	Q_d	$Q_{d'}$
Quantity sold by NZ producers	Q_d	$Q_{d'}$

- (ii) Complete Table Two by using the labels in Graph One to identify the surpluses and deadweight loss.

Table Two

	Before world price increase	After world price increase
Consumer surplus	$P_w \triangle A$	$P_{w'} \triangle B A$
Producer surplus	$P_w \triangle F E$	$P_{w'} \triangle G E$
Deadweight loss (if any)	NO DWL	NO DWL

- (iii) Explain why the world price is a horizontal line.

The world price is a horizontal line because it is the set price for each quantity across the world.

Refer to Graph One, Table One, and Table Two in your answer to part (b) below.

- (b) Explain in detail the impacts the increase in the world price on a product that New Zealand exports might have on the following:

New Zealand consumers

NZ consumer surplus will decrease as a result of an increase in the world price. Consumer surplus will decrease from area P_wCA to area $P_w'BA$ after, as the price increases from P_w to P_w' and quantity consumed by NZ decreases from Q_d to Q_d' , giving them less units from which to gain a surplus and the difference between the price they are willing to pay and the price they actually pay decreases.

Question One (b) continues on page 4 ►

New Zealand producers (exporters)

Producer surplus increases after an increase in world price, producer surplus increases from area $P_w F E$ to $P_w' G E$ after. As the price increases from P_w to P_w' and the quantity sold by NZ producers increases from Q_s to Q_s' , giving them more units from which to gain a surplus and the difference between the price they are will to receive at and the price they actually receive increases.

Refer to Graph One and Table Two in your answer to part (c) below.

- (c) Explain the impact of the increase in the world price on the market for a product that New Zealand exports on allocative efficiency.

There is no loss of allocative efficiency. ~~The increase in producer surplus is greater than the loss of consumer surplus and the total surpluses are~~

The increase in producer surplus ($P_w' G F P_w$) is greater than the loss of consumer surplus ($P_w' B C P_w$). Consumer surplus and producer surplus are maximised, and there is no deadweight loss.

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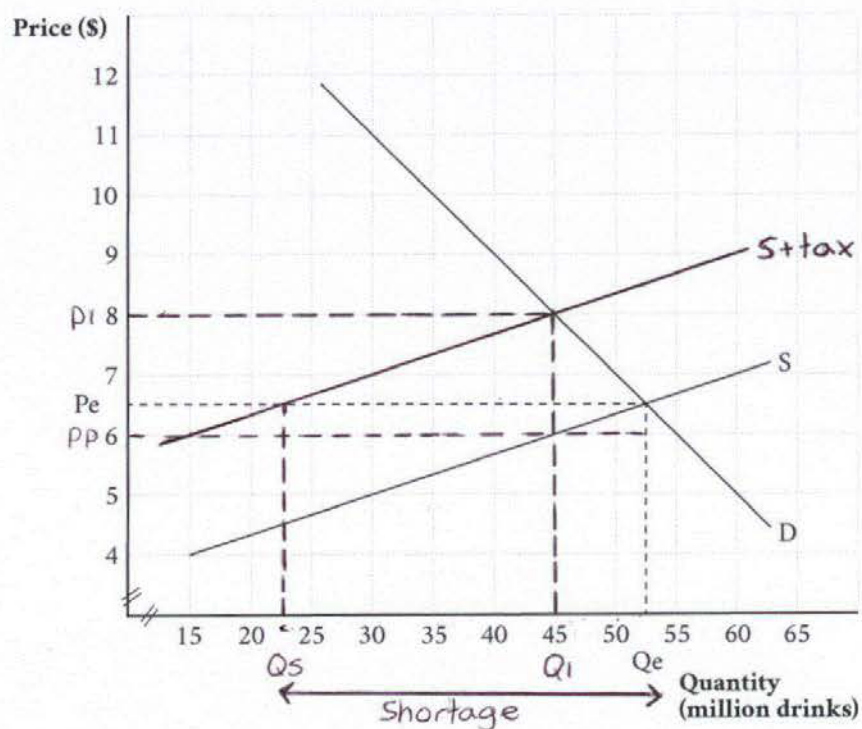
QUESTION TWO: Indirect tax

Source: Taunton, E. (2023, May 31) Here's why your beer and wine will soon cost more. *Stuff*. <https://www.stuff.co.nz/business/132192469/heres-why-your-beer-and-wine-will-soon-cost-more>

There is more than one reason for increasing the tax on alcohol. One of them is to discourage consumption.

Graph Two shows the market for alcoholic drinks at equilibrium with equilibrium price (P_e) and quantity (Q_e).

**Graph Two: The market for alcoholic drinks
– impact of an indirect tax**



(a) A \$2 per drink indirect tax is imposed on the market for alcoholic drinks.

(i) Complete Graph Two above by:

- adding and labelling a new curve showing the increase in indirect tax
- identifying and labelling the new equilibrium price (P_1), and quantity (Q_1)
- identifying and labelling the resulting shortage or surplus at the original price (P_e).

Refer to the relevant figures or labels from Graph Two and the concept of market forces in your answer to (ii) below.

- (ii) Explain how equilibrium would be restored in the market for alcoholic drinks following an increase in indirect tax.

The supply curve shifts to the left with the indirect tax, shifting from S to $S+tax$. At the original price P_e (\$6.50 per drink) a shortage will occur of ³⁰~~50~~ million drinks as Q_S (22.5 million drinks) $<$ Q_D (52.5 million drinks).

Consumers will bid up the price in order to not miss out, as price increases quantity supplied will increase as it becomes more profitable and quantity demanded will decrease as drinks become less affordable, quantity supplied will continue to increase and quantity demanded will continue to decrease until $Q_S = Q_D$. Equilibrium will be restored at the higher price P_1 (\$8) and lower quantity Q' (45 million drinks), where $Q_S = Q_D$.

- (b) Using figures from Graph Two, calculate the values for the following. Circle increase or decrease where appropriate.

- Change in consumer surplus: \$ 73,125,000 million increase or decrease
- Change in producer surplus: \$ 24,375,000 million increase or decrease
- Total tax revenue: \$ 90,000,000 million
- Deadweight loss: \$ 7,500,000 million

Refer to Graph Two and the calculations in part (b) in your answer to (c) below.

- (c) Explain the impact of the indirect tax of \$2 per drink on the following in the market for alcoholic drinks.

Consumer surplus

Consumer surplus will decrease by \$73.125 million. In the market for alcoholic drinks after an indirect tax is placed the price will increase from P_e (\$6.50) to P_i (\$8) and the quantity purchased will decrease from Q_e (52.5 million drinks) to Q_i (45 million drinks), giving them less units from which to gain a surplus and the difference between the price they are willing to pay and the price they actually pay decreases.

Producer surplus

Producer surplus will decrease by \$24.375 million. After an indirect tax is placed on alcoholic drinks the price producers receive decreases from P_e (\$6.50) to P_p (\$6) and ~~they~~ the quantity sold decreases from Q_e (52.5 million drinks) to Q_i (45 million drinks), giving them less units from which to gain a surplus and decreasing the difference between ~~that~~ the price they are willing to supply at and the price they actually receive.

Allocative efficiency

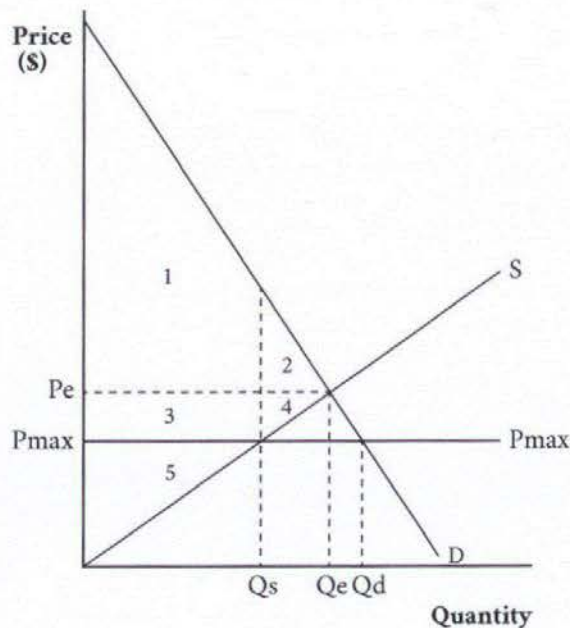
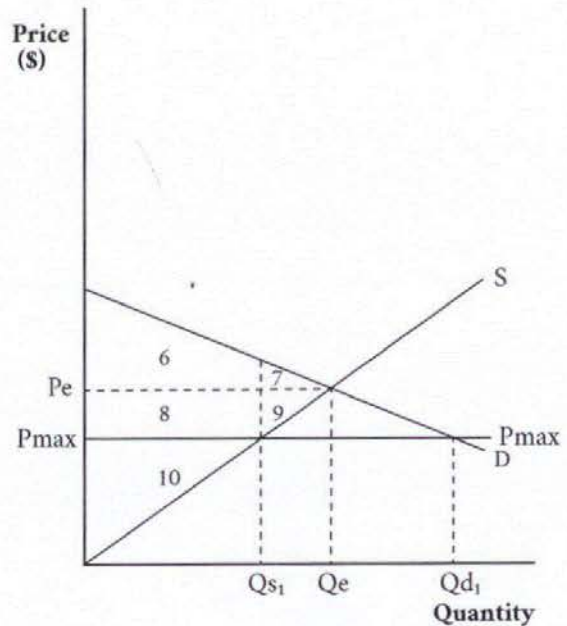
There will be a loss of allocative efficiency in the market for alcoholic drinks and this can be represented by the deadweight loss created of \$7.5 million. The ~~loss of~~ total tax revenue collected by the government (\$90 million) doesn't offset the loss of consumer surplus (\$73.125 million) and the loss of producer surplus (\$24.375 million) and the difference being the DWL (\$7.5 million). Consumer and producer surpluses are no longer maximised.

QUESTION THREE: Maximum price control and elasticity

To help ease the impact of the cost of living crisis, the Government could impose a maximum price on some grocery items.

Graph Three shows a maximum price control on an item with an inelastic demand.

Graph Four shows a maximum price control on an item with an elastic demand.

Graph Three: Inelastic**Graph Four: Elastic**

- (a) (i) Complete Table Three by using the numbers in Graph Three and Graph Four to identify the surpluses and deadweight loss.

Table Three

	Graph Three (inelastic)	Graph Four (elastic)
Consumer surplus before maximum price control	1, 2	6, 7
Consumer surplus after maximum price control	1, 3	6, 8
Producer surplus before maximum price control	3, 4, 5	8, 9, 10
Producer surplus after maximum price control	5	10
Deadweight loss (if any)	2, 4	7, 9

- (ii) Define price elasticity of demand and explain one reason why an item might be elastic.

Price elasticity of demand is the responsiveness of quantity demanded for a good or service in relation to a change in price.

A reason an item might be elastic is that there may be many substitute options available in place of that item making it non essential.

- (b) Compare and contrast the impact the maximum price control might have on consumers, producers, and allocative efficiency. Refer to Graph Three and Graph Four in your answer.

On Graph Three consumer surplus ~~dec~~ increases overall ^(area 1+3) because although quantity decreases from Q_e to Q_s , giving them less units from which to gain a surplus, the gain from the price decreasing from P_e to P_{max} is greater. So the difference between the price consumers are willing to pay and the price they actually do increases. On graph Four consumer surplus ^(area 6+8) also increases overall. The gain in surplus from the price decreasing from P_e to P_{max} (area 8) is greater than the loss of surplus from the ~~price~~ quantity decreasing from Q_e to Q_s (area 7). Giving them less units from which to gain a surplus and the difference between the price that consumers are willing to pay and the price they actually pay increases. Graph Three has a greater increase in consumer surplus.

Producer surplus decreases, on Graph Three producer surplus decreases by areas 3, 4. As the price decreases from P_e to P_{max} and the quantity sold decreases from Q_e to Q_s , giving them less units from which to gain a surplus and the difference between the price they are

Answer space continues on page 12 ►

willing to receive at and the price they actually receive increases. On Graph Four producer surplus also decreases, it decreases by areas 8, 9. As price decreases from P_e to P_{max} and quantity sold decreases from Q_e to Q_{s1} , giving them less units from which to gain a surplus and the difference between the price they are willing to receive and the price they actually receive increases.

Both Graph Three and Four will have a loss of allocative efficiency represented by the deadweight loss.

Graph Three has a deadweight loss of areas 2, 4, the gain in consumer surplus doesn't offset the loss of producer surplus and the total surpluses are no longer maximised.

Graph Four has a deadweight loss of areas 7, 9, the gain in consumer surplus doesn't offset the loss of producer surplus and the total surpluses are no longer maximised.

The deadweight loss on graph Three is greater than the deadweight loss on graph Four, due to the item in Graph Three being inelastic.

Subject: Economics

Standard: 91399

Total score: 21

Q	Grade score	Marker commentary
One	E7	For PS and CS the candidate referred to the change and two reasons for the change. They have integrated the definition and graph / table references into each answer.
Two	E8	The candidate correctly drew the graph with accurate labels. They used the references to the graph data throughout the question correctly. For part (a) (ii) they mentioned all five key points as well as answering it in the context of the question. The calculations are correct and used correctly in the CS, PS, and AE responses. The candidate demonstrated understanding of the offset idea for AE and clearly described it.
Three	M6	This candidate defined price elasticity of demand and gave one characteristic of an elastic good. For part (b) they clearly described the offset for CS and reasons for the decrease in PS. To achieve an Excellence grade, the candidate could have provided more detail in the AE response.