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91399



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Mana Tohu Mātauranga o Aotearoa  
New Zealand Qualifications Authority

## Level 3 Economics 2025

### 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.**

Merit

TOTAL 18

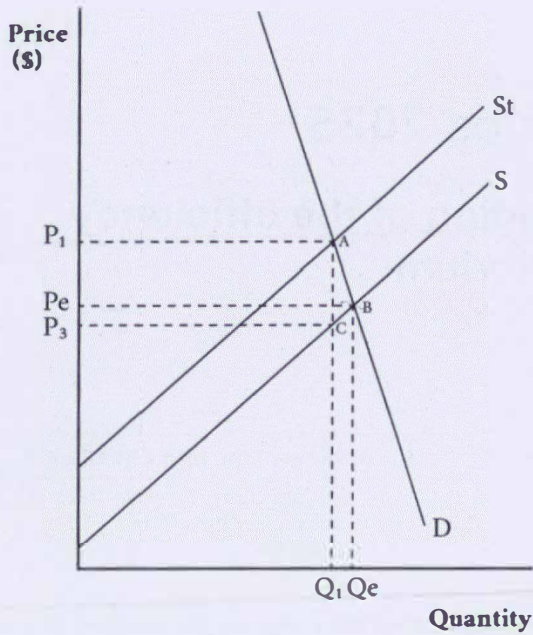
**QUESTION ONE: Indirect tax and elasticity of demand**

The purpose of an indirect tax, such as an excise duty, is to discourage the consumption of goods that may have negative health or social impacts, and to generate revenue for the Government.

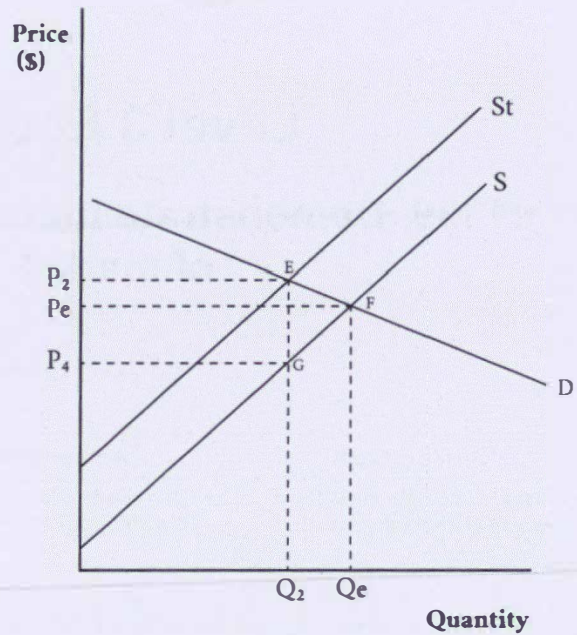
Graph One shows the effect of an indirect tax placed on a good with inelastic demand.

Graph Two shows the effect of an indirect tax placed on a good with elastic demand.

**Graph One: Inelastic demand**



**Graph Two: Elastic demand**



- (a) Complete Table One below by using the letters or labels in Graph One and Graph Two to identify the changes in surpluses, Government tax revenue, and deadweight loss.

**Table One**

	<b>Graph One (inelastic)</b>	<b>Graph Two (elastic)</b>
<b>Decrease in consumer surplus</b>	$P_1, A, B, P_e$	$P_2, E, F, P_e$
<b>Decrease in producer surplus</b>	$P_e, B, C, P_3$	$P_e, F, G, P_4$
<b>Tax revenue</b>	$P_1, A, C, P_3$	$P_2, E, G, P_4$
<b>Deadweight loss</b>	$A, B, C$	$E, F, G$

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

- (b) (i) Explain why the impact on consumer surplus is greater when demand is inelastic compared to when it is elastic. In your answer, include the definition of inelastic demand and a reason for demand being inelastic.

When demand is inelastic, this means that a change in price results in a less than proportionate change in quantity demanded. Reasons for this include the product being a necessity or a low proportion of income, so people buy it in similar quantities regardless of what price is.

~~A change in consumer surplus~~ The decrease in consumer surplus is ~~greater~~ <sup>greater</sup> for ~~inelastic~~ inelastic demand as it causes a larger increase in the price paid by consumers ( $P_2$  to  $P_1$  when inelastic vs  $P_2$  to  $P_1$  when elastic) which means the difference between what consumers are willing/able to pay and what they actually pay decreases by a larger amount for inelastic or than elastic demand. Consumer surplus also decreases due to this surplus being earned over fewer units ( $Q_2$  decreases to  $Q_1$  in inelastic while  $Q_2$  decreases to  $Q_1$  in elastic). While this decrease in quantity is larger for the elastic demand, the change in price is more significant in the size of the decrease in consumer surplus, so overall, the decrease in CS is greater for inelastic than elastic demand.

Question continues on the next page >

- (ii) Explain whether the Government would place the indirect tax on an elastic or inelastic good, if its objective was to:
- generate revenue
  - discourage consumption.

If the government wants to discourage consumption, they both elastic and inelastic demand produce roughly the same amount of revenue for the government. This is because tax revenue is made up of ~~the~~ price consumers pay  $\times$  price producers receive  $\times$  multiplied by the quantity (number of units) over which they can gain this tax revenue. While elastic demand has a larger difference between  $P_2$  and  $P_1$  &  $P_2^*$  than inelastic's  $P_3$  &  $P_1$ , because inelastic's revenue is over fewer units  $Q_2$  vs.  $Q_1$ , these effectively cancel, resulting in roughly equal tax revenue for both goods. However, to discourage consumption, the government is best off placing the tax on the elastic good, as the change in price paid by the consumers results in a more than proportionate decrease in the quantity ~~received~~ consumed. i.e. the decrease from  $Q_2$  to  $Q_1$  (elastic) is larger than the decrease from  $Q_2$  to  $Q_1$  (inelastic) thus the elastic good has a greater effect in discouraging consumption.

Overall, because both types of demand generate roughly the same revenue (which could be put into things like ad campaigns which further discourage consumption) but elastic demand discourages consumption more, the ~~more~~ government would place the tax on the elastic good.

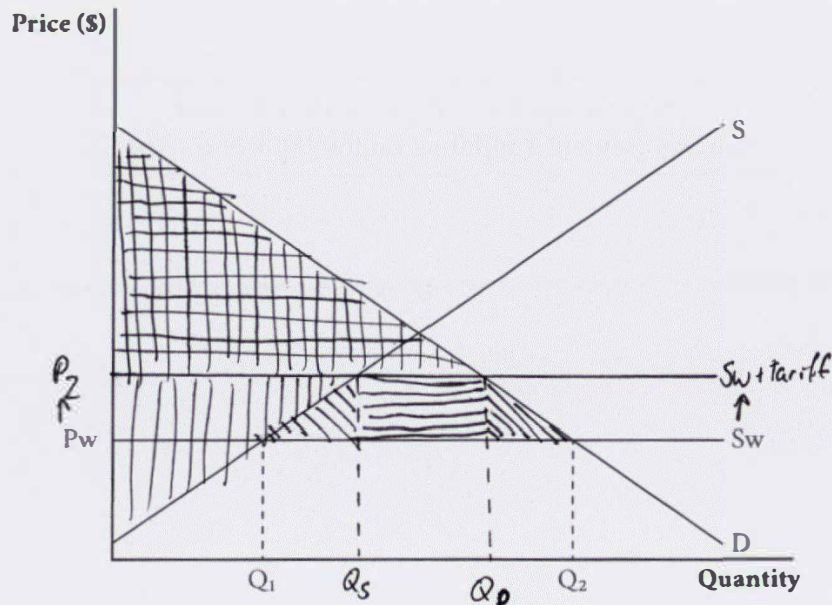
\* Price paid by consumers vs price received by producers.

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### QUESTION TWO: Tariffs

Although New Zealand generally aims for a free and open trade environment with relatively low tariffs, some goods, like textiles and clothing, continue to be subject to tariffs to protect domestic industries.

Graph Three: The New Zealand market for textiles and clothing



- (a) On Graph Three above, show the effect of imposing a tariff on the market for textiles and clothing by:

- ✓ indicating with dotted lines the new quantity demanded (label  $Q_d$ ) and the quantity supplied (label  $Q_s$ )  $\rightarrow$  by NZ producers
- ✓ shading the:
  - ✓ new consumer surplus 
  - ✓ new producer surplus 
  - ✓ tariff revenue 
  - ✓ deadweight loss 
- ✓ labelling all changes.

Refer to Graph Three, the resource material, and the changes you made in (a) on page 6 in your answer to part (b) below.

(b) Explain the impact of the tariff on the market for textiles and clothing on the following:

Consumers

When world price increases from  $P_w$  to  $P_2$ , there is a smaller difference between what consumers are willing/able to pay and what they actually pay. And, since quantity ~~decreases~~<sup>decreases</sup> decreases from  $Q_2$  to  $Q_3$ , there are fewer units over which ~~producers~~ consumers can earn this surplus. Therefore consumers pay more per unit, buy less, and their consumer surplus ~~decreases~~ decreases.

Producers, including any difference in impact on New Zealand producers of textiles and clothing and importers of textiles and clothing

NZ producers are able to gain a surplus, as price received increases from  $P_w$  to  $P_2$ , meaning there is a larger difference between what they are willing/able to sell for and what they actually sell for. And, since fewer units are imported (shown by a smaller difference between  $Q_3$  &  $Q_4$  than  $Q_1$  and  $Q_2$ ) they sell more of their textiles/clothing\* and thus there are more units over which they gain this surplus. Essentially, NZ producers of textiles/clothing sell more of their products for more money.

For importers of textiles/clothing, their surplus, unlike NZ producers would decrease. This is because they still receive  $P_w$ , the same price as before (as ~~reason~~ the government collects the difference between  $P_w$  &  $P_2$ ) but over ~~with~~ fewer units, as NZ consumers are able to get more units locally, an <sup>with</sup> demand less <sup>due to</sup> a higher price, so the quantity of imports ~~decreases~~ decreases. (Difference between  $Q_4$  &  $Q_3$ )

Question continues on the next page >

\* as consumers buy NZ <sup>there are</sup> more units than  $Q_1$  to  $Q_3$

### The Government

The government is able to gain revenue on the tariff as the difference between the price importers receive ( $P_W$ ) and the price NZ consumers pay ( $P_2$ ) over all units that are <sup>imported</sup> ~~imported~~ into the country ( $Q_D - Q_S$ ). They can use this money to reinvest in NZ textiles / clothing, or ~~alternatives~~ to better the country, e.g. in education or public housing.

### Allocative efficiency <sup>(deadweight loss)</sup>\*

A  $DWL_{loss}$  arises both in the area under supply and above  $P_W$  from  $Q_1$  to  $Q_5$ , and the area under demand and above  $P_W$  from  $Q_0$  to  $Q_2$ . This is lost consumer surplus that is not offset by a gain in producer surplus <sup>and</sup> government revenue. ~~This means~~ <sup>and</sup> that when the tariff is imposed, the <sup>the</sup> market for clothing and textiles is no longer allocatively efficient due to this deadweight loss.

\*  $DWL$  is loss of <sup>welfare</sup> surplus to one group(s) that is not offset by gain(s) to another group.)

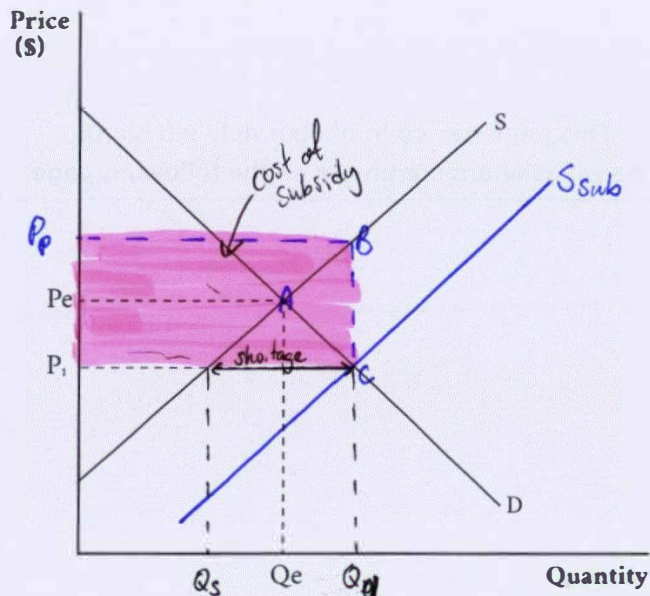
→ This means that the net welfare benefit (the sum of producer and consumer surplus) is no longer maximised

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### QUESTION THREE: Subsidy

A subsidy plays an important role in improving New Zealanders' access to affordable and effective medicines. Without a subsidy, the market for medicines is likely to face a shortage.

Graph Four: The market for medicines



- (a) (i) On Graph Four above, use dotted lines to show the resulting shortage of medicines that might occur at price  $P_1$ . Label the shortage and the corresponding  $Q_d$  and  $Q_s$ .
- (ii) At the current price,  $P_1$ , how would equilibrium be restored in the market for medicines? In your answer, refer to the relevant labels on Graph Four, the changes you made in part (a)(i) above, and the concept of market forces.

At  $P_1$ ,  $Q_d > Q_s$ , meaning there is a shortage in the market of medicines. As a result, consumers, who still want medicine as a necessity, bid up the price. Producers of medicines thus increase their quantity supplied of medicine in order to ~~reach~~ earn more profits (sell more units for this higher price). This ~~the~~ increase in price causes consumers to decrease their quantity demanded as some consumers are no longer willing/able to pay this higher market price. This continues until the market clears and a new equilibrium is established at  $P_e$ , where  $Q_s = Q_d$  and no more market forces are acting, and equilibrium is restored.

Better health outcomes for New Zealanders now would mean less cost pressure on the health system in the long term. This is a good justification for the Government to continue funding the subsidy for medicines.

(iii) On Graph Four on page 10:

- add one new curve to show the effect of a subsidy that would remove the shortage from the market of medicines; label the curve
- shade and label the area that represents the total cost of subsidy to the Government
- show the price producers receive after the subsidy (label  $P_p$ )
- mark the area representing the deadweight loss with the letters A, B, and C.

Refer to Graph Four and the resource material in your answer to part (b) below.

(b) Explain the impact of a subsidy on the market for medicines on the following:

Consumers

When the subsidy is implemented, consumer surplus increases.

This is because price paid by consumers has decreased from  $P_e$  to  $P$ , so there is a larger difference between what they are willing/able to pay and what they actually pay, and since quantity increases from  $Q_e$  to  $Q_D$ , there are more units over which consumers can gain a surplus.

Therefore consumers pay less for medicine and can purchase a higher quantity, which is good as now medicine is more affordable.

Producers

Producer surplus also increases.

This is because price producers receive ~~decreases~~ increases from  $P_e$  to  $P_p$  meaning there is a greater difference between what they are willing/able to sell for and what they actually sell for, and since quantity increases from  $Q_e$  to  $Q_D$  there are more units over which they can gain this surplus.

Producers ~~also~~ earn more on the sales of each unit, and sell more units of medicine.

The Government, including how it justifies the continued funding of medicine subsidies despite funding pressures

The government has to pay for the difference between  $P_D$  and  $P_S$ , over ~~all~~ <sup>all of the</sup> units sold ( $0 \rightarrow Q_D$ ) in paying for the subsidy. This is money they could spend in other areas, such as tax relief or education. However, it's the government's job to look after the wellbeing of our society, and allowing people to access effective <sup>and affordable</sup> medication is a critical part of that. Thus, it's a good use of the government's resources to continue to fund the subsidy, even though it is costly as it is incredibly beneficial to our society. This would also put less pressure on our healthcare systems long term, which eases the government having to pay for that, thus further justifying this continued funding.

Allocative efficiency

A deadweight loss of area ABC arises. This is due to loss in government welfare in paying for the subsidy that is not offset by any part of the gain in producer or consumer surplus as a result of the subsidy. This ~~loss~~ can be viewed as administration costs for the subsidy. Overall however, this DWL means the market for healthcare is no longer allocatively efficient, as the <sup>sum</sup> ~~sum~~ of producer and consumer surplus is no longer maximised.





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## Merit

**Subject:** Economics

**Standard:** 91399

**Total score:** 18

Q	Grade score	Marker commentary
One	M6	The candidate completed the table correctly. They correctly defined inelastic demand and identified reasons for a product being inelastic. The reason for the decrease in consumer surplus was correctly identified across both graphs with reference to the graph for price and quantity. The candidate misinterpreted the final question and looked for which of elastic or inelastic goods would give the best outcome for both goals but has identified the key points for the benefits of each.
Two	M6	The candidate drew the graph correctly. They correctly identified the changes in the consumer surplus and producer surplus, with reference to the changes on the graph for price and quantity and applied the definitions. They also identified impact on importers as well as New Zealand producers. The gain in revenue for the Government was correctly identified and that it could be used to fund other projects, with an example. The candidate identified the loss of allocative efficiency and how the deadweight loss is created.
Three	M6	The graph was drawn correctly. The candidate identified some basics of market forces but missed key terminology. Changes of consumer surplus and producer surplus were correctly identified with two references to changes on the graph. They stated the cost to Government and the opportunity cost but with limited reference to the graph. The description of loss of allocative efficiency was clear and included reference to the graph.