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NZQA | Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Level 3 Economics 2025

91400 Demonstrate understanding of the efficiency of different market structures using marginal analysis

Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of the efficiency of different market structures using marginal analysis.	Demonstrate in-depth understanding of the efficiency of different market structures using marginal analysis.	Demonstrate comprehensive understanding of the efficiency of different market structures using marginal analysis.

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 2–16 in the correct order and that none of these pages is blank.

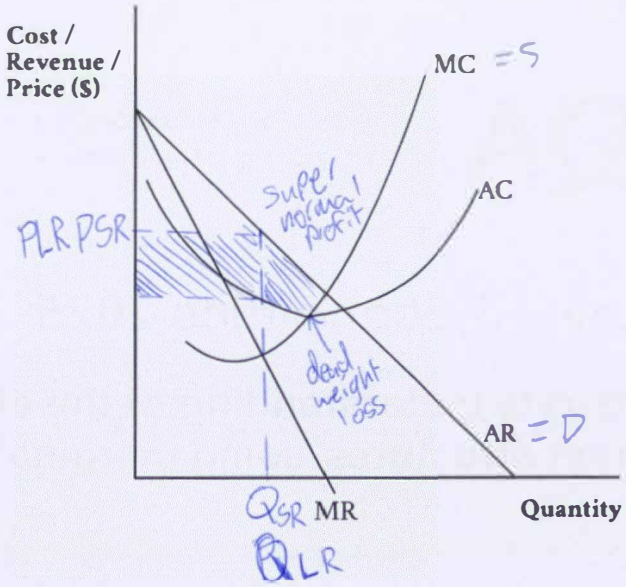
Do not write in the margins (////). This area will be cut off when the booklet is marked.

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

Achievement TOTAL 10

QUESTION ONE: Monopoly

Graph One: A Monopoly in the short and long run



(a) (i) On Graph One above:

- identify the short run profit maximising price (P_{SR}) and quantity (Q_{SR})
- shade and label the type of profit
- shade and label the deadweight loss
- identify the long run profit maximising price (P_{LR}) and quantity (Q_{LR}).

(ii) Explain the short and long run price, output, and profit positions of a monopoly. In your answer, refer to Graph One and the key characteristics of a monopoly.

Marginal analysis says that the profit maximising level of output is where marginal revenue meets marginal cost. The short run price therefore is P_{SR} and the output is at Q_{SR}. This then shows, that in the short run the firm makes supernormal profit because where MR meets MC, AR is greater than AC. In the long run, a supernormal level of profit is still being made. This is due to the high level of influence that the firm in the

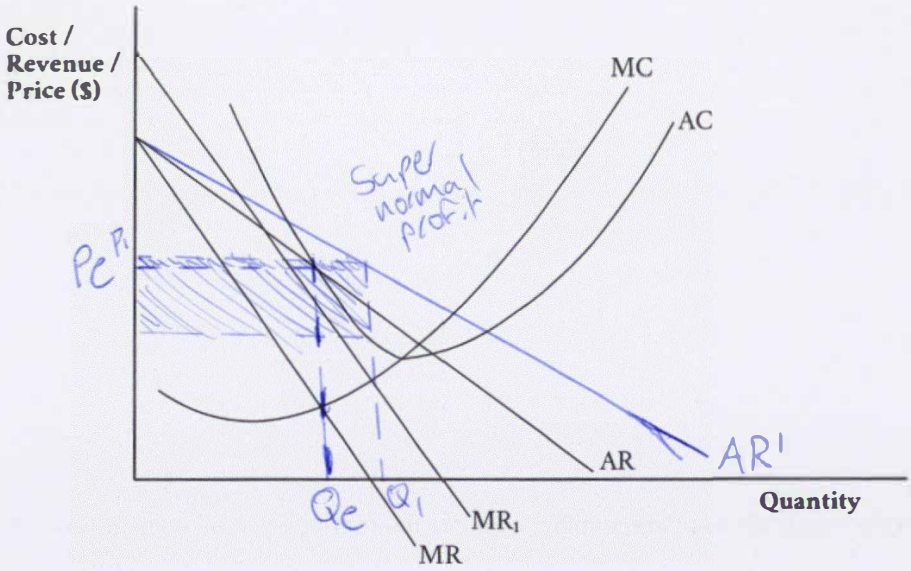
monopoly has over the market. Because there are such high barriers to entry, new competitors are not able to enter the market. Because of this, the firm in the monopoly does not need to share the supernormal profit and in the long run it will stay supernormal and not change.

(iii) Referring to Graph One, explain whether the monopoly is allocatively efficient.

The monopoly is not allocatively efficient due to a deadweight loss (). A deadweight loss has occured because when MC meets AR it is not at profit maximising level of output. The deadweight loss is created due to the influence of the firm in the monopoly. Because it is the largest firm in the market it is able to restrict output to Q_{SR} and able to raise the price to P_{SR}. Therefore the monopoly is allocatively inefficient.

Question continues on the next page ➤

Graph Two: A monopoly before and after an increase in demand



Demand increases for the monopoly. This increase is indicated by MR_1 on Graph Two above.

(b) (i) On Graph Two above, identify the profit maximising price (Pe) and quantity (Qe) before the increase in demand.

(ii) Complete Graph Two above for after the increase in demand by:
- adding a new AR curve (label AR_1)
- identifying the new profit maximising price (P_1) and quantity (Q_1)
- shading and labelling the type of profit.

(iii) Referring to Graph Two above, use marginal analysis to explain the profit maximising output of the monopoly following the increase in demand.

Originally when MR and MC met, AC was equal to AR which meant the firm in the monopoly was getting normal profit at price Pe and quantity Qe. However after the increase in demand where MR' and MC met, AR' was greater than AC which means the firm is now operating at a supernormal level of profit at price P1 and quantity Q1.

(iv) Referring to Graph Two on page 4, explain the type of profit made before and after the increase in demand, and how the monopoly will respond to any change in profit levels.

Before the increase in demand, the firm was operating at the profit maximising level of output at price Pe and quantity Qe. It is now operating at price P1 and quantity Q1 in order to be gaining a supernormal level of profit. Because a firm in a monopoly will always gain a supernormal level of profit, they are willing to restrict the quantity of output and raise the price. They are able to do this because there are no other competitors consumers can go to.

which resulted in a normal profit level

QUESTION TWO: Perfect competition and increase in costs

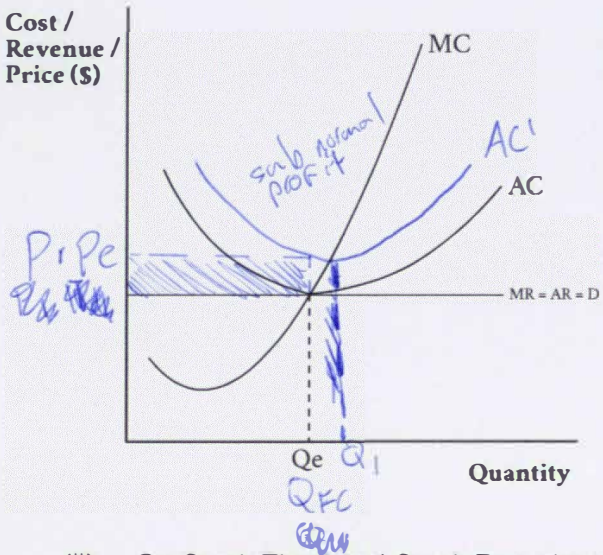
Farmers are an example of producers operating in a perfectly competitive market. Like many industries, farmers in New Zealand have been hit by rising council rates (a fixed cost) as well as rising fertiliser costs (a variable cost).

(a) (i) Referring to the resource material above, explain the difference between fixed costs and variable costs.

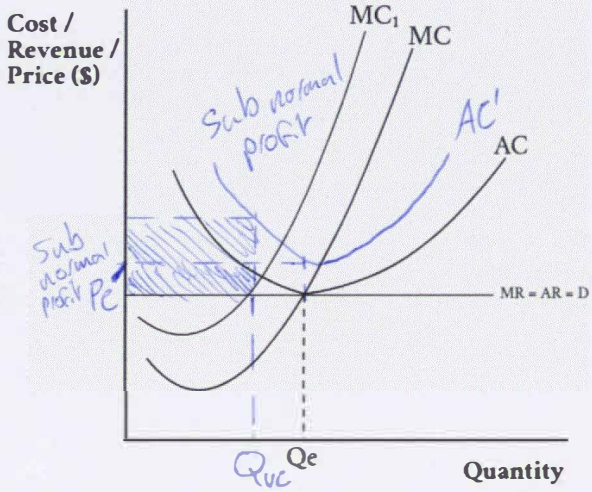
A fixed cost only affects average cost because it increases total cost and doesn't change the cost to make one more unit (MC). In this case the rising council rates does not affect the cost to produce one more vegetable. However, variable cost affect both AR and MC. This is because it affects total cost and the cost to make one more vegetable.

Graph Three and Graph Four below show perfect competition experiencing increased fixed costs and variable costs respectively. Qe is the output level before any cost increase.

Graph Three: Increased fixed costs



Graph Four: Increased variable costs



(ii) On Graph Three and Graph Four above, add the AC curve (label AC_1) to reflect the increased costs.

(iii) On Graph Three and Graph Four above, show the short run profit maximising (or loss minimising) output (label Q_{FC} and Q_{VC} respectively), price (label Pe), and the type of profit (shade and label) following the increased fixed costs and variable costs.

(iv) Explain any difference in the short run profit maximising output for the perfect competitor (farmer) following an increase in fixed costs compared to an increase in variable costs.
In your answer, refer to:

- the cost curve shifts on Graph Three and Graph Four
- your answer to (a)(i) on page 6.

With an increase in fixed costs, the perfect competitor will be able minimise loss better than the increase in variable costs. Because fixed costs only raise the average costs, only the AC curved is moved from AC to AC'. However, the variable costs affect both marginal cost and average cost which shifts the MC curve to MC' and the AC curve to AC'. Because both MC and AC shifted to MC' and AC', the overall amount of subnormal profit is larger than the increase in fixed costs. This therefore means that in the short run an increase in fixed costs are better than an increase in variable costs.

(b) (i) On Graph Three on page 6, show the perfect competitor's long run profit maximising:

- output (label Q_1)
- price (label P_1).

Question continues on the next page ➤

(ii) Compare and contrast the short and long run profit maximising positions for the perfect competitor following an increase in fixed costs.
In your answer, refer to:

- Graph Three and the resource material on page 6
- the characteristics of perfect competition
- marginal analysis
- output, price, and profit.

In the short run, an increase in fixed costs will cause a sub normal level of profit at price Pe and quantity Qe. This is because AC' is greater than AR when MR meets MC. However, because a perfectly competitive market has no barriers to exit, competitors are able to exit the market. When enough competitors exit the market, the increase in fixed costs will be offset by the new profit gained from less competitors being in the market. This will therefore cause a normal profit in the long run. Because of this the marginal revenue curve will increase until it meets the AC' curve where normal profit is made (AR'=AC'). This then increases quantity that is being ouput (Qe → Q1).

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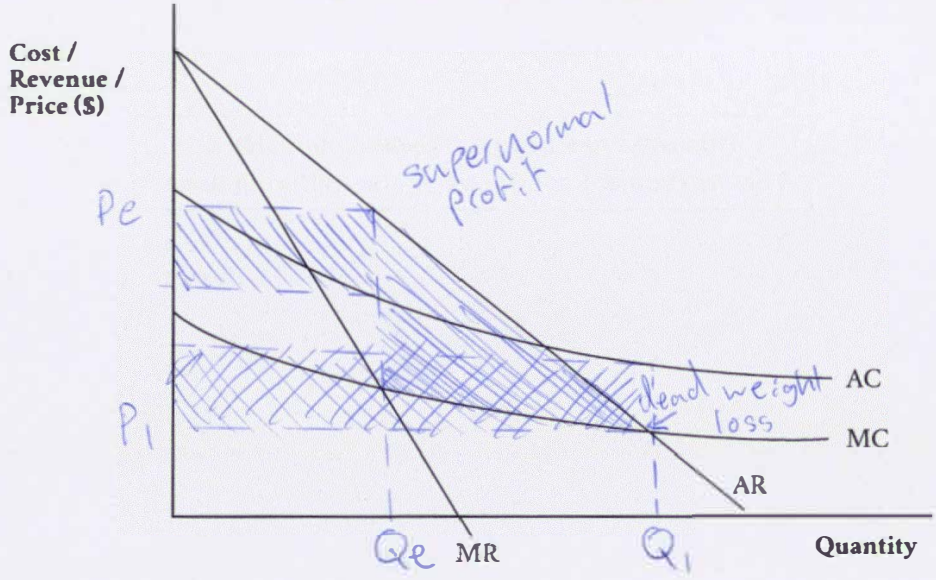
The assessment continues on the following page.

QUESTION THREE: Natural monopoly

Unregulated natural monopolies, unchecked by competition, tend to inflate prices and restrict output. This maximises their profit, but leaves consumers paying more for less, undermining essential service availability.

Graph Five: Natural monopoly



(a) (i) On Graph Five above:

- identify and label the profit maximising price (Pe), and quantity (Qe)
- shade and label the type of profit made
- shade and label the deadweight loss caused by the natural monopoly producing at profit maximising level.

In industries where there are significant economies of scale, such as electricity grids, water supply, or pipeline networks, duplicating infrastructure networks would be expensive and wasteful.

(ii) Explain why the Government might not encourage competition, despite the inefficiencies the natural monopoly creates.
In your answer, refer to the characteristics of a natural monopoly, Graph Five, and the resource material above.

A natural monopoly occurs when the average and marginal cost decreases when the level of output increases. It also has a high level of fixed costs which also acts as a high barrier to entry.

Although a natural monopoly creates inefficiencies, it also creates a low price for the consumers to pay due to the decreasing average cost. The government will discourage competition in a natural monopoly so that the competitor will not lose profits. This is because the firm already existing inside the natural monopoly will be able to undercut the new competitor by lowering price. They are able to do this because of the decreasing average costs. Although consumers would be happy due to the decrease in price, both firms would be at a loss as the existing firm will be receiving less profit and the new firm would not survive in the market.

Question continues on the next page ➤

(iii) Explain why the unregulated natural monopoly might choose to produce at the output level of Qe.
In your answer, refer to Graph Five on page 10 and marginal analysis.

The Firm in the unregulated natural monopoly might operate at Qe in order to maximise their level of profits. This is because if they operate at a quantity less than Qe, they will be missing out on potential profits because marginal revenue is greater than marginal cost. But if they operate at a quantity higher than Qe they will be getting marginal losses because marginal cost will be greater than marginal revenue.

To keep essential services accessible, the Government could use price controls on natural monopolies. This prevents excessive price increases, ensuring basic utilities remain affordable for all consumers. Marginal cost pricing is one possible price control used to regulate natural monopolies.

(b) (i) On Graph Five on page 10, show the impact of a regulated natural monopoly operating under marginal cost pricing by:

- identifying and labelling the new price (P_1), and quantity (Q_1)
- shading and labelling the type of profit made.

(ii) Compare and contrast the price and profit positions of the regulated and unregulated natural monopoly.
In your answer, refer to Graph Five and explain how the prices are set, and the impact on the natural monopoly and its long term viability.

In the unregulated monopoly, the existing firm was able to ~~asked~~ gain supernormal profit by being at profit maximising output at price Pe and quantity Qe. However, in the regulated monopoly, the firm was forced to use marginal cost pricing at price P1 and quantity Q1. Because the natural monopoly is now being regulated, the ~~are~~ firm is now making subnormal profits. Although consumers are now able to buy at a lower price due to how affordable it now is, the firm is now operating at a marginal loss. Therefore the long term viability is not good as the government will be forced to make the natural monopoly unregulated again or find another way for the firm to receive supernormal profits.

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QUESTION NUMBER

91400

Achievement

Subject: Economics

Standard: 91400

Total score: 10

Q	Grade score	Marker commentary
One	A4	The candidate: • correctly labelled PSR=PLR and QSR=QLR, shaded and labelled the supernormal profit in Graph One, and made all the correct changes on Graph Two • explained that in the long run the monopoly continues to make a supernormal profit, as is the case in the short run • explained that the monopoly is not allocatively efficient due to the DWL. To gain an M5 grade or better would require the candidate to expand on the characteristics of a monopoly to explain how the strong barriers prevent other firms from joining the industry therefore preventing supply from increasing and price from falling etc. with reference to the graph(s).
Two	N2	The candidate provided minimal achievement evidence by partially explaining the difference between fixed costs and variable costs. To gain an A3 grade or better would require the candidate to correctly position the AC_1 curve on Graph Four, label the price Pe, and draw and label the long run $MR_1=AR_1=D_1$. The explanation on (a) (iv) should be on output instead of profit.
Three	A4	The candidate: • made correct shadings and labelling on the graph • identified some features of a natural monopoly • used some aspects of the concept of marginal analysis to explain why the unregulated monopoly might produce at output Qe but omitted that Qe is at its profit maximisation point of MC=MR. To gain an M5 grade or better would require the inclusion of the profit maximisation point in the marginal analysis explanation, and to correctly refer to multiple features of a natural monopoly to explain why it is better to have a natural monopoly than having two or more firms competing with it. This would be done by referring to the graphs and resource material.