

91400



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Level 3 Economics, 2017

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

2.00 p.m. Wednesday 29 November 2017
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 2–8 in the correct order and that none of these pages is blank.

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

Excellence

TOTAL

23

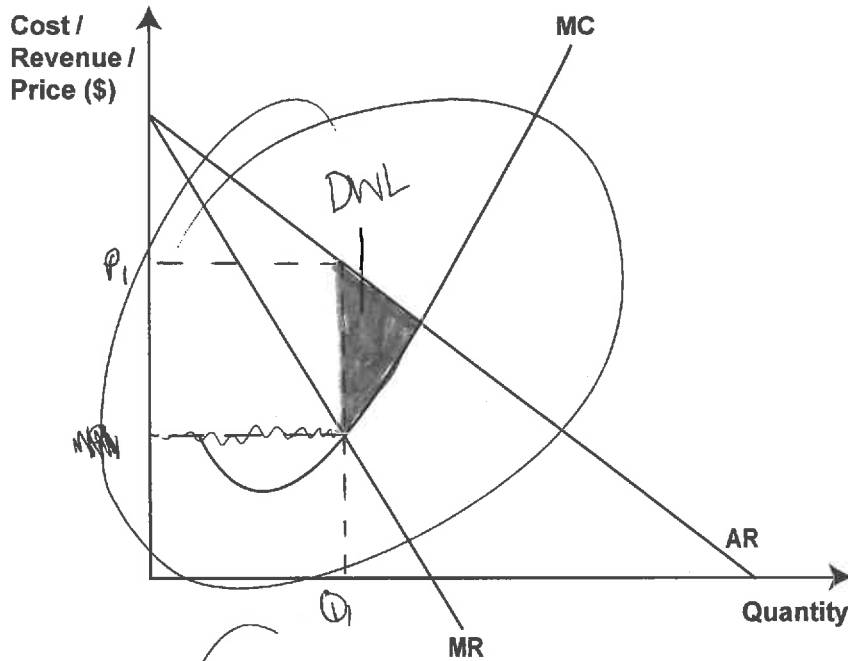
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QUESTION ONE: EFFICIENCY OF MONOPOLY AND PERFECT COMPETITION

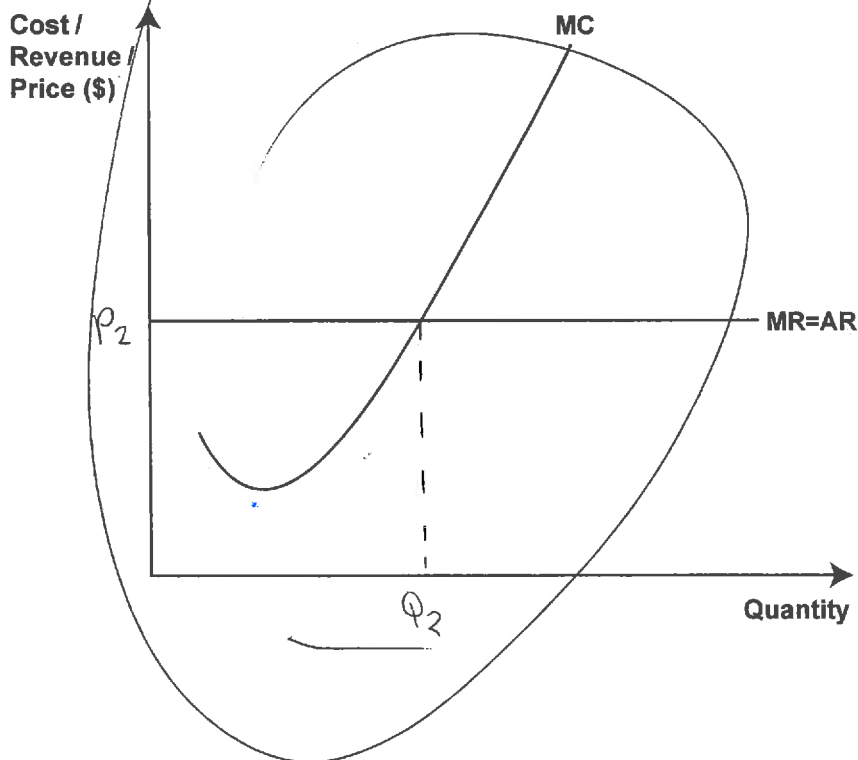
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During the last 40 years, the New Zealand Government has implemented a number of policies designed to reduce monopoly power, encourage more competition, and increase efficiency in significant industries such as electricity, telecommunications, and broadcasting.

Graph One: A firm operating in a monopoly market



Graph Two: A firm operating in a perfect competition market



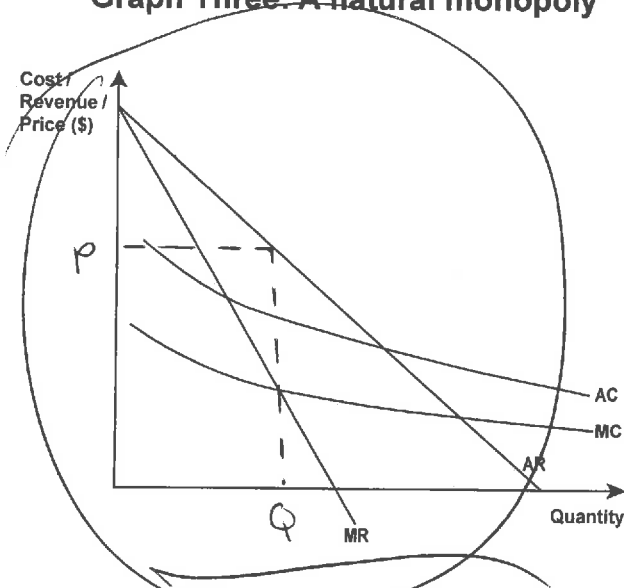
- (a) (i) On Graph One, identify the profit-maximising price (P_1) and the profit-maximising quantity (Q_1) for the monopolist.
- (ii) On Graph One, shade the deadweight loss.
- (iii) On Graph Two, identify the profit-maximising price (P_2) and the profit-maximising quantity (Q_2) for the perfect competitor.
- (b) Referring to both graphs and the key characteristics of both markets, explain in detail why a firm operating in a perfectly competitive market is allocatively efficient and why a firm operating in a monopoly market is NOT allocatively efficient.

Monopolies are ~~a single~~ ^{the only} firm in a market, meaning they have strong control over ^{the} price they receive. They are able to control price or quantity of a market in order to profit maximise. There are strong barriers to entry of the industry, meaning other firms will not be able to enter the industry, ~~and~~ attracted by supernormal profits, and increase market supply, resulting in a decrease in price. Therefore monopolies will be able to continue charging high prices and making supernormal profits in the long run. Monopolies will produce at profit maximising output, of Q_1 , this is where marginal revenue is equal to marginal costs ($MC = MR$). If they were to increase output, marginal costs would be greater than marginal revenue, so marginal losses would be made on the last unit produced. If they decreased output to below Q_1 , $MR^{(marginal\ revenue)}$ would be greater than MC , meaning marginal profits would be missed out on the last unit produced. Therefore a monopoly will profit maximise and produce at output Q_1 , charging a price of P_1 . Profit maximising results in DWL, of the pink shaded area, because the market is not at equilibrium ~~where~~ where marginal cost (supply) = ~~an~~ average revenue (demand), therefore the market has lost allocative efficiency, and producer and consumer surpluses are not maximised.

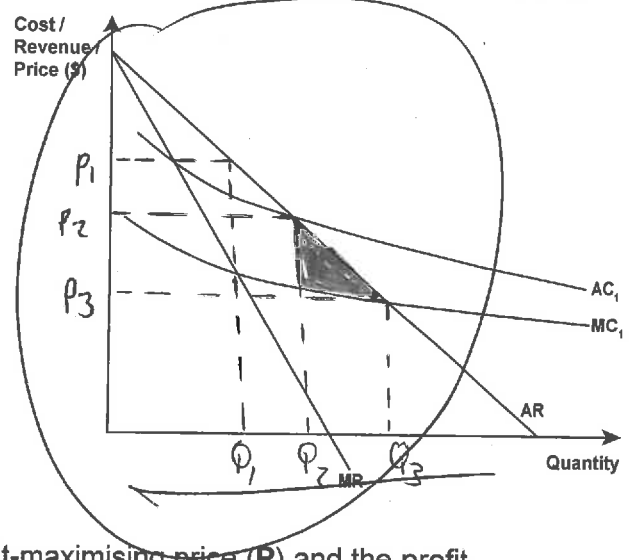
Perfect competition means there is perfect knowledge in the market place, so other firms will be aware of the profits

QUESTION TWO: NATURAL MONOPOLY

Graph Three: A natural monopoly



Graph Four: A natural monopoly after an increase in variable costs



- (a) (i) On Graph Three above, identify the profit-maximising price (P) and the profit-maximising quantity (Q).
- (ii) On Graph Four above, identify the profit-maximising price (P₁) and the profit-maximising quantity (Q₁).
- (b) Use the concept of marginal analysis to explain in detail why the increase in variable costs has resulted in a lower quantity produced for the natural monopolist. Refer to both graphs.

An increase in variable costs results in an increase in average cost (AC to AC₁) as the cost per unit increases and increase in marginal cost (MC to MC₁) ^{cost of producing the last unit.} As monopolies will always produce at profit maximising output, where $MC = MR$. Due to the increase in marginal costs (MC to MC₁) ^{at quantity Q} there will ~~be a~~ ^{on the last unit produced.} marginal losses made, as marginal costs (MC₁) will be greater than marginal revenue (MR). As a result the natural monopoly will decrease output for all quantities between ~~Q and~~ Q and Q₁, until at Q₁, $MC_1 = MR$ and profits are again maximised. This results in a decrease in quantity produced from Q to Q₁.

As a result of the increase in price and reduction in quantity, the Government may decide to implement price controls to make the good more affordable for consumers and the market more efficient. Average cost pricing and marginal cost pricing are two examples of price controls that the Government could use.

- (c) On Graph Four, identify
- the price (P_2) and quantity produced (Q_2) if the Government employed average cost pricing
 - the price (P_3) and quantity produced (Q_3) if the Government employed marginal cost pricing.
- (d) Referring to Graph Four, explain in detail:
- which of these two policies would be more beneficial for the consumer
 - the impact of both price controls on allocative efficiency.

Marginal cost pricing would be most beneficial for the consumer, as it allows ~~good~~ consumer surplus to be maximised. Marginal cost pricing results in a much lower price for consumers (P_3) compared to average cost pricing at (P_2). ~~This means the difference between~~ Consumers also consume a greater quantity at this price level (P_3 compared to P_2). Therefore consumer surplus is greater at marginal cost pricing (area between P_3 and the AR curve) compared to average cost pricing (area between P_2 and the AR curve). Average cost pricing improves allocative efficiency, ~~by~~ but still results in deadweight loss. AC pricing decreases price (P_1 to P_2) and increases quantity (Q_1 to Q_2), moving the market closer to equilibrium (where $MC_1 = AR$). However the natural monopoly is still over pricing and under producing, so this results in DWL of the pink shaded area, the market is not fully allocatively efficient because consumer and producer surplus are not maximised. Marginal cost pricing is allocatively efficient because this occurs at P_3 , where marginal cost (MC_1) = average revenue (AR), or supply = demand so the market is at equilibrium, DWL of pink area is eliminated and consumer and producer surplus are maximised.

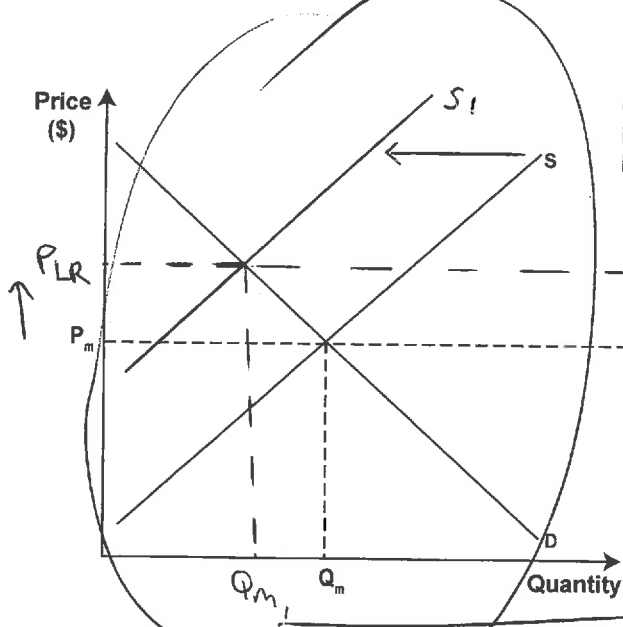
QUESTION THREE: PERFECT COMPETITION

The average rent in the Auckland region has increased 21 per cent in the last five years.

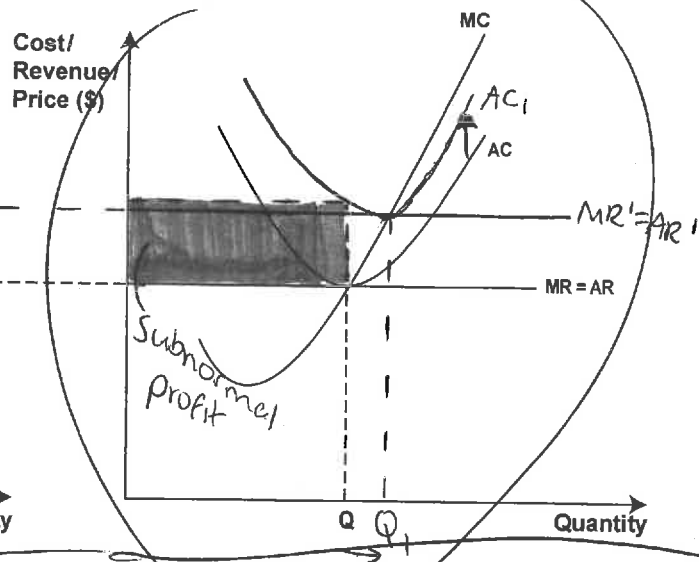
Source (adapted) <http://www.stuff.co.nz/life-style/home-property/80706225/auckland-sees-massive-rent-increases-but-not-in-the-places-you-d-expect>

Increased rents have affected both residential and commercial properties in Auckland and will increase the fixed costs for firms that rent their premises.

Graph Five: The market



Graph Six: The individual perfectly competitive firm



- (a) (i) Complete Graph Six to show the impact of an increase in fixed costs on the individual firm. Clearly label any curve shifts. ✓
- (ii) On Graph Six, clearly shade the new level of economic profit that would be earned by the individual firm as a result of the increase in fixed costs. Identify the profit as normal, supernormal, or subnormal. ✓
- (b) (i) Complete Graph Five to show how the market equilibrium price would be affected in the long run as a result of the increase in fixed costs.
- (ii) On Graph Six, show how the changes in the market would affect the long-run levels of output and profit for the individual firm, assuming that the firm stays in the industry.

(c) Use marginal analysis to compare and contrast the short-run and long-run profit and output decisions of a perfect competitor after an increase in fixed costs. In your answer:

- refer to both graphs
- explain in detail the impact (if any) on the short-run level of output and profit for the individual firm as a result of an increase in fixed costs
- explain in detail how the long-run changes in the market would affect the long-run levels of output and profit for the individual firm, assuming that the firm stays in the industry.

(AC to AC₁)

An increase in fixed costs will increase the firm's average costs[^], or costs per unit, but not marginal costs as once the fixed costs are paid the marginal cost of producing one more unit stays the same. In the short run at least one factor of production is fixed, so marginal revenue and average revenue will remain the same. At output level Q , average costs (AC₁) are now greater than average revenue (AR), therefore subnormal profits are being made, shown by the pink shaded area. Since MC and MR remained the same, output level will not change as despite the subnormal profits, output Q is profit maximizing. In the long run, due to the low barriers to exit the market, in a perfectly competitive market place, firms will leave the industry, deterred by subnormal profits as more able to gain profits elsewhere. This will cause a decrease in market supply, shown on graph 5, a shift to left of S to S_1 as supply decreases at each and every price. This causes price to increase from P_m to P_{1p} . Since the perfectly competitive firm is a price taker, they will receive this higher market price, increasing ~~shifting~~ their marginal and average revenue ($MR=AR$ to $MR'=AR'$). At the current output of Q , the firm will be making marginal losses[^] as MC, exceeds MR, (marginal cost exceeds marginal revenue). Therefore they will increase output, as average cost decreases for all quantities between Q and Q_1 , before diminishing returns sets in and average cost begins to increase[^] after Q_1 , as more input is needed per unit of output. Therefore the firm will increase

Extra space if required.

Write the question number(s) if applicable.

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QUESTION
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1 b) being made. Therefore firms can exit (deterred by subnormal profits) or enter (attracted by super-normal profits) freely and increase or market supply.

Since perfect competitors are price takers, they must accept the new market price as a result of change in market supply, meaning their $MR=AR$ curve will shift accordingly. Their marginal revenue (MR) is

equal to average revenue (AR) due to the low set up costs of perfect competition. ^{the additional cost of producing one more unit is equal to the average cost per unit.} Therefore at profit maximising output where $MC=MR$ at Q_2 ,

AR (demand) is also equal to MC (supply) and the market is at equilibrium, meaning there is no DWL, and producer and consumer surpluses are maximised so the market is allocatively efficient.

~~and~~

3 c) output to Q_1 , where $MC_1=MR_1$. At this output level ~~the~~ average revenue will again equal average cost ($AC_1=AR_1$) and normal profits will be made in the long run, assuming firms stay rather than leaves the industry.

Excellence exemplar 2017

Subject:	Economics	Standard:	91400	Total score:	23
Q	Grade score	Annotation			
1	E8	<p>The response has been awarded E8 because for both perfect competition and monopoly, when explaining allocative efficiency, the candidate has:</p> <ul style="list-style-type: none"> • used a valid characteristic of the market structure to explain why the firm is a price taker (PC) or why the firm can set the price or quantity (monopoly) • referred to AR and MC and recognised that AR is the demand curve and MC is the supply curve • referred to deadweight loss and consumer plus producer surplus • referred to specific labels from the graphs. 			
2	E8	<p>The response has been awarded E8 because the candidate has:</p> <ul style="list-style-type: none"> • referred to marginal losses when explaining marginal analysis after an increase in variable costs • explained that MC pricing is more beneficial for the consumer due to a higher consumer surplus and lower price and higher quantity • used the concept of deadweight loss, with valid reasons, to explain why AC pricing is not allocative efficient and MC pricing is allocative efficient • referred to specific labels from the graphs. 			
3	E7	<p>The response has been awarded E7 because the candidate has:</p> <ul style="list-style-type: none"> • for the short run, given valid reasons for why output won't change and why the profit reduces to subnormal • recognised that an increase in fixed costs won't impact on marginal costs and the profit maximising quantity • for the long run, used key characteristics of perfect competition and marginal analysis to give valid reasons for why the market price increases, $MR = AR$ increases, and the output increases • referred to specific labels from the graphs. <p>To gain an E8 grade would require additional detail when explaining the economic profit reduces to normal in the long run e.g. the incentive to leave the industry has been removed</p>			