

Exercise walk-through

5.2.1

Market structures, concentration and monopoly (cut of 5.2)

Pearson Edexcel · International A-Level · Economics

1. Topic 5 at a glance

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WEC13 first half: spec sections 3.3.1 to 3.3.3 - business types and growth, objectives, revenue and the full cost machinery, economies of scale, the efficiency concepts and the whole market-structures spectrum to monopsony and contestability. 57 objectives.

Must-know: $TR = PQ$, $AR = TR/Q$, MR with twice the slope of AR ($70 - Q$ here); the cost table with MC 5-4-3-2-3-4-5-6-7, AVC min 3.4 (shutdown), ATC min 5.43 (break-even); profit max $MR = MC$; monopoly Q_m 40, P_m 50, profit 800, deadweight loss 200; CR_4 90 percent.

6. Efficiency and concentration

Efficiency and concentration

Allocative efficiency $P = MC$; productive at minimum ATC; dynamic through investment and innovation; X-inefficiency is waste above the achievable cost floor. Structures score differently: perfect competition is statically efficient but dynamically weak; monopoly the reverse.

Concentration: with shares 40, 25, 15, 10, 10 the four-firm ratio is 90 percent - concentrated, but ratios miss import competition and how contestable the market is.

7. Market structures

Market structures

Perfect competition: price takers, long-run $P = \min ATC$, normal profit, both efficiencies. Monopolistic competition: differentiation (physical, marketing, distribution) earns short-run profit; entry drives demand tangent to ATC - normal profit, excess capacity. Oligopoly: interdependence behind barriers (economies of scale, limit pricing, patents, branding, sunk costs, legal); the prisoners' dilemma - defecting dominates, Nash (2, 2) though collusion (4, 4) pays more; cartels, price leadership, price wars; predatory and limit pricing; non-price competition through advertising, quality, endorsement, product placement, after-sales service.

Monopoly: $MR = MC$ at Q 40, price 50 on AR , supernormal profit 800 with ATC 30; against the competitive (60, 40) the deadweight loss is 200. Natural monopoly: falling average costs over the whole market - regulate it. Third-degree price discrimination needs market power, separable groups with different PEDs, no resale.

Exercises 2.1·2.3

2.1 Define allocative and productive efficiency.

[2]

2.2 Market shares are 40, 25, 15, 10 and 10 percent. Calculate the four-firm concentration ratio and interpret it.

[3]

2.3 State the four assumptions of perfect competition and the long-run outcome for price and profit.

[3]

Exercises 2.1·2.3

2.1 Define allocative and productive efficiency. [2]

2.1 Allocative: price equals marginal cost ($P = MC$) – output matches what society values. Productive: production at minimum average total cost.

2.2 Market shares are 40, 25, 15, 10 and 10 percent. Calculate the four-firm concentration ratio and interpret it. [3]

2.2 $CR_4 = 40 + 25 + 15 + 10 = 90\%$: the four largest firms hold 90 percent – a highly concentrated market with substantial market power (caveat: ratios miss imports and potential entry).

2.3 State the four assumptions of perfect competition and the long-run outcome for price and profit. [3]

2.3 Many small firms; identical products; perfect information; free entry and exit. Long run: entry drives price to minimum ATC, so only normal profit remains, with both allocative and productive efficiency.

Exercises 2.4·3.1

2.4 In the game matrix, what is the Nash equilibrium and why is collusion unstable? [3]

2.5 Name any four barriers to entry from the specification. [2]

3.1 (*Original.*) On the model AR: $P = 70 - Q/2$, MR: $P = 70 - Q$, MC: $P = 10 + Q/2$: calculate the monopoly output and price, the supernormal profit if $ATC = 30$ at that output, and the deadweight loss against the competitive outcome. [5]

Exercises 2.4·3.1

2.4 In the game matrix, what is the Nash equilibrium and why is collusion unstable? [3]

2.4 The Nash equilibrium is (defect, defect) = (2, 2): whatever the other does, defecting pays more ($6 > 4$ if the other colludes; $2 > 1$ if it defects), so both defect. Collusion (4, 4) is unstable because each has a profitable incentive to cheat – and collusion may be illegal.

2.5 Name any four barriers to entry from the specification. [2]

2.5 Any four of: economies of scale; limit pricing; patents; branding; sunk costs; legal barriers.

3.1 (*Original.*) On the model AR: $P = 70 - Q/2$, MR: $P = 70 - Q$, MC: $P = 10 + Q/2$: calculate the monopoly output and price, the supernormal profit if $ATC = 30$ at that output, and the deadweight loss against the competitive outcome. [5]

3.1 Monopoly: $70 - Q = 10 + Q/2$ gives $60 = 1.5Q$, so $Q_m = 40$; price on AR: $P_m = 70 - 20 = 50$. Supernormal profit = $(P - ATC) \times Q = (50 - 30) \times 40 = 800$ per day. Competitive: $70 - Q/2 = 10 + Q/2$ gives $Q_c = 60$, $P_c = 40$. Deadweight loss = $\frac{1}{2} \times (60 - 40) \times (50 - 30) = \frac{1}{2} \times 20 \times 20 = 200$ – the value of output between 40 and 60 whose marginal benefit (AR) exceeded its marginal cost.

Exercises 3.2·3.3

3.2 (*Original.*) Explain, with a diagram, why a monopolistically competitive firm earns only normal profit in the long run. [4]

3.3 (*Original.*) What conditions are needed for third-degree price discrimination, and who gains and loses? [4]

Exercises 3.2-3.3

3.2 (*Original.*) Explain, with a diagram, why a monopolistically competitive firm earns only normal profit in the long run. [4]

3.2 Short run: differentiated products give each firm a downward-sloping demand curve; if price exceeds ATC it earns supernormal profit. Entry of close substitutes shifts each firm's demand LEFT and makes it more elastic until the demand curve is tangent to ATC: price equals ATC (normal profit only) but exceeds MC – excess capacity, so not allocatively efficient, and output is below min ATC, so not productively efficient either.

3.3 (*Original.*) What conditions are needed for third-degree price discrimination, and who gains and loses? [4]

3.3 Conditions: market power (price-setting ability); separable groups with DIFFERENT price elasticities; no resale between groups (plus a means of separating them). Gainers: the firm (converts consumer surplus into profit; total output may rise). Losers: the inelastic group pays more; the elastic group may pay less – overall, allocative efficiency usually falls.

Local review guidance: the $MR = MC$ equation solved before either price is read; the DWL uses the gap between AR and MC over the lost output; (R1 3.3) gains and losses split BY GROUP, not in aggregate. This is authored classroom guidance.