



Rewarding Learning
ADVANCED
General Certificate of Education
2022

Economics

Assessment Unit A2 1
assessing
Business Economics



AEC11

[AEC11]
TUESDAY 24 MAY, MORNING

TIME

2 hours.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number on the Answer Booklet provided.
Answer **all** questions in Section **A** and **B** and **one** question in Section **C**.
You are permitted to use a calculator in this paper.

INFORMATION FOR CANDIDATES

The total mark for this paper is 90.

- Section A: 20 marks
- Section B: 40 marks
- Section C: 30 marks

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

ADVICE TO CANDIDATES

You are advised to take account of the marks for each part question in allocating the available examination time. In questions involving calculations, you are advised to show your workings. Quality of written communication will be assessed in Questions **5(b)**, **(c)** and **(d)**, **6** and **7**. Quantitative skills will be assessed where appropriate.

Section A (20 marks)

Answer all questions

- 1 The table below shows the output and total cost for a firm in the long run.

Output (000 tonnes)	Total cost (£000)
3	1500
4	1800
5	2000
6	2700
7	3500
8	4400
9	5400

Identify the level of output at which the firm will achieve productive efficiency. [2]

- 2 Paula McCann is a dairy farmer in a perfectly competitive market. Her marginal cost is equal to average variable cost when average variable cost is 13 pence per litre. Marginal cost is also equal to average total cost when average total cost is 27 pence per litre.

Explain whether Paula McCann should continue production in the short run if the market price of milk falls from 27 pence per litre to 22 pence per litre. [4]

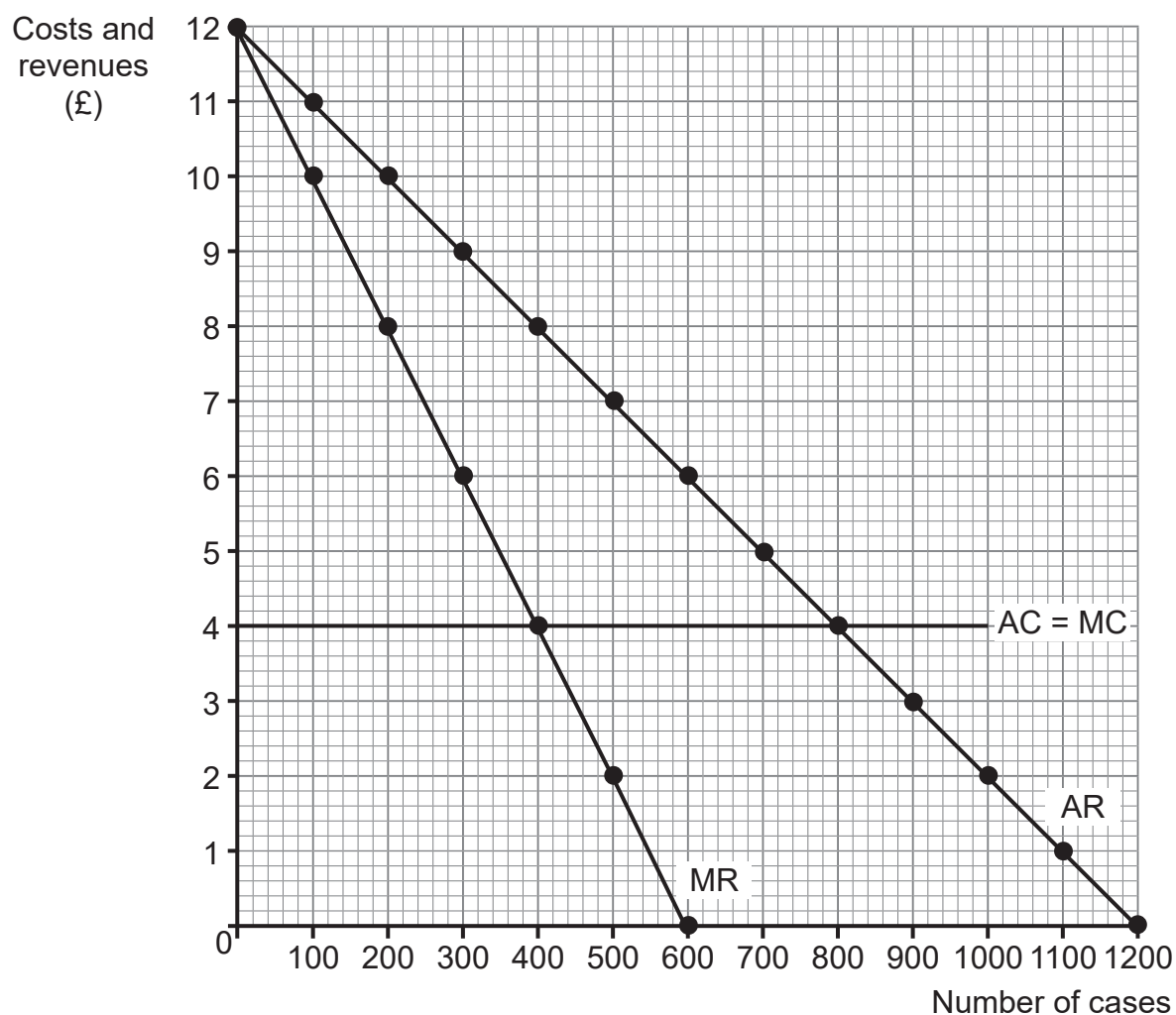
- 3** Across Europe, gin consumption continues to rise at an accelerating rate. A significant part of the market is accounted for by more expensive “craft” gins. In 2019 they accounted for 16% of gin sales by volume and 21% of gin sales by value.

The table below shows the index of gin sales in the EU over a five-year period.

Year	2015	2016	2017	2018	2019
Index of gin sales	89	100	123	157	257

- (a) Identify the base year in the table above. [1]
- (b) Calculate the percentage increase in gin sales between 2018 and 2019. [2]
- (c) Explain why craft gins accounted for 21% of gin sales by value but only 16% of gin sales by volume. [3]

- 4 Makeurcase.com is a company which sells customised phone cases online. The firm has cost and revenue curves as shown on the diagram below.



- (a) Initially, the firm decides to charge all customers the same price for its cases determined by the revenue maximising level of output. Calculate how much supernormal profit the firm will make at this level of output. [4]
- (b) Calculate how much supernormal profit the firm will make if it now decides to adopt a policy of perfect (first degree) price discrimination. [4]

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(Questions continue overleaf)

Section B: Case study

Answer all questions (40 marks)

This case study was compiled in September 2019.

Read the articles carefully and answer the questions which follow.

5 Case study: “Creative destruction in the grocery sector”

Source 1: How a discount supermarket chain changed British shopping

On a Thursday morning in April 1990, in the suburb of Stechford in Birmingham, a strange grocery chain started trading in the UK. It only stocked 600 basic items, fewer than you might find in your local corner shop, and all at very low prices. For many products, including tea, butter and ketchup, only a single, usually unfamiliar brand was offered. This new grocery chain was Aldi, a German company founded in 1964.

The big British supermarkets underestimated Aldi's threat at first. As recently as 2012 the “Big Four” of Tesco, Asda, Sainsbury's and Morrisons had a combined market share of 76.3% as shown in **Fig. 1** opposite. However, the “Big Four”, and their suppliers, did not make things easy for the German retailer. Within months of opening that first store, Aldi had raised a complaint with the Office of Fair Trading. Quaker Oats was refusing to sell to Aldi at all, while Whitbread, the brewer, had criticised the discounter's “open aggression on prices”, and cornflakes had to be sourced from France.

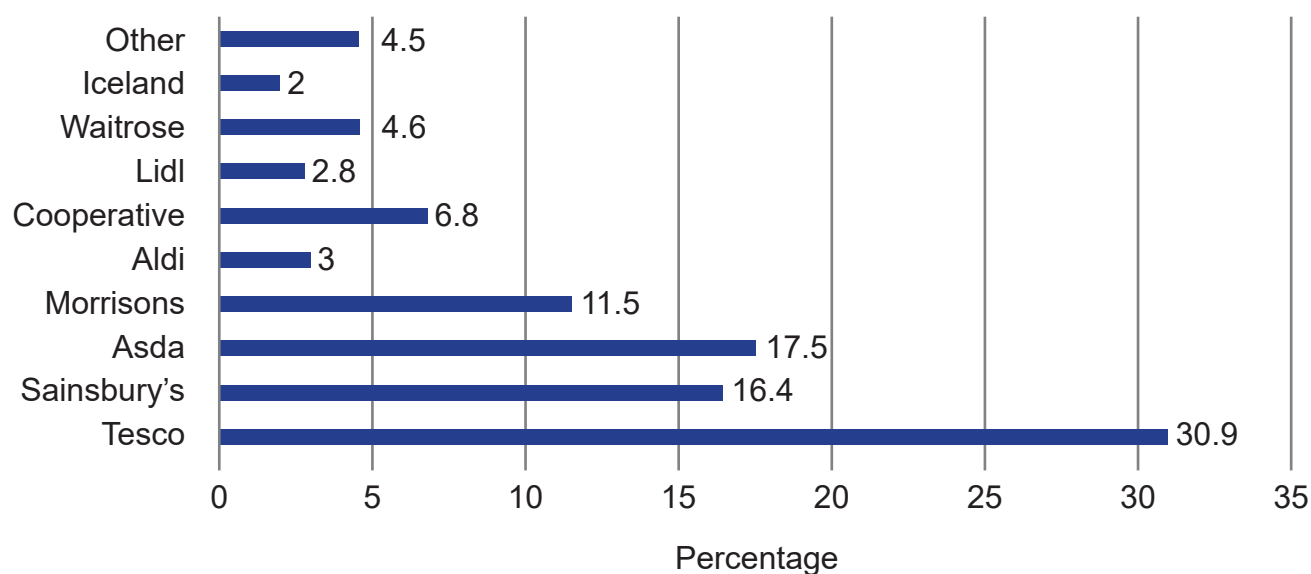
Aldi blamed the established supermarkets for putting pressure on suppliers. One senior manager complained that the “Big Four” had made it almost impossible for Aldi to rent space, organise transport and, most importantly, source products.

To get around this problem Aldi stocks its own branded products, which have names and packaging which are very similar to their big brand rivals. For example, Aldi sells “Wheat Shreds” in a box that looks very like “Shredded Wheat”!

Now, nearly two thirds of UK households visit an Aldi or the other major discount store, Lidl, at least once every 12 weeks. In 2017 Aldi overtook the Co-op to become the UK's fifth largest grocery retailer, while Lidl climbed above Waitrose to claim seventh spot. What's more, the two discounters are still growing quickly – opening an average of one new store every week.

Source: Adapted from © "The Aldi effect: how one discount supermarket transformed the way Britain shops" by Xan Rice. Published by The Guardian, 05 March 2019

Share of UK grocery market 12 weeks to August 2012



Share of UK grocery market 12 weeks to August 2018

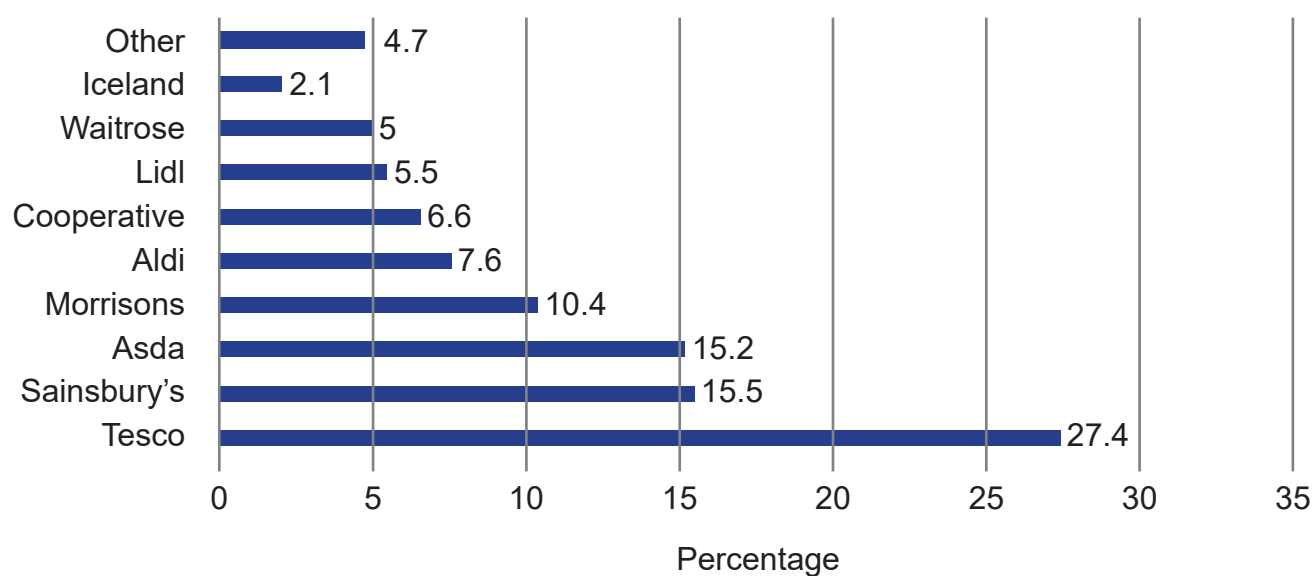


Fig. 1: UK Grocery market share August 2012 and August 2018

Source 2: How technology is changing British shopping

Packaged products in all supermarkets come with a barcode, but look closely at a packet of Aldi toilet rolls and you will see not one but four barcodes: two long ones down the sides, and one on each large flat surface. This allows goods to be scanned quickly and customers moved speedily through the checkout.

Aldi does not sell food through its website. As the large supermarkets have realised, it is very hard to make money from internet sales because the profit margin on groceries is small (typically 2 to 3%) and the delivery costs are so high. Andy Clarke, the former boss of Asda, told the *Sunday Times* last year that if the big four supermarkets had their time again, “they wouldn’t have offered home deliveries, full stop”. However, other companies are going down the technology route. Ocado operates as an online only retailer and was the fastest growing supermarket in the first six months of 2019 with sales growth of 11.3%.

Tesco PLC has turned to a start-up from Israel for help as it looks to become the next major food retailer to remove cashiers from some of its stores. The UK’s largest grocery chain is working with Trigo Vision Ltd, which has developed a system of cameras and software that allows retailers to automatically charge customers as they fill their shopping trolley. Tesco and other grocers are racing Amazon, which could open as many as 3000 checkout-free Amazon Go stores in the US. Amazon is also expanding its partnership with the UK grocery retailer Morrisons.

Source: Adapted from “The Aldi effect: how one discount supermarket transformed the way Britain shops” by Xan Rice. Published by The Guardian, 05 March 2019. And Adapted from © “Tesco turns to cashier less store as competition with Amazon heat up” by Natasha Bernal. Published by Telegraph Media Group, 26 June 2019

Source 3: Competition in the grocery market

Significant change in the grocery market is challenging the traditional views of that sector held by retail analysts. Traditionally, the sector was viewed as an oligopoly with an emphasis on non-price competition via quality of produce or range of products.

The table below shows how UK consumers rated the main grocery retailers based on a number of price and non-price factors.

Extract removed due to copyright

Fig. 2: Consumer rating of UK Grocery Retailers (July 2019)

Source: [//www.which.co.uk/reviews/supermarkets/article/best-supermarkets-aOJn2J0A10N](http://www.which.co.uk/reviews/supermarkets/article/best-supermarkets-aOJn2J0A10N)

Professor Sunflower, Director of Retail Analytics, has said, “The emergence of the German discounters has marked a step change in how supermarkets compete. We are rapidly returning to the old model of pile it high and sell it cheap. In this era of economic uncertainty this move towards greater price competition is both inevitable and desirable.”

- (a) Using the information in **Fig. 1**, explain how the market share of the major grocery retailers changed between 2012 and 2018. [4]
- (b) With reference to recent changes in the UK grocery market, explain the concept of creative destruction. [9]
- (c) Examine the extent to which the UK grocery market is contestable. [12]
- (d) Critically examine the view that it is both inevitable and desirable that the UK grocery market will move from a business model based primarily on non-price competition to one based primarily on price competition. [15]

Section C: Essay section

Answer one question (30 marks)

- 6 Traditional economic theory assumes that firms aim to maximise profits. However, the owner of Richer Sounds, one of the UK's largest electronics retailers, has given 60% of his business to employees while ensuring that a percentage of annual profits goes to charity. Other retailers that are suffering from poor sales might take note as Richer's philosophy seems to be good for business.

Critically examine the view that the assumption of profit maximisation is neither realistic nor desirable. [30]

- 7 In recent years economists have become concerned about the market share and market power enjoyed by the dominant firms in a range of UK industries including telecommunications, petrol retailing and banking. These concerns have led to calls for greater government intervention in these markets to ensure they work well, not just for shareholders, but also for consumers and suppliers.

Critically examine the range of policies the UK government could implement to deal with market dominance in important UK industries. [30]

THIS IS THE END OF THE QUESTION PAPER

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Surname	<i>StemUp Model Solution</i>
Answer booklet	Write the question number in the left-hand margin at the start of each answer.

Question
number

1 *Productive efficiency is where average total cost is at its minimum. $ATC = TC \div \text{output}$: 3 = £500, 4 = £450, 5 = £400, 6 = £450, 7 = £500, 8 = £550, 9 = £600 per tonne.*

ATC is lowest at £400 per tonne, so productive efficiency is achieved at an output of 5000 tonnes.

2 *In the short run a firm should continue producing as long as price covers average variable cost, because its fixed costs must be paid whether it produces or not. The minimum AVC (where $MC = AVC$) is 13p per litre and the new price of 22p is above this, so Paula covers all her variable costs and makes a contribution of 9p per litre towards fixed costs. Price is below minimum ATC (27p), so she makes a loss, but a smaller loss than shutting down, so she should continue production in the short run.*

3(a) *2016 (index = 100)*

3(b) *% increase = $(257 - 157) \div 157 \times 100 = 63.7\%$*

3(c) *Volume is the quantity of gin sold (e.g. number of bottles), while value is the sales revenue, i.e. price $\times$ quantity. Craft gins sell at a much higher price per bottle than mass market gins, so a smaller share of the bottles sold (16%) generates a larger share of total revenue (21%).*

4(a) *Revenue is maximised where $MR = 0$, at an output of 600 cases, where AR (price) = £6.*

$$TR = £6 \times 600 = £3,600 \text{ and } TC = AC \times Q = £4 \times 600 = £2,400$$

$$\text{Supernormal profit} = £3,600 - £2,400 = £1,200$$

4(b)

With perfect price discrimination each customer pays the maximum price they are willing to pay, so AR becomes MR and the firm produces where $AR = MC$, at 800 cases.

$$TR = \text{area under AR from 0 to 800} = \frac{1}{2} \times (£12 + £4) \times 800 = £6,400$$

$$TC = £4 \times 800 = £3,200, \text{ so supernormal profit} = £6,400 - £3,200 = £3,200$$

5(a)

The market has become less concentrated: the four firm concentration ratio of the Big Four fell from 76.3% in 2012 to 68.5% in 2018, a fall of 7.8 percentage points. All of the Big Four lost share: Tesco fell from 30.9% to 27.4% (-11.3%), Asda from 17.5% to 15.2% (-13.1%), Morrisons from 11.5% to 10.4% (-9.6%) and Sainsbury's from 16.4% to 15.5% (-5.5%).

By contrast, the discounters grew rapidly: Aldi's share rose from 3% to 7.6% (an increase of 153%) and Lidl's from 2.8% to 5.5% (an increase of 96%), so their combined share rose from 5.8% to 13.1%. Other retailers changed little, e.g. Waitrose rose from 4.6% to 5% and the Co-op fell from 6.8% to 6.6%.

5(b)

Creative destruction is a term devised by the Austrian economist Joseph Schumpeter in 'Capitalism, Socialism and Democracy' (1942). It is the process by which formerly dominant firms, products or technologies are pushed out of the market by new, innovative and dynamic ideas or entrepreneurs. Schumpeter saw it as the 'fundamental impulse' that keeps the capitalist engine in motion: new goods, new methods of production, new markets and new forms of organisation incessantly destroy the old economic structure and create a new one. The incentive is the supernormal profit that innovators earn, which then attracts imitators and erodes incumbents' monopoly power.

Creative destruction can arise from new business models. Aldi entered the UK in 1990 with a new model: only about 600 basic lines, its own brands (e.g. 'Wheat

Shreds') and very low prices, emphasising value for money ahead of range or shopping experience. This lowers costs (a narrow range means bulk buying economies of scale and simpler logistics), allowing lower prices. As Fig. 1 shows, the Big Four's combined share fell from 76.3% to 68.5% between 2012 and 2018, while Aldi's rose by 153%, overtaking the Co-op to become fifth largest in 2017. Incumbents lose market share and profit and are forced to cut prices, close stores or change their own model, or they are destroyed.

It can also arise from new technology. Aldi's four barcodes per pack (Source 2) speed up checkouts, raising labour productivity and lowering average costs. Ocado's online only model grew sales by 11.3% in the first half of 2019, while checkout-free stores, such as Tesco's Trigo Vision system and the possible 3000 Amazon Go stores, could replace cashiers entirely. These process innovations destroy traditional jobs and formats (e.g. staffed tills) but create new jobs, lower costs and better service for consumers.

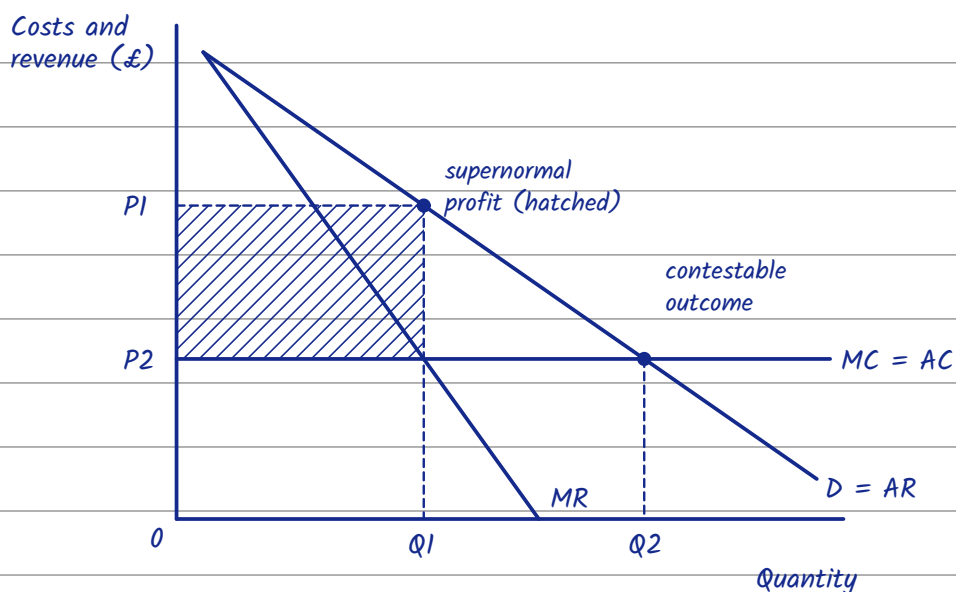
Overall, the grocery sector shows how creative destruction raises dynamic efficiency: consumers gain lower prices and more choice, while firms that fail to innovate, like the Big Four that 'underestimated Aldi's threat', lose market share and profit.

5(c)

A contestable market is one where there are low barriers to entry and exit, so it is easy for new firms to enter and compete with existing firms. A key determinant is the size of sunk costs (costs that cannot be recovered on leaving the market): the higher they are, the less contestable the market. In a contestable market the threat of 'hit and run' entry means potential rivals influence incumbents almost as much as existing rivals, so incumbents keep prices down and earn only normal profit (limit pricing), and must be productively efficient.

As the diagram shows, an incumbent protected by barriers would produce $Q1$ where $MR = MC$ and charge $P1$, earning supernormal profit (hatched). If the market is perfectly contestable, the threat of entry forces price down to $P2 =$

AC at Q_2 , so only normal profit is earned.



On the face of it the UK grocery market appears contestable. Aldi and Lidl have both entered and are mounting a successful challenge to firms that are over a century old: their combined share rose from 5.8% to 13.1% between 2012 and 2018 (Fig. 1), and they open an average of one new store every week. Ocado was the fastest growing supermarket in the first half of 2019 (sales up 11.3%), and Amazon plans to enter with Amazon Go and through its partnership with Morrisons. The threat of entry seems to be changing incumbents' behaviour, as they cut prices and invest in technology.

However, there are considerable barriers to entry. These entrants are not start-ups: Aldi and Lidl each have over 10 000 stores worldwide (Lidl founded in 1930, Aldi in 1946), Ocado was backed by John Lewis and is now 50% owned by Marks and Spencer, and Amazon is one of the largest companies in the world. Their capital and expertise let them overcome barriers that a small firm could not. The Big Four also behaved strategically: they pressured suppliers, so Quaker Oats refused to supply Aldi and cornflakes had to be sourced from France, and they made it 'almost impossible' to rent space or organise transport. Aldi only got round this by developing its own brands.

Good store sites cost considerable amounts of money and may be owned by

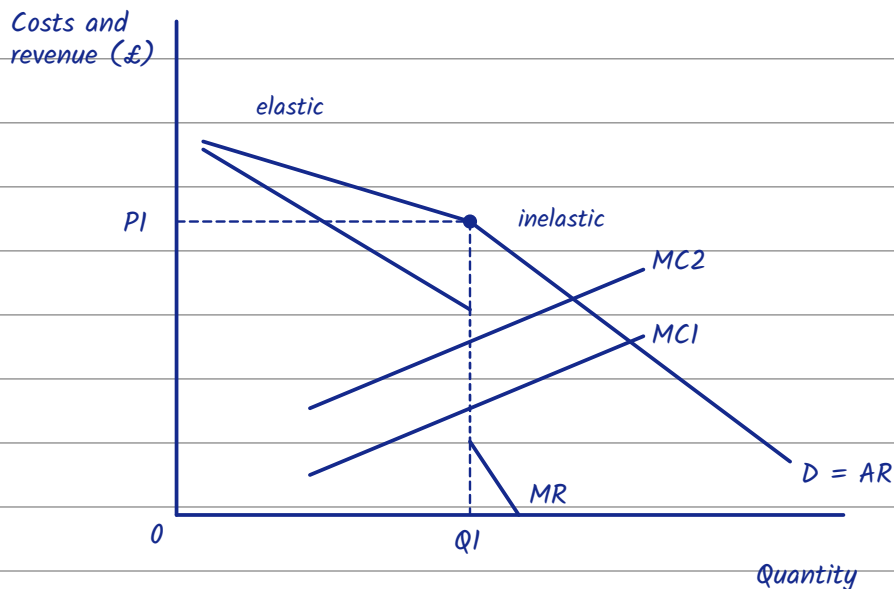
rival chains that will not sell them. Incumbents' strong brand images, loyalty cards and customer loyalty are further barriers, although Aldi and Lidl have undermined these. The Big Four also enjoy large economies of scale, so an entrant at small scale has higher average costs. Firms relying on technology, such as Ocado's warehouses or Amazon Go's cameras and software, require large investment that is a sunk cost and cannot be recovered if the business fails, and with profit margins of only 2 to 3% the risk is high.

In conclusion, the UK grocery market is only partly contestable. It is contestable for very large, well financed firms entering from other countries or sectors, which is why the incumbents have been forced to compete harder, but high sunk costs, scale economies and incumbents' strategic barriers mean it is far from perfectly contestable for small new firms. The degree of contestability also depends on the time period, as technology such as online ordering may lower sunk costs in the future.

5(d)

The UK grocery market is an oligopoly: a few large firms dominate (the Big Four had 68.5% in 2018), products are differentiated and firms are interdependent. Price competition is where firms compete mainly by cutting prices; non-price competition is competition through quality, range, branding, store appearance, service, loyalty cards and advertising. Traditionally oligopolies avoid price competition in favour of price stability, as explained by the kinked demand curve and game theory.

As the diagram shows, if a supermarket raises its price above P_1 , rivals do not follow, so demand is elastic and it loses many customers; if it cuts price, rivals match the cut, so demand is inelastic and revenue falls. Price is therefore stable at P_1 , and the gap in MR means costs can change from MC_1 to MC_2 without a change in price. Game theory reaches a similar result: a price war leaves all firms worse off, so firms compete through non-price methods instead.



There are strong arguments that the move to price competition is inevitable.

Aldi and Lidl's model of 'pile it high and sell it cheap' has been very successful: Aldi's share rose by 153% and Lidl's by 96% between 2012 and 2018, and nearly two thirds of households visit them every 12 weeks. The consumer ratings in Source 3 show that the discounters score lowly for store appearance, range of products and waiting times, yet they score highly for value for money, which is evidence that consumers are keen to pay a lower price. In an era of economic uncertainty, with real incomes squeezed, demand becomes more price elastic, so the Big Four must respond on price or keep losing share. Technology such as checkout-free stores also cuts costs, allowing lower prices.

However, it is not inevitable. Other grocery retailers may decide not to follow the discounters on price, but focus on range and quality to attract more affluent, less price conscious consumers: Waitrose's share rose from 4.6% to 5%. Non-price competition such as store appearance, availability of staff and short waiting times (Source 3), loyalty cards, special offers, online delivery and convenience stores remains important, and the discounters themselves use brand image and loyalty and now sell a wider range. Firms can also use non-price competition, e.g. heavy advertising, as a barrier to entry, so they have an incentive to keep it. A price war would also be risky when margins are only 2

to 3%. The likely outcome is a mix of both forms of competition.

Is the move desirable? Price competition benefits consumers, as lower prices increase consumer surplus and consumer welfare, particularly for low income households who spend a large share of income on food. It forces firms to bear down on costs, increasing productive efficiency and reducing X-inefficiency, and price moves closer to marginal cost, improving allocative efficiency and reducing supernormal profit.

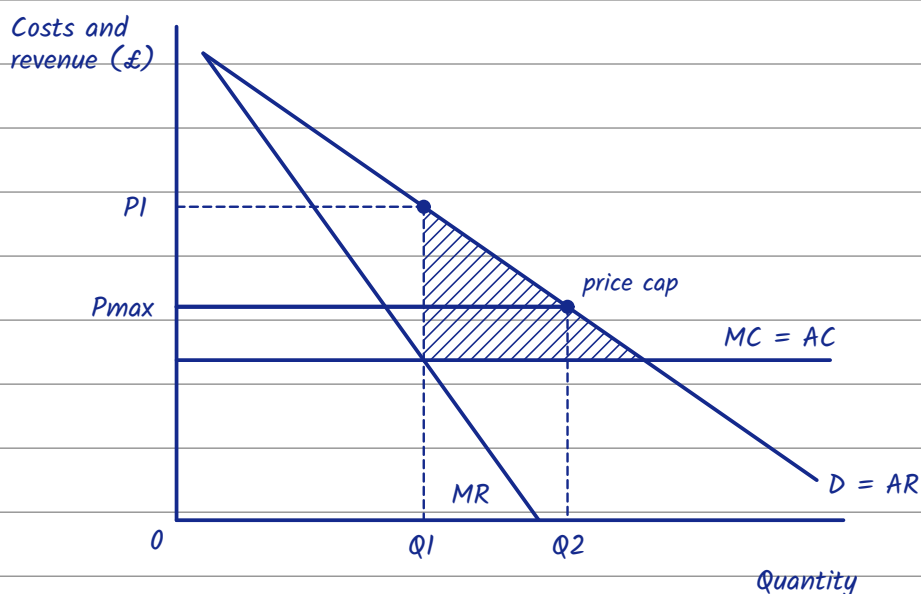
On the other hand, non-price competition can bring dynamic efficiency: firms invest in research and development, new products and better services, giving greater consumer choice. Non-price features add to costs, but consumers value them. Consumers may also prefer the stability that non-price competition brings, as they do not have to waste time and resources constantly checking whether prices have changed. Intense price competition may squeeze suppliers, such as farmers, cut staff wages and lead to fewer firms in the long run if weaker firms exit, reducing competition and choice.

In conclusion, a greater emphasis on price competition is likely, given the success of the discounters and the economic uncertainty, but it is not inevitable that the market will be based primarily on price: firms will continue to segment the market, with some competing on quality. Whether it is desirable depends on its effects on suppliers and on long run competition, but on balance more price competition is desirable because it raises consumer welfare and efficiency, provided enough non-price competition remains to protect choice and innovation.

7

Market dominance occurs when one or a few firms hold a large market share and market power. Market share is the percentage of total sales accounted for by a firm, while market power is the ability to set prices above the competitive level without losing customers, which depends on barriers to entry and the availability of substitutes. In the UK a firm with over 25% market share is a legal monopoly, and telecommunications (e.g. BT), petrol retailing and banking (the big four banks) are highly concentrated.

Dominance can act against the interests of consumers and suppliers. As the diagram below shows, a dominant firm maximises profit where $MR = MC$, restricting output to $Q1$ and raising price to $P1$ above MC . This is allocatively inefficient ($P > MC$), reduces consumer surplus and creates a deadweight loss (hatched). Without competitive pressure there may be X-inefficiency, poor service and less innovation, and a dominant buyer can use monopsony power to squeeze suppliers' prices. Much of the gain goes to shareholders, which increases inequality.

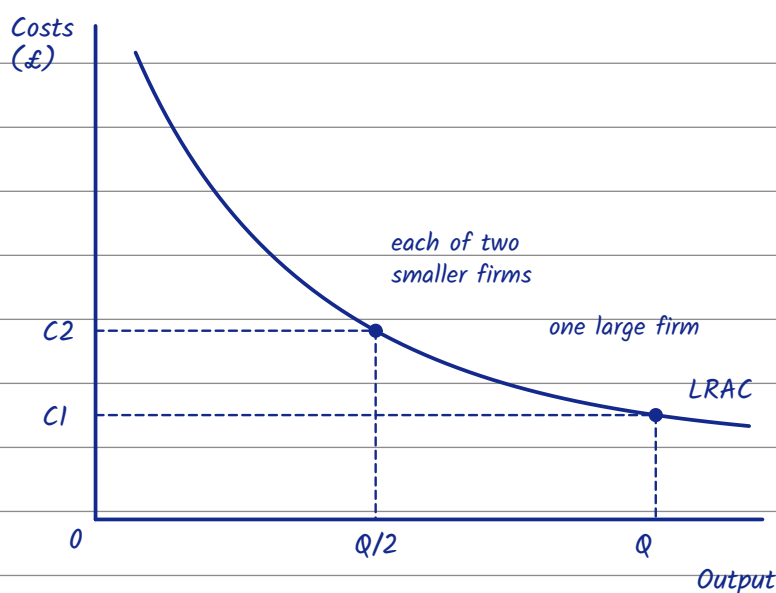


The first policy is price controls. The government, through regulators such as Ofcom or Ofgem, could set a maximum price, e.g. an RPI - X price cap. As the diagram shows, a cap at P_{max} means the firm can no longer raise price above P_{max} , so its AR becomes horizontal at P_{max} and it produces $Q2$ rather than $Q1$: price falls, output rises and the deadweight loss shrinks, increasing consumer surplus. RPI - X also gives the firm an incentive to cut costs, as it keeps any savings above X, and lower prices reduce inflationary pressure. However, it is difficult to set the appropriate price level: the regulator faces asymmetric information about the firm's costs. If the cap is set too low the firm may make a loss, cut investment or quality, or create shortages, distorting market signals and changing community surplus; if it is too high it has little effect.

There is also the risk of regulatory capture, where the regulator comes to serve the industry's interests rather than consumers'.

Secondly, the government could impose windfall taxes on the excessive profits of dominant firms, as the UK did on privatised utilities in 1997 and on banks through the bank levy since 2011. This reduces supernormal profit and redistributes income from shareholders, and the revenue could offset other tax cuts or fund government spending. However, a lump-sum profits tax does not change price or output, so consumers gain nothing directly, and it may reduce the funds available for investment and dynamic efficiency. As the Laffer curve suggests, higher tax rates do not necessarily lead to higher tax revenue, as firms find innovative ways to reduce their tax liabilities or move profits abroad.

Thirdly, the government could break up dominant firms into separate competing companies, as with the legal separation of Openreach from BT in 2017, or Lloyds being required to sell TSB after the 2008 crisis. This reduces concentration, increasing competition, lowering prices and raising efficiency. However, the separate divisions may not compete intensely and may collude tacitly, and it could be counterproductive if the industry is a natural monopoly.



As the diagram shows, where economies of scale are large, one firm producing Q has average cost $C1$, but if it is split into two firms each producing $Q/2$,

average cost rises to $C2$, so prices may rise rather than fall. This is relevant to the telecoms network, where fixed costs are huge.

Fourthly, the government could encourage competition by making markets more contestable: removing legal or administrative barriers to entry, subsidising new entrants and making switching easier. In banking, the CMA's Open Banking remedy and the easing of licensing helped challengers such as Monzo and Starling to enter, while number portability helps in telecoms. The threat of entry forces incumbents towards normal profit and efficiency without the costs of regulation. However, subsidies have an opportunity cost, as the money could be spent on health or education, and it may be difficult to remove barriers such as sunk costs, economies of scale and brand loyalty: the big banks still dominate despite new entrants.

Fifthly, UK competition policy, run by the Competition and Markets Authority under the Competition Act 1998 and Enterprise Act 2002, can investigate markets, block mergers that would substantially lessen competition and fine firms up to 10% of turnover for cartels or abuse of dominance. The OFT's 2013 review of road fuel prices, for example, looked at whether falls in wholesale prices were passed on to drivers. This deters abuse while still allowing efficient large firms to exist, but investigations are slow and costly and fines may be treated as a cost of doing business.

Finally, some economists argue the only answer is nationalisation, so the government runs the firm or industry in the interests of all stakeholders, setting price nearer to MC, as with the rail network (Network Rail). However, nationalisation is expensive, as shareholders must be compensated, and without the profit motive it can lead to productive and X-inefficiency, political interference and a lack of investment, i.e. government failure.

The best policy depends on the industry and the source of dominance. Where there is a natural monopoly, such as the telecoms network, regulation through price caps is likely to be best, since breaking up would lose economies of scale. Where dominance comes from barriers to entry, as in banking, making the

market more contestable and strong competition policy are better, as they tackle the cause rather than the symptoms. Windfall taxes and nationalisation do least to improve efficiency and should be a last resort. It also depends on the size of the abuse, the time scale and whether the costs of intervention exceed its benefits, since government failure is possible.

In conclusion, there is no single policy that works for all industries. A combination is most effective: competition policy and lower barriers to entry to promote competition, supported by price regulation where competition is impossible, so that these markets work well for consumers and suppliers as well as shareholders.