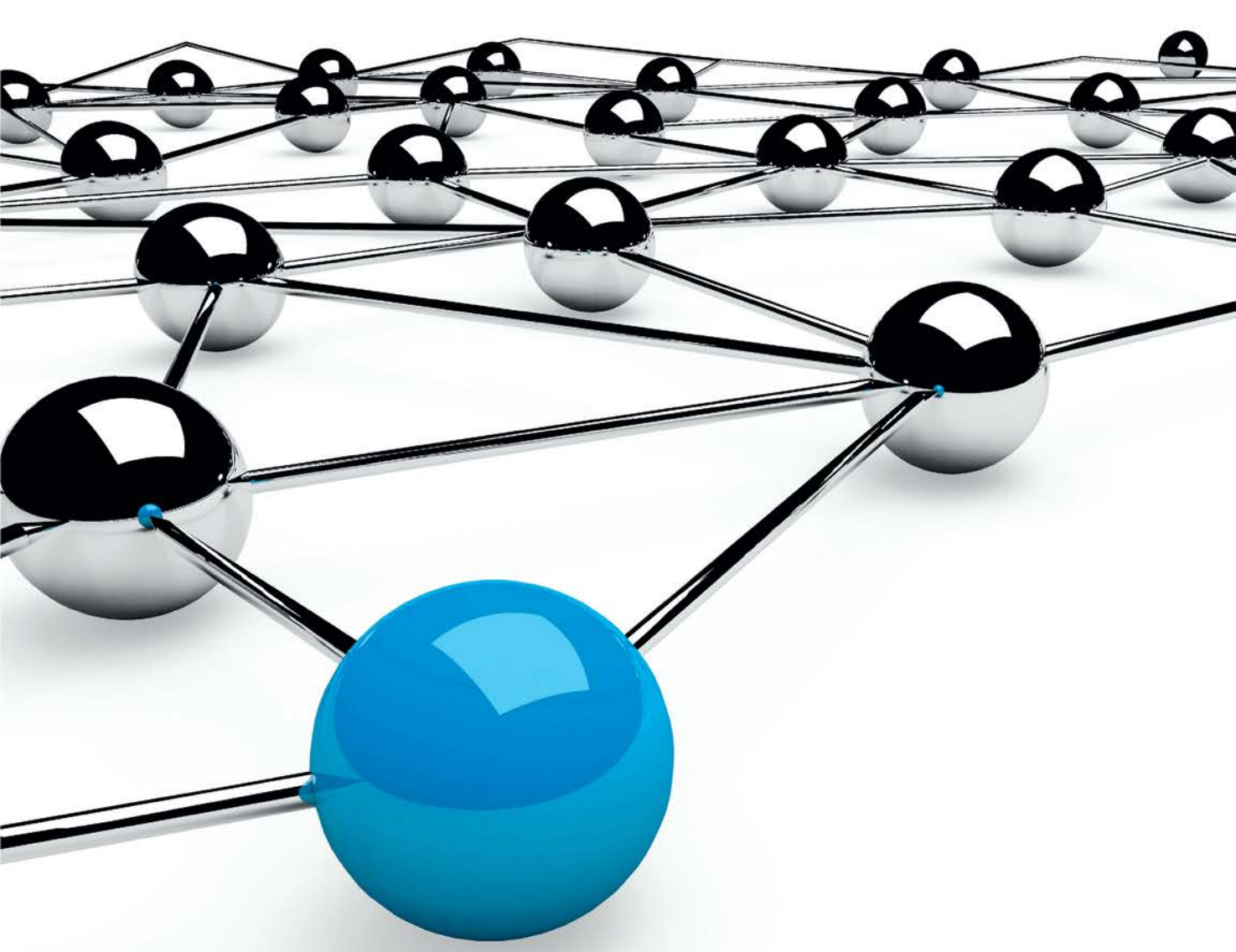

ELEVENTH EDITION

ECONOMICS

JOHN SLOMAN
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Pearson

ECONOMICS

9.6 PRICING IN PRACTICE

What is the typical procedure by which firms set prices? Do they construct marginal cost and marginal revenue curves (or equations) and find the output where they are equal? Do they then use an average revenue curve (or equation) to work out the price at that output?

As we saw in section 9.1, firms often do not have the information to do so, even if they wanted to. In practice, firms look for rules of pricing that are relatively simple to apply.

KI 15 p132

Cost-based pricing

One approach is ***average cost*** or ***mark-up pricing***. Here producers work out the price by simply adding a certain percentage (mark-up) for profit on top of average costs (average fixed costs plus average variable costs). It is a very straightforward heuristic.

$$P = AFC + AVC + \text{profit mark-up}$$

Choosing the mark-up

The level of profit mark-up on top of average cost will depend on the firm's aims: whether it is aiming for high or even maximum profits, or merely a target based on previous

Definition

Average cost or mark-up pricing Where firms set the price by adding a profit mark-up to average cost.

BOX 9.7 HOW DO COMPANIES SET PRICES?

In 2012, the Bank of England published a survey of price-setting behaviour in UK companies.[1] The 693 respondents were representative of firms pricing to maximise profits – organisations in the public sector and/or subject to regulatory controls were excluded from the sample. The survey asked companies how they determine prices. The results are shown in Table (a).

(a) *How are prices determined?*

	Not important	Slightly important	Important	Very important
Price is primarily determined by your competitors' price	4.9	16.3	35.6	32.6
Price is based on direct cost per unit plus a percentage mark-up that varies	8.9	14.9	25.2	32.9
Price is based on direct cost per unit plus a fixed percentage mark-up	15.9	19.3	19.0	24.7
Price is primarily specified by your principal customer	22.5	20.5	17.7	9.5
Price is primarily determined in other ways	15.6	3.0	4.3	12.6

Source: Jennifer Greenslade and Miles Parker, 'New insights into price-setting behaviour in the UK: introduction and survey results', *The Economic Journal*, vol. 122, issue 558 (February 2012), https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1468-0297.2011.02492.x

On average, competitors' prices appears to be the most important factor in determining a firm's pricing strategy, with 68.2 per cent of companies considering it to be either important or very important. Both variable mark-up (58.1 per cent) and fixed mark-up (43.7 per cent) pricing also play an important role. Further analysis found that firms who thought competition was very important in their sector were more likely to set prices based on competitors' prices. Larger firms were also more likely to use variable mark-up pricing.

The survey also sought to establish if those factors that cause prices to rise differ from those that cause prices to fall. Companies were asked about the importance of a range of possible reasons (see Table (b)).

The results show significant differences. Cost increases, especially labour and raw materials, are the most important reasons given by companies for raising prices. Lower demand and competitors' prices are the most important reasons given for reducing prices. Interestingly, companies appear to be less likely to respond to competitors increasing their prices than they are to respond to competitors reducing their prices. Price reductions by overseas rivals also have a much weaker effect than those of domestic rivals.

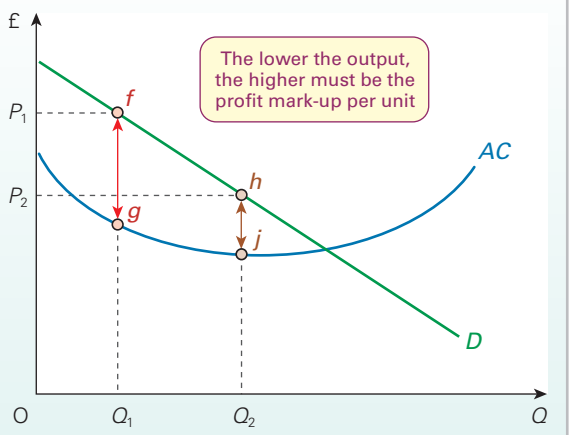
profit. It will also depend on the likely actions of rivals and their responses to changes in this firm's price and how these responses will affect demand.

If a firm could estimate its demand curve, it could then set its output and profit mark-up at levels that will avoid a shortage or surplus. Thus in Figure 9.3 it could choose a lower output (Q_1) with a higher mark-up (*fg*) or a higher output (Q_2) with a lower mark-up (*hj*), depending on its aims. If the firm could not estimate its demand curve, it could adjust its mark-up and output over time by a process of trial and error, according to its success in meeting profit and sales aims.

The equilibrium price and output

Is it possible to identify an equilibrium price and output for the firm that sets its prices by adding a mark-up to average cost? To answer this we can identify a supply curve for the firm.

Figure 9.3 Choosing output and profit mark-up



CASE STUDIES AND APPLICATIONS

(b) *Factors leading to a rise or fall in price*

Rise	%[a]	Fall	%[a]
Increase in cost of labour	67.5	Actual decline in demand	67.5
Increase in the prices of fuel, raw materials or other inputs	62.9	Actual price reduction by domestic rivals	62.9
Actual rise in demand	54.4	Expected decline in demand	55.9
Increasing costs arising out of regulation	45.1	Significant reduction in market share	50.7
Actual price increase by domestic competitor(s)	44.9	Expected price reduction by domestic competitor(s)	45.6
Expected rise in demand	42.7	Decrease in the price of fuel, raw materials or other inputs	44.1
Increase in financing cost	30.4	Decrease in the cost of labour	29.9
Expected price increase by domestic competitor(s)	28.9	Decreasing cost arising out of regulation	22.1
Significant increase in market share	26.8	Actual price reduction by overseas competitor(s)	20.7

[a] The percentage of firms which judged the factor as important or very important.
Source: Jennifer Greenslade and Miles Parker, 'New insights into price-setting behaviour in the UK: introduction and survey results', *The Economic Journal*, vol. 122, issue 558 (February 2012), https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1468-0297.2011.02492.x

More recent surveys

In 2019, the European Central Bank (ECB) reported results from a survey of 58 leading non-financial businesses that operate across the eurozone.[2] Companies were given a list of factors and asked to judge their importance when setting prices (see Table (c)).

The findings broadly support those of the Bank of England survey. Competitors' prices appear to be the most important factor that firms take into account when setting prices. Cost-based pricing is also very important.

(c) *Information that firms consider when setting prices*

Factor	Rank	Price reduction	Rank
Competitors' prices/market shares	1	Product-specific forecasts	5
Raw materials and other supply costs	2	General economic environment	6
Demand for the product or service	3	General economic forecasts	7
Labour costs	4	Financial costs	8

Source: Richard Morris and Rupert de Vincent-Humphreys, 'Price-setting behaviour: insights from a survey of large firms', *European Central Bank Economic Bulletin Boxes* (November 2019), www.ecb.europa.eu/pub/economic-bulletin/focus/2019/html/ecb.ebbox201907_04~1d48c6bf77.en.html

(continued)

Frequency of price changes

The Bank of England survey also considered the issue of price flexibility. Just under 20 per cent of respondents changed prices at least monthly, whereas 33.7 per cent did so annually.

However, there were large variations by sector. Just over 45 per cent of companies in the retail sector changed prices at least monthly, whereas the figure for businesses in manufacturing was 10.5 per cent. Just over 10 per cent of retail companies actually changed their prices on a daily basis, whereas 43.8 per cent of manufacturing companies change theirs on an annual basis. Larger firms, and those facing stronger competition, also tended to change their prices more frequently.

The ECB survey found similar results, with approximately 18 per cent of respondents changing prices at least monthly. The majority of retail firms reviewed their prices on a daily, weekly or monthly basis, whereas in manufacturing price reviews were more likely to be carried out on a monthly basis.

Another interesting question is whether the regularity of price changes has increased over time. The Bank of England survey asked respondents if the frequency of price adjustments had changed in the past decade. Just under 40 per cent of companies reported that they did change prices more frequently, whereas just 6 per cent reported that the frequency had fallen. The use of algorithms by online retailers makes it possible for some suppliers to change prices hundreds of times a day.

Sticky prices

Evidence suggests that prices are sticky – they do not always adjust in response to changes in cost and demand conditions.

Respondents to the Bank of England survey stated that the most important reasons for not increasing prices were:

- Co-ordination failure (i.e. the risk competitors would not change prices).
- The existence of an explicit contract (i.e. specifying that prices can only be changed when the contract is renegotiated).
- An implicit contract (i.e. not wanting to damage long-term relationships with customers).
- Concerns it would antagonise customers more generally.

An important reason given for not reducing prices is the fear it would start a price war. Menu costs (i.e. the time and effort cost of changing prices) were not found to be an important factor.

The ECB survey found very similar results with co-ordination failure, explicit contracts and implicit contracts given as important reasons for sticky prices.

1. *Which of the following is more likely to be consistent with the aim of maximising profits: pricing on the basis of (a) cost per unit plus a variable percentage mark-up; (b) cost per unit plus a fixed percentage mark-up?*
2. *Explain the differences between the importance attached to the different factors leading to price increases and those leading to price reductions.*
3. *Why do you think percentage price changes are bigger than the rate of inflation?*

Do a search for pricing strategies of companies. Are the results of your search consistent with the findings of the surveys reported in this Box?

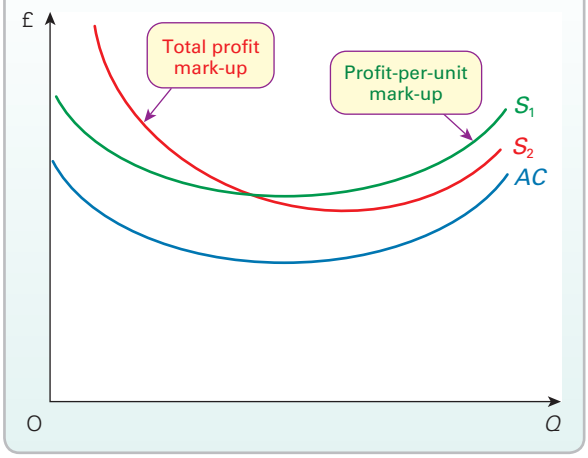
1 See source for Tables (a) and (b).
2 See source for Table (c).

If a firm is aiming for a particular profit *per unit* of output and does not adjust this target, the firm's supply curve is derived by adding the mark-up to the *AC* curve. This is shown by curve S_1 in Figure 9.4. If, however, a firm is aiming for a particular level of *total* profit, and does not adjust this target, its supply curve will be like curve S_2. The greater the output, the less the profit per unit needs to be (and hence the less the mark-up) to give a particular level of total profit.

In either case, price and quantity can be derived from the intersection of demand and supply. Price and output will change if the demand or cost (and hence supply) curve shifts.

The main problem here is in predicting the demand curve, since it depends not only on consumer tastes but on the prices and behaviour of competitors. In practice, firms will usually base their assumptions about future sales on current figures, add a certain percentage to allow for growth in demand and then finally adjust this up or down if they decide to change the mark-up.

Figure 9.4 A firm's supply curve based on average cost



Variations in the mark-up

In most firms, the mark-up is not rigid. In expanding markets, or markets where firms have monopoly/oligopoly power, the size of the mark-up is likely to be greater. In contracting markets, or under conditions of rising costs and constant demand, a firm may well be forced to accept lower profits and thus reduce the mark-up.

Multi-product firms often have different mark-ups for their different products depending on their various market conditions. Such firms will often distribute their overhead costs unequally between their products. The potentially most profitable products, often those with the least elastic demands, will probably be required to make the greatest contribution to overheads.

The firm is likely to take account of the actions and possible reactions of its competitors. It may well be unwilling to change prices when costs or demand change, for fear of the reactions of competitors (see the discussion of kinked demand curve theory on pages 238–9). If prices are kept constant but costs change, either due to a movement along the *AC* curve in response to a change in demand, or due to a shift in the *AC* curve, the firm must necessarily change the size of the mark-up.

All this suggests that, whereas the mark-up may well be based on a target profit, firms are often prepared to change their target and hence their mark-up, according to market conditions.

1. *If the firm adjusts the size of its mark-up according to changes in demand and the actions of competitors, could its actions approximate to setting price and output where MC = MR?*
2. *Some firms set their prices by adding a mark-up to average variable cost (the mark-up would be larger to include an element to cover fixed cost). Why might this make pricing easier for the firm? (See Box 6.7.)*

*LOOKING AT THE MATHS

Using a mark-up approach to find the profit-maximising price

Could the firm use a mark-up approach to set the *profit-maximising* price? It could, provided it bases its mark-up on marginal cost (*MC*), rather than average cost, and provided it knows the price elasticity of demand ($P\varepsilon_D$) for its product. The rule is:

$$P = \frac{MC}{1 + (1/P\varepsilon_D)}$$

This is simply the formula for profit-maximising price that we derived in section 6.3 (see page 184), except that we have used *MC* rather than *MR* (where profits are maximised, $MC = MR$). Proof of this formula is given in Maths Case 6.2 on the student website.

Thus if $MC = £10$ and $P\varepsilon_D = -5$, the firm should charge a price of

$$\frac{£10}{1 + (1/-5)} = \frac{£10}{1 - 1/5} = \frac{£10}{0.8} = £12.50$$

The weakness of this pricing rule is that it applies only at the profit-maximising output. If the firm is currently a long way from that output, *MC* and ($P\varepsilon_D$) may diverge considerably from the values that the firm should use in its calculation. If, however, the firm is producing relatively near to its profit-maximising output, the rule can give a price that is a close approximation to the profit-maximising price.

Section summary

1. Many firms set prices by adding a profit mark-up to average cost. This cost-plus pricing is most likely when firms are profit satisficers or when they do not have the information to find the price that will equate marginal cost and marginal revenue.
2. The mark-up could be based on achieving a target level of either *total* profit or profit per unit. In either case, a supply curve can be derived by adding the corresponding mark-up to the average cost curve.
3. For firms keen to increase profit, the size of the mark-up can be varied as market conditions permit the target profit to be increased.

END OF CHAPTER QUESTIONS

1. Assume that a firm faces a downward-sloping demand curve. Draw a diagram showing the firm's *AR, MR, AC* and *MC* curves. (Draw them in such a way that the firm can make supernormal profits.) Mark the following on the diagram:
   (a) The firm's profit-maximising output and price.
   (b) Its sales-revenue-maximising output and price.
   (c) Its sales-maximising output and price (subject to earning at least normal profit).

   Could the answer to (a) and (b) ever be the same?

   Could the answer to (b) and (c) ever be the same?
2. Would it be possible for firms to calculate their maximum-profit output if they did not use marginal cost and marginal revenue concepts?

(continued)

3. What is meant by the principal–agent problem? Give two examples of this problem that you have come across in your own experience.
4. 'A firm will always prefer to make more profit rather than less.' Do you agree with this statement? Is it compatible with alternatives to the profit-maximising theory of the firm?
5. A firm under monopoly or oligopoly that aims to maximise sales revenue will tend to produce more than a firm that aims to maximise profits. Does this conclusion also apply under (a) perfect competition and (b) monopolistic competition, given that there is freedom of entry?
6. What are the potential costs and benefits of mergers to (a) shareholders; (b) managers; (c) customers?
7. Why is it difficult to test the assumption that firms seek to maximise *long-run* profits?
8. Do behavioural theories of the firm allow us to make any predictions about firms' prices and output?
9. Are 'special offers' likely to benefit consumers?

Online resources

Additional case studies on the student website

9.1 The legal structure of firms. A study of the different types of legal identity that a firm can take – from the sole proprietor to the partnership to the limited company.

9.2 Inside the firm. An examination of alternative organisation structures of firms.

9.3 The Body Shop. A case study of 'alternative business values'.

9.4 Corporate social responsibility. An examination of social responsibility as a goal of firms and its effect on business performance.

9.5 The global information economy and strategic alliances. The way forward for companies such as America Online?

9.6 Downsizing and business organisation. The case of IBM.

9.7 Vouchers and discounts. This case examines the rise of Groupon and looks at its business practices.

9.8 J. K. Galbraith. A portrait of this pioneer of alternative theories of the firm and critic of traditional neoclassical analysis and free-market capitalism.

9.9 The US sub-prime housing market. How asymmetric information led to poor decision making by house purchasers in the USA and was a key factor in the 2007–8 global financial crisis.

Maths Case 9.1 Sales revenue maximising with a profit constraint: Part 1. Using simple algebra to find the sales-revenue-maximising output.

Maths Case 9.2 Sales revenue maximising with a profit constraint: Part 2. Using the Lagrangian approach.

Websites relevant to this chapter

Numbers and sections refer to websites listed in the Web Appendix and hotlinked from this book's website at **go.pearson.com/uk/sloman**.

- For news articles relevant to this chapter, see the *Economics News* section on the student website.
- For general news relevant to alternative strategies, see websites in section A, and particularly A2, 3, 8, 21, 23, 25, 26, 35, 36. See also A38, 39, 42, 43 and 44 for links to newspapers worldwide, and A40 and 41 for links to economics news articles on particular search topics from newspapers worldwide.
- For student resources relevant to this chapter, see sites C1–10, 14, 19.
- For information on mergers, see sites B3, 43; E4, 10, 18, 20; G1 and 8.
- For data on small and medium-sized enterprises, see the database in B3 or E10.
- For information on pricing, see site E10 and the sites of the regulators of the privatised industries: E15, 16, 19, 22.
- For sites with games and experiments examining the behaviour of firms see D13, 14, 16–20.

Chapter 10

The Theory of Distribution of Income

CHAPTER MAP

Why do film stars, footballers and investment bankers earn such large incomes? Why, on the other hand, do cleaners, hospital porters and workers in clothing factories earn very low incomes? These are the types of question that the theory of distribution seeks to answer. It attempts to explain why some people are rich and others poor.

The explanation for differences in wages lies in the working of labour markets. In sections 10.1 and 10.2, we will consider how labour markets operate. In particular, we will focus on the determination of wage rates in different types of market: ones where employers are wage takers, ones where they can choose the wage rate, and ones where wage rates are determined by a process of collective bargaining. In the final two sections, we turn to capital and land and ask what determines the rewards that their owners receive.

This chapter examines the theory of income distribution by showing how the rewards to factors of production (labour, capital and land) depend on market conditions. Chapter 11, on the other hand, looks at income distribution in practice. It looks at inequality and poverty and at government policies to tackle the problem.