

Towards the end of last century there was a boom in investment in timber plantations in countries with suitable soil and climate. Nowhere was this more apparent than in Australia, where the area of land under plantation grew eightfold during the 1990s. A number of factors led to this spectacular growth. They included favourable tax treatment that lowered growers' costs, falling prices for alternative agricultural outputs, recognition of the role that forests play in reducing greenhouse gases, and increasing dissemination of information about the profits to be made from plantation investments.

This boom in plantations saw continuing investment in traditional pine plantations as well as innovative ventures involving species such as teak, sandalwood, blue gum and blackwood. The combination of tax benefits and the belief that demand would outstrip supply from existing sources led to expectations of handsome profits down the track when harvesting occurred.

Suddenly, however, at the turn of the century some commentators were warning that the high profits expected might never materialise. What factors were causing the alarm bells to ring? The problem appeared to be that too many growers were able to enter the market and supply timber of equal quality to that already being supplied. As the critics pointed out, tens of thousands of farmers and graziers in Australia alone had suitable land and could easily enter the industry. Furthermore, information





To read about the plantation industry and some of the issues it faces, visit the National Association of Forest Industries at www.nafi.com.au.

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on how to develop, maintain and harvest plantations was readily available and, so long as plantation management standards were maintained, each grower would be in a position to produce high-quality timber in significant quantities.

Just a few years later, in 2004, it was argued in the business pages of the *West Australian* that the outlook for the plantation timber industry was again positive, with an expansion of sales and increased profitability encouraging further investment.¹ More recently, however, the outlook has again become bleak with the collapse of a number of the country's largest plantation companies as a result of over-investment, legislative changes and the onset of the global financial and economic crisis (GFEC).

Adam Smith concluded that competitive forces are like an 'invisible hand' that leads people who simply pursue their own interests to serve the interests of society. In a competitive market such as the timber plantation industry, when the profit potential looks good, new and existing firms start developing more plantations. However, if too many participants branch out into this industry and the area under plantation explodes, prices and profits will eventually fall. This will cause growers to exit the industry. Thus, the process of competition will eventually correct any tendency to move away from the appropriate level of output.

This chapter combines the demand, cost of production and marginal analysis concepts from previous chapters to explain how competitive markets determine prices, output and profits. The firms in these markets are small, like fruit and vegetable growers or providers of lawn-mowing services, rather than huge, like Microsoft, Toyota or Singapore Airlines. Because they sell products or services that are very similar to those sold by their rivals, these competitive firms are also unlike small businesses such as bicycle shops or furniture manufacturers which sell different kinds of services or products from those sold by their competitors. Other types of markets in which large and powerful firms operate, or in which small firms sell goods and services that are different from those sold by their rivals, will be discussed in subsequent chapters.

In this chapter, you will examine these economics questions:

- What is a market structure?
- Why would a firm stay in business while losing money?
- Are the cost and revenue concepts that economists use to analyse firms also used by small businesses such as car dealers?
- Why do governments around the world promote competition in markets?
- How is the internet changing the structure of world markets?

Market structures

Firms sell goods and services under different sets of market conditions which economists call **market structures**. There are a number of market structures, each of which has certain key characteristics that enable economists to understand the way in which firms behave in that market.

The characteristics of a market that define its structure include the number of firms in that market, the degree to which the products they sell are similar and the ease of entry

Market structure

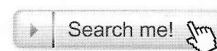
A classification system for the key characteristics of a market, including the number of firms, the similarity of the products they sell, and the ease of entry into and exit from the market.

¹ Cathy Bolt, 'Agribusiness agriboom', *The West Australian*, 20 November 2004, p. 86.

Exhibit 7.1 Comparison of market structures

Market structure	Number of sellers	Type of product	Entry conditions	Examples
Perfect competition	Large	Homogeneous	Very easy	Small crops, international commodity markets
Monopolistic competition	Large	Differentiated	Easy	Boutiques, restaurants, motels
Oligopoly	Few	Usually differentiated but sometimes homogeneous	Difficult	Car making, tobacco products, oil
Monopoly	One	Unique	Extremely difficult	Public utilities

into, and exit from, the market. These characteristics indicate the degree of competition faced by firms in their particular markets. Examination of the business sector of our economy reveals firms facing differing degrees of competition because they operate in very different market structures. As Exhibit 7.1 shows, these market structures range from a highly competitive market structure, characterised by a large number of firms, to one that is dominated by a single seller, which is called a monopoly. In this and subsequent chapters we will study each of the four market structures listed in Exhibit 7.1. In the process we will see how different market structures bring out differences in the behaviour of firms. The first market structure we examine is **perfect competition**, to which this entire chapter is devoted. Perfect competition is the most competitive market structure. It is characterised by (1) a large number of small firms, (2) a homogeneous product and (3) very easy entry into, or exit from, the market.



► Perfect competition

Perfect competition

A market structure characterised by (1) a large number of small firms, (2) a homogeneous product and (3) very easy entry into, or exit from, the market.

Perfect competition

Large number of small firms

How many sellers is a large number? And how small is a small firm? Certainly one, two or three firms in a market would not be a large number. In fact, the exact number cannot be stated. This condition is fulfilled when each firm in a market has no significant share of total output and therefore no ability to affect the product's market price. Each firm acts independently, rather than coordinating decisions collectively. For example, there are thousands of independent tomato growers in Australia. If any single tomato grower tried to raise or lower the market price by decreasing or increasing the amount of tomatoes it supplied to the market, the going market price for tomatoes would be unaffected.

The large-number-of-sellers condition is met when each firm is so small relative to the total market that no single firm can influence the market price.

IN SUMMARY

Homogeneous product

In a perfectly competitive market, all firms produce a standardised or homogeneous product. This means that the goods or services of all the firms are identical. Fisherman Chek's prawns are identical to fisherman Joe's prawns. Similarly, buyers may believe that the transportation services of one independent trucking firm are about the same as

another's services. This assumption rules out successful pursuit of competitive advantage through advertising, quality differences or locational advantage.

IN SUMMARY

If a product is homogeneous, buyers are indifferent as to which seller's product they buy.

Very easy entry and exit

Very easy entry into a market means that a new firm faces no barriers to its entry into that market. Barriers can be financial, technical or government-imposed. These barriers include some classes of licences and permits, as well as patents. Anyone who wants to try his or her hand at commercial lawn-mowing needs only a mower, a phone and a means of transport. Ease of exit from a market means that if a firm decides against continuing to produce, it can easily close down. In other words, there are no contractual or legal reasons why it must continue. We shall see that this ability of firms to exit a declining industry is important, because it means that prices can be restored quickly to profitable levels.

IN SUMMARY

Perfect competition requires that resources be completely mobile to freely enter or exit a market.

In addition to these assumptions, it is also presumed that economic agents – both businesses and consumers – are well informed about key aspects of the operation of the market. Thus businesses and consumers will both be familiar with the product being sold and its price, while business alone will have a good knowledge of the costs of production. As we shall see later in this chapter, efficient operation of competitive markets does not require that consumers are familiar with production costs.

No real-world market exactly fits the three assumptions of perfect competition. The perfectly competitive market structure is a theoretical or ideal model, but some actual markets do approximate the model fairly closely. Examples include farm product markets, the interstate road transport market and markets for home services such as lawn-mowing or cleaning.

If no real-world market exactly fits the assumptions of perfect competition, you may be wondering why so much space is devoted to the model here. The answer is that the model provides a benchmark by which we may judge the structure and performance of markets that we observe in the real world. As you saw in Chapter 4, where we discussed market failure, a lack of competition in markets leads to a less efficient outcome than is potentially available if competition prevails. The notion that perfectly competitive markets deliver maximum efficiency is so important in contemporary market economies that every such economy in the world has a **competition policy** designed to promote efficiency through the encouragement of competition and the outlawing of anti-competitive practices.

In Australia, competition policy is overseen by the Australian Competition and Consumer Commission (ACCC), which is a Commonwealth Government statutory authority responsible for ensuring compliance with relevant parts of the *Competition and Consumer Act 2010* (formerly known as the *Trade Practices Act*). This Act has the objective of enhancing the welfare of Australians through the promotion of competition and fair trading, and providing for consumer protection. In performing its functions the ACCC cooperates with, and complements, relevant state government bodies.

Competition policy

Government policy that has the objective of increasing competition in the economy or of encouraging firms that are not competitive to behave as if they were.

The ACCC's objectives, which can be gleaned from its website, include the following:

- improve competition and efficiency in markets
- foster adherence to fair trading practices in well-informed markets
- promote competitive pricing wherever possible and restrain price rises in markets where competition is less than effective
- inform the community at large about the *Competition and Consumer Act 2010* and its specific implications for business and consumers
- use resources efficiently and effectively.

The New Zealand Commerce Commission (NZCC) has similar objectives, which are encapsulated in the following statement from their website:

We enforce legislation that promotes competition in New Zealand markets and prohibits misleading and deceptive conduct by traders. The Commission also enforces a number of pieces of legislation that, through regulation, aim to provide the benefits of competition in markets where effective competition does not exist. This includes in the telecommunications, dairy, electricity, gas pipelines and airport sectors.²

You can see that even if perfect competition is evident only in some industries, the aim of government competition policies is to encourage all industries to become more efficient by behaving *as if they were* competitive.

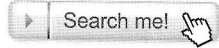
It is also worth noting that many of the regulatory activities of bodies like the ACCC or the NZCC are designed to curb unethical behaviour in the business sector – behaviour that Adam Smith might have described as displaying unenlightened self-interest. Some of the undesirable business activities that governments do their best to eliminate include colluding to raise prices and profitability, exercising monopoly power at the expense of consumers and engaging in misleading advertising.

Having established the importance of the presence of competition in contemporary market economies, we now turn to further development of the model of perfect competition.

The perfectly competitive firm as a price taker

As the first step in building our competitive model, suppose a firm operates in a market that conforms to all three of the above requirements for perfect competition. This would mean that the perfectly competitive firm is a **price taker**. A price taker is a seller that has no control over the price of the product it sells. From the individual firm's perspective, market supply and demand conditions over which the firm has no influence determine the price of its products. Look again at the characteristics of a perfectly competitive firm: a small firm that is one among many firms, sells a homogeneous product and is exposed to competition from new firms entering the market. These conditions make it impossible for the perfectly competitive firm to have the market power to affect the market price. Instead, the firm must adjust to, or 'take', the market price.

Exhibit 7.2 is a graphical presentation of the relationship between the market supply and demand for packs of frozen meals and the demand curve facing a firm in a perfectly competitive market. Here we will assume that the frozen meals industry is perfectly competitive, keeping in mind that the real-world market would not fit all the requirements for the model of perfect competition. (Certainly, in the international market for frozen meals there is likely to be a high level of competition, as there is a



► competition policy

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Information about the *Competition and Consumer Act 2010* and some discussion of the role of the ACCC can be found at www.accc.gov.au



To read about the New Zealand Commerce Commission go to their website at www.comcom.govt.nz. Click on *The Commission*.

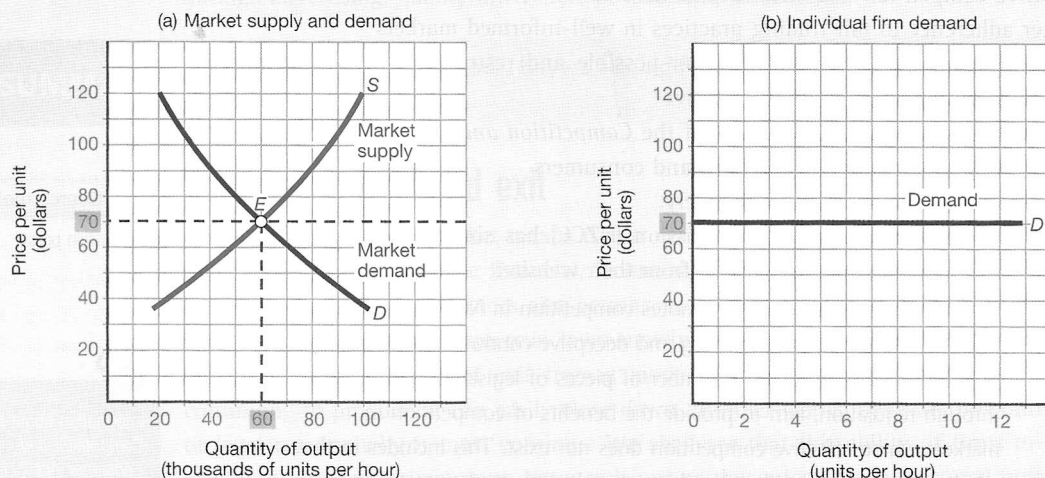
Price taker

A seller with no control over the price of its product.

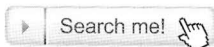
2 See www.comcom.govt.nz/about-us/, accessed 27 November 2010.

Exhibit 7.2

The market price and demand for the perfectly competitive firm



In part (a), the market equilibrium price is \$70 per unit. The perfectly competitive firm in part (b) is a price taker because it is so small relative to the market. At \$70, the individual firm faces a horizontal demand curve, *D*. This means that the firm's demand curve is perfectly elastic. If the firm raises its price even one cent, it will sell zero output.



► price taker

large number of suppliers worldwide.) Exhibit 7.2(a) shows market supply and demand curves for the quantity of output per hour. The theoretical framework for this model was explained in Chapter 4. The equilibrium price is \$70 per unit and the equilibrium quantity is 60 000 units per hour.

Now we look at the demand curve faced by the individual firm. This demand curve shows the price–quantity combinations at which the firm can sell its output. Because the perfectly competitive firm ‘takes’ the equilibrium price, the individual firm’s demand curve in Exhibit 7.2(b) is *perfectly elastic* (horizontal) at the \$70 market equilibrium price. (Note the difference between the firm’s units per hour and the industry’s thousands of units per hour; this firm has but a small part of total industry output.) Recall from Chapter 5 that when a firm facing a perfectly elastic demand curve tries to raise its price one cent higher than the going price, no buyer will purchase its product (see Exhibit 5.3(a) in Chapter 5). The reason is that there are many other firms selling the same product at that price. Hence, the perfectly competitive firm will not set the price above the prevailing market price and risk selling zero output. Nor will the firm set the price below the market price because the firm can sell all it wants to at the going price and, therefore, a lower price would reduce the firm’s revenue.

Short-run profit maximisation for a perfectly competitive firm

Since the perfectly competitive firm has no control over price, what does the firm control? The firm makes only one decision – what quantity of output to produce that maximises profit. In this chapter, when we discuss profit we mean economic profit as it was defined in Chapter 6. In this section, we develop two profit maximisation methods that determine the appropriate output level for a competitive firm. We begin by examining the total revenue–total cost approach for finding the profit-maximising level of output. Next, we use marginal analysis to show another method for determining the profit-maximising level of output. The framework for our analysis is the short run with some fixed input, such as a factory of a given size.

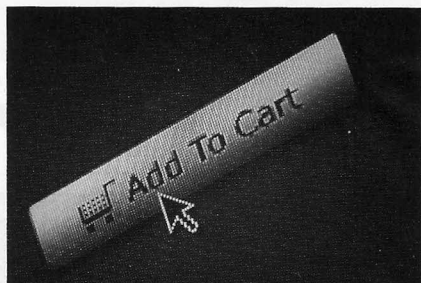
INTERNATIONAL
FOCUS

Applicable concept:
the characteristics of
perfect competition

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Internet increases competition in global marketplace

The rise of the Internet as a global means of communication has led many commentators to argue that the ability of Internet users to connect with businesses and consumers anywhere in the world as easily as they might communicate with their next-door neighbour means that the potential for international competition between firms has increased enormously. In other words, the Internet is increasing global competition and promoting the efficiency gains that are an acknowledged outcome of competitive markets. In a paper to an 'Electronic Consumer' conference in New Zealand, the former deputy chairperson of the ACCC, Allan Asher, drew the following implications for global competition from the Internet revolution.



Source: Shutterstock/dani3315

[I]t seems almost certain that on-line markets and other forms of electronic commerce will expand rapidly to the point where a truly global retail marketplace will emerge. Already some industries are feeling the effects of these new technologies, especially those which are essentially information and booking services...

[This] global electronic market will present both tremendous

opportunities as well as some very real challenges for regulators, industry and consumers...

Indeed, electronic commerce, and on-line commerce especially, has the potential to close the gap which so often exists between idealised economic models of perfect competition and the imperfect way that many markets actually work in practice... On-line commerce can do this by increasing competition amongst suppliers and by decreasing the opportunity and transaction costs faced by buyers in gathering and processing information...

Electronic commerce has the potential to deliver significant gains to consumers in terms of price, quality and service through increased competition. This is likely to happen for two interrelated reasons—lower barriers to entry and increased numbers of suppliers competing in product markets.

Traditionally, local or geographic monopolies have persisted because of high barriers to entry linked to large establishment (fixed) costs in such areas as physical infrastructure, distribution networks and advertising.

The Internet, and to a lesser extent other electronic service delivery channels, lower barriers to entry significantly for providers of many products and services...

Since the Internet allows newer and smaller players to promote and sell products in direct competition with larger players, it will increase the number of competitors in the market. Consumers can now tap into a global market and are not bound to a restricted number of physically nearby suppliers—improved choice, price and quality should result.¹

What do you think?

- 1 How does the author of the above material see the internet changing the extent to which markets conform to the three assumptions of the perfectly competitive market structure?
- 2 Why do you think the author welcomes the possibility that the internet will close the gap between market structures observed in the real world and the idealised model of perfect competition?



You can find the complete paper by Allan Asher on the ACCC website at www.accc.gov.au/content/index.phtml/itemId/96000.

¹ Allan Asher, 'International perspective: access to justice for consumers in the global electronic marketplace', ACCC, 17 March 1997.