

FIFTH EDITION

INDUSTRIAL ORGANIZATION

COMPETITION, STRATEGY AND POLICY

JOHN LIPCZYNSKI
JOHN O. S. WILSON
JOHN GODDARD

Industrial Organization



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Industrial Organization

Competition, Strategy and Policy

Fifth edition

John Lipczynski, John O.S. Wilson and John Goddard



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Preface

Industrial Organization: Competition, Strategy and Policy, fifth edition, is a textbook on industrial organization. It provides coverage of the latest theories of industrial organization, and it examines empirical evidence concerning the strategies, behaviour and performance of firms and industries.

In selecting material for inclusion in this edition, we have attempted to provide readers with a flavour of the historical development of industrial organization. The book reflects the development of this subject area from its origins in the classical theories of the firm, followed by its emergence as a recognized subdiscipline within economics around the mid-twentieth century, right through to the present. Today, industrial organization draws on an impressive array of contributions from fields of economic inquiry as diverse as game theory, information theory, organization theory, agency theory and transaction cost analysis. At various stages throughout the book, we examine the work of researchers in the closely related field of strategic management, in order to emphasise the relevance of industrial organization to readers who are approaching the subject primarily from a business or a management standpoint, rather than from a traditional economics perspective.

Industrial Organization: Competition, Strategy and Policy, fifth edition, contains around 60 case studies, which are used to illustrate ‘real world’ applications of theoretical and empirical research in industrial organization. Many of the case studies have been selected from reports originally published in the *Financial Times*, while others have been compiled from alternative sources. Many of the case studies have been chosen not only for their relevance to industrial organization, but also because they are lively, newsworthy and topical. The case study material certainly bears little or no resemblance to the subject matter of a traditional industrial economics research agenda of 20 or 30 years ago, when much greater emphasis would have been placed on traditional manufacturing and heavy industry. Instead, the case studies focus on key sectors of the modern-day economy, such as banking and financial services (commercial banking, the credit union movement); sport and leisure (Hollywood movies, English Premier League football); and online products and services (social networking, music apps).

This textbook is aimed primarily at undergraduate students. The text is intended for use on modules in industrial organization, industrial economics

or business economics, by students studying for degrees in economics, business and management studies, and other related disciplines. It can also be used as a preparatory, background or reference text by students taking graduate courses in the same subjects. The only prior experience of economics that is assumed is the completion of an introductory Principles of Economics module, or a part-year module in Microeconomics.

The style of presentation is non-technical throughout. No knowledge of calculus is required. However, for readers requiring a more rigorous treatment of certain topics, a Mathematical Methods appendix provides formal derivations (using calculus) of a selection of the most important theories and results presented in the main text. Empirical research in industrial organization is also presented throughout the text in a non-technical style. No knowledge of statistics or econometrics is assumed. For readers requiring a primer in the fundamentals of regression analysis, an Econometric Methods appendix provides a brief and non-technical introduction to some of the basic tools, such as regression coefficients, t-statistics and goodness-of-fit.

Structure of the book

Industrial Organization: Competition, Strategy and Policy, fifth edition, is divided into four parts. In Part I, Theoretical Foundations, Chapter 1 introduces some of the key elements of industrial organization, starting with the structure–conduct–performance paradigm, which provided the intellectual foundation for the early development of industrial organization as a separate subdiscipline within economics. Chapters 2 and 3 review the core microeconomic theory from which many of the early and modern theories of industrial organization have developed. Chapters 4 and 5 examine a number of alternative theories of firm behaviour, including the neoclassical, managerial and behavioural theories, as well as perspectives drawn from transaction cost analysis, agency, knowledge- and resource-based theories. Chapter 6 examines issues related to corporate governance.

Part II, Structural Analysis of Industry, discusses the approach within the field of industrial organization which emphasises the role of the structural attributes of an industry in explaining the conduct of the industry’s constituent firms. Chapters 7, 8 and 9 examine non-collusive and collusive theories of oligopoly, a market structure whose most important characteristic is the small number of interdependent, competing firms. Chapter 10 examines practical aspects of industry definition, and the measurement of the number and size distribution of an industry’s constituent firms, summarised by measures of industry or seller concentration. Chapter 11 examines the determinants of seller concentration. Chapter 12 examines another important structural attribute of industries: barriers to entry. Finally, Chapter 13 provides a link between Parts II and III of the book, by describing the evolution of industrial organization beyond the confines of the structure–conduct–performance paradigm, and the development of new approaches and methods, which are conveniently summarised under the banner of the ‘new empirical industrial organization’.

In Part III, Analysis of Firm Strategy, the focus shifts away from industry structure, and towards the newer theories of industrial organization that emphasise conduct or strategic decision-making at firm level. Chapter 14 examines a number of pricing practices, including price discrimination and transfer pricing. In recognition of the growing use of auctions as a method for allocating resources and awarding contracts in the commercial and public sectors, Chapter 15 examines the economic theory of auctions. In the rest of Part III, the emphasis shifts towards various non-price strategies that can be adopted by firms, in an attempt to improve their profitability or gain a competitive advantage over their rivals. Chapters 16 and 17 examine product differentiation and advertising. Chapter 18 examines research and development and technological progress. Chapter 19 examines horizontal mergers. Chapters 20 and 21 examine vertical integration and vertical restraints. Chapter 22 examines the economics of network goods and services. Chapter 23 examines diversification and conglomerate mergers.

Part IV, Analysis of Public Policy, concludes the book by drawing together the implications for public policy of many of the key findings of Parts I, II and III. Chapter 24 examines competition policy, including government policy towards monopolies, restrictive practices and mergers.

Changes for the fifth edition

We have been gratified and encouraged by the responses to the first, second, third and fourth editions we have received from instructors and students. However, a new edition provides a welcome opportunity to make improvements and to update and extend the material that was covered previously. For the fifth edition, the number of chapters has remained at 24. However, some important changes to content have been made. The number of chapters in Part II has increased to include a chapter on game theory, Chapter 9. In Part III of the text, Chapter 23 now includes a new section on the multinational enterprise. In addition to this new chapter and new section, we have revised and updated our coverage of many theoretical and empirical topics in industrial organization throughout the text.

The previous edition's extensive bibliography has turned out to be a highly popular feature with instructors, and with students wishing to read beyond the confines of a core textbook, perhaps with a view towards choosing a dissertation topic, or towards studying industrial organization at graduate level. Accordingly, in the fifth edition we have taken the opportunity to extend and update our previous bibliography.

We have retained or updated the most interesting and relevant case studies from the first, second, third and fourth editions, and we have added many more completely new case studies to the fifth edition. Most of the new case studies describe recent events which have occurred since the publication of the first edition in 2001. We have revised the end-of-chapter discussion questions, and at the end of selected chapters we have added new problem sets comprising mathematical or computational questions. A knowledge of calculus at an introductory

level (differentiation, integration, optimization) is required to answer most of these problems, and readers without the required mathematical background should skip them. Solutions are provided at the end of the book. Finally, we have extended our website www.pearsoned.co.uk/lipczynski, which contains supporting material for instructors in the form of PowerPoint slides and outline answers to discussion questions. The website also contains links to other relevant websites, and a glossary of key terms, for instructors and students.

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Thanks are due to a number of staff at Pearson Education who have provided excellent support at all stages as this project has progressed. We are especially indebted to: Caitlin Lisle and Archana Makhija for all of their advice, encouragement, for keeping things on track and reminding us of deadlines during the editing, typesetting and production stages. We are also grateful for the assistance provided by Patricia Hewson (Copy Editor), Rajalakshmi Murali (Proof Reader) and Indumathi Anboo (Indexer). Any remaining errors are, of course, the authors' joint responsibility.

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Figures

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PART

I

Theoretical Foundations

CHAPTER

1

Industrial organization: an introduction

Learning objectives

This chapter covers the following topics:

- static and dynamic views of competition
- the structure–conduct–performance paradigm
- the Chicago school approach to the study of competition

Key terms

Austrian school
Chicago school
Collusion hypothesis
Distinctive capabilities
Efficiency hypothesis
Five forces model

Market equilibrium
New industrial organization
Structure–conduct–performance
paradigm
Value chain

1.1 Introduction

This book deals with the economics of industrial organization. Specific topics that are covered include theory of the firm, oligopoly, concentration, barriers to entry, pricing and auctions, product differentiation and advertising, research and development, mergers, vertical integration, diversification, competition policy and regulation. The aim of this introductory chapter is to provide an overview of some of this subject material, for both the specialist and the non-specialist reader.

The chapter begins in Section 1.2 by examining static and dynamic views of competition in economic theory. The view of competition found in the neoclassical theory of the firm (incorporating the textbook models of perfect competition, monopolistic competition, oligopoly and monopoly) is essentially static. In

contrast, a more dynamic approach can be found in the writings of Schumpeter and economists identified with the Austrian school. Section 1.3 describes the structure–conduct–performance (SCP) paradigm, which laid the foundation for the original development of industrial organization as a separate subdiscipline within economics. The key elements of structure, conduct and performance are introduced, and some of the main limitations of the SCP paradigm are discussed. Finally, Section 1.4 makes a short diversion into the related subdiscipline of strategic management and identifies several further themes that will be pursued in more depth throughout this book.

1.2 Static and dynamic views of competition

In microeconomics, the neoclassical theory of the firm considers four main theoretical market structures: perfect competition, monopolistic competition, oligopoly and monopoly. These underpin much of the subject matter of industrial organization. A perfectly competitive industry has six main characteristics: there are large numbers of buyers and sellers; producers and consumers have perfect knowledge; the products sold by firms are identical; firms act independently of each other and aim to maximise profits; firms are free to enter or exit; and firms can sell as much output as they wish at the current market price. If these conditions are satisfied, a competitive equilibrium exists in which all firms earn only a normal profit. If any particular firm is unable to earn a normal profit, perhaps because it is failing to produce at maximum efficiency, this firm is forced to withdraw from the market. In this way perfect competition imposes discipline: all surviving firms are forced to produce as efficiently as the current state of technology will allow.

In reality, however, competition often gives rise to a market or industry structure comprising a relatively small number of large firms. Each firm has sufficient market power to determine its own price, and some or all firms are able to earn an abnormal profit in the long run. One reason competition tends to lead to a decrease in the number of firms in the long run is that, as firms grow, they realise economies of scale and average costs tend to fall. In the most extreme case of natural monopoly, a single firm can produce at a lower average cost than any number of competing firms. Among others, Marshall (1890) and Sraffa (1926) formulated the theory of monopoly. The tendency for average costs to fall as the scale of production increases might be a beneficial aspect of monopoly, if the cost savings are passed on to consumers in lower prices. However, if a monopolist exploits its market power by restricting output and raising price to earn an abnormal profit, then monopoly may have damaging implications for consumer welfare.

Influenced by Marshall and Sraffa, Chamberlin (1933) and Robinson (1933) brought together the previously separate theories of monopoly and perfect competition, to formulate the theory of imperfect competition, which can be subdivided into the cases of monopolistic competition and oligopoly. The theory of monopolistic competition retains the assumption that the number of firms is large, but emphasises non-price as well as price forms of competition. In the

theory of oligopoly it is assumed the number of firms is small (but greater than one). The firms recognise their interdependence: changes in price or output by one firm will alter the profits of rival firms, causing them to adjust their own prices and output levels. Forms of competition under oligopoly vary from vigorous price competition, which can often lead to substantial losses, through to collusion, whereby the firms take joint decisions concerning their prices and output levels.

Essentially, the neoclassical theory of the firm is based on a static conception of competition. In all of the models outlined above, the main focus is on long-run equilibrium.

In the end-state conception of equilibrium, the focus of attention is on the nature of the equilibrium state in which the contest between transacting agents is finally resolved; if there is recognition of change at all, it is change in the sense of a new stationary equilibrium of endogenous variables in response to an altered set of exogenous variables; but comparative statics is still an end-state conception of economics.

(Blaug, 2001, p. 37)

In the twentieth century, some researchers rejected this static view of competition, and sought to develop a more dynamic approach. According to both Schumpeter (1928, 1942) and the **Austrian school** of economists, the fact that a firm earns an abnormal (monopoly) profit does not constitute evidence that the firm is guilty of abusing its market (monopoly) power at the expense of consumers. Instead, monopoly profits play an important role in the process of competition, motivating and guiding entrepreneurs towards taking decisions that will produce an improved allocation of scarce resources in the long run. Schumpeter and the Austrian school both recognise that knowledge or information is always imperfect.

According to Schumpeter, competition is driven by innovation: the introduction of new products and processes, the conquest of new markets for inputs or outputs, or the reorganization of existing productive arrangements (for example, through entry or takeover). By initiating change by means of innovation, the entrepreneur plays a key role in driving forward technological progress. Innovation destroys old products and production processes, and replaces them with new and better ones. The successful innovator is rewarded with monopoly status and monopoly profits for a time. However, following a brief catching-up period, imitators are able to move into the market, eroding the original innovator's monopoly status and profits. Alternatively, another innovator may eventually come along with an even better product or production process, rendering the previous innovation obsolete. According to this dynamic view of competition, monopoly status is only a temporary phenomenon, and is not capable of sustaining a stable long-run equilibrium, as is assumed in the neoclassical theory of the firm.

The Austrian school also views competition as a dynamic process, and sees the market as comprising a configuration of decisions made by consumers,

entrepreneurs and resource owners (Kirzner, 1973, 1997a,b). Entrepreneurs play a crucial role by noticing missed opportunities for mutually advantageous trade. Entrepreneurs discover and act upon new pieces of information. By observing the actions of entrepreneurs, other decision-makers are able to adjust their trading plans and arrive at improved outcomes. Disequilibrium reflects imperfect information or ignorance on the part of buyers and sellers. The entrepreneurial function adds to the flow of information, and helps lubricate the process of adjustment towards a new and superior allocation of scarce resources. Whereas the Schumpeterian entrepreneur actively initiates change, the role of the entrepreneur in Austrian thinking is more passive: the Austrian entrepreneur merely responds more quickly than other agents to new information that is generated exogenously. According to Austrian economists, a monopoly position is attained through the originality and foresight of the entrepreneur; and, as Schumpeter suggests, monopoly profits are unlikely to be sustained indefinitely. As information arrives and new trading opportunities open up, other entrepreneurs appear, who by their actions help propel the economy towards a further reallocation of resources (Young *et al.*, 1996; Roberts and Eisenhardt, 2003).

1.3 The structure–conduct–performance paradigm

The static and dynamic theories discussed above have found an empirical counterpart in the field that has become known as industrial organization. Early work in this area, based predominantly on the **structure–conduct–performance (SCP) paradigm**, concentrates on empirical rather than theoretical analysis (Bain, 1951). In the main, the field of industrial organization analyses empirical data and, by a process of induction, develops theories to explain the behaviour and performance of firms and the industries to which they belong (Schmalensee, 1988; Caves, 2007).

Outline of the structure–conduct–performance paradigm

Seminal early contributions in industrial organization include Mason (1939, 1949) and Bain (1951, 1956, 1959). Mason and Bain are credited with the development of the SCP paradigm. According to this approach, the structure of a market influences the conduct of the firms operating in the market, which in turn influences the performance of those firms. The field of industrial organization is concerned with the investigation of ‘the size structure of firms (one or many, “concentrated” or not), the causes (above all the economies of scale) of this size structure, the effects of concentration on competition, the effects of competition on prices, investment, innovation and so on’ (Stigler, 1968, p. 1).

The SCP paradigm is useful in a number of ways:

- It allows the researcher to reduce all industry data into meaningful categories (Bain, 1956).
- It is consistent with the neoclassical theory of the firm, which also assumes there is a direct link between market structure, and firm conduct and performance, without overtly recognizing this link (Mason, 1949).

- By defining a workable or acceptable standard of performance, it may be possible to accept an imperfect market structure, if such a structure produces outcomes that are consistent with the acceptable standard (Clark, 1940). By implication, market structure can be altered in order to improve conduct and performance (Sosnick, 1958).

A schematic representation of the SCP paradigm is presented in Figure 1.1. In accordance with the fundamental logic of SCP, the main linkages are shown as running from structure through conduct to performance. However, various feedback effects are also possible: from performance back to conduct; from conduct to structure; and from performance to structure (Phillips, 1976; Clarke, 1985). These are represented in Figure 1.1 by dotted arrows. Several specific types of feedback effect are identified in the following discussion of the main components of the structure, conduct and performance categories. Figure 1.2 is a schematic representation of the SCP model for the analysis of the historical development of the East India Company, the English company formed in the seventeenth century to pursue trade with East and South-East Asia, which later played a pivotal role in the creation of the British Empire in India.

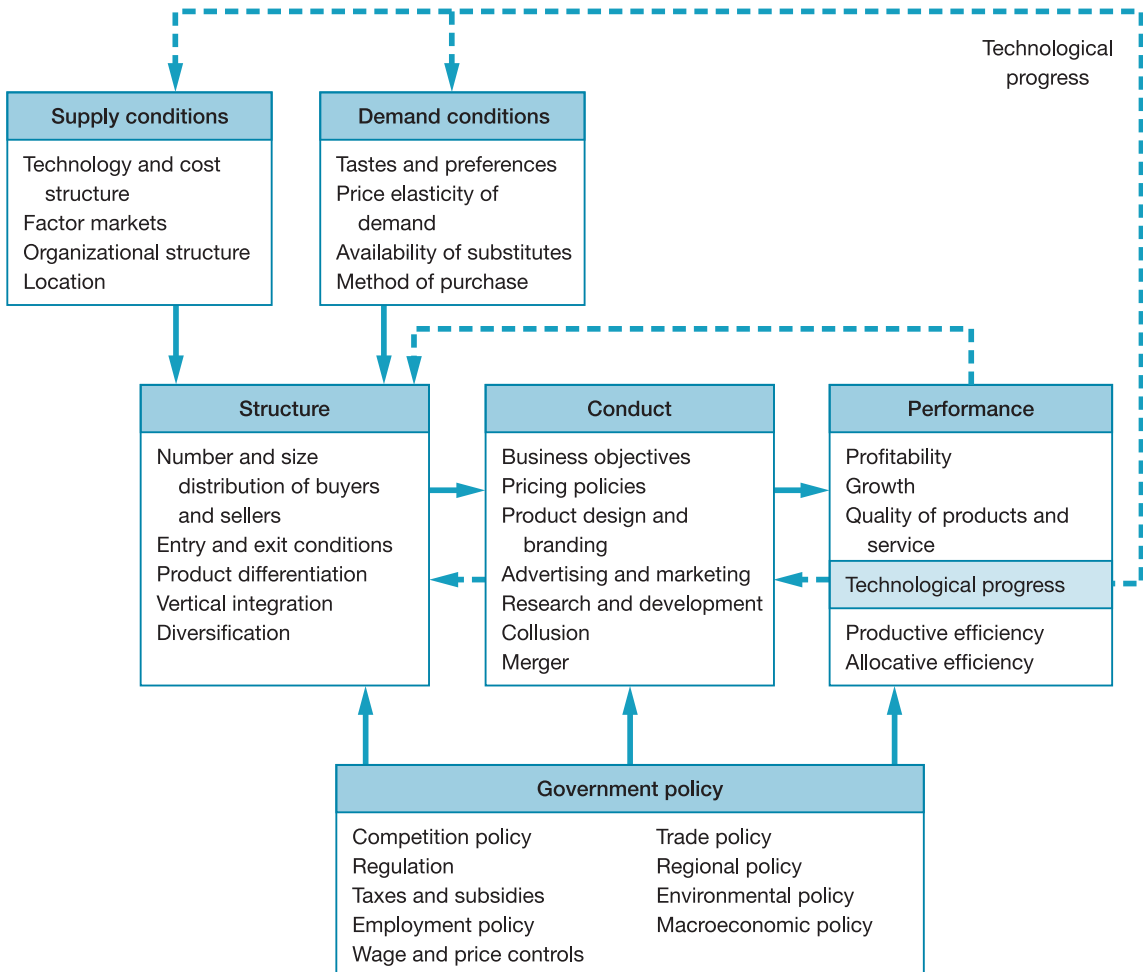


Figure 1.1 The structure–conduct–performance paradigm

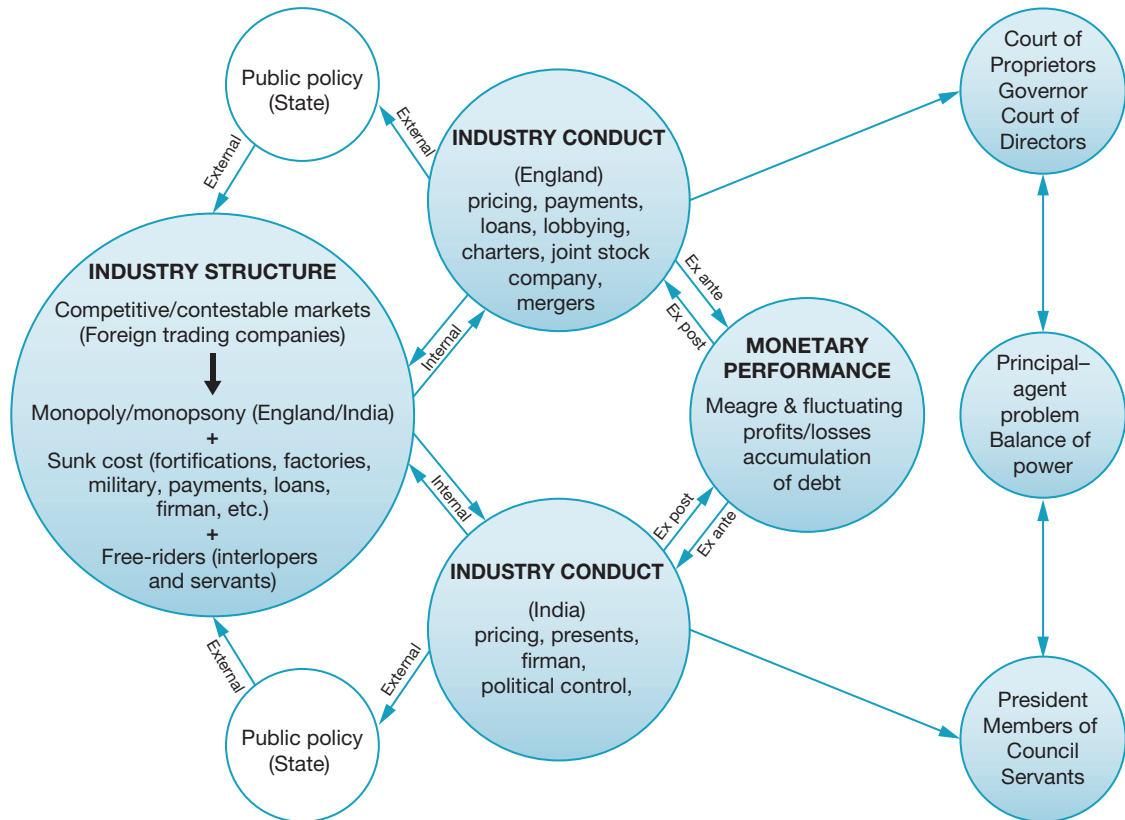


Figure 1.2 Schematic diagram of the SCP framework to study the East India Company's business history
 Source: Sivramkrishna, S. (2014) From merchant to merchant-ruler: A structure–conduct–performance perspective of the East India Company's history, 1600–1765, *Business History*, 56, 789–815.

Structure

Structural characteristics tend to change relatively slowly, and can often be regarded as fixed in the short run. Some of the more important structure variables are as follows:

- *The number and size distribution of buyers and sellers* is an important determinant of the market power exercised by the leading firms in the industry and the discretion these sellers exercise over their own prices. In consumer goods industries it is normally the case that there are large numbers of small, atomistic buyers. Accordingly, the main focus is on the number and size distribution of sellers. Seller concentration is typically measured using data on the share of total industry sales, assets or employment accounted for by the largest firms in the industry. In capital goods industries, however, it is possible that the number of buyers is also small. If so, there may be market power on the demand side, as well as on the supply side: buyers may exercise discretion over the prices they pay. In such cases, a full assessment of the distribution of market power might require measurement of buyer concentration as well as seller concentration.

- *Entry and exit conditions* include barriers to entry, which can be defined loosely as anything that places a potential entrant at a competitive disadvantage relative to an incumbent firm. The important issue is the relative ease or difficulty that firms may experience when entering an industry: if entry is difficult, then incumbents are sheltered from outside competition (Neven, 1989). Entry barriers may derive from basic characteristics of the product or production technology and cost structure, or from deliberate actions taken by incumbent firms to discourage or prevent entry. The analysis of entry barriers has shifted from the simple classification developed by Bain (1956) to complex models of strategic behaviour which incorporate threats and irreversible commitments (Dixit, 1982). Irreversible commitments involve an incumbent making sunk cost investments that cannot be recovered in the event of subsequent withdrawal from the market. By raising barriers to exit in this way, an incumbent can signal its intention to stick around and fight to preserve its market share. The signal may in itself be sufficient to deter a potential entrant from proceeding.
- *Product differentiation* refers to the characteristics of the product. How similar is each firm's product to those of rival firms? To what extent is each firm's product unique? Any change in the characteristics of the product supplied by one firm, whether real or imagined, may affect the shares of the total market demand that each firm is able to command.
- *Vertical integration and diversification.* Vertical integration refers to the extent to which a firm is involved in different stages of the same production process. Diversified firms produce a variety of goods or services for several distinct markets. The extent to which a firm is vertically integrated or diversified is likely to have implications for conduct and performance. Vertically integrated firms have greater certainty in obtaining supplies of raw materials, or guaranteed distribution outlets. They have opportunities to engage in certain types of anticompetitive practice (vertical restraints), which may be damaging to non-integrated rivals. Diversified firms may benefit from economies of scope, and are less exposed to risk than their non-diversified counterparts, because losses realised in one market can be offset against profits earned elsewhere. In the long run, of course, firms make their own choices concerning vertical integration and diversification; therefore, in the long run these can also be interpreted as conduct variables.

Conduct

Conduct refers to the behaviour of firms, conditioned, according to the SCP paradigm, by the industry's structural characteristics identified above. Conduct variables include the following:

- *Business objectives.* The objectives that firms pursue often derive from structural characteristics of the industry, in particular the firm size distribution. The neoclassical theory of the firm assumes profit maximization; while managerial theories, developed primarily with large corporations in mind, emphasise the maximization of non-profit objectives such as sales revenue, growth or managerial utility (Baumol, 1959; Williamson, 1963; Marris, 1964).