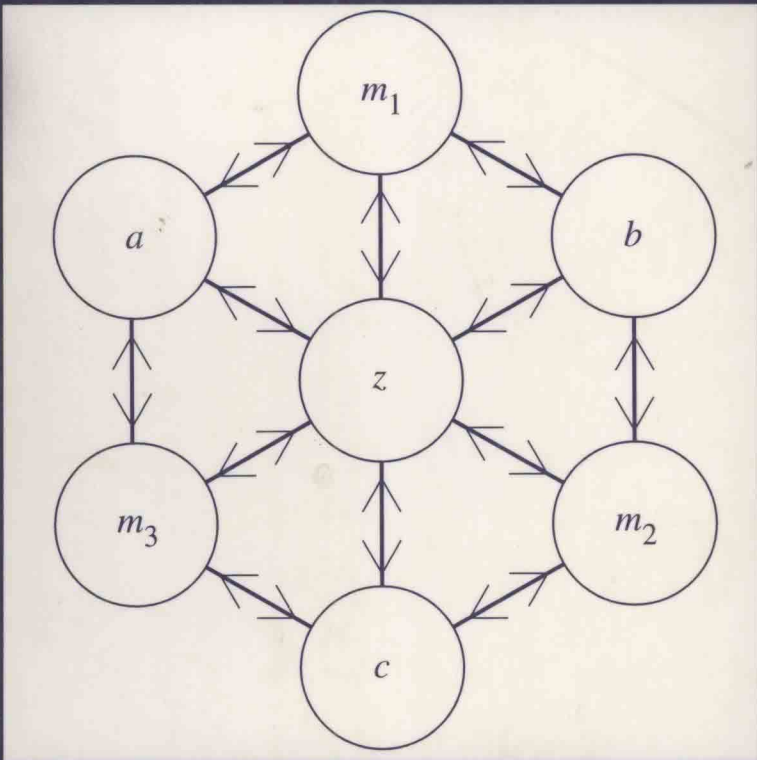


OXFORD

INFORMATION AND ORGANIZATION

A NEW PERSPECTIVE ON THE
THEORY OF THE FIRM



Mark Casson

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*A New Perspective on the Theory of
the Firm*

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Preface and Acknowledgements

This book offers a vision of the economy as a system of structured information flow. The structuring is effected by institutions, and in particular, by firms, which specialize in processing the information needed to allocate resources properly. Firms are the institutional embodiment of the visions of individual entrepreneurs who believe that they have found a better way of allocating resources. Entrepreneurial vision is only a partial vision, however, in the sense that it does not encompass the entire economy, but only a subset of it. Free market economies encourage the exploitation of such partial visions because they encourage intermediation—it is by intermediating between potential buyers and potential sellers that entrepreneurial visions are realized. A legal framework of private property, coupled with entrepreneurial ambition and curiosity, and a moral framework to control the incidence of cheating, allows very sophisticated structures of information processing to emerge. These structures control an elaborate division of labour in the material dimension, whilst themselves exploiting the division of labour in the dimension of information and control. Each firm is a small component of the overall structure of information flow. Markets provide a switching mechanism by which different components can be connected up to each other. This is a highly flexible system which allows the overall structure to evolve as circumstances change. The appropriate changes are identified by entrepreneurs who create new firms to be slotted into the existing structure, and thereby incrementally change the structure itself.

This vision has evolved over the last fifteen years during which I have been researching a variety of topics connected with the theory of the firm—entrepreneurship, business culture, multinational enterprise, joint ventures, and the like. In each of these areas it is necessary to modify the orthodox theory of the firm in some way in order to make it work properly. I have gradually realized that the various modifications required all have one thing in common, and that is they give the use of information by the firm a more central role. Information already plays an important role in agency theory and in transaction cost theory, which are generally recognized as important building blocks in the theory of the firm. But the emphasis in these theories is in the adversarial use of information rather than the use of information for creative purposes. One person exploits an asymmetry of information with the idea of benefiting themselves at the expense of other people. Other people then collect information about them in order to punish them for the harm they do; it is hoped that the threat of punishment will be an effective deterrent. In this approach the emphasis is on people collecting information about other people rather than on people collecting informa-

tion about the environment in which they operate. This account of the role of information within the firm is misleading because it is seriously incomplete. This book aims to remove the distortion inherent in this vision by emphasizing once again, as many other economists have done before, that the primary role of information within the firm is to support decision-taking, and in particular to implement ideas for coordinating the use of resources in a better way.

The book is written for a general audience. It should be accessible to scholars and graduate students in management studies (especially organizational behaviour and marketing), business and economic history, and industrial economics. It is written in plain jargon-free English as far as possible. At the same time, the book represents a specialist contribution to the theory of the firm. The arguments, though informal, are intended to be rigorous, and difficult points are confronted rather than evaded. Many of the arguments verbalize mathematical reasoning based upon formal models which have been published elsewhere. Specialist readers are invited to follow up the appropriate references.

The avenue of research opening up as a result of this book is long and wide. It is impossible to answer all of the questions which naturally present themselves within a single volume. It is my intention to write a sequel which will analyse in more detail the communication and storage of information, and explore the connection between information, organization, and culture.

I am grateful to many people for discussions on the topic of this book—in particular to my colleagues at the University of Reading and my Ph.D. students there. Indeed, one of these students, Ivana Paniccia, is a co-author of Chapter 7, whilst another, Nigel Wadeson, made an important contribution to Chapter 6.

I am particularly grateful to Ann Carlos and Simon Ville for authoritative advice on the chartered trading companies, which are discussed in Chapter 9, and to Jean François Hennart for some stimulating discussions about the free-standing companies which are discussed in Chapter 8. Special thanks are also due to Howard Cox, who collaborated with me on Chapter 4, and to Eric Jones, who offered valuable insights on the historical significance of information costs, as discussed in Chapter 10.

A preliminary version of Chapter 1 was presented to the Colloquium in Honour of George Richardson held at St John's College, Oxford, in January 1995. I am grateful to the organizers, Brian Loasby and Nicolai Foss, for their encouragement, and to George Richardson and other members of the workshop for their comments. A previous version of Chapter 3 appeared in *Management International Review* earlier this year. Some of the material in Chapter 4 will appear in *The Formation of Inter-organizational Networks*, to be published by Oxford University Press. I am grateful to the editor, Mark Ebers, and to his anonymous referees, for forcing me to clarify my

ideas on the subject of this chapter. Chapter 8 is based upon my remarks as discussant at the Special Session on Free-standing Companies held at the International Economic History Congress in Milan 1994. With the kindly advice of Mira Wilkins, Hans Schröter and Will Hausman, these have been worked up into a chapter of a forthcoming book on *Free-standing Companies in the World Economy, 1830–1995*, which will also be published by Oxford University Press.

Other academics who have kindly offered comments and criticism, or facilitated seminar and conference presentations connected with the book, include Georges Blanc, James Foreman-Peck, Michael Kitson, Ram Mudambi, Neil Kay, Martin Ricketts, and Keetie Sluyterman. As noted above, my colleagues at Reading have been very supportive of my research—especially John Cantwell, Tony Corley, Andrew Godley, Peter Hart, Geoff Jones, Jim Pemberton, Alan Roberts, and Animesh Shrivastava.

It is well known that anonymous publisher's readers can be a source of extremely forthright comments, but fortunately, in the present case, their comments have been most constructive and helpful too. No one, though, can quite match the brutal frankness of my good friend Peter Buckley, who is always available to put me straight on any number of points. My wife Janet and daughter Catherine have pointed out that despite all the final revisions, the book is certain to contain a number of mistakes which have not been discovered yet.

New information technology figures quite prominently in several chapters of this book, but I have to confess that I have still not really mastered it. I must therefore thank Lauraine Newcombe for providing secretarial assistance at a time when she was under considerable pressure on another job, and Jill Turner who, assisted by Melanie Waller, typed the manuscript with the same speed and accuracy that she has provided to my previous books. Finally, I would like to express my thanks to Oxford University Press—and in particular to Andrew Schuller—who patiently awaited the arrival of the typescript for over a year and only once expressed the mildest cynicism about my excuses. I am grateful to them all.

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PART I

BASIC PRINCIPLES

Information Cost and Economic Organization

1.1. Introduction

It is only recently that information has begun to receive the attention from economists that it really deserves. Many insights—theoretical and practical, contemporary and historical—will be derived from the economics of information once the relevant theory becomes better developed. This book explains the wider significance of some elementary aspects of the economics of information. It offers a vision of the economy as an information system, to counterbalance the more conventional view of the economy as a system of material flow. The focus is on the handling of data relating to goods and services rather than on the handling of goods themselves.

This vision is inspired by the work of Hayek (1937), Richardson (1960) and Marschak (1974). Although each of these writers has a different emphasis, they all perceive economic institutions as mechanisms for allocating decision-making responsibilities and for structuring information flow. In this context firms and markets are simply alternative institutional means of achieving the same objective, as explained by Coase (1937).

On this view, the structure of institutions existing at any given time can be interpreted as a rational response to the social need to economize on information costs. As information costs change, so too does the institutional structure of the economy. In particular, as technological progress drives down communication costs over longer distances, so institutions adapt by increasing the geographical scope of their activities. This institutional evolution, in its turn, supports a higher level of economic development.

The role of information in the coordination of economic activities was first emphasized by Hayek (1937), who explained how the market system motivates entrepreneurs to search out information for their private use. This information is then communicated to other people indirectly in the form of price quotations. In this way everyone becomes aware of the relative scarcities of different products. Each individual who scans price information therefore receives sufficient guidance to make decisions which are in harmony with those of other people.

Richardson (1960) too emphasized the importance of information to the coordination process. He was concerned with the general issue of how a complex economic system is coordinated, and in particular with the coordi-

nation of individual investment plans in related activities. He showed how informal structures of inter-firm collaboration may emerge to fill the gaps in knowledge that would otherwise distort the decisions of firms.

The contributions of Hayek and Richardson are significant because in the Walrasian model of general competitive equilibrium favoured by mainstream neo-classical economists all the handling of information is effected costlessly by an altruistic auctioneer. For example, in the contrived extension of general equilibrium theory offered by Debreu (1959), new markets are invented to address each new coordination problem that arises. The auctioneer harmonizes individual plans over space, over time, and over every conceivable state of the world as well.

For some purposes the fiction of the auctioneer is fairly innocuous—and, indeed, quite helpful in simplifying otherwise intractable analytical problems—but in analysing information the assumption of an auctioneer is a pernicious one. Because the auctioneer performs for free the functions that entrepreneurs perform for real, it leaves no room for entrepreneurs in the modelling of markets. In general, it leaves no room for analysing the way that real people collect and use information.

Although information is crucial to coordination, coordination is not the only role of information in the economy. Coordination harmonizes different decisions but, quite apart from this, information can improve the quality of individual decisions too. Thus two individuals who are ignorant of a new technology may coordinate their use of the old technology quite successfully, but they would be even better off if they informed themselves of the new technology and coordinated their use of that instead.

It was not until Marschak (1974) that a systematic account of the role of information in the economy was provided. Marschak approached information from a decision theory perspective. This is very useful, because 'economic man' is basically 'man the decision-maker'. Thus a full analysis of the role of economic information must consider the impact of information on decisions of every kind. This perspective emphasizes that information is an asset (Machlup, 1962). Better information leads to better decisions, on account of both better individual judgement and better coordination of different individual decisions. Better decisions lead, in turn, to better use of resources, and hence to higher social welfare.

1.2. Re-drawing the wheel of wealth

The vision of the economy as an information system is in sharp contrast to the materialistic vision of the economy found in standard economic textbooks. A typical textbook summarizes the economy in terms of a wheel of wealth, in which households supply factors of production to firms, who use them to produce goods which households themselves consume (see e.g.

Parkin and King, 1995, p. 13). Markets coordinate the flows of factors from households to firms and the flows of products from firms to households. These market relationships are often summarized in terms of mere accounting identities, equating household expenditures to firms' revenues, and household factor incomes to the sum of firms' costs and profits. Admittedly these *ex post* valuations are effected at prices determined *ex ante* by market forces, but then these market forces are interpreted simply in terms of known demands and supplies. The information flows required to discover and then to reconcile the demands and supplies are ignored. So as long as the known demands and supplies vary with price in an appropriate way, it is said, an equilibrium set of prices will prevail.

An equilibrium is guaranteed if demand curves slope down and supply curves slope up. This generates a problem in modelling the product market, because technological economies of scale imply that the supply curve may slope down instead. One answer is to postulate the existence of a fixed factor—usually called entrepreneurship—which limits both the number and size of firms in an industry. Given this fixed factor, a theory of the representative firm can be developed. The behaviour of this firm, when aggregated up, generates a supply curve of the requisite type. This has created the neoclassical firm—a firm in which the only strategic decision is how to adjust inputs and outputs to changes in factor and product prices.

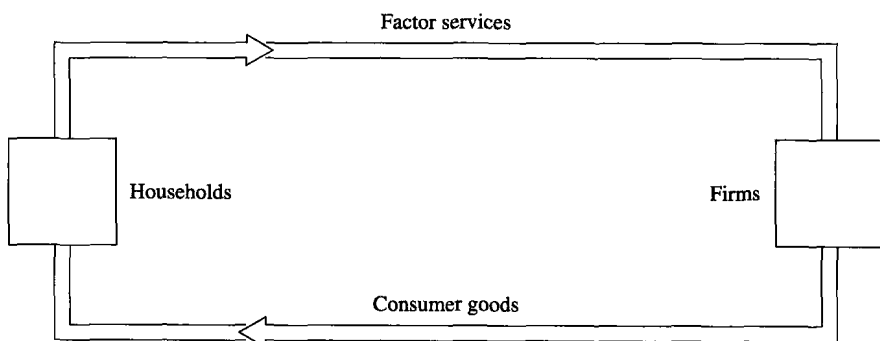
This account is a travesty of the way that the economy actually works. By ignoring the informational problems of the market system, it confronts the firm with an idealized environment far removed from the actual conditions faced in the real world. It equates the firm with a producer, ignoring the fact that many firms are actually responsible for the organization of the market process itself. Firms create markets by innovating new products. They engage in arbitrage and speculation, integrating markets over space and time. Retailers and wholesalers hold inventories which help to buffer fluctuations in supply and demand. Advertising agencies help to disseminate information on product quality. Banks handle specialized information on the debts that are created when payments cannot be fully synchronized with the delivery of products. A simple way of summarizing these points is to say that firms are specialized intermediators. In a very general sense firms intermediate between households as factor owners and households as consumers.

The materialistic view of the economy suggests that the essence of intermediation is production. It is the need to combine different factor inputs in given proportions, and in quantities sufficient to exploit economies of scale, that calls for intermediation by the firm. The information-based view of the economy suggests that the essence of intermediation is the organization of trade instead. This type of intermediation is effected by market-making firms. Trade requires people to make contact with each other, to communicate their wants, and explain what they offer in return, to negotiate a price

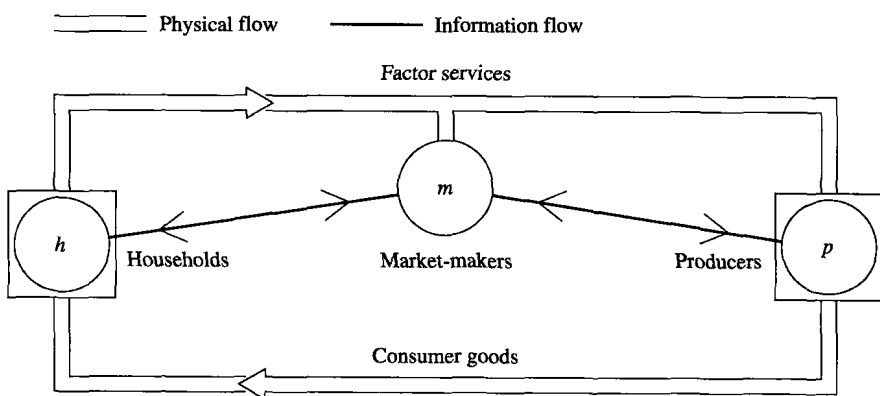
and to monitor the fulfilment of their contracts. The costs of these activities can be reduced through intermediation. Intermediation is thus a value-adding activity; indeed, it is one of the most important sources of added value in the entire economy.

Firms typically take the initiative in simplifying trade for the benefit of households. For example, firms fix stable and uniform prices for their products to reduce negotiation costs. They invest in a reputation for integrity which allows their customers to trust them even where the legal enforcement of contracts may be relatively weak.

A simple example of market-making is illustrated in Fig. 1.1. Part (a) illustrates the traditional 'wheel of wealth', while part (b) introduces intermediation in the product market. Material flows are identified by a double line. Units which generate or transform material flows are indicated by boxes. The purely materialistic picture of the economy at the top of the figure represents firms exclusively as transformers of physical factor inputs



(a) The elementary materialistic 'wheel of wealth'



(b) Refinement of the wheel of wealth to allow for intermediation

FIG. 1.1. Re-drawing the wheel of wealth

into physical consumer goods. Households use up these goods in consumption to generate energy for labour, or they abstain from consumption and recycle the goods in the form of capital.

The second part of the Fig. 1.1 introduces information flow. Information flows are indicated by a single line. It is these information flows which coordinate the flow of consumer products: they ensure that the mix of products generated corresponds to household preferences. Information flows take place between individual minds, and to highlight this fact individual minds are illustrated by circles, to distinguish them from the squares which represent the units that handle physical flows. Where an individual acts as both a physical consumer and as a decision-maker, or as both a manual worker and a decision-maker, they are represented as a circle inside a square.

Information flows, as shown in Fig. 1.1, are intermediated by the market-maker. The individual market-maker is indicated by m , to distinguish him from the individual householder, indicated by h , and the individual producer, indicated by p . It is through intermediation that the market-maker m coordinates decisions made by h and p . The coordination involves two-way flows of information, as indicated by the double arrows in the figure. Thus while material flows usually go in one direction only, information flow is a two-way affair.

Intermediation incurs costs because of the handling of information involved. This handling is effected by people employed for the purpose. There is, therefore, a flow of factor services into intermediation. There is no physical output, though: the output of intermediation consists purely of the decisions about prices and quantities that the intermediary makes.

Market-making itself may be decomposed into separate activities. The division of labour between price and output fixing on the one hand and retail distribution on the other is an important case in point. Price and output can be fixed at headquarters on the basis of information about supply and demand, as suggested in Fig. 1.1. It is not necessary for the headquarters to physically handle the product. Retailing, on the other hand, is usually about finding a convenient location at which to display and store the product in order to service customers on demand. Retailing of this kind definitely requires handling the product (though the retailing of specialist services may not—see below). Retailing is usually replicated at different locations whereas headquarters activities are not.

The role of retailing is illustrated in Fig. 1.2. Part (a) highlights the fact that the retailer d physically handles the product (as indicated by the square surrounding the circle) whereas the market-making headquarters m does not. The retailer intermediates between the producer and the consumer so far as material flow is concerned. He also intermediates between the market-maker and the household so far as information flow is concerned; for example, he conveys information about the product's specification and