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Explaining Firms

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Introduction

In a keynote speech to a recent conference, Nicolai Foss (1999, p. 5) pointed out that the distinction between production and exchange approaches to economic organisation is not very satisfactory, because both contribute to the maximisation of joint surplus. This, of course, was Menger's ([1871] 1976) view, though he preferred to call them both means of meeting human needs. This should therefore be an appropriate starting point for a workshop on Austrian economics and the theory of the firm. Menger began with what is now called 'household production', first by direct consumption of what is available and then by indirect use of goods to produce consumable objects, which in Menger's scheme transforms them into goods of higher order; their value in such a use is derived from the needs that are satisfied. Menger, unlike Walras, thereby provides an explanation for the structure of prices. Only when the goods which are to hand cannot be used, either directly or indirectly, for meeting that person's (or family's) needs does exchange begin to be substituted for production. Anything used for exchange thereby becomes, in Menger's system, a good of higher order, and its price is explained accordingly. Eventually we arrive at a still higher order of goods, which are used in production in order that the products can be exchanged. Thus production and exchange are not only in a broad sense substitutes; particular activities of production and exchange are often closely complementary, and jointly influence the structure of prices. This complementarity between production and exchange is a theme of this presentation; and Nicolai, at least, will expect me also to consider in what respects they are similar (Richardson 1972).

Equilibrium Explanations

In twentieth-century economics production became part of the theory of equilibrium, as advocated by Lionel Robbins (1932, p. 70), and in the process came to be analysed as a special kind of exchange. In fact it is not very special. In teaching basic microeconomics one set of diagrams is sufficient to represent the determination of optimal combinations of consumption goods and of inputs into production; all that is necessary is to relabel the axes. Microeconomics becomes what is called 'market theory', and there is nothing distinctive about firms as organisations – as has been pointed out often enough. In order to find some reason for firms to exist in theory (since they do appear to exist in practice) it has been thought necessary to identify a distinct category of circumstances in which this 'market theory' is inapplicable. Transaction cost theories were invented, and agency and property rights theories adapted, to do this job.

Now it is noticeable that there are two sorts of conditions which provide the bases for such theories. The first, which Coase used in 1937 – and has continued to use – are what might appropriately be called dispersed and fragmented knowledge; the second, which has become the overwhelming favourite, is opportunism or, more generally, circumstances in which standard market contracts do not automatically ensure incentive-compatibility. Some imperfection of knowledge is necessary to make incentive-compatibility problematic within a 'market-like' system; but it is imperfection in the *allocation* of knowledge between the contracting parties, and theorists are careful to emphasise – and for good reason – that this imperfection is in itself of no significance for theory.

Now it is not difficult to understand the revealed preference of economists for the latter kind of analysis. In a sense, all economics is about incentives; every economic relationship can be characterised as a principal-agent problem (or, often, as a symmetrical pair of principal-agent problems: think of the Edgeworth

box, in which each party seeks to induce the other, by an optimally-designed contract, to supply desired combinations of goods). Most of these problems are easily resolved into competitive equilibria, and others into Nash equilibria; but a sub-category is theoretically solved by some supposedly 'firm-like' device, which is actually an extension of equilibrium theory. (The differences between the 'firm-like' devices offered by principal-agent, property rights, and Williamsonian transaction cost theorists are of second order in the perspective of this exposition.) Even these extensions, we should note, are a little disturbing to some purists; but a general admission of incomplete knowledge, including incomplete knowledge of what is incomplete in other people's knowledge as well as one's own, threatens the whole edifice. How are such models to be closed? The multiple solutions which often occur in game theory are bad enough.

Another advantage of the preferred formulations is that these apparently 'firm-like' devices are implicitly restricted to contracting for already optimised schemes of production, thus leaving intact the 'market-like' analysis that (as Robbins wished) determines the choice of production techniques, from a production set which is both completely specified and publicly known to be public knowledge. The theory of production thus remains part of the theory of equilibrium; and the allocation of production linkages between 'firm-like' and 'market-like' contracts – the make or buy decision – is an extension of that theory. Consequently, the make or buy decision is not actually a decision but an equilibrium condition. This is characteristic of choice theory, and not surprisingly, since choice theory is designed to facilitate proofs of equilibrium. The result of this analytical strategy, as all participants in this workshop recognise, is a very 'thin' theory of the firm.

Firms and Production

We now have at least the material for a much ‘thicker’ theory of the firm, which apparently has no connection with transaction-cost explanations of why firms exist. Indeed, this alternative is actually a new theory of production, which is emphatically not part of the theory of equilibrium – or, to be more precise, not part of the allocative equilibrium of price and output; other concepts of equilibrium (for example, provisional equilibria of theory and policy) may be appropriate. The organisation of production, including decisions about what to produce and how to produce it, thus appears to be sharply differentiated from exchange. For economists, the foundational treatment of this theory is Penrose’s (1959, 1995) superb book – and rightly so, even though the elements in that book can be found in a line of illustrious predecessors (Loasby 1999). In fact, this new theory of production is a reinvention of a theory which had been developed from Adam Smith to Allyn Young, and then discarded as incompatible with equilibrium theorising.

Young (1928, p. 528), at least, agreed about the incompatibility; and it is of the first importance that Penrose decided that her theory had to be kept apart from standard theories of the firm. She made no reference to Coase’s 1937 paper, and did not ask why firms exist; only in retrospect does any connection become apparent. (What this connection is will be noted later.) Without this theoretical separation it would have been impossible for her to take the crucial analytical step of breaking open the production function in order to distinguish between inputs and the resources from which those inputs could be derived. This distinction made it possible to conceive, first of the continuous development of resources, and then of the intermittent perception, by those who were intimately acquainted with particular forms of development, of possible new uses for these

resources as inputs to new production processes – in Menger’s terms, the creation of new goods of higher order. The perception of new productive opportunities is described by Penrose as a small-scale version of Schumpeterian entrepreneurship; these opportunities are new combinations of productive services, oriented towards ‘the image’ of particular human needs. (Penrose (1959, p. 5) derived this Shackleian touch from Kenneth Boulding.)

The multi-specificity of resources produces the combination of substitution between uses and complementarity within uses that is at the core of Lachmann’s (1978) theory of capital (about which we shall be hearing later); and the Penrosian development of resources (or, in Richardson’s (1972) terminology, capabilities) provides scope for differences between internal and external valuation (on implicitly Mengerian principles) which writers on strategy are looking for. However, by endowing firms with permanently differentiated capabilities, which sustain defensible rents, strategists have returned to equilibrium; and those among them who evoke the name of Penrose are in serious error, for there is nothing permanent about the particular advantages of a Penrosian firm.

Firms and Exchange

Though the demands of these new combinations on the firm’s managerial services for devising and developing appropriate ways of organising activities is important in constraining the firm’s rate of growth, and in eventually extending its managerial capabilities through learning, we might be forgiven for thinking that this new theory of the firm has no significant implications for the analysis of markets. But that would be wrong. I referred earlier to ‘market theory’ and ‘market-like analysis’; and these phrases were in quotation marks, because in ‘market theory’ there are no markets as we understand them in practice. In fact,

things are even worse. A few years ago, I wrote that we have no theory of markets; what we have instead is a theory of exchange. Stephan Boehm pointed out that we do *not* have a theory of exchange, in the sense of a balance of costs and benefits, and he was right: in all standard models exchange is costless. Now there is a formal justification for neglecting the costs of exchange in microeconomic theory: it is simply that in any full general equilibrium, and in the equilibria of game theory, the costs of organising future exchanges are zero, since all exchanges that are worth while have already been arranged.

Hayek's (1945, p. 523) well-known observation that all economic problems arise from change is a special case of Knight's (1921, p. 313) earlier proposition that change 'is a condition of the existence of any problem whatever in connection with life and conduct'; and equilibrium theory contains no means by which an economy can attain the equilibrium which is implicit in the theorist's model of any new circumstances. The particular deficiencies of perfect competition in this respect were explored by Richardson (1960), who also discussed various ways in which they might be overcome. Coase's explanation of the firm may also be regarded as a contribution to filling this lacuna in equilibrium theory: firms are created in order, first to avoid the need to make present contracts for uncertain future production requirements, and second to reduce the eventual costs of arranging for these requirements to be met as they become necessary. A firm is an investment in preparation for an uncertain future. (For an exposition of this theme, in the guise of an analysis of long-range planning, see Loasby 1967). Some arrangements for future production are therefore removed from the market. The relevant costs, in Coase's account, are not just bargaining costs but first of all costs of discovering what arrangements are possible – costs which, as I noted earlier, arise from incomplete and fragmented knowledge.

Now such costs are not likely to be confined to arrangements for production; they are inherent in making arrangements for any kind of exchange where knowledge is dispersed and incomplete. Coase (1988) later argued for the recognition that all transactions incur costs, but the cost of using markets already appears as a universal proposition in his original article. However, because, like Penrose, he thought of the firm as a *productive* organisation – this is the connection between them to which I alluded earlier – he did not observe that it may also be possible for those with better access to specific knowledge to provide valuable services in facilitating exchanges for which that knowledge is relevant. Indeed, such intermediation is a phenomenon of ancient lineage, and merchants are among the oldest of firms. This reminds us that firms may be viable, not as an alternative to exchange, but simply because they allow people to benefit from exchange. The distinction between production and exchange diverts attention to the role of firms in organising both. The concept of firm as intermediary is a natural inference from the recognition that arranging exchanges may be costly, and it may therefore seem surprising that most economists who are interested in what firms do have been reluctant to follow Mark Casson's (1982, 1997) lead in this direction.

The concept of the firm as an agent of exchange should be particularly attractive to Austrian economists, because it focuses on entrepreneurial alertness as the foundation of a business which is created by making a market. Making a particular market is an essential part of the overall market process, for as Lachmann (1986) insisted, there are many interlinked markets, each with its own market process. In order to understand markets, we need a theory of the firm as market-maker, as Allyn Young (1928, p. 536) implied in writing of the 'importance which the *potential market* has in the planning and management of large industries'. I suggest that such a theory should be based on the differences between firms both in their capabilities and in their perception (as Kirzner has insisted) of opportunities, whether for production, exchange or (as often) a

combination of the two. In Menger's original scheme, production entailed a concern for marketability, and Marshall (1919, p. 181) reminded his readers that production and marketing were parts of a single process of delivering value.

In comparison with most capability-based theorising, which focusses on production, Casson has a very strong orientation towards customers, which has led him to emphasise two potential reasons why firms may be able to reduce the costs of exchange sufficiently to make a profit from intermediation. The first is the scope for investment in transaction technologies (broadly defined) which can be employed in managing a large volume of transactions. Supermarkets provide an obvious modern example – here the firm *is* the market; but the most topical reference is to e-commerce, in which very large accounting losses are being incurred in the hope of creating a customer list which will yield substantial revenue at very low costs for each transaction. Marshall (1920, p. 500) understood the principle very well; all firms need to invest in developing both internal and external organisations – which takes time. Such investment, like all activities, requires appropriate capabilities.

The second reason why a firm may be able to reduce the cost of a particular class of exchanges is its ability to specialise in collecting, interpreting and using particular kinds of information – which also involves substantial investment both in equipment and in developing appropriate ways of thinking about issues. A single piece of data is meaningless without context. Information can be formally measured in 'bits' only if the full set of possibilities is known; and that is rarely possible in economic affairs. As Dick Langlois has said, knowledge is structure; and structures have to be imposed. Cognition depends on categories (Nooteboom 1999, pp. 191-6), and firms are, among other things, devices for organising compatible categories within which information may be interpreted. Indeed, Kirzner's entrepreneurs may be characterised as people each of whom has a distinctive way of organising information which yields

knowledge of a profitable opportunity, and entrepreneurial firms may be organised around entrepreneurial visions (Witt 1998) – which are imaginative constructions by which information can be ordered into knowledge.

The Cost of Transacting

At this point we may return to transaction cost theories of the firm. Though the relative costs of internal and external transacting are still relevant, the idea that firms internalise transactions when that is more profitable than leaving them to the market, which is the default case, seems less conclusive if firms have a major role in arranging systems of exchange as well as systems of production. It hardly seems necessary in this company to mention that production choices should depend on the sum of production and transaction costs, where production costs differ between organisations in accordance with their relative capabilities – which vary over time. Let me instead comment briefly on the costs of transacting and of governance.

One of the most standardised features of transaction cost analyses is the assumption that the cost of any transaction is given (presumably by some kind of production function for transactions) and constant. But this is also one of the least justifiable of the assumptions on which transaction cost analyses are based. Let me draw attention to two major objections. First, it should be orthodox doctrine that the direct cost of a single transaction, like the direct cost of a single item of production, depends upon the amount and kind of prior investment, as already noted. Yet, although it should be obvious that setting up governance structures requires investment, these investment costs, like the costs of setting up market contracts, do not appear: in (non-Coasian) transaction cost theory the only transaction costs to be considered are the rationally-expected costs that result from alternative arrangements once in place. (Principal-agent and

property-rights theorists share these features: particular forms of contract are either impossible or costless.) The investment in governance structures, of course, is crucial to Chandler's (1977, 1990) account of the rise of large organisations, and should surely be a central theme in the developmental theory of the firm which is advocated in the first paper of this workshop.

On the other hand, it is not at all orthodox doctrine that the costs of transacting depends on who is doing the transacting; but the capabilities theory of the firm makes precisely that claim about production, and why should it not be extended to transacting, or to any form of governance – indeed, to any activity, including the development of economic theory? The establishment and management of transaction or governance relationships are activities, which require appropriate capabilities. Like productive capabilities, the capabilities deployed in exchange are of varying quality and applicability; though specialised, they are not specific to a particular class of exchanges, and they change with time and experience, leading to the perception of new exchange or governance activities – including the reversal of past make or buy decisions. Transaction cost economics needs to be rescued from the constraints of equilibrium theorising (Nooteboom 1992, p. 285).

Decisions

So far, we have implicitly assumed that firms make decisions; it is time to enquire, if only briefly, how these decisions are made. Equilibrium theory relies on propositional logic, in which conclusions are entailed by premises; thus decisions are determined by the choice of premises – which cannot itself be the product of propositional logic. The premises on which rational economic agents rely cannot be natural givens; they have to be provided. Because of bounded rationality, they must, at best, be a truncated set. Thus rationality must be local;

and an important function of the firm is to organise compatible sets of decision premises for locally-interdependent decisions. But this is not all. There is rarely a credible set of decision premises which is sufficiently tightly drawn to deliver a necessary conclusion; as Chester Barnard (1938, p. 305) reminded us, most decisions are not logical (though they may have logical components). Premises are still required, to indicate for each problem what are the relevant factors, what future possibilities should be taken into account, and what options are available – and to indicate how the process of decision making should proceed. Moreover, let us not forget the importance of identifying both when a decision is needed and what it should be about. Decision-making, like production and exchange, has to be organised. It requires appropriate capabilities, and these capabilities develop over time in ways which are shaped by activities and the interpretations that are placed upon them. (Decision-making skills are, of course, an aspect of proficiency within each particular process of production and exchange.) Lane et al (1996) present some excellent examples of decision making, which not only illustrate the importance of non-logical connections but also the importance of the differentiated but compatible capabilities within an organisation, and within its network of collaborators.

Conclusion

Firms exist precisely because knowledge is incomplete, fragmented, ambiguous, and often difficult to express in usable form. Though the need to assemble and manage productive knowledge is central to capability-based theories, it is not only productive knowledge that requires appropriate organisation. Moreover, although, as Penrose pointed out, her theory necessitates a concept of a firm with ‘insides’ – an administrative framework – no theory of the firm can be complete without attention to its ‘outsides’, as illustrated in a dissertation that I examined on my most recent visit to Copenhagen (Andersen 1999); in Marshall’s words,

every business needs an internal and an external organisation, to provide, in later language, an appropriate framework within which to develop and apply its capabilities. No two firms will have identical capabilities, because they will construe their circumstances differently and will form different expectations.

The capabilities of a firm constitute its human and organisational capital. The potential of this capital depends both on the ordered relationship between its component elements and its orientation: its value depends on its future use, which, in Shackle's (1979, p. 26) phrase, is 'the imagined, deemed possible'. As time passes, the future uses will change, because of changes in the capabilities of the firm and its rivals, and because of changes among customers and the wider environment. There is no simple recipe for maintaining this capital intact – as two of the most admired British companies, Sainsbury and Marks and Spencer, have recently discovered. It is therefore just as well that people have different expectations about the future, and about their own chances of success. As Richardson observed, this is the essence of competition; and, as I said 23 years ago, competition is a proper response to ignorance (Loasby 1976, p. 192). Multiple solutions, which discomfort equilibrium theorists, provide an economy with reserves, which Menger thought important. Each firm's capabilities may be called an option set, as long as this does not deceive us into believing that there can be any demonstrably correct procedure for valuing these options; deciding what options to construct is an entrepreneurial decision, in Knight's sense. The firm, because it embodies particular ways of organising knowledge, is itself a response to ignorance, and as a participant in a competitive discovery process – a sequence of trial and error that we may wish to call evolutionary – it is a major contributor to the response to ignorance of our economic system.

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