

# Competence and contract in the theory of the firm<sup>1</sup>

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## Abstract

The Coase–Williamson response to the question “why do firms exist?” is based on the idea that transaction costs in viable firms are lower than they would be if production was coordinated through the market. The explanatory focus of this argument is on the diminution of costs related to transactions between given individuals. However, this ignores the possibility of activities which are in principle non-contractible, including aspects of the process of production. Further, the reliance on comparative statics in transaction cost theory downplays the distinctive kind and rate of human learning that takes place within firms. This paper argues that work on organizational learning and cultural transmission reinforces a competence-based explanation of the existence and relative efficiencies of firms, and this approach can also provide answers to the original question posed by Coase. Accordingly, the development of a research program involving a conjoint evaluation of both competence-based and transaction cost approaches is proposed. © 1998 Elsevier Science B.V.

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## 1. Introduction

Although Ronald Coase’s (1937) paper is rightly acclaimed for providing key insights into ‘the nature of the firm,’ there is still no consensus among economists on the factors that may explain its existence, boundaries, structure and development. Arguably, the primary bifurcation in theoretical analyses of the firm is between ‘contractual’ and ‘competence’ perspectives (Foss, 1993). The contractual approach emphasizes the cost of

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<sup>1</sup> This article is dedicated to the memory of Edith Penrose.

making and monitoring transactions. Although there are contrasting theories within this genre, all its exponents see the informational and other difficulties in formulating, monitoring and policing contracts as the crucial explanatory elements.<sup>2</sup>

In contrast, from the competence perspective the existence, structure and boundaries of the firm are explained in some way by individual or team competences – skills and tacit knowledge – that are in some way fostered and maintained by that organization. The central idea of competences provides the basis for evolutionary and non-equilibrium theories of industrial competition and development. Within this group there is also a diversity of views, particularly over the nature of (tacit) knowledge, the units and methodology of analysis, and the application of the evolutionary analogy (Chandler, 1990, Lazonick, 1990, Nelson, 1991, Pavitt, 1988). Nevertheless, the competences paradigm has attracted a wide and growing following and its ideas have made their way into the literature on corporate strategy (Wernerfelt, 1984, Prahalad and Hamel, 1990, Pettigrew and Whipp, 1991, Teece and Pisano, 1994, Winter Jr, 1987). According to this perspective the firm is much more than a set of responses to “individual and organizational responses to information-related problems”; it is essentially “a repository of knowledge” (Fransman, 1994, p. 715).

The genesis of the competence-based theory of the firm can be traced back to Adam Smith and *The Wealth of Nations*. The division of labor leads to the enhancement of skills through learning-by-doing. This was not a story of static equilibrium: instead a tale of dynamic growth and development, in which individual skills are progressively enhanced. Similarly, Karl Marx in *Capital* also put emphasis on the dynamic processes of production. However, Williamson (1975) shows that Smith failed to provide an explanation why production had to be organized within a single legal and institutional structure. The division of labor in production could seemingly enhance productivity growth even if the workers were individual, self-employed contractors, buying raw materials and semi-finished products and selling the items after their particular task was completed.

With the rise of neoclassical economics in the 1870s, attention was shifted away from the processes of production and towards the market. Choice, contract and exchange became central concepts for economic theory. The firm became represented less as an organization and more as a set of cost and revenue curves.<sup>3</sup> Dissatisfaction with this standard analysis has led to a revival of the competence-based approach and an interest in its precedents. Notable 20th century exponents of this approach include Knight (1921), Penrose (1959), Richardson (1972) and Nelson and Winter (1982).

Addressed here is the possibility of explaining ‘the nature of the firm’ using a ‘evolutionary’ or ‘competences’ rather than an exclusively transaction cost framework. This is not to deny the possibility that transaction costs have a role, nor to deny all

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<sup>2</sup> Williamson (1975) and (1985) clearly emphasizes the distinction between markets and hierarchies. In contrast, Alchian and Demsetz (1972), and ‘nexus of contracts’ theorists such as Fama (1980), enforce no such strong distinction but see monitoring or metering costs as crucial.

<sup>3</sup> Although he was responsible for much of this analysis, Marshall (1949, p. 115) also emphasized that “Capital consists in a great part of knowledge and organization... Knowledge is our most powerful engine of production... Organization aids knowledge; it has many forms... it seems best sometimes to reckon organization apart as a distinct agent of production.”

validity to the transaction cost argument. Indeed, it may help to explain some phenomena. As Winter (1982, p. 75) writes, in the transaction costs perspective firms are seen to be “held together only by the thin glue of transaction cost minimization.” The point is that the glue is too thin to account by itself for the integrity and cohesiveness of the phenomenon, and not that the glue does not exist at all. Indeed, the most fruitful outcome to this theoretical enquiry may be a plurality of explanations rather than a single theory. An important methodological issue thus flagged is a shift from singular to plural or hybrid explanations of complex phenomena such as the firm. What is at stake is the identification of the main factors in the explanation of this complex phenomenon, but not necessarily to the exclusion of all others. Consistency, of course, is required, but not necessarily a single, unitary explanation.

To repeat, the aim of this paper is not to show that transaction cost approaches are generally false. Neither is the exclusive superiority of the competence-based approach established here. The aim is more modest: to show on the basis of existing research that the competence-based approach can answer the key questions concerning the nature of the firm as least as well as the transaction cost and other contractarian theories. What is required in the future is the development of a research program in which the two approaches are conjointly evaluated and tested. A hybrid theory may result, using compatible versions of both approaches, in which the weight of explanation may shift from one approach to another, depending on the concrete institutional and historical circumstances.

Nevertheless, some of the impetus behind the development of competence-based theories stems from dissatisfaction with *exclusively* transaction cost explanations. Accordingly, some of the limitations of contractarian approaches are briefly reviewed here. This provides the point of departure for a discussion of the competence-based alternative and an attempt to answer the key Coasean questions about the nature of the firm in a competence-based framework. The conclusion of the essay points to the possibility of hybrid explanations.

## 2. Limitations of contractarian approaches

Three key features of existing (typically exclusive) contractarian approaches are as follows:

1. Given individuals – typically with given preference functions – are assumed. Contractual transactions between these social atoms are identified as the basic starting points of analysis. Typically, this leads to a neglect of (a) the limits of contracts and exchange and the necessity of some non-contractual relations, involving (moral) norms and (tacit) rules, and (b) of processes of radical individual transformation, development, and (cognitive) learning. The individualistic focus similarly excludes notions such as organizational learning and group knowledge, leading to an associated neglect of the types of skill associated with teams.
2. Typically technology and production are neglected in the following manner. The characteristic assumption of a uniformity of technology over different governance

modes implies an analytical separability of production and technology from governance structures or transaction costs. Accordingly, the explanatory contribution of production costs and technology is (at least temporarily) ignored while governance modes are evaluated. As a result, the primary emphasis is not on production, accumulation and growth but on the choice of governance structures and the efficient allocation of given resources.

3. A focus on comparative static explanations, where one organizational arrangement is deemed to have lower (transaction) costs than another, overlooks key dynamic aspects of the problem, notably learning, innovation and technological development. The focus becomes one of static, cost-minimising efficiency, rather than dynamic efficiency and long-term advantage.

We now consider these three points in more detail.

### *2.1. Given, atomistic individuals*

Transaction cost and other exclusively contractarian analyses reduce the interaction between individuals to the calculus of costs. Individuals act as utility-maximising automata on the basis of given preferences. The focus is on how given, maximising individuals relate to each other to form and sustain institutions. The possibility of individual preference functions themselves being moulded by culture and institutions is ignored. Not only do preferences arise mysteriously from within the individual; social institutions bear upon individuals simply via the costs they impose. As Douglas (1990, p. 102) points out in her criticism of Williamson that: “He believes firms vary, but not individuals.” The “same representative rational individual” is placed in one contractual situation then another. This individual’s preference function is not altered by the reigning institutional norms and cultural context, simply the costs of each transaction vary.

On the basis of the assumption of given individuals, standard contractarian approaches extend concepts that pertain primarily to a market environment into a quite different sphere. In his classic critique of the contractarian tradition in social science, Durkheim insists on the existence, necessity and irreducibility of non-contractual elements in all social relationships, even within the sphere of markets and exchange. He points out that while in general an explicit agreement is necessary for any valid contract, there are elements involved that cannot be reduced to the expressed intent of any individual: “For in a contract not everything is contractual” (Durkheim, 1984, p. 158). Whenever a contract exists there are factors, not reducible to the intentions or agreements of individuals, that have regulatory and binding functions for the contract itself. For all contracts there exists a set of binding rules to which there is no explicit or detailed reference by the parties involved. All market-based and contractual systems thus rely on essentially non-contractual elements – such as trust and moral norms – to function.

As Durkheim (1984, p. 160) elaborates, there are problems of uncertainty and incomplete knowledge in any contract. Coase and Williamson suggest that these problems can be tackled entirely within a contractarian framework. A counter-argument is provided by Knight (1921). Arguably, uncertainty can never be eradicated and action in

such a context requires judgement and other elusive entrepreneurial skills.<sup>4</sup> Typically, and especially in unique cases, these skills are tacit, idiosyncratic and unmeasurable: The receipt of profit in a particular case may be argued to be the result of superior judgement. But it is a judgement of judgement, especially one's own judgement, and in an individual case there is no way of telling good judgement from good luck... (Knight, 1921, p. 311). Knight argues that it is a key role of the firm's management to cope with uncertainty by exercising judgement, and developing the capacities for sound judgement in others: The fundamental fact of organized activity is the tendency to transform the uncertainties of human opinion and action into measurable probabilities by forming an approximate evaluation of the judgement and capacity of the man. The ability to judge men in relation to the problems they are to deal with, and the power to 'inspire' them to efficiency in judging other men and things, are the essential characteristics of the executive (Knight, 1921). Knight thus suggests that not all economic competences – particularly those relating to the exercising of judgement in a climate of uncertainty – are contractible. Knight's implicit answer to the question "why do firms exist?" is thus different from that provided by Coase and Williamson. It is not fundamentally because of the higher transaction costs that the firm cannot be broken down into self-employed producers trading with each other. It is because a complete market for all entrepreneurial and managerial skills is impossible in principle.

In his classic paper on the firm, (Coase, 1937, pp. 400–401) attempted to rebut Knight's argument, writing: "We can imagine a system where all advice or knowledge was bought as required." Coase thus misses the point. Compared with goods and other services, information and knowledge cannot be so readily 'bought as required.' Consider first the famous problem highlighted by Arrow (1962); we do not know the value and nature of information until after it is purchased. Even more seriously, as Knight (1921, p. 268) argues, uncertainty and ignorance create the "necessity of acting upon opinion rather than knowledge." What is involved with managerial and entrepreneurial skills is not mere information or knowledge but sophisticated but essentially idiosyncratic judgements and conjectures in the context of uncertainty. Further, as Knight alludes with his identification of the problem of "judgement of judgement," and as Pelikan (1989) has later elaborated, the purchase or allocation of competence itself require competence: there is a problem of infinite regress<sup>5</sup> Indeed, as Knight (1921, p. 2298) himself writes: the problem "of selecting human capacities for dealing with unforeseeable situations involves paradox and apparent theoretical impossibility of solution."

This is a key difference between contractual and competence-based theories of the firm. Coase regards all managerial and entrepreneurial competences as potentially contractible whereas Knight denies that they all can be. Knight's emphasis on uncertainty and on the (idiosyncratic) nature of judgement required to cope with it, provides an argument for the limits of contractual exchange. Just as Durkheim insists that there are

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<sup>4</sup> Uncertainty is defined here in the Knightian sense. It applies to situations where the calculation of a numeric probability is impossible.

<sup>5</sup> Note also Loasby's (1990, p. 227) remark that: "Transactions cost analysis appears to make the choice of administratively rational procedures itself a substantively rational choice."

non-contractarian elements to any contract, Knight argues that in a context of uncertainty some competences cannot be usefully or readily bought or hired.

When an entrepreneur identifies a new and hitherto unrecognized market opportunity he or she is exercising an idiosyncratic and peculiar skill. A rent from these specific assets can be realized through an individual contractual relationship or by starting a firm. However, as Foss (1993, p. 136) points out: “Because of the idiosyncrasy of entrepreneurial competence, the first option is generally blocked: There does not in the market exist a way to evaluate the entrepreneur’s worth.” This is much more than a matter of excessive transaction costs. Allegedly, concerning such competences, no adequate cost calculus is possible. Similarly, Teece and Pisano (1994, p. 540) note that: “The very essence of capabilities/competences is that they cannot be readily assembled through markets.”

Just as seriously, the conception of the given individual in contractarian theories of the firm cannot readily incorporate notions such as learning and personal development. Instead of a mechanism by which one individual with given aims and preferences directs and motivates another, management becomes a process of learning and discovery in which new aims appear. As Loasby (1995, p. 472) argues, it is a primary task of management to discover, and encourage others to discover, what action is best. This is more a process of ‘identification and discovery’ rather than management giving orders that derive from the allegedly known ‘best action in any situation.’

Instead of the mere input of information, learning is a developmental and reconstitutive process. Economists have often treated learning as the cumulative discovery of pre-existing ‘blueprint’ information, or the Bayesian updating of subjective probability estimates in the light of incoming data (Bray and Kreps, 1987). However, there are severe problems. For instance, as Hey (1981) demonstrates, a process of Bayesian learning in search of an optimum depends upon the assumption of correct prior knowledge. Accordingly, such search models may break down if such an assumption does not apply. The experimental work of Kahneman et al. (1982) and others has found that agents do not generally draw inferences in a Bayesian manner, even with relatively simple cases of decision making under risk. Furthermore, as Dosi (1988), Dosi and Egidi (1991), Nelson (1980) and others have argued, the Bayesian approach is a very limited way of conceiving of the role of learning, which in reality is much more than a process of blueprint discovery or statistical correction.

In standard contractual models, agents often have different and incomplete information but they typically act as if they shared the same model of the world. Problems of interpretative ambiguity and divergent cognition are thus side-stepped. Instead, obstacles to efficient coordination within the firm are typically founded on presumed clashes of individuals goals and interests, as evidenced by Williamson’s persistent emphasis on individual opportunism. Given such assumptions, attention is directed at the lack of a complete sharing of (unambiguous) information or at allegedly inappropriate incentive structures. This ‘positivist’ stance fails to acknowledge that for information to become knowledge it must be interpreted, and different interpretations are always possible, even with the same set of information (Hodgson, 1988). The idea of institutionally-sustained, shared cognitive frames has become a central point in some researches into the nature of the firm (Nooteboom, 1992, Fransman, 1994).

There is a key reason why an enriched conception of learning is not found in the equilibrium analysis of neoclassical economics: it is not obvious what is meant by ‘rational learning.’ The very act of learning means that not all information is possessed and global rationality is ruled out. Learning is more than the acquisition of information: it is the development of the modes and means of calculation and assessment. As Dosi and Marengo (1994 p. 158) argue: “innovative activities involve... a kind of learning quite different from the Bayesian probability updating and regression estimation: it requires agents to build new representations of the environment they operate in.” If the methods and criteria of ‘optimisation’ are themselves being learned how can learning itself be optimal? By its nature, learning means creativity and the potential disruption of equilibrium. In short, the phenomenon of learning is antagonistic to the concepts of equilibrium and rational optimisation.

The interdependence of individual knowledge within the firm is recognized by Penrose (1959, pp. 46–52). Furthermore, Winter Jr (1988, p. 170) emphasizes that the knowledge within a corporation relates essentially to the organization and the group, rather than to the individuals composing them: “it is undeniable that large corporations are *as organizations* among society’s most significant repositories of the productive knowledge that they exercise and not merely an economic contrivance of the individuals currently associated with them.” Further: What requires emphasis is that... the learning experience is a shared experience of organization members... Thus, even if the contents of the organizational memory are stored only in the form of memory traces in the memories of individual members, it is still an organizational knowledge in the sense that the fragment stored by each individual member is not fully meaningful or effective except in the context provided by the fragments stored by other members (Winter, 1982 p. 76). Accordingly “it is firms, not the people that work for firms, that know how to make gasoline, automobiles and computers” (Winter, 1982). Note also that Aoki (1990) writes of the collective nature of employee knowledge in the firm. Since “learning and communication of employees take place only within the organizational framework, their knowledge, as well as their capacities to communicate with each other are not individually portable” (p. 45). Similar points are stressed by Dosi and Marengo (1994, p. 162): “organizational knowledge is neither presupposed nor derived from the available information but rather emerges as a property of the learning system and is shaped by the interaction among the various learning processes that constitute the organization.” Related points are made by Lazonick (1994, p. 247): “Innovation is social process that requires the conscious involvement... of many people with a variety of specialized skills and functions. Innovation requires collective organization because it is complex, cumulative and continuous.” Teece and Pisano (1994, p. 544) elaborate a similar theme: “Learning processes are intrinsically social and collective and occur not only through the imitation and emulation of individuals.”

Contrary to the view of information and knowledge as portable and readily transmissible, knowledge is embedded in social structures and is not immediately transparent. This is partly because opportunities for learning within the firm are transaction and production-specific (Teece, 1988). Also learning is an instituted process of interpretation, appraisal, trial, feedback, and evaluation, involving institutionally transmitted cognitive frames and routinized group practices which are often taken for

granted. Organizational knowledge interacts with individual knowledge but is more than the sum of the individual parts. It is context-dependent, culture-bound and institutionalized. The group-based nature of learning defies the boundaries of any possible individual contract between employer and employee; knowledge resides in the interstices of the social organization of the firm and its associated community.

## *2.2. The neglect of production*

By focusing largely on contracts and transactions, in the contractarian approach attention is shifted away from the production of more resources to the allocation of given goods and services. In transaction cost analysis, different governance modes are compared in the context of a given technology. This implies a conceptual separation of social relations and structures on the one hand and technology on the other. Production costs are assumed to be given and do not differ across governance or transaction modes. However, technologies are often linked to transaction modes and structures of governance. Milgrom and Roberts (1992, pp. 33–34) highlight some of the theoretical problems involved in trying to separate production and governance, and their corresponding costs. As Pagano (1991) elaborates, it is not clear why the causality between technology and organization should run predominantly in one direction only. When technology is endogenously determined, its choice may be for reasons other than cost minimization. All this is fairly obvious once we dispense with a purely ‘engineering’ view of production and see production costs as also affected by social relations between agents. Accordingly, an exclusive focus on the minimization of transaction costs is misconceived.

It is a common mistake to treat production as an extension of exchange, or as an ‘exchange with nature.’ This error derives from the assumption of a particular kind of given individual, exclusively engaged in contract and trade, as the sole and ultimate animating force in the economic system. Decisions to buy and sell are seen to impel and determine production, as expressed in the idea of ‘consumer sovereignty.’ Contracts and marketplace decisions are regarded as primary and active, production as consequent and passive. As a result there is no substantial distinction between production and exchange, as the former is seen as being animated by (and even taking the form of) the latter. Once the deal is struck the wheels of production are essentially predetermined. The law of contract, through appropriate penalties, ensures that the goods will appear at the appointed time and in good order. In this case all the key choices and actions take place in the determination of the contract itself. Output is assumed to flow mechanically from input. Production is merely an annex of the market; a place where agents act in accordance with the relevant clauses of the deal.

All this neglects a key difference between production and exchange. In contrast to a contract involving the exchange of goods, production involves the use of labor and the ongoing intentional involvement of a worker. Production is the intentional creation by human beings of a good or service, using appropriate knowledge, tools, machines and materials. The employment of a worker does not terminate the relationship between the buyer and seller, the employer and employee. As Marshall (1949, p. 471) noted: “when a person sells his services, he has to present himself where they are delivered. It matters



nothing to the seller of bricks whether they are to be used in building a palace or a sewer: but it matters a great deal to the seller of labor.” The good or service being supplied – in this case labor – remains united with its possessing agent.

If all individuals are endowed with discretion and choice, the worker is too. As Simon (1951) and others have pointed out, labor is not a “passive factor of production.” Employment contracts are imperfectly specified. The terms of the contract cannot be spelt out in full detail because of the complexity of the work process, and the degree of unpredictability of key outcomes. These problems are found in other contracts, but with employment contracts they are particularly severe. For instance, each agent will learn during the execution of the contract, and the agent cannot in principle predict the future knowledge that is to be learned. There is also a heavy reliance on the types of tacit knowledge associated with productive skills.

The fact that a relationship between buyer and seller necessarily endures after the contract is agreed, extends its social and non-contractual dimension. Arguably, modern industrial relations depend in part on the generation of trust and a climate of commitment and loyalty within the firm (Fox, 1974).<sup>6</sup> Attempts to specify all these factors in contractual terms would not only be impossible because of the complexities and uncertainties involved, they would also be self-defeating. The whole point about such qualities as loyalty and trust is that they are not reducible to, and are undermined by, a cost calculus. As Arrow (1974, p. 23) remarks on trust: “If you have to buy it, you already have some doubts about what you’ve bought.” Trust and loyalty cannot be modelled adequately in an exclusively contractarian framework.

However, not all production involves employment contracts, and the degree and type of trust may vary in different institutions. These are thus specific illustrative aspects of the contractual problem, rather than the most fundamental issue here. The latter is as follows: exclusively contractarian approaches must assume that relevant outcomes of (uncertain) future production can be captured and effectively transacted by a set of contracts in the present. It is assumed that productive powers or potentialities can be treated entirely as presently calculable actualities: that allocation can subsume production, that the future can be collapsed analytically into the present. Competence-based approaches deny this, while admitting that some significant costs and benefits are amenable to present calculation. This fundamental difference of approach is illustrated further in the following discussion of dynamic efficiency and change.

### 2.3. *Dynamic evolution versus comparative statics*

Williamson has repeatedly admitted that his approach is one of comparative statics. Typically, the incidence of transaction costs in equilibrium is compared in two or more governance structures, and the structure with the lowest costs is deemed to be more efficient. Williamson (1985, pp. 143–144) acknowledges that a shift from considerations

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<sup>6</sup> In contrast, Williamson (1993, p. 469) asserts: “trust is irrelevant to commercial exchange and . . . reference to trust in this connection promotes confusion.”

of static to those of dynamic efficiency is not encompassed by his theory: “the study of economic organization in a regime of rapid innovation poses much more difficult issues than those addressed here. ... Much more study of the relations between organization and innovation is needed.”

The neglect of technological innovation and dynamic change is indeed a most serious problem for the equilibrium-oriented approach (Hodgson, 1988, pp. 212–213, Nooteboom, 1992, pp. 284–285). Accordingly, Lundvall (1993, p. 62) concludes that the failure to incorporate innovation is a serious weakness of the static, transaction cost approach, and that it must be supplemented by bringing ‘innovation as a process of interactive learning’ to the centre of analysis. Consideration of static rather than dynamic efficiency is rooted in the comparative statics of Williamson and Coase. Yet the ability of the firm to foster human learning, technological innovation, and research and development may be a central reason for its survival.

Future knowledge is by its nature unknown, and the results of research and development are uncertain, in the most radical sense. This insurmountable difficulty in the specification of outcomes makes the existence of complete futures markets for all innovations and knowledge impossible. Prediction of specific events in a complex and uncertain world is severely constrained and generally analytically irreducible to probabilistic risk. In these circumstances substantial reserves of skills and material resources are required as buffers to deal with contingencies. Here the firm comes in. It has the scale, and the material and complex human resources to cope with uncertainty. Such arguments are traceable to Knight who argued that the existence of the firm “is the direct result of the fact of uncertainty” (1921, p. 271).<sup>7</sup> The focus on uncertainty reinstates the concept of time and moves us from comparative statics. Dynamic efficiency is essentially about learning and innovation, and, because of uncertainty, cannot be reduced simply to static terms.

With the above considerations the analysis of the firm is put on a quite different track. Recognition of the firm as a means of coping with uncertainty is crucial. Uncertainty is not only about future events themselves but also about the opportunities available. In the context of an uncertain world the analysis of human behavior has to be centred on the development of capabilities to deal with complexity and change, and on the modes of generation and transmission of knowledge about the evolving socio-economic environment.

In a dynamic perspective the exclusive focus is no longer on equilibrium outcomes. Out of equilibrium, a greater diversity of structure and performance is possible. As Downie (1955), Penrose (1959), Salter (1966), Steindl (1952) indicated – in four classic but hitherto neglected studies – there are often enormous and sustained variations in productivity between different firms in the same industry. This contrasts with the textbook picture of firms being driven towards the same long-run equilibrium, where costs (and revenues) are typically the same across firms. A dynamic and open-ended approach challenges the relevance of a long-run equilibrium and admits an

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<sup>7</sup> See the similar arguments in Loasby (1976), Kay (1984) and Langlois (1984).

ongoing diversity of outcomes. Penrose in particular took on board the central importance of firm heterogeneity and related it to the notion of firm-specific knowledge accumulation. Along with the equilibrium framework of mainstream economics, the Marshallian hypothesis of the ‘representative firm’ was discarded. The emphasis on dynamics and learning in an out-of-equilibrium context enables a more satisfactory accommodation of the real world fact of firm heterogeneity (Eliasson, 1991, Metcalfe, 1988, Nelson, 1991).

### 3. The viability of competence-based theories

As yet, no consensus exists on the definition of a firm. This creates a serious problem, no less for a dialogue between transaction cost and competence-based analyses. Elsewhere (Hodgson, 1998) a case is put for considering the firm as *both* an integrated organization and an integrated collection of resources and capabilities. A firm is defined as an integrated and durable organization of people devoted to the production of goods or services that are owned as property under law by the firm. One of several senses in which a firm is integrated is that it itself acts tacitly or otherwise as a ‘legal person,’ owning its products and entering into contracts. A sense in which a firm is durable is that it constitutes more than a transient contract or agreement between its core members and it incorporates structures and routines of some expected longevity.

The arguments for this definition are lengthy and cannot be elaborated here. Two brief observations must suffice. First, by focusing on *both* the legal–contractual *and* resource-based aspects of the firm, an initial definitional bias does not exist in favour of either transaction cost or competence-based explanations. Second, much of the argument in this paper is independent of some of the precise features of this definition. The definition is stated here to avoid confusion between the definitional characteristics of the firm, on the one hand, and the possible by-products of its existence, on the other.

#### 3.1. Corporate culture and learning

The principal argument in this essay is that an important but not exclusive factor explaining the existence, boundaries, nature and development of the firm is the capacity of such an organization to protect and develop the competences of the groups and individuals contained within it, in a changing environment. Accordingly, the firm has a capacity to mould and integrate the individual perceptions, preferences, abilities and actions of its personnel.<sup>8</sup>

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<sup>8</sup> At least in one passage Williamson indicates that he wishes to move in this direction. For example, when he discusses the ‘relational team’ he writes: “The firm here will engage in considerable social conditioning to help assure that employees understand and are dedicated to the purposes of the firm, and employees will be provided with considerable job security, which gives them assurances against exploitation” (Williamson, 1985, p. 247). But if Williamson was to take this argument with sufficient seriousness he would have to admit that the employees were themselves changed by the experience: less ‘opportunistic,’ and more cooperative and ‘dedicated to the purposes of the firm.’ Unfortunately, these conclusions are not drawn. Indeed, there is a general tension in Williamson’s writing between an intuitive commitment to realism, on the one hand, and his commitment to some core presumptions of mainstream economics, on the other.

Individuals cannot always be relied upon to cooperate together in a way which serves the objectives of the organization as a whole. A degree of opportunism may be a partial reason for this, but it is not necessary to exaggerate its importance, or paint a Williamsonian picture of a collection of devious and self-seeking individuals.<sup>9</sup> The firm survives and functions on the basis of both formal and informal relations. Legal contracts and property rights, sustaining human relations of command and authority, are often essential to keep the firm together as a unit and to motivate the individuals within it. Informal relations, involving cultural and moral norms, established routines, a degree of trust, and so on, are also vital to the integrity of the firm. Firms act as relatively durable repositories and transmission belts through time of a corporate culture. This cultural transmission focuses attention and skills, facilitates group and individual learning, and increases firm productivity.

Learning depends on acquired cognitive frameworks, but at the same time it is an essentially open-ended, provisional and potentially fallible process. It is not simply the progressive acquisition of unambiguous or codifiable knowledge. As well as the possibility of interpretative ambiguity, much knowledge is tacit (Polanyi, 1967) and has to be communicated by example and shared experience rather than by the written or spoken word. Furthermore, learning is a process of problem-formulation and problem-solving, rather than the acquisition and accumulation of given 'bits' of information 'out there.' This process involves conjecture and error, in which mistakes become opportunities to learn rather than mere random perturbations (Popper, 1972, Rutherford, 1988).

As Argyris and Schön (1978) and others explain, learning is not simply information absorption. Learning begins when individuals discover that their mental models – which indicate the expected consequences of particular actions under a variety of assumed conditions – are in error. Due to discrepancies between actual and expected outcomes, people may revise their models, that is, they learn. Organizational learning involves a process of inquiry, reflection and evaluation in which the model is revised and becomes embedded in the regular practices of the organization.

Organizational learning depends on a corporate culture. This is more than shared information. Through shared practices and habits of thought it provides the method, context, values and language of learning and the evolution of both group and individual competences (Johnson, 1992). With uncertain and ambiguous signals from a complex and turbulent environment, the processes of enculturation in organizations engender shared interpretations and contributes to the formation of consensus (Daft and Weick, 1984). Higher levels of learning – learning to learn – involve greater organizational and individual flexibility and the enhanced capacity to cope with the uncertain and unforeseen.

This argument is broadly consistent with the view of the firm as a 'cognitive' or 'learning' organization (Argyris and Schön, 1978, Fransman, 1994, Johnson, 1992, Nooteboom, 1992, Senge, 1990a). The market also has its own culture, and can also

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<sup>9</sup> Undoubtedly, opportunism exists in the real world, but failures of cooperation and coordination can also arise because of divergent perceptions, lack of information and understanding, or even incongruous individual motives which are entirely altruistic.

stimulate creativity and learning. Research in this area indicates, however, that the more durable and integrated characteristics of the firm are conducive to the more rapid growth of productivity in cases where production involves the interlocking and interdependent knowledge and activity of a group of individuals over an extended period of time. The contention here is that more durable and integrated institutions such as the firm provide the means of dispensing a richer culture of often tacit norms, routines and cognitive frames.

It has been noted that the firm has a capacity to generate a degree of trust. Generally, to trust another party means to engage voluntarily in a course of action the outcome of which is contingent on choices made by that other party (Barber, 1983). As Luhmann (1979) elaborates, trust is pre-eminently an expedient for reducing complexity. A number of authors argue that trust is often a glue that keeps business partners (Lorenz, 1988, Palay, 1984, Sabel, 1993, Sako, 1992) or the firm itself (Fox, 1974) together. It is thus argued that a firm has the ability to mould human preferences and actions so that a degree of loyalty and trust in regard to specific activities is engendered.

However, markets and exchange also rely on types and measures of trust (Hodgson, 1988). Nevertheless, a key proposition established by the aforementioned studies is that the type and extent of trust generated within the firm facilitates its organizational integration and its capacity to learn. Trust within the firm is just one manifestation of its integrative culture, and the relevance of this culture is in terms of its capacity to enhance productive powers. It would be a mistake simply to substitute ‘trust’ (or ‘power’) for ‘transaction costs’ in an equally comparative–static argument concerning the nature of the firm. Instead, trust is understood here as a variable aspect of a dynamic corporate culture. Essentially, that culture is a basis for organizational learning and dynamic growth. It is the overall and dynamic advantage of the organization of the firm that has to be emphasized, rather than snapshot comparisons of efficiency.

Containing individuals from different backgrounds, with diverse occupations and duties, the firm has to generate an unifying culture to survive. Typically, a firm’s culture will combine diversity – reflecting different contexts, practices, goals and beliefs – with the binding threads of a culture of corporate oneness and unity (Dietrich, 1994). This may involve prominent moral norms. As Barnard (1938, p. 282) wrote long ago: “Organizations endure, however, in proportion to the breadth of the morality by which they are governed. This is only to say that foresight, long purposes, high ideals, are the basis for the persistence of cooperation.” More recently, Miller (1992) argued, partly on the basis of game theory, that firms succeed insofar as they transcend narrow, individual opportunism by an ethic of mutual cooperation. Due to the intensity and relative longevity of its organizational ties, the firm can succeed in such terms, to a degree to which markets and exchange cannot.

The relative coherence of this integrative culture parallels the administrative unity of the firm. Even if much decision making and learning is decentralized, there is typically a centralisation of strategic activities, helping to provide firm coherence and an ability to exploit opportunities for innovation and growth. Within this integrated institution, the central and divisional corporate cultures together affect the storage and transmission of information, the acquisition and retention of knowledge, the framing of decisions and the nature and extent of human learning.

However, there is a negative side to such conformism. Whilst a common corporate culture helps provide the coherence of the firm, there are dangers of inertia and resistance to change. As Metcalfe and Gibbons (1989) have emphasized, the technological knowledge base of a business unit coalesces around specific conceptions and design configurations. With experience and structure come commitment and inertia, so that the mind-set of the firm becomes ‘canalized’ and permits only certain ‘internally consistent’ paths of future development. As a result, the firm may react to information and knowledge from outside and be unable to learn from or to imitate other firms. The positive and dynamic benefits of an integrative corporate culture have to be balanced by the possible eventual development of organizational sclerosis.

Accordingly, emphasis on the advantages of organization-based capabilities should not overlook the fact that the potential for organizational growth is always bounded. Firm competences have limits of scale and scope. More fluid market and exchange relationships may stimulate the firm to develop new capabilities. Furthermore, while organizational integration may be advantageous for an individual productive unit, exchange and market links may provide a looser overall framework in which a variety of organizations and competences co-exist. Such variety, sustained by exchange-based relationships, is the fuel of an evolutionary process (Nelson and Winter, 1982, Nelson, 1991). Firms, exchange, and markets thus have a symbiotic relationship in dynamic evolution. However, a key point in the competence-based approach is that new competences have to be managed and organized for much of their potential to be realized.

Due to its static framework, an exclusively transaction cost approach cannot capture such a symbiosis. The costs of one governance structure are less than another, and hence one survives. In nature, the single snapshot shows the predator destroying its prey. But in the process of evolution *both* species involved may be enhanced and improved by the effects of ongoing selection. Competence-based approaches fit more closely to the philosophy and methodology of the evolutionary paradigm pioneered by Nelson, Winter and others.

### 3.2. *The existence of the firm*

Now to re-tell the Coase story: if by contrast production was organized on the basis of market or other exchanges and through negotiated and renegotiated contracts between individual and self-employed producers, then equivalent facilities for cultural transmission and learning would not exist. Arguably, individual-to-individual relations tend to be more intensive and endure longer within the firm than in exchange or markets, despite the partial migration of labor in and out of firms. The relative cohesiveness and longevity of the firm as a durable organization facilitates the transmission of information and the generation of appropriate practical knowledge. Often this practical knowledge – in the form of competences – can exist in the body of an organized group of individuals only: it would not survive in a world of contracting and re-contracting individual agents. In such a contractual world without firms, productivity growth would be lower. And once the firm emerges its higher productivity could drive self-producers out of business. According to this hypothesis, the capacity of the firm to safeguard and enhance group and individual

competences can explain its existence. As Foss (1996, p. 18) puts it: “firms exist because they can more efficiently coordinate collective learning processes than market organization is able to.” Clearly, the market is also an important learning process. But the type of learning found in the market is different from the integrative, group- and production-based learning within the firm.

It must be noted, however, that the dynamic efficiency advantages of the firm may be path-dependent. As in natural selection, the competitive selection of the more efficient organizational forms may not occur.<sup>10</sup> The above argument assumes that productivity advantages correlate with survival chances, but that may not always be the case. There is thus considerable space for the investigation of path dependencies in actual historical processes. Insofar as this path-dependency argument carries weight, the scope for *both* transaction cost and competence-based *general* theories of the firm’s existence are qualified. This is consistent with an argument for a more eclectic and historically-based approach. It is not proposed here that one universal theory should be simply substituted by another.

The key points identified here as bestowing efficiency advantages on the firm are the relative intensity and longevity of interpersonal relations within the firm and the group- and institution-based characteristic of much of the learning and knowledge within that organization. Remarkably, the legal specificities of the employment contract do not themselves account for these attributes. If workers establish such intense and enduring relations it is not because they have an explicit contract to do so. On the contrary, the legal right of employee exit puts the onus on employers to enhance the informal commitment of employees to the firm, and to rely on corporate culture and atmosphere rather than simply contractual obligation to achieve this. Just as trust and commitment cannot be bought, such benefits are partially established voluntarily and extra-contractually, and precisely for that reason they are more meaningful.<sup>11</sup>

### 3.3. *The formation of the firm*

To say that firms eventually gain through enhanced productivity from the integrated organization and division of labor does not explain why firms are founded. This is especially the case if, like Smith, we assume that at the outset most works have a similar level of skill and that all or most of individual learning takes place after the division of labor has been formed. It was for this reason that Babbage (1846) differed from Smith’s account. There would be no *initial* advantage in organizing a firm with its division of labor if everyone was roughly at the same underdeveloped level of skill. It would take time for learning-by-doing to take place and for the division of labor

<sup>10</sup> For a number of arguments why competition – in both biology and economics – does not necessarily lead to optimal outcomes see Hodgson (1993, Ch.13).

<sup>11</sup> Notably, Hagstrom (1965, p. 20) argues that commitments to values cannot be engendered by offers of incentives or rewards: “In general, *whenever strong commitments to values are expected, the rational calculation of punishments and rewards is regarded as an improper basis for making decisions.* Citizens who refrain from treason merely because it is against the law are, by that fact, of questionable loyalty; parents who refrain from incest merely because of fear of community reaction are, by that fact, unfit for parenthood.”

to be beneficial. Babbage argues that varied levels and types of skill *prior* to the formation of the firm provide the crucial initial advantage for the division of labor in production.

It is suggested in the present essay that firms may exist because they provide a relatively protected cultural enclave in which wider group and individual learning can take place. In contrast, for each productive unit, an exchange-based relationship can be less conducive in these terms. However, as with Smith, this is a story of the *dynamic* advantage of *existing* firms. It does not address the question of why firms would be formed in the first place, unless it is presumed that the founders of the firm have the foresight to anticipate these future benefits and the resources to sustain the firm through the initial and relatively unproductive period when learning was taking place.

Again in a pluralistic spirit, there is no reason why there should not be additional reasons for *founding* the firm to supplement the reasons for the relatively higher and increasing productivity of *established* firms. Pagano (1991, p. 318n) gives such a reason, applying Babbage's observation to management itself: "specialization in command giving and taking is advantageous independently of any positive market transaction costs argument." Similarly, Demsetz (1988) asserts that increasing returns to management are a sufficient reason for the formation and existence of firms, even if there is no reduction in transaction costs.

Some key qualities of management are elucidated by Knight (1921, p. 268): "When uncertainty is present and the task of deciding what to and how to do it takes the ascendancy over that of execution, the internal organization of the productive groups is no longer a matter of indifference or a mechanical detail." It is in a situation of radical uncertainty that management comes into its own: "The problem of meeting uncertainty thus passes inevitably into the general problem of management, of economic control" (p. 259). The benefits of the firm are thus immediate. Knight argues that by grouping together activities with uncertain outcomes in a single firm provides an incentive both to set up a firm and to extend its scale and range of operations (pp. 244, 252).

### 3.4. *The boundaries of the firm*

The Coase (1937) transaction cost explanation of why firms reach a particular size was that the firm would grow to the point where, at the margin, the net benefits of firm organization were no greater than of exchange-based coordination. What is the equivalent explanation from the competences perspective of the firm? There is no answer as straightforward to that of Coase, who relied on marginal analysis and equilibrium. In a dynamic and disequilibrium situation the boundaries of the firm could be moving and unsettled. The question has to be tackled in terms of what might cause the boundary to shrink or grow. This issue has been tackled by Langlois (1988, 1992) and Langlois and Robertson (1993), Langlois and Robertson (1995). This work rightly emphasizes the strong element of path-dependency in determining the degree of vertical integration and the structure and boundaries of the firm. As a result, if there is an equilibrium outcome at which the net benefits of a given structure or level of vertical integration are maximized



then it will not necessarily emerge through a process of competitive selection. The firm should therefore not be understood as a strictly optimal organizational configuration. Instead, its character has to be understood via an appreciation of its history.

Foss gives a useful answer to the question of what determines the boundaries of the firm. Consider a decision to make rather than buy: “The reason must be that it is practically impossible for our integrating firms to convey – at least at reasonable cost – information to their suppliers about precisely they want from them” (Foss, 1993, p. 138). Due to the lack of a common business culture, with appropriate conceptual frames norms, values and objectives, there exists a lack of communicative competence in the arena of exchange. The market is ‘unfamiliar’ (Sah, 1991) with what the integrating firm wants. There are unmanageable dissonances between the practices and cognitive frameworks used by the two sets of agents. On account of the lack of a common culture they do not, in effect, speak the same language. “Only the integrating firm knows precisely what it wants; the relevant knowledge is strongly ‘impacted’ in the firm, residing in its competences” (Foss, 1993, p. 138). In deciding to make rather than buy, the firm chooses ‘voice’ rather than ‘exit’ (Hirschman, 1970) and thereby relies on stronger and more enduring bonds of its corporate ‘loyalty’.

In the competences paradigm, the firm is seen as “a cluster of core competences and supporting complementary assets” (Dosi, 1994, p. 235). It is argued that “the boundaries of the corporation need to be understood not only in terms of transaction cost considerations, but also in terms of learning, path dependencies, technological opportunities, selection and complementary assets” (Dosi, 1994, p. 231).<sup>12</sup> A number of case types emerges. For instance, with rapid learning and tight path-dependencies, single-product or specialist firms will grow rapidly. By contrast, if path-dependencies are broader, due to the presence of generic technologies with learning synergies, then ‘coherent diversifiers’ are more likely to become established. It is argued that if such synergies are absent and learning is slow then conglomerates displaying less inter-plant learning and technological transfer are more likely.

#### 4. Concluding remarks

Fundamentally, the difference of approach asserted by the competence-based perspective is ontological (in emphasizing variety, and hidden capacities and powers), epistemological (in insisting on non-positivistic conceptions of learning and knowledge) and methodological (in rejecting explanations ultimately in terms of individuals alone). The emphasis is on dynamic as well as static efficiency, and on production as well as allocation.

A strange paradox has existed in mainstream economics since Robbins (1932) insisted that the subject must be defined largely in terms of scarcity and choice. On the one hand, that which is in fact highly scarce, computational competence, is assumed to be in abundance (Pelikan, 1989). In typically assuming that all individuals can make optimal decisions in a complex environment and when faced with a large number of alternatives,

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<sup>12</sup> See also Dosi et al. (1992) and Teece et al. (1994).

it is implied that every individual has an unlimited ability to process vast amounts of information, a boundless computational capacity, and the analytical abilities of an advanced mathematician. Otherwise, economists typically assume given, depletable resources. So, on the other hand, that which in reality is not strictly a given and limited resource, the skill of a manager or a worker, is regarded as a resource input which is severely constrained. These resources are not strictly limited or given *ex ante* because of the phenomenon of ‘learning-by-doing.’ Hence the use of a skill has the effect of improving it, of enlarging rather than depleting its availability (Hirschman, 1985, p. 16).

In the first case the so-called ‘law’ of scarcity is inadvertently broken; in the second it is applied to an inappropriate context. The competence-based perspective rectifies both these shortcomings, by recognising both the limitations of the law of scarcity and the sphere of rational, computational competence where it applies with a force. It is the capacity of the firm to set up institutions and processes that enhance and preserve competences through time that accounts for its existence in the sphere of production.

The approach outlined here differs from that of Coase and Williamson, where the existence and rationale of firms and organizations are explained exclusively in terms of the idea that transaction costs are reduced relative to the alternative, exchange-based mode of co-ordination. The focus in this explanation is on the diminution of costs related to transactions between *given* individuals. The problem, however, is that we are addressing a dynamic process of institutional evolution rather than one-off comparisons of efficiency. The cost advantages of a firm in an exchange or market environment spread through time, and are not captured in a single, decisive instant.

Clearly, the efficiency of firm in an exchange environment must in large part be a matter of costs and pecuniary incentives. Herein lies both the insight and the danger of transaction cost analysis. The insight is to recognize the aforementioned fact and to apply it to transactions other than pure exchange. The danger is to reduce the essential and distinctive character of the firm to a matter of contracts and costs alone. The conclusion here concurs with that of Kogut and Zander (1992, p. 384), who describe firms as “social communities... Firms exist because they provide a social community of voluntaristic action structured by organizing principles that are not reducible to individuals.”

This poses a fundamental question: even if the transaction costs explanation has some credence, is it appropriate to place the entire or major burden of explanation on this concept if it ignores some fundamental features of organizations in the real world? One such salient feature is the distinctive kind and rate of group and individual learning that takes place within organizations. This emphasis on learning can be seen as a supplement to (modified) transaction cost explanations. As an example of this hybrid position, Teece and Pisano (1994, p. 539) have argued that the firm arises “not only because of transaction costs...but also because there are many types of arrangements where injecting high powered (market-like) incentives might well be destructive of the cooperative activity and learning.”

However, a proper emphasis on learning implies – unlike much of the transaction cost literature – that individuals cannot be taken as given while comparing market and

organizational modes of co-ordination or governance. Learning capacities relate to cultural development and cultural transmission within organizations. Cultural transmission and the enhancement of competences provide an alternative explanation of the existence and relative efficiencies of organizations and should provide a major theme in the analysis of the firm in economic theory. The relative efficiency and dynamism of the firm is thus explained not simply in terms of the summation of lower costs of atomistic transactions, but significantly also by the dynamic advantages and efficiency of the firm as a whole.<sup>13</sup> A more pluralistic program of research in this area may be able to evaluate the relative importance of these two aspects in different real-world circumstances.

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<sup>13</sup> One important but neglected implication is that the processes of competitive selection between firms may be partially undermined by movements of individuals from firm to firm (Campbell, 1994). Such disruptive movements confound the competitive selection of *firms* with higher levels of skill and competence. This is true a fortiori if the processes of group and individual learning take a substantial amount of time or depend on the stability of employment of the personnel in the work groups. The policy conclusion is diametrically opposed to the proposal that labor markets should have to be made more free so as to improve labor mobility. Instead, the emphasis is on the stability and longevity of the employment relationship, the enhancement of trust and learning, and the promotion of organizational integration to facilitate dynamic growth.

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