

Capabilities and Governance: The Rebirth of Production in the Theory of Economic Organization

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I. INTRODUCTION

In the last 25 years, the economics of organization has emerged as a thriving branch of economics. In spite of some variety among the contributions to this field, it is fair to say that the literature is in agreement on the fundamentals. The basic insight is this: in addition to production costs of the usual sort, one must also consider *transaction costs* in explaining institutions like the firm¹. Whether called transaction-cost economics (Williamson 1975, 1985) or the economics of organization more broadly (Milgrom and Roberts 1992), the field has indeed focused precisely on the comparative transaction costs of alternative organizational structures, including, paradigmatically, the choice between firms and markets. Firms and other institutions are alternative bundles of contracts, understood as efficient mechanisms for creating and realigning incentives. Transacting is fraught with hazards, and the problem of organization is one of creating governance structures to constrain the unproductive rent-seeking behavior that imperfect information permits. In fact, the basic heuristic driving this literature is to reduce literally all problems of economic organization to problems of incentive-conflicts attendant on imperfect information.

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1. This is also the case with formal contributions to contract theory (see Hart and Holmström 1987 for an overview), which normally tend to avoid the term 'transaction costs', deeming it too ill-defined. Nonetheless, one can think of asymmetric information – which is arguably the central concept in this literature – as a consequence of high transaction costs.

It is hard not to see this literature as a major advance. However, the main point of this paper is that the one-sided concentration on incentive conflicts has left something out. Specifically, the economics of organization literature has tended to overlook the production side of the firm, thus capturing only part of what Coase (1937) called 'the nature of the firm'. But the tide may be turning. We argue that the last few years have witnessed the emergence of a perspective – here generically called 'the capabilities perspective' – that is much more conscious of the production side of the firm and represents the nature of production in a way that is potentially complementary to the transaction-cost approach.

Our story begins from the premise that the organizational economics literature has tended to respect an implicit dichotomy between the production aspects and the exchange aspects of the firm – that is, between production costs and transaction costs. We do not mean to say by this that present-day theory depicts production as completely unaffected by exchange². Rather, we claim that there exists an odd and unjustified allocation of responsibilities between price theory and the economics of organization. To price theory has been consigned the basic theory of production, with an implicit agreement that the production function, and its attendant assumptions, tells us what we need to know about *production costs*. In price theory, knowledge about alternative production possibilities is explicit, freely transmissible, and easily encapsulated in what Joan Robinson (1956) called 'blueprints'; it is not imperfect or asymmetric, let alone tacit or 'sticky'. By contrast, imperfect knowledge (or, 'asymmetric information') looms large in the modern literature on the economics of organization; but here all informational imperfections – all deviations from the assumptions of the production-function formulation – are seen as falling exclusively in the realm of *transaction costs*.

The result of this partition of responsibilities has been an imbalance in the economics of organization. Seldom if ever have economists of organization considered that knowledge may be imperfect in the realm of production, and that institutional forms may play the role not (only) of constraining unproductive rent-seeking behavior but (also) of creating the possibilities for *productive* rent-seeking behavior in the first place. The emergence of what we call the capabilities view hold the potential to break down this partition. Seen in an economic light, this literature represents a revitalized attention to the importance of production costs for understanding the problem of economic organization.

2. In fact, the crucial point of some extremely influential recent research has been to demonstrate rigorously that alternative organizational structures might be chosen because they imply different incentives to invest in specific assets (Grossman and Hart 1986, Hart 1995). In many recent models, indeed, technology and organizational structure are determined jointly (Riordan and Williamson 1985, Milgrom and Roberts 1990).

One of our important goals here is to bring the capabilities view more centrally into the ken of economists. We offer it not as a finely honed theory but as a developing area of research whose potential remains relatively untapped. Moreover, we present the capabilities view not as an alternative to the transaction-cost approach but as a complementary area of research.

II. PRODUCTION AND GOVERNANCE: THE ECONOMICS OF ORGANIZATION

If one insists on conceptualizing all economic organization as reflecting the efficient response to latent incentive conflicts, then he or she immediately closes off two theoretical avenues leading to the question of production knowledge³. One is the possibility that knowledge about how to produce is imperfect; and the second is the possibility that knowledge about how to link together one person's (or organization's) productive knowledge with that of another is also imperfect. The first possibility brings us to the issue of *capabilities*; the second leads to the issue of *qualitative coordination*. In order to understand the centrality of these issues, and to see why they have been neglected, we provide in this section a brief discussion of the role of production in the modern economics of organization.

Although Ronald Coase, who is conventionally seen as the founder of the economics of organization, may have put aside the issue of capabilities, he did not neglect the issue of coordination. In the 1937 article on 'The Nature of the Firm', he lists several sources of those 'costs of using the price mechanism' that give rise to the institution of the firm. In part, these are the costs of writing contracts. The

'most obvious cost of 'organising' production through the price mechanism is that of discovering what the relevant prices are' (Coase 1937, p. 390).

A second type of cost is that of executing separate contracts for each of the multifold market transactions that would be necessary to coordinate some complex production activity. These costs can be avoided by organizing in a firm.

3. This latter point has not gone entirely unnoticed. Paul Milgrom and John Roberts (1988, p. 450), two of the leaders in the modern economics of organization, made the following prediction almost a decade ago. 'The incentive based transaction costs theory has been made to carry too much of the weight of explanation in the theory of organizations. We expect competing and complementary theories to emerge – theories that are founded on economizing on bounded rationality and that pay more attention to changing technology and to evolutionary considerations'.

However, a careful reading of the paper suggests that it is ultimately a quite different type of contracting cost that attracts Coase's attention. After pointing out that the nature of the firm consists largely in substituting an employment contract for a spot contract in output, Coase suggests that the real costs of spot contracts may lie in their relative inflexibility to recontracting when change disturbs an existing relationship. Longer, incomplete contracts provide much more flexibility because they eliminate haggling and communication costs and allow those who possess superior knowledge to direct less-informed others. And when

'the direction of resources (within the limits of the contract) becomes dependent on the buyer in this way, that relationship which I term a 'firm' may be obtained' (Coase 1937, pp. 391–392).

Thus, one may argue that Coase's explanation for the emergence of the firm is ultimately a *coordination* one: the firm is an institution that lowers the costs of qualitative coordination in a world of uncertainty, quite irrespective of considerations of incentive conflicts. Largely in a quest to make Coase's ideas more 'operational', the literature has arguably both narrowed his explanation for the firm and moved its focus away from issues of coordination, especially qualitative coordination. Both the issue of capabilities and the issue of the coordination of production have been overshadowed by a dominant interest in issues of incentive compatibility.

Oliver Williamson, the flagbearer of the field since the 1970s, certainly cannot be accused of having a narrow conception of transaction-cost economics, although he has continuously upheld the partition between transaction costs and production costs. This he argues as a pragmatic methodological postulate: hold production costs constant and look only at transaction costs.

'A useful strategy for explicating the decision to integrate',

he says,

'is to hold technology constant across alternative modes of organization and to neutralize obvious sources of differential economic benefit' (Williamson 1985, p. 88).

This may indeed be a sensible starting point, so long as it is not an ending point.

Although issues of coordination figured prominently in Williamson's early work (e.g., Williamson 1975), he has increasingly focused in on what has become perhaps the central concept in the present-day economics of organization: asset specificity. The logic is basically simple. Assets are highly specific when they have value within the context of a particular transaction but have relatively little value outside the transaction. This opens the door to opportunism. Once the contract is signed and the assets deployed, one of the parties may threaten to pull out of the arrangement – thereby reducing the value of the specific assets – unless a greater share of the quasi-rents of joint production find their way into

the threat-maker's pockets. Fear of such 'hold up' *ex post* will affect investment choices *ex ante*. In the absence of appropriate contractual safeguards⁴, the transacting parties may choose less specific – and therefore less specialized and less productive – technology. If, by contrast, the transacting parties were to pool their capital into a single enterprise in whose profits they jointly shared, the incentives for unproductive rent-seeking would be attenuated. And, because such unified organizations would choose the more productive specialized technology, they would win out in the competitive struggle against the contractual alternative⁵.

The explanation from asset specificity is at base an argument about the alignment of incentives, even if it ultimately rests on imperfect information. In a world of certainty and unrestricted cognitive ability (if one could imagine such a place), it would be easy to write and enforce long-term contracts that preempt *ex ante* unproductive rent-seeking behavior *ex post* and thus obviate internalization. This insight, indeed, has inspired one important formal strand of the literature.

The work of Oliver Hart and others (Grossman and Hart 1986, Hart 1995, Moore 1992) – called the incomplete-contracts literature – distinguishes two types of rights under contract: specific rights and residual rights. The latter are generic rights to make production decisions in circumstances not spelled out in the contract. In this literature, the choice between contract and internal organization reduces to a question of the efficient allocation of the residual rights of control when contracts are incomplete and assets highly specific. Suppose there are two parties cooperating in production, each bringing to the arrangement a bundle of assets. If none of the assets is highly specific, opportunism is impossible *ceteris paribus*, as either party can liquidate at no or low cost as soon as troublesome unforeseen contingencies arise. If, however, assets are specific, or if opportunism becomes possible for other reasons, it may be efficient to place the residual rights of control in the hands of only one of the parties by giving that party ownership of both sets of assets⁶. In general, the owner ought to be the party whose possession of the residual right minimizes rent-seeking costs, which typically means the party whose contribution to the quasirents of cooperation is greater.

4. For example, a hostage. See Williamson (1985, chapters 7 and 8).

5. This way of putting it gives an explicitly evolutionary spin to the functionalist argument more typical in transaction-cost economics. On this see Langlois (1984, 1986).

6. Hart and his colleagues hold that the possession of the residual rights of control necessitates ownership of the firm's capital assets, whether tangible or intangible. This allows them to do something few in the literature have been able to do: to define the boundaries of the firm crisply and consistently. For them, a firm is defined by the bundle of assets under common ownership. This stands in contrast to principal/agent theory, in which it is not possible to assign alternative contractual arrangements to specific organizational structures: a contract between employer and employee is not necessarily different from a contract between a firm and its supplier.

This is all well and good as far as it goes, which, in some respects, is not nearly as far as the mainstream economics of organization seems to think. The emphasis in the literature on misaligned incentives obscures, in our view, the fundamental role that institutions (including the firm) play in qualitative coordination, that is, in helping cooperating parties to align not their incentives but their knowledge and expectations. All recognize that knowledge is imperfect and that most economically interesting contracts are, as a consequence, incomplete. But most of the literature considers seriously as coordinating devices only contracts and the incentives they embody. It thus neglects the role – the potentially far more important role – of routines and capabilities as coordinating devices. Moreover, the assumption that production costs are distinct from transaction costs and that production costs can and should always be held constant obscures the way productive knowledge is generated and transmitted in the economy.

A striking example of this incentive-oriented research strategy can be found in a recent paper by Rotemberg and Saloner (1994). They address one of the key ideas of the corporate strategy and capabilities literature, namely, that firms may be best off choosing narrow strategies. Specifically, Rotemberg and Saloner use the incomplete-contracts framework to argue that a firm may choose a narrow strategy (and thus ignore profitable opportunities) because strategic breadth leads to implementation problems *ex post* that distort *ex ante* incentives. They do note (p. 1131) that ‘increasing returns to specialization’ (because of learning advantages from concentrating on well-defined capabilities) may be an independent reason for narrow strategies, but they do not investigate that possibility. The problem is not that such reformulations in terms of incentives are internally inconsistent. Rather, the issue is whether the mechanisms so identified are in fact plausible explanations of the phenomena under study, a question that economists do not typically feel required to pose let alone answer. In fact, it is quite likely that the mechanisms underneath narrow firm strategies have little or nothing to do with the alignment of incentives, and have everything to do with limited knowledge and capabilities.

More generally, we are worried that conceptualizing all problems of economic organization as problems of incentive-conflicts not only misrepresents important phenomena but also hinders understanding other phenomena, such as the role of production costs in determining the boundaries of the firm. As we will argue, in fact, it may well pay off intellectually to pursue a research strategy that is essentially the flip-side of the coin, namely to assume that all incentive problems can be eliminated by assumption and concentrate on coordination and production-cost issues only.

III. PRODUCTION COSTS REDUX: COORDINATION AND CAPABILITIES

As we have suggested, there is now emerging a research approach that does emphasize issues of qualitative coordination and limited production knowledge. Although a number of strands of thought are involved, it may be increasingly appropriate to speak of a capabilities perspective because a small but growing list of authors has begun self-consciously referring to their work as lying within the confines of a ‘capabilities’, ‘dynamic capabilities’, or ‘competence’ approach (Langlois 1992, Langlois and Robertson 1995, Kogut and Zander 1992, Foss 1993, Dosi and Marengo 1994, Teece and Pisano 1994).

These contributions take somewhat different starting points. Thus, some begin from bounded rationality and other aspects of cognition and build up a theory of firm-specific knowledge – that is, capabilities – from this (e.g., Kogut and Zander 1992, Dosi and Marengo 1994), while others begin from the empirical generalization that productive knowledge is neither explicit nor freely transferable (e.g., Langlois 1992). Either way it boils down to the same common-sense recognition, namely that individuals – and organizations – are necessarily limited in what they know how to do well. Indeed, the main interest of the capabilities view is to understand what is distinctive about firms as unitary, historical organizations of cooperating individuals. Moreover, it is becoming an increasingly widespread recognition among contributors to the capabilities view that approaching the firm in this way has fertile implications not only for understanding the sources of firm heterogeneity, competitive advantage, and differential rents (Lippman and Rumelt 1982, Wernerfelt 1984) but also for advancing the economics of organization. But what are capabilities?

Michael Polanyi (1958) has taught us that knowledge is not all of a form that can be articulated in words or pictures for easy transmission. Much knowledge – including, importantly, much knowledge about production – is *tacit* and can be acquired only through a time-consuming process of learning by doing. Moreover, knowledge about production is often essentially *distributed* knowledge, that is to say, knowledge that is only mobilized in the context of carrying out a multi-person productive task; is not possessed by any single agent, and normally requires some sort of qualitative coordination – for example, through direction and command – for its efficient use⁷. Indeed, capabilities are precisely char-

7. Of course, not all distributed knowledge requires conscious direction for its efficient utilization: in fact, it is a standard argument in favor of the market order that it better utilizes distributed knowledge than any known directed order (Hayek 1945). However, as we shall later argue, firms may derive part of their *raison d'être* from their (sometimes) superior abilities to coordinate (some) types of knowledge.

acterized by these features: they may be seen as team-embodied and partly tacit production and organization knowledge that can be employed by team-members for a strategic purpose.

In a world of tacit and distributed knowledge – that is, of differential capabilities – having the same blueprints as one's competitors is unlikely to translate into having the same costs of production. Generally, in such a world, firms will not confront the same production costs for the same type of productive activity. Moreover, the costs that can make transacting difficult – the costs that may lead to internalization or various other business institutions – may go beyond those that arise in the course of safeguarding against opportunism or damping moral hazard through monitoring or incentive contracts. In such a world, economic activity may be afflicted with 'dynamic transaction costs', the costs that arise in real time in the process of acquiring and coordinating productive knowledge (Langlois 1992, Langlois and Robertson 1995). This implies that the capabilities may be interpreted as a distinct theory of economic organization, an idea that has recently received support from the *doyen* of business historians, Alfred D. Chandler⁸. He traces the neglect of production in the post-Coase literature to its choice of the isolated transaction as unit of analysis and suggests instead to focus on

'the firm's facilities and skills',

because these are

'the most significant factor in determining what will be done in the firm and what by the market' (Chandler 1992, p. 86)⁹.

However, it was G. B. Richardson who introduced the term 'capabilities' to talk about the necessarily limited range of productive knowledge firms and individuals possess. In Richardson's terminology, production can be broken down into various stages or *activities*. Some activities are *similar*, in that they draw on the same general capabilities. Activities can also be *complementary* (in both a technical and an economic sense) in that they are connected in the chain of produc-

8. This may be contrasted with Chandler's earlier support for Williamson's brand of transaction cost economics. Chandler (1992, p. 85) says that although he has 'learned much from Williamson', there is a basic difference between them which has to do with the unit of analysis. Chandler goes on to endorse 'the recently formulated evolutionary theory of the firm', of which the capabilities perspective is one manifestation.

9. See Coase (1990, p. 11) for similar views.

tion and therefore need to be coordinated with one another. Juxtaposing different degrees of similarity against different degrees of complementarity produces a matrix that maps different types of economic organization. For example, closely complementary and similar activities may be best undertaken under unified governance.

Complementarity is clearly an increasingly important theme in today's economics of organization (Milgrom and Roberts 1990); indeed, there is a widespread recognition that

'strongly complementary assets should be brought under common ownership' (Milgrom and Roberts 1992, p. 312).

But the real force of Richardson's argument is in quite a different direction. In Richardson, the import of the concept of capabilities was their *limitations*. Because of what are effectively cognitive constraints, all organizations must specialize; and, since the chain of production in an advanced economy requires a diversity of very different capabilities, the costs of integrating across many links in that chain are necessarily high, and firms must rely on various kinds of market and hybrid arrangements to coordinate their activities even in the face of contractual hazards¹⁰. Although transaction costs may outweigh the costs of dissimilarity in the case of some closely complementary activities, on the whole the limitations of capabilities outweigh transaction costs. As Brian Loasby (1991) has observed, Richardson thus stands on its head a principal, albeit tacit, presumption of transaction-cost economics, namely, that, because contractual relationships among firms are fraught with hazards, integration must on the whole be relatively less costly and thus widely desirable.

Richardson's insight is a simple but extremely profound one. For it suggests that – as a quite general matter – capabilities are determinants of the boundaries of the firm, since they determine, in Coase's words,

'the relative costs of different firms in organizing particular activities'.

Problems of economic organization may crucially reflect the possibility that a firm may control production knowledge that is, in important dimensions, strongly different from what others control. Thus members of one firm may quite literally not understand what another firm wants from them (for example, in supplier contracts) or is offering them (for example, in license contracts). Be-

10. A related, if not identical, position has been adopted by David Teece (1982, 1986), one of the few major scholars to have incorporated Richardson's ideas.

cause of the extreme specificity and tacitness of much productive knowledge, one firm may have difficulties understanding another firm's capabilities; and both firms separately and together may know more than their contracts can tell (Kogut and Zander 1992, Winter 1988). In this setting, the costs of making contracts with potential partners, of educating potential licensees and franchisees, of teaching suppliers what it is one needs from them, etc., become very real factors determining where the boundaries of firms will be placed.

Note that these dynamic transaction costs are in a different category from the transaction costs usually considered in the post-Coase literature. Transacting difficulties are not a matter of incentive problems within an otherwise well-defined and well-understood exchange context. Rather, coordination problems may arise because capabilities exhibit too much 'friction': the knowledge, skills, and traditions embodied in existing governance structures (be they firms, markets, or in between) may be too inflexible, especially in the face of major 'Schumpeterian' change, to seize market and technological opportunities. In such circumstances, other governance structures that can muster the necessary capabilities may arise and prosper.

Morris Silver (1984) has suggested, for example, that much vertical integration arises not when firms venture into areas of similar capabilities but when firms are dragged, kicking and screaming, as it were, into complementary but dissimilar activities because only in that way can they bring about a profitable reconfiguration of production or distribution. Langlois and Robertson (1995) build a broad theory of industrial dynamics around this idea. The organizational question is whether new capabilities are best acquired through the market, through internal learning, or through some hybrid organizational form. And the answer will depend on (A) the already-existing structure of capabilities and (B) the nature of the economic change involved.

If a profit opportunity requires a configuration of capabilities different from what already exists in the economy, then a Schumpeterian process of creative destruction may be set in motion. If the old configuration of capabilities is decentralized into what we may loosely call markets, then a reorganization within a single organization – vertical integration – may most cheaply bring about the necessary redeployment. If, by contrast, the old configuration of capabilities lies within large vertically integrated organizations, creative destruction may well take the form of markets superseding firms. History offers many examples of both.

The organizational possibilities are tempered by the nature of the reconfiguration required. If change is *systemic* – if it requires simultaneous change in many parts of a complex system – internal organization may prove less costly *ceteris paribus*. If, however, change is *autonomous* – if change can take place in separate subsystems without greatly affecting the way those subsystems are

connected together – then markets, which can take advantage of specialized and decentralized knowledge, may be at a relative advantage¹¹.

The upshot of all this, we suggest, is that there now exists a distinct basis – a collection of ideas, concepts, and mechanisms – for the capabilities view as a theory of economic organization, at least with respect to the boundaries of the firm. But what about the empirical evidence? Writers like Chandler (1990, 1992), Lazonick (1991), and Langlois and Robertson (1995) enlist economic and business history in support of a capabilities view. But more quantitative empirical studies also suggest that differential capabilities, and therefore production costs, are significant variables for explaining the boundaries of the firm. In Walker and Weber's (1984) empirical study of the make-or-buy decision, the most important explanatory variable turned out to be the indicator for differential firm capabilities, that is, for production costs. And, in a study by Mon-teverde and Teece (1982), which set out to find support for the standard contractual approach, the most significant variable was actually the dummy for the firm, reflecting heterogenous and unobserved firm effects (Kogut and Zander 1992, p. 394).

IV. CAPABILITIES AND THE MODERN ECONOMICS OF ORGANIZATION

We have interpreted the capabilities perspective as reaching for a distinct theory of economic organization, one that is based on a conceptualization of the firm as a repository of productive knowledge with certain non-standard characteristics, what we have here called 'capabilities'. In this story, incentive issues are suppressed in favor of a focus on problems of coordinating knowledge and expectations. We have chided the profession for its lopsided choice of the opposite approach and for its dramatic overemphasis on transaction costs and incentive alignment, to the exclusion of production costs and issues of coordination, in explaining economic organization.

However, there has recently been some stimulating work that explicitly focuses on the coordination of knowledge and expectations in a team-theoretic framework (Cr mer 1990, Radner 1992, 1996, Bolton and Dewatripont 1994). In these models, incentives move into the background. Building on earlier ideas

11. The terms 'systemic' and 'autonomous' are from Teece (1986). In the case of autonomous innovation, the issue of standards enters the picture: for standards are typically ways of fixing the connections among subsystems so that change is channeled in autonomous directions. Langlois and Robertson (1992, 1995) call this kind of structure a *modular system*.

in Marschak and Radner (1972) and Arrow (1974), these writers view the firm as a communication network that is designed to minimize both the cost of processing new information and the costs of communicating this information among agents. Communication is costly because it takes time for agents to absorb new information sent by others, but this time may be reduced by specializing in the processing of particular types of information. In the Bolton and Dewatripont (1994) model, for example, each agent handles a particular type of information, and the different types of information are aggregated through the communication network. When the benefits to specializing outweigh the costs of communication, teams (firms) arise.

Arguably, such work captures some of the main ideas of the capabilities perspective as we have interpreted it; for example, there is an emphasis on the need for qualitative coordination, on specialization in handling knowledge, on firm-specific 'codes' of communication (Arrow 1974), and on bounded rationality (Radner 1996). We conjecture that this work will become increasingly important as first steps towards the formalization of capabilities ideas.

In spite of this conjecture, one should not reject the more standard incentive-oriented work as a natural complement to the capabilities view. In fact, future work may center around modelling capabilities and incentive considerations in the *same* model¹², so that, for example, the role of *both* production costs and transaction costs in determining the boundaries of the firm becomes more visible¹³. An example of an attempt to model both production costs and incentive issues is Lewis and Sappington (1991). They analyze the firm's make-and-buy decision under the assumption that its subcontractor is known to have lower innate production costs *but* the firm is better able to monitor and control its own production activities. This set-up thus allow firms to have different capabilities in the sense of having different production costs, and it also arguably considers capabilities in the sense that it models explicitly one kind of differential capability: superior ability to monitor internal production.

In the following, we briefly present a few further suggestions as to how key ideas from the two perspectives may be aligned¹⁴. These suggestions keep intact the basic idea that economic organization is first and foremost a matter of efficiently aligning incentives; capabilities considerations merely serve to help ex-

12. Promising recent work by Aghion and Tirole (1995) incorporates both incentive considerations and information-processing considerations that are akin to the thrust of the capabilities view.

13. It is noteworthy that Williamson has lately changed his primary design principle for efficient economic organization to reflect capabilities considerations: 'Align transactions, which differ in their attributes, with governance structures, which differ in their costs and competencies in a discriminating (mainly, transaction cost economizing) way' (Williamson 1991, p. 79).

14. For a fuller discussion of the issues involved here, see Foss (1996b).

tend the applicability of this basic idea. This is an interesting and legitimate research strategy, as long as we do not forget also to consider the other side of the coin: that capabilities considerations may be primary and incentive considerations secondary.

1. Capabilities and Intra-firm Agency Problems

The argument here is that capabilities in firms may influence the outcomes of principal-agent problems: firms will often be characterized by a distinct 'way of doing things' that is coded in its capabilities and is shared among input-owners. Precisely because it is shared, the presence of such knowledge may serve to mitigate moral-hazard and adverse-selection problems¹⁵. This is a possible interpretation of why corporate cultures may be valuable assets to firms¹⁶.

In the presence of incomplete contracts and bounded rationality, something more than an allocation of rights is required to structure intra-firm interaction; firms aren't held together solely by the thin glue of transaction-cost minimization, but rather by the thicker glue of capabilities. A key aspect of the capabilities critique of the modern economics of organization is that it too strictly dichotomizes production and organization/exchange – considerations that are in fact closely intertwined. Since the very notion of firm capability combines production and organization, it is entirely likely that capabilities embodying knowledge about production at least to some extent also help solve problems of rent-seeking inside organizations.

2. Asset Specificity and Capabilities

As we have argued, the notion of specific assets is key to the modern economics of organization (but see Demsetz 1988). Not surprisingly, elaborate lists of types of specific assets have been constructed, ranging from patents over dedicated physical equipment to site specificity (Williamson 1985, Grossman and Hart 1986). Capabilities would certainly seem to qualify as specific assets – they are specialized to firms; they have low (or no) value in alternative uses;

15. There is, however, also a conflict between the agency view and the capabilities perspectives. In the first, heterogeneity of knowledge, preferences and behaviors is problematic because it causes agency problems; in the latter, it is – or at least can be – beneficial, because it stimulates organizational learning and the development of capabilities.

16. See Kreps (1990) for a slightly different interpretation.

managers/owners can hinder others in working with them, etc. But the modern economics of organization does not normally view them that way. Part of the reason may be that capabilities are hard to treat in formal models. Another part may be that it is harder to reason about who captures rents from capabilities than from ordinary factors of production; the underlying bargaining would seem to be more complicated than the bargaining game being played between the firm and the owner of an ordinary human-capital input. However, these difficulties are not insurmountable in principle, and capabilities deserve a place on the short-list of empirically important specific assets.

V. CONCLUSION

Our aim in this paper has been to document the importance of the capabilities perspective as an emerging perspective on economic organization. This view is characterized by distinct insights, not the least the attempt to restore production and production costs to their rightful place as determinants of the boundaries of the firm, and to find a place for qualitative coordination in the theory of economic organization. In other words, the capabilities perspective highlights explanatory mechanisms that are different from those of the post-Coase literature on economic organization. Since the two perspectives may be read as addressing the same sort of phenomena – notably the existence, boundaries and internal organization of the firm – and employ different theoretical concepts and mechanisms (incentives vs. qualitative coordination, blueprint knowledge vs. capabilities, etc.), they may be interpreted as being theoretical rivals. Although the capabilities view is admittedly less advanced than the post-Coase literature in terms of formalization and terminological stringency, with respect to some important phenomena – notably the boundaries of firms – the capabilities perspective arguably develops more *plausible* explanatory mechanisms.

However, we emphasize the complementarity between the two perspectives and the need for more integrative efforts. Even if it is not currently fashionable among contributors to the capabilities perspective, we feel that there are strong arguments in favor of our position. Both perspectives may benefit from the ideas and insights of the other. There is important mainstream work that, if in no way identical to the capabilities view, nevertheless suggests how aspects of capabilities ideas may be formally approached and modeled (Lippman and Rumelt 1982, Bolton and Dewatripont 1994, Aghion and Tirole 1995). Moreover, when it comes to providing convincing stories about important empirical phenomena, the relations of complementarity between the post-Coase literature and the capabilities view may appear even more striking. For example, it is

arguably hard to provide convincing stories about diversification (Teece 1982, Dosi, Teece and Winter 1992) or the organization of the innovation process (Teece 1986) without relying on *both* perspectives. For these reasons, the perspectives need to be integrated further. In sum, whether we see it from the perspective of the capabilities view or from the perspective of the modern economics of organization, there is an exciting theoretical frontier ahead.

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SUMMARY

This paper argues that, since Coase's seminal 1937 paper on 'The Nature of the Firm', the economics of organization has focused too exclusively on issues of incentive alignment and has ignored issues of imperfect knowledge in production. However, there is now emerging an approach to economic organization – which we call 'the capabilities approach' – that places production center-stage in the explanation of economic organization. We argue that the capabilities approach complements incentive-based theory (1) by considering the problems of imperfect knowledge in production as well as in governance and (2) by considering issues not only of incentive alignment but also of qualitative coordination among holders of specialized, distributed, and often tacit knowledge.

ZUSAMMENFASSUNG

Dieser Beitrag argumentiert, dass sich die Organisationsökonomie seit Coases klassischem Beitrag zur 'Natur der Firma' im Jahre 1937 zu ausschliesslich auf Fragen der Anreize konzentriert hat. Gleichzeitig wurden Fragen zum imperfekten Wissen in der Produktion vernachlässigt. Im verstärkt auftretenden 'Capability Approach' der Organisationsökonomie hingegen wird der Produktion in der Erklärung von ökonomischen Organisationen zentrale Bedeutung beigemessen. Der 'Capability Approach' ergänzt die anreizbasierten Theorien durch Berücksichtigung von (1) Problemen imperfekten Wissens in der Produktion und Unternehmensorganisation und (2) der qualitativen Koordination von Wissensträgern mit spezialisiertem, verteiltem und oftmals nicht verbalisierbarem Wissen.

RÉSUMÉ

Nous constatons que, depuis le papier séminal de Coase en 1937, l'économie des organisations a visé trop étroitement au problème d'alignement des motifs et a ignoré le problème de la connaissance imparfaite dans la production. Cependant, il y a une approche en train d'émerger actuellement qui met en évidence la production dans l'explication d'organisation économique. Nous constatons que cette approche – que nous appelons l'approche 'capacités' – fait le complément de la théorie des motifs (1) en considérant le problème de la connaissance imparfaite dans la production aussi que dans la gouvernance et (2) en considérant les problèmes non seulement d'alignement des motifs mais aussi de la coordination qualitative parmi ceux qui possèdent les connaissances spécialisées, distribuées, et souvent tacites.