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Austrian Economics and the Theory of the Firm

by

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Forthcoming, *Advances in Austrian Economics*

Austrian Insights and the Theory of the Firm

Abstract

Like most economists, Austrians have not shown much interest in the theory of the firm. This paper argues, however, that there is much in Austrian economics that dovetails with contemporary theorizing about the firm. Specifically, Austrian economics (in its Hayekian version) is compared to the two dominant approaches to the firm, the contractual and capabilities approaches. Austrian insights in the division of knowledge and the coordination of knowledge as well as insights in entrepreneurship complement this literature. However, it is also possible to develop a distinctly Austrian (coordination) view on firms that differs from both the contractual and the capabilities perspective. Whereas the contractual perspective conceptualizes the firm as nothing but a structure of incentives and property rights and the capabilities perspective conceptualizes the firm as a stock of given knowledge assets, the coordination view tends to see the firm as an entity that organizes a localized discovery procedures in the context of a structure of incomplete contracts and supporting shared mental constructs. In other words, the firm is seen as a cognitive entity.

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Introduction

The theory of the firm, and, more broadly, of economic organization, has been one of the most rapidly expanding areas of research in economics in the last decade. It has also been one of the most prestigious to work in, and most of the younger top-theorists in mainstream economics have contributed to it. By “a theory of the firm” is now generally understood a theory that addresses at least one (and preferably all three) of the following issues (cf. Bengt Holmström and Jean Tirole 1989):

1. *The existence of the firm*: why do firms exist as distinct “mechanisms for resource allocation” in a market economy?
2. *The boundaries of the firm*: which principles explain why certain transactions are regulated in-house while others are regulated through market relations? and
3. *Internal organization*: why do we observe different types of (formal and informal) organizational structure and accompanying phenomena, such as internal labor markets, job-ladders, profit-centers, etc.?

This conception of the meaning of what constitutes a theory of the firm should be contrasted with the older understanding, characteristic of mainstream price-theory, according to which the theory of the firm is first and foremost about the market behavior of firms.

Although White (1992) featured a section with the heading “Austrians are not Blind to the Theory of the Firm”, it is hard to deny that few Austrian economists seem to have had much (or any) interest in the subject. In fact, the few existing contributions to the theory of the firm with an Austrian flavor have been written by non-Austrian (if clearly sympathetic) economists (e.g., Richard Langlois 1992b; Nicolai Foss 1994; Ulrich Witt 1996; Nicolai Foss and

Jens Frøsløv Christensen 1997).¹ As I shall argue, this is a somewhat strange state of affairs, since Austrian insights have profound implications for the understanding of the nature and function of the firm. I intend to explain how in this paper.²

I shall not spend much time on trying to explain the reasons for the Austrian lack of interest in the firm. Suffice it to be said here that Austrians have certainly not been alone in their neglect of the firm. In fact, some 25 years ago, Ronald Coase (1972, p. 63) observed tartly that his 1937 essay “The Nature of the Firm” had been “much cited and little used”, and – it is fair to say – economists did in general neglect the firm. The reason? The conviction –brilliantly articulated by Fritz Machlup (1967) – that the purpose of economic theory primarily is to explain market level phenomena, and that the firm is therefore at most an intermediate step in the price theoretic logic.

Moreover, the Austrian neglect undoubtedly also had (and has) to do with the rather tiny size of the band of Austrian economists. In that perspective, the allocation of very scarce research resources to issues and fields such as comparative systems, methodology, and the general development of the distinct Austrian perspective on the market process rather than to the theory of the firm may have been very rational indeed. However, the time is now ripe for beginning to approach the theory of the firm from a distinctly Austrian perspective.

¹ Boudreaux and Holcombe’s (1989) paper (which White (1992) refers to) is not distinctly Austrian, but rather Knightian. A recent contribution by Peter Klein (1996) is probably the first distinctly Austrian and constructive work on the firm. Whereas Klein essentially approaches the theory of the firm from a Misesian and Rothbardian perspective, the approach in the present essay has more of a Hayekian flavor.

² Foss (1994a) had more of a doctrinal and critical orientation. The argument there was that the Austrians – particularly Mises and Hayek – had a number of the required tools for telling a story about why there should be firms in a market economy, but that they never pieced them together.

It is difficult to summarize in a nutshell what is the essence of Austrian economics, not the least because Austrians themselves appear to be in disagreement about this (cf. Karen Vaughn 1994). I here adopt an interpretation that is undoubtedly biased by the purpose at hand. More specifically, following, for example, O'Driscoll and Rizzo (1985), I shall take Austrian economics to be distinguished from mainstream economics by its much more thoroughgoing *subjectivism*. Thus, it is not only a matter of accepting the subjectivism of preferences; it is a much more radical matter of stressing the subjectivity of beliefs, expectations, plans, etc. One important implication of this “radical” or “dynamic” subjectivism is that agents may be surprised in the Shacklian sense of being exposed to unexpected events (George Shackle, 1972). Another implication, and one that has been neglected in Austrian economics (as in economics in general), is that agents will typically hold different mental constructions (theories, ideologies, images, codes, cultures...) for making sense out of reality.

This directly leads to the Austrian concern with the coordination of subjectively held and formed plans and the institutions that may promote a tendency toward such plan-coordination. Clearly, in an Austrian world, the key economic problem is not the allocation of presumed “given” resources, but effective adaptation to unanticipated change (Ludwig von Mises 1936; Friedrich von Hayek 1945). Austrians normally address societal institutions in terms of this. For example, the market is seen as allowing effective adaptation to unexpected change, to a large extent because market organization allows this adaptation to take place locally. For example, the market efficiently integrates the results of local learning processes, the results of which must necessarily be at least to some extent unexpected to the rest of the system.

I shall interpret *the firm* along related lines. More specifically, the firm is here seen as a problem-solving institution (cf. Brian Loasby 1976, 1991) that is specialized in problem-solving relative to local productive activities. Thus, the

firm may be said to organize a discovery procedure within a pre-defined productive area. When we say that a certain firm is “in chemicals”, we typically, if implicitly, mean that it not only produces a certain portfolio of chemical products, but also that it intends to stay a going concern by continuing to learn within its selected area of production and expand or refine its portfolio of products.

Firms organize such discovery procedures in different ways. For example, top-management may decide on organization structures and incentive systems that are conducive to the production of new knowledge. However, the overriding coordination problem often is to establish a shared knowledge base that can help coordinating various intra-firm learning processes. For example, the firm’s problem-solving efforts are supported by a shared understanding of the nature of the businesses the firm is in.

In fact, an important part of the rationale of firms arguably is that it “makes sense out of the world” for a subset of the economy’s input-owners by cultivating a shared knowledge-base that promotes the coordination of the plans of these input-owners, for example, in the face of change. Thus, an important aspect of explaining the rationales of firms has to do with their role as *cognitive entities*. This is seen as an important aspect of firms in organization theory and in evolutionary economics (Richard Nelson and Sidney Winter 1982; Giovanni Dosi and Luigi Marengo 1994; Marengo 1995), and I shall suggest that it harmonizes with key ideas in Austrian economics.

My specific design is the following: I begin by defining the context of the discussion, that is, contemporary work on the firm in its contractual manifestation. While both of these two important sets of theories embody some key Austrian ideas, they are both open to critique from an Austrian point of view. Moreover, there are important aspects of Austrian economics that are not present in either the contractual or the capabilities perspective. This opens the

door for the development of a distinct Austrian perspective on the firm, and I shall present a sketch of such a perspective.

Contemporary Perspectives on the Firm

A. Overall Perspective

As a matter of rational, and perhaps also historical, reconstruction, there are two overall conceptualizations of the economic problem to be found in the history of economic doctrines (see Frank Machovec 1995). The first, and dominant, was perhaps best stated by Stanley Jevons:

“The problem of economics may, as it seems to me, be stated thus: Given, a certain population, with various needs and powers of production, in possession of certain lands and sources of material: required, the mode of employing their labor which will maximize the utility of the produce” (1871, p.267).

Thus, in this conceptualization, the economic problem is seen essentially as a static optimization problem, and there is an implicit presumption that if all data are given to a single mind, this mind can work out the optimal allocation/distribution patterns (Hayek 1945).

Now there are many ways in which this caricature may be relaxed, and, in fact, are relaxed. One such way is to take the starting point in what is arguably the modern *pendant* to Jevons’ conceptualization of the economic problems, namely the Arrow-Debreu model, which, it has often been observed, is actually a much better picture of ideal socialist allocation than of real-world market allocation. As is well-known, this model does not allow for the

explanation of a number of features of real-world market economies (in fact, some of its proponents see this as a major virtue rather than a vice, e.g. Frank Hahn 1973). For example, it cannot explain *ongoing* market activity, since all trade is essentially made in the grand initial auction (Brian Loasby 1994). More to the point, it does not allow us to come to grips with firms. Or, at least not directly. For we can relax the model in various ways, so that we can in fact provide some sort of rationale for why there should be firms in a market economy (Roger Guesnerie 1994).

One such way is to introduce private information and transaction costs into the model. How radical this solution is arguably depends on how we interpret the notion of transaction costs. In one interpretation – and one that is easy to handle in formal models – transaction costs are simply a fraction of the resource that is lost for whatever reason in a transaction. Thus, transaction costs are not really different from production costs; they are merely incurred after the product has materialized rather than before. But in another and more interesting interpretation, transaction costs are knowledge costs – in mainstream theory, the various costs of being asymmetrically and imperfectly informed. This is the route that has been taken in the modern economics of organization. The introduction of transaction costs here implies that at least some forward markets will be closed and that the door is opened for various agency-problems and for the specific allocations of property rights that characterize firms (Oliver Hart 1995). The introduction of bounded rationality – the route taken by the extremely influential Oliver Williamson – accomplishes essentially the same.

A quite different possibility is to recognize the pervasiveness of genuine uncertainty in its “radical” version, not just in the sense that people may find it possible to put probabilities on events, but in the even more radical (Shacklian) sense that people only know a subset of the possible future states of the world. In such a world, flexibility, adaptation, option value, reserves and also

planning become imbued with a significance that they lack in mainstream theorizing.

The links directly up with the second major conceptualization of the economic problem to found in the history of economic doctrines. This is perhaps best associated with the work of Austrians such as Hayek, Mises and Lachmann, but modern evolutionary (Nelson and Winter 1982; Dosi and Marengo 1994) and post-Marshallian economists (George Richardson 1960, 1972; Edith Penrose 1959; Loasby 1976, 1989, 1991, 1994) also belong to this intellectual current. Here the economic problem is seen as a matter of making efficient use of knowledge which nobody can possess in its entirety and of adapting to unanticipated change. The perspective moves from consideration of the optimality properties of given states to a consideration of which institutions will best make use of dispersed knowledge and allow adaptation to change to take place. Others have made similar observations (Nelson and Winter 1982; O'Driscoll and Rizzo 1985; Machovec 1995). In the following, I shall focus the discussion in a specific direction, namely by inquiring into the difference between the two traditions with respect to how firms are conceptualized.

B. The Modern Economics of Organization³

It is ironic that Coase's (1972, p.63) statement that his 1937 paper had been much cited and little used seems to be the perhaps most often quoted single sentence from Coase's work! It is even more ironic that precisely at the time of Coase's lamentation, serious work on the theory of the firm that rested on distinctly Coasean foundations had actually begun.

More specifically, two landmark contributions had been published in 1971 and 1972, namely Oliver Williamson's "The Vertical Integration of Production: Market Failure Considerations," and Armen Alchian and Harold Demsetz' "Production, Information Costs, and Economic Organization,"

³ This section draws on Langlois and Foss (1996).

respectively⁴. These two contributions are seminal not the least because they helped founding different approaches within the modern economics of organization. Williamson's work pointed the way to not only his own and his associates' work on transaction cost economics, but also to the more formal recent work of, for example, Grossman and Hart (1986). Alchian and Demsetz' work, in turn, pointed the way to later work on the principal-agent relation.

Thus, there is undoubtedly some diversity in the modern economics of organization (see further, Paul Milgrom and John Roberts 1988; Oliver Hart 1989). However, 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 firm. Whether called transaction-cost economics (Williamson 1985) or the economics of organization more broadly (Milgrom and Roberts 1992), the Coasean literature of the last 25 years has indeed focused precisely on the comparative transaction costs of alternative organizational structures, including, paradigmatically, the choice between firms and markets. Moreover, the literature has seen “the nature of the firm” — and, indeed, of other institutions — as fundamentally contractual. That is, firms and other institutions are alternative bundles of contracts, understood as mechanisms for creating and realigning incentives. Finally, these bundles are seen as efficient ones, in the sense that they efficiently handle the real resource scarcities associated with asymmetric information and bounded rationality and maximize joint surplus.

Admittedly, the recent wildfire of interest in the economics of organization has been driven by a dynamic within present-day economic theory, one fueled mostly by advances in the economics of information,

⁴ It is true, of course, that Alchian and Demsetz (1972) say that they provide an explanation that is “alternative” to Coase's. But conceptualizing the firm in contractual terms, and finding the root motive of firm formation in transaction costs, as they do, is surely Coasean.

uncertainty and property rights, and by applications of game-theory and recent mathematical methods. But we should also recognize that the modern literature owes much to the way Coase originally sought to explain the existence, the boundaries, and the internal organization of the firm (see further Langlois and Foss 1996).

Coase was not writing in a vacuum: he was working within the context of the sort of price-theory that became dominant in the profession in the 1930s. As has been argued by a number of writers (e.g., Scott Moss 1984; Loasby 1989; Foss 1994b), the advent of the new value theory – which was both the product of the import of Walrasian general equilibrium theory and the critique of Marshall at Cambridge by Arthur Pigou and Joan Robinson – implied the effective suppression of existing market process approaches. More specifically, the new value theory swept aside both the genuine Marshallian industrial process analysis (Denis O'Brien 1990) and the emerging Austrian market process approach. The presumed victory of the market socialists in the calculation debate was probably the decisive event in the case of the suppression of Austrian economics.

Admittedly, the Marshallian and the Austrian approaches were different. But they did share an emphasis on subjectivism, diversity, dynamics, genuine uncertainty and entrepreneurship. Instead of all this came agents that, in the case of the firm, did not differ at all and who operated under full information conditions. Marshall had intended his “representative firm” construct to refer to some sort of statistical average of a population of disequilibrium firms; in the new value theory, any firm is representative, since all firms are alike.

Coase did not challenge this sort of price-theory; instead, he simply grafted onto price theory a second theory, namely a theory of transaction costs. It is transaction costs that explain, as it were, the institutional overlay of production. Production costs determine technical (substitution) choices, but transaction costs determine which stages of the productive process are assigned

to the institution of the price system and which to the institution of the firm. In the 1937 article, Coase 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 many market transactions that would be necessary to coordinate some complex production activity. When these costs exceed the costs of internal organization, the firm arises. Equality at the margin between the costs of market organization and the costs of internal organization determines the boundary of the firm.

Now, two aspects of this argument are noteworthy. First, transaction costs are simply superimposed upon a basic skeleton of mainstream price theory. Second, the argument essentially amounts to a tautology (which is not to say that it is trivial or uninteresting); it needs to be, as Williamson says, “operationalized”. Let us consider the latter aspect first, focusing on Williamson’s work.

In his effort to operationalize Coase, Williamson (1985) has increasingly focused in on what he calls “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, or, what Williamson refers to as “self-interest seeking with guile”. 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 safeguards, 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.

Thus, the argument is at base about getting the right incentives in place. This is made even more clear in the work of Oliver Hart and others (Sanford Grossman and Oliver Hart 1986; Hart 1995) which builds rather directly on Williamson's work. In this so-called "incomplete-contracts literature", theorists distinguish 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. 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. Along Williamsonian lines, suppose that the assets of cooperating, but legally independent firms are specific. In this situation, 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 assets. 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.

Let us here return to the second point above, namely that transaction costs are essentially an overlay on an otherwise mainstream theoretical structure, and consider the following the following critical points, points that are closely related to well-known Austrian critiques of mainstream economics:

1. *Given alternatives.* In the modern economics of organization, agents are portrayed as choosing among a given set of contractual alternatives. For example, a given transaction may in principle be organized under arms-length market exchange, in firms, or in various intermediate forms, such as franchising agreements, join-ventures and the like. However, these possibilities are *given* to the choosing agent (presumably, the manager).

Thus, his job essentially is to shift transactions over the boundaries of the firm under the impact of changing transaction costs. There is no or little recognition of entrepreneurship that relates to the discovery of new types of contracts. Some essentially unspecified mechanism is supposed to throw up new types of contracts and essentially unspecified selection forces are presumed to select the fittest/most efficient (or fitter/relatively more efficient) of these contracts or organizational forms. This leads directly to the next point.

2. *Suppression of process.* Although modern organizational economists are quite happy to appeal to process arguments (e.g., Williamson 1985, p. ??) – such as rough outlines of basic selection stories that serve to rationalize the claim that only efficient forms will survive – the process itself is never really inquired into in detail. This should be contrasted with Austrian and evolutionary economics in which the investigation of the dynamic process of rivalry is primary.

The principal-agent variety of modern organizational economics is perhaps the best exemplification of the suppression of process. In the standard model, a risk-neutral principal hires a risk averse agent to carry out some task on his behalf. Information is private in the sense that the principal cannot directly observe the effort of the agent. Thus, the agent's wage has at least to some extent to be outcome-based. However, there is a trade-off between this requirement and the risk-aversion of the agent. The theory is mostly concerned with deducting such optimal trade-offs under a diversity of circumstances. Clearly, the fundamental principal-agent model is not in essence different from Jevons' conceptualization of the economic problem: although the data of the problem are not known with certainty, there is an optimal solution to the contract design problem that can be worked out by the principal at time 0 and which continues to be optimal throughout contract execution. Thus, there will be no need for adaptation.

3. *Strong knowledge assumptions.* Although what distinguishes modern organizational economics relative to standard mainstream theory is a fuller recognition of private information and (in some cases) bounded rationality, there are still underlying assumptions about knowledge that are open to critique from an Austrian point of view. Thus, while knowledge may be private (or asymmetric), other agents still know the possible actions that other agents can take. For example, in principal-agent theory, the principal knows the range of actions open to the agent. One implication is that principals are never surprised. Another is that there is no room for Kirznerian discovery (Israel Kirzner 1973). A more specific manifestation of strong knowledge assumptions is that while knowledge for organization purposes is assumed to be private, knowledge that relates to production is essentially assumed to be public. Thus, what one firm can do on the level of production, another one can do equally well, and therefore differences in production capabilities are not allowed to influence the choice of efficient economic organization (Harold Demsetz 1988; Langlois and Foss 1996).

Lest one should think that these objections constitute a resolute rejection of the modern economics of organization, let me hasten to add that there is much in this body of theory with which Austrians should find themselves in agreement with; after all Mises and Hayek both made use of what are essentially agency-theory insights in their critique of socialist planning models (Mises 1936; Hayek 1948). But they do make it pertinent to consider an alternative body of theories of the firm that are arguably closer in spirit to the Austrian approach (cf. Langlois 1992b), namely what is increasingly often called “the capabilities perspective”.

C. The Capabilities Perspective

The term “the capabilities perspective” is a *portmanteau* label for a number of distinct insights and perspectives, drawn from different discussions, streams of thought and even disciplines that may, nevertheless, be reconstructed as sharing a

number of important themes that differentiate them from other approaches to the firm. The primary common theme is the common-sensual recognition that individuals — and firms — are necessarily limited in what they know how to do well. Indeed, the main interest of the capabilities perspective is to understand what is distinctive about firms as unitary, historical organizations of cooperating individuals and the focus here turn to capabilities.

In the literature, capabilities constitute the knowledge base of the firm. They are normally seen as productive bundles of routines of a highly tacit and social nature (Nelson and Winter 1982) , and they are operated by teams of individuals for some strategic purpose (Penrose 1959). In what is arguably still a key contribution to the capabilities perspective, Nelson and Winter (1982: chapter 4 & 5) begin with an analysis of individual skills and builds up from this analysis to an analysis of firm-specific intangible assets, that is, capabilities. The acquisition of skills is a matter of learning by doing and the accumulation of tacit knowledge through the experience of particulars. It therefore opens the door for specialization, routinization, and predictability; however, the other side of the coin is increased inflexibility. This analysis – drawn from the behavioralist theory of the firm (Cyert and March 1963) and the work on tacit knowledge by Michael Polanyi (1958) – is then used as both as a convenient analogy and a micro-foundation for elaborating the idea of organizational knowledge. As Nelson and Winter say, “Routines are the skills of an organization”.

More precisely, routines are shared rules of conduct that produce sequences of collective actions over time. Such routines codify organizational and productive knowledge, and are maintained and augmented through application in productive tasks. Thus, firms are repositories of partly tacit and socially produced and reproduced organization and production knowledge. Because of the role of chance, history and lock-in to specific learning domains in the process of knowledge-accumulation, firms’ knowledge-bases are path-dependent and different across the population of firms. And since stocks of knowledge are different across firms, these

stocks are associated with different efficiencies, and therefore yield differential rents when deployed to product markets.

Although the capabilities perspective is to some extent derived from evolutionary and post-Marshallian economics, and certainly also has some resemblance to Austrian economics (Langlois 1992b), important sources of the approach can largely be located at the outskirts of economics, such as in strategic management, technology studies, international business, and institutional evolution. Accordingly, central questions in the perspective are, How can firms make best use of their distinctive capabilities? How have they done this in the past? And how can they go on developing new valuable capabilities? Such questions have been central in the firm strategy field since its inception at the end of the 1950s and in the related business history field at least since Alfred D. Chandler's (1962) demonstration of the importance of organizational capabilities to the restructuring of the American economy that began in the middle of the last century.

The conceptualization of the firm that underlies this work was perhaps best expressed in Edith Penrose's *The Theory of the Growth of the Firm* (1959) and explicitly differentiated by her from the prevailing production function view. "The firm", Penrose says, "is...a collection of productive resources the disposal of which between different uses and over time is determined by administrative decision" (Penrose 1959: 24). Now resources in Penrose's view yield services, and it is these services – which is clearly a theoretical precursor to the concept of capabilities – that interest her the most. Because resources/services become specialized to firms – and mesh with each other in a team-like manner – they are worth more to the firm than to the market (meaning other firms). They therefore yield rents, part of which may be appropriated by the firm's owners. Moreover, although resources/services are firm-specific, they are nevertheless "fungible" inside the firm, and, when in excess, they are stepping-stones for diversifying to new markets.

Finally, the idea of services as something produced endogenously through various intra-firm learning processes represented a powerful argument against the mainstream theory of the firm. In this theory, according to Penrose, there is “...no notion of an *internal* process of *development* leading to cumulative movements in any one direction” (1959: 1). Rather, growth is simply a matter of adjusting to the equilibrium size of the firm (a critique that also – *mutatis mutandis* – applies to the contractual theory of the firm). However, as Penrose pointed out,

“The attainment of such a ‘state of rest’ [i.e., equilibrium] is precluded by three significant obstacles: those arising from the familiar difficulties posed by the indivisibility of resources; those arising from the fact that the same resources can be used differently under different circumstances, and, in particular, in a specialized manner; and those arising because in the ordinary processes of operation an expansion of new productive services are continually being created” (1959: 68).

While there may be optimal rates of growth of firms – specifically, optimal trade-offs between the exploitation of existing resources and the production of new resources – the continuous creation inside the firm of new knowledge resources through learning effects and the possibility of introducing organizational changes means that firms are never at a “state of rest”. This is not only a matter of continuous “learning by doing”. Penrose is careful to point out that it is also a matter of entrepreneurial activities on the part of the firm’s management team. The management team holds *images* of the external environment and of the firm’s internal resources; these images are produced through internal learning processes; and they determine “the productive opportunity set” of the firm, that is, what the firm can see and take advantage of. Clearly, this is a subjectivist perspective with which Austrians should be sympathetic.⁵

⁵ For an extended analysis of Penrose’s use of Boulding’s concept of “image”, see Fransman (1994).

D. Summing up

There is much in the two bodies of theories with which Austrians can be in sympathy. However, there is perhaps most that directly appeals in the capabilities perspective, such as the emphasis on knowledge problems, disequilibrium, learning and entrepreneurship. However, a problem with this literature is not only that it is heterogeneous but also that it says very little about the key issues in the theory of economic organization, namely the existence, boundaries and internal organization of firms. These issues are center-stage in the modern economics of organization, which, however, is open to critique on a number of counts.

For example, as was pointed out in the above, there is a complete suppression of knowledge problems in this literature in favor of incentive-alignment issues. But we may argue, in a way analogous to the stance adopted in Austrian contributions to comparative systems (Don Lavoie 1985; Peter Boettke 1994), that institutions (including the firm) are important *not just* because they structure incentives, but also because they help cooperating parties to align their knowledge and expectations (Hayek 1973). This is clearly a perspective that is suggested if not fully developed in the capabilities perspective. In the following section, I sketch a coordination approach to the firm that – while related to the capabilities perspective – is built on Austrian foundations and, unlike the capabilities perspective, contains propositions about economic organization.

Toward an Austrian Perspective on the Firm

A. Preliminary

It has often been observed that there is no Austrian theory of the firm (Loasby 1989; Alanson Minkler, 1993; Foss, 1994b). One may think that the neglect of the firm in Austrian economics is a paradoxical feature, since what may arguably be “the most obvious deficiency in Austrian economics” (Loasby 1989: 166) lies in the market process itself. Austrians have next to nothing to say about pricing, buyer-seller relations, vertical integration and other aspects of economic organization; in other words, one of the most important constituent mechanisms of the market process, namely firm behavior, is simply not theorized in Austrian economics.

Nevertheless, an attempt shall here be made to convince Austrians that their key ideas – subjectivism, genuine uncertainty, learning, entrepreneurship and the division of knowledge – in fact constitute an excellent and alternative platform for theorizing the firm. However, before this can be done it is necessary to present some sort of argument that insights and tools developed for the analysis of the *market* process, that is, undesigned phenomena, can in fact be applied to the analysis of the planned order of the firm.

There can be no denying, of course, that firms in contrast to markets are planned by identifiable historical individuals with the purpose of earning a profit and that they normally operate under a designed framework (e.g., a mission statement, organization structure, etc.). Thus, firms are indeed planned orders in the Hayekian sense. However, we should recognize that social institutions do not just fall neatly into two separate categories: spontaneous and planned orders. For example, planned orders may contain spontaneous and undesigned elements, such as the results of the rent-seeking efforts of bureaucrats in a government hierarchy. Similarly, firms contain “grown” elements, such as what goes under the name of “corporate culture”.⁶

The insight that the planned order of the firm has elements of the spontaneous order goes further, however. For firms may confront knowledge

⁶ A pertinent reference here is the work of Henry Mintzberg (1994), who has attempted to demolish the rationalistic ideal in much of the business planning and strategy literature much like the Austrians demolished the rationalist arguments of the market socialists.

problems of a magnitude comparable to those which confront a social planner in a socialist economy. Firms, such as Asea-Brown-Boveri, with more than 200.000 employees certainly face a knowledge dispersal problem of almost the same caliber as the general societal knowledge dispersal problem.⁷ To such firms, Hayek's point about the necessity of decentralization is quite pressing indeed:

“If we can agree that the economic problem of society is mainly one of rapid adaptation to changes in the particular circumstances of time and place, it would seem to follow that the ultimate decisions must be left to the people who are familiar with these circumstances, who know directly of the relevant changes and of the resources immediately available to meet them. We cannot expect that this problem will be solved by first communicating all this knowledge to a central board which, after integrating all knowledge, issues its orders” (Hayek 1945, p. 83-84).

There is, in fact, an enormous management literature that explicitly addresses how to handle the knowledge dispersal problems (not just the incentive problems) that exist in, typically, multinational firms (see, e.g., Cristopher Bartlett and Sumantra Ghoshal 1989). The focus is normally on choosing the right degree of decentralization. Implicitly, the knowledge dispersal problem is seen in this literature as determining the boundaries of the firm, for there is a point where the “loss of control” is so overwhelming that it more than offsets any gains from, say, integrating one more line of business or making one more foreign direct investment.

This literature explicitly begins by rejecting the idea that top-management in large firms, such as ABB, can simply centralize all the relevant knowledge and issue in a top-down fashion the relevant commands to different business units.

⁷ Admittedly, this is an extreme example, if only on account of the size of ABB. But much smaller firms also confront coordination problems, although there is probably a monotone relationship between the size of firms and the severity of coordination problems.

This is seen as plainly absurd; and the arguments advanced in favor of this judgment are closely related to Austrian arguments against central planning (e.g., Lavoie 1985): the size, complexity and partially tacit character of the relevant knowledge, in addition to the need for flexibility and local adaptation, makes centralization not only inefficient, but truly impossible. Firms must resort to other means to handle dispersed knowledge; however, for a given set of means (bonuses, monitoring, divisionalization, matrix organization, etc.), there is a limit to how large and how complex the firm's stock of knowledge can be.

Firms may, like socialist planners, resort to various incentive mechanisms to induce the "correct" actions. But even if we – admittedly unrealistically – assumed away all incentive problems (as in team-theory) and claim that agents in good faith try to maximize some collective objective function, there is still a problem of coordinating knowledge and expectations, for agents' actions are still interdependent. This problem faces a firm, as it faces a socialist economy. It is essentially the problem of coordinating knowledge that is dispersed within an organization that I shall focus on in the ensuing.

B. Types of Knowledge

In their treatise on Austrian economics, O'Driscoll and Rizzo (1985) take a Shacklian and Popperian approach to action and knowledge. Specifically, most economically relevant knowledge is taken to be

1. *Private* – in the standard sense of the economics of information and principal-agent theory that agents have different information sets.
2. *Empirical* – in the Hayekian sense that agents primarily seek "knowledge of the particular circumstances of time and place" (Hayek 1945, p.52). Closely related to this, knowledge is problemistic in the sense that it arises in the context of a problem situation.

3. *Tacit* – in Michael Polanyi's (1958) sense of not given to verbal expression. (In fact, there is clear connection between the three dimensions of knowledge, as, for example, in the concept of learning by doing).

Moreover, knowledge is communicated and coordinated not only by prices but also by various *non-price signals*, such as various types of institutions (norms, conventions, firms...). Finally, the search for knowledge involves Shacklian *surprises*, in the sense that not all the searched for knowledge could have been precisely anticipated. Thus, action in what O'Driscoll and Rizzo (1985) call a "dynamic conception of time" must of necessity involve learning. Moreover, because of the surprise element learning must involve more than Bayesian revision of priors into posteriors; it must also involve setting up new interpretive frameworks – new "images", in Penrose's (1959) terms – for handling new types of problems. Action – including entrepreneurial action – is mediated by such mental constructs.

In sum, the radical perspective on action presented by O'Driscoll and Rizzo would seem to imply that the essence of economic behavior is not "Robbinsian maximizing" (Kirzner 1973), but rather consists in understanding the environment, defining what are the relevant variables in that environment, making sense of incoming information, generating procedures which can help solving problems, and, finally, actually taking action, for example, by exercising entrepreneurial alertness. In terms of the economics of information, one implication of O'Driscoll and Rizzo's analysis is that the "information partition postulate" (Luigi Marengo 1995) should be discarded. This postulate holds that there 1) is an isomorphism between the real world and an agent's image of it, 2) that agents only differ with respect to decision-making capabilities in terms of how fine or coarse their information partitions are, 3) that information partitions are given, and 4) that genuine knowledge gaps, such as mistakes and surprises, can be ruled out (*ibid.*).

If these assumptions hold, it is hard to argue that rational, interacting agents should persistently hold different images of the world. In such a setting, coordination problems are if not entirely eliminated then certainly much reduced in importance. The economic problem essentially reduces to giving people who already are on “the same wavelength”, as it were, the right incentives – that is, the problem studied in virtually all of the modern economics of organization.

To be sure, this is not at all wrong or illegitimate. It works very well for a number of purposes. But it does suppress understanding of those aspects of economic organization that have to do with the coordination of knowledge and plans and which cannot be reduced to incentive-alignment issues. The implication is that to the extent that we wish to come to grips with real-world knowledge problems, we also have to relax the information partition postulate, for example, along Austrian lines.

Now, Austrians have certainly at least since Hayek’s (1937, 1945) seminal work been acutely aware of the importance and significance of the division of knowledge for understanding issues relating to economic organization, for example, comparative systems. However, existing Austrian work may perhaps be criticized on two counts. First, a more fine-grained understanding of the division of knowledge – what precisely does it mean? – seems to be lacking. Second, the role of shared mental constructs – theories, norms, ideologies, culture, etc. – in coordinating a complex division of labor seems to have been underestimated.⁸ I expand on these assertions in the following.

With respect to the first assertion, we can imagine many ways in which knowledge may be present in a social system. For example, knowledge may be⁹

⁸ One exception is Richard Ebeling’s work on typification (Ebeling 1986).

⁹ Correspondence with Luigi Marengo helped develop these categories.

1. *Private* – Private is here again meant to refer to the usual sense of the term. The agents simply know different things and this knowledge is not brought into contact.
2. *Distributed* – This means is that a group of cooperating agents “know” something that no individual agent knows. For example, in a metaphorical sense, no individual agent knows how General Motors makes cars; it is the whole team of GM employees that possesses this knowledge. However, distributed knowledge have to be somehow coordinated for this social knowledge to be made active.
3. *Partially shared/hierarchical* – This means that some agent, typically a hierarchical superior or an entrepreneur, knows – in rough outline – that one (or more) other agent knows something that can be profitably activated by the first agent’s actions, particularly his directions. For example, a top-manager may know that a lower-level manager is good at, for example, production planning, and direct him accordingly, although the top-manager himself may know very little about production planning.¹⁰
4. *Shared* – This means that agents share some knowledge about the world. Mutual awareness of their sharing the relevant knowledge is not formally necessary.

¹⁰ This type of knowledge is crucial to Demsetz’ (1988) theory of the firm which essentially explains firm organization by specialization in direction: “Firms and industries must form a pattern of economic organization that takes account of the need for acquiring knowledge in a more specialized fashion than the manner in which it will be used. Those who are to produce on the basis of this knowledge, but are not possessed of it themselves, must have their activities *directed* by those who possess (more of) the knowledge. Direction substitutes for education (that is, for the transfer of the knowledge itself)” (1988, p. 159).

5. *Common* – in the game-theoretic sense that “I know that you know that I know...etc.”.

C. Knowledge and Economic Organization

I contend that interesting problems of economic organization are primarily related to problems 2, 3 and 4, although it is 1 and 5 that have typically been the dominant ones in economics. For example, with common knowledge assumptions all problems relating to economic organization – both coordination and incentive-related problems – are suppressed. Austrians would seem to have been interested primarily in what is here called “distributed knowledge”. Consider, for example, Hayek’s famous discussion of the division of knowledge which essentially is about how to best coordinate distributed knowledge¹¹:

“The peculiar character of the problem of a rational economic order is determined precisely by the fact that the knowledge of the circumstances of which we must make use never exists in concentrated or integrated form but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess. The economic problem of society is thus not merely a problem of how to allocate “given” resources – if “given” is taken to mean given to a single mind which deliberately solves the problem set by these “data”. It is rather a problem of how to secure the best use of resources known to any of the members of society, for ends whose relative importance only these individuals know. Or, to put it briefly, it is a problem of the utilization of knowledge which is not given to anyone in its totality” (Hayek 1945, p. 78).

¹¹ The same could be said of Kirzner’s theory of the market process as one of entrepreneurial discovery.

Hayek goes on, of course, to point to the “telecommunications system” of market prices as the institution responsible for coordinating distributed knowledge and thereby promoting a tendency to dovetailing plans. Moreover, much of Hayek's later work (e.g., Hayek 1973) concentrates on how *other* institutions than the price system – such as the rules of just conduct contained in traditional morals and the common law system – furthers the societal tendency to coordination of plans (Kirzner 1992, chapter 10).

However, in economics the institutional context of Hayek's (1945) reasoning has often been forgotten (O'Driscoll and Rizzo 1985): his message has been interpreted as being be that the market economy operates efficiently with a minimum of information, since (equilibrium) prices supply *all* the correct incentives. In this respect, it is noteworthy that Israel Kirzner's (1973, 1992) contribution has not been to supply or reintroduce this institutional context *per se*; rather, he has examined the role of entrepreneurial action within an institutional framework.¹²

However, as a burgeoning so-called “neo-institutional” literature (e.g., Douglass North 1990) has reminded us of, societies are kept together by a thicker glue: in addition to prices and entrepreneurship, we should also address norms, conventions, firms, contracts, ideologies, etc. for understanding social order. Many of these essentially represent shared knowledge. In terms of the above taxonomy of knowledge, therefore, the coordination of distributed knowledge is assisted by some knowledge being shared among agents.

D. The Need for Coordination: The Role of Firms

Much of Austrian economics, and in fact also standard economics and organizational economics, has been working with an overly restrictive separation between

¹² This is certainly not to say that Kirzner has completely neglected the institutional substratum of society; for example, he has repeatedly drawn attention to the importance of the property rights structure. But it means that he has tended to take it as *given* in his work.

spontaneous and made orders, or between, “markets and hierarchies”. However, as I have indicated, the distinction is far from watertight. Firms, at least large firms, face a knowledge dispersal problem that may be on a par with the societal knowledge dispersal problem, and all sorts of emergent processes take place inside firms (cf. Mintzberg 1994).

As we have seen, the arguably dominant view of the firm in contemporary economics is to see it as a contractual institution that exists on account of its ability to dampen or eliminate problems of misaligned incentives. The firm allows input-owners to escape cooperation dilemmas of the sort represented by the paradigmatic prisoners' dilemma. However, on an older and perhaps sounder perspective on the firm – one that incidentally includes Coase's original contribution (Coase 1937) (Langlois and Foss 1996) – the role of firms is seen in a different and more dynamic perspective: firms' primary *raison d'etre* is that they coordinate *some* productive tasks – particularly those having a strong intertemporal dimension and involving close complementarities – better than market or inter-firm relations are capable of (Lachmann 1956; Malmgren 1961; Richardson 1972; Loasby 1991; Langlois and Robertson 1995).

Rather than transforming non-cooperative behavior in potential prisoners dilemma games to cooperative behavior, the role of firms in this tradition is to provide an institutional setting that solves coordination type games (cf. Foss 1993; Langlois and Robertson 1995). Or, translated into the terminology which has been employed here, it is a matter of making distributed knowledge mesh.

Thus, it is the more basic coordination problem of making activities, individual efforts, learning processes, strategies, etc. mesh that is highlighted, *rather than* the logically secondary problem of, for example, controlling and influencing the level of efforts once everything is in place. Such a coordination view of the firm would seem to harmonize with the Hayekian focus on the coordination of knowledge. In fact, the arguably first economist to cultivate a coordination view

of the firm, Harald Malmgren (1961), used Hayek (1937) extensively when developing his argument (on Malmgren's work, see Foss 1996b).

Malmgren suggests to discuss “the equilibrium for the individual firm”, which “...exists only for actions which make up a consistent plan” (1961, p. 405). As Malmgren points out, this is related to the issue of the existence of the firm, since a firm may have advantages relative to the market in terms of achieving plan consistency (that is, consistency of the plans of the input owners). Internal plan consistency translates into Malmgren's concept of “controlled information”:

“Not only are a number of events predictable over the duration of the entire production plan, but also less information is required to describe that set of events for control purposes...operating rules of quite simple nature replace a more thorough analysis of every possible transaction which might arise in market determined allocation of resources over the set of activities which make up the firm” (1961, p. 404).

Controlling information in this sense is something firms are much better at than markets, and one result of this is that the firm, as Malmgren says, “...predicts the costs of production of its commodities better than the market could over its set of activities by eliminating the divergence of expectations which may arise when interdependent decisions are taken by independent decision-makers” (1961, p.405).¹³

Thus, there is a clear recognition in Malmgren that firms may have advantages relative to the market in the coordination of certain types of

¹³ Adding some meat to what is meant by “interdependent decisions”, Malmgren refers to George Richardson's (1960) discussion of the coordination of investments. Richardson notes (1960, p. 83) that investments may be so strongly complementary that they are most efficiently coordinated under unified governance, and Malmgren supports this: “I wish to suggest”, he says, “that where output and profitability of various production units are closely interdependent, the firm is formed to undertake decisions concerning all or some of the production units simultaneously, so as to maximize the joint profit and total output (1961, p. 412).

knowledge. In this context, real-world firms coordinate distributed knowledge by various means, such as command, management information systems, routines, corporate intrapreneurship, transfer prices and shared mental constructs. For example, corporate headquarters may through command see to it that knowledge emerging from R&D is not entirely uncoupled from knowledge acquired in marketing and sales operations. Corporate intrapreneurs may act in a basically Kirznerian way by demonstrating alertness to opportunities for integrating hitherto dispersed knowledge. In the following I shall, however, put the main emphasis on the role that shared mental constructs play in coordinating intra-firm knowledge.

In fact, Malmgren in his 1961 paper was eager to point out that the coordination of plans that firms carry out does not only rely on centralized command, but is also a matter of what we may call firm-specific mental constructs. Specifically, he refers to Thomas Schelling's (1960) work on how culture-specific norms help people solve coordination problems in the real world, and point out that such "Schelling-points" also characterize the internal organization of firms. Thus, Malmgren recognized the need for shared mental constructs in the coordination of the intra-firm division of knowledge.

If agents did in fact share the same mental constructs – or "models of the world" (Marengo 1995) or "codes" (Arrow 1974) or "corporate cultures" (Cremer 1990) – the major organizational design objective arguably is to get the incentives right. However, if it cannot be presumed that division X understands the same by the message "the state of the world is Z" as division Y does, or if the divisions do not understand the message at all, then the overriding organizational design objective is creating a shared knowledge-base and getting everybody on the same wave-length. In firms that have grown through mergers and acquisitions this may be an extremely time-consuming and costly process.¹⁴ However, often firms spontaneously develop shared mental construct, or, if you like, "corporate

¹⁴ In fact, this is often singled out as one of the important reasons why mergers may break up again.

cultures” that help coordinating distributed knowledge by infusing employees with firm-specific shared knowledge.¹⁵ The significance of these shared mental constructs lies not only in helping the coordination of existing distributed knowledge; they also help coordinate intra-firm learning processes. In short, they help the firm organize a localized discovery procedure (as distinct from the global discovery procedure of the market). However, shared mental constructs also change over time – along with the learning processes they help organize. We are talking, in effect, about “co-evolutionary” processes (Marengo 1992).

However, the results of such processes are not fully predictable, although they may be influenced by management; organizing them would seem to necessitate a certain amount of flexibility. In fact, this seems to cast a quite new light over the large degree of incompleteness of the contracts struck between firms and various input-owners (Coase 1937; Simon 1951; Williamson 1985; Hart 1995). Incompleteness is not just important to the theory of economic organization because it (along with specific investments, etc.) creates a potential for opportunistic or morally hazardous behavior; incompleteness may be of distinct value because it allows the firm to engage in a local learning processes whose results must necessarily be at least partially unpredictable. That such an instrument is in fact *necessary* follows from a basic epistemological impossibility theorem: future learning and knowledge cannot be fully anticipated, for if it could, it would be present knowledge and not future. The existence of a local discovery procedure requires a framework of incomplete contracts – one that is normally supplied by firm organization.

Thus, an Austrian coordination perspective goes *some* way towards explaining the existence of the firm.¹⁶ Moreover, it also allows us to cast some

¹⁵ Arguably, such shared mental constructs may have signalling and incentive effects (cf. David Kreps 1990); for example, corporate cultures may signal that employees and suppliers do not risk being hold up by the firm’s management.

¹⁶ Admittedly, not all the way, however. For we still need to explain when localized learning processes that are coordinated by shared mental constructs and take place within a framework of incomplete contracts necessitate, for example, the specific structures of

light over the boundaries of the firm. There is, of course, a straightforward Austrian answer to this question, one that has been articulated by Israel Kirzner (1992, p.162) and which harmonizes with Coase's (1937) original discussion. "In a free market", Kirzner explains, "any advantages that may be derived from 'central planning'...are purchased at the price of an enhanced knowledge problem. We may expect firms to spontaneously expand to the point where additional advantages of 'central' planning are just offset by the incremental knowledge difficulties that stem from dispersed information". What may be the nature of these "knowledge difficulties"?

Arguably, the coordination perspective that has been sketched out here suggests an answer. Because firms have to coordinate intra-firm actions, knowledge and expectations they tend to evolve shared mental constructs. As Penrose (1959) explains, these are parts of the firm's "productive opportunity set", that is, the possibilities for profitable production that its entrepreneurial team can see and take advantage of. But shared mental constructs are a double-edged sword (as IBM recently had to realize). For they also imply a certain inflexibility (that is, they *constrain* the firm's productive opportunity set). Because of what are effectively cognitive constraints, all firms must specialize (Richardson 1972; Demsetz 1988). And since the chain of production in an advanced economy requires the coordination of very different capabilities and corresponding learning processes, the costs of integrating across many links in that chain are necessarily high. Thus, firms must rely on various kinds of market and hybrid arrangements to coordinate their activities even in the face of contractual hazards. Although transaction costs may outweigh the costs of dissimilarity in the case of some closely complementary activities (Richardson

property rights and incentives that obviously characterize real-world. Marshall's (1890) discussion of the industrial district is essentially a recognition that the market can sometimes organize localized learning processes that relate to well-defined productive activities. Moreover, as an anonymous reviewer pointed out, the institution of the firm did not, historically, begin with the *large* firm in which discovery problems are most likely to arise and to be important. All this indicates that the coordination framework outlined here is really complementary to other theories of the firm.

1972), on the whole the cognitive limitations of different mental constructs outweigh transaction costs. Thus, it is these limitations that define the boundary between the intra-firm discovery procedure and the overall market discovery procedure.

Conclusions

The overall message of this essay is that the theory of the firm is a fertile area of research for Austrian economists. There are many reasons for this. One of these is historical, namely that many of the key ideas in the theory of the firm, and economic organization more broadly, have been a part of Austrian economics longer than they have been a part of mainstream theory. Among these are a subtle understanding of the distinction between planned and spontaneous orders, the notion of specific and complementary assets (Lachmann 1956), and knowledge costs (Hayek 1937) (see further Foss 1994a). Moreover, there are certainly key ideas in Austrian work on comparative systems that have fertile implications for the theory of economic organization (cf. Klein 1996). However, these ideas most directly relate to the contractual theory of the firm represented by, for example, the work of Coase and Williamson.

As I have tried to argue in this essay, Austrian school insights certainly also link up with ideas and insights that are best associated with evolutionary, post-Marshallian and capabilities perspectives on the firm. Others have made similar observations (Langlois 1992b; Loasby 1992). But here an attempt has been made to demonstrate that Austrian ideas may actually enrich these approaches. Austrian insights in the division of knowledge and the coordination of knowledge as well as insights in entrepreneurship complement this literature.

Arguably, an Austrian coordination view on firms introduces a distinct perspective on the firm, one that differs from both the contractual and the

capabilities perspective (although it has close connections to the latter). Whereas the contractual perspective conceptualizes the firm as nothing but a structure of incentives and property rights and the capabilities perspective conceptualizes the firm as a stock of given knowledge assets, the coordination view tends to see the firm as an entity that organizes a localized discovery procedures in the context of a structure of incomplete contracts and supporting shared mental constructs. In other words, the firm is seen as a cognitive entity. Clearly, this view connects to much of the literature in contemporary management studies and adds a dynamic counterpart to the capabilities perspective.

Finally, a further and more far-reaching implication is that there is a large and heterogeneous body of work, much of which is associated with the management sciences that should be of interest to Austrian scholars. In fact, Austrian economics (primarily Kirzner's theory of the market process as one of entrepreneurial discovery) has for a few years been noted in the business strategy (e.g., Robert Jacobsson 1992) and marketing disciplines. This is because it provides a process-oriented alternative to the mainstream industrial organization and price theory approaches that have been important in the evolution of these disciplines.

An important implication for future Austrian research is that there is a large area into which Austrians may sink their analytical teeth. But it also implies that perhaps Austrians may usefully draw on these fields when carrying their research program further. After all, these are fields that are above all characterized by a much more intimate connection to the real agents of the market process than any field of research in economics. To be sure, one can come a long way drawing on basic Austrian price theory when it comes developing insight into economic organization (cf. Klein 1996). But as I have tried to argue in this essay, basic Austrian price theory does not tell us everything that we wish to know about firms. Here we may more usefully draw on Hayekian insights in the problem of coordinating dispersed

knowledge, on social systems as learning systems, etc.

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