

# Entrepreneurship, Margins, and Contract Theory

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## **Abstract**

We contrast mainstream contract theory with the Austrian and neo-institutional view that the world is shot through with ignorance and transaction costs, but that benign entrepreneurial activity as a tendency remedies these problems. In the latter world, there are always margins to discovered over which agents may optimize their gains. This is contrast to the contract theory modeling strategy of introducing often ad hoc and unexplained constraints that suppress margins that would be relevant to real-world decision-makers. We illustrate this by means of the treatment of asymmetric information under complete contracting and the notion of control rights under incomplete contracting.

“... *mathematical economists ... do not notice the individual speculator who aims not at the establishment of [equilibrium] but at profiting from an action which adjusts the conduct of affairs better to the attainment of the end sought by action, the possible removal of uneasiness*” (Ludwig von Mises 1949: 250).

## Introduction

In the view of Frank Knight (1921) — the founder of the theory of the firm — firm organization, profit, and the entrepreneur are closely related phenomena. In his view, these arise as, respectively, an embodiment, a result and a cause of commercial experimentation. Very few economists have followed Knight in his linking together the firm, profit, and entrepreneurship.<sup>1</sup> One implication of this is that entrepreneurship is not stressed in the modern economics of organization. We shall exemplify this by critically discussing the part of this body of theory that is known as “contract theory” (Hart and Holmström 1987; Hart 1995; Salanié 1996). More specifically, we focus on complete contract theory (principal-agent theory) and incomplete contract theory (the new property rights theory), and discuss these approaches in a critical light informed by both the entrepreneurial discovery perspective advanced by Israel Kirzner (1973, 1985, 1992, 1997) and the property rights perspective associated with, for example, Ronald Coase (1988), Armen Alchian (1965), Harold Demsetz (1967), Stephen Cheung (1969, 1983), and Yoram Barzel (1997).

From a Kirznerian perspective, the basic problem with contract theory is that in some respects it goes too far with respect to discovery and in other respects it does not go sufficiently far. To put it less mysteriously, on the one hand virtually all that is worth discovering has been discovered already. For example, in complete contract theory, all possible uses – present as well as future — of all assets are fully known. On the other hand, there are certain things that agents are simply not allowed to discover as a matter of modeling convention. Implicitly, some unspecified information costs are arbitrarily supposed to be prohibitive. Thus, a number of margins *that would be relevant to real-world decision-makers* (i.e., Kirznerian entrepreneurs) are suppressed.

There are two sets of reactions to this. One set of reactions is to criticize contract theory on the ground that it illegitimately abstracts from an *essential* feature of the social world, namely the inherent propensity of agents to discover new opportunities for gain. This may be called an “ontological critique”, since it concerns basic assumptions about human capacities. Although we are in sympathy with such an argument and shall discuss it in this paper, we realize that it may be too abstract and have too much the character of a conversation-stopper to have much “bite”. A more concrete reaction is to argue that taking seriously the inherent

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<sup>1</sup> The outstanding exceptions to this claim are Barzel (1987), Baumol (1993), and Casson (1997).

propensity of agents to discover new opportunities for gain is likely to substantially change some conclusions derived from contract theory models. In other words, this is a reaction that relates to the *robustness* of these models.

The design of the paper is the following. We begin by briefly discussing Kirzner's (and others') view of entrepreneurship and its implications for economic modeling. One such implication is that the contracting space is in principle always open-ended. Therefore, there are always margins to discovered over which agents may optimize their gains. We contrast this view with the conventional modeling strategy of arbitrarily introducing constraints that suppress the margins over which agents may optimize ("*Suppressing Entrepreneurship and Margins: the Role of Idealization and Modeling Concerns*"). Modern contract theory is an important instance of this modeling strategy ("*Contract Theory*"). As a general matter, the coordination problem is here narrowed to only concern the alignment of incentives in extremely stylized settings. In these settings, many of the margins that would be relevant to real-world decision-makers are suppressed. We illustrate this by means of the treatment of asymmetric information under complete contracting and the notion of control rights under incomplete contracting ("*Suppressing Margins and Entrepreneurship in Contract Theory:*"). Finally, we argue that there are constructive implications of including entrepreneurship in the theory of economic organization ("*Concluding Comments: Entrepreneurship and Economic Organization*").

## Suppressing Entrepreneurship and Margins: The Role of Idealization and Modeling Concerns

In the Austrian approach (Mises 1949; Hayek 1948; Kirzner 1973), and to a large extent also in the new institutionalist approach (Coase 1988; Furubotn and Richter 1998), the economy is seen as being characterized by substantial ignorance and shot through with transaction cost. However, entrepreneurial activity, prompted by the lure of profit, is continuously closing pockets of ignorance in the market and devising ways of overcoming transaction difficulties and reducing the bounds on rationality. If one accepts this ontology, certain commitments with respect to what is, and what is not permissible in modeling, would seem to follow. We explore these commitments in this section. The natural place to start is with the entrepreneur.

### **The Kirznerian Entrepreneur**

In Kirzner's view, the entrepreneur is an agent who by exercising alertness "... grasps the opportunities for pure entrepreneurial profit created by temporary absence of full adjustment" (1997: 69). Thus, entrepreneurship is a disequilibrium phenomenon. According to Kirzner (1973), the alert entrepreneur should be contrasted with the Robbinsian maximizer of conventional neoclassical economics who acts in a mechanical fashion within a given means-ends structure. In contrast, the entrepreneur sets up new means-ends structures. However, according to Kirzner, this ability to discover and grasp hitherto unnoticed opportunities for

profit is not limited to people with special cognitive qualities; it is a quite general aspect of human action. The implication is that people have a tendency to discover those margins on which they can optimize. However, this tendency to discover hitherto unnoticed opportunities for gain is by no means automatic or perfect. In Kirzner's view, the economy is at any moment characterized by widespread ignorance, and many profit opportunities are simply never exploited.

If one likes, Kirzner's theory of entrepreneurship may be interpreted as a denial of the possibilities of economic modeling. All modeling imposes some constraints at some level in the model; otherwise, modeling is pointless. Kirzner's theory, however, seems to imply that we cannot be sure that any constraint that we have put into our model will not be contested by some alert entrepreneur. Thus, any modeling exercise may be criticized from such a point of view. However, we interpret Kirzner's theory of the entrepreneur differently; it is not a denial of modeling. We agree with Vaughn (1994) that Kirzner's theory should be thought of an addendum to and a correction of a, in many respects, sound neoclassical economics rather than as a fundamental break with it.

More specifically, we here interpret it as a methodological imperative that tells the modelling economist to be alert to the possibility that the type and severity of the constraints he introduces in his modeling exercises may be implausible. In other words, in accordance with the Austrian emphasis on methodological individualism and subjectivism, the economist must put himself "in the shoes" of the agents he models (O'Driscoll and Rizzo 1985; Koppl and Langlois 1991) and ask whether a certain constraint of the model is a plausible constraint on behavior, considered from the point of view of the agents that he models. In our view, many economists have been prone to the error of not checking modeling exercises against this (seemingly) simple test.

### **Suppressing Margins and Entrepreneurship in Economics: Some Examples**

The procedures of "suppressing margins" and "suppressing entrepreneurship" are fairly widespread ones in economics. They have been beneath many important debates in economics. Perhaps the best known example of the procedure of suppressing margins and entrepreneurship is Keynesianism of the Hicks-Hansen-Modigliani type (what was once referred as "the neoclassical synthesis"). This type of macroeconomic modeling was designed to produce Keynesian results by introducing a spanner in the works of an otherwise perfect "classical" model of assuming that money wages were rigid in the downwards direction (Leijonhufvud 1968). In fact, in the reading of William Hutt (1939), Keynes produced his results by simply assuming away all optimizing and entrepreneurial behaviour on specific markets, namely labor markets. Similar charges were much later made against Keynesian economics by new classical economists. In the context of macroeconomic modeling they invoked the general heuristic principle of banishing as far as possible "free parameters", that is, constraints or assumptions that had no obvious foundation in choice theory (Lucas 1981, 1987).

Other well-known examples concern the (mis)uses in economics of the public good nature of lighthouses, the externalities involved in decentralized production of apples and honey, and the collective goods of fisheries and other non-exclusive resources (Cowen 1988). For examples, the traditional categorization in economics of lighthouses as pure public goods arguably stems from an unexamined assumption that enforcement of property right would be prohibitively costly. In contrast, careful consideration of the full set of options available to suppliers of lighthouse services revealed that sufficiently low-cost means of enforcing (at least a significant subset of) the relevant property rights did in fact exist —and were employed by alert entrepreneurs (Coase 1988). The morale of this is the by now well-known point that what are public goods, etc. are dependent upon the structure of property rights (Demsetz 1964; Cowen 1985) – but that structure is to a large extent defined by alert entrepreneurs through contractual innovations, innovations in enforcement methods, etc., and neglecting such entrepreneurship easily leads to erroneous conclusions. As Stephen Cheung (1969: 65) observed, economists have had a tendency to take “... assertions of fact for granted, accepting claims of deficient contractual arrangements without demanding evidence”.

### **So, What Does It Mean?**

Having provided some examples of how economists have suppressed margins and entrepreneurship, respectively, we shall now clarify their meanings and consequences in more detail. There are subtle differences between the two procedures.<sup>2</sup> However, both refer to slightly different ways of suppressing some costs and benefits that might be relevant to real-world decision makers, for the purpose of making modeling tractable and typically also of producing certain outcomes from the model.

The procedure of “*suppressing margins*” means that as part of modeling the constraints that the agent faces, the modeler stipulates that for some reason or another, the agent is totally prohibited from knowing or doing certain things which might not be totally inaccessible to real world decision makers. This is typically accomplished by choosing extreme values for some variables. For example, asymmetric information as normally used in mainstream information economics means that the costs on the part of non-informed agents of obtaining information are effectively infinite – which they typically wouldn’t be to real-world decision-makers. This means that some actions — such as acquiring more information about the actions of the agents — are prohibited *ex ante*, and a margin that would otherwise be relevant to real-world decision-makers is suppressed. However, in contrast, the agent is informed, and typically perfectly informed, about all other variables, and is allowed to take all the remaining margins (which are all supposed to have been discovered already) fully into account.

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<sup>2</sup> For example, while the suppression of margins does not necessarily imply the suppression of entrepreneurship, the suppression of entrepreneurship must always involve the suppression of some margins.

Now, suppressing margins is not illegitimate *per se*; most economists engage in that practice.<sup>3</sup> For example, in his famous “lemons” paper (Akerlof 1970), George Akerlof does suppress margins by assuming that buyers are completely prohibited from knowing the quality of any specific car. However, this doesn’t mean that his story stops there. Actually, he points out that the very reason for conducting the analysis is to find out what may be the reason for *alternative* institutional solutions to the adverse selection problem, such as warranties, brand names and the like. Thus, one may suppress margins, provided room is left for the agents to invent around the problems caused by suppressed margins. As we see it, this open-end approach is characteristic of the work of, for example, Harold Demsetz (1964, 1967), Stephen Cheung (1969, 1983), and Yoram Barzel (1997).

Not everybody takes this approach, however. For example, as we shall later explain, modern contract theorists, such as Oliver Hart (1995), suppress margins in order to explain a *certain* institutional solution (such as a certain type of ownership pattern), without inquiring into alternative institutional solutions (e.g., reputational mechanisms).<sup>4</sup> Agents are not allowed to surpass the problems caused by suppressed margins by evolving new institutional solutions. This is an example of “*suppressing entrepreneurship*”.

More generally, by “suppressing entrepreneurship” we refer to the situation where agents are confronted with not only *given* means to meet *given* ends (Kirzner 1973), but where, as a matter of the design of the model, the agents are prohibited from exploring *some* means to meet the ends. Suppressing entrepreneurship implies, for example that agents are not allowed to imagine and implement new institutional solutions to externality problems. Because of these restrictions, there may be value left in the public domain (Barzel 1997). However, agents are prohibited from capturing this value as a matter of modeling convention (or, lack of imagination on the part of the modeling economist). Entrepreneurship becomes suppressed.

### **Theoretical Idealization**

What we have referred to in the previous sections as the procedures of “suppressing margins and entrepreneurship” are particular instances of “theoretical idealization” or, if you like, abstraction (Hamminga and de Marchi 1994). All economists idealize — in various ways and at various levels (Mäki 1994) — in order to keep analysis tractable. For example, they assume that contract drafting costs are zero or that everything but for the realizations of a few variables is common knowledge, as in many models in industrial organization and in contract theory.

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<sup>3</sup> Thus, the procedure of suppressing margins is not one that is specific to, say, mainstream economists. For example, in evolutionary economics, where equilibrium is not necessarily a feature of the model, theorists often suppress margins by assuming that all behavior is routinized (e.g., Nelson and Winter 1982). On the other hand, equilibrium may be a feature of a model in which virtually no margins are suppressed, as in cooperative game theory or the work of Yoram Barzel. However, in this case, there may be many equilibria.

<sup>4</sup> Furthermore, to these economists it is completely legitimate to suppress *any* margin if it can somehow throw light on some contractual phenomenon.

Similarly, the Coase theorem, perfect competition, and the basic welfare theorems are standard examples of idealizations, as is the assumption of *ceteris paribus*, or the assumption that agents maximize, etc., etc. Thus, idealization would seem to be indispensable to economic reasoning.

Although idealizations are false statements about the world, they may be defended in different ways. For example, some idealizations "... may be based on metaphysical considerations; they are made to exclude those aspects of the object that are expected to be ontically peripheral or inessential" (Mäki 1994: 153). Alternatively, idealization may be defended by pointing to the need for mathematical tractability. Many formal economists want to have it both ways. Thus, idealization that proceeds in formal, mathematical terms is seen as realizing both the need for tractability and for capturing the essential aspects of a phenomenon. Eric Rasmussen (1994: 3) characterizes this approach as "MIT-style theory", and explains that the

... heart of the approach is to discover the simplest assumptions needed to generate an interesting conclusion – the starkest, barest, model that has the desired result. This desired result is the answer to some relatively narrow question.

Much of modern contract theory applies the MIT style theorizing. For example, the analyst observes some contracting practices and tailor-makes an explanation that is as simple as possible, that is, it involves numerous idealizations. Thus, this type of research begins with some observed phenomenon in need of explanation and then proceeds by means of tailor-making a "stark and bare" model that can explain the phenomenon. Typically, the model is a very stylized non-cooperative game theory model, where everything (information partitions, Nature's move, etc.) is carefully laid down in the game's protocol. Modeling then means working "backwards" from the observed phenomenon to its explaining causes in terms of such a "stark and bare" model. However, it is not so immediately obvious that all reasoning in economics of necessity has to take this form. There are, in fact, several possible kinds of objections to MIT style theorizing, and we briefly discuss some of these here.

### **What Is Essential?**

This objection has to do with what is deemed to be "ontically peripheral or inessential" (Mäki 1994: 153). Thus, it may be claimed that in many respects MIT style theorizing, in spite of its rhetorics, suppresses what we know to be the essence of the economic problems facing real word decision-makers. Many economists of more heterodox stripes —such as new institutionalists, evolutionary economists and Austrian economists — will balk at the idea that everything but for a few variables is common knowledge. From these perspectives, discovery, learning and coping with problems introduced by transaction costs constitute the essence of "the economic problem."

In our view, these differences reflect opposed views of the complex interplay between reality and theorizing. Thus, whereas the formal contract economist begins

from extremely stylized settings, such as the full competitive model (Hart and Holmström 1987), and gradually introduces more and more relaxing assumptions, new institutionalists and Austrians begin from the real world in its complexity and ask how many simplifying assumptions and idealizations are necessary for grasping the essence of some phenomenon. The latter group imposes a stronger ontological commitments on themselves than the former group does. As Furubotn and Richter (1997: 446) argue, once the ideas of bounded rationality and transaction costs are accepted, one must recognize that “[t]ransaction costs must appear *everywhere* in the system because of the nature of the individuals making decisions ... Thus, once we reject the notion of the omniscient decision maker who is ‘completely rational,’ the economic model undergoes a basic transformation.” For example, one cannot have agents that are only boundedly rational some of the time or with respect to only a few variables or parameters.

If one accepts these ontological commitments, there would seem to be rather narrow limits to the degree of simplification that can be allowed in abstract analysis. The issue of how abstract theorizing should be, used to be more centrally placed in economic discourse than it perhaps is these days. As Oskar Morgenstern (1964; quoted in Furubotn and Richter 1997: 444) argued, idealizations are of course necessary, but he added that “...[r]adical simplifications are allowable in science so long as they do not go against the essence of the given problem”. Thus, a given idealization should be considered “... faulty if it bypasses a fundamental feature of economic reality”. Agreeing with Morgenstern, our concern is that sometimes modern contract theorists have introduced simplifications that “bypasses a fundamental feature of economic reality”. What may these simplifications and fundamental features be? In order to see this, we first present contract theory, and then discuss its limitations.

## Contract Theory

### **Complete and Incomplete Contracting Theories**

Contract theory is only a subset, albeit a large and significant one, of the the modern economics of organization, which also includes, for example, transaction cost economics. However, because of the heterogeneity of the various streams in the modern economics of organization, we here concentrate on the relatively homogenous subset of contract theory.

Common to contract theories is that they are partial equilibrium models, examine small-scale interaction, focus on (explicit and implicit) contracting relations, use non-cooperative game theory, assume Bayesian behavior, and use perfect Bayesian equilibria as the relevant solution concept. These theories are very explicitly seen as “... a natural way to enrich and amend the idealized competitive model in an attempt to fit the evidence better” (Hart and Holmström 1987: 71). More specifically, analysis has usually started out from an *ex ante* competitive equilibrium setting, for the reason that this reduces “... market forces to simple

constraints on expected utilities [which] greatly facilitates equilibrium analysis” (Hart and Holmström 1987: 74) of the contracting problem. For example, reservation utilities are given rather than endogenous to the analysis. Given this, contracting can be reduced to an “optimization” problem, whereas the introduction of, say, imperfect competition broadens the problem to one of “equilibrium” analysis, that is, many more interdependent variables now have to be taken into account. Given this overall characterization, a first possible classification – which is also the conventional one in the literature – is to distinguish between complete and incomplete contract theories. The former category includes principal-agent theories and the latter one includes the “new” property rights theories (Hart 1995).<sup>5</sup> We here very briefly summarize these different modeling strategies.

Under complete contracting, the contracting decision makers can (costlessly) write a contract that describes their actions given all the future contingencies that may influence their contractual relation.<sup>6</sup> In this context, there may be failure to reach the first-best outcome because of asymmetric information and different risk-preferences, but given these constraints (and a specification of the parties’ bargaining power), there is a determinate preferred outcome, on which the parties can coordinate without any problems.

Under incomplete contracting, in contrast, some contingencies are left out of contracts for whatever reasons, such as information costs, the limitations of natural language, etc. Or, while it may be possible for partners to agree on contract terms, these may not be enforceable by a third party, such as a court (i.e., are “non-verifiable”).<sup>7</sup> In these cases, it may not be possible to sustain the first-best outcome, that is, the one that unambiguously maximizes joint-surplus. Since complete contingent contracts cannot be written, parties to a contract may find it necessary to renegotiate their contracts after the contract has been signed, either because they encounter states of nature about which the contract is silent or where the contract

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<sup>5</sup> “New” to distinguish these theories from the “older” property rights theories associated with Coase, Alchian, Demsetz et al. See Foss and Foss (1999) for a comparison of the new and the old property rights theories.

<sup>6</sup> However, although all contingencies can be specified, the court may not be able to verify some contingencies or outcomes. The parties may therefore not be able to condition performance on every relevant contingency. However, under complete contracting, all payments and actions can be specified *ex ante*.

<sup>7</sup> More precisely, incomplete contracting obtains if performance of the original terms of agreement leaves gains from trade unrealized *given* the information available to the parties to the contract at the time performance takes place (Masten 1998). Incomplete contracting implies that some actions and payments will have to be determined *ex post*. The difference between complete and incomplete contracting also has to do with the role of the court. In complete contracting theories, courts are assumed to enforce the original agreement, and ordering is efficacious, even if all information may not be available to the court. This is in contrast to the incomplete contracting approach where the incompleteness of contracts introduces opportunities for recontracting and where court enforcement of the original terms would leave gains from trade unrealized given the information available to courts at the time performance takes place.

specifies inefficient terms. In the Grossman-Hart-Moore version of this idea, it is assumed that the outcome of the renegotiation process can be foreseen at the time of drafting contracts and that the process does not involve costly bargaining – hence, is efficient. Nevertheless, the very fact of the possibility of renegotiation may be sufficient to cause inefficient levels of investment in relation-specific assets.

This directs analytical attention to property rights, or more precisely residual control rights, that is, the rights to control the use of assets in states of nature that are not described in the contract. The interest then centers on which pattern of ownership rights leads to the most efficient outcome. This depends on the characteristics of the involved assets (e.g., whether they are complementary), on whose assets are most important to the joint surplus, and on who is most responsive to incentives, since ownership by one of the parties will attenuate the incentives of the other party. The bottom-line is that the efficient ownership arrangements primarily turn on the trade-off between incentives for the buyer and the seller.

The Grossman-Hart-Moore property rights approach has recently given rise to substantial debate within the modern economics of organization. For example, it has been argued that property rights are not always necessary for reaching efficient outcomes, but that various cleverly designed mechanisms can handle the problems of unverifiable contract terms; thus, one comes back to the complete contracting (principal-agent) tradition (Tirole 1998). Relatedly, there has been some uneasiness about the supposedly less rigorous and more *ad hoc* type of modeling that characterizes the incomplete contracts literature relative to the principal-agent literature (Maskin and Tirole 1997). However, these are, as it were, *internal* debates, and many specific idealizations are therefore taken for granted and not contested.

In the following section, we more critically scrutinize the key idealizations that characterize contract theory. We argue that some of these idealizations are problematical because they suppress the full set of alternatives that would be open to real-world decision makers in comparable situations. This particular manifestation of “blackboard economics” is a result of a modeling approach in which the modeler never steps into the shoes of the agents, as it were.

## Suppressing Margins and Entrepreneurship in Contract Theory

In this section we address the specific ways in which margins and entrepreneurship are suppressed in contract theory, that is, the specific idealizations that contract theorists adopt. We discuss contract theory informed by the “ontological” view of Austrian and new institutional economics that while the economy is indeed characterized by widespread ignorance and transaction costs, agents are sufficiently smart to evolve means to cope with these problems. Specifically, entrepreneurial activity, prompted by the lure of profit, is continuously closing pockets of ignorance in the market and devising ways of overcoming transaction difficulties and

reducing the bounds on rationality.<sup>8</sup> Moreover, we also argue that contract theory models are often not robust, in the sense that their outcomes are extremely sensitive to the specific idealization that is adopted.

### **Coordination and Equilibrium**

The coordination problems that are treated in contract theory are extremely narrow, at least when compared to the coordination problems that interest Austrians and new institutionalists. This concerns both what may be called the “scope” and “form” of coordination problems. With respect to the scope of coordination problems, contract theorists only consider incentive-conflict problems (whereas other type of coordination problems are possible, Foss 1999). With respect to the form of coordination problems, modern contract theory is fundamentally an equilibrium theory; in fact, it utilizes specific game theoretical (Bayesian) equilibrium concepts that involve very strong assumptions about agents’ coordinative capabilities. Coordination takes place by means of pure ratiocination, and there is no mention of discovery, trial-and-error learning and the like.<sup>9</sup> This is defended by arguing that such process aspects are “unimportant subcomponents” of the model and can therefore be treated “in a cursory way” (Rasmussen 1994: 3). For example, bargaining processes may be “blackboxed,” as when theorists (e.g., Grossman and Hart 1986) simply assert that the Nash bargaining solution will obtain (Kreps 1996). However, this may be very problematic when the conclusions of the model are not robust to alternative conceptualizations of the bargaining process, as seems to be the case of, for example, the “new” property rights approach. More generally, process issues cannot be suppressed to the extent that they crucially influence agents’ choice of contractual forms, as Williamson (1996, 1998) has argued.

### **Knowledge of Asset Uses**

Contract theory closes off courses of actions that would open to real-world decision makers, because it prohibits agents for knowing about certain uses of assets, whereas they possess full knowledge of the residual set of uses. For example, in principal-agent theory, the agent and the principal are both equipped with full knowledge of the set of actions that the agent are allowed by the modeller to engage in, and the principal fully knows those actions that he is allowed to engage in. The principal is ignorant about the precise effort level of the agent and the realization of a stochastic variable impinging on the output. However, compared to real-world decision-makers, the principal is actually even more ignorant, since he is prohibited

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<sup>8</sup> However, while from an Austrian or new institutionalist perspective there is a strong presumption that agents will in fact tend to discover opportunities (Kirzner 1973; Williamson 1998), there can be no presumption that this happens automatically or instantaneously.

<sup>9</sup> Thus, agents are assumed to be able to coordinate on any desired gameform and equilibrium thereof, subject to constraints such as attitudes to risk, incentive trade-offs, bargaining power, and asymmetric information.

from discovering other margins on which to govern the relationship. However, this eliminates entrepreneurship by assumption.<sup>10</sup>

### **Rationality**

From a new institutionalist perspective, Furubotn and Richter (1997: 442) criticize modern contract economics on the grounds that it portrays decision-makers as having "... split economic personalities. They are perfectly informed about some matters yet completely ignorant about others". In others words, the agents that populate contract theory models are at most "part time bounded rational." The strong cognitive powers that are ascribed to agents in contract theory are perhaps particularly striking in the context of the literature on contractual incompleteness (Grossman and Hart 1986; Hart 1995). This is ironic, because contractual incompleteness is often taken to be a manifestation of bounded rationality (Williamson 1996, 1998). Formal incomplete contract theorists may perhaps flirt with bounded rationality – but they are not taking it seriously.<sup>11</sup> Not only are the agents in a contractual relation symmetrically informed; they are also assumed to be able to foresee the pay-offs from their relation, even if they don't know at all the physical characteristics of the good they are trading and even if unforeseen contingencies occur.<sup>12</sup> Thus, the parties to a contract can correctly anticipate the distribution of utility – although they cannot describe the sources of that utility. This sort of inconsistency is a reflection of the inconsistent assumption that agents are part-time bounded rational (cf, Furubotn and Richter 1997: 446).

### **Transaction Cost Idealizations**

It is possible to distinguish between complete and incomplete contracting theories on the basis of the kind of transaction costs that are considered. Thus, in complete contracting theories, the relevant transaction cost is the loss in welfare relative to the first-best that is caused by the cost of observing effort being infinitely large, while the costs of writing (complete!) contracts are taken to be zero. In incomplete contracting theories, on the other hand, there are no monitoring costs,

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<sup>10</sup> A contract theorist might adopt the defence that there are models of performance measurement (see Pendergast 1999) or models in which information search is explicitly featured (e.g., Aghion and Tirole 1997), and that one should just shift from a model with a completely uninformed principal to a model in which the principal is informed, for example, by a noisy signal. However, this amounts to defending one model characterized by suppressed margins by pointing to the existence of another model that exhibits the same feature.

<sup>11</sup> One notable exception is Anderlini and Felli (1994).

<sup>12</sup> Of course, the motivation for this assumption is that otherwise the whole theory threatens to fall apart. As Moore (1992: 180) comments: "If parties cannot foresee certain events, let alone anticipate how surplus would be divided in the event of renegotiation, then how is this likely to affect the size and nature of their specific investments?." However, Maskin and Tirole (1997) point out that there is a tension between the assumption of dynamic programming and the presence of transaction costs. If agents can in fact perform dynamic programming, then transaction costs (of describing actions or the nature of goods in advance) will not restrict the set of outcomes that contracts can implement.

while the costs of writing complete contracts are infinitely large. Thus, the two theories are extreme mirror images with respect to the transaction costs they consider. However, a problem is that the solution to contractual problems proposed within, for example, complete contracting theory may not be robust to the inclusion of assumptions from incomplete contracting and *vice versa*. For example, it may then well be that the costs of drafting the complete, second-best contractual solution to the principal-agent may be so large that they swamp the benefits of doing so. In the next few paragraphs, we consider, among other things, the opposite case, namely that of introducing explicit monitoring costs into incomplete contracting models, specifically in the new property rights perspective (Grossman and Hart 1986; Hart 1995).

### **Property Rights Idealizations**

According to the new property rights perspective, ownership rather than contractual means, may be solutions to problems of asset specificity. More specifically, ownership should be associated with the residual right to decide over asset uses in those situations that are not covered by contract (hence, contracting is incomplete). The value of ownership derives from its being a bargaining chip in these situations, because it is common knowledge what is the value of (human and physical) assets in alternative (second-best) uses. The interest centers in finding those allocations of ownership that maximizes surplus.

However, many of the specific claims and implications are dependent on the suppression of some margins that would be relevant to real-world decision-makers. Most fundamentally new property rights theorists consistently do not make the important distinction between legal rights and economic rights. Barzel (1994: 394) provides a convenient summing-up of the economic concept of property rights<sup>13</sup>:

... as an individual's net valuation, in expected terms, of the ability to directly consume the services of the asset, or to consume it indirectly through exchange. A key word is *ability*: The definition is concerned not with what people are legally entitled to do but with what they believe they can do.

"Ability" thus refers to, among other things, the costs and benefits of monitoring and enforcing one's rights. Clearly, ability in this sense may exist in different degrees to different decision-makers. In fact, there is likely to be a continuum of abilities, as determined by, for example, the exercise of entrepreneurship in the development of enforcement technology, contractual solutions and so on.

The issue of a distribution of abilities does not arise in the new property rights approach, since ability is perfect or it is not existent at all. Specifically, residual rights of control (which are equated with ownership rights) are supposed to be completely backed-up by the legal system, including the courts (thus resulting in

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<sup>13</sup> Earlier, Mises (1936: 27) pointed out that ownership refers to "the power to use economic goods", that "... ownership is the *having* of the goods which the economic aims of men require", and that "... the economic significance of the legal *should have* lies only in the support it lends to the acquisition, the maintenance and the regaining of the natural *having*".

full abilities). However, other rights are assumed to be completely outside the reach of the courts; otherwise there wouldn't be any hold-ups, inefficient investment, etc.<sup>14</sup> It is therefore not recognized (in the model) that no property rights are fully enforceable, and that rights are enforceable in different degrees, for example, because of different monitoring (Barzel 1997). Thus, some margins are suppressed in the new property rights theory.

In fact, appropriation of rights will take place *whenever* there are costs of detecting appropriation, of taking precautionary measures against appropriation, and of verifying that appropriation has taken place to a third party. This means that solutions may change if one "frees" some of the margins that are suppressed in the model. For example, elsewhere we begin from the setting normally considered in the new property rights approach – namely a bilateral contracting setting with unverifiable human capital investments and complementary physical assets – and opened a margin by allowing the contracting parties to choose how much *care* they want to exercise when they operate the physical assets in the relation (Foss and Foss 1999). In this case, it may sometimes maximize joint surplus if the agent whose human capital investments matter *least* to joint surplus is given ownership rights. This is because giving him the ownership to the asset improves his incentives to treat it in a careful way, and thus eliminates the need for monitoring. The resources saved on reduced monitoring may swamp the loss from a hold-up.

## Concluding Comments: Entrepreneurship and Economic Organization

In this paper, we have applied a what we think is a basic worldview shared by Austrians and new institutionalist economists to modern contract theory. More specifically, we asserted that whereas Austrians and new institutionalists begin from a view of the economy as fraught with ignorance and transaction costs, and ask how many simplifying assumptions and idealizations are necessary for grasping the essence of some phenomenon, modern contract theorists begin from the polar opposite, namely in the competitive equilibrium model, and gradually introduces more and more relaxing assumptions. The latter starting point leaves no room for entrepreneurial activity, if not logically, then at least as a practical consequence of this modeling approach. However, leaving out the entrepreneurial function is not without unfortunate consequences. Thus, it blinds the analyst to the alternative routes of action that would be open to real-world decision-makers placed in seemingly comparable situations.

Although discovery, learning, etc. are pervasive and essential aspects of real-world behavior, models that abstract to some degree from these are not necessarily and for all purposes invalid. However, they are likely to mislead the analyst, as a

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<sup>14</sup> However, no basic reason is given for why ownership rights are fully enforceable in court whereas some contractually stipulated rights are not.

long, largely policy-oriented, debate on public goods, externalities, share-contracting, etc. has revealed. In the positive dimension, theory can suppress margins and entrepreneurship to such an extent that it provides a one-sided and lop-sided view of contractual arrangements, including the firm. For example, ownership is only seen as a matter of supplying agents with bargaining chips. However, ownership may arise for many other reasons, some of them speculative. Thus, an agent may acquire ownership rights to some asset because ownership confers flexibility advantages in the face of transaction costs that have nothing to do with the hold-up threat. Or, an entrepreneur may acquire ownership rights to some asset, because the contract law prohibits him realizing speculative gains (caused by movements in relative prices) from the unspecified quantity clauses of some long-term contract. However, in the context of modern contract theory, these possibilities are not investigated, since here

... there is no room for the entrepreneurial discovery process not only in the sense that no opportunities for pure profit can possibly exist, but also in the sense that the model precludes all Knightian uncertainty that might affect the character of the individual decision (Kirzner 1997: 70).

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