IN SEARCH OF THE EMINENT DOMAIN OF ECONOMICS IN THE MODERN THEORY OF THE FIRM

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Even if the name of Ronald Coase is inseparable from the modern theory of the firm, for long the economic profession was modest in claims over this theory, placing the emphasis elsewhere. After some references to circumstantial evidence for being modest and some observations on the legal character of this theory in comparison to previous economic theorizing on the object, the paper presents an attempt at integrating to this theoretical body some traditional economic material in the areas of theory of value and theory of comparative economic system. The paper concludes with some comments on firm existence argument of this modern theory.

(April 2003, an earlier version of this conference was presented at Canadian Law and Economic Association (CLEA) meetings, Faculty of Law, University of Toronto, September 2002)

I. MAINSTREAM ECONOMICS UP TO THE 90’S

There is now a vast literature on the theory of the firm. As it has been pointed out by many authors, Coase(1937)’s “The Nature of the Firm” stood with little company and little recognition or criticism in economics until the 70’s. Thirty years later, in 1968, no reference to this paper could yet be found in the International Encyclopedia of the Social Sciences, either under the heading “Firm, theory of” which presents a short synthesis of price models by J.N.Wolfe or under the heading “Corporation” written by E.Mason and which comes close to Coase but remains wholly historical and institutional. Even in the area of Industrial Organization, where one could have expected a natural interest in organizational matters, this criticism hold. For instance, the book of
F.M. Scherer, a basic reference on the literature in I.O., did not have a single reference to Coase, even in its 1979 edition. The same could be said of the whole area which came to be known as microeconomics or price theory.

For instance, Friedman (1976) *Price theory* recognizes the difficulties of seizing the concept of firm but does not refer to Coase (1937)’s or earlier contributions on the subject by Berle and Means (1932) while Varian (1977) *Microeconomic Analysis*, widely used in graduate economic programs at some point, takes the existence of firms wholly as given in the first chapter titled “Theory of the Firm”. The same observations can be made with respect to Silberberg (1978) *THE STRUCTURE OF ECONOMICS A Mathematical Analysis* or Ferguson and Gould (1966) *Microeconomic theory*. These popular textbooks, representative of the curriculum in microeconomic courses of 60’s, 70’s, and 80’s amounted to a large extent to a restatement of Part I of Samuelson (1955) *Foundations of Economic Analysis*, identifying firms with cost curve and identifying theory of production with principles of decision making regarding choices of inputs and levels of output, these principles being exposed as calculus optimal solutions. In this context, Alchian and Allen’s *Exchange and Production: Competition, Coordination, and Control* (2nd., 1977) presenting a rationale for the existence of firms right at the beginning is an exceptional book, a few decades ahead of its time.

Welfare economics, also part of this curriculum, could have provided some rationale for the existence of private firms but as pointed out by Nelson (1981), welfare economics has been at the basis as much aloof from organisational matters as the rest of the theoretical body exposed in these textbooks and was neither a place of recognition for Coase’s other classic contribution, “The Problem of Social Cost”. The same orientation in contributions emphasised and contributions less emphasised or ignored is found in history of economic theory presented at the time. For instance Spiegel (1971)”s extensive work, *The Growth of Economic Thought*, or the shorter synthesis by Dehem (1978) *Précis d’histoire de la théorie économique*, has no entry on R.Coase and while F.Hayek is acknowledged as notable economist, his essential contribution *The Use of Knowledge* (1945) on the analysis of constraints in the organization of economic activity, or broadly speaking, the theory of the firm, is not singled out.

The winds of changes bringing organizational considerations within textbook exposition of theory of production can be observed from late 70’s, early 80’s. For
instance, Hirshleifer (1980) publicizes in the following terms his teaching material innovations for the 2nd edition of *Price Theory and Applications*, drawing a parallel between the role of money and the role of firms: “This book contains a number of textual features intended as improvements upon conventional treatment of microeconomics: …In Chapter 8, the analysis of exchange as actual (and therefore costly) economic activity provides the foundation for understanding the function of monetary commodity. Similar reasoning serves in Chapter 9 to explain the existence of the business firm as another institution called into being by the costliness of exchange” (p.XIII).

Besides Industrial Organization, the area which has come to be known as Managerial Economics could have been a likely candidate to bring organisational considerations in the teaching of economics. But as for instance Douglas (4th ed. 1992) *Managerial Economics / Analysis and Strategy* or Salvatore (2nd ed. 1993) *Managerial Economics in a Global Economy* indicate, managerial economics has focused on economic concepts and methods most likely to be useful in demand forecasting, for instance econometrics, in cost estimation, capital budgeting, and to some limited extent pricing decisions. But it has left out considerations on organisations and on the role of firms and by extension, on the role of those who manage them. It is no surprise that economics, frequently, has become peripheral in the curriculum of business programs. This is a very expectable outcome in light of Demsetz(1988)’s observations. After characterising the theory of perfect competition and the related theory of price as a theory of perfect decentralisation, he points out that the firm in this theory is “simply a rhetorical device adopted to facilitate discussion of the price system. Tasks normally to be expected of management are given only the most superficial, formal discussion; … The real tasks of management, to devise or discover markets, products, and production techniques, and actively to manage the actions of employees, has no place in the perfect decentralisation model because it assumes that all products, markets, production techniques, and prices are fully known at zero cost.”

One had to wait for Milgrom and Roberts (1992) *Economics, Organization & Management* for a full synthesis of economic theory on organizations and the role of firms, going back to the classics like Knight and integrating the fundamental contributions of Coase and Hayek on the subject.

As a way to salute and assess the new perspective in the teaching of economics introduced by Milgrom and Roberts path breaking text and by three other ones published in the years which followed, Acs and Gerlowski (1996)
Managerial Economics and Organization, Besanko, Dranove and Shanley (1996) Economics of Strategy, and Brickley, Smith and Zimmerman (1997) Managerial Economics and Organizational Architecture, a session on Teaching on Business Economics chaired by Ronald Coase, was organized at the AEA meetings of 1998 in Chicago. It is worth emphasizing the very different perspective in the application of economics put forward in these books, comparatively to previous ones on managerial economics. While the previous generation of books was focusing on computation tools to give specific answers, the new generation moves, so to speak, one level of abstraction higher and discuss how do we empower and motivate the most potentially informed agents to take actions for the greater benefits of all. The stool analogy used by Brickley et al. to represent the conceptual framework of their book is a striking figure capturing the essence of this new perspective.

While new to the area of managerial economics, this perspective was not pervasively new. In the field of “new” law and economics, in the sense defined by Posner a few decades ago, a distinction can be made as in the two previous levels of abstraction between on one hand James Meade view on externalities and the implied tax value and, on the other hand, Coase analysis and its implication on the assignment of property rights for an optimal empowerment of the private parties likely to face externality problem. Barzel(1997)’s discussion of the conversion of the North Sea into owned property, for instance, illustrates how a clever definition of property rights can stimulate economic activity, contributing positively to human welfare.

II. The subject matter of economics

Some legal perspective

Broadly speaking, one might say that the subject matter of economics is the reconciliation of means and ends. More specifically, it is how the means which are limited to fixed quantities at any point of time will be allocated among ends which are not as much limited, in other words, how the scarcity problem will be managed. While some needs can be qualified as more basic than others, once some first order needs are satisfied, other needs are expressed. This basic idea is captured on Figure 1 by a finite set representing the amount of resources available at any given point of time and by some kind of fuzzy set with expanding rings representing needs. In this set representation, the subject matter of economics amount to the selection within the set of needs of the subset to which the limited
resources are allocated. The function of an economy is to generate this allocation. Resources and needs are in continuous evolution and the function of an economy is to act as a process of allocations. The economy is represented on Figure 1 by an arrow connecting the set of resources with the set of needs.

In the same way that any object can be defined both by what it does and by what it is made of, the economy can also be defined by what it does, allocating resources to needs, and by what it is made of.

An hermit has to allocate his time and other resources at his disposal in order to fulfill his needs but the analysis by an observer of this process of allocations is either trivial, or tricky in the sense that some needs may short-circuit some resources and the two become indistinguishable, time in contemplation and prayers for instance. The same could be partly said of an household in relation to household’s resources allocated for its own needs. Different analytical issues are raised by resource allocations requiring social interactions. It is what the firm is all about and the household is, in spirit with Toulmin (1961)’s methodological prescription, a good paradigm to seize the scope of it. Although the notion of production has more to do with technology and engineering than law or economics, it can be a useful notion for proceeding intuitively. Production can be broadly defined as activities performed to fulfill some human needs and it is proposed for current purposes to substitute to the Coasian paradigm of pervasive transaction cost, the pervasively self-sufficient household as illustrated in some historical accounts. It is the paradigm of Demsetz specialization theory in which productions associated with firms are productions for others. In the broad context of production for others, there are two basic analytical issues. First, how specific needs or the availability of specific resources are revealed. Secondly, how this revelation direct resources among competing needs or, in other words, how people with resources at their disposal, by ownership or through other means, for instance as agent, direct these resources to the satisfaction of others’ needs.

It is now claimed that with respect to allocations in a social context, the economy can be defined as a set of rules and the firm as a subset of rules. It is worth touching base with more tangible things in order to capture the meaning of this definition.

One could define a firm by what can be seen or heard: buildings and machinery, people working for the firm and the clientele of the firms. This definition, however, has a problem as the firm, then, is not a distinct concept from the notions of resources
and needs represented in Figure 1; it can be identified with two subsets. From the set of resources, a first subset gathering the assets of the firm and the working time of his employees plus some portion of the resources of other firms from which it buys goods or services. From the set of needs, a second subset corresponding to some of the needs of the clientele buying the output of the firm. Definitions of an economy in some standard textbooks suffer from similar shortcomings. For instance Parkin and Bade (1991) *Microeconomics*, a textbook very much in the pre-1990 tradition, argues that an economy is made of two categories of elements, first, decision makers distributed among three categories, households, firms and governments, and secondly, mechanisms for the co-ordination of decisions, the two main mechanisms being markets and planning. Again, households are equivalent to subsets of needs and of resources. Firms, one must infer, are also assimilated to such subsets as the authors overlook the co-ordinating role a firm may play.

Defining an economy and a firm as a set or a subset of rules make these concepts truly distinct from the ones of resources or needs. The notion of rule refers to behaviour. Broadly speaking, a rule can be seen as a restriction or a boundary or a limit between some desirable or acceptable behaviour on one hand and unacceptable behaviour on the other hand. Or almost equivalently, a rule can be seen as a boundary between likely behaviour and unlikely behaviour. A simple example is the rule forbidding crossing at a red light. In a urban context with almost continuous traffic, it makes for every driver the behaviour of other drivers more predictable in circumstances, the crossings, where this behaviour can cause serious losses. Without this kind of rule, one should, for minimal safety, stop at every crossing, and if another driver happens to come at the same time, both drivers should find a way to communicate in order to decide who should go first.17 In other words, there is a continuous flow of competing uses for the crossing and the rule facilitates the allocation among these uses. Loosely speaking, the crossing is analogous to a potential gain from trade, the rule along with the set of traffic lights reduces transaction costs, turning competition for the use of the crossing into co-operation over its use. By reducing the amount of resources which would otherwise be consumed, the rule increases the net benefits of going from point A to point B or of having some goods moved between these two points.

Similarly, rules instituting the notion of property over land set a boundary between likely behaviour and unlikely behaviour. Without these rules, potential users of a same square mile of land will face similar problems as previous drivers coming at a crossing. They have to communicate and decide how it should be
used. Net benefits which could flow from some use of this square mile of land may never materialise as there can be a substantial amount of bargaining and even some fighting. This same point can be restated by considering the likely decisions and state of mind of some current user of the square mile of land. Without the rules, they tend to spend more resources than otherwise in order to prevent other people using it and they will also tend to commit less resources than otherwise for benefits likely to materialise only in a distant future. In other words, without the rules, more resources will be consumed for making and maintaining a given allocation of the square mile of land and therefore less resources will be left for generating benefits from it.18

One can imagine that the range of possible actions for an individual goes from minus infinity to plus infinity. Rules of behaviour ingrained in an individual through family education, religion, socialisation and social norms amount to reduce the probability of certain actions by this individual.19 Figure 2 represents this simple view. One could identify each category of actions with a natural number
along the infinite line. Instituting rules of behaviour amount to bring as close to zero as possible the probability that actions taken fall in categories outside a given interval $SB$ (for socially beneficial). Credibility about the adoption of these rules by an individual reduces the sense of uncertainty someone else bears in interacting with or being nearby this individual.

Defining economic activity by resource allocations requiring social interactions makes economic activity a particular type of social activity. The state of scarcity represented in Figure 1 means that for any known resource, there will always be competing uses. But how do these competing uses most frequently manifested themselves in our current social environment? The previous example with a square mile of land is striking as it compares two situations: one with property right to one without. It is not however wholly representative because once the land is allocated, economic activity could stop if the competing users are a collection of hermits. Very frequently, allocations involve resources with relatively well defined property rights or with agents with relatively well defined decision rights over their uses. But the square mile example is, indirectly, very illustrative of the issue.

The benefits from specialisation, which necessarily implies production for others, is a gain from trade or association. This gain is exactly equivalent to the above square mile of land before the definition of a property right. The price and other terms of association or trade through which this gain materialises is equivalent to the property right over the square mile of land. *The price(or proxies) as a
balancing act between the trading or associating parties competing over the gain of exchange is the rule of their interaction. Resources’ owners as well as clients meeting at firms perform economic activity, that is, achieve gains from association or trade by agreeing on terms of exchange, that is, through private law making. In doing so, they are assisted by more general laws like those pertaining to consumer protection, labour relations, investors’ protection, or pertaining to special events like insolvency. In connection with Figure 2, these more general laws act as outer boundaries while the rules defining a given firm and particularly prices are more thinly defined boundaries. 20

At this level of generalisation or from the current perspective, there may not be a substantive difference between a firm and a market. Both are made of rules, arrived at through bargaining or more defined procedures as for instance the Dutch auction procedures which generate the terms of trade among participants in the Canadian tobacco agricultural market.

SOME HISTORICAL PERSPECTIVE

The origins of trade are lost in the mists of time and there is some analogy between trade expeditions in the Antiquity and modern firms specialising in the importation of exotic products. The span of time and the area considered here are more modest: Western Europe from the Middle Ages. Only a very small percentage of total population was urbanised before the industrialisation. The majority of people was part of large, mostly self-sufficient, rural estates. There was some specialisation within each estate as various artisans were juxtaposed to agricultural labour. Considerations on asymmetric output distribution aside,
needs of people of an estate were met by its production. In this respect, these estates are more the ancestor of contemporary households with their non-tradable production, and the ancestor of the modern firm must be searched elsewhere.

Artisans, like those in rural estates, were also met in cities. But the shop of these urban artisans and modern small manufacturing businesses are two worlds apart. The relationship between a shop and the rest of society as well as among people within a shop were highly codified by numerous rules including prices and interactions with buyers. Once someone has gone beyond the tangible, distinguishing a firm from the resources it is associated with, the nature of the modern firm has more in common with the making of these rules than the shop itself. This view of the firm as a regulating body is also defended by Mason (1968) in his short essay on the corporation. After pointing out that the formal attributes of a corporation would compress it “as a historical and developing institution into too narrow a mold”, observing that corporation was known in England as early as the Norman period, Mason argues that “insofar as business activities were involved, the emphasis was not on common stock, but rather on the regulation of the affairs of a group of craftsmen or tradesmen. To this end, the incorporated guilds developed effective internal legislative, judicial and executive instrumentalities, …functional or territorial monopoly were frequently claimed by these guilds.”

At the time of the proto-industrialisation, various guilds of artisans were confronted to competition as some merchants developed a putting-out system, involving rural labour. Some antecedents to this activity of these merchants can be traced back to the fairs of early Middle Ages which, besides trade expedition were privileged moments of trade activity. Empowered with authority by local lords, fairs became rapidly institutions of private law making, defining the terms of association and exchange of participating parties. Merchants of the putting out system, who prefigure manufacturers of the Industrial Revolution, can be viewed as one more step in the decentralisation of rule making pertaining to the generation and the distribution of the material benefits of social life.

III. INTEGRATING STANDARD ECONOMICS TO THE THEORY OF THE FIRM

If the concept of firm is to be of any analytical help in understanding how societies manage the problem of scarcity, it must be identified with something else than elements identifying the concept of resources already introduced and represented in Figure 1. Under this premise, previous considerations on rules aimed at defining
Defining the composition of a firm by a set of rules makes the firm some kind of private law generating unit. But why do we need firms, what is it good for?

With specialization and production for exchange, a vast network of exchanges is required to satisfy human needs. Aside from barter, money is needed for accessing resources and products and the monetary or social value of these resources or products is a primary concern for all, as seller of resources as well as buyer of finished products. Production in the context of specialization or generally speaking the production of firms, by opposition to household production, is associated with actions generating this kind of value.

But the firm, strictly speaking, does not produce. For instance, furnitures supplied by a firm classified in the furniture industry are put together by cabinet-makers, painters and other workers on the factory floor. Beside these very tangible contributions of its workers, what is the contribution of the firm in generating value?

A GROWING DISTANCE BETWEEN RESOURCES AND NEEDS

Since Adam Smith at least, examples have been given and demonstrations have been made of how division of labor or greater task specialization can make human efforts more productive. With division of labor and higher scale of production, however, resources including labor itself on one hand and human needs on the other tend to be further apart. This notion of distance is not only geographical, but temporal and informational as well.

As production becomes more specialized, the variety of resources along with the production system involved in fulfilling the needs of a given set of people get larger and larger. First, the whole system cannot stand in one location or be replicated in as many locations as there are communities. Secondly, with income increases, easier communications, travelling and immigration, local and traditional means to fulfill basic needs tend to be replaced by more diversified products, including exotic ones, for instance bananas grown in equatorial regions entering the daily diet of northern populations. This illustrates the growing geographical distance separating resources and human needs. It is temporal. For instance, a car bought today by a household has required human resources six months earlier along the assembly line and other resources were also required at a more distant past for the
conception of the car model, for the construction of the building housing the assembly line, and for the manufacturing of the numerous pieces of equipment which composes the assembly line. These geographical or temporal distances are equally informational as it involves knowing as many relevant options as possible and choosing among them.

More specialization also means a growing distance in all dimensions, geographical, temporal and informational, in terms of the dispersion among physical characteristics of products, either final, semi-finished products or raw, handled by the production system. To develop further the example with cars, it used to be produced primarily with steel and now a greater proportion of plastics and light metals like aluminum are combined with steel; similarly a growing proportion of electrical and electronic components are combined with mechanical devices which used to constitute most of the moving elements of items like diesel engines.

It is apparently contradictory to talk about a growing distance among resources and needs while international economic integration, a hot topic these days, is perceived as something bringing everyone closer. Specialization implies that resources need to travel over a growing distance to meet needs. The popular perception of getting closer because of economic integration comes from a confusion with easier communications and also with being more dependent. This dependency needs to be qualified as one may easily falls into another contradiction. Specialization makes communities and regions more dependent of each other while at the same time one becomes less and less dependent of one particular producer as specialization and integration increase the number of close substitutes. As pointed out by Stigler (1981) *The Economist and the Problem of Monopoly*, trade liberalization is a program to reduce the power of monopoly.

**SOURCES OF VALUE AND THE CONTRIBUTION OF FIRMS**

Specialization and production for others imply that needs will be satisfied through a vast network of exchanges. The objective of production, beyond tangible or less tangible actions, is to generate monetary value within this network. Tangible things suggest there is a great diversity of firms in the economy, for instance a grocery retailing fruits and vegetables and a gear manufacturer or a retailer of furniture and a furniture manufacturer seem to be very different firms. Is there a common denominator among these firms which could them make fit whatever can
be said in a theory of the firm. Debreu (1959) *Theory of value* proposes a classification of products which helps circumscribing such a common denominator.

According to Debreu’s classification, a product is from a value point of view fully characterized by its physical characteristics, its date and its location. The possible values of these variables can be seen as defining a space in many dimensions, one for the date, two for the location and millions of dimensions for the physical characteristics. Given the tastes, the income and the geographical distribution of populations, some physical characteristics, some date and some location are more valuable than others. For instance, a cord of fuel wood is more valuable in the hardware store of a large Northeast suburb in January, when the temperature dropped to minus 20, than in July in the woods where it has been cut, at a hundred miles of the city, and before it has been dried.

Firms contribute to value creation by helping to the movement of products, within the above many dimensional space, towards spots of higher value. The manufacturing firm moves a product along the physical characteristics dimensions by changing some of its characteristics, while the retailer moves a product in space by having it moved from a distant manufacturer to its warehouse and moves the same product in time, in other words changes the dates, by holding it in inventory, which is the means to change its date. The service firm acts similarly in order to generate value but without the temporary ownership of the object whose characteristics are changed for instance mechanical maintenance firm in case of business services and a dry cleaner or a beauty salon in the case of personal services.

The vast network of exchanges making production for others a viable solution to the scarcity problem is animated by millions and millions of exchanges. For instance, it can be between a given firm and any of the resource owner (employee, banker, supplier, ...) or any of the client transacting with it. For anyone of these exchanges or transactions, there will be two trading parties. With barter, the two are symmetrical but with money, one can be identified as the buyer, offering money in exchange of a product and one can be identified as the seller, doing the inverse. Given other accessible means for satisfying a particular need, there will be in the mind of the buyer a maximum price, the *Reservation Price of the Buyer* (*Pr-b*), measuring the value of having the need satisfied with the product or resource offered. The buyer will not be willing to transact at a price above this value. Given other opportunities to sell or other potential uses, the seller of the product or the owner of the resource will also have in mind a minimum price, the *Reservation
Price of the Seller ($Pr-s$) or in other words the opportunity cost. The seller will not be willing to transact at a price below this value.

If $Pr-s$ is higher than $Pr-b$, there is by definition no possibility of agreement on a transaction price or terms to trade between the two parties. If $Pr-s$ is lower than $Pr-b$, the positive quantity given by ($Pr-b$ minus $Pr-s$) measure the benefits to trade and any value in the interval between the two reservation prices is potentially a transaction price or acceptable term of trade as it leaves some portion of benefits to each party. This last scenario is pictured in Figure 3. In the context of a production for exchange, the economic well-being of people derives from potential benefits to trade, as in ($Pr-b$ minus $Pr-s$), materializing through transactions. In this same context, economic activities, as distinct from more tangible aspects associated with it like the tasks of a factory worker on the assembly line or the carriage of a good over some distance, are these transactions as they carry resource allocations.

A positive value of ($Pr-b$ minus $Pr-s$) is a necessary but not a sufficient condition. As well discussed in the transaction cost literature, each transaction carries some costs, which could be designated in general terms as the Cost of Exchange ($C.E.$). The most tangible example is transportation cost if buyer and the seller are at some distance from each other. Less tangible examples are information costs in order to find each other and negotiation costs in order to come to agree. If ($Pr-b$ minus $Pr-s$) is greater than $C.E.$, then potential trading partners are left with some net benefits and a transaction could materialize. Figure 3 has pictured two scenarios, one in which the cost of exchange is prohibitively high ($P.C.E.$) and no transaction can occur and one in which the cost of exchange is not prohibitively high ($N-P.C.E.$). At this level of abstraction, the state of an economy could be pictured by a set containing millions of figures similar to Figure 3, this set being divided into two subsets, one composed of figures with $N-P.C.E.$, which identifies in trading terms the space under the production possibility frontier in introductory economic textbooks (SB1), and another subset (nearly infinite) composed of figures with $P.C.E.$ (SB2).

In terms of Figure 3, more productive human efforts achieved through specialization translates into lower $Pr-s$, which tends to make ($Pr-b$ minus $Pr-s$) larger than otherwise and would tend to make SB1 larger at the expense of SB2. But as pointed out above, specialization implies that resources and needs are further apart and this greater distance is geographical and temporal as well as informational.
For many of the situations in which specialization makes a larger \((\text{Pr-b} - \text{Pr-s})\), the associated cost of exchange will also be larger. This moves the boundary between SB1 and SB2 in the opposite direction.

If one is willing to view the firm as an intermediary managing the cost of exchange more efficiently than potential traders themselves, **Figure 3** can be interpreted as a one-dimension version of Alchian and Allen’s two-dimension graphs accounting for the role of firms. By reducing the cost of exchange, firms contribute to economic activity as scenarios originally in SB2 move into SB1. Is there a way to make this contribution of the firm even more specific?
Even with respect to ingredients of the cost of exchange, for instance transportation services or services of a purchasing agent or of a salesman searching for a new clientele, the situation is still one similar to Figure 3. Although the buyer may not be a consumer but an agent representing it, let’s say a retailer, and the seller may not be a resource owner but an agent of it, the main elements at stake will still be, first, the actual size of (Pr-b minus Pr-s), since nobody carries reservation prices on a posted sign, and secondly, its partition between the two trading partners. Each of the millions and millions of (Pr-b minus Pr-s) in SB1 is the analog of a productive square mile of land for which no property right is defined. The millions and millions of scenarios like in Figure 3 representing the state of the economy are as many situations calling for a referee balancing the interests of the potential trading partners so that the cooperation which is essential to the materialization of the benefit of exchange overcomes the struggle of each party to capture an as large portion of it as possible. This is what firms, it is suggested, are all about: private law makers. What was said about constitution and laws by Knight in one of the many prefaces to his multiple edition book *Risk, Uncertainty and Profit* seems to apply quite well to what firms do:

But the great bulk of social problems have to do with the ‘given conditions,’ the constitution and laws of which make society society, which fix the terms of co-operation and competition, and of association which is not primarily either. (And all three types are inseparably mingled in any problem situation).28

Scenarios as reported in Figure 3 are one-period scenarios. Sometimes benefits from exchange materialize over time and therefore are subject to some uncertainty. Trading partners discounting future benefits at a high rate will make Pr-b lower than otherwise if the partner is a buyer, or will make Pr-s higher than otherwise if the partner is a seller. This tends to make (Pr-b minus Pr-s) lower than otherwise and makes SB2 relatively larger. At the same time, it creates exchange opportunities between these trading partners and other partners discounting expected benefits at a lower rate.29 We do observe that many of the exchange benefits materializing through firms are of this nature.

Comparative economic system theory suggests another way to picture the role of firms. L.Hurwicz (1972) *Informationally Decentralized System* proposes to distinguish resources used substantively (Rs-u), in reference to resources satisfying directly a need, from resources consumed or required by the process of allocation, in other words the resources required by the operation of the economy as defined above. These resources are said to be allocatively used (Rall-u). If
we add to that the resources unemployed or not used (Rn-u), we have the whole set of resources as pictured in Figure 1. Figure 4 represents this set according to the classification. Following the argument presented above, it could be said that firms contribute to economic activity by making Rall-u et Rn-u smaller than otherwise, and Rs-u larger than otherwise. The subset Rall-u in Figure 4 may look large in proportion to the total amount of resources. Allocatively used resources can be assimilated to some extent to transaction costs broadly defined; Wallis and North (1986) estimate for the U.S. economy that the current size of the transaction sector was approximately one half of GNP in 1970.
Although some precedents can be found in the economic literature, particularly the work of Frank Knight, it took a few decades before the questions raised about the existence and the nature of firms by Coase were followed up in the main economic literature, which was at the time mainly concerned by the formalization of profit maximization and the optimal choice of inputs. There is, however, some more fundamental considerations than methodology for this lag.

Before searching for optimal solutions to well defined problems, something which can be assimilated to the numerous tasks addressed within the firm by mathematicians and programmers, the firm is in the business of making rules. It is through transactions and exchanges that the benefits of a more productive human effort coming with task specialization are achieved. The benefits from these transactions are like a productive square mile of land up for grab but with the constraint that for the land to be productive those grabbing it must share it.

The allocation of resources, or in other words private law making by the firm, or in other words, economic activity in the context of specialization, consists of continuous definition and partitioning of property rights over gains from exchange so that transactions and exchanges can materialize.

In the current economic literature on the theory of firms, there is a large concern with defining the boundaries of the firm. This falls very much in the logic of a proof by induction of the existence of firms. If transaction cost propositions are true for one firm and if they are true for \( n+1 \) firms whenever they are true for \( n \) (the “contracting out” argument), then it is true for all \( n \). But once it is recognized that the main function of firms, as a place of association and exchange, is to generate terms of association and exchange which rule interactions among parties, the frontier between firms and markets becomes very fuzzy. Because it is in the essence of markets, for instance commodity markets operating for many agricultural commodities as varieties of wheat, corn, beef, …, to generate terms of exchange. Furthermore, there are many substitutions between functions attached to a firm and markets. For instance, firms supplying products for which there are future or term markets do not spend a lot of money on marketing in order to know what the needs are and how their product can be a good fit for these needs. Future markets give a very credible answer as they can sell their production in advance at a known price.
REFERENCES


“Teaching the Concept of Firm with Debreu and Leontief”. Cahier de recherche 01-11, Institut de recherche sur la PME, Université du Québec à Trois-Rivières, 2001


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NOTAS

1 Putterman and Kroszner (1996) The Economic Nature of the Firm. A Reader gathers the most significant contributions. In the introduction, the authors comment the major developments in the area and their book comes with a sizable bibliography.

2 One can appreciate the evolution which has occurred in the area by comparing Scherer’s book with the more recent one of Carlton and Perloff in Industrial Organization (I.O.), and which devotes a whole chapter, among its first ones, to the theory of the firm.

3 More precisely, Friedman (1976) comments in the following terms: « So far we have taken the notion of a firm for granted. This notion is surrounded by difficulties, and a thoroughly satisfactory definition of a firm or a thoroughly satisfactory theory explaining the determinants of the number or structure of firms does not exist. » (p.103) Friedman refers to Knight (1921) Risk, Uncertainty and Profit but to argue over the distinction between objective and subjective probabilities and to announce his preference for L.J. Savage on this matter.

4 Some exceptions can be found. For instance, Layard and Walters (1978) Microeconomic Theory, a possible substitute for Varian referred to above, had within the chapter on « Cost, Supply, and Competitive Equilibrium », a short section titled « The Nature of the Firm » including an explicit reference to Coase’s article.

5 Samuelson, in its own basic textbook, Economics (11th, 1980), has some observations which tend to put the logical structure of his Foundations into a broader perspective. For instance, although he separates the discussion of economic organisation from the discussion of business organisation, this last discussion being very descriptive and offering no rationale for the existence of firms, he acknowledges there are “thousands of different production functions in the American economy: at least one for each of the innumerable firms or productive units”, and that “the firm is poised between two kinds of markets”: commodity and factor markets (p.501-502). About the thousand of different production functions, Friedman (1976) raises a similar point in his analysis of the relationship between supply curve and cost curve and the “entrepreneurial capacity”. Samuelson refers also to the debate on socialism between O.Lange et al. on one hand and Mises on the other, reporting Hayek’s concern for informational and incentive problems in a centralized economic system.

6 Some organizational considerations can be found, but it is marginal like the one page section in Salvatore (1993) on « Reason for the Existence of Firms and Their Functions », accounting for the existence of firms by the inefficiency for entrepreneurs to enter into contract with labor and capital « for each separate step of the production and distribution process » and identifying the function of firms with the purchase of inputs to transform them into goods (p.9). Douglas (1992)’s allusion to organizational considerations is contained in a one-page section on the principal-agent problem.

7 Demsetz (1988), The Theory of the Firm Revisited, p.143. In the same context, Demsetz explains why the model of perfect competition and the related theory of price contribute little to our understanding of legal institutions: “Exchange is viewed as taking place without regard to problems of theft or fraud. The property right system, so important to the functioning of the price system, is implicitly assumed to operate costlessly in matters of exchange.”

8 It would not be exaggeration to say that this new generation of textbooks starting with Milgrom and Roberts’s one are very close to what Ph.D. graduates of the early 80’s confronted to the teaching of economics to business majors or business law students could have dreamed of for a decade. This teaching material can be even used at an introductory level if an explicit connection between the concept of firm and the simple notions of resources and needs is made.

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9 Posner opposes traditional economic analysis of the law, focusing on antitrust, taxation and utility and transportation regulation to the new economic analysis of the law, characterized by the « application of the theories and empirical methods of economics to the legal system across the board » (3rd ed., 1986, p.19). Again, Coase is given the center of the stage with The Problem of Social Cost.

10 An easily accessible synthesis of Coase’s contribution to the field of Law and Economics can be found in Friedman (2000), Law’s order what Economics Has to Do with Law and Why it Matters.


13 This allocation answers the three questions listed in standard introductory textbooks: what to produce, how and for whom.

14 The term “social interaction” is used here in a very broad sense, as interaction between any two members of society, not necessarily related otherwise as for instance family members. The use of the same term by Becker (1974) A Theory of Social Interactions is more specific.

15 For an historical perspective relevant in the context, to see Lamoreaux, Raff and Temin (2000).

16 In his first commentary on the economics of the business firm, Demsetz (1995) observes that: « The bottom line of specialization theory is that firms exist because producing for others, as compared to self-sufficiency, is efficient »(p.11).

17 From this perspective, traffic lights can be associated to a routine as emphasized by Hayek (1945) The Use of Knowledge in Society.

18 These comments follow a logic similar to Demsetz (1967) Toward a Theory of Property Rights commenting on the institution of property rights instituted by Indians in and around the Province of Quebec in the late seventeenth century following the development of fur trade.

19 As strategically self-inflicted wounds, education in general makes the individual more vulnerable among other species as well as other human beings. Because human beings have unlearned to bite at a very young age, a strong adult is no match for a weaker monkey half of his or her size. But it is the price to pay for making this individual an acceptable member of society, that is, a non too risky social partner for others and, more positively, a social partner with a basis upon which to develop cooperation.

20 Interpreting prices as a rule or a balancing act may appear to be a step backwards in the Middle Ages when the matter of prices was the concern of theologians addressing the issue of fair price. But this interpretation in connection with defining the nature of the firm does not imply that prices do not play also a co-ordinating role as emphasised in economics since Smith. See for instance Levy-Leboyer (1969) La vérité des prix.

21 Production of households, particularly services (cooking, cleaning, child care, maintenance, …), to satisfy directly their need remain significant. For young couple with kids, this production can represent easily half of their total working hours.


23 Western European fairs, particularly the foires de Champagne, are summarily described in H.Pirenne (1969) Histoire économique et sociale du Moyen Age.


25 Economic history since the Industrial Revolution is, in many respects, the history of local communities, originally very self-sufficient, contributing more and more to the welfare of other communities while becoming at the same time more and more dependent of these other communities for their own welfare.
26 As pointed out in the literature, tariffs are the analog of transportation costs in a simple trade model.
27 Alchian and Allen (1977) Exchange and Production: Competition, Coordination, and Control, Figures 2.2 to 2.4.
28 Knight, F. (1964 ed.) Right, Uncertainty and Profit.
29 A somewhat similar argument is made by Knight (op.cit.) when he talks about the redistribution of risk between owner-manager and employees.
30 One can relate the classification of L.Hurwicz (1972) with the concern of national account specialists distinguishing intermediate goods from final goods in order to have a better measure of the evolution of economic well-being.
31 Regarding the difficulties of operationalizing for measurement purposes the concept of transaction cost or, in reference to Hurwicz’s taxonomy, the concept of allocatively used resources, one may find useful to look into the comments of Lance Davis (1986) on Wallis and North’s estimates. It makes a direct link with some of the issues raised by Kuznets in national accounting (see note 30).
32 As for the concept of reservation price, the notion of allocatively used resources may not be easily amenable to measurement but is useful as part of a theoretical construct which allows a coherent interpretation of empirical phenomena.
33 On this matter,
34 With insolvency the firm loses its credibility to act as a law maker. It is no surprise that attempts to carry on insolvent businesses are delegated to court. First, because what a firm does is the continuous definition and partitioning of property rights over exchange and association benefits and because numerous exchange and trade opportunities materializing through firms are multiple-period opportunities. For an example of the application of this view of the firm, as a place of association and exchange, to the analysis of legal changes, see Papillon (1990) Recent Proposals to Reform the Bankruptcy Act: An Assessment.
35 See for instance, chapter 16 in Milgrom and Roberts (op.cit.).
36 On this point, see for instance “The firm versus the market: a false dichotomy”, in Y.Barzel (op.cit.), p.72-75.