Property Rights and Economic Theory: A Survey of Recent Literature

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As CRITICISM of the traditional theory of production and exchange has mounted in the postwar period, increasing attention has been given to new analytical approaches that seek either to supplant classical marginalism or to extend its scope. In the latter category is the important body of literature that has grown up around the notion of property rights structures. The contributions here are quite diverse in style and content but are characterized by a common emphasis on certain basic ideas concerning the interconnectedness of ownership rights, incentives, and economic behavior. The purpose of the present paper is to summarize the essential features of this line of research, examine some of its important areas of application, and discuss the promise the approach holds for improved understanding of economic problems.

I. *Extension of the Theory of Production and Exchange*

The "property rights" literature begins with the presumption that modifications must be made in the conventional analytical framework if economic models having wider applicability are to be developed. Thus, several crucial changes are introduced into the theory of production and exchange. First, an entirely new interpretation is given to the role of individual decision makers within the productive organization. The organizaion *per se* is no longer the central focus; rather, individuals are assumed to seek their own interests and to maximize utility subject to the limits established by the existing organizational structure. Second, account is taken of the fact that more than one pattern of property rights can exist and that profit (or wealth) maximization is not assured. By considering the effects of various possible property rights assignments on the penalty-reward system, detailed analysis of the interrelations between institutional arrangements and economic behavior becomes feasible. Third, transactions costs are recognized as being greater than zero in virtually all cases of practical importance. From a technical standpoint, these new ideas have straightforward application. The usual procedure is to formulate an optimization model that is analogous to, but in general distinct from. the traditional profit maximization case. In each instance, it is necessary to define the particular utility function that reflects the decision maker's preferences, and to deter-

mine the actual set of options (penalties–rewards) that is attainable by the decision maker. Then, the formal problem emerges as one of maximizing the utility function subject to the constraint imposed by the opportunity set. Of course, the usefulness of any such model depends on how skillfully the specification is made of the objective function and the opportunity set.

The rejection of profit maximization as the fundamental behavioral postulate explaining the actions of decision makers in the business sector represents a simple yet important step.[1] For, the shift to utility as the maximand opens up new possibilities for studying different patterns of managerial behavior, and permits greater insight into the operation of business firms in various socio-economic environments [1, Alchian and Kessel, 1962; 2, Alchian, 1965; 4, Alchian, 1969; 11, Averach and Johnson, 1962; 48, Furubotn, 1971; 49, Furubotn and Pejovich, 1970; 52, Furubotn and Pejovich, 1972; 83, Nichols, 1967; 90, Pejovich, 1969; 122, Williamson, 1964 and 123, Williamson, 1963]. This is so because regardless of the number, character, or diversity of the goals established by an individual decision maker, the goals can always be conceived as arguments in some type of utility function. And, as noted, the utility function can be maximized subject to appropriate constraints. Significantly, each decision maker is assumed to be motivated by self-interest and to move efficiently toward the most preferred operating position open.[2] It follows, therefore, that under the conditions envisioned, marginalism is not rejected; the standard techniques are merely extended to new applications [37, Crew, *et al*, 1971 and 60, Johnson, 1966].

To engage in something more than purely formal discussion the utility function must be given specific interpretation. Boulding's general comments on the "subjectivist" position make this clear.

> If the firm will sacrifice "profits" (no matter how measured) for anything else, whether prestige, or good public or labor relations, or a quiet life, or liquidity, or security, or what have you, then it is clearly not maximizing profits. And if it is not maximizing profits it must be maximizing "utility," which is simply a more elaborate way of saying that it does what it thinks best. This can hardly be untrue, but it is also not very helpful unless some content can be poured into the empty utility functions [20, 1960, p. 4].

Relative to this argument, the property rights approach can be understood as an attempt to formulate empirically meaningful optimization problems by associating the utility function with the individual decision maker and then introducing specific content into the function. In this way, it becomes possible to consider the behavior of the decision maker within the firm, government bureau, or similar collective agency. The other key idea in the analysis is that different property rights assignments lead to different penalty-reward structures and, hence, decide the choices that are open to decision makers. An important shift of viewpoint is evident here. Instead of treating the *firm* as the unit of analysis and assuming that the owners' interests are given exclusive attention via the process of profit maximization, the utility maximizing model emphasizes *individual* adjustment to the economic environment and seeks to explain the behavior of the firm and other institutions by observing individual actions *within* the organization. In effect, an analytical basis is provided for examining the linkage between the objectives of decision mak-

[1] The analysis has also been extended to include the behavior of the state. See [22, Buchanan, 1968; 24, Buchanan and Tullock, 1962; 38, De Alessi, 1969; 75, McKean, 1971; 84, Niskanen, 1968 and 85, Niskanen, 1971].

[2] The behavior of the firm (or other organization) is not interpreted in terms of the "satisficing" hypothesis that has been advanced by some authors who also reject profit maximization [109, Shubik, 1961; 110, Simon, 1959, pp. 265-66; 118, Vickers, 1968, Ch. 1].

ers and the particular strategies used to realize these objectives [123, Williamson, 1963, pp. 1033–40]. The presumption is, of course, that once human motivations are known, better understanding of the organization's allocation and use of resources becomes possible.

It is not difficult to accept the basic idea that "property rights" tend to influence incentives and behavior [35, Coleman, 1966]. The literature of the area, however, defines the concept of property rights with some precision and this special usage deserves comment. A central point noted is that property rights do not refer to relations between men and things but, rather, *to the sanctioned behavioral relations among men that arise from the existence of things and pertain to their use.* Property rights assignments specify the norms of behavior with respect to things that each and every person must observe in his interactions with other persons, or bear the cost for nonobservance. The prevailing system of property rights in the community can be described, then, as the set of economic and social relations defining the position of each individual with respect to the utilization of scarce resources.[3]

From a practical standpoint, the crucial task for the new property rights approach is to show that the content of property rights affects the allocation and use of resources *in specific and predictable ways.* For, without the latter assurance, there would be no possibility of developing analytically significant and empirically refutable propositions about the effects of various property rights assignments on the level and character of economic activity in the community. The essential assumption that systematic relations exist between property rights and economic choices lies in the background of discussion throughout the paper. At this stage, it is only necessary to emphasize one other point. Though sometimes forgotten, there should be no confusion about the fact that both trade and production involve *contractual arrangements;* these activities exist not so much to accomplish the exchange of goods and services but to permit the exchange of "bundles" of property rights.[4] Permission to do things with the goods and services is at issue.

The value of any good exchanged depends, *ceteris paribus,* on the bundle of property rights that is conveyed in the transaction. For example, the worth of a house to an individual will be relatively greater if the bundle of property rights acquired contains the right to exclude gasoline stations, chemical plants, etc. from the immediate vicinity of the house. It follows that the set of various property rights held over resources enters into the utility function of the decision maker. Consequently, a change in the general system of property relations must affect the way people behave and, through this effect on behavior, property rights assignments affect the allocation of resources, composition of output, distribution of income, etc. In the limit, one can say, as Alchian, that:

> . . . In essence, economics is the study of property rights over scarce resources. . . . The allocation of scarce resources in a society is the assignment of rights to uses of resources . . . the question of economics, or of how prices should be determined, is the question of how property rights should be defined and exchanged, and on what terms [3, Alchian, 1967, pp. 2–3].

This paper is concerned primarily with the effects of private property rights and state ownership on the allocation and use of resources. The right of ownership in an asset, whether by a private party or the state,

[3] Roman Law, Common Law, Marx and Engels, and current legal and economic studies basically agree on this definition of property rights.

[4] Excellent discussion of the importance and content of contractual stipulations are found in S. Cheung [28, 1970] and S. MacCauley [66, 1963].

is understood to consist of the right to use it, to change its form and substance, and to transfer *all rights* in the asset through, *e.g.*, sale, or *some rights* through, *e.g.*, rental. However, even though this definition suggests that the right of ownership is an exclusive right, ownership is not, and can hardly be expected to be, an unrestricted right. The right of ownership is an exclusive right in the sense that it is limited *only* by those restrictions that are explicitly stated in the law as it is interpreted from time to time. Such restrictions may range from the substantial to the minor. For example, on one hand, there is the serious case where an individual's right of ownership in an asset cannot be transferred for a price higher than the ceiling price stipulated by the government; on the other is the situation where a land owner is constrained from building a fence within two feet of the property line. In general, then, it is important to recognize that the attenuation of private (or state) property rights in an asset, through the imposition of restrictive measures, affects the owner's expectations about the uses to which he can put the asset, the value of the asset to the owner and to others, and consequently, the terms of trade. Because of these interrelations, the term attenuation represents a significant concept; when used in the paper, it will always signify the existence of some degree of restriction on the owner's rights to: (i) change the form, place, or substance of an asset, (ii) transfer all rights to an asset to others at a mutually agreed upon price.

Finally, the point must be stressed that most of the restrictions discussed here are those *imposed by the state*. To argue for a change in the content of the right of ownership, therefore, is to argue for a change in the allocation of resources to which legal support is given. In other words, as Samuels has noted:

> . . . opportunities for gain, whether pecuniary profit or other advantage, accrue to those who can use government. . . . If income distribution and risk allocation is a partial function of law (of property) then the law is an object of control for economic or other gain . . . whether the instances be tariff protection, oil subsidies, real estate agents' attempts to ban "for sale" signs on private homes or any other type of property rights [101, 1971, p. 444].

It follows, of course, that a theory of property rights cannot be truly complete without a theory of the state. And, unfortunately, no such theory exists at present. The ongoing research by J. Buchanan [24, 1962], R. McKean [75, 1971], W. Niskanen [84, 1968 and 85, 1971], D. North [86, 1972], G. Tullock [115, 1971] and other scholars gives promise of filling the gap, but this general line of investigation is still at a preliminary stage. Of special interest here is the fact that understanding of bureaucracy and the state can be developed from consideration of individual utility maximizing behavior. Professor North argues that the state has frequently traded inefficient property rights (e.g., licence to operate in a closed market) for revenue, and in doing so throttled economic growth. Indeed, it can be argued that changes in the content of property rights depend on the relationship between an *ex ante* estimate of benefits to the ruling elite from changing the existing property rights assignments and the *ex ante* or even *ex post* estimates of the costs to be incurred in policing and enforcing the changed structure of rights. If this reasoning is valid, the "efficient" size of the political organization should be affected by the size of markets and the state's military endowment, excluding considerations of *ex ante* errors or inoperable probabilities.

> An exchange economy and new weapons . . . made . . . a long struggle with numerous contenders . . . not only from within historically unified political units but also from without. . . . The contenders were in competition with each other and the key to success was the fiscal revenues that the contenders could command. Each state therefore endeavored to price its services (i.e., taxes) in such a way as to

maximize present value. . . . The degree of monopoly power of the state in its contractual relationship with constituents reflected the degree to which other contenders appeared likely to be able to provide the same set of services. In short, the opportunity costs of the constituents lay behind the contractual relationships and changes in opportunity costs lead to efforts to alter the contract [86, North, 1972].

While systematic discussion of these themes cannot be attempted here, the basic hypothesis that changes in property rights are triggered by man's search for greater utility does seem worth exploring.

II. *Private Property Rights and Resource Allocation*

The standard theory of production and exchange can be criticized for its somewhat limited applicability, but the approach has still been able to provide fundamental insights into the problem of scarcity. Perhaps its most significant accomplishment has been to explain and assess the efficiency characteristics of competitive organization. Welfare theorists, in particular, have carried the discussion in useful directions and, on the basis of certain restrictive assumptions, have been able to establish the precise relationship between Pareto optimality and competitive equilibrium [8, Arrow, 1962; 9, Arrow, 1951; 10, Arrow and Debreu, 1954; 39, Debreu, 1959; 98, Quirk and Saposnik, 1968]. Property rights considerations have not played a major role in this literature, but understanding of the structure of property rights has direct relevance for the questions at issue. It can be shown, for example, that privately owned resources will always tend to be allocated to the highest valued uses. As Cheung has put it:

> Competition for and transferability of the ownership right in the market place thus perform two main functions for contracting. First, competition conglomerates knowledge from all potential owners—the knowledge of alternative contractual arrangements and uses of the resource; and transferability of property rights ensures (via flexible relative prices) that the most valuable will be utilized. Second, competition among potential contract participants and a resource owner's ability to transfer the right to use his resource reduce the cost of enforcing the stipulated terms in a contract . . . because competing parties will stand by to offer or accept similar terms [28, 1970, p. 64].

In general, the logic of competition (*i.e.*, the heeding of alternative uses) suggests that a more complete specification of individual property rights diminishes uncertainty and tends to promote efficient allocation and use of resources.[5] Study of efficiency, then, necessarily involves understanding of the institutional background and the conditions under which transactions take place. By implication, the limitations of the traditional theory are traceable, in part, to the highly simplified assumptions made in this area. Specifically, the standard competitive model envisions a special system where one particular set of private property rights governs the use of *all* resources, and where the exchange, policing and enforcement costs of contractual activities are *zero*. While this conception of the business environment need not prevent useful analysis, it does have the effect of narrowing the range of phenomena that can be explained.

[5] Specification of property rights in goods is more often than not triggered by a change in technology and productivity of resources. As Demsetz has observed: "Changes in knowledge result in changes in production functions, market values, and aspirations. New techniques, new ways of doing the same things, and doing new things—all invoke harmful and beneficial effects to which society has not been accustomed. It is my thesis in this part of the paper that the emergence of new property rights takes place in response to the desires of the interacting persons for adjustment to new cost responsibilities . . . the thesis can be restated in a slightly different fashion: property rights develop to internalize externalities when the gains of internalization become larger than the cost of internalization. Increased internalization, in the main, results from changes in economic values, changes which stem from the development of new technology and the opening of new markets, changes to which old property rights are poorly attuned" [42, 1967, p. 350].

For purposes of broad classification, the cases that fall outside the scope of traditional economic theory can be said to arise because: (i) actual market solutions are inconsistent with the marginal equivalences required for the general social optimum, and (ii) traditional theory has failed to account for the effects of various types and degrees of attenuation of private property rights in resources. The term "externality" is associated with the first point while the second refers to the behavior of firms that do not pursue the classical profit maximization objective. Property rights scholars have addressed themselves to both types of problems, and the following sections of the paper will discuss the basic thrust of their attempt to extend the scope and coverage of conventional microeconomics. It must be emphasized, however, that research on the economics of property rights is still in its initial stage. Some important contributions have been made but a great many questions remain to be explored. In particular, while the general implications of alternative property rights assignments and their effects on the use of resources have been developed in some detail, formal equilibrium conditions for many cases have yet to be worked out.

1. *Externalities*

The concept of externality is central to the theory of economic policy but only recently have concerted attempts been made to give the notion rigorous analytical definition [23, Buchanan and Stubblebine, 1962; 26, Cheung, 1969; 33, Coase, 1960; 40, Demsetz, 1964; 43, Demsetz, 1969; 79, Mishan, 1971; 114, Stigler, 1961]. As might be expected, questions of ownership rights figure prominently in the new discussions. According to the argument advanced by Coase, Buchanan and others, adequate assessment of all the social costs associated with externalities requires recognition that *two* parties are always involved in an externality situation.

> The question is commonly thought of as one in which A inflicts harm on B and what has to be decided is: how should we restrain A? But this is wrong. We are dealing with a problem of a reciprocal nature. To avoid the harm to B would inflict harm on A. The real question that has to be decided is: should A be allowed to harm B or should B be allowed to harm A? The problem is to avoid the more serious harm [33, Coase, 1960, pp. 1–2].

For social policy, the fundamental issue reduces to this. At any moment of time, there is *a legally sanctioned structure of property rights in existence;* thus, if the prevailing structure is to be modified by social action designed to reduce or eliminate the effects of an externality, taxes must be imposed on those who will gain from the proposed legal change, and compensation paid to those who will suffer capital loss or loss of satisfaction as a result of the new law [108, Sherman, 1969]. Presumably, agreement of the terms of the tax-compensation scheme can be reached through a political process, but the basic mechanism here is one of "trade." In principle, an individual A seeking to modify the behavior of another individual B (who is generating an externality) can engage in trade with the latter (B) and, then, both can move to preferred positions on a "contract curve" where Paretoequilibrium holds. For example, in the classical case of factory smoke nuisance, gains from trade are possible for A and B if B gives up some or all of his rights to operate a smoke producing factory in exchange for appropriate monetary compensation. As in other trading situations, the benefits obtained by A are purchased from B at a "price." Buchanan and Stubblebine have summarized the welfare significance of this type of case as follows:

> The important implication to be drawn is that full Pareto-equilibrium can never be attained via the imposition of unilaterally imposed taxes and subsidies until all marginal externalities are eliminated.

If a tax-subsidy method, rather than "trade," is to be introduced, it should involve bilateral taxes (subsidies). Not only must B's behavior be modified so as to insure that he will take the costs externally imposed on A into account, but A's behavior must be modified so as to insure that he will take the costs "internally" imposed on B into account. In such a double tax-subsidy scheme, the necessary Pareto-conditions would be readily satisfied [23, 1962, p. 383].

Such an interpretation of externality is, of course, quite distinct and leads to conclusions that are different from those reached in the traditional Pigouvian model [13, Bator, 1958; 76, Meade, 1952; 79, Mishan, 1971; 103, Scitovsky, 1954]. It is important to reemphasize that property rights are crucial to this new line of analysis;[6] the justification for compensation to B rests, ultimately, on the idea that, at any given time, individuals can have "rights" to create certain types of "diseconomies." Thus, an individual (B) who is undertaking a lawful activity in good faith (*e.g.*, generating smoke) must be compensated if there is to be a change in the law that will redefine property rights and reduce his welfare position.

Despite the significance of property rights assignments for individual welfare positions, Coase has shown that, in the absence of transactions costs, the *composition of output* in the economy is independent of the structure of property rights—except insofar as changes in the distribution of wealth affect demand patterns [33, 1960]. More concretely, the composition of output is said to be independent of whether or not the individual creating diseconomies bears the liability for the damages caused to others. The case turns on the fact that a cost is incurred by B when he pays an indemnity to A in order to produce another unit of output *or* when B foregoes a bribe by A designed to induce B to limit production. In Coase's familiar illustration, the equilibrium output of cattle is unaffected by the property relations specified and the allocation of resources remains optimal.[7]

. . . Whether the $3 is a payment which the cattle-raiser has to make if he adds the third steer to his herd (which it would be if the cattle-raiser was liable to the farmer for damage caused to the crop) or whether it is a sum of money which he would have received if he did not keep a third steer (which it would be if the cattle-raiser was not liable to the farmer for damage caused to the crop) does not affect the final result. In both cases $3 is part of the cost of adding a third steer, to be included along with the other costs [33, 1960, p. 7].

The result just discussed is based on the assumption that transactions costs are zero, but this simplification is recognized as unrealistic. In general, the property rights approach places great emphasis on the idea that externalities are associated with the costs of defining, exchanging, policing, or enforcing property rights [40, Demsetz, 1964 and 41, Demsetz, 1966]. Whenever the private terms of exchange fail to account for some harmful or beneficial effects to the contractual parties or to others, the market solution will appear inconsistent with the social value of the bundle of property rights in the goods that are exchanged. And such private-social divergences tend to arise because of high transactions costs, or because of the existence of legal restraints on the use and exchange of resources.

[6] For example, once the two-sidedness of the problem is understood, it follows that the existence of an externality does not necessarily justify government action to eliminate it. The fact is that: "The internal benefits from carrying out the activity, net of costs, may be greater than the external damage that is imposed on other parties" [23, Buchanan and Stubblebine, 1962, p. 381].

[7] Coase's analysis has been extended to cover many types of property rights problems. For example, Demsetz has recently applied Coase's analysis to the reserve clause in organized baseball—an important property right to owners of baseball clubs—and was able to show that "with or without the reserve clause the player will locate where the value he places on amenities plus the value of his baseball talent is greatest" [44, Demsetz, 1971, p. 10].

The effects that high transactions costs exert on the utilization of resources can be seen in a variety of economic examples [19, Bottomley, 1963; 27, Cheung, 1968; 55, Gordon, 1954; 74, McKean, 1964; 104, Scott, 1955; 116, Turvey, 1964]. Thus these costs prevent an adequate market accounting for: the beneficial effects of apple blossoms on the productivity of bees, the harmful effects of sparks from passing trains on nearby crops, the noise from that neighbor's air conditioner, etc. Similar problems arise in considering why theater seats in Europe show a greater range of prices than those in the United States, or why there may be reluctance on the part of private firms to undertake the training of workers in underdeveloped countries. Illustrations abound, but a typical situation is found in the case where free parking is available at a shopping center. Here, shoppers pay for the maintenance of the lot through their purchases at the center and, thus, confer benefits on non-shopping parkers. To use a market price to ration the parking space, the price would have to cover the cost of resources needed to conduct transactions. The result could well be that the cost of selling parking space would exceed the value of the parking lot to potential users. As Demsetz has observed:

> We may end up allocating more resources to the provision of control of parking than had we allowed free parking because of the resources needed to conduct transactions. . . . Those who purchase merchandise and indirectly pay for parking space may prefer to substitute the smaller total cost of constructing additional spaces to accommodate freeloaders rather than ration out the non-buying parkers by paying the required exchange costs minus the savings of constructing fewer parking spaces [40, 1964, p. 14].

The fact that numerous situations exist where contractual stipulations do not capture all social costs and benefits explains the alleged inability of microeconomic theory to provide a uniform analytical treatment of externalities. The seemingly endless division of externalities by types and the frequent attempts at reclassification[8] have, in fact, undermined some economists' confidence in the usefulness of standard theory and have given a boost to *ad hoc* theorizing. By contrast, the property rights literature points in the direction of integration. Its theme is that a general theory of externality can be developed by extending the received doctrine. What is thought to be needed is a careful analysis of the content of the property rights conveyed in any transaction; and the major achievements of the approach can be summarized as follows.

First, transactions costs are found to contribute both to greater use of nonmarket forms of exchange and to prices that diverge from the social values of the goods exchanged. In consequence, the problem of producing the socially optimal output mix is made more difficult. For example, if the transactions costs of using the price mechanism to ration the space for parking are greater than the revenues the parking lot owner can obtain, he will either ration the space on a first come, first served basis or erect a "no trespassing" sign. The result of using a nonmarket mechanism to ration the space is that the landowner gains less than the value of the good to society. It follows, of course, that the use of land as parking space will be reduced even if the social value of parking space exceeds the costs [7, Alchian and Demsetz, 1972].

Assuming that the objective is to reduce the difference between *privately perceived* gains and costs and total gains and costs, the implications are clear. The analysis of various forms of externalities suggests that

[8] The literature on externalities is enormous and growing fast. V. Smith [111, 1969] classified mesh externalities, stock externalities, and crowding externalities for fishery alone. J. Meade [76, 1952] classified externalities according to physical attributes. See also the article by Mishan [79, 1971].

either a reduction of the costs of transaction, or an increase in the value of the good will result in fuller specification of property rights in that good and, hence, in an improvement in the accuracy of private accounting. Relative reduction in transactions costs depends, *inter alia*, on technical progress. Thus, in Demsetz's example, a device such as the parking meter would lower transactions costs and enable the owner to ration the parking space via market pricing. A number of examples can, in fact, be cited where technical inventions have led to improved specification of property rights in traded goods[9] and to the reduction, if not the elimination, of the divergences between private and social costs and benefits [42, Demsetz, 1967, pp. 350–53]. It is difficult to predict whether future technological developments will make the establishment of property rights progressively easier, but the logic of the theory suggests that, *ceteris paribus*, old externalities have diminishing importance in a dynamic economy—though new ones may be allowed to develop.

Second, the property rights approach calls attention to the question of how far an individual or the community should go in the correction of existing externalities. If the short-run is defined as a period during which technical progress and innovation cannot be expected to reduce or eliminate external effects, a relevant policy issue must be: What constitutes the optimal pattern of correction for externalities in the short run? Of course, the fact that the very existence of a large class of externalities can be explained by high transactions costs suggests that to make contractual stipulations more complete must be a costly undertaking. It follows that any indiscriminate attempt to do something about externalities, either through the market mechanism or the political process, may well result in an excess of net social costs over net social benefits. Again, Demsetz's zero-priced parking example is a case in point. What the theory implies, then, is that the market should not be faulted for the existence of *all* externalities, nor should *all* be eliminated. The optimal solution in the short-run always requires a careful balancing of the marginal social costs and benefits from reducing externalities. Moreover, in making the cost-benefit calculations, due regard must be shown for the two-sidedness of the externality relation and for the initial structure of legal property rights.

The logic of the property rights analysis leads to still another crucial question. For, given the fact that resources are used in ways that differ from those that would obtain if social costs and benefits were accurately represented in the terms of trade, it is important to know how, and to what extent, alternative property rights assignments affect the use of resources and the output mix. That is, obviously, a major topic and one having extensive theoretical ramifications. Consequently, all that can be done in the present paper is to provide a taste of the subject; and, for convenience, we shall concentrate on a recent work by Roland McKean [73, 1970]. While the McKean paper is directed toward a relatively narrow problem, the method of analysis and the line of reasoning have general applicability.

McKean's point of departure is the assertion that accidental damages result in a special case of externalities and that the right to avoid liability is a valuable property right affecting the value of goods that are traded. Then, since transactions costs are positive, different assignments of liability for damages must influence production processes, the allocation of resources, the options open to consumers, etc. The paper considers several possible liability assignments such as customer liability, producer

[9] D. North [86, 1972] traced the development of property rights in Medieval Europe to changes in cost-benefit calculations.

liability with and without defect, and taxpayer liability. The argument shows that different liability systems can be expected to yield different patterns of resource use because each of the respective systems tends to be associated with a different total transactions cost. The following passage from McKean, discussing the effects of producer liability, suggests the nature of the analysis.

> With the customer facing a lower probability of being liable, relatively hazardous designs would be less unattractive to him, and the demand curve for such products would rise relative to the demand curve for comparatively safe products. With the producer facing a higher probability of being liable and with his either carrying liability insurance or paying damages, relatively hazardous designs would be more costly, and the supply curve would decrease. On the basis of this shift in liability assignment by itself, there is no presumption that the quantity of hazardous products sold would change, and while the consumer would pay a higher price to the producer, he would simply be forced to buy insurance from the producer instead of having the option of insuring himself. The only thing that would happen to the consumer's position is that he would be denied the opportunity of taking the risk. Since that option would be preferred by some consumers, especially by the poor, this would mean in effect a rise in the price of hazardous products relative to the price of "safe" products, resulting in the end in some shift toward safer products and working to the detriment of the poor [73, McKean, 1970, p. 623].

Finally, it should be noted that some externalities can be attributed to legal restraint on the use and exchange of resources, rather than to high transactions costs alone. A classic example is that of radio and television. In the 1920s, anyone was allowed to broadcast on any frequency of his choice. To stop the chaos that ensued, the courts began to specify that the first user of a frequency had ownership claims on it. This initial distribution of private property rights in radio frequencies could not, except by a low probability accident, allocate the available frequencies to the highest-valued users. Nevertheless, if the rights had been accepted as saleable, the action of the market would have eventually put the right to frequencies into the hands of those who could use them most efficiently. Then, even though some redistribution of wealth would have taken place in favor of the initial owners, the final allocation of frequencies and the composition of output would have tended to be the same as those that would have emerged if the frequencies had been turned over initially to the most productive users. The government, however, chose to decree that radio frequencies belong to no one and that they should be, as they still are, allocated by the government to those who satisfy certain administratively imposed criteria. The latter include consideration of the personal characteristics of the applicants seeking the right to broadcast, concern with the types of programs to be broadcast, etc. [6, Alchian and Allen, 1972; 32, Coase, 1959; 77, Meckling, 1968; 78, Minasian, 1964; 113, Steiner, 1961].

It follows that the highest valued uses of radio and television cannot be achieved under these conditions; specifically, programs that would be more valuable from the market point of view tend not to be produced. In this form of externality, of course, the disparity between social and private benefits and costs should be attributed not to transactions costs in the usual sense but to the fact that transactions costs are made prohibitely high *by law*.[10]

2. *Attenuation of Private Property Rights*

There is strong empirical evidence to

[10] A group of scientists has recently argued that "The present management of the electromagnetic spectrum has aroused sufficient concern to justify experiments in turning a portion of the spectrum over to the market allocation. . . . We have articulated a property system in the spectrum that . . . makes exchanges possible without undue transaction and enforcement costs . . . and we have demonstrated that traditional policy supports the release of government-controlled resources to the private sector" [45, DeVany, *et al.*, 1969, p. 1559].

suggest that the behavior of many types of firms deviates from the profit maximizing ideal upon which the standard theory of the firm is built. The question that arises, therefore, is whether the standard theory can be extended so as to include models that are *not* based on profit maximization as well as those that are. And, as indicated earlier, the property rights literature takes the affirmative position here. It is argued that in many cases where the behavior of business firms cannot be rationalized by the simple profit maximization hypothesis, an explanation is still possible within the general framework of the standard theory. What is required is that the concept of income or wealth maximization be replaced by that of utility maximization, and that the analysis take into account the effects of changes in the content of property rights in resources on the actions of decision makers. Under these conditions, the behavior of managers becomes the key for understanding the allocation and use of resources by corporations, government bureaus, and other organizations. Ideally, the objective is to introduce greater empirical content into the theory of the firm. It is necessary to develop a refutable theory by identifying those elements in the institutional structure that affect the cost to managers of attenuating the nominal ownership rights in existence.[11] In other words, managers can, at some cost, engage in discretionary behavior and divert a portion of the organization's resources to their own ends. But by appropriating pecuniary or nonpecuniary benefits for themselves, the managers necessarily infringe on the interests of the owners (the individuals possessing ultimate authority) and must reckon with a greater or lesser reaction from the owners.

Some years ago, Coase [34, 1937] combined the idea of comparative advantage with the concept of positive costs of transactions across markets to explain both the advantage of organizing resources within the firm and the basis of the firm's optimal size. A major conclusion was that:

> . . . at the margin, the cost of organizing within the firm will be equal either to the cost of organizing in another firm or to the costs involved in leaving the transaction to be organized by the price mechanism [34, 1937, p. 404].

While the importance of transactions costs for the existence and size of firms can hardly be ignored, such costs are not the only elements that need consideration. According to Alchian and Demsetz, nonseparability of the total product of several different inputs imposes on firms the very crucial problem of metering inputs and metering rewards [7, 1972]. That is, the firm faces the cost of detecting the marginal productivities of cooperating inputs; and accurate assessments must be made because the relative efficiency of team production depends on the firm's ability to bring changes in rewards to bear on those responsible for changes in output. In the absence of a sensitive reward system, the productivity levels of cooperating inputs will tend to be less than those that are potentially possible.

Such considerations lead directly to the integration of utility analysis into the theory of the firm. Granting that nonpecuniary goods such as leisure, attractive working conditions, time to converse with fellow workers, etc., constitute arguments in an individual's utility function, and accepting the existence of non-separability of the firm's total product, the logic of economics suggests that cooperating inputs will have incentives to shirk. It follows that shirking by some inputs will result in a lower total output for the firm. At the same time, however,

[11] The analysis has been extended to the factors that affect the right of ownership in human capital and the corresponding effects on the demand and supply of various categories of labor [5, Alchian, 1969; 15, Becker, 1957; 70, Martin, 1969; 71, Martin, 1971; 91, Pejovich, 1970; 96, Porter, 1954; 100, Rottenberg, 1962].

the individuals who shirk will enjoy greater utility or satisfaction because the major cost of shirking (assuming it goes undetected) is shifted to others. Thus, a critical problem of control exists, and:

> . . . The presence of different owners of the several jointly used inputs in the team production process heightens the problem of shirking—i.e., the undetected marginal productivities of each input that are reduced below the payments for their services. In sum, the information, detection, and transmission is more expensive [7, Alchian and Demsetz, 1972].

Obviously, if shirking is to be checked, someone must have both the right to monitor the performance of team members and sufficient incentive not to shirk himself. To this end, he must possess specific property rights including: (i) the right to receive the *residual* after all other inputs have been paid contractual amounts, (ii) the right, however qualified, to *terminate* or *revise* the membership of the team (*i.e.*, the possessor of these rights is a central party to a set of bilateral contracts), and (iii) the right to *sell* those rights specified under (i) and (ii). This bundle of property rights defines, according to Alchian and Demsetz, *ownership* of the classical capitalist firm. Moreover, it is precisely the analysis of changes in the content of these rights that requires study. By considering how the attenuation of basic property rights affects the actions of decision makers, it becomes possible to secure new insight into the behavior of various types of firms—corporations, regulated firms, not-for-profit firms, etc.

In the simplest application, the property rights approach can be used to explain the characteristic operating conditions of the classical firm. The demonstration is based on a number of familiar assumptions. Thus, it is said: (a) The entrepreneur possesses the basic ownership rights as defined above in (i)–(iii); (b) each decision maker displays utility maximizing behavior; (c) the demand for the firm's output is infinitely elastic; and (d) the cost of policing the behavior of cooperating inputs is zero. Against this background, profit maximization can be rationalized and a confident prediction can be made about the kinds of inputs the residual claimant will tend to own. We know the law of demand governs the rate at which nonpecuniary goods are purchased. But the cooperating inputs find that the cost of acquiring nonpecuniary goods through shirking (or otherwise) is prohibitive and, consequently, purchase none. The owner also finds the cost of purchasing nonpecuniary goods for himself to be prohibitively high. This condition prevails because, at equilibrium, he is assured of no more than a survival profit. The result of these forces is, of course, the central emphasis on profit maximizing behavior. Further, the owner's commitments to make payments to other inputs, together with the required saleability of his property rights, imply that the owner's wealth will take the form of land, buildings, machines, etc. That is, the owner will be led to those goods that can be transferred to others and whose market prices reflect expected economic developments.

III. *New Directions in the Theory of the Firm*

Once the basic ideas underlying the property rights approach are accepted, the way is open to establish a uniform method of analysis that can be applied to a wide range of different firms. Thus, the themes that appear in the discussion of the classical capitalist firm are repeated, with certain variations, in other areas. By focusing on such things as the form of contractual agreements, and the trade-off relation between nonpecuniary goods and income, it is possible to bring out the points of similarity and difference between business organizations of quite different character, and to

make systematic statements about the probable behavior of any firm. This section will be devoted to the application of the new methods to four distinct types of firms: (1) the modern corporation, (2) the regulated firm, (3) the not-for-profit firm, and (4) the socialist firm.

1. *The Modern Corporation*

Observation indicates that profit maximization is not the sole objective of the typical corporation and, hence, a question arises as to why this traditional goal of the firm has been abandoned. It is often said that the dispersion of stockholding combined with management's advantages in a proxy fight have led to a rise in the power of managers and have reduced their dependence on the owners [16, Berle and Means, 1968, Ch. 4–5 and 17, Berle, 1959, Ch. 2]. At the same time, the negatively sloped demand curve facing the corporation implies a degree of monopoly power in the market and makes the managers' relative independence from the owners effective. The general consequence is that the managers are able to pursue their *own* goals within certain limits and, thus, tend to direct the firm away from the profit maximizing position that represents the owners' desideratum.[12]

This basic interpretation can be extended in various ways and, indeed, many new models have been developed to account for different possible business goals.[13] The trouble is that such models usually direct themselves to special situations and have rather limited applicability. By contrast, the property rights approach attempts to provide a more general theoretical framework through its emphasis on the fundamental interplay between institutional structure and economic incentives.

The modern corporation is distinctive because it differs in one essential respect from the classical firm as defined by Alchian and Demsetz [7, 1972]. Specifically, the owners of a modern corporation have reduced ability to *revise* or *terminate* the membership of the team. Thus, the owners' bundle of property rights in the corporation is attenuated compared to that of the classical firm. Operationally, this attenuation of stockholders' rights in the firm takes the form of a reduced ability of the owners to control the decisions made by the managers. This is significant, of course, because the managers' decisions affect the present value of the firm.

It should be noted that the attenuation of the stockholders' property rights in the firm and the "rule of management" result not from *legal* restraints on private property rights, but from the costs to the owners of *detecting* and *policing* managerial decisions and of *enforcing* wealth maximizing behavior [63, Larner, 1966, pp. 779 and 102, Samuelson, 1966, pp. 89–90]. If, the attenuation of stockholders' rights derives from the fact that the costs of detecting, policing, and enforcing appropriate managerial behavior exceeds the expected benefits, it can be argued that widespread dispersion of stock is damaging to the owners [62, Kaysen, 1965, p. 43]. For, the greater the dispersion of stock ownership in the firm, the higher will be the costs to stockholders of reassigning decision making authority, and the easier it will be for management to substitute other objectives for the goal of wealth maximization. In short, the stockholders' willingness to tolerate reduced wealth is determined by the costs required to keep managers faithful to the wealth maximization criterion [69, Marris, 1964, pp. 254–60].

By conceiving of the basic problem as

[12] Two interesting papers are those by Hindley [59, 1970] and Kamerschan [61, 1968].

[13] Examples of these *ad hoc* theories include: Baumol's [14, 1959], Bronfenbrenner's [21, 1960], Cooper's [36, 1949], Penrose's [95, 1959], Reder's [99, 1947], Shubik's [109, 1961], and Weintraub's [120, 1949].

one involving trade-off relations, it is possible to use conventional theory to infer the behavior of the corporation regardless of what the goals are. Management has the power to substitute away from profit (stockholders' interests) to gain other desiderata (managers' interests). But management's efforts in this direction will be constrained by the managers' own estimates of the stockholders' cost-benefit calculus. It follows that an important analytical question is to consider the factors that affect this managerial constraint; and, thence, to determine how well the market system protects the stockholders' wealth.

(i) *Market valuation.* Insofar as stock prices reflect the present value of the expected future consequences of current managerial policies, it would seem logical to expect a lower bid price for stocks of corporations with dispersed ownership. This is so because market valuation should tend to protect stockholders from less diligent concern by management for their wealth. There is, however, a lack of empirical evidence to support this expectation, and one possible explanation for the result is as follows. Given the amount of information about investment alternatives, a person who buys a share of stock must *voluntarily* divest himself from the control of his investable funds to hire trained professionals whose investment judgment he believes is superior to his own. If the person chooses to sell that stock, he is likely to be expressing his disapproval of the management of that firm; and the fact that he "fires" the management when he sells his share is not without consequences even in a corporation with dispersed ownership. Any sale of a company's stock affects the stock's price in precise proportion to the total number of shares sold. In other words, the power a person has over management is directly related to the amount of wealth he invests in that corporation relative to other investors [58, Heyne, 1971 and 67, Manne, 1970, p. 8]. In general, the greater the stockholders' dissatisfaction, the more shares relative to their total number will be sold and the lower will be the price of the company's stock relative to that of other companies. The latter condition, of course, presents a clear danger to management. Thus, the owners' freedom to sell shares in a market that reflects the capitalized value of current managerial decisions tends to set limits on the power of managers to pursue their own objectives at the expense of profit.

(ii) *Managerial rewards.* The fact that a manager is paid to increase the wealth of stockholders suggests that the present value of his future rewards will be strongly correlated with his past and present performance. This understanding of the future demand for and cost of the manager's services flows directly from the conventional theory of production and exchange. In any event, the manager considering the pursuit of objectives other than profit maximization must be constrained by his own estimate of the possible cost of such action in terms of lower expected future earnings [4, Alchian, 1969, p. 344]. Presumably, his decision will be made by balancing the prospective benefits from independent behavior against this cost.

(iii) *Competition among managers.* Statements like "no group of stockholders will be able under ordinary circumstances to muster enough votes to challenge the rule of management" [63, Larner, 1966, p. 779] are frequently found in scholarly papers and imply that management is a monolithic group with common interests and no interpersonal conflicts or rivalries. If such estimates were correct, it should be possible to observe longer tenure of office for managers in a corporation with dispersed ownership, greater compensation for managers, and smaller profits [4, 1969, p. 341]. But, again, the evidence to support these inferences is

still to be presented. In the absence of empirical evidence, the conventional economic logic must be given some credence. That is, according to theory, we should expect that: (*a*) competition exists among managers, (*b*) managers move to better jobs by superior performance on present jobs, and (*c*) managers have incentives to try to gain personal advancement by eliminating "inefficient" behavior in others connected with the firm's operations. It follows that the stockholders stand to gain from this type of competition.

From what has been said, there are grounds for believing that stockholders' wealth has protection in modern corporations. Yet it also seems true that the observed behavior of managers *does* deviate from the pattern that would insure profit maximization. To reconcile this "contradiction," the property rights approach focuses on the forms the deviations from profit maximizing behavior take and, then, considers the effects these various policies have on the vector of payments to managers and on the performance of the firm. The thrust of the argument is as follows.

First, the size of the firm has an important bearing on managerial compensation. Larger staff and gross assets tend to raise the manager's salary because his marginal product depends on the size of the resources affected by his decisions [72, Mayer, 1960, pp. 189–95]. Thus, the manager has reason to set expenditures on staff and investment at levels that exceed those required by immediate profit considerations alone. As Williamson has noted, an important and testable implication is that "high internal representation on the board of directors favors attention to managerial objectives, and this is manifested in a high earnings-retention rate" [123, Williamson, 1963, p. 1051]. He estimates that "the retained-earnings ratio would increase by about 12 percent if the internal representation on the board of directors were to double" [123, 1963, p. 1050].[14]

Following Becker's pathbreaking work on the *Economics of discrimination* [15, 1957] the manager's consumption of nonpecuniary goods was incorporated formally into the theory of production and exchange; and such consumption was recognized as a type of behavior that is completely rational and hence subject to systematic analysis. Becker used a taste for discrimination as a device to introduce nonpecuniary goods into the manager's utility function [15, 1957, p. 34]. But, in general, the manager can be conceived as purchasing any sort of desiderata for himself at the expense of stockholders' wealth. The particular "goods" consumed might include such things as luxurious offices, beautiful receptionists, less efficient but more desirable employees, frequent business trips to meetings in Las Vegas and Palm Beach, etc.

In this same vein, Williamson [122, 1964 and 123, 1963] made managerial objectives an integral part of the analysis of the firm and developed a number of models to explore the implications of discretionary behavior. Figure 1 gives a simplified geometric presentation of the essential ideas. Curve AA shows the maximum profit obtainable by the firm with each level of staff and discretionary spending. If the interests of the stockholders were the sole concern of the manager, "staff" would only be sought in order to increase profit and equilibrium would be attained at K. But assuming the manager has a positive taste for "staff," indifference curves like UU become relevant. Curve UU reflects the manager's subjective evaluation of different combinations of

[14] Williamson argues that a number of studies such as Gordon's [54, 1962] and Scott's [105, 1962] have yielded results that appear less "peculiar" when interpreted within his analytical framework; that is, within the property rights approch framework.

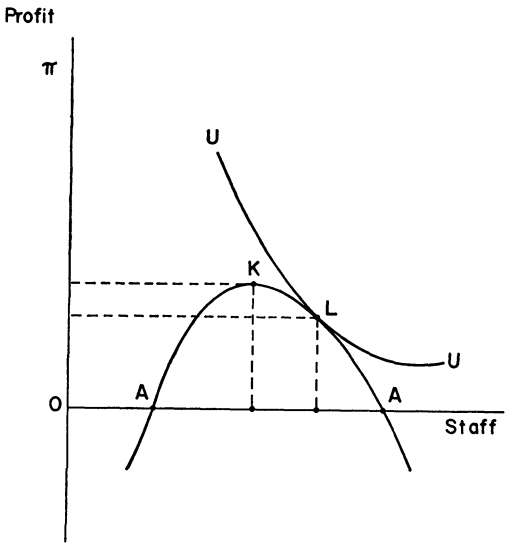

FIGURE 1

profit and "staff." In the figure, the best attainable operating position for the manager is at L where he is maximizing his utility function subject to the constraint of the opportunity set AKLA. Then, the vertical distance between L and K represents the transfer of wealth from the stockholders to the manager that is made possible through the attenuation of the former's property rights in the firm. The transfer has to be equal to or less than the cost to stockholders of enforcing a return to K. Williamson provides a number of examples that indicate the organizational and market circumstances in which various managerial objectives can be realized and, in the process, suggests the general validity of his model.

Alchian is in general agreement with this line of analysis, but has argued that Williamson's model could be improved by separating the pecuniary from the nonpecuniary income going to the manager.

> If quantities of these nonpecuniary benefits were explicitly included in the utility function and also indicated along one of the axes of the graph, we could draw iso-utility curves, showing continuations of pecuniary and nonpecuniary goods that yield constant utility to the manager. Then the tangency of the utility function with the feasibility function . . . would yield the solution values of profit and types of nonpecuniary managerial benefits for the managers [2, 1965, p. 38].

It would seem that the manager of a dispersed ownership corporation tends to receive a greater total return for his services than managers in less dispersed firms. The conventional wisdom, however, suggests that competition for jobs that permit discretionary spending by managers will act to *lower* the pecuniary salaries attaching to such positions. The property rights approach emphasizes another facet of the case; and the analysis is largely independent of the strength or weakness of the market equalization process. Here, the important fact is that the consumption of nonpecuniary goods is *inferior* to an equivalent increase in money income—because money usually offers a greater range of choices [92, Pejovich, 1971, pp. 145–47]. For example, assume the manager of a dispersed ownership corporation consumes a bundle of nonpecuniary goods that costs the stockholders $100 but is worth only $20 to him. Then, even if competition lowers his pecuniary salary by $20 so that the manager is no better off than managers in less dispersed firms, his vector of rewards is both *different and costlier.*

In general, the form of managerial compensation in more dispersed corporations implies greater outlays in such firms than in less dispersed firms. Nevertheless, the returns to investors in the former group are at least as high as in the latter; and, thus, it must be inferred that the more dispersed ownership corporations possess some important advantage that permits them to finance the higher costs of the reward vector going to management. Economic logic also suggests that consumers must be paying a higher price for output than they would be if the entire payment to managers

were in the form of pecuniary income, but still a price lower than the one that would exist if there were no dispersed ownership corporations [4, Alchian, 1969, p. 345]. The special productivity advantage dispersed corporations seem to enjoy tends to moderate the price level.

The question of what constitutes the likely source of the productivity advantage is yet to be answered satisfactorily. Alchian, however, has suggested that the answer can possibly be found by investigating the intra-corporation allocation process.

> The internal capital and personnel market . . . within General Electric . . . is superior to the atomistic, so-called, pure competitive market and is superior because there are specialists within General Electric who are rewarded more fully for collecting and evaluating information . . . I conjecture that the wealth growth of General Electric derives precisely from its superiority of its internal markets for exchange and reallocation of resources—a superiority arising from . . . cheaper information. . . . Many 'knowledge effects' that would be externalistic in an ordinary market are converted into beneficial internalities within the firm as incentives and rewards to those producing them [4, 1969, p. 349].

2. *Regulated Firms*

Regulating agencies impose a "fair return" criterion on firms such as public utilities, telephone companies, etc. The regulating agency's basic objective is to ensure that the actual return to a firm is at or close to the "fair return" level; and to accomplish this end, the agency is able to apply pressure for upward or downward price adjustments as needed. Since entry into a regulated industry is closed or carefully controlled, the attainable residual of an existing firm is likely to exceed the fair return standard. However, the agency in its role as guardian of the public interest is supposed to pass on any such excess profits to the consumer by way of a lower price. The attenuation of the bundle of property rights that defines ownership of the regulated firm takes on a specific form: *legal restraint on the owners' right to the residual* [7, Alchian and Demsetz, 1972].

Given this form of attenuation of property rights, the logic of the property rights approach suggests that stockholders will be disposed to tolerate behavior in managers that would be repressed under competition. With regulation, and an upper limit on profits, managers can pursue their own interests quite extensively without reducing the owners' wealth.

In effect, the managers find it virtually costless to translate the firm's potential profits over and above the "fair return" into consumption of nonpecuniary goods [2, Alchian, 1965, pp. 30–41 and 92, Pejovich, 1971, pp. 144–48]. The situation is such that the managers capture the benefits of higher profits and conceal the true profits from the regulatory agency by reporting higher costs of doing business. This upward adjustment in cost curves and the subsequent effects on the price-output solution implies that the managers, rather than consumers, appropriate the major if not the entire share of the stockholders' loss of wealth. The works of Alchian and Kessel [1, 1962], Averach and Johnson [11, 1962], Becker [15, 1957], Eckert [47, 1968], Levine [64, 1969], Sherman [107, 1970], etc. argue on both logical and empirical grounds that the price of nonpecuniary goods is lower to the manager of a regulated firm than to his colleague in a modern corporation and that the manager of the regulated firm consumes more of these nonpecuniary goods. The results are directly related to the valuation of shares in a regulated industry. The attenuation of property rights in the residual means, quite simply, that the market valuation of the future consequences of current managerial policies is *less significant* to the owner of a regulated firm. Thus, an important factor that raises the price of nonpecuniary goods to the manager of a normal corporation is absent.

3. *Not-for-Profit Firms*

The types of firms belonging to this category are varied: universities [25, Buchanan and Devletoglou, 1970 and 65, Levy, 1968], mutual savings and loan associations [83, Nicols, 1967], foundations, sports associations, hospitals [29, Clarkson, 1970; 82, Newhouse, 1970 and 106, Shalit, 1971], etc. Nevertheless, they have an important element in common. The crucial determining characteristic of all these diverse institutions is this: *No one can claim the right to appropriate the residual* [7, Alchian and Demsetz, 1972]. In other words, the future consequences of current managerial decisions cannot be capitalized. Thus, managerial decisions are costly to evaluate and economic theory suggests that, under such conditions, the managers will use potential profits to obtain more nonpecuniary sources of utility. In addition, some advantages are likely to be reaped from tie-in-sales (the customer will get his loan approved if he buys insurance from the company owned by the manager of the mutual savings and loan association [83, Nicols, 1967, p. 304]), and artificial shortages (pricing a good below its equilibrium price [6, Alchian and Allen, 1972, pp. 144–47]) can be created to permit the manager to trade favors. That is, the margin between the artificially low price and the true cost can be used to bargain for an increment of utility. In general, then, the management of the not-for-profit firm has unusual scope for increasing its nonpecuniary income at the expense of the firm's customers and patrons.

4. *The Socialist Firm*

The property rights approach has also proved to be useful in interpreting the observed behavior of the firm operating within a socialist environment [30, Clayton, 1971; 31, Clayton, 1972; 53, Furubotn, 1971; 80, Moore, 1972; 81, Moore, 1971; 88, Nutter, 1968]. For example, there exists a significant degree of similarity in the content of the bundle of property rights defining ownership of the Soviet firm and the content of the bundle defining ownership of the modern capitalist corporation. In the latter organization, we know that hired managers have some freedom to pursue their own independent interests. Given the high detection, policing, and enforcement costs, the manager of a dispersed ownership capitalist firm finds the "prices" of various types of utility producing behaviors to be relatively low, and he "purchases" certain of these behaviors at the expense of stockholders' interests. Indeed, knowledge of the institutional structure makes it possible to predict such specific practices as managerial consumption of nonpecuniary income, maintenance of a ratio of retained earning to profits in excess of the stockholders' time preference, etc. But when the manager's position in the capitalist firm is viewed in these terms, it is but a short step to the recognition that the Soviet manager occupies an essentially similar position in his firm. That is, the relationship between the Soviet manager and the state is analogous to that between the capitalist manager and the stockholders. The costs to the state of detecting, policing, and enforcing a desired pattern of behavior in the manager are obviously greater than zero and, in fact, can be substantial. Therefore, the Soviet manager is able, within his own estimate of these costs, to attenuate the state's ownership in the firm; or, what amounts to the same thing, use some of the firm's resources to increase his personal satisfaction (utility) at the expense of the government objectives [52, Furubotn and Pejovich, 1972; 81, Moore, 1971; 89, Pejovich, 1969].

Observers of the Soviet economy have often called attention to the tendency of managers to violate Soviet regulations to protect their own interests and gain some room for

independent policy making.[15] These so-called "informal" activities, however, are easily incorporated into the standard theory of production and exchange through the use of the property rights approach. Thus, the Soviet manager's desire for larger allocations of productive inputs (including labor), his interest in maintaining unreported stocks of imputs and outputs, and his tendency to understate the productive efficiency of his plant can all be rationalized as strategies to improve his personal position [52, Furubotn and Pejovich, 1972].

Formally, the problem can be understood as one where the manager seeks to maximize his utility function subject to certain technical and institutional constraints. Not only does such a model offer a rational and systematic explanation of the observed behavior of the Soviet manager, but provides, in addition, some insights into the effects of managerial decisions on the operation of the economic system as a whole. For example, it can be shown that the utility maximizing behavior of the Soviet manager helps to reduce the waste and inefficiencies of the central economic plan. That is, the Soviet government profits from the ability (and willingness) of the Soviet manager to "misbehave" [93, Pejovich, 1972, pp. 75–76]. Moreover, contrary to the opinions of most Western economists, it appears that the Soviet manager has strong incentives to innovate provided he can choose the rate at which the effects of the technical improvements are made known to the state.[16]

Still another area of application for the property rights approach is found in the labor-managed firm of Yugoslavia [48, Furubotn, 1971; 49, Furubotn and Pejovich, 1970; 50, Furubotn and Pejovich, 1970]. Since the economic reform of 1965, the institutional structure has been such that the employees of the Yugoslav firm *own the residual.* Further, the workers, through a democratically elected Workers' Council, are empowered to *revise* or *terminate* contractual stipulations. Nevertheless, the content of the employees bundle of property rights in the firm differs from that of stockholders in the West. Significantly, Yugoslav workers can neither sell their rights to others nor take them away when they leave the employ of the firm. For, under Yugoslav law, an individual has no ownership rights in the firm's capital stock, merely the *right of use* of that capital. Thus, a person acquires the right to a share in the residual by joining the firm and loses all his rights when he leaves it. Moreover, the firm has a legal obligation to maintain the value of its capital stock indefinitely (via depreciation and other allocations from the residual).

The situation of the employees of the Yugoslav firm differs, then, from that of stock-

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[15] The literature on this point is simply too voluminous to be quoted. For example, any collection of readings such as Bornstein's [18, 1970] and Prybyla's [97, 1969] contains at least several articles on this problem. Probably the best treatment of the nature of the relationship between the Soviet government and the manager is Zaleski's [124, 1967].

[16] Most authors have missed this point because the Soviet system provides no incentives to the manager to innovate and *announce* his innovation. For example: ". . . it remains true that the structure of the Soviet economy does little effectively to encourage the search for the new at the local level, and not a little to discourage it" [87, Nove, 1969, pp. 167–71]; and ". . . Managers have, furthermore, shown only slight interest in reducing cost–since each cost reduction is integrated into the subsequent plan" [112, Spulber, 1962, p. 68]. On the other hand, Furubotn and Pejovich (using the property rights approach) were led to the conclusion that "There are forces within the Soviet economy that can promote innovative behavior. Despite the apparent lack of incentives at the micro economic level, the operation of managerial self-interest is sufficient to initiate change. The existence of this innovative potential is important, of course, because it helps to explain how the Soviet economy can experience some economic advances in an environment that is ridden with waste and inefficiencies" [52, 1972].

holders in the West on two major counts.[17] First, the cost to Yugoslav workers of detecting, policing, and enforcing an appropriate mode of behavior in the manager can be assumed to be lower. There is some uncertainty here, however, because it is not entirely clear that the employees' limited knowledge of business opportunities (compared to that of professionals in the West [80, Moore, 1972]), coupled with the absence of market valuation in Yugoslavia of the future consequences of current managerial policies, is offset by their on-the-job observations of the manager's behavior.[18] Second, the employees of the Yugoslav firm face two fundamentally different wealth-increasing alternatives: (i) the option to leave a part of the residual with the firm to purchase additional capital goods, or (ii) the option to take the entire residual out as wages and, then, to invest individually in savings accounts, jewelry, or in anything else the law allows. It is important to reemphasize, however, that there is a significant difference in the conditions of ownership under (i) and (ii), and this difference affects the comparison of returns in the respective areas [48, Furubotn, 1971 and 90, Pejovich, 1969]. Since the return from the joint investment in capital goods via retained earnings is received in the form of *incremental wages* and for only as long as the employee remains with the firm, the required internal rate of return on such investment must be substantially higher than the rate of return on fully owned assets to make category (i) investment preferable to category (ii). The "equalizing" differential between the two rates can be estimated and is attributable, as noted, to differences in the content of property rights. To quote Vanek:

> "The confusion and inefficiency that this (the differential between the rate of interest on owned assets and the rate of return from internal investment in non-owned capital goods) will generate . . . will be easily recognized by anyone with even a rudimentary training in economics" [117, 1971].

It does not seem unreasonable to say that many phenomena observed in the Yugoslav economy can be given plausible explanation if the implications of the special property rights structure are traced through systematically. Our theory tells us that the content of the bundle of property rights that defines ownership in the Yugoslav firm, together with the absence of a system of capital markets, will affect the workers' time preference and their choice of investment alternatives [49, 1970 and 50, 1970]. These conditions suggest, in turn, that the banking system will tend to take on a crucial role in freeing the rate of investment from the limitations imposed by the rate of voluntary savings [51, Furubotn and Pejovich, 1971; 57, Hanvonen, 1970; 121, White, 1971]. Thus, it is possible to predict such events as the growing inflationary pressure, the serious liquidity crisis faced by firms, and the high rate of unemployment that have characterized recent Yugoslav history.

The property rights analysis also lends some inadvertent support to the position of those Yugoslavs who are opposed to the rapid expansion of the market mechanism. For, rather naively, the proponents of economic reform in Yugoslavia seem to expect the operation of market forces to yield precisely the same results there as in the West. And the reformers are caught by surprise when the results appear to be different. Their position with the ruling elite in Yugoslavia is then weakened, while that of the so-called "centralists" grows stronger. Yet, the problem posed is not really so puzzling. Market forces work in quite normal ways in the Yugoslav system; the difficulty is that

[17] The property rights approach is implicit in Domar's [46, 1966] and Ward's [119, 1957] analyses.

[18] This point can easily be deduced from an excellent paper by Bajt [12, 1968].

the reformers have failed to incorporate the behavioral effects of property relations into the standard economic theory of production and exchange [94, Pejovich, 1973].

IV. *Some General Observations*

The preceding sections have attempted to give a systematic account of the major themes found in the property rights literature that has grown up in the last few decades. In a sense, it is somewhat artificial to think of the property rights contributions as falling into a distinct and separate area of specialization. For, as we have seen, a great variety of topics has been treated; and there is no absolute way to establish which works deserve inclusion in the property rights category and which do not. More important, the property rights analysis tends to build on and merge with the traditional theory so that, in the extreme, one might be tempted to say: microeconomic theory properly developed is the property rights approach. But, whatever the deeper questions of classification, there is some convenience in conceiving of a property rights literature and this body of writings does seem to possess certain characteristic features. The latter may be described as follows:

(1) Maximizing behavior is accepted as the norm; each decision maker is assumed to be motivated by self-interest and to move efficiently to the most preferred operating position open. Thus, the individual, whether he be a Soviet manager or a capitalist entrepreneur, is supposed to pursue his own goals within the limits allowed by the structure of the system in which he is operating and to reach an equilibrium position where utility is as great as it can be.

(2) The institutional environment in which economic activity takes place tends to be specified with precision. In particular, the existing property relations and the exchange, policing, and enforcement costs of contractual activities are spelled out in detail for each case studied. By making optimization models more general, the property rights literature permits a greater range of institutional data to be considered and, thus, widens the applicability of the theory of production and exchange.

(3) There is confidence that the market logic can be applied fruitfully to a very great range of practical problems. Thus, the focus of discussion is on economic efficiency and the conditions under which markets should be, or should not be, extended into new areas.

(4) Strong concern is shown for the individualist basis of choice; the preferences or values of an individual are assumed to be revealed only through his market or political behavior. Social welfare functions are, therefore, either ignored or ruled out on grounds that such constructs have use only when choices are to be made by some agency or group external to the individuals directly affected.

(5) A central objective is to establish operationally meaningful propositions about the economy. Theory and empirical study tend to be blended so as to develop hypotheses that are subject to direct test and verification.

To say that the property rights literature has these distinguishing characteristics is, of course, not to suggest that other approaches share none of the qualities noted, or that other lines of investigation are without merit. Nevertheless, the property rights analysis does offer a fresh and useful way of looking at economic problems. Substantial advances have already been achieved and the literature gives evidence of continuing vitality and promise of future accomplishment.

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