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Regulation and administered contracts

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This paper explores the ramifications of introducing administered contracts—long-term, collective contractual relationships—into economic analysis with attention being focused on the implicit regulatory contract. The perspective afforded by the administered contracts framework suggests that the economist's case against regulation has been overstated. Many of the problems associated with regulation lie in what is being regulated, not in the act of regulation itself. Further, many of the perceived failures of regulation (for example, entry restrictions) can be seen to have a plausible efficiency rationale.

1. Introduction

■ The failure of regulation has been widely chronicled in recent years.¹ Extension of public utility regulation into new areas—e.g., cable television and hospitals—calls forth widespread opposition from economists (and others) and the momentum for deregulation of a number of activities has been building. However, regulation's low repute is in part based on misconceptions about the regulatory process and the private contract alternatives.

In this paper we present a conceptual framework offering a different perspective on regulation and institutional choice. The emphasis is on aspects of contractual complexity typically glossed over in economic analyses of regulation (and economic theory generally). The paradigmatic contract of economic theory (and of law)² is a discrete transaction conveying a well-defined object (the ever popular widget) in exchange for cash. This characterization is adequate for many purposes, but it diverts attention from some aspects of contract that will be of particular significance in a regulatory context. This discrete transactional mold is apt to be singularly inappropriate for representing relations which are to take place over a long period of time and in which the parties will have to deal with each other regularly over a

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¹ "Among economists the disdain and contempt for regulation is nearly universal; if effective, it is thought to be pernicious, and if ineffective, a waste of resources" (Dewey, 1974, p. 10). See also MacAvoy (1970, p. viii) and Green and Nader (1973, p. 881); for a detailed statement of the antiregulation case, see Posner (1969).

² For a detailed discussion of the role of the discrete transaction paradigm in the law of contracts, see Macneil (1974); for discussion of some of the economic implications, see Goldberg (1976a).

wide range of issues (many of them unknown in advance). A second suppressed problem concerns the reliance of individuals on agents (for gathering information, making decisions, negotiating contracts, adjusting the terms of ongoing relationships, and so on). It is convenient to distinguish the discrete transaction of traditional theory from contracts which exhibit prominently one or the other (or both) of these elements—an ongoing relationship and agency. Such contracts will be called “administered contracts.”³ Regulation can be viewed as an implicit administered contract in which both elements are significant.⁴

By attempting to analyze regulation within a discrete transaction framework, economists have suppressed the most significant aspects of the regulatory arrangement and this has led to an overstatement of the case against regulation. First, that framework generates the wrong criteria against which regulation is to be evaluated. Second, when viewed in an administered contracts perspective, regulatory policies that would appear indefensible in a discrete transactions world can be seen to have a (loose) efficiency rationale. And finally, a failure to appreciate the complexity of contractual arrangements in the private sector is apt to leave the analyst unduly sanguine as to the efficacy of private market solutions to problems in the regulatory sector.

The argument below should not be construed as a brief for wall-to-wall regulation. Nor should it be taken to mean that current regulatory policies are the best we can do. They are not. The point is simply that if one is interested in seriously analyzing regulation and other institutional alternatives, it is necessary to open up the “black box” of contract.

■ Before analyzing the complexities that arise in a world of administered contracts, it is useful to elaborate upon some of the aspects of such a world. We begin this section by expanding upon the distinction between the discrete transaction and the ongoing contractual relationship. We then turn to a discussion of agency and the related issues of the nesting of contractual relationships and the blurred borderline between private contract and social contract. Next we introduce a convenient simplification—the notion that the agent is putting out a bid for a long-term contract for the right to serve his constituency. Finally, we will make some remarks concerning the difficulties entailed in developing satisfactory welfare or efficiency criteria in an administered contracts framework.

□ **Relational contracts.** The pure discrete transaction of economic theory involves the contemporaneous exchange of claims or rights

2. The administered contracts framework

³ Pure discrete transactions exist only as theoretical abstractions. All contracts will have at least some relational and agency aspects (as will be made clear in the following section) and it might therefore be better to eliminate the “administered contract” terminology. We prefer, however, to use it now to emphasize the distinction between contracts in which the relational and/or agency aspect is important and the narrower contracts implicit in most economic theorizing.

⁴ In the next section we shall broaden the notion of the agency relationship so that it will be unnecessary to distinguish between actual contractual relationships (those explicitly recognized as creating contractual duties) and implicit contractual relationships.

between the contracting parties.⁵ The identity of the parties and the social milieu within which the contract is consummated are irrelevant. The exchange is cloaked in anonymity with one party selling to the market and the other buying from the market. This is an extreme caricature of contract and in its purest form it has no real world counterpart. Contract typically involves the projection of exchange into the future, with contemporaneous exchange as a special case. Entering into a contract will generally entail placing restrictions on the contracting parties' future options. Freedom of contract is the freedom to impose restrictions on one's future behavior.⁶

For a wide range of activities, recognition of the duration of the contract and the extensiveness of the future restrictions would add complexity to the analysis but little insight. For many other activities, however, the length of the agreement, the nature of the restrictions, and the complexity of the issues arising between the formation stage⁷ of the contract and its termination will be of crucial interest. Consider the difficulties in designing contracts to deal with long-term relationships such as development and procurement of complex defense hardware, construction of a chemical plant embodying substantial state of the art advances, joint ventures, franchise agreements, or marriage. While the parties might want to go into considerable detail at the formation stage concerning the rights and obligations of each party given various contingencies,⁸ it will often prove too costly to specify the precise terms of the contract and it will be desirable instead to use rough formulae or mutual agreement to adjust the contract to current situations.⁹ As the relational aspects of the contract become more significant, emphasis will shift from a detailed specification of the terms of the agreement to a more general statement of the process of adjusting the terms of the agreement over time—the establishment, in effect, of a “constitution” governing the ongoing relationship.¹⁰

□ **Agency.** Frequently one party to a transaction—the firm—engages

⁵ For a detailed discussion of the characteristics of discrete transactions and relational contracts, see Macneil (1974, pp. 735–805).

⁶ See Clark (1939, p. 87) and Macneil (1974, p. 810).

⁷ In contractual relations, rights and duties often arise before the formation stage of the contract. In civil code countries, the obligation to bargain in good faith has long been explicitly recognized. Kessler and Fine (1964) show that this continental law doctrine is not totally foreign to common law jurisdictions. See, for example, *Hoffman v. Red Owl Stores, Inc.*, 26 Wis. 2d 683, 133 N.W.2d 267 (1965).

⁸ For examples of some attempts to specify at least some of the terms of the marriage contract, see Weitzman (1974, pp. 1278–1288).

⁹ For a discussion of some of the factors making long-term, incomplete contracts desirable, see Williamson (1971, 1973, 1974), Macneil (1974), and Goldberg (1976a). Coordination by long-term contract blends into coordination by vertical integration. It is not hard to imagine *interfirm* coordination mechanisms that are stronger and more accepted by the relevant parties than some *intrafirm* mechanisms. The convenient fiction of economic theory that monolithic firms coordinate internal behavior perfectly and engage only in discrete, anonymous contracts with external parties leads us to ignore the great similarities between internal and external coordination. For an approach which stresses interorganization coordination, see Richardson (1972).

¹⁰ The constitution can be in large part implicit, being defined largely by the social (and legal) context within which the agreement was made. The standard marriage contract provides a good example. The general question of the nesting of transactions in deeper relationships is discussed briefly in Section 2 and in more detail in Macneil (1974).

in similar transactions with a large number of other parties—the consumers—who each enter into very few such transactions. The consumers will, in many instances, find it desirable to act collectively through an agent both to negotiate the terms and to administer the contract over time. In an analogous situation, employees will find that a union can fill this role, negotiating multiyear contracts which determine both compensation and working conditions and also providing a method for seeing that the terms of the contract are adhered to (or a means for changing the working conditions without reopening the contract).

We can view individual transactions as being governed by contracts on (at least) two levels. The provider enters into contracts with individual customers with the content and interpretation of these contracts governed by another level of contract—the collective contract—between the provider and the agent. Regulation can also be viewed in this manner with the implicit contract between the regulated firm(s) and the regulatory agency serving as the collective contract.¹¹ Indeed, we can go much further than this. Conceptually, we can treat judges and legislators as agents enforcing and revising the rules under which individual transactions take place. Thus, the absence of a formal administered contract does not preclude us from analyzing a certain set of transactions as if it were governed by such a contract. For example, the law of product liability can be viewed as a collective contract governing the terms under which numerous individual contracts are consummated; further, changes over time in the content of product liability law can be viewed as efforts by the agents (courts and legislatures) to adjust the terms of the collective contract to changing circumstances.¹²

In this sense, all transactions, however well defined they might appear, are nested in a complex shifting pattern of contractual jurisdictions which, taken together, establish the rights and obligations of the respective parties and the roles of the agents. The structures of the set of contracts governing particular transactions can, of course, differ substantially. The responsiveness of the agents to their clientele, the division of authority between agents, and the freedom of individuals to shift between jurisdictions all will vary.¹³ Nevertheless, this formulation does call attention to the fact that the problems of determining the appropriate common law rules for governing specific sets of transactions will in many ways be analogous to the problems

¹¹ There is no reason for the collective contract to be explicitly recognized as a valid contract. Indeed, even if it has no legal recognition it might still be of tremendous practical importance; see, for example, Friedmann's discussion of collective bargaining agreements in Great Britain (1951, pp. 26–27).

¹² Brown (1974, p. 149) notes that the common law can be treated as a standard form contract. We are suggesting a slightly different interpretation. The common law is embedded in a social contract which establishes a procedure for adjusting the specific terms of the contract over time.

¹³ Agency relationships might be very short-lived and might involve small numbers. Single individuals or small groups might engage agents to customize services for them (e.g., stock brokers or trustees). One party might sometimes act both as a party to the transaction and an agent for the other party (e.g., a doctor or a department store certifying, in effect, the product's quality). Since in the context of regulation we shall generally be more interested in long-run collective agency relationships, these qualifications will generally not be of much importance in this paper. They can, however, be of much greater interest in a general theory of agency. For an exhaustive taxonomy of agency concepts, see Mitnick (1974).

faced by regulators and other administrators of collective contracts. It also emphasizes that private explicit contract inevitably blends into implicit social contract of which regulation is but a special subset. Finally, it provides us with an individual—the agent—on whom we can focus our attention. That the agent might be a fictitious character does not detract from his pedagogic value.

We shall assume throughout that the agent is a faithful representative of his principals' interests. While a wildly unrealistic assumption, the benevolent agent, like the benevolent dictator of traditional welfare economics, is a convenient analytical construct. This assumption does, however, preclude discussion of the politics of regulation—particularly the charge that regulators are susceptible to political influence by producer interests.¹⁴ It is indeed true that the institutions of regulation are subject to political abuse. We must bear in mind, however, that all institutions, including those of private contract, are. It is by no means obvious that integrating political considerations into the analysis will make regulation a relatively less attractive alternative; detailed investigation of that point, however, is beyond the scope of this paper.¹⁵

How might we model economic processes in a world in which agency is important and restrictions on entry into (and exit from) jurisdictions are pervasive? One possibility would be to take a general equilibrium Walrasian approach. This, however, is apt to be uninteresting or impracticable.¹⁶ Instead we shall focus on the decisions of an agent with a fixed constituency; this is roughly the counterpart to Marshallian partial analysis in an agency world. (As we shall see in the next section, however, the analysis has strong Schumpeterian overtones.)¹⁷

□ **A bidding for the market paradigm.** To facilitate analysis, we shall focus on an agent who must devise, put out to bid, and administer a collective contract for the provision of electricity, telephone service, or some other so-called natural monopoly industry. The assumption that there is a unique formation stage for the collective contract does some violence to reality, particularly for some of the more subtle relational contracts (e.g., the implicit contract of the common law). The assumption does, however, greatly simplify the discussion and usefully centers on the decision problem of the benevolent agent with a defined constituency (or jurisdiction).¹⁸

¹⁴ See, for example, Bernstein (1955), Stigler (1971), and Posner (1974).

¹⁵ For a more detailed discussion of the politics of regulation and private contract, see Goldberg (1974); see also Galanter (1974).

¹⁶ It is doubtful that sufficient institutional content can be introduced into such models to make them very interesting. On a more heuristic level, however, the study of "appropriate jurisdiction" might yield useful insights. For example, if most health insurance is provided through group insurance, then we might ask whether the group administrator is the appropriate agent for all aspects of the contract or whether some decisions should be left to "lower" agents or reserved for "higher" agents. An example of the former would be giving the individual member a choice of insurers or insurance packages; an example of the latter would be a legislative or judicial rule that the insurance coverage does not lapse for one year after an individual has been laid off. For a discussion along these lines, see Lord (1975).

¹⁷ A third approach, which is largely ignored here, would be to focus on the agent's problems of building and maintaining his constituency.

¹⁸ Certainly the initial bidding abstraction would appear far less objectionable than the conventional Walrasian fiction of an auctioneer quoting prices.

Demsetz¹⁹ relies on bidding for the whole market in his debunking of the standard natural monopoly justification for regulation—namely the allegation that there might be room for only one efficient producer. The fact that technology requires that only one producer exist does not preclude an initial bidding competition for the right to be the sole provider. If collusion among bidders can be avoided, competitive bidding “for the field” should eliminate monopoly profits, since any bidder who included monopoly profits in his bid would run the risk of being undercut. Expected profits would, therefore, be zero and, since Demsetz assumes away risk and uncertainty, there will be no risk premium. Thus, competitive bidding solves half the monopoly problem: excessive profits. However, if this solution entailed merely equating price and average cost, there would still be misallocation since, with decreasing costs, price would exceed marginal cost. This second problem can be solved, as Demsetz implies, by adopting a multipart tariff, charging the consumers marginal cost plus a lump sum just sufficient to yield the provider a normal profit. Thus, there is no reason in principle that a natural monopoly industry need be inefficient.

This argument assumes away problems due to risk or transactions costs to focus attention on the logical inconsistency of the narrow natural monopoly rationale. Of course, as Demsetz has shown elsewhere, if we can assume away risk and transactions costs, then, as long as there is freedom of contract (that is, the state does not artificially set some transactions costs greater than zero), the private market will always yield efficient outcomes. Monopoly, for example, would not be inefficient, since consumers could (costlessly) band together and bribe the monopolist to set price equal to marginal costs even if there were no potential competitors.²⁰

The demolition of the natural monopoly rationale is not merely a testimonial to the power of the “zero transactions cost” assumption. The argument highlights the fundamental similarity between regulation and a private contract for the right to serve. It further suggests that in searching for a rationale for regulation we should look not at the shape of the long-run average cost curve, but instead at the complexities involved in devising and administering such a contract. Indeed, natural monopoly industries will be characterized in this paper not by their alleged decreasing average costs, but by the features which make long-term relationships between consumers and producers desirable and which further make it extremely difficult to determine at the outset the specific terms of that relationship.

□ **Desiderata.** Working within the discrete transaction paradigm, economists have developed an elaborate and elegant optimization framework which provides a rigorous definition of economic efficiency. In an administered contracts world we are not so fortunate. We must first concede that even if the agent were to perform perfectly, the outcomes need not be socially desirable—there is no reason to presume that decision-making has been decentralized along the proper lines. That is the price we must pay for confining ourselves to partial analysis.

¹⁹ Demsetz (1968); for a critical discussion of Demsetz, see Williamson (1976).

²⁰ See Demsetz (1966, p. 64). For a discussion of some of the conceptual difficulties that arise in a zero transactions cost world, see Goldberg (1976a, pp. 46–48).

The agent must, explicitly or implicitly, give appropriate weights to the preferences of his clientele—that is, he must somehow construct a partial social welfare function. Further, he must ascertain those preferences and where preferences are ill-defined—as would be common in administered contracts—the agent will, in effect, be called upon to manufacture group preferences.²¹ Hence, welfare criteria will be based on the agent's weighting and characterization of reasonable preferences.

In the discrete transaction paradigm, the parties are concerned with the price and quantity of clearly defined inputs or outputs and make their optimizing production or consumption decisions accordingly. The agent at the formation stage of an administered contract typically confronts a far more complex problem. The longer the anticipated relation and the more complexity and uncertainty entailed in that relation, the less significance will be placed on the price and quantity variables at the formation stage. The emphasis will instead be on establishing rules to govern the relationship: rules determining the appropriate length of the relationship; rules determining the process of adjustment to unexpected factors that arise in the course of the relationship; and rules concerning the termination of that relationship.

One can, with suitable caution and humility, apply the logic of optimization to aspects of the agent's choice problem. Indeed, one reason for formulating the problem as we have is to facilitate such analysis. Thus, by holding other aspects of the problem constant, it should be possible to determine the optimal length of a contract as a function of certain parameters (such as the exogenous rate of technological change). Nevertheless, in the discussion that follows we shall shy away from attempting to develop any rigorous criteria for efficiency and shall instead content ourselves with judging arrangements by some "reasonable" criteria. Such a nondefinition of efficiency will not sit well with most economists. Having scaled the dizzying heights of optimality, it is difficult and a bit anticlimactic to have to plumb the murky depths of reasonableness.

3. Protecting the producer's right to serve

■ Suppose that potential bidders for a contract realize that successful performance requires them to install long-lived, specialized capital equipment that has a very thin resale market. Their bid will depend in part on their expectations concerning the future availability of that market. These expectations will, in turn, be influenced by the existence of restrictions on the consumers' ability to exit. The investment might, however, prove to be a serious miscalculation and the winner might find that it cannot even cover variable costs. Then termination would be cheaper than continuation. In this event, making it easier for producers to terminate the contract will enhance the attractiveness of the arrangement (lower the supply price). Hence, the

²¹ Alternatively we could say that the agent must determine the principal's true preferences and then, given the principal's ignorance of the relationship between his preference mapping and the choice set, the agent must attempt to construct that relationship. Thus, in a world in which a rational principal *must* delegate much of the task of evaluating alternatives to agents, we cannot judge the success of the agents against a standard based on the principal's perceptions of the relationship between the available alternatives and his utility to be derived therefrom.

producers will find that restrictions on either their behavior or the consumers' behavior will affect their supply price.

Consumers are in a similar position. To take advantage of a particular service might require the installation of long-lived complementary equipment. The consumer might be reluctant to purchase an all-electric house if he has no assurance that electricity will be available at "reasonable prices" over the life of the house. On the other hand, the consumer will want to avoid being locked into an inferior technology; for example, he might want the flexibility to transmit data by microwave rather than telephone lines if he were to see fit.

Increasing the protection of the producer's right to serve will make the contract more attractive to producers but, *ceteris paribus*, will make it less attractive to consumers. Likewise, increased protection of the consumers' right to be served will be valued by consumers and be treated as an additional cost by producers. Thus, at the formation stage the agent must determine the appropriate protection for both the right to serve and the right to be served.

Consider the following stylized example. The provider can name only one price that is fixed for the duration of the contract. Consumers have no interest in protecting their right to be served. (Therefore, the producer is free to terminate at will.)²² Potential bidders know that as the durability of the plant increases, the marginal costs of production will fall; if the contract is terminated at any time, however, the scrap value of the plant will be zero. The consumers want to maintain their freedom to terminate the agreement so that they can take advantage of lower prices and/or superior technologies as they appear. The only variable under the agent's control is the level of protection of the right to serve.²³

The optimal protection will be that at which the expected marginal benefits to the consumers of increased durability and decreased producer risk (lower prices) are just offset by the expected marginal costs of decreased flexibility. If the optimal protection is substantially greater than zero, this means that the agent finds it in the long-run interest of his principals to restrict their future options;²⁴ the effective achievement of their long-term interests requires that barriers be erected to their pursuit of short-run self-interest.²⁵

Observation of private contracting parties suggests that they often will provide such protection in their contracts. Long-term commercial leases, requirements contracts, and exclusive dealing contracts are

²² Price determination in long-term contracts will be discussed in more detail in Section 4. Protection of the consumers' right to be served will be discussed in Section 5; for a detailed analysis of the right to be served, see Goldberg (1976b)

²³ Protection depends on both the length of the contract and the penalties for breach at any time during the life of the contract. It is assumed for expositional convenience that these can be aggregated.

²⁴ It should be remembered that the very essence of contract is the restriction of future options. It is the economist's failure to take cognizance of that fact which leads to the treatment of long-term restrictions on behavior as aberrational.

²⁵ Formal models of the agent's choice problem can be extended to take into account such complications as (1) consumer reliance on the continuance of the relationship (protection of the right to be served), (2) more complex pricing formulae, and (3) interactions with insurance or alternative risk spreading devices. While insurance will often be a substitute for restrictions, it can also be a complement; it might, for example, be best to insure against some contingencies and to include restrictive contract clauses to control insurance premiums.

commonly observed.²⁶ Liquidated damages for premature termination or cancellation are also common.²⁷ For example, for sale of nuclear power plants General Electric's catalog listed termination charges in 1974 beginning at \$72,000 per month.²⁸ The natural monopoly sector has characteristics which generally make protection of the producer's reliance especially attractive—very high capital-output ratios and capital which is both extremely long-lived and relatively immobile.²⁹ It is therefore reasonable to expect that the agent would design contracts with substantial protection of the producer's right to serve.

The fact that such protection would be desirable from the consumer's point of view has important implications for the analysis of regulation.³⁰ Two closely related criticisms of regulation are that it unduly restricts entry³¹ and that it discourages technological change

²⁶ In practice, these often provide much less protection than they appear to provide on paper. See the comments of businessmen in *Columbia Nitrogen Co. v. Royster Guano Co.* 451 F.2d 3 (4th Cir. 1971). On the other hand, it is probable that meaningful long-term contracts would be more common were it not for their possible conflict with the antitrust laws. See *Standard Oil Co. of California v. United States*, 337 U.S. 293 (1949) and *FTC v. Motion Picture Advertising Co.*, 344 U.S. 392 (1953).

²⁷ Courts will refuse to enforce what they regard to be penalty clauses. The line between unenforceable penalty clauses and enforceable liquidated damage clauses is a fuzzy one. See Dawson and Harvey (1969, pp. 19–34) and Macneil (1975, pp. 699–702).

²⁸ Kwitny (1974, p. 39). In 1973 Combustion Engineering won a series of contracts in which it dramatically increased the customer's freedom to back out of deals. While the increased freedom (reduced protection of the right to serve) might ultimately prove desirable, it is clear that Combustion Engineering has exposed itself to substantially greater risks. The *Wall Street Journal* notes the company officers and directors were heavy sellers of the stock in 1973. It further states:

Within Combustion, the debate over these risks has grown so hot that a contracting executive has come to this newspaper with documents describing the new contracts. He argues that the risks are unacceptable and could cost Combustion hundreds of millions of dollars within a decade. He shows evidence that others in the company are worried too (Kwitny 1974, p. 38).

²⁹ It could be argued that these characteristics are the *result* of protective regulation. Indeed the argument in the following footnote suggests that the protection of the right to serve will generally lead to more capital intensive production techniques. Thus we are implicitly assuming that if there were no protection for the right to serve, the efficient capital-output ratio would still be very high or if that is not the case, the optimal technique would be extremely expensive. For most of the industries generally classified as natural monopolies that would seem to be a reasonable assumption.

³⁰ The discussion in the text focuses on growth and innovation and ignores internal efficiency issues such as the influence of regulation on factor proportions: The analytical framework can be extended to encompass such issues. For example, it seems clear that the level of protection of the right to serve does influence the choice of production techniques. As protection is increased, producers will adopt technologies which take advantage of this increased protection and this will almost certainly lead to the adoption of more capital-intensive techniques. The choice of flexible pricing rules (to be discussed in the next section) can also influence factor proportions decisions. The Averch-Johnson (1962) model would be a special case in which the right to serve has absolute protection (entry is blockaded) and in which rate of return pricing (rather than some other flexible pricing mechanism) is used. In this broadened context the A-J overcapitalization result must be reinterpreted. The optimal factor proportions of the A-J model will not (except by accident) be optimal when we take into account the factors that make flexible pricing and protection of the right to serve (and the right to be served) attractive. (It should be noted that there are other reasons for not taking the A-J implications seriously; see Joskow (1974).)

³¹ Posner (1969, p. 612) for example, states:

But limitations on entry are worse than superfluous; they constitute a barrier to entry that may perpetuate monopoly long after a market has ceased to be naturally monopolistic.

by protecting existing producers from competing technologies.³² To be sure, such limitations on entry must appear inefficient in a discrete transaction world. Entry barriers do enable the producer to charge a higher price in the short run than he could without the barriers; likewise, the regulator who, for example, protects UHF station owners from CATV competition is undoubtedly in error within this framework. But this short-run analysis ignores the importance of the protection of the right to serve. Would the firm have come into the market initially without some protection from competition? Would it have come in on terms as favorable as it did? What will be the rate of supply of innovations in the future if potential suppliers realize they will not be protected by the regulator? That is, if we view the protection afforded by the regulatory agent as *forward looking*, we can see it as a goad to innovation rather than a hindrance. Restrictions on entry by firms with identical or competing technologies provide a (possibly beneficial) haven from the Schumpeterian gale of creative destruction. Schumpeter³³ put the point eloquently:

. . . restrictions . . . are, in the conditions of the perennial gale, incidents, often unavoidable incidents, of a long-run process of expansion which they protect rather than impede. There is no more of a paradox in this than there is in saying that motorcars are traveling faster than they otherwise would *because* they are provided with brakes.

Thus, a regulator acting as the consumers' agent would desire some shielding of existing producers from competing technologies. Regulation could, perhaps, be criticized for doing too much shielding or shielding the wrong producers, but to be valid such criticism first requires that we adopt a framework that enables us to determine the appropriate restrictions on producers and consumers.³⁴

Even if it is true that regulation is too protective of existing technologies, there is no reason to presume that private contract would lead to the optimal amount of protection. The consumers' private agent will adopt some of the same practices as would the regulator (public agent). We can thus suggest four points. First, some technology suppression will likely be desirable from the consumers' viewpoint regardless of the institutionally determined identity of the agent. Second, institutional arrangements relying on private agents will frequently have restrictive mechanisms similar to those employed in regulated industries. Third, if they do not employ such mechanisms, they will often rely on a mixed bag of substitute rules to achieve roughly the same goal—patents,³⁵ trade secrets, and creation

The only justification for regulating entry that seems at all appealing . . . is that a true market test of a new entrant's efficiency may fail to materialize due to the regulatory agency's power to prescribe minimum rates.

³² See, for example, Green and Nader (1973, p. 881), Kahn (1971, pp. 32–45), Posner (1971, pp. 29–30), and Noll (1971, p. 25).

³³ Schumpeter (1950, p. 88). The reader is strongly urged to read the two paragraphs preceding the quoted material.

³⁴ In terms of policy we should be concerned not only with the appropriate restrictions but with designing mechanisms that facilitate removing restrictions that no longer serve their purpose. For an analysis along these lines concerning protection of the right to be served, see Goldberg (1976b).

³⁵ A patent is another manifestation of the right to serve. During the life of the patent, the patentee has the exclusive right to sell the product and can enjoin others from doing so or collect damages (if he can afford to protect his claim). In an institutional engineering context there are great difficulties determining the proper mix of legal devices for protecting the right to serve. It should be clear, however, that all such

of property rights in customers are examples.³⁶ Finally, sometimes private market mechanisms will simply not be adequate and the private market will fail to provide goods and services that would (and should) be made available under alternative institutional arrangements.³⁷

4. Flexible pricing

■ Consider the options concerning pricing arrangements open to an administrator of a long-term contract. One option is simply to charge a lump-sum payment payable at the beginning of the period with goods and services then provided costlessly during the period the contract is in force. An almost equivalent alternative would be to provide for a fixed annual payment. If the buyer has access to capital at better terms than the potential sellers, it is to his advantage to acquire the financing and to pay the supplier up front. If the contract were terminated, then the buyer might find the task of attaining a refund more difficult (and expensive) than the task of ceasing payment and would therefore prefer annual payments. But aside from such relatively minor issues, these two options are rather similar. A third option would be to establish a price schedule fixed for the duration of the contract. The schedule can entail all sorts of complex arrangements—two-part tariffs, quantity discounts, cash discounts, and the like. But the significant factor is that the price schedule, no matter how complex, is agreed to when the contract is signed.

Another option would be for the agent to leave the price term open to varying degrees. Rather than specify future prices in advance, he could simply specify a process whereby such prices would be determined.³⁸ Such flexible pricing can take a number of different forms. The French administrative law doctrine of *imprévision*³⁹ and, to a lesser degree, the common law doctrines of frustration and quasi-contract are examples of such flexible pricing at the implicit social contract level. Alternatively, price could be adjusted according to some formula. A cost-of-living escalator is the simplest example of

devices (including patents) are quite imperfect, and, furthermore, that the array of institutional alternatives is much richer and more complex than standard economic analyses suggest.

³⁶ See *National Fire Insurance Co. v. Sullard*, 89 N.Y.S. 934; 97AD233 (1904) in which insurance agents were given property rights in customers. Joskow (1973, p. 404) complains that recognition of this right has severely slowed the adjustment of the liability insurance industry to superior distribution methods.

³⁷ It is quite possible that institutions of private contract can provide *less* flexibility than those of regulation and can in some instances lead to too much protection of an obsolete technology. Private property rights in insurance customers mentioned in the previous footnote, provide one likely example. In a somewhat different context, Dunham (1972, p. 14) notes that private restrictive covenants written at one point in time establish a set of transactions costs at a later date which can substantially slow adjustment to a changing world.

³⁸ Flexibility will be important for elements other than price as well. For a discussion of flexibility in long-term relationships from both a planning and legal viewpoint, see Macneil (1975).

³⁹ Friedman (1951, p. 34) notes: "It is in regard to administrative contracts that the famous doctrine of *imprévision* was first developed. Since 1905, French administrative tribunals have adjusted terms of administrative contracts in favour of the private contractor where a change of circumstances, such as a substantial rise in costs, would make it inequitable to hold him to the terms of the agreement. This has inspired most of the recent developments of the doctrine of frustration."

this approach. Prices could be set in relation to some presumably exogenous price, for example, the spot market price.⁴⁰ Or the price might be set as a function of gross revenues.⁴¹ Fuller and Braucher summarize well the array of options:⁴²

Flexibility is sometimes sought . . . by leaving the price in a supply contract to be set by agreement from time to time. The agreement may contain a general arbitration clause . . . or it may contain a specific provision for arbitration in the event of a failure of the parties to agree on price. Frequently no standard is established for the arbitrator other than the implied one of general fairness and prevailing price levels. At other times the agreement will include a formula that interlocks the price to be paid by the buyer with the price of the same product, or a related product, on some designated market. At other times, particularly in agreements between corporations affiliated in ownership or management, price will be determined by actual cost to the seller plus a percentage for profit. In such "cost plus" contracts an elaborate definition of "cost" will usually be required, as well as considerable faith in the processes by which cost accountants purport to allocate costs where more than one product is being manufactured or sold.

Flexible pricing techniques are risk shifting devices,⁴³ but they are much more than that. Price flexibility preserves the decisionmaker's ability to adjust to changing conditions. It provides the opportunity to make better short-run allocation decisions under the umbrella of the long-term contract.⁴⁴ In a complex world, agents (or contracting parties generally) are unable to specify the characteristics of the product at the formation stage.⁴⁵ Thus, in designing a contract for an ad-

⁴⁰ In *Socony-Vacuum*, long-term contracts for gasoline fixed the price on the basis of the prevailing spot market price. Industry members agreed to a procedure of buying "excess" gasoline in the spot market in order to raise prices, demonstrating that such external prices need not be truly exogenous. *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150 (1940). Similarly, about half the wholesale meat sales are for future delivery with the price being the one reported in the "Yellow Sheet" on the date of delivery; for a discussion of alleged manipulation of Yellow Sheet prices by major meat packers, see Kwitny (1974). Fishlow (1974, p. 269) notes that in Brazil, where indexing has been built into many long-term contracts, the choice of an index has become a political issue.

⁴¹ In American shopping centers tenants pay a fixed rent or five to six percent of the gross, whichever is larger; Fuller and Braucher (1964, p. 79) note that such arrangements have become very common in long-term leases for commercial real estate generally. Such pricing is also common for franchising arrangements and royalty payments.

⁴² Fuller and Braucher (1964, pp. 77-78). For a detailed discussion of the variety of flexible pricing techniques, see "Business Practices and the Inflexibility of Long-Term Contracts" (1950).

⁴³ The defense contracting literature suggests that as the government bears a larger share of the risks of cost overruns—that is, as the contract type shifts from fixed price to cost plus fixed fee—bidders will decrease their bid price; see Moore (1967, p. 49), and Feeney, McGlothlin, and Wolfson (1964). While the federal government is probably better able to bear the risks than defense contractors, it is not obvious that a wise agent would shift the risk from, say, a cable television firm to a local community.

⁴⁴ The importance attached to flexibility is well illustrated by behavior in the paper industry. According to Macaulay (1963, p. 60):

The standard contract used by manufacturers of paper to sell to magazine publishers has a pricing clause which is probably sufficiently vague to make the contract legally unenforceable. The house counsel of one of the largest paper producers said that everyone in the industry is aware of this because of a leading New York case concerning the contract, but that no one cares.

⁴⁵ While the argument in the text concerns the flexibility to adapt to changes in specifications, the inability to specify quality at the formation stage and subsequent difficulties in monitoring it will also increase the attractiveness of cost-based pricing in contracts for long-term provision of a bundle of services. Problems associated with determining and monitoring quality are discussed in Section 6.

vanced weapons system embodying a number of advances in the current state of the arts, construction of a complex new chemical plant,⁴⁶ or a telephone system to be operated over a long period of time, the agent will desire flexibility to adapt his plans to incorporate new knowledge developed during the performance of the contract (or developed exogenously) and to adapt also to possible changes in the principals' preferences. It would be extremely difficult to maintain such flexibility with a fixed price if the desired changes entailed increased costs for the providers.⁴⁷ If the change orders can be isolated, the contract at the formation stage might appropriately call for a fixed price plus a cost-based adjustment for changes in specifications;⁴⁸ if the changes are likely to be a significant aspect of the product being procured or if assigning costs to the changes in specifications is very difficult, then the agent might desire to extend cost-based pricing to the entire contract.

Many of the techniques used in other flexible pricing contracts are ill-adapted to problems in the regulatory sector. Cost-of-living escalators can adjust for the risks entailed in a changing price level but are of no help in adjusting to changes in relative factor scarcity, quality changes, or production techniques. Prices might be tied to spot market prices, but spot markets for most regulated industries seldom exist (nor would the likelihood of their existence be much enhanced under alternative nonregulatory regimes); even if they did exist, there would be great difficulties in determining the relevant spot price since costs often depend on customer characteristics (like location), the availability of fuel, and other localized factors. Comparability with benchmark producers (government or private firms) offers some guidance, but, as the long controversy over the comparability of TVA to private utilities showed, conclusive inexpensive answers are not likely to be found.

It seems reasonable to conclude that the agent would desire some flexible pricing mechanism in the long-term contract for provision of a natural monopoly service. While some of the techniques discussed in the previous paragraph might be utilized (e.g., fuel adjustment clauses), it is quite likely that there will be a large cost-based component. In particular, one form of cost-based pricing—rate of return regulation—appears to be at least a plausible choice. It is not obvious that any of the other imperfect flexible pricing mechanisms (including the special case of prices fixed at the formation stage) will be superior.⁴⁹

⁴⁶ For constructing petrochemical plants, *Business Week* notes: "Most of the industry has switched to a negotiated, cost-plus-fixed-fee type of contract from the old fixed-price bid where the contractor with the lowest bid got the project." See "Fluor Gambles on a Flock of New Orders," *Business Week*, November 9, 1974, p. 129.

⁴⁷ If the changes led to lower costs, the fixed fee would deprive the customers of the savings; it would also greatly curtail the agent's incentives to lower quality standards since his principals would not be rewarded with lower prices to offset the quality reduction.

⁴⁸ We must stress that in actual commercial ongoing contractual relationships, adjustments often will be made regardless of the wording of the formal contract; see Macaulay (1963).

⁴⁹ The problems arising from cost-based pricing have been discussed extensively in the defense contracting literature; see Scherer (1964). See also the discussion in Section 6.

■ The discussion of pricing in the previous section assumed that only a single price was to be charged. Since most observed long-term contracts deal with a single customer, it is not necessary in those contexts to discuss rules for designing a price structure. However, in collective contracts this is no longer true and, consequently, the complexity of the agent's task is increased. He must now determine an initial rate structure and rules for adjusting the structure over time; this includes rules governing the conditions under which service to specific individuals or classes of customers can be terminated and rules governing the prices offered to new customers.

While for much economic activity customer protection against termination (or a sudden price increase) is not important, in some instances it would be very valuable. A franchise contract in which the very existence of one of the parties is threatened by termination provides one private sector example.⁵⁰ Protection of the right to be served is generally of greater import in the regulated sector.⁵¹ The customer will find a great distinction between its *ex ante* and *ex post* demand. Before locating its plant at a particular site, a firm will have a number of options and, therefore, its demand for, say, rail services will be more elastic than after the plant has been built. *Business Week* provides a graphic example of the extent to which customers will rely on the continuance of the relationship and of the costs that will arise if that reliance is misplaced:⁵²

The magnitude of even a short hiatus in Penn Central service is so great that auto, steel and chemical industries, among other businesses located along the 19,000 mi. of line, say there is no way even to plan for alternative service. Victor Long, director of logistics for General Motors says, "You can't make contingency plans for something of this scope." Long says 42 GM plants are served exclusively by Penn Central, and some of them would be affected within 24 hours. Ford Motor Co., with 29 plants exclusively on the PC, says, "There is no way we could sustain our operation." Dupont adds: "A shutdown would mean insurmountable problems for every shipper."

There are three roots for the customers' demand for protection of the right to be served. First, once the relationship has begun, the supplier will be isolated to some degree from competition and will be in a position to "hold up" the consumer. A simple example would be the automobile mechanic who agrees to fix a car, takes it apart, and then says he will put it together again at three times the originally agreed upon price.⁵³ Generally, after the consumer has entered into the relationship with the producer, he will find himself vulnerable to price increases or the threat of termination; the producer will be in a position to price discriminate in an attempt to capture the "*ex post* consumer surplus."⁵⁴ In addition to protection from being held up,

⁵⁰ See Macaulay (1970) and Kessler (1957).

⁵¹ The rights to serve and be served are not totally independent. The fact that the customer's options are generally restricted by the regulatory arrangement increases the importance of the right to be served. Protection of the right to be served in the form of the common carrier rule long precedes the appearance of the modern institutions of regulation.

⁵² "Penn Central Puts Off Doomsday," *Business Week*, February 17, 1975, p. 30.

⁵³ The consumer would be protected under one or more common law doctrines (e.g., preexisting duty or unconscionability) or Section 2-209 of the Uniform Commercial Code. These represent a response by agents at a different level (judicial and legislative) to the hold up problem.

⁵⁴ Since the consumer's demand curve can look very different after he has made a commitment to the long-term contract, it is important when discussing price discrimina-

the customers will desire protection from arbitrary and capricious treatment. Finally, they will want to deal with the problem of "honest mistakes." The customers want to make investment decisions on the basis of reasonable price expectations but the producer finds that a particular service is no longer (or never was) profitable; the customer therefore would like some protection for his reasonable price expectations against the good faith decisions of the supplier to terminate or to increase prices.⁵⁵

It should be clear that protection of the right to be served is not the only mechanism which consumers can use to achieve their goal. They could engage in stockpiling, maintain multiple suppliers, maintain standby capacity, insure, or perhaps even resort to vertical integration. Determination of the appropriate mix of these imperfect alternatives is obviously a complex problem. It is reasonable to suggest, however, that protection of the right to be served would frequently play a prominent role in the mixes chosen by agents for contracts to serve the natural monopoly industries.

Protection of the right to be served does not come costlessly. The agent must therefore balance the benefits of protecting the right against the costs such protection entails. The problem conceptually is similar to that of protecting the right to serve discussed in Section 3. Producers might be reluctant to initiate particular services if they do not have the freedom to adjust prices (or terminate) if future circumstances warrant. This problem is in part mitigated by regulatory policies which generally require the utility to extend services and by compensation schemes which base utility earnings on the overall operations of the firm, not on individual services—i.e., rate of return regulation. Given these institutional constraints on the supplier, the more likely effect will be that service will be overextended and that particular services will be kept alive too long.⁵⁶ If the firm is to make a reasonable profit, the cost of providing unprofitable services must be covered by some subset of the customers; in effect, customers will pay an insurance premium in the form of higher prices. In addition, if prices are prevented from adjusting to short-run changes in supply and demand conditions, there will be persistent short-term resource misallocation.⁵⁷

tion to distinguish between *ex ante* and *ex post* demand curves. This distinction generally appears to be ignored in analyses stemming from a discrete transaction orientation.

The producer can increase his revenue by a more indirect means by using the threat of termination to discipline trouble makers—for example organizers of dealers, tenants, or customers. This is, of course, analogous to the firing of union organizers.

⁵⁵ What if consumers are uninformed and do not perceive the risks? Should we encourage them to expose themselves to such risks because their ignorance shields them from the undesirable results discussed in the text? We can still suggest an alternative efficiency-based argument for justifying protection. Failure to adopt protection today against the unperceived future risks can lead to significant losses in the future, and these future losses can cause social dislocations which would make society as a whole worse off for having failed to adopt protective measures today. This notion is analogous to Calabresi's "secondary costs" of accidents; see Calabresi (1970, pp. 39–67). Consumers, in effect, delegate to the agent the tasks of evaluating the risks and of determining the efficacy of alternative responses to the risks.

⁵⁶ It should be pointed out that the utility can to some extent offset these forces by degrading quality and by using selective marketing practices.

⁵⁷ The vulnerability of the individual customer to arbitrary treatment by the utility suggests that substantial procedural protection of the individual's right to be served would be desirable. However, if the firm must go through extensive and expensive

We do not intend to consider here how the agent should balance protection of consumer reliance against the costs of possible higher average prices and static misallocation. The point we do want to stress is that analyses in the discrete transaction tradition tend to focus only on these cost elements—primarily the static misallocation problems—and ignore the possibility that some of these costs might well be worth bearing. Modeling which derives efficiency conditions with the implicit assumption that there should be no protection of the right to be served will, except by accident, give wrong and misleading answers.

■ If, as the above argument suggests, contracts for the provision of a natural monopoly service will be long-term agreements with cost based pricing, then the agent's task is not done once the contract has been let.⁵⁸ As Posner notes, a whole new set of issues arises:⁵⁹

What our discussion of the pernicious side effects of profit regulation crucially implies is that if an attempt is made to limit a company's profits the government must also concern itself with dimensions of firm behavior that could otherwise be left to the free market, such as the efficiency with which the firm employs capital and other resources, the rate and direction of its inventive activity, its expansion into other markets, and . . . the structure of its prices. These are areas in which a natural monopolist left to itself might be expected at least to approximate satisfactory performance. Once its profits are constrained—even partially—the monopolist's incentives to economically efficient and progressive performance are distorted, and much broader regulatory controls of company activity become necessary.

He is right in observing that once we begin to attempt to limit the firm's profits, we have taken the first step down the slippery slope and must then engage in a lot of other detailed oversight. He is wrong, however, in suggesting that the roots of our difficulties lie in the institutions of regulation. The problems are intrinsic to the service, not to the act of regulation itself.

That is, if the regulatory relationship were replaced by a private contract, the problems faced by the private agent would differ mainly in degree rather than in kind from those that plague regulators and provide a field day for their critics. Indeed, even in a rather simple private sector contract like a university food service contract⁶⁰ one can observe on a lesser scale the whole panoply of regulatory horrors.

proceedings to terminate customers it might find it cheaper to continue serving them, even if those customers are behaving in a manner detrimental to the group as a whole (for example, not paying their bills). It should not be difficult to work out examples in which the high price of due process will lead to substantial antigroup behavior. Starr (1971), for example, argues that increased due process protection of tenants in public housing has made it extremely difficult for the authorities to deal with "problem" tenants; this, he suggests, is a primary cause of the deterioration of public housing.

⁵⁸ Since we are using the bidding for the market notion only metaphorically, there is no need to consider the problems that arise if such a contract were actually being put out to bid. If, however, we were considering the possibility of franchise bidding as a substitute for regulation, such a comparison would be appropriate. For an example of the difficulties that arise in this regard, see Williamson (1976) and Goldberg (1976c).

⁵⁹ Posner (1969, pp. 605–606).

⁶⁰ The university is in the not-for-profit sector and therefore the contract is not a purely private market affair, but this is not terribly important. The bulk of the contract food industry does deal with the private sector; see "America's Eating-Out Splurge," *Business Week*, October 27, 1975, p. 45. We focus on the university primarily because we have had first-hand experience in negotiating and administering such a contract.

6. Administering the contract

Such contracts typically last for three years with the price for the last two years to be determined on the basis of expected costs plus a specified rate of return on sales. The university, like the regulator, must determine which costs are allowable; it must further decide on how detailed its monitoring of the firm should be, and on how much discretion the firm's management should have in making decisions that will affect costs.⁶¹ The university must also determine what it will consider to be a "reasonable profit," and it must decide how much effort it should exert to ascertain the firm's true profits. In particular, it will have to monitor intra-firm transfers between the fiscal entity under its jurisdiction and the firm's central headquarters (for various managerial services) or supplier divisions. The problem is analogous to the difficulties encountered by a state regulatory agency analyzing the cost allocations made by AT & T for long distance calls, or the prices for equipment charged operating companies by Western Electric.⁶²

Quality of service raises a number of problems. The agent must devise criteria and a process for changing the quality of service (and perhaps the price) if experience indicates that the initial quality level chosen was inadequate (or too high). The quality criteria must be flexible enough so that the management is not precluded from taking advantage of bargains. (That is, the contract should not require that only Brand X coffee be used or that pork chops be served on Monday nights.) Yet the standard must be objective enough so that the agent can convey the standards to the provider and monitor compliance.

The agent will find that there are substantial problems in monitoring compliance. To perform the task satisfactorily, he must immerse himself in trivia. Is there sufficient choice of breakfast cereals? Do they run out of the main entrees too often? Are they using "choice" meat in the stew? The agent will have to investigate consumer complaints regarding the general quality of service. He will find that it is too expensive to monitor everything effectively and, consequently, some noncompliance will get by, yet it is also likely that a not insignificant amount of resources will go toward monitoring. It is not too fanciful to suggest that the ratio of time spent quibbling over trifles to industry value added is higher in the contract food service industry than in the telephone industry or other regulated industries.⁶³

The food service example might not adequately capture the complexity of the problem. Consider, therefore, a business firm purchasing private line services from a telephone company.⁶⁴ How is the buyer to monitor performance? The methods and criteria it adopts would probably not differ much from those developed by the reg-

⁶¹ Of particular importance are decisions concerning the quality of service; these will be discussed below.

⁶² One difference from the regulatory context is the relative ease the university has in terminating the contract. Termination and putting a contract to bid again are costly, but they are options which are available and, from time to time, are used. The university also has the option of vertically integrating and providing the service itself which many, in fact, do; it also has the option of more complete vertical disintegration—having no collective contract and relying on the market—an option which is also sometimes taken.

⁶³ For criticism of the emphasis regulatory agencies place on trivia, see MacAvoy (1971), Lewis (1967), and Posner (1969).

⁶⁴ See also Williamson (1976) for a discussion of some of the problems in the context of a cable television contract.

ulators. The one substantial difference between the two cases is the relative simplicity of this private agent's task. He can establish performance criteria in terms of the goals of members of the firm. While these goals are not necessarily so mutually consistent as traditional profit maximizing models assume, they are likely to be far more homogeneous and ascertainable than the goals of the community at large. Hence, the difficulties of determining consumer preferences (or what consumer preferences ought to be) are greatly diminished in the private line example. The more homogeneous preferences and clearer feedback signals of the private arrangement might lead to the choice of a different (and more effective) set of monitoring techniques, but at least in their broad outlines the tasks of the public and private agent are the same.⁶⁵

Capital poses a number of problems for regulators, both in its measurement and in the monitoring of capital decisions (to control the tendency to expand the rate base). The same sort of issues arise, albeit in a somewhat different form, within long-term contracts for the provision of services in which fixed, specialized capital must be used (e.g., the food service contract, or a cable television agreement). If the life of the capital does not coincide with the life of the contract, then when the contract expires (or is prematurely terminated) it will be necessary to determine the capital consumption—if the capital is owned by the customers or their agent—or the “fair market value” of the surviving capital—if it is owned by the provider but must (or ought to)⁶⁶ be sold back to the other party or to the new provider. In either case the task can be a complex and expensive one to perform. If the rate of capital consumption is variable (depending on the level of output and maintenance effort) then the rules that the agent uses to determine capital consumption will, in effect, determine the relative price of capital; the rules could lead to factor proportion alterations not unlike the Averch-Johnson effect.⁶⁷

⁶⁵ For a description of California's system for monitoring quality of telephone service, see Public Utilities Commission (1972). Performance standards include a number of technical criteria—for example, the call completion rate should be at least 98 percent (pp. 13–14)—and methods for measuring compliance. While there often are substantial economies of cost spreading which make the collective establishment and monitoring of quality standards desirable, this does not mean that the agency should (or does) centralize all quality decisions. Indeed, one criterion for satisfactory performance is a rate of fewer than 6.5 customer trouble reports per 100 stations per month (pp. 12–13). Quality variations clearly are discernible in many dimensions (for example, the choice between private and party lines) and it would generally be desirable to leave such decisions to the customer. The extent to which quality decisions should be delegated by the agent is an “appropriate jurisdiction” issue (see note 16) which, while fascinating, is beyond the scope of this paper.

⁶⁶ The contract could actually require such resale at “fair” prices or the fact that the capital is worth so little to the holder without the franchise could make resale extremely likely, although not inevitable. Williamson (1976) has a detailed discussion of the treatment of capital in the cable television contract which includes a description of the process for transferring equipment from the provider back to the city. See also Macaulay's (1966, pp. 90–91) description of termination compensation in automobile dealership franchise contracts.

⁶⁷ In the food service the capital is owned by the university and capital consumption is priced by paying a fee as a percentage of gross revenue to cover rent for land, buildings, tables, dishwashers, etc. Percentage of the gross compensation to an input of production (which is common in a number of other contexts such as shopping center leases) will typically lead to overuse of that input—at least according to traditional welfare criteria. When it is realized that using the price system is not costless and that

What should be the agent's role in capital expenditure decisions that arise during the life of the contract? To what extent should he "duplicate" the supplier's efforts in evaluating capital expenditures? Extensive supervision is costly both in terms of the out-of-pocket costs of monitoring and in terms of the sacrifice of the benefits of the provider's presumed expertise, a sacrifice which can be very great if the knowledge gained from operating programs is a useful input in capital decisions. On the other hand, giving the provider a relatively free rein will induce him to recommend (or undertake) capital expenditures which, if the capital "pricing" rules are improperly specified, can lead to an excess of capital. Perhaps a more serious problem is the producer's incentive to try to influence capital decisions so as to enhance his relative advantage in future bidding. This can take the form of recommending equipment which takes advantage of idiosyncracies of the providing firm. There is, indeed, an incentive to develop such idiosyncracies (similar to the incentive to differentiate one's product) so as to increase the relative disadvantage of new bidders.

The preceding discussion should not be taken to mean that the problems raised are insoluble. They are, indeed, resolved regularly in a manner apparently satisfactory to the contracting parties. Whether they are solved as well as they could be in terms of the contracting parties' interests and whether the solutions are also in the best interest of those not party to the contract are more difficult questions. The point is, however, that the solution ultimately agreed to will be imperfect by the criteria of traditional welfare economics and, further, that the imperfections will be similar to those that arise under regulation. Long-term, flexible pricing contracts with cost-based, profit-limitation features will discourage internal efficiency, discourage hard bargaining with labor and other suppliers, encourage gold plating, and encourage excessive capital formation. That is, the provider will have incentives to act very much like a regulated firm. Likewise, the agent will have incentives to act very much like a regulator, analyzing the cost figures of the provider, determining whether the measured profits meet the criteria laid out in the initial contract, monitoring quality and capital decisions, and so forth.

7. Concluding remarks

■ It is important to reiterate that we are not making a case for regulation. This essay might more appropriately be looked upon as "the case against the case against regulation." Many of the problems that arise in regulated industries would arise even if the industries were not under the jurisdiction of a regulatory agency (although the magnitude of the problems need not be the same).⁶⁸ Further, some of

there are other reasons for resorting to percentage of the gross pricing (see the discussion of flexible pricing in Section 4), then it is no longer clear that there really is "overuse." What we have is merely a factor proportion alteration, not necessarily a factor proportion bias.

⁶⁸ For a suggestive discussion of the difficulties involved in franchise contracts for provision of cable television, see Williamson (1976). Of course, the alternative to regulation need not be a publicly let franchise contract; it could simply be private individual contracts made under the jurisdiction of the public law of contract including, perhaps, the antitrust laws. While analysis of the impact of these bodies of law on an unregulated natural monopoly sector is well beyond the scope of this essay, there is reason for pessimism, or at least caution. The law of contracts has not in general been very successful in adapting to relational exchange patterns; it has maintained its

the regulatory problems perceived by economists are largely illusory; they are the result of stacking regulatory outcomes against irrelevant standards generated by models which suppress the contractual complexities inherent in the so-called natural monopoly sector.⁶⁹

The administered contracts approach provides a very different perspective for examining regulatory institutions. The “justification” of regulation is seen to rest not on narrow natural monopoly (declining long-run average costs) grounds; rather it rests on the long-term relational matters stressed here. Thus, the observed emphasis by regulatory agencies on protection from competition, which appears quite anomalous within the standard framework, has a plausible explanation in this broader context.

Perhaps of greater importance, the administered contracts framework opens up new areas of search for innovations in regulatory institutions. Current research typically begins with an optimization model and seeks innovations which will satisfy static efficiency conditions within the framework of the model; peak load pricing and the optimal fair rate of return provide examples of this genre. Our approach places a relatively greater emphasis on mechanisms for maintaining, adjusting, and, perhaps, terminating long-term relationships. Further, it suggests sources for institutional innovation heretofore largely ignored by economists studying regulation. The emphasis on rights to serve and be served raises the natural question of how, if at all, those rights should be protected. Such a formulation suggests the relevance of analytical tools and institutional forms responsive to such questions as: how should *X*’s right to breathe clean air be protected from *Y*’s productive activity which pollutes that air? Thus, we are led to consider the efficacy of such legal instruments as injunctions, damage rules, and other forms of protecting rights.⁷⁰ A second source of innovation is observation of the behavior of privately contracting parties. How do businessmen design, police, and adjust their long-term relationships? Can any of the techniques that have evolved in the private sector be fruitfully transferred to the public sector?

The implications of this essay go beyond altering our perspective on regulation. Economic theory generally ignores the complexity of contractual arrangements by implicitly assuming that most exchange takes place in the discrete transaction form. Indeed, some of the theoretical breakthroughs of recent years (for example, time-dated commodities and contingent markets) have taken the form of forcing complex relationships over time into a discrete transaction mold. We

doctrinal integrity in large part by relinquishing jurisdiction (for example, to regulatory agencies) so that it has become a law of leftovers, “general rules adequate for regulating those transactions which are either not complicated enough or numerous enough to have stimulated the development of separate bodies of rules” (Summers, 1969, p. 567). See also Macneil (1974) and Friedman (1965). Antitrust law presents a veritable mare’s nest for a deregulated natural monopoly sector: multiyear contracts, termination of customers, refusal to provide services to competitors (e.g., not permitting local telephone companies to tie in with a larger telephone network), and similar issues will bring the activities of the producers into constant conflict with the law (although many such activities would likely be desirable). Further, it is quite probable that the judicial remedy would take the form of a regulatory decree, in effect establishing a mini-regulatory agency; see Posner (1970, pp. 386, 388) and Timberg (1954).

⁶⁹ See the discussion of comparative institutional analysis in Demsetz (1969).

⁷⁰ See generally Coase (1960) and Calabresi and Melamed (1972); for an analysis of protection of the right to be served in this spirit, see Goldberg (1976b).

hope that this essay has been sufficiently suggestive to encourage theorists to explore seriously the implications of opening up the black box of contract.

References

- AVERCH, H. AND JOHNSON, L. "Behavior of the Firm under Regulatory Constraint." *The American Economic Review*, Vol. 52, No. 5 (December 1962), pp. 1052-1069.
- BERNSTEIN, M. H. *Regulating Business by Independent Commission*. Princeton: Princeton Univ. Press, 1955.
- BROWN, J. P. "Product Liability: The Case of an Asset with a Random Life." *The American Economic Review*, Vol. 64, No. 1 (March 1974), pp. 149-161.
- . "Business Practices and the Inflexibility of Long-Term Contracts." *Virginia Law Review*, Vol. 36 (1950), pp. 627-647.
- CALABRESI, G. *The Cost of Accidents*. New Haven: Yale Univ. Press, 1970.
- AND MELAMED, A. D. "Property Rules, Liability Rules, and Inalienability: One View of the Cathedral." *Harvard Law Review*, Vol. 85 (April 1972), pp. 1089-1128.
- CLARK, J. M. *Social Control of Business*, 2nd ed. New York: McGraw-Hill Book Company, 1939.
- COASE, R. H. "The Problem of Social Cost." *Journal of Law and Economics*, Vol. 3 (October 1960), pp. 1-44.
- DAWSON, J. P. AND HARVEY, W. B. *Cases on Contracts and Contract Remedies*, 2nd ed. Mineola, N.Y.: The Foundation Press, 1969.
- DEMSEZT, H. "Some Aspects of Property Rights." *Journal of Law and Economics*, Vol. 9 (October 1966), pp. 61-70.
- . "Why Regulate Utilities?" *Journal of Law and Economics*, Vol. 11 (April 1968), pp. 55-66.
- . "Information and Efficiency: Another Viewpoint." *Journal of Law and Economics*, Vol. 12 (April 1969), pp. 1-22.
- DEWEY, D. J. "The New Learning: One Man's View," in H. J. Goldschmid, H. M. Mann, and J. F. Weston, eds., *Industrial Concentration: The New Learning*, Boston: Little, Brown and Company, 1974, pp. 1-14.
- DUNHAM, A. "Separation of Ownership from Decisions about Usefulness," in G. Wunderlich and W. L. Gibson, Jr., eds., *Perspectives on Property*, State College, Pa.: Institute for Research on Land and Water Resources, Pennsylvania State University, 1972.
- FEENEY, G. J., MCGLOTHLIN, W. H., AND WOLFSON, R. J. *Risk Aversion in Incentive Contracting: An Experiment*. The Rand Corporation, RM-4231-PR, August 1964.
- FISHLOW, A. "Indexing Brazilian Style: Inflation with Tears?" *Brookings Papers on Economic Activities*, No. 1. Washington D.C.: The Brookings Institution, 1974, pp. 261-280.
- FRIEDMAN, L. M. *Contract Law in America*. Madison: University of Wisconsin Press, 1965.
- FRIEDMANN, W. "Changing Functions of Contract in the Common Law." *University of Toronto Law Journal*, Vol. 9 (1951): pp. 15-41.
- FULLER, L. AND BRAUCHER, R. *Basic Contract Law*. St. Paul: West Publishing Company, 1964.
- GALANTER, M. "Why the 'Haves' Come Out Ahead: Speculations on the Limits of Legal Change." *Law and Society Review*, Vol. 9 (Fall 1974), pp. 95-160.
- GOLDBERG, V. P. "Institutional Change and the Quasi-Invisible Hand." *Journal of Law and Economics*, Vol. 17 (October 1974), pp. 461-492.
- . "Toward an Expanded Economic Theory of Contract." *Journal of Economic Issues*, Vol. 10 (March 1976a), pp. 45-61.
- . "Protecting the Right to be Served by Regulated Industries." Unpublished manuscript, 1976b.
- . "Competitive Bidding and the Production of Pre-Contract Information," Unpublished manuscript, 1976c.
- GREEN, M. AND NADER, R. "Economic Regulation vs. Competition: Uncle Sam the Monopoly Man." *Yale Law Journal*, Vol. 82 (April 1973), pp. 871-889.
- JOSKOW, P. L. "Cartels, Competition and Regulation in the Property-Liability Insurance Industry." *The Bell Journal of Economics and Management Science*, Vol. 4, No. 2 (Autumn 1973), pp. 375-427.

- . "Inflation and Environmental Concern: Structural Change in the Process of Public Utility Price Regulation." *Journal of Law and Economics*, Vol. 17 (October 1974), pp. 291–327.
- KAHN, A. E. *The Economics of Regulation: Principles and Institutions, Volume II: Institutional Issues*. New York: John Wiley and Sons, 1971.
- KESSLER, F. "Automobile Dealer Franchises: Vertical Integration by Contract." *Yale Law Journal*, Vol. 66 (1957).
- AND FINE, E. "'Culpa in Contrahendo,' Bargaining in Good Faith and Freedom of Contract: A Comparative Study." *Harvard Law Review*, Vol. 77 (January 1964), pp. 401–449.
- KWITNY, J. "Combustion Engineering's Order Surge May Have Been Based on Risky Deals." *Wall Street Journal*, May 7, 1974, p. 38.
- . "'Yellow Sheet' Guides Prices of Most Meat, But How Reliable Is It?" *Wall Street Journal*, December 6, 1974, p. 14.
- LEWIS, B. W. "Emphasis and Misemphasis in Regulatory Policy," in G. Shepherd and T. G. Gies, eds., *Utility Regulation*, New York: Random House, 1967.
- LORD, B. M. "An Analysis of the Market for Medical Expense Insurance: Some Implications of Contractual Relationships." Unpublished Ph.D. dissertation. University of California, Davis, 1975.
- MACAULAY, S. "Non-Contractual Relations in Business: A Preliminary Study." *American Sociological Review*, Vol. 28 (February 1963), pp. 55–67.
- . *Law and the Balance of Power: The Automobile Manufacturers and Their Dealers*. New York: Russell Sage Foundation, 1966.
- MACAVOY, P. W. *The Crisis of the Regulatory Commissions*. New York: W. W. Norton and Company, 1970.
- . "The Formal Work-Product of the Federal Power Commissioners." *The Bell Journal of Economics and Management Science*, Vol. 2, No. 1 (Spring 1971), pp. 379–395.
- MACNEIL, I. R. "The Many Futures of Contract." *Southern California Law Review*, Vol. 47 (May 1974), pp. 691–816.
- . "A Primer of Contract Planning." *Southern California Law Review*, Vol. 48 (January 1975), pp. 627–704.
- MITNICK, B. M. "The Theory of Agency: The Concept of Fiduciary Rationality and Some Consequences." Unpublished Ph.D. dissertation. University of Pennsylvania, 1974.
- MOORE, F. T. "Incentive Contracts," in S. Enke, ed., *Defense Management*, Englewood Cliffs, N.J.: Prentice Hall, 1967.
- NOLL, R. *Reforming Regulation*. Washington, D. C.: The Brookings Institution, 1971.
- POSNER, R. A. "Natural Monopoly and Its Regulation." *Stanford Law Review*, Vol. 21 (February 1969), pp. 548–643.
- . "Taxation by Regulation." *The Bell Journal of Economics and Management Science*, Vol. 2, No. 1 (Spring 1971), pp. 22–50.
- . "A Statistical Study of Antitrust Enforcement." *Journal of Law and Economics*, Vol. 13 (October 1970), pp. 365–419.
- . "Theories of Economic Regulation." *The Bell Journal of Economics and Management Science*, Vol. 5, No. 2 (Autumn 1974), pp. 335–358.
- PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA. "Investigation into the Need and Requirements for a General Order Governing Standards of Telephone Service to be Furnished by Telephone Utilities in the State of California." Decision No. 80082, Case No. 9353, March 21, 1972.
- RICHARDSON, G. B. "The Organization of Industry." *Economic Journal*, Vol. 82 (September 1972), pp. 883–896.
- SCHERER, F. M. *The Weapons Acquisition Process: Economic Incentives*. Boston: Graduate School of Business Administration, Harvard University, 1964.
- SCHUMPETER, J. A. *Capitalism, Socialism and Democracy*, 3rd ed. New York: Harper and Row, 1950.
- STARR, R. "Which of the Poor Shall Live in Public Housing?" *Public Interest*, Vol. 23 (Spring 1971), pp. 116–124.
- STIGLER, G. "The Theory of Economic Regulation." *The Bell Journal of Economics and Management Science*, Vol. 2, No. 1 (Spring 1971), pp. 3–21.
- SUMMERS, C. W. "Collective Agreements and the Law of Contracts." *Yale Law Journal*, Vol. 78 (March 1969), pp. 525–575.
- TIMBERG, S. "The Antitrust Aspects of Merchandising Modern Music: The ASCAP Consent Judgment of 1950." *Law and Contemporary Problems*, Vol. 19 (Spring 1954), pp. 294–322.

- WEITZMAN, L. J. "Legal Regulation of Marriage: Tradition and Change." *California Law Review*, Vol. 62 (September 1974), pp. 1169–1288.
- WILLIAMSON, O. E. "The Vertical Integration of Production: Market Failure Considerations." *The American Economic Review*, Vol. 61 (May 1971): pp. 112–123.
- . "Markets and Hierarchies: Some Elementary Considerations." *The American Economic Review*, Vol. 63, No. 2 (May 1973), pp. 316–325.
- . "The Economics of Antitrust: Transaction Cost Considerations." *University of Pennsylvania Law Review*, Vol. 122 (June 1974), 1439–1496.
- . "Franchise Bidding for Natural Monopolies—In General and with Respect to CATV." *The Bell Journal of Economics*, Vol. 7, No. 1 (Spring 1976), pp. 73–104.