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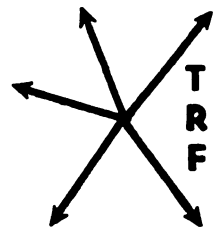

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Private Choice in the Theory of Regulation

*by Ed Bruning**

DIRECT GOVERNMENT regulation of industry has become a prominent phenomena within the U.S. economy, most notably in the field of transportation. Academicians, politicians, and industry leaders have debated and written about government regulation of transportation for well over a century. However, our knowledge of the effects regulation has on initiative and productivity is largely conjectural.[1] Many observers of the transportation scene espouse the view that transportation regulation is completely wasteful and that no net social benefits accrue from its existence. Their policy conclusions invariably provide for complete deregulation in order to rid the consumer of burdensome transportation charges and redundant services.

While the view outlined above may be correct, the evidence to date provides insufficient information to conclude that transportation regulation is completely wasteful. Kahn[2] points to the possibility that segments of our transportation industries would operate in extremely chaotic environments in the absence of government regulation when consideration is given to the dynamic nature of the economic environment and the uncertainties that exist. Not only would carriers suffer from the instability resulting from the intense competition that would most likely ensue, but the shipping public as well would witness a deterioration in the quality of transportation service. On the other hand, carriers may find it advantageous to collude in order to forestall the economic losses which are destined to result from destructive competition. The likely result in any event would be shipper exploitation in certain markets in the absence of regulatory provisions which restrict such behavior. Thus, it appears that benefits are positive for both transportation carriers and consumers. The important question, however, is whether the benefits exceed the costs.

Researchers from the field of economics have analyzed transportation regulation from the static-certainty model of perfect competition. The measure of the ideal performance deduced from the model is compared to actual measures of industry performance. Any departure from the competitive ideal is attributed to inefficiencies brought about by government intervention. Although the traditional approach has yielded fruitful insights regarding transportation industry structure, the policy conclusions resulting from the model have not convinced this writer that total deregulation of segments of the transportation industries is in order.

It is possible that regulation as a means of reconciling social and private interests has been evaluated incorrectly. The traditional approach as outlined above by necessity abstracts from the institutional detail of the market participants to determine measures of industry output and unit price. However, in order to assess transportation regulation it is important, first of all, to specify clearly the goals which regulation is designed to achieve. Secondly, the participants who stand to gain or lose from economic regulation must be identified. Much confusion has resulted in prior attempts to assess transportation regulation simply because regulatory goals were not thoroughly understood. Two interesting questions arise: Are there specific goals which transportation regulation is designed to accomplish? If so, have they been achieved? The Transportation Act of 1940 outlines the regulatory goals for the surface transportation industries; however, anyone familiar with the policy statement of this act is aware of the vague and inconsistent mandate set before the Commission. Recognizing the problems involved in efforts to assess regulation in terms of the conflicting goals included in the statement of national transportation policy has encouraged me to look elsewhere for a discussion of the goals of transportation regulation. In order to simplify the problem somewhat without losing a great deal of realism, I assume, in the approach presented in this paper, that the goal of regulation is to benefit the particular interest groups successful in influencing politicians to their cause. This assumption is logically consistent with political behavior as observed in the U.S. while simultaneously accounting for the wealth maximizing behavior of economic participants. In the event government regulation promises a carrier a rate of return in excess of one which could be earned from competing in the market, that carrier or its representative will reflect a demand for regulation and register "dollar votes" in

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the political arena. Likewise, consumer groups and shippers will register demands for regulation in the event they foresee a benefit from regulatory change. Within this conceptual framework it is possible to observe the actions of carriers, consumers, regulators, and other groups attempting to maximize wealth through redefining property rights via the regulatory process.

The primary objective of this paper is to introduce and develop an alternative conceptual framework for evaluating transportation regulation. In order to provide a contrast to the newly developed framework, however, I have included a brief summary of the traditional rationale for government regulation and the various forms it has taken, and the empirical research conducted in attempts to assess transportation regulation. These topics are discussed in sections two and three respectively. Section four presents the core of the paper. The theory of property rights is presented and used as a basis for the development of the conceptual framework. The final section concludes with a discussion of the state-of-the-art of knowledge concerning transportation regulation. An assessment is made of this body of knowledge, and suggestions are made for future inquiry.

TRADITIONAL JUSTIFICATION FOR GOVERNMENTAL REGULATION

According to traditional regulatory thought economic regulation is designed to supplement the workings of the market. Following Bator[3]

> "If prices are determined by market forces, they will not correspond to a Paretian maximum unless self-policing competition obtains in all markets."

Only coincidentally will the conditions described above be fulfilled for the market economy. In many situations the market fails simply because a single firm or a small group of firms control the price and output decisions within the specific market. Resources will therefore be overallocated to firms and industries experiencing net social costs, and underallocated to firms and industries with net social benefits. Thus, in disequilibrium states price fails to reflect actual scarcity in the market, and consumers suffer through foregone consumption opportunities and/or higher prices than those existing in equilibrium.

Government intervention has been justified in order to protect firms from destructive price competition. Where producers are characterized by substantial fixed costs there is a tendency for price to gravitate to the short-run marginal cost of production. With prices spiraling in a downward direction as firms compete for limited market opportunities, an incentive is present to price below short-run marginal costs for a period of time in an effort to force competing firms out of business. Once this behavior pattern manifests itself the destructive element jeopardizes the productive ability of firms in the industry.

Markets may fail because the costs of organizing, transacting, and enforcing contractual agreements are too great. In the production of "public goods" it is difficult to apportion the costs to users, and the provision of these goods must be paid for through taxation or some other form of collective financing. Obviously, private producers are not often willing to serve the market when the costs of production are difficult and costly to recoup from users in the market.

The relationship between government and business has existed for many years. Locklin explains the inception of regulation in the transportation industries as a result of railroad abuse of monopoly power. After World War I the regulatory philosophy changed in a very constructive way. For a while the concern of those involved in transportation regulation was to rationalize the existing transportation system and to lay the groundwork for imaginative regulatory planning for future years. However, this phase of regulation lasted for a short period, and with the emergence of the motor carrier as a viable threat to the railroads the regulatory philosophy once again became restrictive. With the passage of the Motor Carrier Act of 1935, and later acts in 1938, 1940, 1948, and 1958, the regulatory pattern evolved into the system of transportation rules that we are familiar with today.

Through the years spanning the Interstate Commerce Act in 1887 and the present, several specific forms of regulation were developed.

A. Judicial Regulation

Under this form of regulation primary reliance is placed upon the courts. Until well into the nineteenth century this was the customary method, and usually the only available method by which a consumer could obtain his legal rights. A significant problem is that court action tends to be very slow and costly. Judges are not often well informed on economic matters, and they tend to render legalistic decisions or to stick closely to narrow precedents rather than to give decisions based on contemporary economic problems and situations.

B. Legislative Regulation

This form of regulation was developed from attempts to cope with the inadequacies of judicial regulation. Although the statutes attempt to delineate the specific rights and duties of each party, they are often vague and subject to misinterpretation.

C. Franchise Regulation

A franchise is a contract between a private business and a governmental body, and widely used at the local level. Franchises are issued with contracts which include the distribution of the returns from the operation, the rights and obligations of the franchisee, and the amount of payment established for the governmental unit. Franchises may be set for short-term periods which allows for franchisee performance evaluation but detracts from strategic planning. Long-term franchises, on the other hand, allows for strategic planning while the primary drawback lies in the difficulty in assuring efficient operations. A perpetual franchise is available which grants the franchisee the authority to operate indefinitely. Similar to the long-term franchises, the major disadvantage is the lack of control over incentives for efficient operation.

D. Direct Commission Regulation

The legislature outlines the broad policies that the commission is required to follow under this form of regulation. The commissioners, however, are given broad legislative, executive, and judicial powers. Many of the commissions have a considerable body of administrative law and procedures developed to the point where they may almost be considered a fourth branch of government.

E. Indirect Methods of Regulation

Occasionally, the results of more direct forms of regulation are obtained simply through an investigation and public report by a fact finding board or by a legislative committee or other governmental body. Also, voluntary self-regulation of prices, output, and market divisions is possible when precise guidelines are established by the government or by firms with a strong interest in cooperation. Governmental promotional activities and subsidies are ideal ways in which to facilitate the needed cooperation.

F. Public Ownership

The government has completely supplanted private operations in certain markets. Although not as common in the U.S. as in other countries, public ownership is a viable form of regulation. The obvious drawback, aside from the ideological issue, is the possible lack of proper incentives for efficient operation.

In some instances transportation regulation was based at least to some extent on the threat of market failure. Whether the threat of market failure was due to structural reasons, i.e., monopoly and monopsony, or to destructive competition is not certain. Economic historians have recorded the fact that railroads exploited their customers, and in certain instances were exploited by their customers. On the other hand, it is not certain whether motor carrier regulation was ever justified on the basis of market failure. Locklin points out that the initial years for the motor carrier industry were quite turbulent. However, the norm of capitalism is the survival of the fit, willing and able. A natural outcome of the competitive process is the elimination of the marginal producers. Thus, the formative years of intense competition may very well have been the "weeding out" process of competition, with the industry approaching an equilibrium state after this process was complete.

Economists by their very nature look upon regulation with disdain. Nurtured on the ideal qualities of perfect competition, and basing their analysis on the Marshallian notion of consumer surplus, economists have attacked the presence of governmental involvement in transportation with great fervor. The following section discusses the results of several empirical studies which have attempted to test for the effects of regulation.

EMPIRICAL MEASURES OF THE EFFECTS OF TRANSPORTATION REGULATION

Within the last two decades regulation has been seriously analyzed in terms of its effect upon productivity. Averch and Johnson's[4] model describes the effects of rate of return regulation upon the firm's resource input decisions. The model posits that the profit maximizing regulated firm subject to effective regulation has an incentive to overcapitalize and to operate at a higher total cost than optimality conditions dictate. Several studies[5] have attempted to test the significance of the A-J thesis; however, the resulting evidence is inconclusive. Baumol et. al.[6] have extended the original model to include the impact of regulatory lag, uncertainty, alternative firm objectives beyond profit maximization, and alternative regulatory constraints.

The latest extension contends that undercapitalization may indeed be the case for firms subject to rate of return regulation.

The A-J model has little relevance to contemporary transportation regulation. The model is more relevant to traditional public utility industries such as electric power and natural gas transmission firms than transportation firms. Consequently, the literature is devoid of any attempt to quantify the A-J effect for the transportation case.

A number of studies have attempted to quantify and measure the social costs and benefits of transportation regulation. Coase[7] describes two basic approaches that traditionally have been used in evaluating direct commission regulation:

1. Compare the performance of an industry under direct regulation to an ideal norm derived from optimum conditions of economic theory.
2. Compare the performance of an industry under direct regulation to that of another industry or set of industries not regulated but similar in structure.

Coase points out that the first method is inadequate because actual situations cannot realistically be compared to the ideal norm of economic theory. Comparing one sector of the economy to the norm of perfect competition when other sectors diverge from the norm is not appropriate. In the second case, the likelihood of finding a non-regulated industry comparable to the regulated transportation industries is not very great. Consequently, the majority of studies attempting to measure the effects of regulation proceed according to the former approach.

Meyer et. al.,[8] assessed the extent to which competition was affective in transportation markets by comparing the existing market structure to one which would have resulted given the unconstrained play of competitive forces. Their results indicate that transportation regulation has resulted in a departure from the structure existing under perfectly competitive conditions. The study group cite as possible causes the conflicting economic and political goals of regulation, in addition to the fact that managerial thinking had not adjusted to the realities of present day economic and technical change. In summary, the investigators indicate that regulation has made the economic goal of cost minimization subservient to the political objective of service maintenance.

Sloss[9] found what he felt was a unique situation in which to test the significance of transportation regulation. The Canadian trucking industry is partially regulated with several provinces practically free of government intervention. Sloss compared the difference in freight charges for the regulated versus non-regulated carriers and found that rates were significantly higher for the regulated trucking firms. The author concluded that the cost of regulation on final users of transportation services in Canada varied between ten and fifteen million dollars more annually for the regulated than for the non-regulated carriers.

Friedlaender[10] conducted one of the most comprehensive attempts to measure the social costs of rail transportation regulation. The technique she employed was the analytical structure developed by Hotelling.[11] The supply curve in Figure 1 represents marginal cost for a firm in a competitive market. Assuming that the firm offers goods in the market at marginal cost plus markup, the equilibrium price will rise and equilibrium output will fall. Consequently, consumers will be worse off and producers better off by the price rise. Since producer's gains will fail to offset consumer's losses, society as a whole will be worse off as a result of the non-competitive pricing policies which create a deadweight loss equal to area ABC. The area is composed of the net loss in consumer's surplus, ABC', and the net loss in producer's surplus, C'BC.

Friedlaender estimates the divergence in rates and costs at twenty percent which leads to a welfare loss of approximately $500 million. However, this accounts only for the first round distortions. Other distortions occur in production and location decisions which the investigator found difficult to measure.

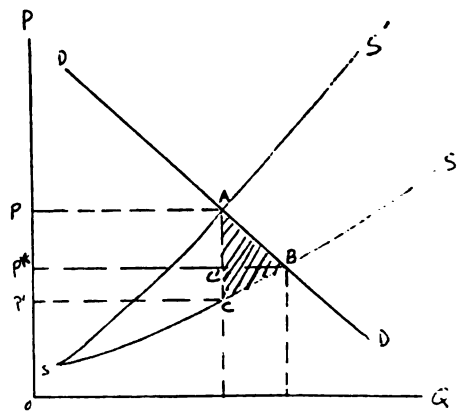

FIGURE 1

According to Friedlaender, the regulatory process tends to encourage excess capacity and to stifle initiative. The author considers the merits of transportation regulatory policy and concludes that carriers benefiting are vocal and their efforts concentrated while consumers adversely affected are silent and dispersed. The ICC and the political process tend to favor the interests of the carriers over the interests of consumers.

Moore[12] estimates that common carrier trucking rates would decline on the average of twenty percent in the event regulation was abolished. His estimate was based on the rate decrease experienced when the transportation of certain agricultural products was deregulated. The decline in rates for all regulated traffic would amount to a savings to shippers between $1.4 and $1.9 billion.

Moore estimates the loss to rail carriers from regulation between $1.7 billion and $2.4 billion. The lower figure was based on the assumption that, in the absence of regulation, rail carriers would carry the same total tonnage as presently carried under regulation. The investigator, however, acknowledges the fact that not all elements of the loss from regulation have been accounted for in his study. Nevertheless, the author's conservative measure of the total economic costs of transportation regulation approaches $4 billion.

In general, the policy conclusions which follow from the studies surveyed indicate that less regulation would benefit both consumers and the transportation industry. The unanimous opinion is that transportation carriers should be deregulated to allow the forces of competition to efficiently allocate resources and provide incentives for operating efficiencies within the industry. Allowing for measurement error, the evidence supports the notion that regulated transportation rates are higher than rates would be for non-regulated carriers, and that consumers suffer a real loss in purchasing power.

An alternative theoretical framework for analyzing the effects of regulation is presented in the following section. The methodological point of view is the individual's wealth maximizing behavior in relation to the economic environment. The essence of the approach is to explain the behavior of firms and institutions by analyzing the wealth maximizing behavior of individuals within organizations.

PROPERTY RIGHTS AND THE THEORY OF REGULATION

An argument can be made that the divergence in regulated and non-regulated freight charges does not reflect a true loss to society, but rather a transfer of wealth from one group in the economic system to another. The ultimate goal of regulation, viewed in this light, is to facilitate the wealth transfer. The naivety of the traditional consumer-producer dichotomy becomes obvious since it doesn't reflect the actual nature of relationships in a dynamic economy. The regulator is viewed as the wealth transfer agent because of his power to alter property right arrangements. Of course, the regulator is limited in his capacity to transfer wealth, at least in the short-run, since all citizens have inalienable rights which are protected by the constitution. Nevertheless, an important dimension of regulation enters the scope of economic analysis once the political nature of the regulatory process is recognized and factored into our models of economic behavior.

A body of theory has recently developed around the idea that the specific assignment of property rights over resource use significantly affects the behavior of individuals in a world of scarcity. Furubotn[13] expresses this thought in the following manner:

> ". . . individuals respond to economic incentives, and the pattern of incentives present at any time is influenced by the prevailing property structure."

Thus, property rights defined are the sanctioned behavioral relations that arise from the existence of resources and pertain to their use.[14] These relationships specify the norms of behavior, and the institutional setting which invariably determines the prevailing system of property rights becomes an important consideration in understanding the allocation of resources.

Several changes are introduced into the standard theory of production and exchange when property rights are included in the analysis. Models need not be confined to those implying profit maximization. Detailed analysis of the interrelationships between institutional arrangements and economic behavior becomes feasible by considering the effects of various property right assignments. Conceptually, the objective is to define the particular utility function that reflects the decision-maker's preferences, and to determine the actual set of options that is attainable. The problem emerges as one of maximizing the utility function subject to the constraint imposed by the system of property rights. The importance lies in the precision with which the researcher specifies the utility function and the oppor-

tunity set of the decision-maker. Coase[15] suggests a detailed analysis of the institutional setting in order to accomplish this task.

The property rights theory recognizes that transactions costs are positive in virtually all cases, and that the costs incurred in defining, policing, negotiating, and enforcing resource rights and contractual agreements are positive. In empirical studies, the exchange, policing and enforcement costs of contractual activities are detailed and serve to affect the decision-maker's wealth maximizing choices.

Individuals will try to exclude others from exploiting an existing opportunity whenever it appears advantageous to do so, assuming that individuals in society are motivated by self-interest and seek constantly to increase their rights in property. This is true only when the expected benefits exceed the expected costs of defining, exchanging, policing, and enforcing claims to resources. Furubotn[16] states:

> "To exclude some people from free access to a good means to specify property rights in that good."

In the same sense, any change in current laws and regulations governing the use of transportation resources implies a change in the prevailing property rights assignment. Thus, new property rights are created, and existing ones are changed as groups and individuals in society are successful in altering the system of transportation regulations and accept the cost of bringing about such change.

Stigler's work provides the theoretical foundation which views regulation as a fulcrum upon which contending parties seek to exercise leverage in their pursuit of wealth. The commodity being transacted in the political market is a transfer of wealth through the redefinition of property rights. The political representatives are on the supply and their constituents on the demand side. Viewed in this way, the market distributes more to those whose effective demand is highest. However, according to Stigler[17]

> ". . . between contending interests in the regulatory process, the producer interests tend to prevail over consumer interests."

In his mind, producer protection represents the dominance of a small group with a large per capita stake over the large group of consumers with more diffused interests. The central objective of his theory, therefore, is to explain the regularity of small group dominance in the regulatory process.

Stigler's "capture" theory[18] is an important theoretical advancement in the effort to explain economic relations in a political world. The theory is one dimensional, however, since producers and regulators are viewed as recipients of wealth transfers in the regulatory process. Consideration is not given to the possibility that other groups in the economic system may receive wealth transfers as well.

Peltzman,[19] following the work of Stigler, extends the regulatory model by broadening its scope to encompass all interest groups attempting to maximize wealth in the regulatory environment. The revised theory departs from the Stiglerian model by allowing for more than one winning group. For instance, the market is composed of many groups attempting the redefine property rights through regulatory change. The regulator, also a wealth maximizer, caters to the demands of the group which promises to deliver the greatest number of votes or monetary payments. The regulator must consider the interests of all groups since all of them represent potential votes. Therefore, he is forced to calculate the marginal voting response of all groups given a regulatory change. Some producer groups may suffer and some consumer interest groups or shipper groups may gain depending upon their marginal voting responses. The regulator's choice problem is not limited to selecting the appropriate size interest group to benefit and the group to tax; it also includes the selection of the appropriate structure of benefits and costs. An equilibrium is eventually reached when the marginal costs and benefits of all interest groups (including the regulator) are equated. Given a change in the equilibrium condition it is in the interest of the regulator to reach an equilibrium solution. The correction assures that, at the margin, some benefits accrue to all groups.

An extension of the Stigler-Peltzman model described above includes a mechanism whereby the specific form of regulation is determined given the demands of the various interest groups, and the costs and benefits of voicing such demands in the political-economic market. The regulatory form at any particular time is determined by the dominant interest group effective in influencing the regulatory and political officials to their view. Minority groups are not completely overlooked, however, for they receive a portion of the benefits which, in equilibrium, just equal the cost to the regulator for providing the wealth transfer.

Consider a situation where all interest groups are initially in equilibrium. There are two considerations which the

regulator must make that were mentioned above:

1. Maximize the allocation of wealth across interests groups at the margin;
2. Acquire the correct level of resources from the taxed group.

After all interest groups have assessed the particular regulatory arrangement in terms of the property rights structure which assures each group the maximum wealth given the cost involved in securing the wealth, the regulatory choice model will take the following form:

$$W_{jk} = \sum \frac{B_{jk}}{(1+i)^n} - \frac{C_{jk}}{(1+i)^n}$$

$$j = 1, 2, \ldots n; \; k = 1, 2, \ldots n$$

where

i = rate of time discount

B = benefits

C = transaction, policing, enforcement, exchange costs and taxes

W = wealth

The usual sequence is to calculate the costs (C) to interest group (j) for regulatory form (k). The costs include wealth transfers from interest group (j) to the regulator and the dominant group, and can be viewed as investments which bring forth a stream of benefits (B) in later periods. The greater the costs for any particular form of regulation to any particular interest group (C_{jk}), given a constant level of benefits, the less will be the net wealth return to each interest group (W_{jk}). Similarly, the discount rate (i) also affects the value of the benefits and, therefore, net wealth. High discount rates shrink the value of benefits accruing from regulatory forms which take a long time to restructure property rights. Thus, there is an incentive to change forms of regulation as regulatory transaction, policing, enforcement, exchange costs or taxes increase, or as the discount rate increases.

Future outcomes are always uncertain in some degree, and so benefit and cost magnitudes need adjustment to reflect these probabilities. Any regulatory form contains a weighing of probable effects to all interest groups. In addition, account must be taken of the fact that the same level of wealth may accrue to an interest group without the need for regulation, i.e., market competition may prove to be as profitable. These two uncertainty factors can be included by subjectively adjusting the best estimate values by a summary multiple (p).

Each regulatory choice may have had precedents which decide future forms of regulation or a single situation may have an additional wealth yield which weights very highly. In such cases, an evaluation of the form's own yield is too narrow. Some sort of precedential multiplier (m) should be applied. In situations which extend or retract the authority of the regulatory method chosen, (m) should be more or less than one. The latter holds if a form withdraws precedents which previously yielded transfers of wealth in another situation.

The general model of regulatory choice now takes the form

$$W_{jk} = m \sum \frac{B_{jk} \cdot P_B}{(1+i)^n} - \frac{C_{jk} - P_c}{(1+i)^n}$$

$$j = 1, 2, \ldots n; \; k = 1, 2, \ldots n$$

An important point to note is that regulators, as well as interest groups, are conducting calculations in the manner modeled above, and arranging strategies in order to maximize wealth. The specific form regulation will follow can be determined by analyzing the arguments which form the wealth maximizing functions of the dominant interest group and the regulator.

A considerable amount of ambiguity results in transportation regulatory analysis by the use of three simple constructs: consumer, producer, and public interest. According to traditional theory, a consumer is a buyer of economic goods and services, and a producer is a manufacturer of economic goods and services. Traditional theory also allows for differences in preferences among producers. However, empirical studies, such as those mentioned above, often ignore preference differences. These studies implicitly assume that regulation affects consumers as a group in one way, and producers as a group in yet another way. The importance of analyzing groups other than producers and consumers is not recognized. Nor has consideration been given to the possibility of a distribution of effects for each of the groups resulting from regulation. A similar problem results using the construct "public interest." Decomposing the construct into separate entities, "public" and "interest," it appears obvious that there is no single public interest, but a multitude of diverse and sometimes antagonistic interests.

The property rights approach acknowledges the fact that "consumer," "producer," and "public interest" have lim-

ited meaning when used even in their broadest sense. Recognizing this fact, and incorporating more institutional detail into the economic models of behavior, academic research can progress on a more solid basis. This alternative approach offers numerous avenues for economic and legal research. Topics for a research agenda would include a) identification of particular interest groups concerned with transportation regulation, b) identification of important explanatory variables that enter regulatory preference functions, c) specification of the regulatory preference function for each interest group, and d) operational and measurable forms for expressing functional arguments such as wealth, transactions, exchange and policing costs. Not only will this approach generate information regarding economic and political behavioral relationships, but it is now possible to test the hypothesis of whether the true goal of transportation regulation is economic efficiency, economic equity, or simply the self-serving interests of particular groups. The ideas presented in this paper are merely to indicate a possible direction for future research efforts. Needless to say, a tremendous amount of work remains to be accomplished.

FOOTNOTES

1 Stigler, G. **The Citizen and the State. Essays on Regulation.** Chicago: Chicago Press, 1975, pp. 167-177.

2 Kahn, A. **Economics of Regulation.** New York: John Wiley & Sons, 1970, Vol. 1, p. 25.

3 Bator, F., "Anatomy of Market Failure," **Quarterly Journal of Economics**, Vol. 72, 1958, p. 851.

4 Averch, H. and L. Johnson, "Behavior of the Firm Under Regulatory Constraint," **American Economic Review**, Vol. 52, 1962, pp. 1053-1069.

5 Courville, L., "Regulation and Efficiency in the Electric Utility Industry," **The Bell Journal of Economics and Management Science**, Vol. 5, No. 1, 1974, pp. 53-74; Spann, R., "Rate of Return Regulation and Efficiency in Production: An Empirical Test of the Averch-Johnson Thesis," **The Bell Journal of Economics and Management Science**, Vol. 5, No. 1, 1974, pp. 38-52; Peterson, H., "An Empirical Test of Regulatory Effects," **The Bell Journal of Economics**, Vol. 6, No. 1, 1975, pp. 111-126; Boyes, W., "An Empirical Examination of the Averch-Johnson Effect," **Economic Inquiry**, Vol. 14, 1976, pp. 25-35; Baron, D. and R. Taggart, "A Model of Regulation Under Uncertainty and a Test of Regulatory Bias," **The Bell Journal of Economics**, Vol. 8, No. 1, 1977, pp. 151-167.

6 Baumol, W. and A. Klevorick, "Input Choices and Rate of Return Regulation: An Overview of the Discussion," **The Bell Journal of Economics and Management Science**, Vol. 1, No. 2, 1970, pp. 162-190; Stein, J. and G. Borts, "Behavior of the Firm Under Regulatory Constraint," **The American Economic Review**, Vol. 62, No. 5, 1972, pp. 964-970; Meyers, S., "A Simple Model of Firm Behavior under Regulation and Uncertainty," **The Bell Journal of Economics and Management Science**, Vol. 4, No. 1, 1973, pp. 57-88; Baron, D. and R. Taggart, "A Model of Regulation Under Uncertainty and a Test of Regulatory Bias," **The Bell Journal of Economics**, Vol. 8, No. 1, 1977, pp. 151-167.

7 Coase, R., "Comment," **American Economic Review. Papers and Proceedings of the Seventy-sixth Annual Meeting**, Vol. 54, No. 2, 1964, p. 194.

8 Meyer, J.; M. Peck; J. Stenason; and C. Zwick. **The Economics of Competition in the Transportation Industries.** Cambridge: Harvard University Press, 1959.

9 Sloss, J., "Motor Freight Regulation," **The Bell Journal of Economics and Management Science**, Vol. 1, No. 2, 1970, p. 327.

10 Friedlaender, Ann F., **The Dilemma of Freight Transportation Regulation. Washington:** The Brookings Institute, 1969.

11 Hotelling, H., "The General Welfare in Relation to Problems of Taxation and of Railway and Utility Rates," **Econometrica**, Vol. 6, No. 2, 1938, pp. 242-269.

12 Moore, T., "Deregulating Surface Freight Transportation," in A. Phillips, **Promoting Competition in Regulated Markets.** Washington: The Brookings Institute, 1975, p. 66.

13 Furubotn, E. and S. Pejovich. **The Economics of Property Rights,** Cambridge: Ballinger Publishing Company, 1974, p. 32.

14 Demsetz, H., "Toward a Theory of Property Rights," **American Economic Review**, Vol. 57, No. 2, 1967, pp. 347-359.

15 Coase, R., op. cit.

16 Furubotn, E. and S. Pejovich, op cit., p. 37.

17 Stigler, G., "The Theory of Economic Regulation," **The Bell Journal of Economics and Management Science**, Vol. 2, No. 1, 1973, p. 26.

18 IBID.

19 Peltzman, S., "Toward a More General Theory of Regulation," **Journal of Law and Economics**, Vol. 19, No. 2, 1976, pp. 211-240.