The impetus for state regulation of Montana livestock motor carriers : the plausibility of an economic exchange theory
by Terry Peter Sacks

A thesis submitted in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE in Applied Economics
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Abstract:
This study evaluated whether the 1971 amendment of the Montana Motor Carrier Act, to regulate livestock motor carriers for hire, was the result of motor carriers' remitting to state government financial resources conditional to becoming regulated and remaining regulated. This was accomplished by establishing whether two criteria of the economic theory or regulation existed. The criteria were that quid pro quo will characterize the regulatory process, and the regulatory process will be reasonably effective in achieving the ends established by the quid pro quo.

Analysis of the regulatory law indicated the existence of quid pro quo. The statute specified mechanisms to fix rates and restrict entry, the primary sources of gain to the carriers, while also specifying the compensatory fees required of motor carriers for continued regulation.

The regulatory process was found to be reasonably effective in fixing rates. Uniform rates were effected by the regulatory statute's legitimizing the Montana Livestock Tariff Bureau.

The regulatory process was effective in erecting entry barriers to the extent that a fixed number of operating licenses were agreed to by carriers and government. Yet, rates of entry and exit have remained relatively high due to the ineffective implementation of statutory provisions to cancel certificates of operating authority when public need and necessity diminishes.

The reasons for this ineffective aspect of regulation, may, in fact further support the economic theory. As certificate cancellation is costly, the Public Service Commission will not implement this mechanism if not economical. Prices in the regulatory contract may not equilibrate marginal costs to Public Service Commission arid marginal value to motor carriers. Thus, ineffectiveness may be the result of market imperfection and not the absence of economic exchange.

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Date June 8, 1978

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MOTOR CARRIERS: THE PLAUSIBILITY OF AN ECONOMIC EXCHANGE THEORY

by

TERRY PETER SACKS

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ABSTRACT

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Chapter 1

INSTITUTIONAL CHANGE IN MONTANA: STATE REGULATION OF THE LIVESTOCK MOTOR CARRIER INDUSTRY

Statement of the Problem

The cattle industry is of major economic importance in the State of Montana. Cash receipts from the sale of cattle and calves averaged $375,769,666 between the years 1970-1975. Cattle and calves accounted for an average of 44 percent of total cash receipts from all agricultural commodities during the same five year period.[1]

In the mid-sixties, present patterns of specialization for marketing cattle were firmly established. Beef cattle are frequently moved from one grazing area to another or from grazing areas to feedlots. Cattle feedlots are concentrated in the Midwest and Southwest, while the source of cattle, cow-calf range operations is more widely dispersed. Thus, transportation has assumed a major role in the organization of the cattle industry, and accounts for the largest portion of cost in marketing livestock.[2] Yet there is no singular uniform flow of cattle, since each segment of the industry is characterized by a large number of relatively small independent firms.

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[1] Montana Agricultural Statistics, Volume XVI, County Statistics, 1974 and 1975, p. 12.

[2] Transportation of Cattle in the West, Agricultural Experiment Station Research Journal 25, University of Wyoming, January 1969, p. 3.

Movements of cattle between production regions in Montana and various feedlots involves transportation between diverse points in Montana and between Montana and other states.

Improved transportation technology has expanded cattle producers' choice of markets. Transportation of cattle is done primarily by motor truck. Between 1900 and 1930, large terminal markets were the primary outlets for cattle and railroads were the economically efficient means of transport. The advent of trucking technology, with its flexibility, allowed for the expansion of small feedlots and local auction markets. This in turn led to further expansion in the use of trucks to meet the demands of the changing market structure of the cattle industry.[3]

Truck transportation of cattle in Montana is done in a partially regulated economic environment. The Motor Carrier Act of 1935 granted the Interstate Commerce Commission power to regulate all interstate motor transportation. In section 203, (B)(6), of the Act, motor carriers hauling livestock and other agricultural commodities were exempted from economic regulation.[4] However, in Montana, as in most

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[3] Transportation of Cattle in the West, Agricultural Experiment Station Research Journal 25, University of Wyoming, January 1969, p. 4. It has been estimated that by 1962, trucks hauled 74 percent of all western cattle.

[4] Ibid, p. 9.

western states, truck transportation of cattle between points within the state is subject to economic regulation by the state authority. Interstate livestock transport remains exempt from economic regulation.

Regulation generally falls in two categories: economic regulation, which consists of defining who may engage in trucking, setting rates, determining routes or areas to be served the the schedules to be followed; and safety regulation, which specifies equipment standards, driver qualifications and maximum hours.

The Montana Motor Carrier Act and subsequent amendments specify the procedures for setting transport rates and licensing for-hire truck firms. Safety regulation remains with the federal authority.

The primary industries affected by regulation are the for-hire truckers and the cattle producing industry. Professional truckers are the regulated industry. Though the cattle industry is not regulated per-se, the environment in which the industry operates is indeed affected by the regulation of one of its key factors of production.

There are several economic considerations of importance in such a regulatory environment. Alterations in frim behavior and the net economic effect of regulation might be investigated. For example, if regulated rates are maintained at various minima, i.e., above rates that would occur in an unregulated market for transport services, what effect does this divergence have upon cattle firms' transportation decisions? How is the relative allocation of cattle between Montana and other states affected? There is also the question of how such regulation effects the capital-labor ratio of the regulated industry. If regualted rates are set in accordance with a "fair" rate of return on capital, any market determined increases in the price of capital may be accompanied by increased rates. This regulatory imperfection distorts the rate of return on capital above the competitive level, and the regulated firm is induced to purchase greater than optimal quantities of capital goods.[5]

The above kinds of considerations approach the topic "regulation" by evaluating the extent to which regulation furthers society's goals. This effects of regulation approach, implicitly presumes that regulation is imposed on the regulated firms in the pursuit of social objectives. Though useful in predicting firm behavior under regulation, estimating social costs of regulation, etc., this approach fails to address the reasons for the imposition of regulation in any micro-analytic detail.

The reasons for regulation need to be given more consideration than assuming that regulation is instituted to purport the social good. Perhaps there is substance to a causal relationship reversed to

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[5] Harvey Averch and Leland L. Johnson, "Behavior of the Firm Under Regulatory Constraint", AER, December 1962.

that of the regulatory environment affecting firm behavior, thus, social welfare. The regulated firms may actively seek to alter their instituional environment in pursuit of their private goals.

In addition to analyzing the economic effects of regulation, presuming social motives for the regulation, positive economic analysis can be used to determine the reasons for regulation, presuming no a priori social motives, thus, assuming the existence of private motives to affect their operating environment.

Recent advances in the economics of regulation hypothesize that regulation of private industry is the result of economic groups' exchange of private resources with the government for its provision of beneficial resources. The traditional hypothesis is that regulation of private industry arises from the demands of the public interest.

Public expression of the logic for regulation is accomplished through the formal apparatus of legal codes, judicial interpretation, etc. These institutions for public expression are bound by the public interest paradigm. The Montana Motor Carrier Statute itself is drafted and supported judicially by the public interest theme: to protect the state highways from abusive use and "the public from the evils incident to unregulated competition . . ."[6]

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[6] Board of Railroad Commissioners v. Reed, 102 M 382, 384, 58 P 2nd 271.

Objective

The primary objective of this study is to evaluate the plausibility that the legislation to regulate livestock trucking and the on-going regulatory process represents an exchange between state government and the motor carrier group; the carriers remitting financial resources conditional to becoming regulated and remaining regulated.

Procedure

The proposition that regulation of livestock carriers is an example of what the economic theory of regulation would predict is evaluated in terms of the following two refutable implications of the economic theory:

1) Evidence of quid pro quo will characterize both the jurisdictional inclusion of livestock carriers into the Motor Carrier Act and the ongoing regulatory process;[7]
2) The regulatory process will be reasonably effective in obtaining the ends established by the quid pro quo.

It is argued that if the implications above are not refuted, the economic theory is a likely explanation for the reasons behind the regulation of intrastate livestock carriers.

To accomplish this, the following chapter will set forth the

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[7]Quid pro quo means literally, "What for who."

theoretical underpinnings for the project. As the imposition of regulation involves collective behavior in the political sphere, the theory of groups and their public choice will be examined. Some general notions of collective good provision will be extended to the literature of institutional change. Economic regulation, as an example of some economic or political agent's institutional choice will then be examined in light of the theory of collectives and institutional change.

Chapter Three will describe the regulatory framework, the pre-regulatory behavior of the carriers and their arguments for becoming regulated.

Chapter Four will investigate the behavior of the livestock carriers within their regulatory environment.

Chapter Five will analyze the data of the previous chapters in terms of the refutable implications.

Chapter 2

AN ECONOMIC THEORY FOR THE INCIDENCE OF GOVERNMENTALLY PROVIDED INSTITUTIONS

Introduction

Economists have traditionally asserted individual or group maximizing behavior under a given set of institutional conditions. Outcomes of the maximizing process follow logically given alternative premises about the institutional framework, i.e., competitive, oligopolistic, regulative, etc. However, as Professor Goldberg has recently asserted, individuals or groups will not only seek to maximize their satisfaction within a given institutional arrangement, but will, if possible seek to change the "rules of the game" for possibly greater satisfaction than achieved under the former rules.[8]

Reasoning in terms of costs and benefits of institutional change or collective behavior in general is not new or unique to modern economic thought. The Greek philosopher, Aristotle, wrote,

> "Men journey together with a view to particular advantage and by way of providing some particular thing needed for the purposes of life, and similarly the political association seems to have come together originally, and to continue in existence for the sake of the general advantages it brings."[9]

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[8] Victor P. Goldberg, "Institutional Change and the Quasi-Invisible Hand", Journal of Law and Economics. p. 461.

[9] Aristotle, Ethics, viii. 9.1160a, see M. Olson, Logic of Collective Action, Harvard University Press, 1965, p. 6.

J. J. Rousseau also recognized the similarities between the rational choice of the populus for the institution of government and the rational behavior of microeconomic units postulated by economists when he wrote,

> "... it is seen to be untrue that there is, in the social contract, any real renunciation on the part of the individuals, that the positions in which they find themselves as a result of the contract is really preferable to that in which they were before. Instead of a renunciation, they have made an advantageous exchange: instead of an uncertain and precarious way of living they have got one that is better and more secure..."[10]

Thus, early in the literature it is recognized that the key to any sort of collective action is the existence and recognition of some common interest or good benefiting the collective. There exists

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[10] J. J. Rousseau, The Social Contract, p. 31. Of academic interest is Rousseau's implicit recognition of group goods. Regarding the inseparability and generality of any act of Sovereignty, Rousseau writes, "... that the social compact sets up among the citizens an equality of such a kind, that all bind themselves to observe the same conditions and should therefore enjoy the same rights. Thus, from the very nature of the compact, every act of sovereignty, i.e. every authentic act of the general will, binds or favors all the citizens equally ... (an act of sovereignty) is legitimate because it is based on the social contract, and equitable because common to all; useful because it can have no other object than the general good, and stable because guaranteed by the public force and the supreme power..." The quote is interesting because we observe recognition of: 1) group goods, 2) generality and inseparability of provision, 3) utility of their provision, 4) sovereign's coersive sanction of their provision enabling stable output. Quote taken from The Social Contract and Discourses. p. 30.

some special common interest particular to each level of organization be it a sovereign, labor union, or business firm. Hereafter, the product of this common interest will be termed <u>group good</u>[11] in the spirit of the recognized term <u>public good</u> from public finance.

The group good is specialized and particularized at each level of organization. Therefore, the contracts upon which the cohesion of the group formally rests are re-defined and specified at each level. The contracts delineate the manner of property rights to be observed by the contracting parties. Property rights are specified beginning from the broad classifications and appropriations of a sovereign's constitution to the more detailed and refined specifications of say a firm.

The Economic Theory of Institutional Change

<u>The Group</u>. The group and the common interest of individuals composing it are inseparable ideas. Raymond Cattel has stated that, "Every group has its interest."[12]

The organizational boundaries which define a group of more than one firm may include the nature of the output and its degree of

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[11] Note that "the" common interest may be a vector of many components.

[12] Raymond Cattel, "Concepts and Methods in the Measurement of Group Synality", in <u>Small Groups</u>, ed. by Hare, Borgatta, and Bales, New York, Al Knoff, 1955, p. 115.

homogeneity, the nature of the market which the group services (this may be defined by location and transport cost, for example), the technology available to the firms, the nature of returns from production, and formal institutional arrangements defined by legal processes.[13]

The Group Good. By their nature, once a group good is provided, all members of the group enjoy the consumption of the good equally. One member's consumption in no way hinders another member's consumption of the good. Formally put, if a quantity G of some group good is provided, then $G_1 = G_2 = \ldots = G_n$. That is, the quantity of group good G provided to member 1 equals that provided to member 2, and so on to the group's n^{th} member. Because any single member providing the good would bear all the costs of provision, but receive only a fraction of the benefits, individual voluntary provision is unlikely. This is the dilemma of the "free rider".[14]

The Institutional Framework as a Group Good. Following Anderson and Hill, the institutional framework is held to be the "rules of

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[13] For example, in the context of this study, the instituion of state boundary is perhaps the key organizational boundary defining the group of firms.

[14] Stigler has referred to this as the "cheap-rider" problem. There are costs to not participating so the ride is cheap, not free. See "Free Riders and Collective Action: An Appendix to Economic Theories of Regulation:. Bell Journal, Autumn 1974, p. 359.

the game" establishing access to resources and outputs therefrom.[15]

Though usually assumed as fixed in the microeconomics of the firm, the unique institutional framework within which all firms of a given group operate is an important input to the unique production function of every firm in the group. If strictly a good group resource, the argument I, institutional framework, of the production function $q = f(x_1, x_2 \ldots x_n, I)$ contains particular elements of equality common to all firms of the group. Thus, to retain the definition of "groupness", any voluntary action for institutional change by one firm alters the institutional environment of every other firm in the group in exactly the same fashion.

Consider a group consisting of two firms, each with production functions identical except for entrepreneurial capacity (if entrepreneurial capacity defines the firm), and operating within a given institutional framework; I. Suppose that firm 1 is able to bring about a change in I. By the definition of a group good, this also changes I for firm 2 in exactly the same manner. What are the results of such a change? From firm 1's point of view, the change wouldn't have been made if it didn't benefit by doing so. Suppose ΔI resulted in an increase in the firm's product price. The firm is

[15] See Terry Anderson and P. J. Hill, "Toward a Genery Theory of Institutional Change", Frontiers of Economics, pp. 2-3.

better off if the increase in the capitalized value of its productive assets is greater than the costs involved in ΔI. A productive input's value of marginal product may increase for an additional reason. Just as the addition of factors such as machinery may complement the marginal product of labor, changes in the institutional rules may increase the marginal product of the firm's existing set of productive inputs.[16]

The Marketplace for Institutional Change

The marketplace here is not a perfectly competitive one in the conventional sense where many buyers and sellers come to trade, each acting independently facing parametric prices.

The marketplace for institutions is thought to be a transaction point in which mutually beneficial exchange occurs between the monopolistic producer of institutions (government) and various private groups.

It was hypothesized above that the institutional framework is an argument in the firm's production function. Firms with common interest with respect to their institutional set-up can advantageously form into groups (at some collective cost) to become the source of

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[16]That is, where $q = f(x_1, x_2 \ldots x_n, I)$ $\frac{\partial^2 q}{\partial x_i I} > 0$. Certain inputs are quite possibly more productive under differing institutional rules.

demand for institutions.

Various groups compete for beneficial changes in the "rules of the game" that only government can provide. Changing the institutional set-up requires the utilization of scarce resources by private groups and by government. Changing the rules for one group may exclude altering them for another group. Thus, institutional change is costly, and government, composed of rational policy entrepreneurs, responds to those groups willing to pay the most in terms of votes and financial resources.

The problem for group good provision lies in individual members' quantity of financial resources contributed to the group for influencing changes in the institutional rules provided by government. Assuming that the contribution problems are surmounted and the group acts as though it were a monolithic coalition, conditions for optimal group activity for influencing the rules of the game will be examined.[17]

Demand for Institutional Change

The group's demand for institutional change, as for other factors, is derived from the change in the total revenue of each member firm

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[17] Based upon discussions in Goldberg's "Institutional Change and the Quasi-Invisible Hand", JLE, and Anderson and Hill's "Toward a General Theory of Institutional Change", *Frontiers of Economics*, p. 7.

from a unit institutional change. If the firms' output is priced in a perfectly competitive market, this relationship is the value of marginal product of institutional change (VMP_I).

In the usual neoclassical sense, one speaks of the total amount of the factor employed by the firm at some factor price. However, the quantity of the factor institutions employed by the firm is not readily measurable. Thus, where $TR = P.q(x_1, x_2 \ldots x_n, I)$, I is some complex vector summarizing the institutional rules faced by the firm at a point in time. In terms of deriving the demand for I, some measurable proxy for I is assumed to be i, the units or influence exerted by the group into various subject areas of institutional change. Thus, where $I = I(i)$, which says that the quantity of the institutional input is some function of i, the influential effort of the group, then $\frac{dI}{di} > 0$. The plausibility of this assumption rests on the extent to which institutional change is proportional to the amount of influence used to bring about the change.[18]

Since I is a direct function of the measurable factor i, i is used to proxy the quantity of input I demanded by the group.

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[18]Anthony Downs would probably consider this reasonable. In terms of voting power, he claims that the wealthy wield more than proportional weight, thus are quite influencial to the rational policy entrepreneur. See A. Downs, Economic Theory of Democracy, pp. 92, 253.

Thus, the firm's profit function can be written:

$$\pi = P.q(X_1, X_2, \ldots X_n, I(i)) - \gamma_1 X_1 - \gamma_2 X_2 \ldots -\gamma_n X_n - \gamma_I I(i).$$

Differentiating π with respect to i and setting equal to zero yields the first order conditions for the unconstrained maximum, $\frac{\partial \pi}{\partial i} = P\frac{\partial q}{\partial I} \cdot \frac{dI}{di} - \gamma_I \frac{dI}{di} = 0$. The term $\frac{dI}{di}$ is an empirical measure, suppose a constant, K = 1. Thus, the optimum quantity or factor I purchased by the firm is where $vmp_I = \gamma_I$. More importantly, note that $vmp_I = \frac{\partial TR}{\partial i}$. This equality allows the demand for instituional change to be written in terms of the measurable decision variable i's marginal contribution to total revenue. If $\frac{\partial q}{\partial I} < 0$, the firm's demand function is downward sloping as shown in Figure I, left panel.

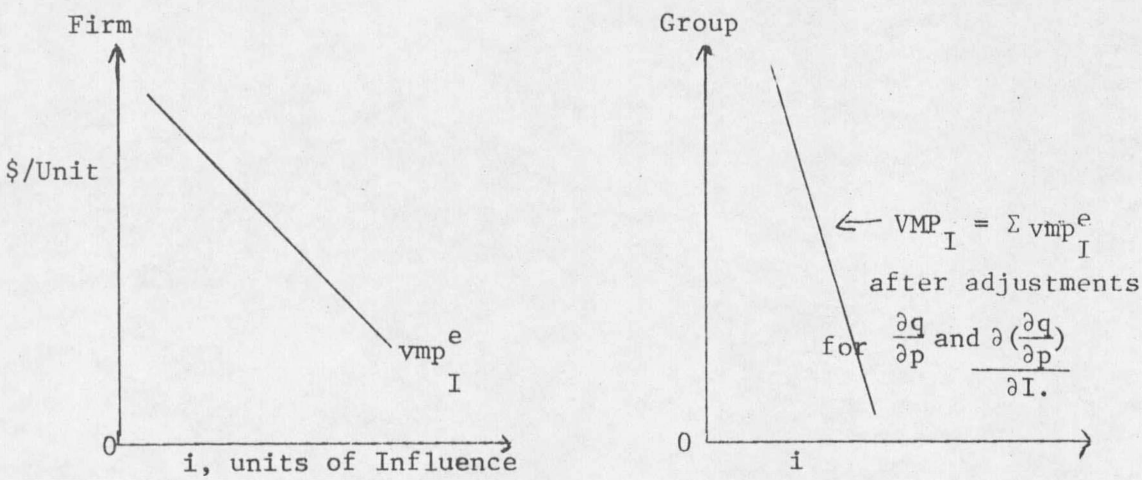

Figure 1. Demand for Institutional Change

The group's demand curve for institutional change, VMP_I, is equal to the vertical summation of member firms' demands after adjustments are made for effects on product price (the net effect of dI's increasing the demand for group's product and/or fall in group's product price from dI's effect on group output), as shown in Figure I, right panel.

The group's demand curve for a given subject area of institutional change (entry control, E, in Figure 1), is situated by group size; elasticity of demand for the group's product; dI's effect on the marginal product of other factors and the effect of other factors on the marginal product of I; the effect of dI on the demand conditions the group faces; and the expenditures by other groups for or against the change implied by the group's effort into a given subject area.

When more than one subject area is considered, the group should allocate its resources such that the VMP_I per dollar spent on influence is equal for all subject areas of institutional change, i.e., tariffs, barriers to entry, etc. Moreover, the VMP of influencing institutional change should equal the marginal factor cost to the group of such influence.

As indicated in Figure 2 below, there exists a downward sloping VMP curve for every subject area. VMP_I^T represents the payoff function for directing effort toward influencing tariff legislation. Initial effort on tariffs is directed toward agents and institutions yielding high increments to revenue, such as lobbying in the legislature. Subsequent effort on tariffs, such as influencing public opinion through advertisement, gives continually lower increments of gain, until effort is more efficiently allocated to other subject areas.[19] For example, in Figure 2, a given 1,000 units of influence expended on tariffs may yield additional revenue, T. Additional i units of effort on tariff legislation will yield smaller value of marginal product, T' than an alternative strategy, say entry barriers, yielding additional revenue, E.

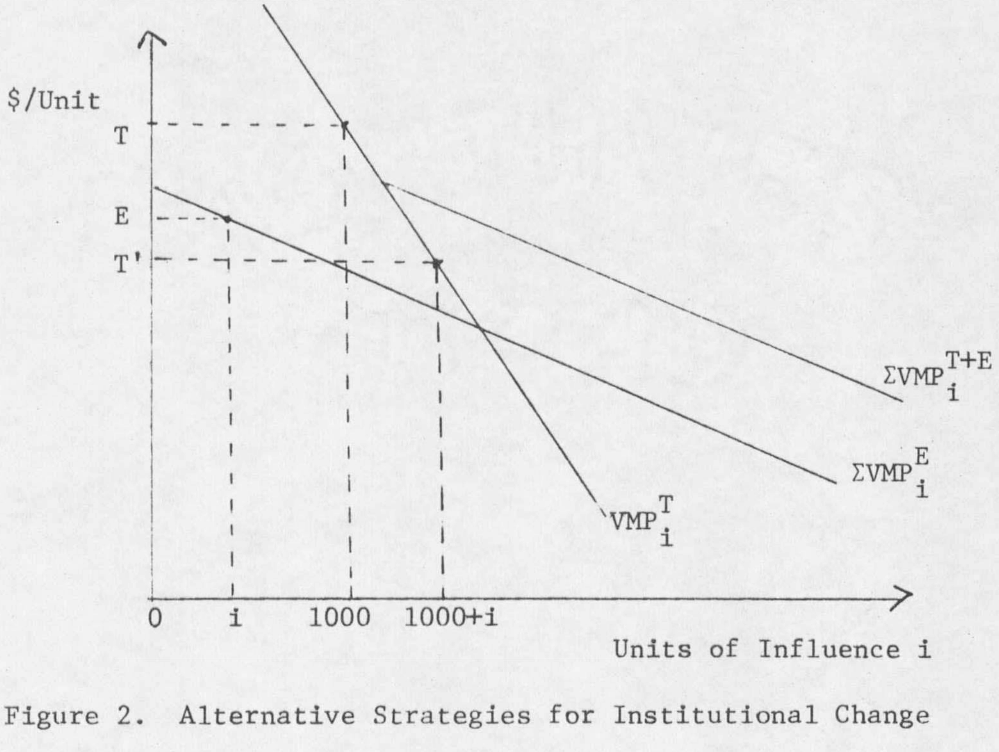

Figure 2. Alternative Strategies for Institutional Change

[19] For convenience, it is assumed that the VMP curve for each subject area is a continuous function of influence.

Depending upon the situation of the marginal factor cost of influence (the determinates of its situation to be discussed subsequently), the group will expend a total quantity of influence until $\Sigma VMP = MC$. The group will allocate the total among the individual subject areas such that VMP = MC for each subject area.

Efforts by opposing groups will shift individual subject area VMP curves downward. The magnitude of the shift will be predicted by the group and be a specific function of influence expended by groups opposed to the change.[20] Parato preferred changes or Kaldor compensatory changes will presumably go unopposed, whereas changes re-distributing heavily against groups will make the gains of collective opposition quite high, other things being equal. The marginal benefits of opposing a particular change are higher the more a particular group stands to lose from the change. In Figure 2, if all strategies are equally and effectively opposed by various groups, the summed value of marginal product curve will shift downward. The rank of strategies purused as a function of influence will remain the same. All strategies would be adopted at lower levels of influence, however. If some strategies remain unopposed, the summed VMP curve will take on new shape and the order of strategies as a function of effort for influence may change.

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[20]Victor Goldberg (supra), p. 467.

Supply of Institutions

Costs of influencing institutional change also determine in part the optimal level of effort for influencing institutional change. Such costs include expenditures for favorable legislation, influencing public opinion, legal fees, court costs, etc. Though not without constraints (law on bribery, antitrust, fraud, public discloser, etc.) all are legitimate means for private utilization to bring about beneficial changes in a group's operating environment.

As previously argued, institutions are productive assets, and uniform to the production functions of each group member, i.e., group goods. As such, they are in need of collective provision. The costs of institutional change may be considered costs of collective action.

The group's utilization of exogeneously provided institutions results in an upward sloping marginal cost of collective action. Marginal costs of institutional change are a rising function of units of influence to bring about the change. A marginal cost curve of collective action for institutional change is depicted in Figure 3 below. The curve is drawn for a given group, group size, group wealth, and the nature of the existing institutions available to the group. Rising marginal costs of collective action result from the group's utilization of variable resources with a fixed quantum

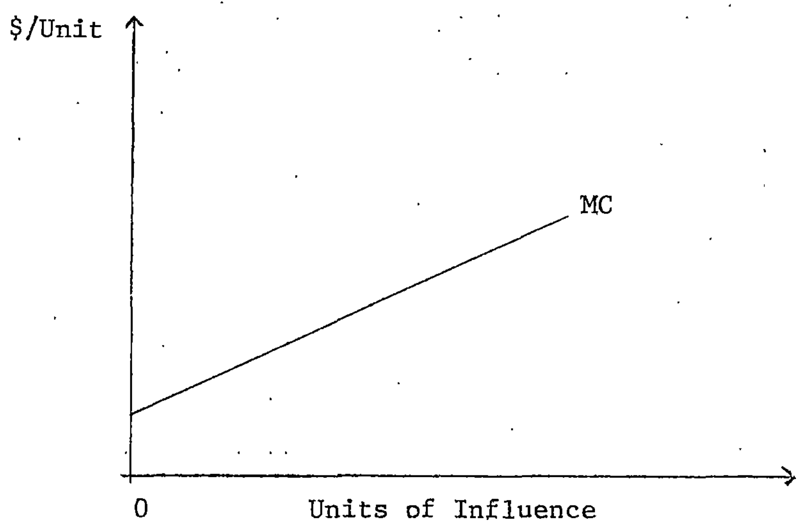

Figure 3. Marginal Cost Curve of Institutional Change

of "technology", as defined by the nature of existing institutional arrangements. Examples of these variable inputs include legal staff, lobbying effort, and use of financial institutions. Goldberg has explained a rising MC of influence curve as a resulting phenomenon of the loanable funds market.[21] As the quantity of funds borrowed (equivalent to expenditures on influence) by the group rises relative to the group's assets lenders require greater premiums for risk of non-repayment. It will be argued here that while Goldberg is generally correct, the behavior of lenders is a reflection of a

[21] Victor Goldberg (supra), p. 468. The assumption that the group borrow from financial institutions is not critical to the analysis that follows. Similar results would follow if group management self-finances. If so, the risks of non-repayment are assumed by the group's entrepreneur", rather than lenders.

general phenomenon of collective behavior in the group's financing institutional change. He offers no explanation as to why the risks of non-payment should rise more than proportionally to the level of borrowed funds. Why is it that incremental changes at low levels of borrowed funds require less risk premium than the same incremental change at high borrowing levels? To answer this question, it is argued that incremental changes of influence at high levels of collective action exacerbate the free-rider difficulties of collective behavior for a given size group. At high levels of influence, thus requiring large contributions per member, group members will become less willing to contribute. Each group member possesses a downward sloping demand curve for contribution to the group. Thus, increases in required contributions per member are met with a lesser willingness to contribute, ceteris paribus.[22] The demand elasticity of contributing to the group will be greater for large scale group expenditures. This is analogous to the consumer being more sensitive to price changes for goods composing a large fraction of the budget, housing for example, compared to other goods like salt. For example, if a group of 1,000 members undertakes a project requiring $1,000,

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[22]By "required", no connotation of coersion is meant. It means what contributions per member would be necessary to meet group expenditures.

each member must contribute \$1.00. At this low price the probability of each member contributing the whole dollar is greater than a contribution of \$10 per member when the group's expenditures are \$10,000. This is depicted in the "demand" curve DD for member contribution in Figure 4. The probability approaches 1 as the required contribution becomes very small, and approaches zero as the required contribution becomes very high. The probability of contributing the full amount is inversely proportional to the amount of influence expended by the group; the greater the units of influence, the larger the contribution per member, the less the probability of each member contributing the full amount.

Now, assume that intra-group variable costs of monitoring member

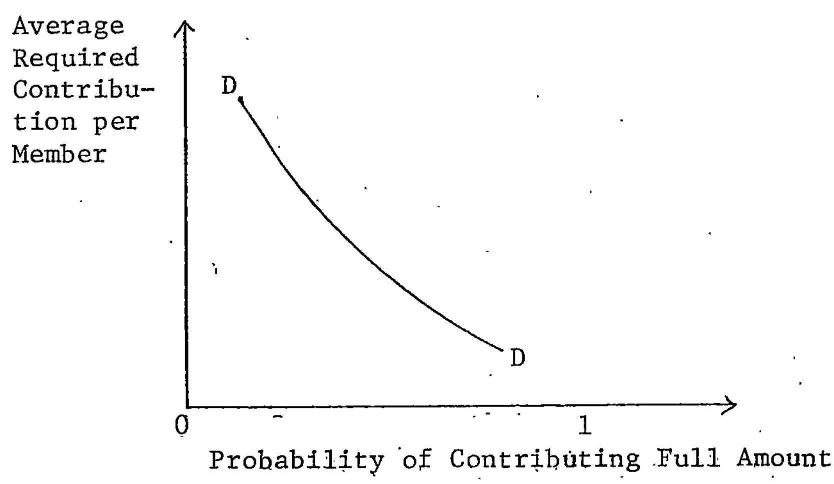

Figure 4. "Demand" Relationship for Member Contribution to Group.

participation are unitarily proportional to units of group influence.[23] Given this, other things equal, the rate of change in the group's costs of collective action would remain constant as indicated by MC_1 in Figure 5. But given the behavior of lenders, other things are not equal. As units of group influence rise, the probability of group members contributing the amount required to meet group expenditures (equal to the amount borrowed by the group) falls, thus the risk of non-repayment rises from the lender's point of view. The risk rises because the returns from institutional change become less certain since each group member is less willing to contribute effort to bring about the change.

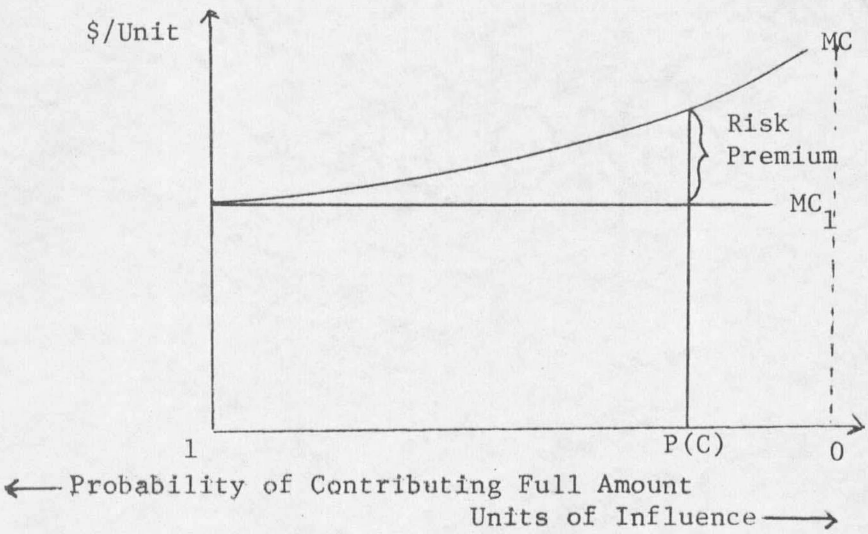

Figure 5. Derivation of MC Curve

[23] This is not likely the case if legal staff, secretarial staff, et al, have upward sloping supply curves. The assumption is made for the sale of demonstrating the effect of rising risk premiums.

The situating parameters of the MC curve are now specified. The marginal cost curve is drawn for a given group size. The cost per unit of influence by the group is lower the smaller the group, since fewer resources are expended monitoring individual participation. Secondly, the MC is situated by the group's wealth. The greater the group's wealth, the lower its MC of influencing the producing of institutions, since lenders require less risk premium for default. Thirdly, MC is positioned by the degree to which lenders of funds are opposed to the change sought by the group. Those groups attempting to influence insitutions in a manner contrary to the desires of low interest financiers will forego the ability to borrow from such institutions and will substitute to more expensive sources. The final set of parameters situating a given MC curve are characterized as the "technology" of collective action.[24] This technology refers to the existing institutions uniform to each group member's production function as fixed assets combinable with other variable factors. Exogeneous changes in existing institutions affect the group's technical efficiency of influencing the institutional set-up.

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[24] Goldberg refers to these as the "rules of collective action". If the <u>production</u> of institutions is in need of collective action, then <u>technology</u> seems a better term to describe a parameter of this productive process.

In general, these institutions provided by government alter the group's ability to induce or influence potential free-riders to contribute to the group. For example, consider the government producing a set of rules that requires members of a certain trade to belong to that trade's formal organization. To the trade organization, its ability to act as a group to influence other institutional arrangements beneficial to it is greatly facilitated by the existing set of rules requiring individual participation in the group. Transaction costs of particular technical arrangements, say a coersive one, may also be lowered by alternative technologies of implementing the coersion. The actual kinds of coersive inducements affect the position of a group's MC curve. Fines upon free-riders may result in a different MC curve than taxing all group members equally.

Given the marginal cost function representing the minimal increments to cost from a unit change in influence and ΣVMP, representing increments to group revenue from a unit change in influence, the "optimal" level of effort by a group for influencing the production of institutions can be derived; i.e., where ΣVMP = MC.

Given the assumption of monolithic coalitions, this "optimal" solution is perhaps better thought of as equilibrium. The equilibrium quantity of group effort is subject to change depending on the structural parameters situating the VMP and MC curves. Thus, some coalitions will weild more influence than others in equilibrium depending on the relative magnitudes of the parameters. The solution is optimal because group benefits are maximized; VMP = MC. Yet, it is so only for the given set of conditions. Thus, equilibrium implies optimality for monolithic coalitions. When the assumption of a monolithic coalition is dropped and the free rider problem prevails the equilibrium solution is suboptimal.

Free Riders and the Suboptimal Solution

Assume now that each group member possesses the utility function, $U_i = f(i; X)$, where i is the group good, influential effort and X is a vector of other goods. In general, each member will place a different valuation on i relative to X. Thus, given some total gain to the group from a given quantity of i provided, each individual will gain fractionally (F_i) to differing degrees.

The suboptimal result is arrived at by first deriving the conditions for optimal group good provision.[25] Consider a two person group with a linear transformation locus given by $X_a + X_b + i = R$: where R is total resources available to the group; and X_a and X_b represent quantities of private good X consumed by group members a

[25] Government Finance, John Due and Ann Freidlaender, Irwin, 1973, pp. 74-75.

and b, respectively; and i equals the quantity of the group good provided. Assume the utility functions for individuals a and b are given by $U_a = U_a\ (X_a, i)$, and $U_b\ (X_b, i)$. If member b's utility is fixed at $\overline{U}_b$, the problem is to maximize U_a subject to the transformation locus $X_a + X_b + i = R$ and $U_b = \overline{U}_b$. Setting up the Lagrangian expression:

$$(1)\quad L = U_a(X_a, i) - \lambda(X_a + X_b + i - R) - \mu[U_b(X_b, i) - \overline{U}_b].$$

Differentiating L with respect to X_a, X_b, and i and setting equal to zero yields the following three first order equations:

$$(2)\quad \frac{\partial L}{\partial X_a} = \frac{\partial U_a}{\partial X_a} - \lambda = 0;$$

$$(3)\quad \frac{\partial L}{\partial X_b} = -\lambda - \mu \frac{\partial U_b}{\partial X_b} = 0; \text{ and}$$

$$(4)\quad \frac{\partial L}{\partial i} = \frac{\partial U_a}{\partial i} - \lambda - \mu \frac{\partial U_b}{\partial i} = 0 .$$

Solving for the multipliers λ and μ:

$$(5)\quad \lambda = \frac{\partial U_a}{\partial X_a}, \text{ from equation (2)},$$

From equation (3), $-\mu \frac{\partial U_b}{\partial X_b} = \frac{\partial U_a}{\partial X_a}$ thus,

$$(6)\quad \mu = -\frac{\dfrac{\partial U_a}{\partial X_a}}{\dfrac{\partial U_b}{\partial X_b}}$$

Substituting expressions for λ and μ into equation (4) yields:

$$(7)\quad \frac{\partial U_a}{\partial i} - \frac{\partial U_a}{\partial X_a} + \frac{\dfrac{\partial U_a}{\partial X_a}}{\dfrac{\partial U_b}{\partial X_b}} \; \frac{\partial U_b}{\partial i} = 0$$

Dividing through equation (7) by $\dfrac{\partial U_a}{\partial X_a}$

and rearranging yields:

$$(8)\quad \frac{\dfrac{\partial U_a}{\partial i}}{\dfrac{\partial U_a}{\partial X_a}} + \frac{\dfrac{\partial U_b}{\partial i}}{\dfrac{\partial U_b}{\partial X_b}} = 1$$

By referring to the linearity assumption of the transformation locus; $MRT_{i,X} = 1$, and noting that $\dfrac{\dfrac{\partial U_i}{\partial i}}{\dfrac{\partial U_i}{\partial X_i}}$ is simply the rate of commodity substituion [MRS_i (i,X)] between the private good X and group good i for member i, expression (8) gives the optimality conditions, i.e., that $MRS_a(i,X) + MRS_b(i,X) = MRT(i,X)$. This expression suggests that the marginal cost of provision (indicated by the marginal rate of transformation) be divided so that each member pays in proportion to his incremental benefit. Given each member's respective valuation of the group good and if each volunteered to pay accordingly, optimal provision of the group good would result.

Yet, optimality will not occur due to the free-rider problem. The suboptimal result is explained graphically in Figure 6 utilizing

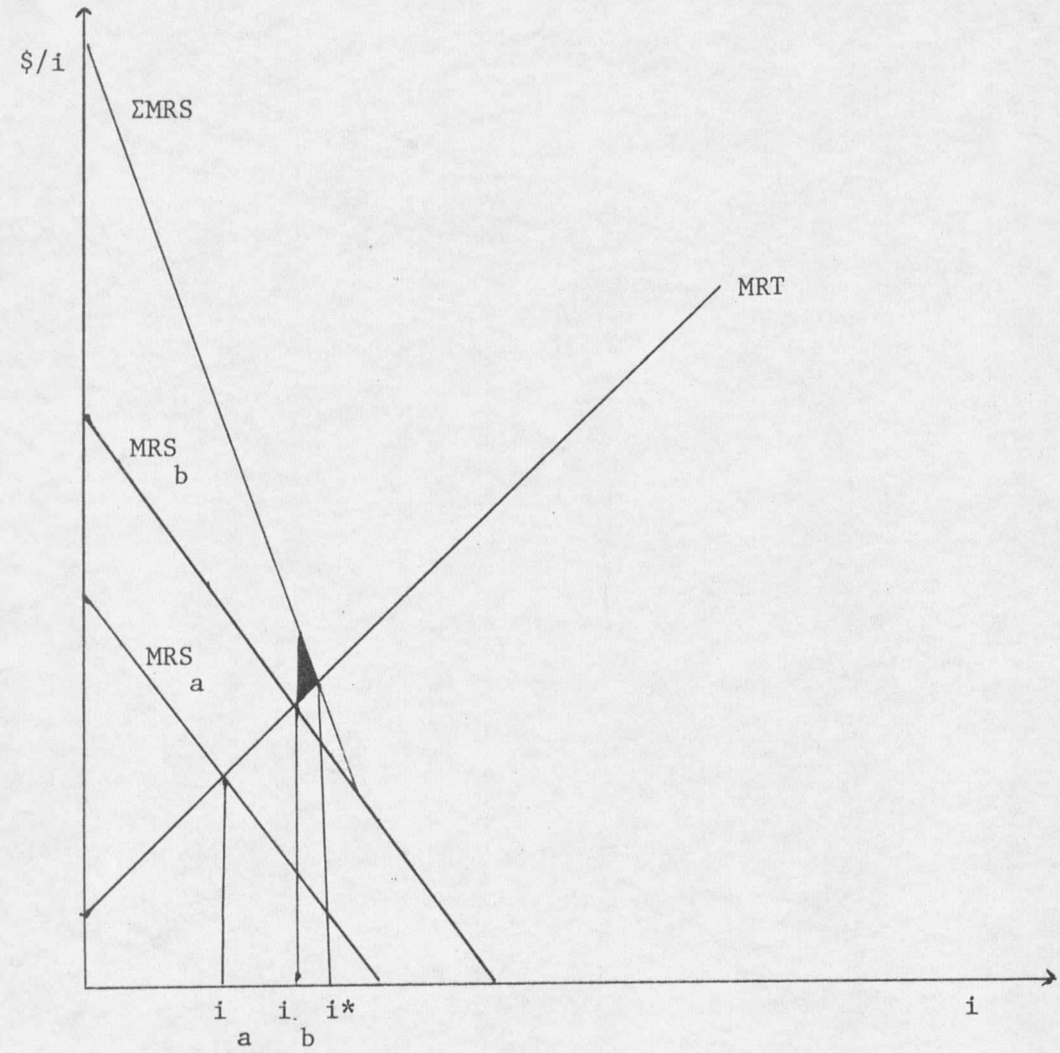

Figure 6. Optimal Group Good Provision and Suboptimal Result Under Voluntary Arrangement.

the mathematical derivation for optimality above.

The curve denoted as ΣMRS_i in Figure 6 is the vertical summation of the individuals' MRS curves labeled as MRS_a and MRS_b. Once the group good is provided, it is provided equally to all members. Each member adjusts internally his valuation of the group good provided. The individual's willingness to pay is based upon this internal adjustment.[26] In Figure 6 it is assumed that for every quantity of provision, member b's willingness to pay lies above member a's willingness to contribute for the given quantity. This follows if for any given provision, member a's fractional gain is less than member b's fractional gain; i.e., $F_a < F_b$. Given the MRT curve, the optimal quantity of i provided is given by i*, where $\Sigma MRS = MRT$.[27] But given voluntary action and assuming the only "strategic" phenomenon occurs by the nature of the free-rider problem, optimality

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[26] This is contrary to private goods where the consumer adjusts quantity demanded given a parametric price. In this case the aggregate demand curve is a horizontal summation of the individual demands. See Due and Freidlaender supra.

[27] The ΣMRS_i curve is equivalent to an individual subject area VMP_I curve for I.Δ. The latter curve is the vertical summation of individual's preferences for the particular strategy. Thus, $\Sigma MRS = MRT$ above represents the group's optimal allocation of influence into one subject area.

will not occur.[28] Member b, with the largest F_i will voluntarily contribute for the provision if i_b. But member a will have no incentive to contribute because member b has provided a sufficient quantity from a's perspective. From the standpoint of the group's welfare, too little of the group good is provided; the magnitude of this inefficiency is given by the shaded triangle in Figure 6. Once the amount that would be provided by the member with the largest F_i is made available, no other member has an incentive to provide for the remainder of the group good that would optimize provision. The sub-optimality will be greater the smaller the F_i of the member with the greatest F_i of the group. Hence, the larger the group, the smaller the fractional gain to any individual member, and the greater the sub-obtimality.[29] Thus, while there is a tendency for small groups to provide a sub-optimal amount of the group good, large groups may, in fact, fail to supply any amount of the good.[30]

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[28] "Strategy", from member b's point of view (supra), may be his reaction to a's "cheap-ride", by the attempt to alter the group good's benefits to b's particular interests. See G. Stigler, "Free-Riders and Collective Action: An Appendix to Theories of Economic Regulation", Bell Journal of Economics and Management Science, Aut. 1974, Vol. 5, No. 2.

[29] M. Olson. Logic of Collective Action. Harvard University Press., 1965. p. 28.

[30] This result will be qualified subsequently by Stigler's observations on page 35.

Initiating Firms in the Marketplace for Institutions

"Optimality", however, may not be a useful concept when applied to the existence of groups undertaking collective projects to influence public policy. The emphasis of the recent literature is to explain the existence of various groups such as large membership trade associations, rather than to reconcile member participation with some measure of optimality.[31] The key observation is that many trade groups and associations exert significant quantities of influence in equilibrium however suboptimal.

The fact that there exists influencing effort to some degree reflects the possibility that there exist individuals or subgroups who value the group good sufficiently to voluntarily provide it while individually maximizing utility. There may exist some firms, particularly those with the largest F_i's, which will voluntarily influence government, establishing the group's formal organization, employing legal and lobby staff, etc.

The initiating individuals may be considered the "entrepreneurs" of the group. Moreover, the existence of the formal group for the purpose of influencing the production of institutions may be considered the theoretical equivalent to the existence of the firm in

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[31] See George Stigler, "Free-Riders and Collective Action: An Appendix to Theories of Economic Regulation", Bell Journal of Economics and Management Science, Aut. 1974, Vol. 5, No. 2.

the marketplace.[32] It can be argued that the evolution of the firm as a mechanism to reduce the costs of utilizing the price system is a special case of any group, the existence of which is based upon reducing the costs of utilizing some complex set of institutions. The political sphere, as an element of the institutional framework, can be considered the marketplace for the production and allocation of institutions. Groups such as trade associations evolve as predetermined transaction points to reduce the costs of utilizing the political institutions. Individual firms contract with the group which in turn "contracts" in the institutional marketplace. In the economic marketplace, individual resource owners weigh the relative benefits per dollar of transaction expenditure of self-contracting, i.e., independently undertaking all risks and costs of the price system, versus renting their human capital or other resources on a long-term basis to firms. Likewise, in the institutional marketplace, individual firms weigh the relative benefits per dollar of independently contracting with the government versus joining the formally established group.

Because the group influences the production of institutions, thereby altering the institutional environment of other firms in the

[32]See R. H. Coase, "The Nature of the Firm", Econmica, N.S., IV 1937, and H. B. Malmgren, "Information, Expectations and the Theory of the Firm", Quarterly Journal of Economics, Vol. LXXV, Aug. 1961, Vol.3.

group (a group good), the initiators must induce participation of the potential free-riders. One possible inducement has been referred to in the literature as the "bi-product" theory; some private or excludable good is supplied by the group on the condition of continued member contribution for the provision of the group good. This has been challenged by Stigler. If the group good is provided in this manner, other groups may arise offering influential effort in response to individual interest at a lower price.[33] Stigler's insights on the "cheap rider" concept provide further illumination of how a group may induce member participation. The greater the non-participation, the more costly non-participation may become. First, less of the group good is provided. Second, changes that do occur may not specifically benefit the cheap rider. In this sense, the institutions provided have private good elements. The group may induce participation by influencing institutions in a manner inconsistent with the interests of potential cheap-riders if their participation is withheld. Thus, larger initiating firms may bear a disportional quantity of the costs of institutional change, yet may influence the production of institutions in a manner beneficial to their particular resource endowments. When particular institutional alterations exclude individual firms those firms cease to be members of the group with

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[33] G. Stigler, "Free-Riders and Collective Action", (supra). p. 360.

respect to the particular change. For example, a group of initiating firms may influence government to institute a protective regulation only to those firms with net revenues for the previous five years averaging above some specified minimum. Thus, firms are induced to participate in the group effort if their contribution could prevent being excluded from the gains of the lobbying effort. Finally, it is conceptually feasible that costs of non-participation may result from some psychological stigma attached to taking a "free-ride". If the group is small enough, free-riders are easily recognized. Firms may have some sensitivity to being a non-participating member of the coalition.

Although the free-rider problem remains, the costs of non-participation will become significant and there will be greater group participation for those groups having few potential members, high degrees of assymetry in resource endowments, and an endowment of existing institutional inducements.

The Economic Theory of Regulation

Thus far, the topic of regulation per-se has not been addressed. This results from the attempt to extend the theory of regulation to the general theory of institutional change. A prevalent theme of this chapter is that there exists a "market" for institutions produced by government in response to the demands of groups. The theory presented thus far and following advances by Stigler and others suggests that regulation too is an institution of social organization supplied in response to the demands of groups capable of expending more effort on influence in equilibrium than other groups. The resulting governmentally sanctioned institutional environment is the outcome of the interaction of market forces in the institutional marketplace. Different groups prevail in obtaining the benefits of the state's machinery under varying conditions of supply and demand.

Formerly proposed theories on the reasons for economic regulation have asserted a priori the beneficiaries of government regulation. Opposing assertions resulted in the debate between the proponents of the Public Interest hypothesis and those supporting the Producer Protection hypothesis of regulation.

The essential characteristic of the public interest hypothesis is that regulation is supplied via the political process in response to the public interest not served by the former institutional arrangement. The theory presumes this response to be a costless process.[34] The public interest hypothesis suggests that legislation for institutional change will not be enacted unless social benefits exceed social costs.

[34] R. Posner, "Theories of Economic Regulation", Bell Journal of Economics and Management Science, Aut. 1974, Vol. 5. No. 2, p. 360.

The public interest hypohtesis has been re-formulated to account for contradictory observations. As formulated in its simplistic form, the theory would predict that regulation would occur frequently in concentrated industries or in industries generating externatities. This has not been the case. Empirical and theoretical research has indicated the absence of such characteristics in many regulated markets.[35] The reformulation has amended "regulatory failure" to the same sincere attempt to heed the public interest. "Regulatory failure" may include mismanagement by the regulating agency, the intractability of many regulatory functions, and/or the regulatory agency's eventual "capture" by the regulated industry. The reformulated version of the public interest theory argues that these failures have impeded effective regulation for the public interest. The hypothesized failures have been criticized on theoretical and empirical grounds.[36]

The producer protection hypothesis generates implications opposite to the public interest hypothesis. It asserts that regulation is imposed to increase or sustain the economic power of the

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[35] Richard Posner, "Theories of Economic Regulation", Bell Journal of Economics and Management Science, Aut. 1974, Vol. 5. No. 2, page 336.

[36] Ibid.

industry. Regulation in effect, alters an industry characterized by effective competition, into a cartel. The producer protection hypothesis recognizes the importance of interest groups influencing the legislative process, but fails to explain the conditions for effective political representation, or why some groups obtain favorable legislation while others do not. Like the public interest hypothesis lacking theoretical foundation, the producer protection hypothesis is primarily an institutional explanation, asserting that the nature of the regulatory process is to protect special interest groups.[37] The producer protection hypothesis has recently been modified by Stigler and has been subsequently termed the economic theory of regulation.[38]

Stigler argues that regulation is supplied by government in response to special interest groups employing the political process in an effort to enhance their profitability. These groups lobby for resources only government can supply. These include cash subsidies, entry control, government policies affecting compliments

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[37] William A. Jordan, "Producer Protection, Prior Market Structure, and Effects of Government Regulation," Journal of Law and Economics, Vol. XV(1), April 1972, p. 153.

[38] The term is Posner's, "Theories of Economic Regulation", (supra).

and substitutes for a group's product, and price controls.[39]

Stigler's theory, as a modification of the producer protection hypothesis, is essentially inclusive of that hypothesis and the public interest theory. Its important advance is that assertions about which societal groups regulation is supplied to are not made a priori, but are arrived at after conditions of demand and supply have been considered.

Posner has provided a useful exposition of the economic theory of regulation by drawing a parallel to factors predisposing an industry to cartelization.[40] The costs and benefits to cartelization are analogous, though not necessarily equal, to the costs and benefits of obtaining regulation through institutional change. The demand for regulation is derived from the increased profitability to the group brought about by prices above competitive levels. This is precisely the effect of cartelization on the demand side. Costs of cartelization arise from collective action as in institutional change, and free-riders must be monitored accordingly.

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[39] G. Stigler, "The Theory of Economic Regulation," Bell Journal of Economics and Management Science, Vol. 2, No. 1, Spring, 1971, pp. 4-6.

[40] R. Posner, "Theories of Economic Regulation", Bell Journal of Economic and Management Science, Aut. 1974, Vol. 5, No. 2, pp. 344-349.

Although the theory of cartels is relevant to explaining the incidence of regulation among various industries, the analogy ceases when noting that privately carteling group are not the same as those obtaining regulation. This is obviously not so since regulation and private cartelization are substitutes which provide similar benefits.

Posner offers two explanations for some industries' private cartelization and others' regulation. First, cartelization would be a very costly substitute for groups lacking a high degree of concentration. Second, groups capable of influencing the political process at low cost may not similarly be capable of cartelizing privately at low cost. The observed patterns of regulation and cartelization would indicate that large groups may be exemplary of the cost divergence.

The most likely explanation of why costs of cartelization are higher than costs of obtaining regulation for large groups is that cartels are illegal in this country. As an argument in the group's collective cost function the political machinery is not available to groups attempting private cartelization.[41] The political process serves as a marketplace for collective action where the transaction

[41] This does not exclude the possibility of the group attempting to legalize its cartel. It simply means that the political machinery as means to collectivize, is not available given the illegality of its cartel.

costs of collective action are greatly reduced to that of private cartelization.

It seems fairly clear, then, that large groups will obtain regulation at lower costs than they might cartelize. But what of small groups, or a group of one member, say a monopoly? Will the group remain cartelized or regulate? In such a situation, it is difficult to argue whether the collective costs of cartelization are higher or lower than those of obtaining regulation. This situation makes clear the importance of the relative marginal benefits of cartelization versus regulation. The monopoly will vie for regulation if the marginal benefits of regulation exceed the opportunity cost of regulation (the capitalized value of uncontrolled monopoly profits). The reason concentrated industries may frequently forego regulation is that the benefits of regulation are less than the cartel profits. Thus, the marginal "effectiveness" of regulation may be quite different under various prior market structures. As regulation controls entry or raises prices above competitive levels, the effectiveness of regulation may be expected to decline as prior market structure becomes more concentrated.[42]

According to the economic theory of regulation, regulation is

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[42] W. Jordan, "Producer Protection, Prior Market Structure and the Effects of Government Regulation," Journal of Law and Economics, Vol. XV(1) April, 1972. p. 154.

supplied by government to those groups willing to pay the most in terms of votes, dollars, and other resources. As political representatives are self-maximizers in terms of wealth, power, and prestige they will rationally respond to individuals or groups wielding voting power more than proportional to the number of individuals in the group. This excess proportionality may come about where there is imperfect knowledge among the electorate and those groups in command of informational resources can persuade voting behavior.[43] In a world of imperfect information, it is the concentrated voting coalitions having low costs of collective action, while significantly benefiting as individuals of the group from particular governmental policies, which will be most effective in terms of resources expended for influencing the government's supply of regulatory policies.

Thus, when couched in terms of the economic theory, the question whether the public interest theory or the producer protection hypothesis, is explanatory, is essentially to ask which groups are willing to pay the most for the government's supply of protective resources. The ultimate task of regulation theory is

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[43] Anthony Downs, An Economic Theory of Democracy, New York, Harper (1957), p.93, 253.

to explain why some groups obtain protective regulation while others do not. Viewed in this way, the economic theory of regulation proposed by Stigler will immediately suggest that producer groups are more likely to obtain such regulation than are consumer groups because of the nature of collective behavior in a representative democracy. Individual firms among producer groups have more to gain and may act collectively at lower cost than consumer groups who have little to gain individually, but face enormous collective costs. Thus, when the conditions of supply and demand of institutional change are isolated, as the economic theory of regulation would suggest, producer groups will expend more resources on influence in equilibrium, and will be supplied protective regulation from rational policy entrepreneurs.

Chapter Two Summary

The central theme of this chapter was the hypothesis that firms will attempt to alter the institutional framework to enhance their economic gain.

Institutional change occurs in the marketplace for institutions where groups of firms have evolved to reduce the transactions costs of utilizing the institutions of the marketplace. A working assumption of the analysis was that exogeneously provided institutions, or the production of institutions in general, and sanctioning thereof, is primarily a function of government. The demand for institutional change eminates from various private groups.

Since institutional change is likely to have group good characteristics, the problem of collective action is the group's ability to influence members to contribute financial resources which are in turn collectively used for influencing the government's production of institutions.

Theoretically, there exists some optimal level of group effort for influencing the institutional framework. However, when the assumption of the group as a monolithic coalition is relaxed and the free-rider problem prevails, group influence will often be suboptimal.

The emphasis in the recent literature is that there exists multitudes of influencial groups, trade associations, etc., exerting some equilibrium quantity of influence initiated by the efforts of group "entrepreneurs". The initiators must monitor group member participation accordingly.

The economic theory of regulation, posed by Stigler, is a special case of the general theory of institutional change. Conditions of supply and demand must be isolated to determine the incidence of regulation, or the institutional mix in general.

Chapter 3

THE REGULATORY LAW AND JURISDICTIONAL INCLUSION OF LIVESTOCK CARRIERS

Introduction

This chapter will more fully delineate the legal framework existing before and after the repeal of the livestock exemption in regulation of commercial motor carriers. After the regulatory framework has been set forth, the arguments for and the process leading to the inclusion of intrastate commercial livestock transportation in the regulatory scheme will be described.

The Motor Carrier Statute

The Montana Motor Carrier Act, Chapter 1, Section 8 of the Revised Code of Montana (RCM), provides for the supervision, regulation and control of state highways utilized by motor carriers "for hire". Prior to 1971, Section 8-101(h) of the Act expressly exempted motor carriers transporting ordinary livestock or agricultural commodities from the provisions of the Act.[44]

In 1971, Section 8-101(h) was amended to require that livestock

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[44] R.C.M., 8-101(h), p. 462.

transportation between points in Montana by commercial motor carriers be subject to the regulatory jurisdiction of the Public Service Commission. The amendment provided exemption from regulation to ranchers or farmers transporting their own livestock. Furthermore, the Act remained powerless with respect to carriers transporting cattle interstate.

Generally speaking, the law delegates to the Commission the responsibility of supervision, regulation and control of all motor carriers in the state, to fix "reasonable rates", designate carrier classifications, issue certificates of operating authority accordingly, and establish safety regulations.

In delineating the Act, attention shall be focused on the following classifications for the statute's provisions: entry control, rate control, fees, and enforcement.

Entry Control. The 1971 amendment specifically requires that all motor carriers engaged in the commercial transport of livestock between points in Montana obtain a Class B certificate of public convenience and necessity from the Commission. Class B, as defined in 8-102, embraces "all motor carriers operating under regular rates or charges based upon either station to station rates or upon a mileage rate or scale, and not between fixed termini or over a regular route." Section 8-111 requires that the issuance of the certificate be generally conditional upon the applicant's meeting a public convenience and necessity requirement. Need and necessity is established at a hearing set by the Commission where interested parties may support or refute the applicant's petition for operating authority. The Commission must render a decision within 90 days from the application date of the authority.[45]

Suspension of operating authority of up to twelve months may be granted by the Commission only upon the petition by the carrier. Tentative absence of public convenience and necessity is the justification for suspension.[46] If after twelve consecutive months, the carrier has failed to reinstate operating authority, the prima facia presumption of absence of public need and necessity is created. In this case a hearing is held and the certificate is cancelled if the carrier cannot prove that need and necessity remains.[47]

The authority to transport livestock commercially, granted by a Class B certificate, may be sold, transferred, leased or inherited,

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[45] R.C.M., 1975 Additions, 8-111.1.

[46] R.C.M., 1975 Additions, 8-107.1.

[47] R.C.M., 1975 Additions, 8-107.2.

only by Commission approval.[48]

Rate Control. Section 8-103.4 establishes the legitimacy of bureaus, organizations or committees joined for the purpose of establishing rates to be approved by the Commission. These collectives are exempted from the Montana anti-trust statutes prohibiting monopolies, price-fixing or restraint of trade. Subsection (1) requires that all agreements between two or more carriers pertaining to rates, classifications, divisions or allowances not in violation of subsections (3), (4), or (5) must be petitioned for approval by the Commission.[49]

Section 104.5 provides an elaborate scheme for rate changes or revisions. First, changes must be approved by the Commission within 30 days of the application date unless the petitioned change is suspended or dissallowed outright. If the petition is suspended

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[48] R.C.M., 1947, 8-112, p. 474.

[49] R.C.M., 1975 Additions, Section 103.4. Subsection (3) generally prohibits agreements between Motor Carriers and railroads. Subsection (4) generally prohibits any pooling or division of traffic, earnings or service. Subsection (5) requires that each motor carrier be allowed to take independent action either before or after any procedure for the determination of any matter through multi-lateral consideration, if the collective decision is to be approvable by the Commission.

prior to the 30 day period, the carrier must provide supporting evidence and testimony for the revision. The supporting evidence must be filed with the Commission within 30 days of the effective suspension date of the original petition. Second, on the complaint of any interested party within twenty days of the petitioned change, including the Commission, the Commission may suspend the proposed change for a period up to 180 days. In this event, the suspension order must be issued by the Commission no later than two business days prior to the effective date of the proposed change. Also, carriers filing for revision must be informed of the complaint by the contesting party and be given an opportunity to respond to the complaint. A public hearing is held upon any suspension order. Adequate notice must be given to all interested parties, so that they may appear and present evidence refuting or supporting the reasonableness of the proposed rate change. If such a hearing is not held and a decision rendered within 180 days from the suspension order, then the proposed change is deemed approved and effective as filed.[50]

"Rate discrimination" or "customer preference" with respect to rates is expressly prohibited. Motor carriers operating under established rates are forbidden to give preference to any corpora-

[50] 1975 Additions to R.C.M., 8-104.5, p. 343-344.

tion, locality, or particular kind of commodity. The Commission may authorize differing rates where such rates are justified by the varying character of the service provided by the carrier.

Fees. In addition to ordinary fees for licenses and highway taxes assessed by the State Department of Revenue upon all motor vehicles certain payments are required of all regulated carriers. An application fee of $15-35 is assessed for certificates of public convenience and necessity.[51] In addition, every regulated motor carrier is taxed a lump-sum of $5.00 per motor vehicle (operated on state highways) per year. The expressed intent for the payments is in consideration of state highway utilization. The annual fee is reduced to $2.50 per vehicle for seasonal operations: when the vehicle is used for six months or less.

A gross revenue tax, formerly 8-127 of the Motor Carrier Act, was ruled unconstitutional. On appeal by the Commission, the Montana Supreme Court ruled that 8-127 which required all motor carriers regulated by the state (exempt at that time were livestock, logging, agricultural commodities, highway maintenance and construction materials, logging and mining supplies, newspapers, newspaper supple-

[51]The actual figure depends upon the number of counties for which the certificate is requested.

ments, periodicals and magazines) to pay a tax based upon gross operating revenue was unconstitutional abridgement of due process, equal protection and interstate commerce. The expressed intent of 8-127 was to procur compensatory payments from motor carrier's utilization of the state's highways. Since the exempt carriers evaded jurisdiction of the Act, thus the tax, yet utilized state highways similarly to non-exempt carriers, and while there was no reasonable distinction between the exempt and regulated to account for the classifications, the court ruled that the tax was an arbitrary abridgement of the respondent's 14th Amendment rights. The court also noted that the tax being based upon gross operating revenue encompassed many activities not related to utilization of Montana highways. The court ruled that because the tax had been applied to activities having no relationship to state highway usage was a tax on interstate commerce, a burden on the same, and thus a violation of the Commerce Clause of the United States Constitution.[52]

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[52]See Case #12246 before the Supreme Court of Montana, Garrett Freightlines, Inc. v. Montana Railroad and Public Service Commission, et. al., decided March 15, 1973. This revealing case is explained in more detail in Chapter 5. Also repealed was 8-117, providing a "motor carrier fund...for the purpose of defraying the expenses of administration of this act and regulation of the businesses herein described..." (See analysis in Chapter 5.) The Consumer Counsel Act was enacted February 25, 1973. Apparently the legislature "went to school", taking heed of this case when drafting 70-709, providing for a tax based upon only <u>intrastate</u> revenues of regulated

Enforcement. Responsibility for the statute's enforcement, also given by the Act, is the duty of the Supervisor of motor carriers. The Supervisor is an attorney at law qualified for practice in Montana or shall possess at least five years experience in "suitable" phases of the motor carrier industry. The Supervisor and his field inspectors are sanctioned as peace officers of the state for the purpose of investigating and making arrests for violations of the Act. Any motor carrier or agent thereof failing to comply with any portion of the Act or decision of the Commission is subject to prosecution for a misdemeanor. Upon conviction the violator is fined $25 to $500 and/or imprisoned up to thirty days in the county jail.

The Consumer Counsel Statute

The legalities of regulation can be completed only by recognizing an agent of the regulatory process peripherally legislated to the Motor Carrier Statute: the Consumer Counsel.

The office of Consumer Counsel was first formally concevied in the 1972 State of Montana Constitutional Convention. Article III,

52(Continued) carriers. The case has relevance to the theoretical aspects of the study.

Section 2 of the Constitution summoned the legislature to create and fund with a special tax based upon the revenues of regulated companies, an office of Consumer Counsel to represent consumer interests in all matters before the Public Service Commission.

Such legislation was enacted in 1973. The Act, titled the Consumer Counsel Act, created the office of Consumer Counsel as an agent of the Legislative Branch of Government, answerable to the Legislative Consumer Committee, also provided for in the Act.

Having constitutional status while an agent of the Legislative Branch, the Montana Consumer Counsel is unique among consumer advocacy agencies. The office is an autonomous agency having complete independence of the Administrative Branch of Government and the Regulatory Agency.[53]

Section 70-707 of the Consumer Counsel Act expresses the powers and duties of the Consumer Counsel. The Consumer Counsel is the representative of the consuming public in all matters, in any way affecting consumers, before the regulatory commission. The Counsel possess all powers of discovery in contested case procedure before any state administrative agency. The counsel has all powers of examination and cross examination under oath of any agent of any

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[53] 1976 Consumer Counsel Annual Report to Legislative Consumer Committee, p. 2.

regulated firm and may inspect corporate records in accordance with the law.

Every regulated company is required to pay to the Department of Revenue a tax based upon its gross operating revenues for all intrastate business activities. This revenue is established as an earmarked fund from which all appropriations to the Office of Consumer Counsel are paid.

Relatively stringent sanctions are levied upon a regulated firm's violation of the Consumer Counsel Act. Both civil and criminal remedies exist: civil liability may not exceed $1,000; and criminal sanctions of up to $1,000 and/or one year imprisonment are also provided.

The Inclusion Process

This section will specify the agents and their behavior in the enactment of legislation to regulate intrastate motor carriers transporting livestock for hire.

The primary agents in the enactment process were the Montana Motor Carriers Association, the Montana Livestock Carriers Association, the Montana Livestock Growers Association, and the State Legislature.

The process to regulate livestock trucking, finally enacted in March, 1971, began in the Fall of 1962 at a meeting of the already existing Montana Motor Carriers Association.[54] The Motor Carriers Association offered to aid the livestock carriers in their effort to become regulated. Approximately half of the operating livestock carriers were represented and formalized the Montana Livestock Carriers Association for the expressed purpose of influencing the legislative process.

The livestock carriers organized the state into five sections, electing a chairperson in each. Carriers in each area met several times during the pre-legislative years to express their views pertaining to regulation and the manner in which the bill should be drafted. The chairpersons served as representatives to state-wide meetings where the issues were discussed, resolved, and a bill drafted. In addition, an original tariff was drafted in anticipation of favorable legislation.

The livestock carriers anticipated strong opposition to their efforts from livestock producers. Thus, during the pre-legislative years there was no publication or announcement of their intentions.[55]

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[54] Detailed history of the enactment process taken from a November 21, 1977 interview with Peggy Jerrel, President of the Montana Livestock Carriers Association.

[55] When asked about which groups opposed their efforts in the prelegislative years, Peggy Jerrel responded, "We did not publish it as such; nobody even really knew. We kept it very quiet on purpose because the cattlemen were against it and the buyers and packers."

This was, in fact, their key stragegy; to obfuscate their operation to enact legislation from opposing groups, especially cattle producers.[56]

The initial legislative attempt by the livestock carriers came in 1967: it had taken five years to prepare for the legislature and the livestock carriers believed that the marked decrease in the number of ranchers in the legislature beginning in 1965 improved their chance of favorable legislation. House Bill Number 172, introduced by Ulmer, McNamara, Northey, and Glennen, Amended 8-101, R.C.M., 1967, by deleting the exemption of motor carriers of livestock for-hire. It also provided that carriers operating for at least one year immediately preceding July 1, 1966 would not be required to show public need and necessity to procur operating authority.[57]

The Committee on Business and Industry recommended that House Bill Number 172 not pass.

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[56] In the same interview it was asked, "If you could name any one step, key strategy or process, what would it be?" Jerrel responded, "To keep it very quiet and not let them know. We slipped it into the legislature very quietly, hoping they would not pick it up. As you know there are many bills. But it got picked up and we were killed in committee in '67."

[57] See 1967 House Journal for the 40th Legislative session.

The livestock carriers made a second unsuccessful attempt to be included under the statute's jurisdiction in 1969. House Bill Number 464 introduced by Glennen was substantially unchanged from the previously defeated House Bill Number 172. The bill received a do pass recommendation from committee after no opponents to the bill appeared, but was killed on the floor in its second reading, principally by the efforts of John Melcher, a rancher and veterinarian.[58]

The livestock carriers' strategy had remained unchanged between the 1967 and 1969 efforts. On reflection, the livestock carriers have admitted that their failure to adopt a concessionary strategy to rancher opposition was the key error in the 1969 effort.[59]

The 1971 attempt gave explicit recognition of cattle interests. House Bill Number 205 provided:

1. Regulatory jurisdiction of the livestock carriers;
2. Grandfather rights, i.e. that carriers operating in a bonified capacity as a motor carrier of livestock for-hire prior to some specified date, would not be required to prove

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[58]Jerrel Interview, November 21, 1977.

[59]According to William O'Leary, former attorney for the P.S.C., House Bill Number 464 failed because of cattle interests. They feared that it would not protect their owned cattle shipment operations. Interview with William O'Leary, October 12, 1977.

public convenience and necessity to obtain a Class B certificate;

3. Exemptions to ranchers transporting their own cattle.

The livestock carriers believe that the 1971 success was due to the bill's appeasment of cattle interests. In addition, carriers claim that severe inflation and perceived increases in "cut-throat" competition may have caused the motor carriers ranks to push harder for regulation.[60]

The general regulatory framework provided by the Motor Carrier and Consumer Counsel Acts extends to many classes of carriers and commodities. Many of the commodity classes underwent a jurisdictional inclusion process similar to that of livestock. When livestock carriers became regulated, all of the statutory provisions became applicable to livestock transportation in the same manner as all other regulated commodities. Yet there remain certain unwritten aspects of the law unique to the particular interests of livestock carriers in their jurisdictional inclusion.

The first of these unwrittens is the interpretation of bonified rancher or farmer for their exemption from regulation. According to

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[60] Jerrel Interview, November 21, 1977.

a former attorney for the Commission, at the time the interpretation was sought, by the authority of ICC Case Law, the Commission chose to construe "bonified farmer, rancher or raiser of livestock", as any individual or firm earning at least 50 percent of annual income from livestock production. In practice, however, this income stipulation is difficult to ascertain making 8-101.1 as interpreted, an ineffective provision.[61]

A second unwritten portion of the law, though now anachronistic, was the livestock carrier's agreement not to solicit a rate increase with the Commission within three years of the effective date of the original tariff. This was in addition to the concession to ranchers by exempting them from regulation of their owned transport services.[62]

The final unwritten portion of the law unique to the livestock carriers' regulatory inclusion, was an agreement between the livestock carriers, the legislature and its agent, the Public Service Commission, that the initial endowment of grandfather rights would be honored perpetually, i.e. that no new grants of statewide authority

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[61] Interview with William O'Leary, Former Attorney for P.S.C., October 11, 1977.

[62] Interview on November 21, 1977 with Peggy Jerrel. The agreement is anachronistic because the carriers filed and received a 15 percent rate increase August 23, 1976.

would be issued without a hearing to prove public convenience and necessity.[63]

Industry Arguments for Regulation

The industry's arguments leading to the inclusion process just described will now be examined.

The industry of primary concern here--the "objective" industry--is the intrastate motor carriers of livestock. Though evidence is sketchy, it would appear that the pre-regulatory environment of this industry was characterized by the essential characteristics of a competitive market:

1. A sufficient number of similar, autonomous firms to effectively compete;
2. many purchasers of transportation services;
3. relatively unburdensome entry and exit;
4. high degree of product homogeneity between firms.

These "conclusions" are based upon arguments given by industry spokespersons for some regulatory remedy of low rates, and too easy entry and exit conditions resulting in "cut-throat" competition. Prior to regulation, the industry was quite volatile with respect to firm change-over. It has been noted that twenty firms entered and exited

[63] Jerrel Interview, November 21, 1977.

between the years 1952-1965 in Miles City alone. With adequate credit, industry entry required relatively low capital outlays. Although a handful of large firms with several tractor-trailer units existed, the industry was composed primarily of firms with one or two tractor-trailer units. The industry's volatility caused by minimal entry barriers was exacerbated by the seasonality of livestock transportation demand. As in many transportation industries this industry was characterized by a peak-load problem. Demand was high relative to the number of available tractor-trailer units in the fall months. Relatively low demands for transportation of feeder cattle in the winter and spring brought about idle tractor-trailer units during these months.

The argument that "cut-throat"competition merits some governmental intervention is a prevasive one in the transportation sector. The argument was used by the Montana livestock carriers in their efforts to become regulated.[64] The industry argued that they were at a disadvantage to the interstate carrier charging extremely low backhaul rates to avoid running empty.

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[64]Asked what their primary arguments for regulation were, Jerrel responded, "The biggest thing was rates. You could buy a truck; there was nothing stopping you from going down and buying a truck and trailer and start hauling livestock. You could charge anything you pleased. You kept your truck six months and then you lost it. There was no way we could haul for the rates that those fellows who

To rectify the unregulated industry's relatively easy entry and exit conditions and the resulting low rates, the livestock carriers wanted two conditions met; that every carrier:

1. purchase a certain amount of cargo and liability insurance; and
2. belong to a tariff, i.e. publish a rate schedule approved by the regulatory commission.[65]

Regulation, it was argued, would stabilize the industry formerly characterized by high volitility, and assure viable transport services for cattle producers.

Summary

The regulatory mode (with respect to livestock transportation) is a function of the post 1971 Motor Carrier Statute and the specific roles of agents thereof, and peripheral legislation.

The 1971 Amendment was enacted after five years of pre-legislative preparation and three attempts to enact the legislation. The appeasement of cattle interests was the key to successful legislation.

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64 Continued
were in and out of the business all the time. There was no comp... you could not compete with them."

[65] Jerrel Interview, November 21, 1977.

The legislation was sought to remedy the volatile entry and exist situation and depressed transport rates of the Montana livestock carrier industry.

Chapter 4

THE INDUSTRY IN ITS REGULATORY ENVIRONMENT

Introduction

This chapter will describe the behavior of the livestock carriers as they operate within the legal framework. Attention will focus on the general categories of rate regulation and exit and entry.

Rate Regulation

The Tariff Bureau - A General Description. Transport rates charged by any for-hire motor carrier must be approved by and filed with the Commission. The regulated carrier may petition for such approval independently and/or may join carrier groups called tariff bureaus which file a group proposed rate for the Commission's approval. As an example, Greyhound Bus Lines belongs to the National Bus Tariff Bureau. Greyhound, however, often chooses to file an independent rate application with the Commission. Greyhound deals with the Commission independently where other small bus lines choose to deal with a rate bureau.[66] There may be several reasons for this. First, justification of rates filed with the Commission involves the utilization of certain scarce resources, such as

[66] It is not clear what the quantifiable "output" is of the tariff bureau. The service is indeed to file rate revisions. Therefore some unit measure of "rate changes per time period" may serve as tariff bureau's product.

statistical and computer personnel who closely monitor firm costs through elaborate accounting systems, and legal staff. A firm the size of Greyhound employs these kinds of resources for tasks other than rate proposal justification. The information provided by Greyhound to justify a rate is likely to be the same information used in its calculated microeconomic decisions. Thus, the marginal cost to Greyhound of using already employed resources for rate justification appears relatively low compared to firms not employing these kinds of resources as part of their standard decision making apparatus.

Smaller carriers not employing legal or statistical personnel nor computerized cost analysis systems choose to file a collective rate proposal through a tariff bureau which, as a combination of carriers, may employ must the same personnel as a large carrier. While at least some member firms must supply to the bureau the required rate justification data, it is not required that a bureau's justification be based upon the participation of every firm.[67]

Motor carrier collectives, specializing in the rate filing, justification and publishing process, operate at lower cost than the total cost of the firms filing independently if such firms

[67] This tendency of rate bureaus have some interesting implications for the theory; more on the phenomena later in Chapter 4 and in Chapter 5.

contract-out for part-time, statistical, legal and computer services, less specialized in collective ratemaking functions.

A monolithic firm possesses an additional economy in the rate filing process. A bureau's disadvantage lies in the collective decision making process necessary to arriving at a rate proposal.

Arriving at a collective rate proposal is a fairly complicated process. A proposal to change a rate is called a docket. Tariff bureaus usually provide a docket service which announces rate proposals to interested parties. A docket may be acted upon in one of three procedures: regular, emergency, independent announcement.[68]

Under the regular procedure the docket is filed with a standing rate committee composed of bureau members. The committee notifies all interested parties, both carriers and shippers, of a public hearing to consider the docket. Upon hearing agruments for and against the docket, the standing rate committee will recommend either adopt as proposed, adopt with amendments, or not adopt. The committee's decision may be appealed. If the docket is adopted without appeal, it is published and submitted to the regulatory Commission where a very similar approval process is initiated. If

[68]The procedure that follows draws heavily from that established by the Eastern Central Motor Carrier Association, a large, well established tariff bureau.

the rate committee's decision is appealed, by either shipper or carrier, the docket is referred to a general committee composed of participating carrier's representatives. The general committee serves to purport the collective rate making policy of the bureau. The decision of the general committee is binding.

A bureau participant may request the emergency procedure under the following kinds of circumstances:

1. To meet competitive conditions;
2. For traffic to be transported in national defense;
3. To establish temporary charges for prompt movement of property to relieve innury, damage or suffering;
4. For removing commercial or industrial plant or establishment;
5. Where no existing rates are published by the bureau.

The third procedural course, that of independent action is an option available to a participating carrier at any time. This option is required by law.[69] If taking independent action, the carrier will take the rate proposal directly to the Commission where procedures for approval are implemented per statutory terms. The firm filing independent rate proposals by-passes the internal procedures of a rate bureau.

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[69]1975 Additions to R.C.M. 1947. 8-103.4(5).

The docket process is exemplary of costs of organization and agreement characterizing tariff bureaus. Such costs are largely avoided by the single firm whose technical data system and specialized personnel are similar to those of the rate bureau. Such a firm rationally takes independent action if it possesses a positive time preference for rate increases.

The Montana Livestock Tariff Bureau. To remain a valid licensee of operating authority, certificate holders must purchase the required cargo and liability insurance, file an annual report and compensatory fees with the Public Service Commission, actively solicit business, and belong to a published tariff schedule approved by the Commission. To fulfill the last requirement livestock carriers formed the Montana Livestock Tariff Bureau (M.L.T.B.), an offshoot of the pre-regulatory lobbying group.

The M.L.T.B., one of three tariff bureaus representing all participating regulated carriers in Montana, is the singular ratemaking representative of intrastate livestock carriers.[70]

Dues to the M.L.T.B. are $36 per tractor-trailer unit operated

[70]The following four Billings firms initially filed a tariff independently of the M.L.T.B.:

1) Frontier Trucking
2) Garritson & Macer
3) Garritson & Sons
4) Billy Reese

They have since joined the M.L.T.B.

over state highways per year.

According to Donald Coleman, Executive Director of the M.L.T.B., the livestock tariff is unique from other tariffs published by collective rate organizations in several respects.

Firstly, the single tariff published by the M.L.T.B. is representative of an extremely large number of participating carriers. Other tariffs represent many fewer carriers, usually around 10 or 12.[71]

Secondly, the turnover rate in M.L.T.B. membership is quite high; approximately 2 sales and transfers per month.

Thirdly, the size of companies, being small on the whole, also differentiates M.L.T.B. membership from other tariff memberships.

Fourthly, member carriers are mostly rural and their operations are mostly seasonal.

As there exists no livestock carriers filing independent rate

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[71] Don Coleman interview November 2, 1977. This figure was checked and varies greatly with type of commodity hauled. For instance:

<u>Intermountain Tariff Bureau</u>
1) Commodity Tariff 31: 8 carriers
2) Commodity Tariff 30: 9 carriers
3) Class and Commodity Tariff 35: 12 carriers
4) Tank Transport Tariff 29: 11 carriers
5) Commodity Tariff 28: 20 carriers
6) Household Goods Tariff 27: 76 carriers

<u>Pacific Inland Tariff Bureau</u>, Montana Participating Carriers
1) Tariff 320: 31 carriers

proposals certain industry characteristics with respect to rate regulation may be derived from the data of the M.L.T.B.'s data collection and justification procedure.

The M.L.T.B. solicits justificatory, historical data on revenues and costs of its member carriers only in case of an eventual proposal to alter the tariff. Data submission by participating carriers is purely voluntary, yet, all member carriers become subject to the same tariff schedule once approved by the Commission.

At a November 1975 special meeting of the Bureau, a majority of present carriers agreed to seek a 15 percent rate increase. The M.L.T.B. requested that all 170 participating carriers submit data on gross operating revenues in intrastate livestock transportation for the year 1974. One hundred four carriers responded to the request. This data is given in Appendix I, Table 1. Total revenue of the 104 firms from intrastate livestock transport for 1974 was over two million dollars. The largest seven firms accounted for approximately 50 percent of the revenue reported by the responding 104 firms.

The industry remains characterized by the small operator employing a single tractor and one or two livestock trailers. According to the M.L.T.B., the small operator is not accustomed to utilizing sophisticated accounting techniques and does not employ data systems required for detailed statistical information useful to the tariff bureau.[72] Because of this, additional data were requested from the thirty largest firms as measured by gross operating revenue in intrastate livestock transportation. This data included various operating cost statistics, total operating revenue, intrastate livestock operating revenue, and net operating income for the years 1974 and 1975. Of the thirty firms contacted, 17 responded to the inquiry; the data are presented in Appendix I, Table 2. The 17 responding firms accounted for 55 percent of industry total revenue in 1974. Among the 17 firms responding, intrastate livestock transportation averaged 84 percent of total revenue per firm in 1974, and 82 percent in 1975. In 1974 and 1975, 10 of the 17 firms earned 100 percent of their total revenue from intrastate livestock transportation. Fifteen of the responding firms owned 49 livestock trailers or 18 percent of the 271 livestock trailers owned by 150 firms in the industry.[73]

Based upon the data presented the bureau was granted the petitioned-for 15 percent rate increase. The argument used by the

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[72] Coleman Interview November 2, 1977. Also July 13, 1976 affidavit by Donald Coleman before the Public Service Commission rate hearing.

[73] Trailer numbers as of fall, 1977. Approximately 20/172 carriers do not have livestock trailers.

M.L.T.B. was that the 17 carriers were a significant fraction of the industry and their financial information provided a valid indication of the industry's financial trends.

Exit and Entry

Industry trends in firm entry and exit since its regulation will now be investigated. At the inception of regulation, with the initial endowment of grandfather rights, the industry was fixed at 174 firms. Many grandfather certificates were denied to firms not possessing invoice records for three years prior to 1971 as documentation of their "grandfather" status.[74] Since regulation, net exit has been only two firms, as two certificates have been

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[74] Jerrell Interview, November 21, 1977. From data supplied by the Commission in its Annual Reports, for following years, certificate application numbers were:

69-70	70-71	71-72	72-73	73-74
161	173	416*	176	182

*Substantial increase due to livestock carriers applying for their initial authority. Averaging the certificate application data for the years before and after the livestock carriers applied for authority, would indicate that approximately 173 of the 416 applications were for authorities other than livestock. Given this fairly constant trend in certificate applications (other than the effect of livestock), approximately 243 (416-173) of the 416 applications were for livestock authority. Thus, Jerrel's statement can perhaps be narrowed to the denial of approximately 69 grandfather authorities to haul livestock.

cancelled from the original 174 while no new certificates have been issued. This inquiry will focus on firm changeover as a result of sales and transfers of certificates.

Rudimentary records of the P.S.C. prevent a detailed accounting of certificate transfers for the years 1972 through 1976. Thus, M.L.T.B. participation will serve as a proxy for describing industry exit and entry. This approach is valid since, except for the four Billings firms who initially wrote their own tariff, the M.L.T.B. has been the exclusive representative of livestock motor carriers since regulation.

In describing exit and entry using M.L.T.B. participation data, a paradox is encountered. For a certificate to remain valid, holders must solicit business. All tariff bureau members hold certificates.[75] Yet, there are participating carriers not soliciting business. Thus, there exist participating tariff bureau members belonging to the tariff to tenuate certificate validity. Yet, the certificate is technically invalid for the failure to solicit business. The paradox results from frictions in the regulatory mechanism.[76] In a world with no

[75]This follows since membership to a tariff is requisite to a valid certificate.

[76]The mechanism referred to here is the implementation of the certificate suspension and revocation process provided for in 8-107.1 and 8-107.2, R.C.M., 1975 additions. Wayne Budt, transportation

such regulatory frictions and where all firms in the industry belong to the tariff bureau, tariff bureau participation would serve as a perfect proxy for industry "participation". With the frictions of the regulatory mechanism introduced into the case at hand, tariff bureau participation may be an imperfect indicator of industry trends. The problem is made palatable by considering the economic nature of the certificate. Holding a certificate involves an opportunity cost equal to the discounted value of future net returns to the firm. The market price for certificates is a reflection of the industry's future profitability. Since tariff bureau members possess certificates (they have no incentive to join but to preserve the certificate), entry to and exit from the tariff bureau is governed by the same economic forces as entry to and exit from the industry: profit conditions in the industry relative to alternatives. The firm will hold the certificate until the marginal change in the discounted net returns in alternatives exceeds the increment to the certificates value by holding it an additional time period.

With these qualifications in mind the number of firm changeovers is estimated during the period October 1972 through December

76 Continued
administrator has indicated that it is difficult to prove failure to solicit. Even those not having livestock trailers can argue that they would rent trailers if they should find traffic.

1976.[77] Tables 1 through 4 in Appendix II indicate M.L.T.B. participation during the four year period. Four Billings, Montana carriers holding certificates were until the fourth published list writing a tariff independently of the M.L.T.B. Counting these four firms there were 167 known carriers belonging to a tariff in 1972. Thus, there existed six to seven firms not published in Table 1 because insurance or dues to the tariff bureau were not current.[78] From Table 2 there were 166 known certificates, the owners of which belonged to a tariff. Thus, seven or eight were lacking insurance or tariff bureau dues. From Table 3 there were 171 known carriers belonging to a tariff. Thus, if 173 or 174 certificates remained, two or three firms were without member dues or insurance. By the fourth revised publishing, as indicated in Table 4, the four Billings firms had joined the M.L.T.B. Thus, there were 172 participating carriers with two cancelled certificates and none without insurance or tariff bureau dues.

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[77]This four year period covers the years since regulation for the most part. Regulation became effective on December 29, 1971, the effective date of the original tariff.

[78]One of the cancellations may have already occurred by the publishment of the first revised list. The other cancellation is known to be under the firm name of C.B. Livestock Trucking in business through the third revised list.

The certificate sale and transfer trends for the four years represented in Tables 1-4 of Appendix 2, indicate that eleven firms withdrew membership between periods I and II, 44 exited between periods II and III, and 24 firms exited between periods III and IV. Of the total 79 firms exiting during the four periods, two firms re-entered as tariff bureau members. These were Joe Good and Carl Gren, both exiting between periods II and III, then re-entering between periods III and IV. Thus, a net of 77 firms withdrew from the tariff bureau. Since the number of firms in the industry has remained fairly constant (within one or two firms) throughout the term of regulation, every deletion of a firm involved a corresponding addition of another firm. Thus, given these discrete periods, there have been at least 77 sales and transfers. Since tariff bureau membership is revised continuously, yet is published in four discrete periods, the 77 sales and transfers may well be conservative. Some additional information may provide a check on this number. From March 1974 through November 1977, the M.L.T.B. processed 72 actual sales and transfers;[79] an average of 1.6 sales and transfers per month for the 45 month period. Given a similar rate for the 49 month period represented by Tables 1-4 of the Appendix, 78 sales

[79]Figure from Donald Coleman, Executive Director of M.L.T.B. from March 1974 to present.

and transfers occurred. It would appear then that the revised lists (Tables 1-4) represent a fairly continuous accounting of tariff bureau membership. An additional check on the estimate of 77 sales and transfers is derived from noting in Tables 1-4 that 97 firms retained membership throughout the four year period (including the four Billings firms). Given 174 total certificates, this would imply that 77 of them exchanged ownership at least once. Thus, it would appear that few if any of the certificates changed ownership more than once between 1972 and 1976.

Summary

Upon becoming regulated, the livestock carriers joined in the formation of the Montana Livestock Tariff Bureau, now the singular ratemaking representative of Livestock Carriers transporting between points in Montana. No livestock carriers filed for independent rate approval. Thus, the regulated _industry_ was investigated with respect to regulated rates and exit and entry using collective ratemaking data and firm participation data of the M.L.T.B.

The collective ratemaking function of the M.L.T.B. relied upon the larger firms' voluntarily providing the extensive data required for the rate approval, and thus bearing the greater proportion of ratemaking costs. Seventeen of the largest 30 carriers provided several statistics for two years while 104 of 170 total carriers, characterized primarily by the small operator, provided one simple statistic for one year.

Tariff bureau participation indicated that firm entry and exit since regulation remained quite volatile as an estimated 77 sales and transfers occurred between 1972 and 1976.

Chapter 5

ANALYSIS

Introduction

This chapter will evaluate the plausibility of the economic theory of regulation in explaining institutional change and the regulatory process specific to the intrastate livestock carrier group.

The economic theory would suggest that remittance of financial resources by the livestock carriers to government was conditional to becoming regulated and remaining regulated. Two refutable implications of the theory are: 1) Quid pro quo will characterize both jurisdictional inclusion and the ongoing regulatory process; and 2) the regulatory process will be reasonably effective in terms of effecting the quid pro quo.

Posner has suggested the effectiveness criterion of the economic theory as "reasonable effectiveness" of any exchange is in accordance with the usual assumptions of economics.[80] In addition, it is suggested that if there exists a market for institutions, exhibiting sources of demand and supply, and since markets are characterized by

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[80] Richard Posner, "Theories of Economic Regulation", Bell Journal of Economics and Management Science, Aut. 1974. Vol. 5. No. 2, p. 350. Posner maintains the economic theory is deficient, as at best it is a list of criteria relevant to explaining whether an industry will obtain favorable legislation. It is not yet a coherent theory yielding unambiguous and testable predictions. The implications of

an implicit or explicit contractual process, then there should exist evidence of some contractural process in the institutional marketplace.

Quid Pro Quo Criterion

A Contract Hypothesis. The economic theory of regulation as a special case of a more general theory of institutional change asserts that market forces determine the production and allocation of governmentally provided institutions. These forces for institutional change exist within the existing political, legal and economic institutions; the "marketplace" for institutional choice. Marketplaces are characterized by buyers and sellers entering into a process of mutually beneficial exchange. Market transactions are characterized by contracts, explicit or implicit, which delineate the manner and conditions for the exchange of property rights. It is argued here that the market for institutions is characterized by a similar contractual process. In this context, the Montana Motor Carrier Act as amended to regulate livestock transportation for-hire is itself a contract, formally recognizing the bargained exchange of rights and powers in the institutional marketplace.

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the theory are refutable however, and thus he suggests the effectiveness criterion.

It will now be instructive to retrace the general provisions of this "institutional contract" noting the quid pro quo underlying the written law. In doing so, evidence supporting the contract hypothesis, and thus, the economic theory of regulation will be examined. Whether the quid pro quo is actually effectuated is a subject for further evaluation.

The exchange of powers and rights in the institutional contract is not easy to delineate. The contract is consummated in a public vein. It is expressed in the legal codes of the state, drafter under the tenacious, presumptive influence of the public interest hypothesis of institutional choice. Consequently, an uncritical observation of the statute might lead to the interpretation that it represents the public's imposition of restrictive burdens upon the regulated industry. If, however, observed in an institutional contract framework, it is concluded that the statute's unidirectional burdens restricting the behavior of the group are also the services provided to the group.

In the institutional contract, obligations placed upon the group - property rights constrained - are undifferentiable from governmental powers provided. As in Rousseau's Social Contract, the self-imposed restrictions of a populus submitting to the sovereign are simultaneously the source of gain to the populus.

With these difficulties in mind, the legal "obligations" placed upon motor carriers, being a qualitative summary of gains bargained for in the process of institutional change, may now be specified.

When seeking regulation as an alternative institutional framework the livestock carriers sought price stability and entry restrictions. Section 8-101.2 of the contract provides jurisdictional extension to livestock transport for hire by requiring that all such firms obtain a Class B certificate of public convenience and necessity. This requirement is the provision sought by the livestock carriers to restrict entry. From this all other provisions of the Act follow, including the obligation of carriers to file for rate approval. Once rates are approved and published it is unlawful for any carrier to deviate from the rate.

To complete the expression of the quid pro quo the contract expresses the quantity of financial resources required of motor carriers in compensation for the government's provision of the regulatory machinery. The statute's delineation of these payments was given in Chapter 3.

The precise nature and intent of these payments either supports or refutes the contract hypothesis. There appear to be contradictions in the statute's expression of their purpose. First, "compensation" as used in the Act is defined as "the charge imposed upon motor carriers in consideration of the use of the highways in this state..."[81] This same intent is expressed in specific sections of the statute requiring payments from motor carriers.[82] Yet, a contradictory expression of intent is given in Section 8-117. Though repealed in 1974, the provision was valid over an extensive period during which many carriers, including livestock carriers, were regulated. As mentioned in Chapter 3, this section provided a "motor carrier fund", to which all payments required by the statute would be submitted, for the purpose of defraying the expenses of regulating motor carriers. There is no mention of utilizing such compensatory payments for highway maintenance as would follow if the intention of such payments was in consideration of state highway usage.

To resolve this impasse on intent the Garrett case discussed in Chapter 3 will be re-examined in light of the contract hypothesis. It is recalled that the court ruled that the gross revenue tax on regulated carriers alone was arbitrary and discriminatory. Unregulated carriers utilized state highways similarly, yet evaded the bounds of the tax. The tax was arbitrary in the sense that there

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[81] R.C.M., 1947, 8-101(J), p. 463.

[82] See Section 8-116, R.C.M., 1975 additions, Section 8-127 (Gross Revenue Tax), when still valid used similar language.

existed no reasonable or substantial distinctions between carriers that were regulated and those which were not. If one accepts the proposition that the classifications between tax exempt and taxed carriers are not "reasonable", due to "substantial distinctions", but incidental to conditions of supply and demand in the marketplace for institutions, then actual intent of the gross revenue tax was to procur compensatory payments for the government's continued provision of economic regulation. The Garrett case, simply interpreted: regulated carriers were taxed because they were regulated.[83]

The repeal of the gross revenue tax had a substantial financial impact on the Public Service Commission. In Table 1 below are revenue and cost figures of the Public Service Commission between the years 1969-1973.[84] Commission revenues are derived via collections from regulated companies, per statutory specification. Had the tax not been repealed, collections for 1972-1973 fiscal year

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[83] Indeed the court noted that the incidence of regulation was due to successful lobbying effort, not intrinsic characteristics of the industries. See Garrett v. Montana Railroad and P.S.C. et al, p. 5.

[84] See annual report of the P.S.C. to the Governor for fiscal year ended June 30, 1973. Also in that report was the Commission's statement of major recommendations. First priority was to establish a replacement tax for the gross revenue tax.

would have been $817,153.17. Thus, tax repeal reduced payments to the Public Service Commission from regulated motor carriers by $79,116.79. The financial effect of tax repeal on Commission revenues may be indicative of the gains to the governmental agency from the institutional contract.[85]

Table 1

Financial Impact on Public Service Commission Due To Repeal of Gross Revenue Tax

Fiscal Year	Collections	Costs
1969-1970	$ 839,283	$247,757
1970-1971	$ 883,605	$266,194
1971-1972	$1,001,820	$364,405
1972-1973	$ 738,036	$364,903

Written contracts often contain security provisions bargained for by the contracting parties to protect the rights exchanged. The motor carrier statute contains two kinds of security arrangements. One induces compensatory payments from the motor carriers, while the other induces motor carrier compliance with the statutue. Thus, the

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85. If the committee minutes are any indication, it is also possible that the P.S.C. also "lobbied" for regulation. See House of Representatives, Highway Committee, minutes to the 42nd Legislative Session, House Bill 205.

contract contains arrangements to secure both directions of the quid pro quo.[86]

Regarding the latter security clause, it should be noted that for regulation to be effective, i.e. limit entry and fix rates, the motor carriers must in a sense be protected from each other. Motor carriers are exchanging financial resources for price and entry control provided by the government. To secure these, motor carriers must retract certain rights of pricing and output. This behavior is induced by criminal sanctions imposed upon violators of the statute. As for the former security arrangement, government wishes to protect its right to financial resources in exchange for which it provides regulatory machinery. An indication of this attempt by government is given in Section 8-116 of the statute. Subsection (c) provides that the certificate of operating authority be subject to revocation upon failure of a regulated carrier to pay compensatory fees when due. Subsection (d) allows the government to make lien on all property used in intrastate commerce of a regulated carrier if compensatory payments are not submitted when due. Such lien arrangements are common in contracts involving the loanable funds market.

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[86] An important element of the exchange is not protected for in the contract. There is no provision levying sanctions upon the P.S.C. for failure to implement certain regulatory mechanisms. Pressure to implement the law comes from the consumer counsel and state

The analysis of the statute as a contract appears consistent with the economic theory of regulation, viewing institutional change to regulation as an exchange between government and private groups. Certain aspects of the institutional contract support the economic theory of institutional change. These include the specific quid pro quo mentioned in this chapter. The total financial resources expended by the livestock carriers to obtain regulation include the expenditures of the pre-legislative and legistlative phases of the enactment process. These expenditures plus yearly payments to the Public Service Commission bring forth and preserve the regulatory environment.[87] The livestock carriers finally received regulation after nine years of

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86Continued
auditor, but P.S.C. argues that hearing load and budget constraints limit its capability to proceed according to the law in all cases.

87 A more precise definition of "Government" for the case at hand may be given. Government, as a party to this institutional contract, is divided into the legislature and the regulatory commission. The output of government includes the genesis of regulatory machinery per statutory expression and the implementation of the machinery. This can be viewed as stages of a productive process, where the legislature creates the institution, for which it is compensated in terms of lobbying effort by the group, and the regulatory commission engages the institution as an ongoing process, for which it is compensated in terms of statutory fees, etc.

organizing, and three legislative attempts which included establishing legislative contacts and education of the lobbying and legislative processes. Such experience and erection of the group's organization over time may have lowered the livestock carriers' marginal cost of collective action, resulting in an increase in carriers' influence on the legislative process, ceteris paribus.[88]

Effectiveness Criterion

As a contract, the regulatory law specifies the goals of the contracting parties and the means to secure them. The effectiveness of the regulatory process in achieving its ends thus depends on the lawful execution of contractural terms.

The following guidelines will be used in evaluating the effective implementation of the regulatory machinery:

1. A general enumeration of non-effective provisions contracted into as described in the State audit report on Public Service Commission;
2. The extent to which rates have been fixed; and,

[88] Since the livestock growers withdrew much opposition to the 1971 amendment conditional to their exemption from regulation, it is not clear what the net effect was on the carriers VMP_I curve. The curve would likely shift down from ranchers' exemption, yet an upward shift would follow from their lessened opposition.

3. The effectiveness of entry restrictions.

Audit Results

1. Section 8-118 directs the Commission to prescribe a uniform accounting system and report forms auditing the operation of Class B motor carriers. The Commission has not established such a system but has responded that the transportation division is in the process of developing the accounting system and report forms.
2. R.C.M., Section 8-116 directs the Commission to collect an annual fee of $2.50 per vehicle from all carriers in seasonal operation of six months or less. In effect the Commission charges $5.00 per vehicle (the full-time charge) for all regulated carriers whether operating seasonally or not. The Commission has responded that it would comply with the statute based upon evidence from carriers on their seasonal nature.
3. R.C.M., Section 8-111.1 requires that the Commission set a hearing date withing 60 days and issue its decision within 90 days of the filing date of a certificate application. The Commission frequently does not comply with this section. As a result regulatory lag is a primary complaint of

regulated companies.[89] The Commission has responded that with the usual staff and budget levels it is not possible to comply in every case within the 90 day decision period.

4. R.C.M., 8-118 requires that all Class B motor carriers submit an annual report, the contents of which are prescribed by the Commission, on or before March 31 of each year. The administrator of transportation has occasionally allowed extensions. The granting of such extensions exceeds his statutory authority. The Commission has acknowledged the wrong doing, but argues that extensions to the filing date are justified if the carrier can show good cause or hardship.

Fixity of Rates. In collective ratemaking uniformity of rates can be accomplished implicitly by the regulatory commission's approval

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[89] Findings of legislative counsel subcommittee interim report of the Public Service Commission report #36, December 1970, p. 23. The Consumer Counsel has petitioned the commission on several occasions to adopt rules of practice and procedure to remedy regulatory lag. No action has yet been taken by the commission. The Commission is now faced with a legislative mandate to adopt such rules of practice and procedure by October 31, 1977 or face alterations in its budget. See the Annual Report of the Montana Consumer Counsel to the Legislative Consumer Committee, 1976, p. 21. Also see the Bozeman Chronicle, Monday, October 17, 1977, Vol. 66, No. 270, front page.

and amending authority over many autonomous firms or explicitly and perhaps more efficiently by the legitimization of tariff bureaus. With tariff bureaus, uniformity is achieved at the proposal level. As all regulated livestock carriers now participate in the M.L.T.B. strict uniformity is achieved at the proposal level. The rate finally approved is applicable to all carriers in the industry. This fact enlightens an interesting group good aspect of the ratemaking process.

Recall the M.L.T.B. participation data in Chapter 4. Note that 104 out of 170 carriers provided one statistic for one year and 17 of the 30 largest carriers provided several statistics for two years. Since the rate proposal was approved by the Commission utilizing the data supplied by the 17 carriers, it would appear that these carriers, accounting for a majority of industry revenues, bore the major proportion, if not all, of the ratemaking costs. These 17 carriers might have benefited more from the rate increase if the carriers not supplying the sophisticated data were "cheap riders" rather than "free riders" to the rate increase. To the carriers not providing extensive data, the rate increase costs some fraction of tariff bureau membership dues plus costs characteristic of the cheap rider phenomenon. Because they tend to be relatively lower revenue operations, with relatively low fractional gains to any rate increase, implementing the data systems required for rate proposal justification is not economically efficient. Thus, they choose to accept the rate justified by the data of the larger firms, perhaps at a cost of rate changes not optimal with respect to the market conditions they face individually or as a group of smaller firms.

The fact that the rate increases occur without 100 percent tariff bureau participation indicates that the data requirements for rate justification with tariff bureaus are less than the data requirements if firms proposed rates individually. It appears, then, that rate uniformity at the proposal level, via the utilization of the tariff bureau, is achieved at lower total cost than if all firms negotiate independently with the Commission. Thus, given regulation's mandatory procedure to justify rates the utilization of that institution is less costly under a tariff bureau arrangement.[90]

Although rate publishing uniformity is achieved at the proposal level the extent to which the published rates are abided by is another question. Because the seasonal fluctuations in demand remain, there exist pressures to deviate upward from approved rates during the fall months and downward from the rates during the low demand

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[90]This may be an example of the extension to the Coase theory given in Chapter 2; that groups evolve to reduce the transaction costs of utilizing any complex set of institutions.

period.[91] By law, rate violations must be witnessed on state highways. But enforcement is limited: 1) presently there are only five field inspectors having authority to arrest for violations throughout the state; 2) the large number of interstate, private, and intrastate livestock carriers encumber the five field inspectors' ability to recognize the carriers having in-state operating authority; and 3) many violations occur on backroads between ranches and local feedlots or auction points.[92] With these limitations, it appears that the probability of arrest for a rate violation is fairly low. Recent legislation, however has provided highway patrolmen and scalemen enforcement authority over regulated carriers' rates and operating authority. This may significantly increase the probability of arrest and lower the expected gain of any rate violation.

Entry Restrictions. Three dimensions of the entry control aspect of the exchange are analyzed; the initial supply restriction, enforcement of the operating authority provision and entry difficulty over the term of regulation.[93]

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[91]Jerrel Interview, November 21, 1977. Budt Interview, November 2, 1977.

[92]Interview with Wayne Budt, P.S.C. Transportation Administrator, November 2, 1977.

[93]The regulatory process provides for supply restrictions only by restrictiing firm numbers, not firm fleet size. The analysis that

The jurisdictional inclusion of the livestock carriers was accomplished endogenously of industry supply to the extent that the initial endowment of grandfather rights excluded firms. Grandfather rights were issued under the agreement that additional statewide authorities would be granted only upon proof of public convenience and necessity. Since firms were initially excluded and no new certificates have been issued this dimension of entry restriction has been effective.

The problems of enforcing operating authority are similar to those of rate enforcement. The nature of the livestock industry, with a large number of carriers hauling intra- and interstate, precludes the few field inspectors from knowing the distribution of operating authority in an immediately recognizable way.

The firm entry and exit data of Chapter 4 indicates that the regulatory process has not been effective in erecting substantial barriers to entry in the industry.[94] The large number of firm

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[93] Continued
follows focuses only upon the effectiveness of the machinery provided, though effective supply restrictions could depend on changes in firm size.

[94] A definitional problem exists here. Entry is restricted in the sense that the number of certificates is fixed. But certificates are transferable, allowing for new firms. This section will argue that high volatility since regulation is due to the low certificate price, a good indication of entry barriers erected.

changeovers during regulation is attributed to similar marginal profit conditions as occurred prior to regulation, along with entrants anticipating that regulation will eventually cause industry profits to appreciate. Indication of the industry's profitability is given by the market price of a certificate. Certification is the primary entry barrier erected through regulation.

At the present time, of the M.L.T.B.'s total membership, only about 60 firms are engaged in hauling livestock. Approximately 100 certificates are for sale at a current price of about $2500.[95] Given an interest rate of 10 percent per annum, this price generates an annual return of $250. For approximately 100 firms this annual return is lower than the return in other alternatives. The 100 certificates will be sold if there are 100 purchasers who calculate that the present value of returns from this $2500 investment is greater than returns in other alternatives. But, given the relatively low annual return, and the fact that firm exit is occurring (as 100 firms are marketing certificates), it seems unlikely that the 100 certificates

[95] Jerrel Interview, November 21, 1977. When asked why no new authorities were being granted, Jerrel's response was, "Because there are 172 floating around the state and probably only about 60 are being used. There's probably 100 of them for sale." Why are they selling out" "Because the truckers have just gone broke."

will be sold unless the transactions occur on the buyer's premise that the annual return of the certificate will appreciate. This will occur if the supply of certificates is restricted via the implementation of the certificate cancellation machinery.

Since the owners of the 100 certificates do not solicit business, their certificates are legally subject to cancellation. Yet, the Public Service Commission has cancelled only two certificates throughout the regulatory period. Purchers' expectations of certificate price increases prove erroneous as the price remains at $2500. Expectations continue, however, as does entry. The annual return generated by the low priced certificate is lower than previous entrants' alternatives; exit occurs, along with the corresponding entry from certificate transactions premised upon purchaser's erroneous expectations.

Once implemented, however, the cancellation process will eventually capture all 100 inactive certificates or some mixture of 100 certificates, given an industry equilibrium of the 60 firms engaged in business. If the certificate cancellation procedure is initiated, it is likely that purchasers will eventually have theirs cancelled whether they solicit business or not. If they solicit business, the profits exhausted by 60 firms would cause purchasers or some mixture of approximately 100 firms to earn negative profits and induce the marketing of their inactive certificates. If they do not solicit business, their certificates are also cancelled.

Though a certificate may be exchanged several times before cancellation under the ownership of one of a series of holders, this frequency will diminish as buyers become sensitive to increased price. The process may take several years, depending on availability of evidence of non-solicitation, lag time for hearing dates before the Commission, and frequency of consecutive 12 month suspensions of certificates as prima facia evidence for cancellation.

Note carefully the implications of cancellation. Reduced certificate supply increases their price. In Figure 7 below the number of certificates is represented along the abscissa. The price of certificates is modelled along the ordinate. At the initial endowment of 174 certificates, the price was around $2500 and has remained fairly constant after two cancellations.[96] The price of the certificate, being a discounted industry profit figure to the firm, is likely representative of the value of institutional change to the industry for a given certificate supply. The value of institutional change to the group will follow closely the certificate price, as

[96] Why initially $2500 with only two certificates cancelled? There appear to be a few explanations: 1) the industry was not perfectly competitive prior to regulation; 2) the price of a certificate is not at an equilibrating level; 3) the $2500 reflects the degree of cartelization resulting from the initial exclusion in granting grandfather authority. Given the competitive characteristics of the