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
Montana State University
© Copyright by Terry Peter Sacks (1978)

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.

STATEMENT OF PERMISSION TO COPY

In presenting this thesis in partial fulfillment of the requirements for an advanced degree at Montana State University, I agree that the Library shall make it freely available for inspection. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by my major professor, or, in his absence, by the Director of Libraries. It is understood that any copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Signature Jerry Peter Sacks

Date June 8, 1978

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

Approved:

R. Clyde Green
Chairperson, Graduate Committee

R. J. McConnen
Head, Major Department

Henry L Parsons
Graduate Dean

MONTANA STATE UNIVERSITY
Bozeman, Montana

June, 1978

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

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 and marginal value to motor carriers. Thus, ineffectiveness may be the result of market imperfection and not the absence of economic exchange.

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.

---

[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

---

[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

---

[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]

---

[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

---

[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]

---

[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

---

[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 group good[11] in the spirit of the recognized term public good 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

The Group. 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

---

[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 Small Groups, 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

---

[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

---

[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

---

[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.

---

[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.

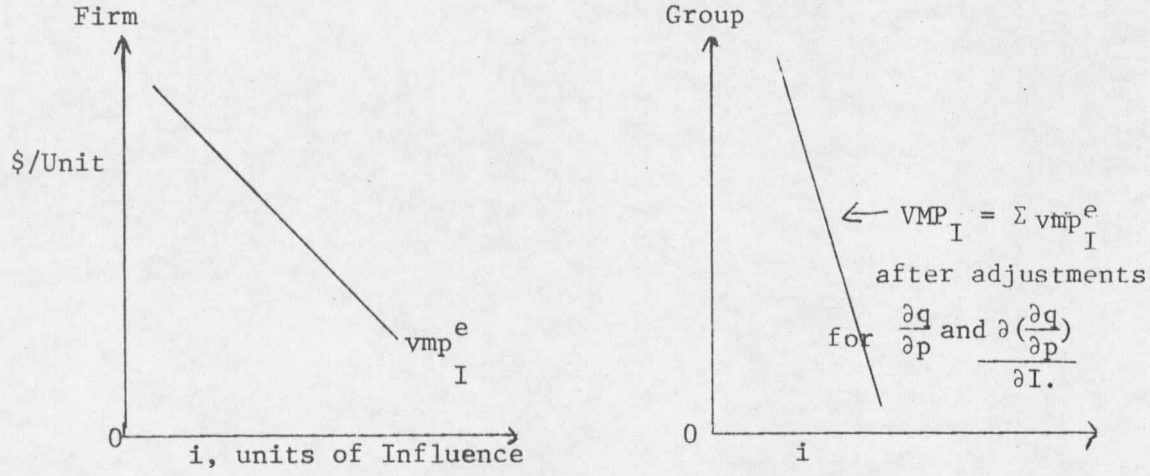

Figure 1. Demand for Institutional Change

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