ABSTRACT

Is Current Transportation Policy Consistent

With An Optimal Transportation System?

Richard L. Kilmer

Buchanan-Tullock collective choice model is used to
analyze decision rules whereby individuals choose between
market management and regulated market. Conclusions: the
public would choose market management. Reasons given for
continuance of regulation: interest group dominated
legislators and regulatory agencies. Result: current
policy is not tending the transportation industry toward
optimality.

Keywords: Transportation; Regulation; Market;
Monopoly Profits; Resource Allocation.

Is Current Transportation Policy Consistent With An Optimal Transportation System?*

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A. Introduction

The transportation sector (including automobiles) contributed 20 percent of our GNP (21, p.7) in 1965, which was distributed as follows: 16.5 percent from the unregulated portion of the transportation industry and 3.5 percent from the regulated modes (25, p.519). The total net investment in railroads, motor transportation (including private automobiles and highways), domestic water transportation, pipelines, natural gas pipelines and air transportation was $310 billion in 1970 (22, p.45), 33 percent of our national wealth (21, p.9). Of the $310 billion, $230 billion was accounted for by the motor transport mode, indicating the tremendous significance of the motor vehicle in the transport system. A sector that commands resources of this magnitude can cause an unnecessary drain on national resources and preclude their use to other ends, if this sector is mismanaged.

The major focus in this paper is on the federally regulated portion of the transportation industry. This sector

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contributed 3.5 percent of the GNP in 1965 (25, p.519) and hauled 62.2 percent of the intercity ton miles in 1968 (22, p.28).

The market institution has historically managed the efficient use of our resources. When this institution is deemed inefficient for the task at hand, an administrative helper is called upon to assist in the management task. Since 1887, regulatory agencies have assisted the market institution of railroads. By 1940, all modes of transportation (including rail, air, motor, water and pipeline) were under the regulatory control of the federal government. Have regulatory agencies, the Interstate Commerce Commission (ICC) and the Civil Aeronautics Board (CAB) specifically, achieved or tended toward an optimal system? This question does not infer that the market would have achieved an optimal system, given no interference. This question does, however, challenge the accomplishments of the regulatory agencies and does infer that a question exists as to whether their policies are consistent with an optimal system.[1]

The major areas covered in this paper are as follows.

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[1]The word "optimal" in this paper has the following economic meaning: "The efficient allocation of resources to the provision of transportation services and facilities as compared to other uses to which these resources might be put, with efficient allocation among the various agencies which supply transportation today and with the efficient utilization of the resources already allocated." (22, p.4)

First, studies of transport modes are presented that demonstrate
the existence of monopoly profits which have resulted from reg-
ulation. Second, the Buchanan-Tulloch collective choice model
is used to develop decision rules that are used to determine
the collective choice between market regulation and unencum-
bered market management. Third, based on the collective choice
model, evidence of previous research is presented showing why
the predictions of the model have been negated. Finally,
conclusions concerning the optimality of the transportation
system are discussed.

B. Regulation--Present Thinking and Social Costs

The Weeks report published in 1955 (32) called for less
regulation and more reliance on competitive forces to establish
prices in the transportation industry. There was strong
opposition to this report from motor and water carriers because
the proposed policy appeared to favor railroads. What has
happened since 1955? "Reaffirmation of the basic tenets
enunciated in the Weeks Report by Presidents Kennedy, Johnson
and Nixon has produced few results other than volumes of
Congressional hearings on modification of federal transport
regulation. Views favoring less restrictive controls over
entry and pricing in transportation have been expressed by the
Council of Economic Advisors and by past and present members of
the Department of Transportation. The American Trucking

Association and members of the Interstate Commerce Commission have firmly opposed any relaxation of motor carrier regulation." (26, p.328).

Several studies show the price-cost deviation of regulated firms from unregulated firms. Keeler (18) using 30 major domestic air travel markets and estimating a long-run airline cost model, determined that in 1968 regulated routes had fares that were 20 to 95 percent greater than the estimated unregulated fares (18, p.399). For 1972, mark-ups of 48 to 84 percent were calculated (18, p.420). Keeler's findings are supported by Jordan (17) and Purvis (18, p.421), but disputed by Caves (8). Keeler tested his model for accuracy by predicting air fares for the relatively unregulated intrastate California airlines. The route numbers are small, but the model accuracy is very high.

In the trucking industry, Sloss found that regulation cost Americans between $348 million and $361 million per year during the period 1958 through 1963. For Canada, the overcharges range from $10 million to $15 million per year during the same period (25, p.355). Farmer, using Department of Agriculture and ICC data, compared average revenues and costs per intercity ton mile for 25 exempt (unregulated) carriers operating in Delaware, Maryland and Virginia in the early 1960's with regulated carriers operating in the Middle Atlantic states (including the above 3 states). Farmer concluded that

exempt agricultural carriers had average revenues 41 percent
lower than the common carriers handling special freight, and 58
percent lower than common carriers handling general freight
(11, p.402). Also, exempt carriers had average costs consid-
erably lower than the non-exempt carriers. Finally, a study by
the U.S. Department of Agriculture indicated that following
deregulation in 1956 of frozen food motor carriers, rates
dropped between 11 and 29 percent with an average of 19 percent.
During the same period, rail rates increased 6 to 14 percent
(16, p.166).

C. The Logical Basis for Public (Consumer) Intervention

The Buchanan-Tullock (6) framework of analysis establishes
a calculus of the individual in choosing which activities
should be organized privately and which should be organized
collectively. In order to facilitate this comparison, a cost
approach is utilized whereby minimization of costs necessarily
maximizes individual welfare. Costs are categorized into
external costs[2] and decision making costs.[3] Assuming that

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[2]External costs are defined as "costs that the individual
expects to incur as a result of the actions of others over
which he has no direct control." (6,p.45)

[3]Decision making costs are defined as "costs which the
individual expects to incur as a result of his own participation
in an organized activity." (6, p.45)

decision making costs only occur in collective decision making
(this does not imply that transaction costs are zero in the
private market), it is necessarily true that if the external
costs associated with the private organization of an activity
is less than the costs of collective organization of the same
activity (minimum point of schedule C in Figure 1), the rational
individual will choose private organization.

The relevant question to be addressed in this paper
using the Buchanan-Tullock model is: should the market insti-
tution be allowed to operate unencumbered by regulatory con-
straint or is regulation needed? For discussion purposes,
the external costs are considered to be monopoly profits. It
is recognized that other external costs exist, some negative
and some positive;[4] however, perceived monopoly profits were
one of the early reasons for regulation and are considered here.

In Figure 1, schedule A is expected monopoly profits
that remain after imposition of regulatory constraint on the

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[4]For example, popular reasons for regulation include
the necessity of an adequate transportation system for: social,
political and economic intercourse; economic growth; national
defense. The necessity to arrest destructive competition
both intra and inter mode. The high costs of re-establishing
a mode or modes that had lost their comparative advantage and
had declined in importance. However, it is not evident that
the heretofore mentioned external costs would differ with or
without regulation.

market institution, given a decision rule whereby agreement from
m of n people is required in order to effect group action. As
m increases with respect to a given n, expected external costs
decrease. Schedule B is the expected cost, in time and effort,
required to secure agreement concerning the group action to be
taken. It is hypothesized that as the percentage required
for approval increases, decision costs increase. Schedule C
is the vertical summation of schedules A and B. A rational
person will minimize schedule C, thus arriving at a decision
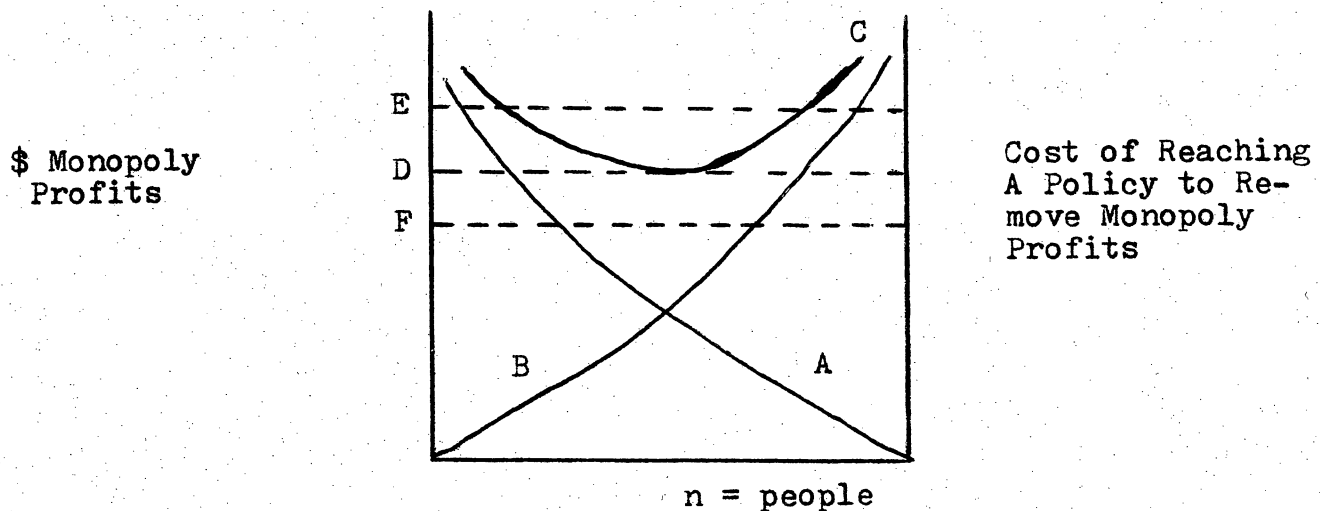rule of X percent of n people agreeing on a course of group
action.

FIGURE 1.

Given that regulation is to be effected, consumers are able to arrive at a cost minimization point, D. At point D, the remaining monopoly profits and the decision cost incurred in order to decrease monopoly profits are minimized and indicated in Figure 1. In order to determine whether unencumbered market organization is preferred by consumers as opposed to regulatory constraint, expected monopoly profits from market organization is super-imposed on Figure 1. Points E and F represent monopoly profits under market organization and point D the remaining monopoly profits plus decision making costs from a regulated market. The decision rules are as follows:

At E > D : Regulatory Constraint

At F < D : No Regulatory Constraint

In 1887 when railroad regulation was enacted, there were perceived monopoly profits accruing to the railroad industry. If consumers perceived that at that time E > D, (according to the Buchanan-Tullock model) regulatory constraint was the rational choice. In 1887, rail was the dominant mode and other modes were either non-existent, or of minimal competitive threat to railroads. Today, numerous modes exist which suggests that even if modes are oligopolistic intra mode, competitive conditions would nearly be approximated for the transportation sector in total. For example, railroad services alone might be oligopolistic, but if railroads faced unregulated competition from trucks and automobiles, the extent of monopoly

profit in railraods would be limited by the shipping alternative
represented by motor transport.

Given that expected costs (monopoly profits) from unregu-
lated transport markets have declined to a position such as
$F < D$ in Figure 1 with development of competing transport modes
over time, one would expect decreasing emphasis on regulation;
however, we have had increasing regulation! Why?

D. Why Has Regulation Policy Not Been Altered?

Stigler charges that the state possesses the power of
coercion-something that no household or firm possesses. This
allows the state to "ordain the physical movements of resources
and the economic decisions of households and firms without their
consent." (29, p.4). Therefore, by utilizing the state and its
powers, industry can increase its profitability. Stigler states
that the four main policies generally sought by firms include
subsidies, control over entry, control of substitutes and com-
plements, and price fixing. Stigler further indicates that a
political party or nominee needs two things--resources and votes.
Big business is particularly adept at providing the resources.
"A representative cannot win or keep office with the support
of the sum of those who are opposed to: oil import quotas,
farm subsidies, airport subsidies, hospital subsidies, unneces-
sary navy ship yards, inequitable public housing programs, and
rural electrification subsidies" (29, p.11). Even though members

of regulatory agencies are not elected, they are indirectly con-
trolled by Congress. Burkhead and Miner indicate that interest
groups have "captured government bureaucracies, as in the regu-
latory field, and the agency becomes an extension of private
groups" (7, p.162).

Jordan (16) tested three hypotheses regarding the purpose
of regulatory commissions. They were consumer protection, no-
effect, and producer protection. His hypotheses were tested on
interstate airlines, railroad and freight motor carriers. Given
the producer protection hypothesis, one would assume that after
regulation of competitive or oligopolistic firms, industries
would experience increased price levels, greater price discrimi-
nation, greater rates of return and restricted entry. Jordan
found all to be true except rate of return which he found to be
inconclusive. He states that, "Overall, there is clear evidence
that regulatory policies and procedures do have substantial
effects on these industries, and that these effects tend to
benefit producers rather than consumers." (16, p.174) Inter-
estingly, Stigler found that the Civil Aeronautics Board, since
its inception in 1938, has not allowed a single new trunkline.
He also found that even though the amount of freight hauled
by common carrier truckers has increased greatly, the numbers
of such carriers has decreased steadily in the face of an annual
deluge in recent years of 5000 applications for new certificates
(29, p.5).

Hilton (15) charges that regulatory commissions try for minimal squawk behavior, plan in the short-run only, and cross subsidize uneconomic service for noneconomic reasons. He maintains that this behavior is "perfectly sensible for a body of people who are not instructed by Congress to allocate resources in any specific fashion, who have a set of directives for setting rates so vague as hardly to be directives at all, who are in office for short periods and who want to maximize their options for employment in the regulated industries or in law practice for those industries after their service" (15, p.49). Hilton further notes that "Pacification of the regulated industry is not a sufficient goal for commissioners, however. Regulatory bodies are established at least nominally to protect the public, and the public interest is defined in their procedures as a set of complaints heard in adversary proceedings. Failure to deal with such complaints in tolerable manner results in hostile publicity and more important, in an adverse feedback to legislative bodies on which the commissions depend for budgetary support, rectification of adverse court decisions and ultimately for preservation of the regulatory system. Accordingly, both for the maintenance of the individual commissioner's reputation and for perpetuation of the regulatory system which he is administering, such complaints must be dealt with in a parallel process of ad hoc pacification" (15, p.49). Sampson agrees with Hilton about the regulatory commission planning in the short-run and

maximizing stability and equilibrium "by balancing and minimizing the dissatisfactions of various competing pressure groups" (24, p.57).

E. Conclusions

In summary, I have argued that monopoly profits exist as a result of regulation and would be reduced or eliminated without regulation. The decision rules resulting from the Buchanan-Tullock model indicate that rational individuals will choose market management over a regulated market whenever private external costs are less than collective external costs plus decision costs. It is argued that with the development of competing modes over time, there has been a decrease in private external costs. As a result, with reference to Buchanan-Tullock, it is hypothesized that consumers would choose market management as opposed to the current regulated market; however, this has not been observed. The reason for non-observance of less regulation is that legislators and regulatory commissions are dominated by transportation interests. Therefore, inefficient utilization of resources is prevalent in the regulated sector of transportation which necessarily implies that current policy is not tending toward an optimal system.

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