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*N.B. A discussion of this paper and that of David S. Paxson, which follows, begins on page 39.*

## Potential Impact of Motor Carrier Act of 1980 on Railroad Industry: An Analysis

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The Motor Carrier Act of 1980, which became effective July 1, 1980, will change the structure, costs, and operations of the motor carrier industry. These changes will have an effect on the competitiveness of the trucking industry vis-à-vis the railroad industry. This paper analyzes the changes that may result from the legislation and evaluates how these changes may affect the rail industry. At issue is whether the act will result in the \$8 billion reduction in truck rates that proponents of the bill have said will occur. This analysis suggests that the total rate reduction will be more on the order of \$300 million-\$500 million at most. This analysis shows that, although the Motor Carrier Act of 1980 will change the trucking industry and its competitiveness with railroads, this change will be relatively small, and certainly not of the magnitude that has been suggested by supporters of the bill. Specifically, the analysis suggests that (a) the Motor Carrier Act substantially deregulates the motor carrier industry; (b) implementation and interpretation of the act will likely be such that the act will be as deregulatory as possible; (c) the rail competitive truckload sector is already substantially competitive, but there are still some areas where deregulation could increase competitiveness, causing lower truck rates; (d) the extent to which some truck rates may drop depends on the degree deregulation decreases union bargaining power (it is likely that this power will be substantially reduced); and (e) the relative rail-competitiveness of the regulatory subgroups of the trucking industry may change (private and contract carriers may become more competitive, while common carriers become less competitive; however, the net competitiveness of the trucking industry with rail should increase only slightly). The main point is that the change in truck competitiveness with rail that will be brought about by the Motor Carrier Act will not be severe, both in terms of potential truck rate decreases and of potential diversion.

The Motor Carrier Act of 1980, which became effective July 1, 1980, will change the structure, costs, and operations of the motor carrier industry. These changes will have an effect on the competitiveness of the trucking industry vis-à-vis the railroad industry. This paper analyzes the changes that may result from the legislation and evaluates how these changes may affect the rail industry. At issue is whether the act will result in the \$8 billion reduction in truck rates that proponents of the bill have said will occur. This analysis suggests that the total rate reduction will be more on the order of \$300 million-\$500 million at most.

In order to assess the impact of the bill, three main questions, which this paper addresses, must be answered:

1. To what extent does the Motor Carrier Act of 1980 deregulate the trucking industry?

2. How will less regulation affect the operations and costs of the intercity trucking industry?

3. What is the net effect of the changes brought about by the act on intercity freight competition?

This analysis shows that, although the Motor Carrier Act of 1980 will change the trucking industry and its competitiveness with railroads, this change will be relatively small--and certainly not of the magnitude that has been suggested by supporters of the bill. Specifically, the analysis suggests that

1. The Motor Carrier Act of 1980 substantially deregulates the motor carrier industry.

2. Implementation and interpretation of the act by the Interstate Commerce Commission (ICC) will likely be such that the act will be as deregulatory as possible.

3. The rail-competitive truckload sector is already substantially competitive, but there are still some areas where deregulation could increase competitiveness, causing lower truck rates.

4. Excess profits and management inefficiencies appear to be small in the truckload sector.

5. There is little empty mileage in intercity trucking that will be eliminated by deregulation.

6. Those areas where high costs exist in the truckload sector are those where the drivers are union members.

7. The extent to which some truck rates may drop depends on the degree deregulation decreases union bargaining power. It is likely that this power will be substantially reduced.

8. The relative rail-competitiveness of the regulatory subgroups of the trucking industry may change. Private and contract carriers may become more competitive, while common carriers become less competitive. However, the net competitiveness of the trucking industry with rail should increase only slightly.

Overall, the changes in the trucking industry brought by the act should result in a decrease in average truck rates by no more than 2-3 percent. However, some specific commodities may experience

significant rate decreases (up to 5-15 percent). This would result from decreases in labor costs due to changes from union to nonunion drivers, or in the renegotiation of union contracts. It may take from 6 to 24 months for these effects to occur. The effect of these potential rate decreases may be somewhat minimized because rail costs are increasing at a slower rate than those in the trucking industry.

#### IMPACT OF LEGISLATION

The Motor Carrier Act of 1980 contains several specific provisions that will act to deregulate the trucking industry. Most of these provisions have immediate effect, but some will take up to three years to be fully implemented. The extent to which these provisions will deregulate depends somewhat on the actions of Congress and the ICC.

#### Deregulatory Aspects

The most significant parts of the act are the provisions for eased entry and for easier access to authority to carry a wider range of commodities and to serve a greater number of geographical points. (This part of the legislation may be of interest to the rail industry in that it eases entry for all applicants. Some ICC personnel have indicated informally that the passage of the bill should make it easier than before for railroads to obtain motor carrier operating rights.) The burden of proof pertaining to public convenience and necessity is shifted from the applicant to the protestant in operating authority filings. New authorities will be granted on a broad base. For example, operating authority will be granted for broader groups of commodities (two-digit Standard Transportation Commodity Code level) and wider geographical service areas (by county or by standard metropolitan statistical area) than at present. Gateway restrictions and circuitous route limitations will be eliminated. The ICC must act on all authority filings within 180 days. All of these provisions will ease entry into the trucking industry and, although the concept of public certification of carriers is maintained, the ease of obtaining the certificates will tend to reduce the value and importance of the certificates. The net result will be greater competition within the trucking industry.

Truckers will gain more rate freedom. Specifically, a zone of reasonableness of 10 percent in rate change is allowed without ICC review. These zones may be increased by 5 percent at the discretion of the ICC. Rate bureaus will not be allowed to protest any independently published rate. This provision gives pricing freedom to truckers and allows rate cuts to occur when the truckers deem such cuts suitable.

Eased requirements for mergers and consolidations of trucking firms are included in the act. The ICC is directed to rule on merger applications within 180 days after the close of evidentiary proceedings.

Another important part of the act is that both private and contract carriers' access to truck markets is improved. Contract carriers are no longer restricted to serving eight shippers (they can now serve an unlimited number), and private carriers are allowed to engage in intercorporate hauling. Private and contract carriers can be expected to increase their average equipment use as a result of the act.

#### Timing of Implementation

The provisions of the act relating to eased entry and certification of authority are to be implemented

almost immediately, but first the ICC must give notices of rulemaking. However, all decisions relating to eased entry should be ruled on by November 1980. The act requires the ICC to implement procedures for processing motor carrier applications for removal of operating restrictions by January 1981. The ICC will be required to act on such applications within 120 days.

Given the time requirements of the ICC in implementing the act, motor carriers should be using new authority to a significant extent within 3-12 months. Besides the institutional delay, carriers will also need time to identify exactly what new authorities they will attempt to obtain. However, given the degree of entry deregulation that the act provides, the most prudent motor carriers will apply for the broadest range of commodity and geographical authority as soon as possible, without waiting for a clear marketing opportunity to be defined.

Rate-making deregulation will be phased in over the next 3 years. As of January 1981, only carriers with authority to participate in the freight movement to which a rate applies will be allowed to vote on the rate proposal. By January 1984, rate bureau discussion of, or voting on, single-line rates will be prohibited.

Although some of the rate bureau reforms will be phased in over time, the primary deregulatory aspects of the act will be implemented within the next 6 months. Essentially, the only real time constraints on the realization of a less-regulated trucking industry are those that the carriers impose on themselves.

#### Interpretation

One aspect that must be examined when analyzing the extent to which the Motor Carrier Act of 1980 deregulates is the legislative and political climate in which the act was written. Some important questions pertaining to motor carrier regulation remain unanswered by the legislation. For example, the act does not make any statement that relates to the controversial Toto decision. (The Toto decision was one that gave the Toto Company, a private carrier, access to a regulated backhaul. Common carriers vigorously protested this decision.) In order to arrive at a legislative compromise, it seems that some areas of the act were made deliberately vague. This results in a situation where Congress, the American Trucking Associations, ICC, Department of Transportation, shippers, and any other interested party may now be involved in lengthy discussions on the intent of Congress, or the guidelines that Congress was intending to offer by passage of the act.

The American Trucking Associations and other industry groups, such as the Teamsters Union, are claiming that Congress did not intend to abolish regulation and, therefore, entry and authority should not be granted easily. Rather, the vestiges of regulation should be maintained. Conversely, the general feeling at the ICC is that Congress did intend to deregulate with the act, and ICC officials have given every indication that they intend to use the act to deregulate as much as possible.

In this adversary relationship, it is apparent that the extent to which the act deregulates the industry depends on which side prevails. Clearly, the ICC has the advantage in this contest. Although the act does provide that the Congress will have oversight proceedings to ensure that the ICC will correctly implement the act, these proceedings are 1 year away. Even when the proceedings do occur, the oversight committee will likely be one that generally favors deregulatory action; if it is not,

Table 1. Factors used in obtaining total net income of regulated carriers.

Factor	All Carriers Except Specialized <sup>a</sup> (\$ billion)	All Specialized Carriers <sup>b</sup> (\$ billion)
Operating revenue		
TL and LTL carriers	19	11
TL carriers <sup>c</sup>	3.8	9.9
Net income		
TL and LTL carriers	0.60	0.32
TL carriers <sup>c</sup>	0.12	0.29

<sup>a</sup>20% TL.<sup>b</sup>90% TL.<sup>c</sup>Calculated.

such an oversight committee can do little more than provide a forum for complaints. It seems unlikely that new legislation would emerge from the process.

#### HOW DEREGULATION AFFECTS TRUCKING INDUSTRY

Given that the Motor Carrier Act of 1980 will result in substantial deregulation, it is important to understand how deregulation will change trucking costs and operations. It is equally important to differentiate the effects of the changes on the two main subdivisions of the motor carrier industry: (a) the less-than-truckload (LTL) carriers that are not significantly rail-competitive and (b) the truckload (TL) carriers, which are the most-rail-competitive. There are substantial operating and cost differences between these two groups, and these differences must be accounted for when assessing the impact of deregulation. The differences in the two sectors can be described as follows: TL carriers haul freight from shipper to consignee in full trailerload lots, usually of 20 000 lb or more and under a single bill of lading; LTL carriers handle smaller shipments, consolidating them at terminals for intercity linehauls. The cost and rate structures of TL and LTL operations differ substantially, with terminal, pickup, and delivery costs accounting for well over half the average cost per mile of a typical LTL operation. LTL carriers often provide TL service to balance equipment flows, but TL carriers, lacking terminal networks, cannot serve the LTL market.

Analysis of the National Motor Transport Data Base (NMTDB) indicates that there is a substantial amount of intraindustry competition in the TL sector of the trucking industry. (The NMTDB is a field survey of intercity trucking that has been conducted since 1977. The survey consists of driver interviews at 18 truckstops located throughout the country. For more information on the data base contact the AAR Truck and Waterway Information Center, 1920 L Street, N.W., Washington, DC 20036.) The NMTDB and other data sources also show that the TL sector has a high degree of operating efficiency. The general implication of the data is that the TL sector is already competitive, especially in comparison with the LTL sector, and, therefore, the cost decreases to be brought about in the TL sector by deregulation are probably small.

It is important to note that TL and LTL markets are distinct, and that policies affecting one do not necessarily have a similar effect on the other. The issues of excess carrier profits and carrier efficiency are discussed with this point in mind.

#### Excess Profits Issue

One of the leading arguments made in favor of truck deregulation has been that by restricting entry, motor carriers have been able to extract monopoly or excess profits from shippers without having to worry

about competition from other truckers. This then results in a high return on investment (compared with other industries) for the regulated trucking industry. The argument goes that under deregulation, excess profits will be eliminated due to increased competition. As these excess profits are reduced, truck rates will go down accordingly.

Since the act substantially increases freedom of entry into the trucking industry, most of the excess profits that now exist should be eliminated. To evaluate the exact impact of this elimination on truck rates requires the quantification of the existing excess profits, and specifically for the purposes of this paper, the quantification of excess profits in the rail-competitive TL sector.

It should be noted that the basic tenet in the case that excess profits exist is that there is no significant competition that can eliminate the profits. Analysis performed by using the NMTDB data shows that the TL sector is relatively competitive (1). However, the competition is not perfect, and some excess profits may exist in the TL sector.

One way to estimate the upper bound of possible excess profits that may exist in the TL regulated motor carrier industry is to assume that deregulation will cause a reduction in the financial return of this sector. (Motor carrier rates of return are under detailed study in the ICC Ex Parte 128 proceedings; those interested in further investigation of this issue should consult these proceedings.) This analysis shows that even if TL carriers have a significant decrease in return, this will not have a severe impact on TL truck rates. The table below shows the average return on equity (ROE) for several classes of motor carriers as reported by TRINCS for 1979 (2):

Type of Carrier	Return on Equity (%)
Petroleum product	17.5
Refrigerated products	14.4
Agricultural products	21.2
Building materials	20.2
TL general freight	18.5

For the purposes of finding an upper-bound figure (or decrease in return on equity), it may be assumed that the average TL regulated carrier now makes 23 percent ROE. This can be compared with an average of 16 percent for all U.S. industry for 1979 (3). Under an extreme scenario, it could be assumed that, due to deregulation, the average TL carrier ROE could drop from 23 percent to 16 percent. By looking at total industry revenues, calculations can be made to quantify the impact in total dollars of an assumed drop in ROE. Table 1 calculations are adjustments to 1979 TRINCS data.

If a 23 percent ROE resulted in a net income total of \$401 million, then the equivalent net income total at 16 percent ROE would be \$282 million, or a decrease of \$124 million in TL carrier income. This \$124 million decrease would be only 1 percent of the \$13.7 billion total revenues. Therefore, in an extreme scenario, where all excess profits are eliminated, truck rates for TL regulated carriers could be expected to decrease no more than 1 percent.

While admittedly a rough estimate, this 1 percent figure is far below those expounded by supporters of the act. Previous estimates were that the elimination of inefficiencies and excess profits would cause a decrease of 10-15 percent in truck rates. Although LTL rates will drop more than TL rates under deregulation, it is clear that the 10-15 percent figure for all trucking is a large overestimate.

Another aspect of the excess profits issue re-

lates to whether the regulated carriers that lease their operating authority to owner-operators are charging excessive rates for this service. In general, when a common carrier leases its authority, the carrier keeps 24 percent of the revenue received and passes 76 percent on to the owner-operator. It has been suggested that the 24 percent is an excessive share, considering the service performed by the carrier for the owner-operator and that this excess profit is a monopoly rent conferred on the carrier by the regulatory system.

Since the NMTDB data suggest that substantial competition now exists in the TL sector, the amount of excess profit extracted from the owner-operators by the regulated carriers should be small. This is because a competitive environment precludes the extraction of such profits. David Maister's analysis (4) showed that there were no significant differences in the expenses of common carriers whether or not they used owner-operators or nonunion company drivers. Maister stated, "It would appear that if the owner-operator is sacrificing income to preserve independence, it is not the carrier that reaps the benefit in the form of higher profits, but the shippers in the form of lower freight rates."

The general indication of both Maister's work and analysis of the NMTDB is that there is no significant gouging of owner-operators by common carriers; therefore, there are no decreases in truck rates to be expected due to the abolishment of such gouging.

#### Carrier Operating Efficiency Issue

One of the major claims by proponents of trucking deregulation is that the present regulatory system allows inefficient carrier operations to exist. Such inefficiencies would supposedly be eliminated by deregulatory measures that create greater competition in the trucking industry. If such inefficiencies exist, and they are eliminated by the act, then motor carrier rates will decrease.

This section of the analysis examines whether carrier operating inefficiencies exist in the TL sector of the trucking industry. Discussion of the potential inefficiencies can be divided into three main categories: (a) administrative and overhead expenses, (b) labor costs, and (c) empty mileage costs.

#### Administrative and Overhead Costs

One contention of proponents of deregulation has been that common carriers have had excessive administrative and overhead expenses. These expenses have resulted from supposedly large executive salaries, liberal executive expense accounts, lavish offices, expensive company cars, and an excess of top administrative personnel.

Although some anecdotal accounts of excesses by trucking executives may be true, the case can be made that the incidence of excess expenses in the TL sector is likely not significant because of (a) the existence of considerable competition in the TL sector that helps to prevent excess expenses and (b) the considerable cost squeezes the trucking industry has been facing in recent years with fuel, capital, and labor costs increasing significantly. The main point is that, given the competitive and cost situation that exists for TL carriers, carriers with excess expenses will end up in a poor financial position, or be forced to trim expenses.

#### Labor Cost Issue

Another aspect of the deregulation issue that needs

to be examined is whether the regulatory system allows labor costs that are higher than would occur in a completely competitive environment. The reasoning behind this argument is that there is no resistance by motor carriers to trucking union's wage demands (particularly the Teamsters Union and the Fraternal Association of Steel Haulers). In other words, common carriers may accede to any wage demands in order to maintain labor peace, and they do not pay for this peace if they are allowed to pass the increased labor cost that results onto the consumer by increasing regulated truck rates.

The NMTDB data indicate that there are substantial differences between labor rates for unionized and nonunionized drivers (5). The level of these is shown by the data in Table 2.

Note from the data in Table 2 that company union drivers can make up to twice (when accounting for fringe benefits) the income of owner-operators. The disparity in income between union drivers and owner-operators has been increasing significantly over the past 3 years because the average owner-operator has been willing to accept a constant dollar income (and a decreasing real income) over the inflationary period. At the same time, union drivers have been receiving significant wage gains that have been pegged to cost-of-living increases.

Clearly, any sector of the trucking industry that currently uses unionized drivers has an opportunity to reduce labor costs by switching to owner-operators or nonunion drivers. However, union contracts may limit the ability of some carriers to switch to nonunion drivers. Therefore, owner-operators or companies that do not use union drivers could be very competitive if allowed access to markets now served by carriers with union drivers.

Motor carrier rates can be expected to decline on that traffic where there is a switch from unionized to nonunionized labor. The extent to which such a switch occurs depends on just how much the act reduces the bargaining power of the major trucking unions.

Indications are that the act will substantially reduce union power. The Teamsters vigorously opposed the passage of the act and even admitted in public testimony that the legislation would cripple the collective bargaining power of the union. Also, carriers have recently asked the Teamsters for an opening of talks to renegotiate the 1980 National Master Freight Agreement, a clear indication that carriers are beginning to resist wage increases. If owner-operators or nonunionized carriers attempt to enter markets where carriers now use union drivers, the unionized carriers will be hard-pressed to compete.

Given that there is a definite difference in union versus nonunion wage rates, it should be expected that there will be shifts away from the use of unionized drivers in the TL sector and that rates will drop as a result of savings in labor costs due to such shifts. The passage of the act considerably reduces union power and, therefore, the union's ability to resist shifts away from use of union drivers.

#### Empty Mileage Issue

Another aspect of the deregulation issue relates to the extent to which regulation has caused motor carriers to experience more empty mileage than they would experience in a more competitive environment. If empty mileage can be reduced, then motor carrier costs will decrease. By freeing entry and increasing access to backhauls for contract and private carriage, the Motor Carrier Act of 1980 will tend to eliminate any excess empty mileage that has existed,



**Table 2. Compensation (residuals and salaries) for intercity TL driver.**

Time Period	Regular-Route Teamster <sup>a</sup> (\$)	Irregular Route (Van)			
		Owner-Operator <sup>b</sup> (\$)	Company Union Driver <sup>a</sup> (\$)	Company Nonunion Driver <sup>a</sup> (\$)	Exempt Owner-Operator <sup>c</sup> (\$)
April 1977-April 1978	26 500	19 500	26 000	22 000	19 600
1978	29 000	20 500	27 500	21 500	18 500
1979	33 000	15 000	30 000	24 000	22 500
Winter 1980	36 000	16 000	30 500	25 000	15 500

<sup>a</sup>Salaries include fringe benefits (25 percent of base wage).<sup>b</sup>Base case.<sup>c</sup>Reefer.**Table 3. Percentage of empty vehicles when controlling for trailer type and length of previous haul.**

Vehicle Category	Mileage Blocks					
	<500	500-1000	1000-1500	1500-2000	2000-2500	>2500
Regular vans						
RRCC	6	6	5	2	0	NA
IRCC	31	15	13	10	7	4
Private	28	19	16	12	4	2
Contract	29	16	12	6	6	6
Exempt <sup>a</sup>	NA	28	18	13	8	NA
Reefers						
RRCC	NA	NA	NA	NA	NA	NA
IRCC	26	14	10	8	6	4
Private	36	18	10	7	3	3
Contract	30	22	11	7	4	4
Exempt <sup>a</sup>	38	25	16	10	9	2
Flatbed trailers						
RRCC	NA	NA	NA	NA	NA	NA
IRCC	31	23	18	14	9	5
Private	31	23	18	13	7	NA
Contract	34	23	20	NA	NA	NA
Exempt <sup>a</sup>	36	25	19	15	NA	NA

Notes: NA = the category has no observations or only a small number (less than 20) of observations.

RRCC = regular-route common carrier.

IRCC = irregular-route common carrier.

<sup>a</sup>Includes agricultural-cooperative hauls.

hence reducing costs slightly for these carriers.

Analysis of the NMTDB data indicates that in the TL sector of the industry, there is little or no empty mileage that can be eliminated (6). The basic finding of the analysis is that trailer type and length of haul are the important determinants of level of empty mileage and that when trailer type and length of haul are held invariant, there are no significant differences in empty mileage experience for the different regulatory types.

Table 3 gives a listing of percentage of empty miles for the different regulatory categories of trucking as indicated by the NMTDB. This table holds trailer type and length of haul constant. Note that for any given specific market (e.g., flatbed trailer movements between 500 and 1000 miles), the differences between the different carrier types are minimal.

The analysis of the NMTDB gives the following indications about deregulation and empty truck mileage.

1. There will be little reduction of total intercity empty trip percentage, given that service demands do not change.

2. The reduction that would occur would come primarily in the exempt sector, but only if present empty mileages are not dependent on the service requirements of the commodities hauled by exempt carriers.

3. Private and contract carriers may have fewer

empty trips if deregulation results in changing the operational characteristics of the present private and contract carriers.

4. Such a reduction will result in private and contract carriers becoming more competitive on a cost basis with other trucking and other modes.

5. Those that are currently irregular-route common carriers will have greater empty mileage and higher costs if deregulation results in a change in their operations to shorter hauls.

6. Any expectation that deregulation will result in substantially reduced total empty intercity truck mileage is unfounded. Some carriers will reduce their empty mileage, but only at the expense of other carriers.

The general indication is that there will be no decreases in truck rates (except in the long-haul exempt market) resulting from decreased empty mileage because the existing regulatory system did not impose any significant excess mileage on the industry.

#### NET EFFECT OF THE ACT

##### Effect on Truck Rates

As mentioned previously, there was a substantial amount of competition existing in the TL sector of the trucking industry even before the passage of the Motor Carrier Act of 1980. Therefore, it should be expected that deregulation will result in no or only small decreases in TL truck rates.

Any truck rate decreases that occur in the TL sector will result from either the elimination of monopoly rents or the reduction of labor costs due to the reduced use of unionized drivers. The effect of the elimination of monopoly rents in the TL sector would result in a 1 percent decrease in rates at most, and this would occur only with total deregulation. Labor costs will decrease only in those markets where union drivers are now used.

Given that labor costs are about 17 percent of fully allocated TL costs and that labor costs might be expected to decrease as much as 30 percent due to a switch away from union drivers, some TL truck rates may drop as much as 5 percent due to decreased labor costs. However, such a drop would occur only in these areas where union drivers are used and all other TL rates should decrease no more than 1-2 percent.

One indication of which specific TL markets will experience a higher-than-average drop in rates due to deregulation is a measure of concentration of use of union drivers. According to the 1979 NMTDB data, transport of the following commodities involves union drivers at a significantly higher-than-average rate.

Commodity	Union Drivers (%)
Transport equipment	34
Dry chemicals	31
Clay, stone, and glass	30
Electrical appliances	29
Metallic ores	27
Fabricated metals	27

These commodity movements by trucks should be watched closely for greater-than-average rate decreases (5-7 percent).

The 1979 NMTDB data also indicate that there are significant regional differences in the use of union drivers. Specifically, the use of union drivers is higher for the Northeast and Midwest than for other parts of the country. The figures below give the percentage of trips originating in the specific geographical regions that use a union driver:

Region of Load Origin	Union Drivers (%)
Northeast	28
Midwest	38
South	18
North Plains	29
South Plains	18
Rocky Mountains	14
Pacific	17

The highest use of union drivers in the Northeast is related to the commodity mix, but it should be noted that unions do seem to have greater penetration in that area.

Another area of concern about deregulation and truck rates relates to the possibility that truck rate wars might occur. Rate wars among TL carriers could have an impact on rail traffic and revenue. Free entry may induce chronic excess capacity, driving rates below the level required to recover capital costs and forcing carriers to exit. The resulting high rate of exit will persist in a substantial marginal segment of the market, it is argued, because poorly informed entrants would continue to bear the risk of equipment ownership. Equipment financing would remain available as long as potential entrants were willing to supply downpayments.

Although the chance of short-term TL rate decreases due to rate wars is a possibility, it should be noted that such a situation would probably be only short-term. Also, it should be noted that the rate-war hypothesis is based on poor market information and there is no evidence to suggest that a poorly informed group of potential entrants exists. On the contrary, the trucking industry is now widely known to be in a contracting and recessionary situation. The net result should be that any rate cuts due to rate wars should be small and short-term.

#### Changes in Industry Structure

The Motor Carrier Act of 1980 should result in some significant changes in the intraindustry structure of trucking. Some subsectors of the industry may become more rail-competitive while other subsectors become simultaneously less rail-competitive.

Under the provision of the act, private carriers will have increased access to backhauls due to freeing of restrictions to intercorporate hauling. This improved access should improve equipment use and lower costs. However, the improved use of private carriers will have to come at the expense of decreased use by other regulatory groups. This will occur since the hauls that private carriers obtain are currently part of other carriers' present route structure. Therefore, private carriers should be

monitored for potential cost decreases, but common carriers may face cost increases due to higher empty mileage.

The act also has provisions that may lower the costs of contract carriers. Previously, contract carriers were limited to serving eight shippers. Now there is no limitation on the number of shippers that can be served. If any situations existed where contract carriers' use rates were kept low due to the eight-shipper restrictions, the act will eliminate them.

Private carriage and contract carriage will become more competitive, diverting freight from both other motor carriers and the railroads. Exactly how much of the gain in private carriage will come at the expense of the railroads is difficult to estimate, but it is likely that much of the increase will be captured from other sectors of the trucking industry.

Private haulers are taking a very real interest in the new freedom for intercorporate hauling. As of this writing (August 15, 1980), the Federal Register notes that approximately 1600 firms have filed interests to engage in intercorporate hauling; some of these firms are heavy rail shippers.

Those shippers that are most likely to divert from rail shipments to private trucks can be identified individually by the following criteria:

1. The company is now a heavy rail shipper but has filed intent to engage in intercorporate private hauling.
2. A rail shipper has an existing private carriage operation that incurs a large amount of empty mileage.
3. A shipper has inbound boxcar shipments to a plant or location that has significant outbound private truck shipments. The grocery and food industry is a prime example of this situation.

Even though the potential to shift to private carriage exists for many shippers, increasing use of private truck fleets may reduce the service capability (e.g., transit time and reliability) of the fleet. Since, in many cases, it was a need for increased service that induced firms to convert to private trucking, these same firms may be reluctant to expand private trucking operations if lower service quality would result.

Agricultural cooperatives will also gain from the act. The allowance for the level of the noncooperative freight that can be carried is raised from 15 to 25 percent. The net effect of this action on agricultural cooperative competitiveness with railroads will be small due to two reasons: (a) agricultural cooperatives comprise less than 1 percent of the intercity trucking industry and (b) enforcement of the 15 percent limit was almost impossible, meaning that those cooperatives with an economic incentive to carry a higher percentage of noncooperative freight could do so before the act without fear of reprisal.

The main point about the effect of the changes within the trucking industry that will be brought about by the act is that, while the competitiveness of the present regulatory categories may change, the total competitiveness of the entire industry will not change. While private and contract carriers should be monitored for improved competitiveness, it should be remembered that much of their gains may come at the expense of other members of the trucking industry and not the railroads.

#### CONCLUSION

The overall effect of the act should be a decrease

in aggregate truck rates of no more than 2-3 percent. In some isolated cases, where union drivers are currently being used exclusively for one particular market or commodity, rate decreases of up to 15 percent may occur. These decreases should not be of great concern since the 2-3 percent decline in truck rates is no more than the relative decrease in rail costs that has occurred due to increasing fuel costs.

Private carriage and contract carriage will become more competitive, and some diversion is likely to occur. Those areas of potential diversion should be easily identified. However, in many cases it will still not be in the interest of shippers to trade decreased service for expansion of private carriage.

The main point is that the change in truck competitiveness with rail that will be brought about by the Motor Carrier Act of 1980 will not be severe, both in terms of potential truck rate decreases and in terms of potential diversion.

## Discussion

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The enactment during 1980 of regulatory reform statutes applying to truck and rail competition was founded on microstatic approaches to economic analysis. (Micro refers to the analysis of economic effects on individuals and firms responding to market or pricing influences. Static refers to the assumption common in neo-classical economics that transactions and demand and supply conditions apply to a single point in time. In other words the preferences of individuals and firms revealed in prices at a given time could change with the passage of time but this is not analyzed. Statics or general equilibrium are well defined in the several dictionaries of economics and were treated theoretically by Simon Patten and Frank R. Knight.) This kind of analysis has not only been the foundation for the evaluation of economic effects but has also been a basis for the principal polemical arguments that preceded the enactments. Opponents of the measures predicted dire chaotic consequences from upsetting the microstatic equilibrium in transportation. On the other hand proponents of the enactments have used such arguments to predict large order-of-magnitude benefits to the entire economy citing figures in the billions.

More recently, the microstatic approach has been used to deny that there would be any major economic effects from the two statutes. The papers that I have been asked to discuss (those by Roberts and Corsi, and Paxson) have in fact predicted serious negative economic effects, namely an increased cost of rail transportation deriving systematically from certain provision in the Rail Reform Act (Staggers Act) of 1980 and a transfer of welfare from the semiskilled labor force in trucking to the shipping interest through greater use of nonunion labor.

It seems reasonable to suppose that a careful analysis of limited data might show that a new regulatory statute would have limited effects on the immediate demand for transportation service. For example, it has long been recognized that truckload (TL) common carrier traffic has been relatively competitive, even under regulation, due not only to the competition of the many small firms doing TL service (the irregular-route carriers) but also the less-than-truckload (LTL) group, the contract and

private carriers, and the exempt group on back-hauls. It is not reasonable, however, to limit the consideration of economic effects to the application of microstatics. A broader economic perspective is necessary to assess the prospective effects of these fundamental enactments. After all, transportation regulatory reform during the past 5 years has been a major development in transportation policy, possibly the most far-reaching in this century. We must, therefore, extend our economic analysis. We must first discover a wider group of issues that can be analyzed under the microstatic assumptions. We must also find more fundamental underlying economic factors that will affect transportation. We must also look at major dynamic development that can be expected under liberalized regulation.

## COMPETITIVE ISSUES RESPONDING TO MICROSTATIC EVALUATION

Price-service trade-offs have been an effective means whereby the railroads have succeeded in capturing a profitable volume of produce traffic originating on the West Coast. The deregulation of this traffic by rail has enabled the carriers to offer volume-specialized service to the major supermarket chains with flexible rates reflecting service quality and conditions in the transport market. This price-service trade-off has been well received by shippers and receivers, and rail volumes have increased appreciably.

Microstatic analysis might also be used to forecast the impact of liberalized regulation on the LTL market. The competitive situation in this market is not so clear-cut as in the case of TL traffic. The impact of restrictive certification plus high threshold costs due to terminals and fixed scheduling may have yielded some economic rents that could be affected in a deregulated environment. No systematic study has been made of this issue, but it is important both to the trucking industry and to distribution management. Many of the major regular-route common carriers are predominantly carriers of LTL freight.

The analogy with airline deregulation may be instructive. One of the effects of the competitive regime in air passenger transportation has been the increased importance of major hub airports as collectors and distributors of planeload traffic between major traffic centers. At the same time, point-to-point service among smaller traffic centers has been eliminated with such traffic now directed to the nearest major hub for interchange with a relatively few major concentrated movements among major hubs.

The distribution patterns of LTL freight might also tend to be concentrated under the impact of deregulation with pressures for cost economies in concentrated assembly and movement. There may be problems with respect to such impacts, however, which could bear some additional analysis. Terminal operations in trucking have not been notable for increasing productivity and efficiency. The trade-off between terminal concentration and the use of vehicles for pickup and delivery has been difficult to work out. Will greater concentration be the answer to the new competitive environment, or will it compound the terminal cost and productivity problem?

## BASIC ECONOMIC TRENDS AFFECTING TRANSPORTATION

Transportation has operated historically in a particular economic environment of low resource costs, low energy costs, and a labor environment characterized by union organization of semiskilled labor.

Some of these factors may change over time. Transportation may operate in the future in a regime of higher costs vis-à-vis other industries or economic sectors. These changes in the comparative cost advantage of transportation will affect the demand for the service and, therefore, the future needs and capacities of the industry. The outcome of the competitive struggle will be affected as the increasing costs will have differing effects on competitive modes. Some of the differential effects may be reinforcing and increase the advantage of one mode over another. On the other hand, some of the cost changes may be offsetting and thereby be more favorable to the present balance of competitive forces. For example, railroads should benefit competitively from the increased costs of labor and energy that may affect the trucking industry, but this may be offset by higher capital costs due to prospective increases in the rate of interest. These longer-term changes in costs should be studied in conjunction with the appraisal of the effects of deregulation.

Energy costs have been written about extensively for several years, but it is still questionable if a good insight into the effects of the energy problem on the freight market has been developed from available research. There may be other resource cost problems in addition to energy. Transportation is a major user of metals and chemical products, all of which are rising in cost due to scarcity and increased demand.

Future transportation should be exceptionally sensitive to increases in the cost of capital. Basic improvements in the productivity of transportation have been obtained by substituting capital for labor and these results over a long period have been impressive--equalling or exceeding the productivity records of other industries. This trend, however, has been predicated on the availability of funds at interest rates in the 5-10 percent range; with interest now in the 15-20 percent range a new prospect may face transportation. Students of this subject have noted that many of the so-called labor productivity gains of transportation have been offset in part by a poor performance on capital productivity, that is, the relationship of total output to total investment. Such a luxury cannot be afforded at present and prospective interest costs. (See J. Kendrick. *Productivity Trends: Capital and Labor*. National Bureau of Economic Research, 1956.)

Labor costs are also important to transportation. Some of the benefits of the new regulatory statutes are said to result from the substituting of nonunion for union labor, particularly in trucking. On this basis, the deregulation statutes are an exercise in social policy rather than allocative efficiency. But such an outcome is by no means clear. Data on the growth of nonunion as against union labor in trucking may reflect relative growth of formerly rural regions, or central city against suburban. TL may be growing faster than LTL with the former traffic more characteristic of nonunion labor organization. Cyclical downturn may even explain some of the data. More data and analysis are needed for valid statistical comparisons.

A more fundamental issue is the long-range trend in the cost of semiskilled labor. Trucking makes large claims against the national pool of semiskilled labor, still the bastion of the white male family provider. This part of the labor force commands the highest wage, has the best seniority to survive cyclical downturns, and may be the part of the labor force in the shortest supply in the long run. If this be the case, the long-run cost of semiskilled labor will be upward rather than downward as many observers predict. All of this, how-

ever, is conjecture because we lack any informed analysis of the long-range labor prospects in the trucking industry. (See U.S. Department of Labor, Bulletin 2030, *Employment Projection for the 1980s*, June 1979.)

#### INCENTIVES FOR INNOVATIONS

Regulatory restraints have had crippling effects on innovations in freight transportation. Two examples come to mind.

The first example relates to the growth of rail container service. Rail container service was introduced by the eastern railroads in the early 1930s but was quickly disallowed by the Interstate Commerce Commission (ICC) as a violation of reasonable tariff classifications and rules. The idea languished until 1954 when the ICC reopened the issue and set forth new rules--the famous Four Plan Rule. A steady growth over the next 10 years resulted. In more recent years the growth of rail container service has slowed, but the reasons for it are not clear. There has been some confusion over the interpretation of the fine points in some of the Four Plan Rules, over issues of labor jurisdiction, and, possibly, over the shortage of rail capital.

The second example concerns bulk transportation rates. The epic contest between the Southern Railroad and the ICC over the use of the Big John car in the transport of bulk grain illustrates the conservative impact of regulatory processes. The ICC and conservative influences in transportation long opposed or severely restricted the use of bulk rates in coal, grain, and other commodities.

Other opportunities for innovations should arise under liberalized regulation. The new trucking statutes, for example, open up more flexible contracting authority for both contract and common carriers. This should enable both sectors of trucking to make inroads into private carriage, offering for the first time the kinds of comprehensive and flexible service that has impelled shippers and receivers to make heavy investments in transportation. There may be other opportunities in more extended concepts of common carrier service--for example, performing more of the tasks now labeled distribution management and now performed by industrial concerns rather than service organizations.

#### FUTURE OF REGULATORY REFORM

Regulatory reform balances two powerful forces: economic incentives for allocative efficiency and administrative conservatism. A regulatory process often becomes an integral part of a conservative system of administration in an industry. Such conservatism may be motivated by vested interests in jobs and organizational stability, by a monopolistic position in the economy, by complex technical systems effects, or inertia. There are also basic economic forces that reinforce the conservatism of transportation administration. Two of these will be discussed: power equilibrium between carriers and shippers and the economics of derived demand for transportation.

A regulatory system can encounter four logical combinations in the power concentration-dispersion range: dispersed power of both producers and users, concentrated user power and dispersed producer power, dispersed user power and concentrated producer power, and concentration of both producers and users. (See discussion on concentration-dispersion range in *Transportation Journal*, Vol. 16, No. 1, Fall 1976.) The agricultural exemption in the original Motor Carrier Act of 1935 may have been predicated on the dispersed power of many farmers



and many truck owners, the classic model of perfect competition. On the other hand, many relationships in transportation reflect concentration of both carriers and shippers. In extreme cases of such dual concentration, the market may not function as such and the interrelationships among carriers and shippers may be in effect one form of negotiation, not dissimilar to labor-management affairs. An interesting example of such quasinegotiation of transportation terms is the dispute between the electric utilities and the railroads over the rates on coal from the new western fields. A negotiation of this kind goes beyond the presentation of economic advantages and preferences and brings into play the use of power and influence. Arbitration is a common way of settling such power issues. In transportation, the existence of dual-power concentration may prolong regulation to arbitrate such matters.

Transportation as a derived demand may have mixed effects on the pricing of the service (see Alfred Marshall's *Principles of Economics*). Derived demand tends to dull the incentive for cost-efficient competitive pricing of the derived service. Where the seller of a product can obtain a high price due to his large market share, he will not worry unduly about the cost of transportation if that is a small proportion of the final price of the product. Under some conditions there may even be incentives to tolerate or encourage high transportation costs. For example, if there is a substantial markup in the selling price over the costs of the product, the markup on the transportation cost, if included, will accrue to someone's profit, either the seller or the buyer. If manufactured cost is \$100, a 100 percent markup will yield a price of \$200. A transportation cost of \$20 will yield an additional \$40 in the price with a net gain of \$20 for someone.

Derived demand is also a factor in service competition among freight carriers. The shipper, desiring a good supply of transport capacity, will encourage a more lavish display of capacity and, if necessary, pay for its exorbitant cost.

The derived demand theorem may account for the curious disparity between transportation rates for manufactured goods and raw materials. Many of the former are produced by oligopolistic firms while many of the latter are produced under competitive conditions. A perusal of the ICC rail cost burden studies, for example, shows a very high percentage of rail freight revenues derived from traffic with rates contributing more than 100 percent of fully distributed costs. At the same time, a very high percentage of rail gross revenues derives from traffic with rates below variable costs. The share of revenues from rates above variable, but below fully distributed, costs--the classic area of marginal cost pricing--may be relatively small. The derived demand theorem, therefore, may introduce into carrier revenue policies issues of equity and administrative distribution of costs, i.e., issues encouraging regulatory processes. Trucking rates may show similar effects of the derived demand concept, high rates and profits from regular-route common carriers against severely competitive rates from irregular-route carriers, exempt transportation, and other TL services.

#### MONITORING OF REGULATORY REFORM

Elaborate arrangements are included in the new regulatory reform statutes for congressional monitoring of the effects of the legislation. The ICC and the U.S. Department of Transportation have

assigned roles in the preparation of studies to assist in this monitoring. In addition, congressional committees will have frequent opportunity to hold hearings on every aspect of the regulatory problem. All problems and points of view will likely be discussed very thoroughly. The monitoring mechanism could provide the means for achieving more progress in regulatory reform, or it can be an instrument of retreat as the reports and hearings develop severe problems and conditions encouraging the resumption of a conservative regulatory-administrative philosophy.

It is important that the monitoring process reflect the real impacts accurately. There are two problems in this regard. First, the field of freight transportation statistics is so poorly developed as to cast doubt on the ability of the monitors to trace the impacts of the statutes. Adequate statistics could readily be gathered, but there are difficulties with respect to the willingness of shippers and carriers to provide data affecting their detailed business affairs. A second consideration is the rather poor development of evaluation research methods in the field of transportation. An evaluation research design for the assessment of the impacts of regulatory reform should be integrated into a data-gathering program. The adequacy of the data and analytical work should be assured by providing adequate subpoena power to obtain data from carriers and transportation users. Some arrangements should also be made to assure the objectivity of the work, preferably the monitoring of the work by a respected public body such as the National Academy of Sciences.

#### CONCLUSION

Transportation regulatory reform promises new benefits to the public in greater transportation efficiency and service innovations. These benefits should be in three categories: competitive price effects on present traffic, long-term industry reorganization effects from adjustment to trends in factor costs, and service innovations. The public interest requires that responsible assessment of these effects be completed in an objective and valid manner. The state of the art is adequate but scientific and legislative safeguards of objectives must be assured. Concrete plans to assure objectivity should be formulated.

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