

Surface Regulatory Reform: Rail, Truck, and Intermodal

Proceedings of a joint meeting of the TRB Committee on Passenger and Freight Transportation Characteristics and the TRB Committee on Surface Freight Transport Regulation, in Washington, D.C., December 9-10, 1980.

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Preface

EDWARD MARGOLIN

On December 9-10, 1980, a joint meeting of the Transportation Research Board's Committee on Passenger and Freight Transportation Characteristics and the Committee on Surface Freight Transport Regulation was held at the National Academy of Sciences, Washington, D.C.

In examining the rather sweeping and controversial changes effected by the Motor Carrier Act of 1980 and the Staggers Rail Act of 1980, these TRB committees considered it timely to obtain some early impressions and insights to the impact of these measures on reform of the major truck and rail federal regulatory statutes. It should be emphasized that these legislative changes were not viewed by conference participants as economic deregulation but as regulatory reform--albeit the

amendments to the truck and rail legislation differ in many respects.

The potential consequences of these changes are not only important to the national and the regional economies but to all levels of shippers and users; regulated, exempt, and private rail and truck carriers; U.S. Department of Transportation; Interstate Commerce Commission; other concerned federal, state, and local agencies; and the academic community.

The meeting program included representatives of all these groups. In addition to the formal papers and discussions published in this Record, several informal presentations and panel discussions also took place.

Highlights of Truck and Rail Regulatory Reform in the 96th Congress

JEFFREY C. KLINE

One of the first things that both shippers and carriers have to realize is that there are new laws and that the new laws provide substantial changes in the purchasing of transportation services, especially in the area of pricing. These new laws should not be viewed hastily as the sum of their parts. Rather, the laws should be viewed as a whole, recognizing the delicate balance between carriers and the shipping public and the intent of the U.S. Congress to reduce economic regulation of motor carriers and railroads to a minimum, consistent with the public interest. This paper discusses these and other issues related to the shipper-carrier relationship.

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MOTOR CARRIER ACT OF 1980

On July 1, 1980, President Carter signed into law the Motor Carrier Act of 1980 (P.L. 96-296). The two chief goals of this act were to make motor carrier transportation more competitive and more energy efficient. The act contains 36 sections, seven of which will be discussed here. (A complete section-by-section summary of the act is available from me.)

Section 5--Entry Policy

Section 5 of the act frees entry by statutorily shifting the burden of proof from applicants to protestants. Applicants have the initial burden of proving that they are fit, willing, and able to provide the transportation service proposed. Applicants must also have shipper support that the service proposed will serve a useful public purpose and be responsive to a public demand or need.

The onus is on the protestant to prove that the application is inconsistent with public convenience and necessity. No common carrier may protest an application unless (a) it has authority, in whole or in part, to handle the traffic at issue; (b) it is willing and able to handle, in whole or in part, the traffic for which authority is applied; (c) it has performed service within the scope of the application during the previous 12-month period or has actively solicited such service; (d) it has pending before the Interstate Commerce Commission (ICC) a prior application that is similar to the one being considered for substantially the same traffic; or (e) the ICC grants leave to intervene.

When ruling on an application, the ICC shall consider and, to the extent applicable, make findings about the National Transportation Policy and the effect on existing carriers. However, diversion of revenues or traffic from an existing carrier is not in itself inconsistent with the public convenience and necessity.

Section 5 prohibits the ICC from issuing "master certificates". It requires that the ICC consider each application on an individual basis.

The ICC may grant certificates solely on the basis of fit, willing, and able for the following

types of applications: (a) service to communities not served by a certificated carrier; (b) service that is a direct substitute for abandoned rail service if it is the abandonment of the last remaining rail service to a community and if an application is filed within 120 days after the ICC approves the abandonment; (c) carriage of U.S. government property other than household goods, hazardous or secret materials, and sensitive weapons and munitions; (d) shipments weighing 100 lb or less if hauled in a vehicle in which no one package weighs more than 100 lb; and (e) food and edible products (including edible byproducts but excluding alcoholic beverages and drugs) intended for human consumption, agricultural limestone and other soil conditioners, and agricultural fertilizers if hauled by an owner-operator, subject to certain requirements.

Section 6--Removal of Certain Restrictions on Motor Carriers' Operations

Section 6 of the act requires that within 180 days after enactment the ICC has to eliminate gateway restrictions and circuitous routing limits in certificates and to implement, by regulation, procedures to expeditiously process individual applications to remove operating restrictions in order to (a) reasonably broaden the commodity categories authorized in certificates or permits; (b) authorize service to intermediate points; (c) provide round-trip authority where only one-way currently exists; (d) eliminate unreasonable or excessively narrow territorial limits; or (e) eliminate any other unreasonable restriction that wastes fuel, is inefficient, or is contrary to the public interest.

Section 6 requires the ICC to take final action on these individual applications within 120 days after they are filed. In extraordinary circumstances the ICC may extend the deadline up to 90 days. In ruling on applications under this section, the ICC shall consider, among other things, the impact on energy consumption, potential cost savings, and improved efficiency as well as providing and maintaining service to small and rural communities and small shippers.

Finally, Section 6 allows carriers to haul both common and contract goods in the same vehicle at the same time.

Section 7--Exemptions

Section 7 of the act adds fresh shellfish to the exemptions granted under 49 USC 10526(a)(6)(D). It creates an exemption for livestock and poultry feed and agricultural seeds and plants, if products (excluding those already exempted under this section) are hauled to an agricultural production site or to a business that sells to agricultural producers goods used in agricultural production.

This section also broadens the exemption for incidental to air traffic to include (a) passengers as well as property (including baggage) as part of a continuous movement that prior or subsequent to the motor portion of the haul has been moved by aircraft, subject to certain conditions; and (b) truck hauls in lieu of air movements as a result of adverse weather, mechanical failure of the aircraft, or any other circumstances beyond the carrier's or shipper's control.

Section 9--Private Carriage

Section 9 of the act exempts intercorporate hauling if (a) the parent corporation notifies the ICC of its or one of its subsidiary's intent to provide this type of transportation; (b) the notice contains

a list of the participating subsidiaries and an affidavit that the parent directly or indirectly owns 100 percent of each subsidiary; (c) the ICC publishes the notice in the Federal Register within 30 days after receipt; and (d) a copy of that notice is carried at all times in the cab of each vehicle.

Section 11--Zone-of-Rate Freedom

Section 11 of the act provides the carriers with greater pricing freedom in response to market demands. The ICC is prohibited from suspending, investigating, or revoking a rate as unreasonable because it is too high or too low if (a) the carrier gives the ICC prior notification that it wishes consideration under this section and (b) the aggregate of increases and decreases is not more than 10 percent above the rate in effect one year prior to the effective date of the proposed rate nor more than 10 percent below the rate in effect July 1, 1980, or the rate in effect one year prior to the proposed rate's effective date.

The ICC may increase these percentages by an additional 5 percent a year if it finds (a) there is sufficient actual or potential competition to regulate rates and (b) there are benefits to carriers or freight forwarders, shippers, and the public from further rate flexibility.

During the first two years after enactment, carriers are allowed to apply the first 5 percent of general rate increases to these rates. After this two-year period, the zone is automatically adjusted upward for inflation, which is determined by the Producers Price Index.

Rates implemented by a carrier pursuant to this section shall be subject to the antitrust laws. However, a carrier shall not be prohibited from docketing and publishing the rate.

Finally, nothing in this section prohibits the ICC from exercising its authority to suspend and investigate on the basis of allegations of discrimination or predatory pricing.

Section 13--Rule of Ratemaking

Section 13 of the act requires the ICC in proceedings to determine the reasonableness of rates, to authorize revenue levels that are adequate under honest, economical, and efficient management to cover total operating expenses, including leased equipment and depreciation, plus a reasonable profit. The standards and procedures adopted by the ICC shall allow the carriers to achieve revenue levels that will provide a flow of net income, plus depreciation adequate to support prudent capital outlays, assure the repayment of a reasonable level of debt, permit the raising of needed equity capital, attract and retain capital, and take into account reasonable estimated or foreseeable future costs.

Section 14--Rate Bureaus

Section 14 of the act allows for the continuation of rate bureau agreements as long as the ICC finds that each agreement meets all of the following conditions: (a) Each member files a verified statement detailing certain required information; (b) it allows any member to discuss any rate proposal but, after January 1, 1981, it limits voting only to those members who can participate in the traffic; (c) it prohibits bureau interference with each member's right to independent action; (d) it prohibits bureau changes in independent action rates, except for pass-through of general rate increases or broad tariff restructurings, without the consent of the carrier (with that consent, the bureau may make

changes for tariff simplification, removal of discrimination, or elimination of obsolete items); (e) it prohibits bureau protests or complaints against any item published by a member; (f) it prohibits bureau employees from docketing or acting on tariff changes; (g) it prohibits representatives from voting without specific written authority from the represented member; and (h) final disposition of any docketed rate or rule must occur within 120 days after it is docketed (this deadline may be extended, subject to review by the ICC).

No bureau agreement may allow for (a) voting or discussion on zone increases; (b) voting or discussion on released-value rates except that rates filed prior to enactment may be voted on and discussed until January 1, 1984; and (c) voting or discussion on single-line rates effective January 1, 1984, except if the Motor Carrier Study Commission's report is not filed by January 1, 1983, this deadline is extended to July 1, 1984. However, the prohibitions in this last item above do not apply to (a) general rate increases or decreases, if shippers, under specified procedures, are given 15 days' notice and an opportunity to comment prior to filing the proposal with the ICC and if discussion is limited to industry average carrier costs and after January 1, 1984, or July 1, 1984, discussion excludes individual markets or particular single-line rates; (b) changes in commodity classifications; (c) changes in tariff structures if discussion is limited to industry average carrier costs and, after January 1, 1984, or July 1, 1984, discussion excludes individual markets or particular single-line rates; and (d) tariff publication, filing of independent action rates, provision of member support services, and changes in rules and regulations that are of at least substantially general application throughout an area.

Finally, this section creates the Motor Carrier Rate-making Study Commission charged with making a full and complete investigation and study of the collective rate-making process. The commission is to be comprised of six members of Congress and four from the public. Their report is to be filed January 1, 1983.

STAGGERS RAIL ACT OF 1980

The Staggers Rail Act of 1980 was signed into law on October 14, 1980, and became effective retroactively on October 1. The purpose of this act is to provide for the restoration, maintenance, and improvement of the physical facilities and the financial stability of the railroads. The act provides the railroads with greater pricing freedom to enable them to respond to market conditions. It retains shipper protections from unreasonably high freight rates where there is an absence of effective competition.

The Staggers Rail Act contains 64 sections; eight of them will be discussed here. (A complete section-by-section summary of the act is available from me.)

Section 201--Regulation of Railroad Rates

Section 201 of the act provides that a carrier may establish any rate for transportation, unless it has market dominance over the transportation, or the rate does not contribute to its "going concern value." If a carrier has market dominance, as defined by the current law, the rate established must be reasonable.

Rail carriers continue to have the burden of proof in determining reasonableness in investigation and suspension proceedings and shippers in complaint cases. Shippers shall have the burden of proof for

reasonableness when challenging zone-of-flexibility rate increases that are less than 20 percent above the sliding jurisdictional threshold or less than 190 percent of variable cost, whichever is less (these rates can only be challenged by complaint). Carriers will have this burden if a rate is 20 percent above the trigger, or 190 percent, whichever is less, and is challenged by a protest.

Finally, Section 201 establishes new minimum rate provisions. This section prohibits rates below a reasonable minimum. Any rate that does not contribute to the going concern value of a carrier is presumed to be not reasonable. A rate that contributes to the going concern value of a carrier is conclusively presumed not to be below a reasonable minimum. A rate that equals or exceeds the variable cost of providing the transportation is conclusively presumed to contribute to the going concern value of a rail carrier.

On the filing of a complaint alleging that a rate is below a reasonable minimum, the ICC shall take final action thereon by the 90th day. The complainant has the burden of proving that the rate is below a reasonable minimum.

Variable costs shall be determined under formulas or procedures prescribed or certified by the ICC. In the determination of variable costs for purposes of minimum rate regulation, the ICC shall determine the individual carrier costs for the specific service in question. The ICC may not include in such variable costs an expense that does not vary directly with the level of transportation provided under the proposed rate.

Section 202--Determination of Market Dominance

The Railroad Revitalization and Regional Reorganization Act (4-R Act) defines market dominance as an absence of effective competition for the traffic to which the rate applies from other carriers or other forms of transportation. Under Section 202 of the Staggers Rail Act, the ICC has jurisdiction over captive rates if they are equal to or in excess of the revenue-to-variable-cost ratios as follows: Oct. 1, 1980-Sept. 30, 1981--160 percent; Oct. 1, 1981-Sept. 30, 1982--165 percent; Oct. 1, 1982-Sept. 30, 1983--170 percent; Oct. 1, 1983-Sept. 30, 1984--175 percent (or the cost recovery percentage, whichever is lower); and Oct. 1, 1984, and thereafter--the cost recovery percentage cannot be more than 180 percent or less than 170 percent. If a rate is in excess of these threshold ratios, there is no presumption either way about the traffic being captive or about the rate exceeding a reasonable maximum.

Section 203--Zone-of-Rate Flexibility

Section 203 provides--effective October 1, 1980, and for six years--that all carriers may, without ICC review, increase their rates to recover inflation plus 6 percent a year providing (a) no more than a total of 18 percent is taken, (b) no more than 12 percent in any one year, and (c) no more than 10 percent in the last two years.

The second phase of the zone, effective October 1, 1984, allows all carriers to recover, free from ICC review, inflationary costs plus allows revenue-inadequate carriers to increase rates 4 percent annually with no carryover. No single line rate may be increased under the 4 percent zone if the carrier proposing the increase earns adequate revenues. The ICC is to prescribe rules with respect to joint rates between revenue-adequate and revenue-inadequate carriers.

Section 206--Inflation-Based Rate Increases

Section 206 allows the ICC to prescribe, on a quarterly basis, a single percentage or range of percentage rate increases to offset inflation. This single percentage or range may be applied either on an industrywide, territorial, or carrier-by-carrier basis. Within 60 days after the single percentage or range is prescribed, carriers must notify ICC as to which rates are to be excluded from the proposed rate hikes, otherwise all rates will take the increase. For joint rates, all carriers must agree to the exclusion. This section becomes effective January 1, 1981.

Section 207--Investigations and Suspensions

Section 207 of the act makes it appreciably harder to obtain a suspension of a proposed freight rate increase. The suspension period has been shortened to five months but may be extended to eight months on a report to Congress.

If shippers are successful in obtaining an investigation of a rate increase and win, the railroads must issue refunds plus interest. However, if a rate increase is suspended and shippers lose, shippers are required to pay undercharges plus interest.

Section 208--Contracts

Section 208 of the act legalizes and encourages contract rates. One or more carriers are given the authority to enter into contracts with one or more shippers, subject to filing the contract with the ICC for its approval prior to its effective date.

The ICC is required to publish special tariff rules to assure that summaries of nonconfidential contract information are made available to the public. The ICC also is required to establish a railroad contract rate advisory service to (a) compile and disseminate contract's nonconfidential summaries, (b) provide the ICC and interested parties with advice on contracts, and (c) assess the impact on competition, according to guidelines, and report to Congress within 90 days after enactment.

The ICC may limit a carriers' right to enter into future contracts if it finds that additional contracts will impair its ability to meet its common carrier obligation.

Section 208 provides that the ICC may review contracts on its own initiative or on the filing of a complaint within 30 days after a contract has been filed. On contracts other than agricultural commodities, including forest products, shippers may complain only on grounds that they will be harmed because the contract impairs the carrier's ability to meet its common carrier obligation. A port may complain only on grounds that the contract is unreasonably discriminatory against it.

Finally, once a contract is approved by the ICC, the service provided under the contract is exempt from all regulations of the Interstate Commerce Act, subject to certain wartime provisions. Contracts are to be enforced in the courts and not at the ICC.

Section 213--Exemptions

Section 213 of the act allows the ICC to exempt from regulation any person, class of persons, transaction, or service (a) that is not necessary to carry out the national transportation policy, (b) that is limited in scope, or (c) that is not necessary to protect shippers from the abuse of market power.

The ICC may begin exemption proceedings on its own initiative or by an application of the U.S.

Department of Transportation or an interested party. Finally, the ICC may exercise its authority under this section to exempt transportation that is provided by a rail carrier as part of a continuous intermodal movement.

Section 219--Rate Bureaus

Section 219 of the act provides for most of the rate bureau reforms adopted by the ICC in its recent Section 5b decision. This section requires bureaus to make transcripts or recordings of all meetings and to keep records on all votes. These transcripts are to be filed with the ICC and made available to other federal agencies. They are not subject to the Freedom of Information Act. It also requires a rate bureau to make final disposition of a docket within 120 days.

Section 219 prohibits bureau members from (a) discussing, participating in agreements to, or voting on another carrier's single-line rates, except for general rate increases and broad tariff changes; (b) discussing, participating in agreements to, or voting on a particular interline haul unless they can participate in them; or (c) if there are interline movements over two or more routes between the same end point, discussing, participating in agreements to, and voting on rates unless a carrier forms part of a particular route. Until January 1, 1984, the last two joint-line reforms do not apply to (a) general rate increases to cover inflationary costs or general rate decreases for joint rates if shippers, under specified procedures, are given at least 15 days' notice and an opportunity to comment before the tariff is filed with the ICC or (b) broad tariff changes of general applicability except discussion of single-line rates. Finally, this section prohibits the ICC from eliminating general rate increases prior to April 1, 1982.

CONCLUSION

Passage of the Motor Carrier Act of 1980 and the Staggers Rail Act of 1980 marks the beginning of a new era in transportation, that of market competition. The old era of regulatory control where the ICC was the referee is rapidly subsiding as the legislation is implemented. In this new competitive environment, the market not the ICC dictates price and service levels.

Adjusting to the new transportation era will not be easy. However, as shippers and carriers adjust to this more competitive environment, we will all benefit from a transportation system that has the flexibility to meet our needs.

Discussion

Don A. Boyd

It is my understanding that the purpose of this meeting is to sharpen your focus and understanding of the Motor Carrier Act of 1980 and the Staggers Rail Act of 1980. Jeffrey Kline has reviewed the major sections of both bills and others have given you some insight concerning the perspective of the various modes or the agency that they represent. I would like to summarize how a shipper such as DuPont views the new regulatory environment in which we find ourselves and discuss our outlook for the future.

You can hardly pick up a transportation publica-

tion today without finding articles or reports of speeches about the motor carrier and rail bills and the implications of such legislation. After reading such articles you are also well aware that there are differing opinions concerning the effects of the bills. In view of the new legislation, shippers must exert a concerted effort, even if the present picture is somewhat cloudy, to manage the business of moving their products in this changed transportation environment. I think we all agree that transportation has undergone and will undergo major changes as a result of the recent legislation. I am not as pessimistic as some of my colleagues are about what the changes will bring and the effect on shippers. From a shipper's viewpoint, the new transportation environment will require new strategies and practices, not just a refinement of doing business in the same old way. Those who are willing to adapt to change can profit from it and, if properly managed, the new environment should have significant results on the profitability of our business.

First, I would like to look at the new Motor Carrier Act and then at the Staggers Rail Act and attempt to assess some of the implications for shippers and also suggest some new directions for shippers. I believe, at the outset, it must be remembered that there are significant differences between the new rail and motor carrier acts, and a shipper's plans and strategies will be different depending on the mode with which they are dealing.

The primary thrust of the Motor Carrier Act is to broaden competition and conserve energy. As a shipper, we believe the provisions of the act will provide opportunities to be more aggressive and use our corporate volume and image to purchase the appropriate mix of price, service, and safety we need in the motor carrier area.

The primary thrust of the Staggers Rail Act is revitalization and rejuvenation of the rail industry. As contrasted with the motor carrier mode, the rail mode will require us to use all of our resourcefulness and persuasive powers to keep our rail rates from escalating at 6-10 percent per year above inflation. One might characterize the strategies depending on the mode as offensive for the motor mode and defensive in the rail area.

MOTOR CARRIER ACT OF 1980

First, what does the Motor Carrier Act do? I think it is safe to say that it increases competition, removes inefficiencies, liberalizes prices, revises rate bureau procedures, and limits collective rate-making. What does the act not do? We should also remember that it does not eliminate the Interstate Commerce Commission (ICC), necessarily conceal rates, reduce service (at least as far as we in DuPont are able to determine), impair safety, and debilitate the motor carrier industry.

After reviewing the various provisions of the Motor Carrier Act, we need to try to determine the probable impact of the new legislation from a shipper's view. At DuPont it would appear to us that at least some of the following will occur:

1. We believe there will be a trend toward more cost-based pricing in the motor carrier area. The bill does direct the ICC to consider rate levels on a future-cost basis and establish fair-rate-of-return standards for the industry. We believe that the trend toward more cost-based pricing will result in more market competition with carriers determining the cost of doing business with a particular shipper rather than with the cost of doing business with shippers in general. Cost-based pricing does not

necessarily mean lower freight costs. It will permit individual negotiations with individual carriers and shippers will pay more to receive more service and pay less if you have less demanding requirements.

2. We forecast that there will be more intense competition for our truckload business (I might add that at DuPont 70 percent of our motor carrier business moves in truckloads). The reason we foresee more competition for this type of traffic is that it is easier for new carriers to enter the field because expensive freight-handling terminals are not needed, thus less investment is needed to handle this type of business. Prior impediments to entry have been substantially relaxed, and this should intensify competition.

3. We also foresee more but simplified tariffs, particularly for contract carriers rather than the complicated tariffs and classifications that we have today. We believe many tariffs will be simple, a mileage tariff or perhaps a tariff based on a price per load. There will not be the necessity for as many tariff rules as are in existing tariffs. This will be particularly true for contract carriers and DuPont already has in place contracts with several contract carriers for movement of our goods in which the schedules are structured primarily on a mileage basis without regard to the commodities that are being moved. I recently saw a schedule of one of our relatively new contract carriers and it consisted of about four or five pages.

4. We foresee more price-service options. We anticipate there will be more market-oriented pricing by the carriers. DuPont and other shippers do not all need the same kind and type of service. For some movements we need less service and others we need more. With price-service options we visualize that we would pay for the kind and type of service we require. If we need fancier super service, we would have to pay for it; but, if we only need service without any frills, we could also have that option and pay accordingly.

5. We also believe there will be less reference to historical methods of doing business and more emphasis on innovative solutions to problems in the motor carrier area.

6. Finally, we foresee, insofar as DuPont is concerned, a leveling off or even a reduction in our private motor carrier operations. Since DuPont's primary business is the manufacture of chemicals and other related products, we are not overly interested in expanding our private motor carrier fleet. We are in private motor carriage because carriers were either unwilling or unable to meet our service requirements on a corporate basis. Where motor carriers can now tailor their services to meet our needs, we would anticipate that such service could replace some existing private carrier moves.

Also, we have to ask, "What will be the effect on DuPont?" In other words, What's in it for DuPont? Initially, in the motor carrier area we anticipate a 5-10 percent lower cost in terms of constant dollars. Preliminary results of current studies under way at DuPont indicate this magnitude of savings for truckload freight and we believe they are available with proper management of our practices and procedures. If we can orient our buyers of transportation much the same way as those persons who purchase supplies and raw materials in the open market, we believe there will be savings for DuPont. If we are able to make transportation forecasts in much the same way as we make purchasing forecasts for our supplies and raw materials, we should be able to purchase only that service that is really needed to move and distribute our products. With the ability

to purchase only that motor transportation service that we need, we are confident there will be incentives to improve the distribution planning and to have the ability to tailor systems for specific distribution and marketing needs. We would also anticipate there will be increased efforts by the motor carriers to be innovative and offer various types of service that may not be offered by other motor carriers. We believe there is a definite relation between price and service and if we can be more specific as to the different types of service we require for our many products, we believe there also will be price advantages for the movement of our goods.

STAGGERS RAIL ACT

As I have mentioned before, the motives for change in the regulation of our nation's railroads are different from the motives that produced a change in motor carrier regulation. Our strategies and techniques in the rail area will be different. In developing our strategies, we should consider what the Staggers Rail Act of 1980 does. The following points are significant:

1. Provides railroads with greater freedom to increase rates,
2. Reduces the shipper's ability in most instances to challenge rates,
3. Authorizes contracts between railroads and shippers,
4. Limits rate bureau action,
5. Permits surcharges on joint rates,
6. Calls for phaseout of general rate increases,
7. Simplifies to some extent rail merger procedures, and
8. Simplifies rail abandonments.

Again, I would ask in view of these new provisions, what is in it for shippers such as DuPont? Our forecast is that rail rates will probably increase 10-20 percent in terms of constant dollars. This seems consistent with current rail revenues that cover approximately 127 percent of variable cost. The ICC has estimated that in order to earn an adequate return, revenue equal to about 150 percent of variable cost is required. This would represent an average increase of about 18 percent and would increase rail revenue substantially over the next five years. In the rate area shippers must work hard, be firm, have strong negotiators with the railroads, and develop imaginative propositions for the railroads that serve our plants.

The ability to enter into contracts with railroads is one opportunity we have to try to control rapid rail rate escalation. We believe contracts can help railroads plan and should improve their efficiency in scheduling power, crews, and operations. Contracts can provide shippers with stable, predictable price structures. We are confident that contracts can bring to the railroads an assured source of revenue as they do in the unregulated modes. Our experience in the unregulated area is that contracts are often used as financing vehicles for providing transportation equipment where none existed before. We see no reason why the railroads cannot use contracts in a similar manner to aid in obtaining their capital needs. When we speak of contracts we mean more than contracts concerning the transportation charge. We visualize an agreement between a shipper and a rail carrier that would include provisions for services, method of payment, equipment to be provided, the mutual responsibility of the carrier and shipper, and indemnity. Most importantly, from DuPont's point of view, safety

practices would be set forth--particularly those that we believe are required in excess of regulatory provisions. Maintenance stipulations would be included and other similar items could be added to your list. The point I mean to make and that we have made with railroads is that in many instances we would pay for better service, but we need an agreement that provides us assurance that we will receive that better service.

CONCLUSION

Much has been done to relax government regulation of rail and truck transportation. Wherever we can we should continue to prod government in the direction of letting competition and the marketplace supply the incentives for innovation and productivity that regulation, by its very nature, can never provide. We should also strive to eliminate the adversarial barriers that regulation has erected over the years. Shippers and carriers should be much like partners, not opponents. We both need each other.

We face demanding, challenging, and exciting times in this new transportation era, but I believe that such times will be filled with opportunity.

Richard E. Briggs

It has been observed many times that life is full of irony. That certainly is the case with the deregulation of the railroad industry. For one ironic result of enactment of the Staggers Rail Act of 1980 has been to enhance the importance of the ICC and to build up its case load.

The reason for this is, of course, that deregulation cannot just happen. The old rules have to be changed in an orderly process. The Staggers Act puts that responsibility with the ICC and does, in fact, grant the ICC at least some leeway to interpret those provisions.

Because of this, the success of the Staggers Act in achieving its goals will be determined, in good measure, by what happens during the next few months as its provisions are implemented.

Indeed, we in the railroad industry have a particular reason for understanding the importance of the implementation process. Four years ago Congress passed the Railroad Revitalization and Regional Reorganization Act (4-R Act). That law also contained a number of regulatory reforms--reforms that were supposed to reduce regulation and help railroads compete more effectively.

That law also left much of the authority to write the rules and regulations implementing those reforms with the ICC. The ICC at that time was not necessarily in sympathy with the basic direction of the 4-R Act and its implementation of the law reflected that. In some instances, the existing regulatory burden was actually increased. In other instances, the reforms were virtually emasculated. In some areas, the intentions of the Congress were realized.

I might add that many of the initial problems with the implementation of the 4-R Act have now been eliminated. The current ICC has moved effectively to reduce regulation where it could under the 4-R Act provisions. But this just underscores the importance of the implementation process since the ICC is left with a considerable degree of discretion in deciding how far to deregulate, although the amount of discretion is considerably less in some areas than it was under the 4-R Act.

For this reason, railroads are making a con-

certed, coordinated effort to participate effectively in that process. The Association of American Railroads has established a special steering committee made up of staff and member road officials to direct that participation and have also hired outside counsel to aid in parts of the implementation.

We do have several advantages in the implementation of this law that were not present during implementation of the 4-R Act. First, the current ICC appears philosophically supportive of the direction of the Staggers Act. Second, it had considerable input into the final law and has a greater understanding of its contents than did the ICC in 1976. Third, it already had under way various studies and proceedings that are directly relevant to the new legislation.

Given these facts, it is not surprising to find that the ICC is moving with uncommon speed to implement the new law. The day after President Carter signed it, the ICC chairman announced that the ICC would propose more than 20 new rules within six weeks.

The ICC is meeting that rather ambitious timetable--a fact we welcome. It has in fact begun the process of implementing a number of the key provisions of the Staggers Act, including the provision that may well be the most important from the standpoint of the railroad industry.

The provision that we regard as being particularly critical is the one dealing with standards for revenue adequacy. The ICC issued its notice of proposed rulemaking on November 26, 1980, with comments due early next year.

We find this provision to be of particular importance since it seems obvious that one of the major problems of the railroad industry has been lack of earnings. The problem is real and the railroad industry will not be able to do all that must be done to improve service without greater earnings. The ultimate test of the Staggers Act will be whether or not it provides railroads with the opportunity to reach an adequate level of earnings. Certainly, the legislation was shaped with that primary objective in mind.

This provision will take on added importance in future years since some of the rate provisions of the act will be applicable only to carriers earning inadequate revenues.

The ICC seems to be moving positively to carry out the intent of Congress with its proposed rule on revenue adequacy. The current cost of capital is not a perfect standard, as the ICC itself recognized in its notice. But it is a standard, an understandable one that is highly relevant to the determination of whether or not railroads are earning sufficient money to attract necessary capital.

I might quarrel with the determination that 11.22 percent is adequate. Under current conditions, that would seem to be inadequate. But, since we only earned 3 percent in our most recent 12-month period, it seems highly unlikely that we will reach or exceed that figure in the near future.

The ICC suggests that replacement cost might be a better investment base than net book value--a suggestion that has merit if the process of restating investment and other expenses can be fashioned without inordinate debate and regulatory delay. Certainly this is a question that ought to be explored more fully since use of net book value serves to understate railroad revenue requirements. So overall, it does appear as if the ICC is moving in the proper direction on this vital provision.

It has also acted with considerable foresight on the rail cost index.

This provision is crucial to a couple of different parts of the Staggers Act. It has considerable

importance with respect to general rate increases due to inflation. The index--because it measures the impact of inflation on railroads alone--could be used to supplant the enormous, costly evidentiary requirements railroads must now fulfill in a general rate case.

Of course, the authors of this legislation envision the possibility of a complete phaseout of general rate increases in a few years. Again, the index is important since it could be the basis for a substitute to the general rate increase.

Development of the index is also crucial to the implementation of the "zone-of-reasonableness" provision.

In generally adopting the railroad industry's index of material prices and wage rates as the basis for its index, the ICC is recognizing the fact that general economic indicators can often serve as poor barometers for particular segments of the economy. The railroad industry has been far more severely impacted by inflation than most industries during the 1970s, in large part because of fuel increases and federally mandated pension costs.

The ICC also for the first time would permit railroads to recover costs in a timely fashion. This is very important for railroads and would eliminate--or at least reduce considerably--the problem of regulatory lag. Always in the past railroads have had to have experienced a cost increase before filing for a rate increase. This meant that by the time a rate increase became effective, hundreds of millions of dollars had already been absorbed and the new rates were already out of date. Regulatory lag has cost railroads roughly \$1 billion a year over the last decade; railroads are delighted to see the ICC moving to solve that problem.

The ICC's action in adopting interim rules permitting contract rates is also welcome. Certainly the thrust of these rules, if carried over into permanent rules, is right on target. I would say, however, that a number of railroads will be quite cautious in negotiating contracts until permanent rules are adopted. They could well find themselves in the position of having to renegotiate a contract because the rules have been changed. The suit by water carriers against the interim rules is another complicating factor.

Again, however, the ICC seems to be moving in the right direction. It also seems to be moving in the right direction with respect to the feeder railroad development program, although this is an area that could become highly controversial and could well be subject to a court test. Basically the law sets up conditions under which a rail line can be taken over by another entity for operation as a railroad. There are two conditions under which this can happen. One would be when a line is either listed as a possible candidate for future abandonment or is already under abandonment proceeding. Assuming that a railroad gets fair value and a reasonable division, the railroad losing the line probably would have little objection to its sale and operation by someone else.

Far more difficult to resolve would be a situation in which the railroad losing the line did not want to sell. The law established five strict criteria that would have to be met before such an "unfriendly" takeover could be ordered.

Disputes may also arise over the provision for settling disputes as to the price to be paid for a property. The ICC has proposed that both carrier and prospective buyer submit their last offers, and the ICC will then choose one or the other. Questions have been raised as to whether such a process would provide fair value.

Substantial controversy also seems likely over yet another action proposed by the ICC--creation of a zone of reasonableness for car hire charges.

The ICC's objective is one supported by the act--maximization of car supply and use through maximization of revenues. The ICC is proposing that railroads be permitted to establish perimeters both above and below the established car hire rate. Within that zone, rates could be changed on one day's notice. While the objective may be laudable, there may be many practical (and perhaps legal) difficulties in such an approach. Railroads are now in the process of analyzing this proposal.

The ICC has also moved rather quickly to eliminate some practices permitted before passage of the Staggers Act. On October 29, 1980, it handed down orders eliminating both capital-incentive and demand-sensitive rates.

Yet even here, the ICC has not adopted an unduly restrictive approach. For example, it has permitted one railroad to file a tariff permitting it to reduce rates on boxcar freight as much as 20 percent and increase them as much as 40 percent on one day's notice. This is certainly a positive response to the need to improve use.

The ICC is also responding positively to its broadened authority to exempt services, practices, commodities, or rates from regulation.

One could argue about whether or not railroad piggyback services ought to be exempt from regulation. But quite obviously, the ICC's proposal to exempt them shows that it intends to make vigorous use of this section of the law to promote marketplace competition.

The ICC had, of course, already been moving in the direction of exempting piggyback before passage of the Staggers Act. But it is arguable whether the 4-R Act exemption provision would have withstood a court test with respect to piggyback. The new law clearly will.

Clearly we can expect the ICC to make much wider use of its exemption authority.

As I have indicated, up to now the implementation of the Staggers Act has been going forward at an almost dizzying pace. In fact, there are only two key areas where we are still awaiting action.

One of these revolves around market dominance.

Rates will be regulated when railroads have market dominance and are above specified revenue cost levels. How much rate freedom the railroads will have above these congressionally dictated levels is obviously a vital question that has yet to be answered. The cost recovery percentage also needs to be defined--not a major concern in the short term, but obviously a major one in the long run, since that will become the determining factor for ICC jurisdiction on a good many rates beginning in 1984.

Also, the ICC is supposed to undertake a study to determine whether to include product competition among the criteria that would prove railroads lack market dominance. That study is to be completed by next summer. To our mind, it seems obvious that product competition does exist, that it constitutes a market force that tends to limit railroad dominance of a market and therefore should be considered when determining if regulatory interference is necessary.

One other key provision also awaits action: appointment by the Comptroller General of the United States of a cost-accounting standards board to develop new costing criteria.

The board's work will be quite important over the long run since many of the new law's freedoms relate

to various cost figures--and those cost definitions will be established by this board. Each railroad's accounting system will have to be compatible with the new criteria developed by this board.

The board will consist of the Comptroller General and representatives of the following groups: railroads, accounting profession, economics profession, ICC, large shippers, and small shippers. It will have three years to complete its work.

The Comptroller General is soliciting nominations to the board now, with all nominations due by the end of the year. But so far he has indicated he will make no nominations to the board until a budget is appropriated by Congress. The 96th Congress seems likely to adjourn without appropriating a budget, so that means the board will not be appointed until sometime next year. An additional complication is the fact that the current Comptroller General's term of office runs out on March 1, 1981, and he has indicated he does not wish to be reappointed. So we are regrettably looking at the possibility of considerable delay before this board is appointed and can begin its work.

It is hoped that this bottleneck will be eliminated quickly in the new Congress. Until now, it is one of the few key provisions of the act that has not moved quickly toward implementation. Indeed, I am somewhat surprised at how smoothly the implementation process is proceeding. The ICC is to be commended not only for its commitment to bring about a smooth implementation but also for its commitment to the basic principles of the new law.

Given the rapid pace of implementation, I would expect the new law to make its presence felt significantly by next summer. However, I would not expect there to be wholesale changes even then.

It will take some time for both shippers and carriers to develop new relations in this less-regulated atmosphere. In Canada, where more extensive deregulation occurred a dozen years ago, it took from two to five years before shipper and carrier adjusted fully to the new, market-oriented environment.

It may not take that long in this country, since we do have the Canadian experience as a guide. On the other hand, the more drastic dismantling of collective ratemaking in this country will mean more radical departures from the past. And, given the greater number of U.S. railroads, the shippers will have to review more proposals and can expect significant variances in carrier reactions.

As to what will happen when the shakedown period is over, it is hard to say with precision. But the Canadian experience does suggest that fears of major rate increases may be overstated.

During the first five years of Canadian deregulation, rates actually dropped on the average, as railroads made use of their new freedoms to gain new business through incentive pricing. It was only after the OPEC cartel began multiplying petroleum prices and double-digit inflation hit the Canadian economy that rail rates started back up. Even then, deregulated rates on Canadian railroads have increased less than regulated rates on U.S. railroads--an exact reversal of the situation before Canadian deregulation.

More importantly, Canadian deregulation has led to increased traffic, more efficient service, improved productivity, and better earnings for railroads--all the objectives that the Staggers Act hopes to achieve. On balance, there are good reasons to believe it will do the same in this country--especially if implementation proceeds on the positive and smooth course it appears to have taken.

Monitoring the Motor Carrier Act

JEROLD B. MUSKIN

Now that the Motor Carrier Act of 1980 has been enacted, its effects on motor carriers and society must be monitored. Five major areas of the monitoring process are discussed. They include (a) the purpose for monitoring, (b) the clear definition of the act's provisions, (c) the act's possible unintended effects, (d) the points and standards of the provisions to be monitored, and (e) the societal benefits and disbenefits of the act. Monitoring is needed to ensure that congressional intent is carried out with integrity and accuracy by the monitoring agencies.

This paper is a continuation of an earlier article (1) that dealt with the deregulation of motor carriers. While significant reform of motor carrier rate and entry regulations was desirable, too little was done by the U.S. Congress in the Motor Carrier Act of 1980 in some areas and too much in others. Now is the time to stand back and monitor the act.

There are five key issues that should be dealt with by those responsible for the accuracy and the integrity of monitoring the Motor Carrier Act. These five issues are listed below and expanded on in the body of the paper:

1. Purpose of monitoring,
2. Clear definition of the provisions of the act that are to be monitored and clear articulation of the intentions underlying the skeletal phrases included in the act,
3. The need to take into account unintended effects,
4. Specification of the monitoring points to be evaluated and the standards by which they are to be judged, and
5. Separation of resultant conditions into those that are and are not attributable to specific reforms.

PURPOSE OF MONITORING

The "why monitor?" issue might be responded to simply by saying "to determine if the intent of Congress is being achieved by the implementation of the provisions of the act." Also, since the future of collective ratemaking is, in part, dependent on carrier performance in the rate area, special monitoring provisions have been made for scrutinizing rates and ratemaking practices under the new act.

The act requires that Congress annually conduct oversight hearings for at least five years (until 1985) "to ensure that this Act is being implemented according to congressional intent and purpose." While this minimum time frame should be enough to indicate long-term effects of the act, certain critical transportation variables should be monitored as long as motor carrier regulation exists in order to ensure flexibility.

This latter point--to ensure flexibility--must be the crucial purpose of the monitoring mandated by the act. Some members of Congress were uncertain whether some effects of the act would be desirable, and their support apparently depended on their legislated scrutiny, with the possibility of revisions being made to the act if desirable expectations are judged not to have been met. A further purpose of requiring review is to avoid the distasteful results of the survival of the Motor Carrier Act of 1935, as amended, well past the usefulness of many of its provisions. For that reason monitoring should be retained well into the future.

PROVISIONS AND INTENTIONS

The second issue, regarding the provisions and intentions of the act, requires not merely a reading and comprehension of the act itself but also should include the record created by Congress in developing the provisions. Intentions underlying the phrases in the act are included in transcripts of House and Senate committee hearings and also the congressional debates before passage of the act. The record gives greater dimension to the summary nature of the act. Thus, those who monitor the act will be able to focus attention on the right issues and adopt a responsible approach to the task by doing a faithful reading of its underlying intentions.

Of clear concern to Congress, emphasized in the act itself and elsewhere, is that the Interstate Commerce Commission (ICC) should not exceed or deviate in any way from the regulatory authority granted it by Congress. This apparently is a valid concern. The ICC, as constituted during 1980 and (so far) in 1981, gives convincing evidence that it intends to interpret the act in as deregulatory a way as possible. If this expectation proves to be true, it seems to me that responsible monitoring would reveal behavior contrary to the clear intent of the statute.

The act and the record are repetitious in regard to service to small communities. A special study on the issue is mandated by Congress. Small communities are also singled out for attention in the motor carrier ratemaking study. The record made by Congress in the course of developing and voting on the legislation reveals substantial debate on this topic.

Most study on the small-community subject, to date, has conformed to the doctrinaire approach that has set out to prove either that service would be improved, or even if it is not (i.e., if service cannot be economically supported), the community should not be served. While those may be reasonable economic arguments, it seems to me that Congress has spoken otherwise. Services to small communities are to be maintained--and one assumes that that means a level of service at rates that will allow the communities to remain, or become, economically viable in the market.

Monitoring means observing, projecting, and reporting, and maybe also recommending, but not judging and prescribing. All that is required from the monitor is the answer to the questions: What is the status of service to, for example, small communities? and Based on what is observed, what can be anticipated? Policymakers will decide if what is occurring is acceptable and, if not, what should be done. The monitor may indicate what he or she believes the displacement or opportunity costs of the alternatives to be, but only Congress can decide whether the results are acceptable or not and what adjustments will be made. The law says that carriers shall provide and maintain service to small shippers and that greater participation by minorities will be promoted.

The principal, overriding goal of the act is the enhancement of competition in the motor carrier transportation field so that higher levels of economic efficiency can be attained. This goal, in conjunction with extra-economic goals, sounds like a setup for a demonstration of a mathematical program

with a cost-minimization objective function subject to output and quality constraints. So be it. Efficiency, Congress is saying, is not all that is being sought. Monitoring should measure efficiency and other goals free of judgmental bias.

UNINTENDED EFFECTS

The third issue, the matter of unintended effects, is raised to caution us that while the act is intended to have impact on the conditions under which Interstate highway freight moves, the results of the legislation may "spill out" into other areas. The spill out may be not only unintended but undesirable. This concept does not include such events as the bankruptcy of a carrier or the closing of now mislocated distribution facilities. The new policies accept the risk of negative (not necessarily intended) outcomes as being conditions under which Interstate highway freight moves. Such negative effects merely enter into the other side of the ledger in calculating net social benefits (costs) of the new motor carrier policy.

Some of the unintended effects that should be considered in a broad, responsible study of the consequences of the new policy are (a) impacts on intrastate transportation services (and the resulting effects on interstate movements of traffic), (b) implications for other transportation modes, (c) correlation with highway safety conditions, (d) effects on road congestion and highway adequacy, and (f) significance of any restructuring of the industry that affects suppliers to the transportation and physical distribution sector. If such effects exist and are large, they could reverse a positive net benefit calculation figured by using only intended effects.

Some of these issues, such as safety and effects on intrastate transportation, were brought up in the debate that preceded congressional action. They were largely disregarded. Best the effects should be detected early, traced back to the policy changes responsible, and corrected. I speak here not of the efficiency-improving shifts that occur when conditions that affect an industry (or one of its segments) change. Rather, the reference is to the interim distortions and to the ultimate economic and social distortions that may occur as a result of those changes.

The final effect concerns the need for identifying the degree of connection between observed conditions at monitoring points and regulatory policies changed by the act.

Will we, for example, be able to claim success for limitations on rate bureaus or for the zone-of-rate freedom because of broad reductions in rates during the last half of 1980 and for 1981? How much would rates have fallen because of ICC rate policies already in effect? How much on the condition of the economy? If a flurry of bankruptcies occur or are threatened, or if widespread service complaints swamp congressional offices, is it due to the act, interest rates, long-evolving ICC entry policy, or ignored enforcement responsibilities at the ICC? If highway accidents involving large trucks increase, can we trace the responsibility to the removal of or failure to enforce the 55-mph speed limit, to small truck operator earnings due to the recession, or to more owner-operator or private carrier participation because of the act? Perhaps the condition is the responsibility of the ICC or the U.S. Department of Transportation because of their failures to develop and apply adequate and acceptable fitness standards.

MONITORING POINTS AND STANDARDS

The fourth issue is the dual one of selecting monitoring points and standards. That is, what kind of

events (carrier rates, market prices, service quality, and so forth) are being observed, what transportation entities (carriers, regions, shippers, and so forth) are being measured, and what kinds of measures are being applied. Whether a particular provision of the act is working or not is not necessarily an objective determination but may depend on which of many possible condition variables that result from implementation of provisions of the act is being observed. Further, the judgment will be affected by the grading system used by the monitor. For example, if a result is the same as that under the old provision, should the reform be considered successful? If the result must be "better", how much better? Should that measure be generated as a result of randomized statistical processes, thus establishing the validity of the measure?

Of overriding importance in this respect is the definition of the purpose of the new regulatory reform provisions in as specific terms as possible. That definition will focus the monitoring effort on the correct subjects. This will, of course, require the monitoring organization to penetrate the intent of Congress. This effort includes getting a fix on the standards Congress infers should be applied to events and conditions. The difficulty of interpreting definitive goals of Congress' action and of identifying measures reflecting Congress' intentions cannot be overemphasized. At the same time, the attempt to develop this basis must be made. Otherwise, monitoring results will be empty or, worse, will reflect to predilections of the monitor. Such a monitoring effort could lead to actions (or inactions) that would fail to gain the maximal net social benefit from the reforms.

The act's passage was made possible by public dislike of bureaucratic intrusion into business decisions and was nurtured by both valid and fatuous economic efficiency arguments. Nonetheless, Congress is, in the long run, going to be looking at perceived net social gains, not merely efficiency gains. This distinction is drawn to call attention to the view that the electorate (at least those who influence legislation) will forget how distasteful government intervention was if advantages or conditions enjoyed under regulation are seen as being lost under the newly prescribed set of reforms. Those committed to deregulation would attempt to hold off revisionists by pointing to whatever efficiency gains can be demonstrated. The revisionists, if they were to perceive that the negative social and economic consequences of the act were great enough, would attempt to seek reforms that would restore the prior conditions.

In fact, as discussed earlier, the act indicates that Congress was not seeking economic efficiency alone. Congress can be thought of as having taken the action to improve the net social benefits of conditions relating to truck transportation. The route chosen places much greater reliance on the free market than had existed under earlier regulatory conditions.

For these reasons, the monitoring effort should look at more than the manifestations of simple efficiency, rates related to cost, increased carrier market entry and departure, higher load factors, lower rates, fewer empty miles, and lower variance in carriers' profits with the norm near the carriers' cost of capital. As a matter of fact, because most of these monitoring points relate to carriers and only indirectly to the market for transportation services, examining them alone would tell us nothing at all about efficiency. These conditions tell much less about net social benefits. They would merely provide a narrow look at one of the foundations of the economic structure

that Congress was seeking to improve with no insight at all into external effects. We merely assume that if the readings on carrier structure and performance appear to be "good", the economic system will be enhanced.

Would the problem of judging the full effects of the act be solved if the price and quality of service available to shippers were examined? This comes closer but, still, performance at the physical distribution level is merely suggestive of overall economic efficiency and is unrelated to societal questions. Nor do rates and service, or transportation costs for that matter, indicate system efficiency. Few among us fail to recognize that total costs of distribution may diverge significantly from mere transportation costs. The underlying transportation system merely affects user inventory costs, customer service levels, marketing practices and costs, and so forth.

The critical place to observe the effects of the act are at the production, distribution, and consumption levels. If we emphasize the fact that transportation and physical distribution have no function but to facilitate the factor and product markets, we see that the thing to measure is the change in the ways that factor and product markets function. How flexible, responsible, progressive, capable, and efficient the transportation and physical distribution systems are will show up as improved access to supply sources and product markets, as an improved array of products available in markets, and, generally, at lower price levels and more stable prices.

RESULTING SOCIAL CONSEQUENCES

The societal consequences associated with freight transportation can be identified as those conditions that, while they result from the conduct of transportation services, are inadequately or not at all accommodated by the market system. Some of these societal effects have nearly universal impact. Others have a narrower group or geographic focus. Examples of the former type of effect that could be linked to the new policies are roadway congestion, highway safety, and road deterioration. An example of a group exposed to potential societal effects is the group composed of small shippers. A geographic effect, not surprisingly, could be imposed on a port; a remote, small community; or a particular region of the nation.

Analytically, the similarity between the universal and the group or geographic societal effects is that those that are negatively affected may prefer a higher-quality result than will be provided by the production and use of highway freight services in the more nearly free market environment. The act has placed faith in the market system, perhaps properly so. Monitoring the societal effects should provide advance notice of important divergences from these sanguine expectations and allow trouble spots to be corrected.

Probably the most difficult type of monitoring to do is that dealing with the functioning of product markets. Production technology, financial institutions, fiscal policies, and general economic conditions are among the economic variables that, along with transportation, affect market performance. Sorting out and measuring the causal influences and specifying the effects attributable to new rules affecting motor carriers are probably impossible. We need surrogate monitoring points, so we must retreat to studying carrier performance and the functioning of the elements of physical distribution for firms and industries as indicators (note, only indicators) of changes in broader economic ef-

iciency. Monitoring of societal effects can, it seems to me, be done directly.

In doing the job of monitoring the evolving effects of the act on carriers and on physical distribution, it is crucial that those designing and evaluating the effort be thoroughly aware of the characteristics of the industries and industry segments being monitored. The production technologies, markets, sensitivity to external influences, and financial structures of each group studied must be fully understood so that impacts can be understood. Trucks are not merely marginal costs with wheels any more than airplanes are marginal costs with wings.

Those of you familiar with the Report of the Motor Carrier Task Force (2) will recall that the reforms recommended for specialized carriers were supported by industry studies of the carriers and their markets. The expectations under significant reforms were related to the characteristics of the carriers and their markets providing a basis for monitoring. That is, the analyst would have specific elements to observe and would be able to compare the projected outcome with that which was observed.

About the time that the task force was dealing with the general freight carriers, I arranged visits for its members and ICC staff to various general commodities carriers. Clearly, the people who saw the trucks, freight, truckers, and freight terminals received a different perspective than when motor carriers were abstractions that existed only in regulations, opinions, and orders of the ICC. It is hoped that monitoring will not be carried forward to points as remote from reality as were the regulation and the reform of those regulations. In the proceedings on the subject of motor carrier regulation, I wrote that "more needs to be done to understand the motor carrier industry, its tendencies, its markets, its (likely) responses to regulation and to regulatory change" (1, p. 360). In writing the report of the Motor Carrier Task Force (2), I said again that the ICC just did not know enough about the general freight segment and its markets to propose appropriate reforms. Congress and deregulatory advocates apparently felt they knew enough.

Assuming that the right monitoring points are focused on and the right questions are asked, how do we evaluate the answers? How many rates should go down to allow us to make a pronouncement that the zone-of-rate freedom is functioning properly? How far should rates go down? What about upward moving rates? If firms complain that service on particular categories of freight is no longer available, how prevalent must this be to declare that the common carrier obligation has deteriorated since the passage of the act? What rate of decline would be compelling evidence for a restoration of the enforcement of the common carrier obligation? What are acceptable or unacceptable levels of performance for each monitoring point at each observation on the monitoring timetable?

And do not overlook the need to build reliability and validity into the monitoring program. The entire populations or subpopulations of those firms, communities, and so forth, should be properly sampled according to proper survey designs and procedures. The survey instruments should be professionally prepared, tested, and employed by trained personnel. All of this is essential if the data produced are to be sufficiently free of bias to serve as an acceptable basis for decision making.

Neither should those responsible for the integrity of the monitoring program fail to establish the standards of acceptability in advance. Likewise, confidence intervals should be specified beforehand. Both should be written in the task specifica-

tions, whether done within an agency or by contract. Standards must be stated so that those responsible for the effort's integrity and its subsequent application may exercise control of the unit performing the task. To do otherwise is to give the task-performing unit inadequate guidance. Confidence intervals are expressions of levels of acceptable imprecision in the degree to which sample statistics reflect the actual condition of the population being studied. A 95 percent confidence interval, for example, states that we can be confident that the numerical representation of the population (mean, proportion, and so forth) that is being estimated by sampling will be included in a specified interval around the sample statistic.

There are two reasons why this item should be stated before the monitoring is undertaken. First, failing to do so will allow the analysts and users to "fudge" the results, i.e., to reject or accept the results as their mood or personal proclivities move them. Second, the cost of the survey will be directly related to the level of precision prescribed.

IMPORTANCE OF MONITORING

Appropriate analytical approaches, such as various experimental designs, should be considered to help assure randomized, objective results. Survey approaches should be carefully controlled in design, conduct, and interpretation.

It is too easy to look at conditions observed after the fact of the legislation's being applied and saying, "That's what Congress was looking for. The legislation is 'working'." Or, conversely, "That's what some carriers (shippers or communities) were afraid of. The legislation is a 'disaster'." Responsible monitoring does not just measure out-

comes and link observations blindly to the initiating factors being evaluated.

This is another important reason why monitoring should be done with common sense, integrity, statistical objectivity, and professionalism. Causality is a major problem in any research effort. This is a sizable and a complex research effort and requires all of the attributes mentioned here.

In conclusion, there has been promise of billions of dollars in annual savings available to the economy as a result of the implementation of the new legislation. There is also concern that there are displacement costs that could overwhelm whatever savings are actually encountered. The quality of the monitoring effort will, I hope, raise the quality of the analytical effort that went into the development of the legislation and the policies flowing from it. If there are savings, in which the social benefits exceed the social costs, we should go further. If there are net social losses, perhaps there should be reversals or revisions. Neither the market nor policymakers are perfect. Regulation is not unique in that respect.

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Changing Market Structure for the For-Hire Motor Carrier

MICHAEL P. MCGEE

This paper identifies the elements affecting the market structure of our trucking system and the long-term impact of altering these elements. To the extent that structural impacts may occur from less regulation, the impact of instituting these changes is also addressed. It is expected that these changes may be limited to selected carrier activities. To the extent that these elements can be measured, a quantitative analysis has been undertaken.

The regulatory system that was instituted more than 40 years ago in the Motor Carrier Act of 1935 (also known as Part II of the Interstate Commerce Act) had remained relatively stable until recently. The only major changes, impacts, or exceptions to the original act were (previous to the past two years): (a) the 1948 Reed-Bulwinkle Act that permitted joint ratemaking, (b) the Transportation Act of 1958 that overturned the concept of umbrella ratemaking; and (c) the creation of the U.S. Department of Transportation that moved safety regulation from the Interstate Commerce Commission (ICC) to the new agency. These alterations, for the most part, did not adversely impact motor carrier profits or the carriers' operating systems and strategies. In fact, these changes tended to provide stability for the industry.

In more recent times, changes to the nature and functions of the regulatory system have accelerated. The focus of these changes has been toward loosening regulatory constraints over the elements within the transportation system. These elements can be described in terms of both modal and industry components.

The transportation system is made up of elements that both interact and compete in the transportation production function. To a degree, many of the elements within both the modal and industry components are similar (pickup, delivery, and line haul). However, within each of the industry components, the activities are performed differently. To the degree that the activities are different is a function of one or more of the following: regulatory requirements, technological efficiencies, management philosophies, market demands (service standards), competitive forces, or joint production needs.

Current changes with the legislative enactment of the Motor Carrier Act of 1980 and alterations in the regulatory process at the ICC seem to be focusing on the regulatory requirements, with limited reference

or interest in the impact of these changes on other structural elements. As a result of not appreciating these impacts, the motor carrier industry must take upon itself a review of the remaining structural elements of the transportation system that are subject to alteration, as well as identify the functional and system activities that would be impacted.

ELEMENTS WITHIN THE TRANSPORT SYSTEM

Within the motor carrier industry there are a variety of ways for one to segment the transportation system elements. The most useful segmentation for this paper is operational, institutional, and regulatory. Each of these elements is discussed in detail.

Operational

The operational elements within the motor carrier transport system are pickup and delivery, line haul, terminal and platform, billing and collecting, and interline. These elements are not subject to many of the proposed changes. However, the nature and the technological process of these elements are subject to change. With a greater emphasis on opening up markets, or on innovation due to tax incentives (or government subsidy), a carrier might want to alter its current process. An example of this would be the use of more rail service, i.e., piggyback, for line haul. In addition, some carriers serving very special markets might want to move to high automation, as is the case in four United Parcel Service (UPS) terminals. These types of changes are due to technological efficiencies and cost reduction (management-type) decisions. While the current regulatory system does not encourage this type of activity, deregulation of entry could inspire some carriers to employ rail between break-bulks or a greater use in new systems.

In addition to the use of different system technology (i.e., rail or air), many of the larger carriers would expand their operations to take advantage of operational scale economies (1-3). To the extent that carriers can integrate these economies with their customer markets, then financial rewards will be recognized. The impact on the operational elements would be in the scheduling, type and mix of equipment, and type of market a carrier would serve. However, most of the proposed regulatory policies will probably not greatly affect these operational elements--except entry, and even this element will remain under management's control.

Safety regulations do and will continue to have a major effect on operational elements--particularly in the handling of hazardous materials. Safety regulations for fitness will also remain. Therefore, few if any operational changes would be a direct result from changes in areas of safety regulations. Competitor challenges, market demands, and service needs do and would continue to dictate alterations in the motor carrier operational elements.

Institutional Elements

The institutional elements within the transportation system can be grouped according to carrier (by type), union, rate bureaus, and government. These elements used to be distinct entities that influenced each other's performance in only a few areas. More recently, however, their interaction is more frequent and their distribution less clear.

Carrier (by type)

Carriers, at one time, could be neatly classified

into one of the following groups: regular-route common carrier, irregular-route common carrier, contract carrier, private carrier, owner-operator, exempt carrier, local and/or short-haul carrier, and specialized carriers. This regulatory classification was in accordance with the type of service a carrier offered, the administrative operating constraints placed on the carrier, or the type of equipment employed in providing the service. Each of the categories served a prescribed market.

A serious problem, however, with this regulatory grouping was that it was administratively, not economically, based. This categorization provided stability in 1935; yet with the growth and changes in the U.S. economic infrastructure, these categories have been effectively eliminated--especially with the Motor Carrier Act of 1980 and the recent ICC Ex Parte MC-10 (Sub 2) decision that deleted 49CFR 1040; the adjectival differences between the carriers.

Unions

Another institutional element is the union--the International Brotherhood of Teamsters. The Teamsters are primarily affected by regulations dealing with health and safety. As noted earlier, health and safety regulations will not be lessened with changes to economic regulation; in fact, these safety regulations are likely to be more stringent.

The union has a major impact on productivity levels (or standards), work rules and wage (expense) levels. These impacts are only related to economic regulation as they affect the current ratemaking process. Wages and other expenses are included in a rate base that forms the basis for the regulatory rate level. The level is related to a "fair return." Currently, the return has been fixed at an industry level of 14.2 percent return on equity (the SMCR decision). To the degree that management can hold down the impact of increased labor costs either through productivity increases or cost-reduction activities, carrier rate levels would (or could) remain constant.

Labor-related costs constitute more than 60 percent of carrier expenses. Wage level and benefit packages are negotiated each time the existing national labor contract terminates, generally every three years. With changes in economic regulation, nonunion carriers will have a short-run economic advantage over unionized carriers. In the long run, the bargaining posture of unionized carriers would undoubtedly change and bring union costs into a competitive range. These changes would take time, but they would be management decision making, not regulatory created.

Rate Bureaus

Rate bureaus have traditionally functioned as a synthesizer of cost and market information for the ratemaking process. This ratemaking process is a joint effort that involves interested shippers and the carriers who are members of that bureau. Inherent in this process is the sharing of cost data. This sharing of information and the joint setting of rates represent the heart of economic regulation (Section 5A of the Interstate Commerce Act).

As a result of the joint ratesetting processing, which is not permitted outside the transport industry, most of the efforts for removal of economic regulation tend to focus on the rate bureaus. Prime concern of these efforts is to force rates down to a lower level. This belief assumes that rates are above the long-run marginal costs of providing the transportation services. To the extent that costs

are above this level, rates would fall. Conversely, if rates were below this level, they would most likely rise (as was the case with air cargo rates after deregulation).

Government

The role of government in the motor carrier industry is separated into economic and noneconomic categories. Economic regulation is maintained at the ICC and noneconomic regulation at National Highway Traffic and Safety Administration, Office of Safety and Health Administration, Environmental Protection Agency, and other departments of federal and state departments of transportation. Changes in the roles of the ICC or noneconomic regulators would have an impact on the industry. The extent and nature of the changes would dictate the level of influence the regulatory agency would command.

Examples of noneconomic regulations that have had major impacts on the trucking industry are the 121 brake-locking decision, hours-of-service regulations, and state size and weight restrictions. Most of the noneconomic goals attempt to relate societal needs to the trucking industry under the "public good" argument. With a reduction in the role of economic regulation, it is safe to assume that these other regulators would play a greater role as it relates to the motor carrier industry.

Regulatory Elements

The regulatory elements in the transportation system deal with the powers of Congress vested with the ICC. These powers give the ICC authority to set rates, dictate routes, approve merges, and control market entry.

Each of these elements has a major impact on a carrier's ability to grow, penetrate profitable markets, and to maintain adequate return on investment. The degree to which carriers have "learned to play the game" for the past 40 years had permitted the more-aggressive and better-managed firms to achieve more profitable returns.

Within the past two years, however, the elements within the regulatory system have been drastically altered. In particular, the Motor Carrier Act of 1980 and recent actions by the ICC have moved to open entry and limit rates and profitability.

EVALUATION OF CHANGES TO TRANSPORTATION ELEMENTS

For large less-than-truckload (LTL)-based carriers, such as Ryder and Pacific Intermountain Express, deregulation changes have multiple impacts on market structure--both positive and negative; and these impacts are addressed in this section.

In the table that follows, a listing of the previously identified transportation elements and an estimated impact of what deregulation is having on these elements, as they relate to large LTL-based general commodity carriers, is noted:

<u>Transportation Elements</u>	<u>Degree of Impact with Complete Deregulation</u>			
	<u>None</u>	<u>Minimal</u>	<u>Some</u>	<u>Major</u>
Operational				
Pickup and delivery	X			
Line haul		X		
Terminal and platform	X			
Billing and collecting	X			
Interline			X	
Institutional				
Carrier (by type)				X
Union		X		
Rate bureaus				X
Government				X

Degree of Impact with Complete Deregulation

<u>Transportation Elements</u>	<u>None</u>	<u>Minimal</u>	<u>Some</u>	<u>Major</u>
Regulatory				
Rates				X
Routes				X
Mergers				X
Market				X

From this table, it is obvious that regulatory changes have only limited impacts on the operational elements. The bulk of the impacts is on the institutional and regulatory elements. As such, the thrust of this evaluation will be on the institutional and regulatory elements.

Transport Supply

Alterations to the institutional elements will have a pronounced effect on the supply of transportation services. The primary elements of supply are labor, plant, property, and equipment. With complete deregulation, trucking firms probably would alter their mix of these elements. Many carriers, as an example, might adjust their available capacity to service some of the profitable markets they are not currently serving. With increased levels of service on these lanes, empty miles, lower load factors (weight and cube), and increased competition are likely results. This is currently occurring in the highly competitive truckload (TL) and volume movement business. The consequence of these actions may accelerate service innovations, but the more likely consequence is greater concentration of carrier assets--to match traffic movements.

The reason carriers want to match assets more closely to revenue potential is to effectively lower per-unit handling costs. Carriers currently have different freight handling systems, different labor costs (union/nonunion), and different market orientations (LTL/TL); the resulting reconsolidations of their systems would leave many carriers at a competitive disadvantage. If one merely looks at the Senate Judiciary Committee study on motor carrier concentrations, it is obvious that shippers want to work with only a limited number of carriers (4). Combining this phenomenon with the likely reordering of carrier assets to match revenue, one quickly realizes that the number of surviving carriers will be limited. To note an example, the data in Table 1 are taken from the Judiciary Committee report (4). In these cities, the LTL tonnage figures note high levels of concentration (even with the large number of potential carriers).

LTL long-haul traffic would not be subject to many short-run changes on the supply side. As the capital requirements for breakbulk and other LTL support facilities are substantially higher than for TL, the demand-related lane-density requirements are inadequate to support building many new facilities. New competitors would be discouraged regarding immediate entry. Existing LTL carriers would, however, enter the high-density markets as capital for this expansion is made available. The impact of this expansion would be noted over the longer term. In fact, this expansion will likely be at an increased pace rather than the expansion process that was initiated under the earlier regulatory structure. Table 2 notes the changes in the long-haul LTL market (growing at about 3 percent per year since 1974) and Table 3 notes the changing mix of these operations. With the current economic recession and the associated high cost of capital, this expansion will undoubtedly be stretched.

Transport Pricing

The ability of many of the major LTL carriers to

Table 1. Freight concentration comparison.

Outbound City	Inbound City	Four-Firm Concentration (%)	Eight-Firm Concentration (%)	No. of Potential Carriers ^a
Milwaukee, WI	Minneapolis, MN	88	99	15
Greenville, SC	Charlotte, NC	93	99	27
Chicago, IL	Washington, DC	63	83	19
Houston, TX	New Orleans, LA	87	100	12

^aInformation based on points served (see National Highway and Airway Carriers, Fall 1980).

Table 2. Percentage change in the market structure (tonnage based).

Reporting Quarter/Year	Average Length of Haul			
	600-900 Miles		>900 Miles	
	LTL	TL	LTL	TL
1/77	2.5	7.1	3.1	5.3
2/77	5.7	9.8	9.3	10.5
3/77	5.7	7.6	6.9	5.7
4/77	10.7	10.0	11.7	11.2
1/78	6.5	5.4	9.4	6.3
2/78	8.8	7.1	11.6	8.0
3/78	4.4	4.3	6.0	6.2
4/78	3.7	8.1	8.7	8.8
1/79	5.8	9.3	4.8	6.2
2/79	20.5	13.6	11.0	20.4
3/79	11.9	7.8	0.1	14.2
4/79	12.7	14.9	2.9	20.3
1/80	6.9	24.6	2.6	27.6
2/80	2.4	24.4	1.3	25.0

Table 3. Percentage of market LTL tonnage.

Quarter	Length of Haul (miles)	Market (%)				
		1976	1977	1978	1979	1980
1	600-900	44.3	44.2	43.5	40.9	39.8
	>900	55.7	55.8	56.5	59.1	60.2
2	600-900	44.5	43.7	43.1	40.3	40.0
	>900	55.5	56.3	56.9	59.7	60.0
3	600-900	43.7	43.4	43.1	40.0	
	>900	56.3	56.6	56.9	60.0	
4	600-900	44.9	44.7	43.6	41.0	
	>900	55.1	55.3	56.4	59.0	

remain profitable will be difficult. Changes in the new Motor Carrier Act of 1980, the current rate and entry policies of the ICC, and the drop in freight business are the prime reasons for this problem. As carriers are permitted to compete in multiple markets, as most ICC policies suggest, and rate freedom is permitted, then the questions of shipment profitability and rate cross-subsidization with respect to firms and communities will change. Some rates will go up, others down.

With motor carriers exercising some rate freedom, the economic infrastructure of many shippers' distribution systems will be impacted. The result will be that many shippers will stop using the service of the high-cost or the nondirect and marginal motor carriers. With these carriers' services not used by shippers, the revenue necessary to maintain viability for nondirect service and marginal carriers will probably be inadequate. This results in the shrinking of the total number of carriers as the less-efficient carriers are eliminated. To some extent this has already begun with the closing of Wilson and Johnson Motor Freight.

For the remaining carriers, the return on equity or other standards of normal (or required) profits would be altered. New standards would be determined from the survivors. These survivors are currently

healthy carriers, and the returns of these carriers would remain viable if they were free to set rates (for normal profits). Therefore, the elimination of rate regulation would impact the profits of large, efficient carriers and cripple or eliminate many of the nondirect service and marginally profitable carriers.

Rates, as noted earlier, are jointly developed at one of the rate bureaus. The prime aim of deregulationists is to remove this joint ratemaking authority from the bureaus and to have each carrier compute its own rate. Rate bureaus would become only tariff-publishing agents in most scenarios.

With carriers developing their own rates, aggressive, growth-oriented carriers would, theoretically, set their rates at the long-run marginal cost level. If there existed excess capacity, then carriers would price at a shipment's short-run marginal cost; if insufficient capacity exists, then carriers would set rates much higher. In all instances, industry average profit margins, termed normal profits, would have to be equal to the cost of either (a) the return investors would receive from alternative investments or (b) the cost of obtaining investment capital for economic survival.

MOTOR CARRIER MARKET STRUCTURE

In classical economic theory, as long as better-than-normal profits are being earned, additional firms (in this case carriers) will presumably be attracted to the industry. But when, for example, minimum average cost is equal to the optimal number of firms' competitive price, entry of one more firm will cause every firm to earn less-than-normal profits even though price settles in the neighborhood of the optimum price (5).

This assumption of normal profits and a competitive environment does not fit all the multiple market structures of the trucking industry. In order to understand the likely structure of a deregulated motor carrier industry and the management policies that would most likely be encountered, a listing of economic market structures and their characteristics is noted in Table 4. With this table, one is able to depict the most likely structure of a deregulated motor carrier industry. The best example of pure competition is in parts of the TL traffic (i.e., the owner-operator). Barriers to entry are not great for TL operations. There are many buyers and sellers and information flows are relatively good; competitive marketplace pricing already exists in the volatile fresh food and vegetable markets.

General commodity carriers, other than the long-haul LTL carriers, tend to exhibit monopolistic competition characteristics. These carriers generally provide the same product or service, but they try to differentiate their product. A good non-transportation example would be Sunkist oranges versus California oranges. The seller attempts to influence the product purchaser with product identification or other product differentiation techniques. These carriers tend to be regional in nature.

Table 4. Economic market structures and their characteristics.

Characteristics	Market Structure			
	Pure Competition	Monopolistic Competition	Oligopoly	Monopoly
Number of buyers	Many	Many	Many	Many
Number of sellers	Many	Several	Few	One
Ease of entry	Easy	Easy	Difficult	Hard
Factor mobility	Free	Free	Free	Free
Product	Homogeneous	Differentiated	Somewhat differentiated	Homogeneous
Control over price	None	Some	Some	Considerable

Long-haul LTL carriers, on the other hand, exhibit oligopoly characteristics. This is particularly true when one notes the capital barriers that limit entry, the returns to scale (although not great), limited product differentiation, and, from the supply side, the limited amount of traffic that can support only a few carriers. No environment would exhibit monopoly market structures--unless administratively set--such as UPS.

With these general comments, one can return to the economic model (5):

If knowledge is complete, will additional firms enter the industry?

This depends on the probability that the firm, contemplating entry, has only one chance in three of surviving. If there are a hundred firms, it has 100 chances in 101. Hence entry would be more likely in the latter than in the former case.

But if this is so, firms (carriers) will continuously be entering and leaving the industry that can support a large number of firms when that industry is in long-run "equilibrium," and nobody is likely to earn better-than-normal profits over the long run. Firms in the industry would be better off if entry were discouraged by moving price even closer to the optimum firm competitive price than it would be at the optimum price with too many firms. Therefore, this second factor, price equilibrium, operates in the long run to bring the equilibrium price closer and closer to the competition level such that the number of firms earning normal profits becomes larger and larger.

For carriers in the monopolistic competition market structure, price competition will be such that only normal profits can be earned. However, entry would remain difficult in the deregulated environment as there are capital barriers to entry. Major attempts at product differentiation, whether real or contrived, will be attempted. One of our carriers, Helms Express, is complementing its regular LTL service with an extensive consolidation and distribution service. In addition to this new service, they also provide a TL operation. These services are an attempt to differentiate themselves from their primary competitors that only offer one type of the above-mentioned products.

The economic market structure most likely for major LTL carriers is the oligopoly. Carriers operating within the long-haul LTL markets have major capital barriers, few sellers, and some cost economies. With the long-haul LTL carriers, profits would probably accrue at a normal rate. This positive profit growth would continue as long as these carriers increased their freight tonnage and revenues. This positive profit growth is a function of the scale economies and of freight growth. Any downward pressure on prices and the resulting decline in profits expected by some could be caused by new competitors cutting rates as they enter selected markets. The degree of rate reduction, however,

would probably be limited as there is no incentive to greatly reduced rates. If the largest carriers collectively reduced their rates, then they could dictate price and profit levels. This price reduction would, however, hurt them as much as it would the majority of other well-managed LTL carriers.

A diagram of pricing actions and their impacts on profit levels is noted in Figure 1. Diagram A notes the matching of marginal costs, average costs, and marginal revenue. Only limited amounts of profit are earned; no real incentives exist for major investment or growth. This type of pricing action has long been practiced in the owner-operator business; and as recent studies have noted, there has not been any growth in the number of carriers (in this case drivers) over the last three years (6).

Diagram B denotes monopolistic competition with some product differentiation. Examples of this are regional carriers that try to offer different services (assembly/distribution operations, warehousing, container drayage, etc.). These carriers are trying to provide the same basic service, but they are selling a different set of transport attributes to meet their customer needs.

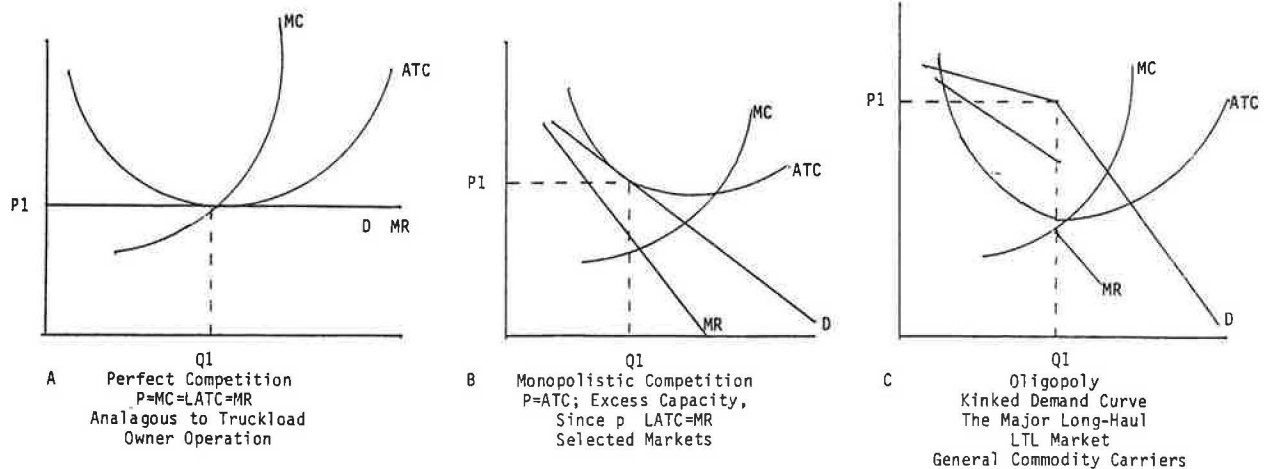
Diagram C depicts oligopoly pricing. Market share and price leadership are critical to growth and strategy development in this market. Prices are generally set at the long-run marginal cost; however, if one carrier attempts to lower price to gain market share, all carriers will generally match that lower price and, as a result, no single carrier is better off--all carriers simply have a smaller revenue base market to divide. To the extent that carriers can compete in nonprice areas, they will. Carriers will also compete in price only if they can earn long-run profits and gain market share. The key, therefore, is to develop market share with price leadership. Price leadership, however, has not evolved at this time in the motor carrier industry.

CONCLUSIONS

The economic and market structure of the for-hire motor carrier industry is undergoing massive changes. These changes, however, are not fundamental but are merely a rationalization of the existing structure. This rationalization involves a shrinking of the number of carriers, greater degrees of product specialization, and more emphasis on market economics.

As for shippers, these changes to the motor carrier market structure have a number of implications. Shippers will be able to negotiate lower rates if these rates can be economically justified, but the number of carriers they will be able to negotiate with will most likely be fewer. The converse is also true: Shippers without economic clout will face higher rates. As a result of these economic imbalances in the rate-negotiation process, many shippers and carriers will be seeking contract rates. This type of an arrangement assures carriers a rate level that earns a profit and, at the same

Figure 1. Market conduct: pricing in different deregulated environments.



time, assures shippers a standard or constant cost for the transport element of their production function.

Shippers will also be offered a number of new or differentiated (real or perceived) products. To evaluate these products, shippers will have to develop their own in-house staff of technical expertise (that calculates the value of these products). It should be noted that some major shippers have already assembled individuals with these kinds of skills. The result is that both carriers and shippers will be developing new expertise to meet the changing transport market structure.

The ability of the for-hire motor carrier industry to grow depends on its ability to integrate itself into shippers' distribution systems. In many instances, this integration will be limited by the shippers' willingness (or unwillingness) to allow carriers to perform more of the distribution functions (e.g., assembly, distribution, and warehousing). In essence, the for-hire industry will evolve into a much smaller industry (number of firms) with a greater degree of specialization. The survival of

any one firm will be a function of its ability to adapt--to be a distribution generalist or transport specialist.

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Implications of Motor Carrier Regulatory Reform for Carrier Planning and Marketing

WILLIAM B. TYE

Some important developments in the structure of the motor carrier industry that are likely to arise from regulatory reform are reviewed and likely changes in the marketing and corporate planning functions for motor carriers are examined. Motor carriers have traditionally been operation-oriented rather than marketing-oriented. However, many past formulas for success are not likely to prove successful in the future. In particular, corporate planning and marketing are likely to be far more prominent tools in future carrier management. A number of issues in competitive philosophy for motor carriers are examined and likely future trends are suggested. The role of maximization of market share as a competitive weapon, changes in corporate communication and responsibility, service and rate trade-offs, and the benefits of a distinctive service concept versus the benefits of a full line of service alternatives to the shipper are considered. Some specific suggestions for motor carrier management to help ease the transition to the new environment, such as a marketing audit, are also examined.

The motor carrier industry, particularly the regular-route sector, suffered a double blow during 1980. Motor carrier traffic was dropping drastically during the recession and, at the same time, the Interstate Commerce Commission (ICC) was holding down rate bureau rate requests and individual carriers were breaking ranks to get a jump on regulatory reform by announcing independent actions that were undermining the less-than-truckload (LTL) rate structure. Meanwhile, President Jimmy Carter signed the Motor Carrier Act of 1980 that promised to pave the way toward elimination of many of the economic regulatory restraints imposed on motor carriers by the ICC. The ICC is currently implementing that

legislation through a series of rulemakings and administrative actions.

The trucking industry is clearly facing its most serious challenge during the 1980s. What is the structure of the industry that faces this challenge? In truth, there is no industry as such, but hundreds of markets segmented by type of firm, nature of service, and geographic territory. Decades of economic regulation had certainly not prevented a considerable evolution of the industry. But one feature was prominent: Regulation highly constrained carriers' strategic and management options in ways not found in the unregulated sector of the economy. As a result, corporate strategic planning was often relatively backward, salespersonship tended to prevail over modern marketing (as it is known in other industries), and management energies tended to be focused on maintaining labor discipline, economizing on costs, and selectively solicitating the most lucrative traffic.

In short, much of the industry at present is, from a management perspective, ill-equipped to meet the challenge of rapid change. This weakness is especially apparent at the level of the medium-sized carrier, in the \$100-\$200 million revenue category. This carrier often found the transition from a smaller to a larger carrier very difficult, especially the development of formal management programs to make the transition from the small, powerful entrepreneurial style of the founder or founders (1). Many do not have the depth of management or experience to adjust to a rapidly changing market environment. The traits that had won the carrier success, such as perfection of routines for performing highly repetitive tasks in a highly labor-intensive industry, now threaten to be its undoing. The old environment called for finding a way of defining efficient, routine, dependable tasks--but the new environment now calls for flexibility and opportunism.

In this paper some major changes in the motor carrier operating environment that are likely to occur as regulatory change occurs are identified and related to (a) changes at the level of the firm, such as carrier management styles, marketing, and corporate planning and (b) changes in industry structure, such as firm specialization or diversification. Although definitive statements about developments in carrier management and marketing are not warranted at this time, the overall direction of change is already apparent.

These changes are not only of interest to carrier management wondering how to make money in the new environment. Changes in attitudes and management decision making are the litmus test of whether legislative and regulatory actions are accomplishing their objectives. Changes in industry structure, corporate organization, and decision making are important considerations for all concerned.

The motor carrier industry is diverse and any generalizations about the industry are likely to be contradicted. In particular, many of the changes predicted here amount to diffusion of approaches already adopted by the innovative managements of industrial leaders. The comments in this paper primarily concern the regular-route general-commodity carrier but they also extend to other sectors of the common motor carrier industry.

POSSIBLE DEVELOPMENTS IN INDUSTRY STRUCTURE

Motor carriers must be prepared for possible dramatic changes in industry structure. Among the general-commodity carriers, the pattern for the LTL, truckload, and small package carrier will differ. Except for unique market segments, the prospect is

for increased decentralization of the truckload business with increased reliance on owner-operators. There will be a role for the well-managed irregular-route carrier who will continue to provide a brokerage role by providing informational and contractual services (similar to household movers and other special-commodity carriers today), but many truckload carriers will have difficulty surviving. The low barriers to entry and the lack of economies of scale (a single owner-operator can often effectively compete with a railroad) mean that this sector will remain unconcentrated.

The LTL sector of the industry may well shrink to a few dozen large carriers, with market share increasingly concentrated in the large, transcontinental group. The big question is whether these carriers will concentrate on the long-haul portion of the business or whether they will undercut the regional carriers with aggregate discounts and other means of underpricing their more specialized competitors.

Regionally specialized carriers will come under increased pressure. Mergers will become more popular as a means of expanding territorial coverage to match the larger carriers. Smaller carriers will exist at the fringes, seeking market segments with special geographic or service needs. Both the smaller specialized carriers and the regional carriers will be required to quickly find a niche in the marketplace or go under.

The changing market environment will clearly enhance the role of marketing in motor carrier operations. Trucking companies will find the competitive environment more complex and will find it more difficult to maintain established market positions. They must stay ahead of their competitors in offering new rate and service concepts. The reactive, defensive approach will mean defeat. Capital turnover (the ratio of revenues to assets) is high in the trucking industry and many carriers are not strongly capitalized. The reaction time to competitive threats is short and inflexible carriers will go under in an amazingly short time. Only by putting marketing at the forefront of the management process will motor carriers develop the flexibility to survive in this environment. Carriers who fall back on standard practices will be disappointed in the marketplace. If they do not adapt their corporate planning and marketing programs to this new environment, they will not make the transition.

Carriers will find that service offerings and rate-making concepts that once served them well may no longer do so. Commonly accepted maxims of corporate strategy, marketing, and planning must be reexamined in the light of the new environment. Carriers need to reevaluate every assumption underlying their corporate programs and reassess the validity of these assumptions. To see the new decisions likely for carrier management, it is useful to examine some of the competitive approaches historically used by motor carriers.

MANAGEMENT ISSUES, FIRM BEHAVIOR, AND INDUSTRY STRUCTURE

My approach to identifying likely developments in the motor carrier industry is to view the issues of marketing and corporate planning from the perspective of carrier management. To determine how the industry will respond to its new freedoms, we must identify how management was constrained by regulation, what new options for corporate decision making will arise, and what new decisions are likely to occur.

Past Successful Programs May Not Work in the Future

As a background to the evaluation of future alterna-

tives for strategic planning, it is useful to review the various ways that motor carriers have historically succeeded. Some have succeeded by focusing on labor discipline, avoiding unionization, or other means of keeping costs under control. This type of carrier often succeeded even when it was in an adverse operating environment from the standpoint of rates. At the opposite end of the spectrum was the carrier that succeeded by focusing its marketing on highly lucrative traffic that could be carried at a profit even if the carrier was at a cost disadvantage. The third model is the entrepreneur that had an idea that fortuitously matched the requirements of his market niche and succeeded through a process of trial and error.

Each of these carrier types needs to review whether its formula for success is transferable to a new, more rate-competitive environment, or whether major changes are required. The motor carrier industry has had a poor record of transferring a successful formula from one environment to another, as the low success rate for mergers and acquisitions amply demonstrates. Merger failures can be explained by (a) a lack of depth in management necessary to increase the scope of operations and (b) the fact that one of the merger partners was usually failing and suffering worse problems than anticipated. But an ill-advised attempt to transfer a successful formula in one operating environment to a totally alien one no doubt explains a fair share of the failures as well. The lesson of these failures should not be learned the hard way. Motor carrier management has often rigidly attempted to transplant success formulas to a hostile environment, too often with little success.

These concerns point to the fact that today's winners may not be tomorrow's winners. A good illustration of this point may be seen with regard to objectives in competitive marketing strategies.

Competitive Marketing Strategy

Carrier management must reconsider the roles of firm size and market share as competitive factors (2,3). In the motor carrier industry, the LTL rate structure created a market environment where maximization of market share was not necessarily a desirable corporate competitive strategy as it often is in other industries. Since all freight was not profitable, carriers with strong market positions tempered the objective of enlarging market share with the goal of profit maximization through solicitation of high-rated traffic and balancing market flows.

Motor carrier marketing strategy must now recognize that traditional marketing plans may no longer be viable. The trend in motor carrier rate making will undoubtedly be toward an LTL rate structure more attuned to individual carrier costs. Thus, seeking greater market share may become a more viable marketing strategy. If rates are based on company costs, it makes sense to go after as much freight as possible.

There is an expression in the motor carrier industry to the effect that there is no such thing as bad freight, only bad rates. There will always be classes of traffic that individual carriers will consider bad freight, because the rates will be based on the costs of a carrier with a competitive advantage in serving that traffic. What is expected to diminish in a more competitive rate-making environment is the cross-subsidization that made the "cream-skimming" strategy of selective freight solicitation so successful. In this new environment, carriers will not be offering tariffs to serve at rates they know to be unremunerative (i.e., the losses to be made up by the solicitation of as much

freight as possible that is above average in profitability).

The emergence of this new strategy, in turn, raises the issue of whether high market share provides a competitive marketing weapon to the carrier. In other transportation markets, for example, many managements believe strongly in the S-shaped curve. The curve is a relation between share of capacity (or, perhaps more correctly, service offerings) and share of market. The theory says that a carrier with a low share of capacity will have an adverse share gap because its share of the market will be even less. This carrier will suffer a lower-than-average load factor (the share of capacity occupied by revenue traffic) and, consequently, unprofitable operations. Carriers believing in the S-shaped curve put their resources into high-share markets and either withdraw from low-share markets, or wage a capacity war to overcome their share disadvantage.

The share gap theory is controversial in the transportation industry and in any case would not translate directly to all motor carrier markets. Perhaps more relevant is the concept that high market share confers the benefits of experience and presence. According to this view, large market share allows a cost advantage (experience) because the carrier is able to take advantage of the learning curve. The learning curve relates the cost of production (or service) to volume and time in a way that is very hard for a new entrant or low-share firm to replicate. Presence may imply many things, such as the marketing advantages that are derived from the inertia of a satisfied group of customers.

Carrier planning for the motor carrier industry must determine where the firm can compete successfully and where it should withdraw in favor of stronger competitors. In doing so, both marketing and cost advantages stemming from high market share must be considered.

Marketing factors that would go into this assessment include possible shipper preference for minimizing the number of carriers used and preference for the faster, more direct, and ubiquitous service that a carrier with high market share might offer. On the other hand, shippers may prefer to deal with a number of carriers offering a variety of service and rate concepts, each tailored to a specific market segment.

Cost factors are also relevant. Carriers with a larger market share may be able to offer substantial rate cuts for volume shippers through aggregate rates or multiple tender rates. They might justify these rate cuts by lower unit pickup-and-delivery costs and more efficient traffic flows over the system (4). A carrier with greater volume might achieve better service, less circuitry, and better load factors because of the greater routing and scheduling flexibility afforded by greater volume.

Implications for Industry Structure

An enlarged scope of management options can significantly change firm behavior and have implications for industry structure. Competitive developments point to the possible vulnerability of the medium-sized carrier that has traditionally not possessed strong corporate planning capabilities. Indeed, until the advent of changes in the regulatory climate, few carriers perceived that they possessed definitive strategic options. Yet it is this carrier that faces the greatest threat in today's marketplace. It will be competing head-to-head in many cases with large transcontinental carriers, some either owned by conglomerates or possessing a great deal of capital for the "shake-out period".

The challenge will be for these medium-sized carriers to develop a corporate strategy to compete against the well-managed larger competitor with a strong planning staff and financial staying power.

Consider some of the possible developments that can affect the specialized, smaller carrier. This smaller carrier must plan how it will respond to a strategy of volume discounts by a major transcontinental carrier. These larger carriers have the potential of undercutting the regional or specialized carrier by offering discounts at the national level. The smaller carrier could easily find its marketing program undercut by shipper decision making at the national level, far away from its geographic base of operations.

Corporate Communications and Responsibility

Job definitions will rapidly shift with changes in the regulatory environment. The new competitive environment in trucking will call for a change in the concept of delegation of authority or at least for more responsive decision making. When competitors can make rate or service decisions with virtually no notice and major accounts can be lost in a matter of days, management will either have to delegate certain decisions or provide a channel of communication and decision making that can respond decisively on short notice.

The example of other highly competitive transportation markets is instructive. Independent owners of tankers or dry cargo bulk shipping have often found it easy to prosper at the expense of larger entities such as the oil companies because they could act quickly to take advantage of targets of opportunity. By the time the decision had passed through the oil company's corporate bureaucracy, the opportunity had vanished because an independent owner had taken it. Analysis of oil company chartering decisions has shown that they consistently make wrong and costly decisions.

The requirement for the development of a mechanism for coordinated companywide decision making existed in a tightly regulated environment as well as in the present one. But this achievement must occur in an environment that will become increasingly intolerant of failure to coordinate company policy. If top management fails to develop an effective mechanism for gathering information relevant to a decision, carefully defining the options, and implementing a coordinated response, the company will have difficulty surviving.

These comments suggest that there is often a direct relation between delegation of authority and corporate rate-making philosophy. Authority has already shifted to some degree from carrier rate bureaus and the ICC to carrier management. Further developments in rate making may well require further delegation down the carrier organization to decision makers closer to the marketplace. To evaluate possible organizational developments, it is useful to review possible developments in rate making.

Service and Rate Trade-Offs

An example of a creative rate-making possibility for the motor carrier industry is alternative service and rate concepts now employed by other transportation carriers. Although not all shippers receive the same service under the regulated common carrier system, regulatory restrictions have historically precluded or discouraged many service distinctions, such as guaranteed or reserved service or space-available service. Motor carriers should consider instituting rate surcharges or discounts comparable to the new fare concepts that emerged in air travel

as a means of improving capacity use, such as the following:

1. Advanced purchase excursion fare (APEX)--The shipper reserves space in advance for a nonrefundable deposit, helping the carrier forecast demand more accurately, position equipment more effectively, and increase load factor.

2. Budget--The shipper reserves space in advance and is guaranteed service but the carrier decides when the shipment will move during a guaranteed service window.

3. Standby--No service is guaranteed but the shipment moves on the next available movement in consideration of a discount (variations could occur depending on who holds the freight).

Need for Distinctive Service

The following options suggest even further alternatives for innovative motor carriers. The secret of success for any motor carrier will be to solidify its market position by occupying a distinctive position in the service and rate space. A carrier providing an indistinctive service in a field crowded with competitors will always be at the edge of extinction with very little warning of developments that could erode market position.

To accomplish the development of a distinctive image, carriers must acquire a far better understanding of the shipper and consignee decision-making process by using traditional market research questions, such as the following [see also the literature on shipper decision making (5-8)]:

1. What is the consumer buying?
2. Why is he or she buying it?
3. Who is making the decision?
4. How is the decision made?

These questions may seem simple but the insights of market research often uncover a complex decision-making process. For example, it may be thought that the shipper is buying space on a truck, but this definition defines service from the perspective of the carrier, not the shipper.

Possible Changes

Dramatic changes in the operating environment will mean that past success formulas may no longer work. Changes are expected in carrier competitive strategies, corporate communications and responsibility, rate-making philosophy and rate structures, and carrier specialization. These changes are likely to be implemented by major changes in corporate planning capabilities.

ISSUES IN MOTOR CARRIER CORPORATE PLANNING

The corporate strategic plan addresses the question, What kind of company do we want to be three to five years from now? Fundamental questions of target markets, product and service development, and changes in company capabilities are addressed. The plan should go beyond the corporate options in the short run that are necessarily constrained by existing markets, services, and capabilities. The ability of carriers to plan transition by means of strategic planning will be a key factor for success in the coming decade. Carriers who fail to develop this capability will be reacting to their environment, which will consist mainly of the opportunities their competitors have not chosen to pursue (9,10).

The following examples illustrate corporate development issues that might be considered in the strategic plan:

1. Merger, acquisitions, divestiture, and diversification;
2. Investments;
3. Lines of business;
4. Rate and service philosophy, marketing strategies, and competitive policy;
5. Personnel development;
6. Finance;
7. Organizational structure;
8. Competitive environment of the industry;
9. Environmental trends, such as the economy, regulation, and technology; and
10. Corporate goals, such as growth.

An explicit strategic plan is a systematic attempt to define alternative corporate actions, future states of the world, and outcomes, together with an explicit evaluation approach designed to optimize decision making for the future. The plan organizes systematically the efforts needed to achieve desired results and measures the results of decisions. It is clear from this description that corporate planning is not widely practiced in the motor carrier industry (11). The new operating environment will require carriers to develop an improved capability for corporate planning. Furthermore, carriers will be required to recruit a new type of manager to implement the planning capability.

A key factor for success for motor carrier management in the 1980s will be the quality of the management in developing entrepreneurial skills and organizational flexibility. While it may be hard to quantify this ingredient of openness to change, excellent managers know it when they see it.

Closely related to this spirit of entrepreneurship and flexibility will be skills in marketing and corporate planning. Today's environment calls for developing a staff capable of planning corporate development. For many carriers, this implies a substantial change in management philosophy.

MOTOR CARRIER MARKETING

The motor carrier industry will experience substantial changes in marketing as a result of regulatory changes. These changes will result from the carrier management and market structure forces mentioned earlier.

Marketing serves as an important cutting edge of carrier competitive behavior. In this paper marketing is defined broadly as an assessment of the needs of the marketplace, capabilities and strengths of the company and its competition, and the carrier's ability to implement a plan to structure the rates and services of the company to meet the challenges of the marketplace.

Any effective marketing plan must start with the customer. The first task is not to sell the customer on what the carrier is providing, but to market what the customer wants by structuring the company to respond to the marketplace (10,12-14). Although effective selling is part of a marketing program, marketing includes assessments of the needs of the marketplace, the capabilities and strengths of the company, the design and pricing of the service, and the implementation of a plan to structure the company to compete in the marketplace.

To implement the concepts of marketing, therefore, top management must start with the following:

1. An appreciation for the changing regulatory and economic climate of the industry and its implications for the company's future;
2. A clear understanding of the company's corporate goals and the strategic plan for accomplishing those goals;

3. An appreciation for what marketing is and how it relates to gathering data, defining competitive alternatives, and corporate decision making; and

4. A commitment on the part of the entire company to make the customer's preferences the starting point for corporate decision making and a recognition of the key role of marketing in today's trucking environment.

It is clear from this discussion that marketing concepts are not as widely practiced in the motor carrier industry as in other unregulated sectors of the economy. An important measure of change in the motor carrier industry will be change in this essential function. One means of monitoring these developments is to review how an individual carrier would perform a marketing audit of the firm's marketing capabilities.

It is not possible to itemize the ingredients of a marketing audit in this short article. Regardless of the format used, the marketing audit should accomplish the following:

1. Identify marketing objectives;
2. Itemize existing marketing organizations, programs, locations of authority, and methods of decision making;
3. Inventory tactics and procedures for implementing marketing decisions; and
4. Diagnose marketing problems and existing methods for corrective action.

A checklist of effective marketing programs and practices should examine the most critical flows of data and market information that should be evaluated to determine the effectiveness of the carrier's current program. The marketing audit should examine each of the flows of information to determine how the carrier collects data about its operations, its customers, and its competition; how marketing decisions are made; and what decisions are made.

Examination of this structure of authority and decision making in individual carriers points to a number of examples of expected changes in marketing practices, some of which have already been noted. These changes in industry attitudes and practices could serve as useful indicators of the changing role of marketing in the motor carrier industry.

The first expected change involves carrier perceptions of shipper preferences. Carriers should be highly skeptical of extrapolating the results of past studies of shipper preferences and decision making in a highly regulated environment to the environment of greater rate competition. For example, surveys of importance rankings of carrier attributes (price, reliability, speed, etc.) in the carrier selection process are highly dependent on the particular observed variation of the service and rate attributes. If an attribute, such as price, has not varied greatly among carriers offering the same or differing service, then shippers will rate service as more important than price in the decision process. A house buyer, for example, who chooses between two identically priced houses with identical attributes except for a fireplace will rate the fireplace as the most important attribute in the choice. But this does not mean that price is unimportant in a more general sense. As the range of service and rate alternatives increases, it can be expected that some market segments will emerge that are far more sensitive to price than past research might suggest.

As noted earlier, the second possible indicator of change lies in the development of new rate and service concepts. In the future, carrier management will give increased attention to the development of

more sophisticated procedures for developing new rate and service concepts, identifying their market potential, testing them, and promoting them on a companywide basis. The life-cycle of new concepts should be identified and procedures should be developed for gathering data and making decisions on innovative rates and services. Evidence in other industries suggests that success rates for new products are low and the cost of marketing failures is very high. Successful motor carriers must address this issue and develop means of coping with the problem.

One of the more interesting marketing debates that will emerge will be between differentiated and undifferentiated service and rate concepts. Motor carriers have generally succeeded by specializing in a very narrow range of service concepts or even a single distinctive service concept. Carrier operations are simplified because the operations department does not have to contend with the complexities of managing flows of traffic classes with substantially different service priorities. (Much of the service failure of certain carriers has resulted from their inability to manage a highly sophisticated hierarchy of service standards.) Further, the shipping public clearly associates the carrier with a unique service concept, rate making is simplified, marketing messages are simplified, and the customer knows what to expect and is less likely to be disappointed. Even a carrier who offers several service concepts might therefore decide to segment the operations and the related marketing appeal. Marketing research suggests that tinkering with the single-service concept is exceedingly risky.

In any event, motor carrier marketing plans will, in the future, consider a far greater range of options than were available under traditional regulatory restraints. Carriers will be increasing their role in services, such as

1. Contract carriage,
2. Distribution and consolidation services,
3. Unconventional interlining or joint marketing efforts,
4. Pooling agreements,
5. Greater worksharing with shippers,
6. Intermodal operations, and
7. Warehousing and physical distribution services.

The likely change in corporate decision making and authority was noted earlier. A third indicator of interest, therefore, is the authority of the motor carrier sales and marketing department within the corporate structure.

As rate making in the trucking industry looks more like an "oriental bazaar", much of the decision making now occurring at the higher corporate level will necessarily be made routinely or in the field, and responsibility must shift among and within carrier departments. In particular, the sales and marketing department will find that a changing marketing environment and the resulting changes in corporate policy will require changes in the role of the motor carrier salesperson. This changed role also implies significant changes in the type of person who is recruited for corporate training programs.

For example, the ethics of collective rate making called for the salesperson not to talk rates. Anticipated changes in the rate-making environment may well call for the sales representative increasingly to participate in a negotiation and contracting procedure with the customer. The sales representative will have to become much better trained in tariffs, rate-making policy, and service options available to the customer.

Carriers may now find that the existing carrier corporate structure combined with a rate-making environment will place inordinate strains on the relation between the sales and marketing department and the traffic department. Demands for rate work to consider customer requests for rate reductions in consideration for their special circumstances (such as customer worksharing) are flooding traffic departments. Effective marketing requires a quick turnaround on a customer request, yet the sheer magnitude of these requests may be overwhelming.

Motor carriers facing this problem have certain short-run solutions available to them. They could hire more staff in the traffic department or make these requests more routinely by developing procedures for computerized handling of computations or develop general policies that will avoid treating each request as unique.

But the carriers must step back and diagnose the real problem. The heart of the problem originates in the role of the motor carrier salesperson and the economics of the rate structure. The historical evolution of these two institutions is simply not responsive to today's marketing environment. The complexity of the rate structure often makes it impossible for the salesperson to communicate company rate policy to the customer without complicated interaction with the traffic department. The requirement for individual consideration of rate requests is caused by the lack of a strong relation between the rate structure and costs. The lack of training of the sales representative and the requirement to coordinate these decisions results in a system with two very bad features--a slow, costly turnaround of decision making and a system in which the customer is negotiating with someone who does not have the authority to make a decision. If the principal direction of motor carrier rate making is toward rates that are more responsive to cost factors, as is already happening, the present system is clearly an anachronism.

The solution obviously must come in two areas--rate structure complexity and sales representative training. As legal restrictions on collective rate making require carriers to set their rates independently, aggressive motor carriers would do well to examine the simplified motor carrier rate structure being used by deregulated carriers in Great Britain (as suggested by D. Daryl Wyckoff). There the major cost factors are used to derive a cost formula that is the basis of a list price. Individual percentage discounts may be offered from this pricing formula. The elements of the formula provide the basis for an amazingly simplified rate structure.

The benefits to the carrier and the shipper are obvious. Rating errors and the requirement for hiring highly specialized individuals in the traffic department would be reduced. The salesperson's job would be vastly simplified because there would only be good freight. The salesperson's training requirements in tariffs would be vastly reduced. However, regardless of the decision of the rate structure, carriers should devote more efforts to upgrading the sales representative's skills, especially in the area of traffic management.

The resistance to these proposals will be great, but the trend is inevitable. As carriers look about them, the evidence from other marketing programs on the value of simplified rate structures is instructive. The largest motor carrier in the country, United Parcel Service, has a rate structure that fits on one piece of paper and can be used by someone with no training whatever. The costing of general commodity traffic is more complex, but the principle is nevertheless valid.

Modern marketing calls for the carrier to rate its strengths and weaknesses relative to its competition by market segment. The essence of the market-segmentation scheme is to recognize that not all decision makers face the same choices or have the same preferences. Organizing this heterogeneous mass into meaningful groups for determining rate and service decisions is the essence of the market-segmentation task.

The motor carrier rate structure is obvious evidence that market segmentation is no stranger to the motor carrier industry, but the advent of regulatory change suggests that traditional market-segmentation concepts must also change. Given the variety of lines of business now served by motor carriers, at this point one can only suggest guidelines for the market segmentation scheme rather than prescribe a format.

Segmentation in transportation marketing differs from segmentation in other markets in a very important way (15). Unlike many other markets, transportation markets must be segmented according to the choices available to the decision maker and the attributes of those choices, as well as the preferences of the decision maker. Other relevant traits for segmentation are profitability, past shipping decisions, geography, shipment size, equipment needs, value of time and reliability, single line versus interline, worksharing, claims record, special handling requirements, and stowage factors (density) (16,17).

Carriers frequently use the traffic lane as a means of market segmentation. Although this approach is helpful in guiding marketing efforts directed at achieving traffic balance, further disaggregation by shipper characteristics is also needed.

Last, but most important, carrier marketing plans must become far more flexible. Successful motor carriers in the past achieved their success usually by either one of two strategies--cost efficiencies or targeting the most desirable freight (with special attention to balancing traffic flows). Rate regulation caused a stable rate structure and discrepancies between rates and costs did not respond immediately to competitive forces. In the future, rate cutting by carriers attempting to gain market share in the most attractive traffic and competitive entry into these more attractive markets can be expected to erode the pockets of profitability in the rate structure. Carriers can no longer depend on highly profitable market segments over a long period of time as the foundation of a marketing program. Rather, armed with good information on their costs, they must constantly evolve their marketing strategy to make quick-response decisions on service and price to maintain a favorable traffic mix.

CONCLUSION

Never has motor carrier management faced a more demanding, yet potentially more rewarding, future. The industry will have new opportunities with which to enhance various aspects of carrier growth and development. Yet, the greater the range of these opportunities, the greater will be the variations in performance. This of course implies even further uncertainty and instability. Nevertheless, it is recognized that innovation and entrepreneurship are the driving forces of the nation's economic system. Motor carrier management will be the place to be in the 1980s for innovative corporate planners and marketing specialists.

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Impact of Railroad Regulatory Reform on Railroad Capital Investment

WILLIAM R. MARTIN

The Staggers Rail Act of 1980 made the most extensive changes in the Interstate Commerce Act in more than 50 years. It represented a major shift in government policy toward the rail industry. This paper examines the probable impact of the act on railroad capital spending. The primary findings are (a) the rate regulation provisions of the act will enable the railroads to improve their profitability, (b) improved profit potential will increase the attractiveness of many investment opportunities available to railroads, (c) the act is unlikely to decrease the industry's cost of capital, (d) increased amounts of money capital should be available for investment, and (e) railroad capital spending should increase. The types of capital projects likely to be affected are also discussed.

Capital needs do not necessarily represent economically justified investments. They tend to include other investments deemed needed or desirable by some other criteria. Not surprisingly, capital needs always seem to exceed capital spending.

For example, one often cited capital need of the railroad industry is the elimination of deferred maintenance. The amount of deferred maintenance is the cost of improving existing rail lines to meet some physical standard. Yet most, if not all, deferred maintenance exists as a result of declining traffic levels and/or declining profitability on particular lines that can no longer generate profits sufficient to justify full maintenance.

As traffic declines, a railroad must reduce its capacity and its investment in that line. It should invest its resources in those parts of its system where sufficient demand exists for rail transportation to cover the cost of those resources. The economically rational way for a railroad to reduce its surplus capacity and redirect its capital to more productive uses is to maintain a line for a lower train speed. Deferred maintenance is thus a healthy and desirable response to changes in transportation demand. Capital needs do not totally represent economically efficient or desirable investments.

This paper, therefore, will focus on railroad capital spending rather than needs.

IMPACT OF REGULATORY REFORM ON RATES

What will rail regulatory reform do? Not too long ago, some people were talking of multibillion dollar efficiency gains (1, p. 66).

Some Widely Held Views

One common belief went something like this: Following a value-of-service pricing approach, railroads and their regulators had held down rates on raw materials and bulk commodities and had kept rates high on manufactured goods and other valuable shipments. Profits from these high-rated items offset low returns on low-rated traffic. But then trucks became competitive and captured most of the high-rated merchandise traffic, leaving the railroads with the less profitable low-rated traffic. Deregulation would presumably allow, or force, the railroads to price closer to cost. The railroads would reduce their rates on high-rated traffic and recapture much of it from the truckers. The supposed existence of both significant economies of scale in the railroad industry and much excess capacity would

make this newly recaptured merchandise traffic highly profitable, even at these lowered rates. At the same time, the industry would raise its rates for the large amount of traffic that was moving below cost. Society would gain billions in this general equilibrium world of cost-based pricing and maximized economic efficiency.

The facts are that the railroads responded to truck competition by holding down rates on truck-competitive traffic. Thus these rates were already governed by competitive forces and are not likely to be much affected by rail deregulation.

An alternative view of rail deregulation holds that bulk commodities such as coal have been highly profitable for the industry and that these profits have been subsidizing other rail traffic--presumably the high-rated goods discussed earlier. (Note that this view is the opposite of the earlier view.) According to this view, deregulation would allow the railroads to exercise their monopoly power to charge unreasonably high rates and cost society huge sums of money. This robber-baron view seems to have some credibility on Capitol Hill. It had a significant impact on the 1980 Staggers Rail Act.

Although the railroads do not face truck competition for lengthy hauls of coal, they do face competition from other railroads who can furnish coal from other areas. This, plus competition from water carriers, tends to hold coal rates to economically reasonable levels. Potential coal slurry pipeline competition will add to this pressure. This competitive effect on rates is demonstrated by the profitability of the railroads most closely identified with coal traffic, such as N&W and C&O. In 1979, N&W earned only an 8.9 percent return on its investments while C&O earned 4.6 percent. Both are well below the industry's 11 percent cost of capital, as determined by the Interstate Commerce Commission (ICC) in 1979 [Ex Parte 363, Adequacy of Railroad Revenue (1979 Determination), 362 ICC 344, Jan. 31, 1980].

It could be argued that these overall returns are not indicative of returns on coal traffic. The returns shown are calculated on the ICC basis, which excludes any significant nonrail income and investment. Coal represented 43.5 percent of N&W revenues and 47.6 percent of C&O revenues in 1979. It is not possible to compute the return on their coal traffic alone, primarily due to the high proportion of joint and common costs involved. Assuming that the effect of any traffic moving below marginal cost is relatively minor and that the ICC 11 percent finding represented at fair return on the companies' net original cost investment base, it is clear that neither company is earning an economic rent on its overall rail operations.

A definitive analysis would require isolation of that portion of the investment base and of the revenues and costs that would be incurred with a coal-only operation. This analytical approach treats coal (or, hypothetically, any subset of the existing coal traffic base) as a base load and other traffic as incremental. I assert that monopoly returns would be earned only if more than 11 percent were earned on either (a) this base-load calculation, or (b) some combination of base load and

incremental traffic. Such a calculation is beyond the scope of this paper. The point here is that neither company is earning a fair return on its rail business as a whole. I ascribe this primarily to competitive forces.

Probable Impact on Rates

I do not believe that rail regulatory reform is going to lead to much higher rates for bulk commodities, or to lower rates for manufactured goods. But I do think it will lead to better rates.

What do I mean by better rates? Several things.

First, rates should be more timely. Increases to offset inflation should occur without as much regulatory lag. Rates should respond more quickly to changes in market conditions. Innovative and experimental rates should go into effect more quickly and should be revised or cancelled more quickly if they do not work as intended. By squeezing some lags out of the system, the industry will improve its competitive stance and its profitability.

Second, innovation and experimentation should become less risky. In the past, regulators have sometimes had a tendency to make the railroads live with their mistakes. Revising or cancelling rates that did not work as intended has sometimes been difficult. Rates deliberately set low to meet some special circumstances have been used in some cases as proof that other rates are unreasonably high. Actions such as these have increased the risks of innovative ratemaking and, thus, have discouraged innovation.

Third, contract rates should enable the railroads to compete more effectively for base-load traffic. It has been difficult for the railroads to pass on the high cost of providing standby, or peak-period, service without driving away regular, base-load business. As a result, the railroads often find themselves providing only standby service while other modes enjoy the base loads. A similar problem exists with unbalanced traffic flows. Other modes have priced and solicited to capture backhaul traffic, while rail has been left with the empty backhauls. This has been a common problem with piggy-back traffic (2).

A fourth effect will be the gradual elimination of rates currently set below cost. This will happen for three reasons.

First, the act requires it.

Second, the railroads will now have the freedom to accomplish this objective. In theory, the railroads have already had this freedom. The ICC rarely has held a rate below what it computes as Rail-Form-A (RFA) variable cost. Unfortunately, Rail Form A used the industry's embedded cost of debt capital as a proxy for the railroad's pretax cost of (total) capital. By using such an unrealistically low estimate of the cost of capital, combined with the use of out-of-date cost figures during an inflationary period, the result was significantly understated cost figures. Thus, a rate determined to be perhaps 105 to 110 percent of RFA variable cost would actually be below the opportunity costs involved.

Third, the act's provisions regarding regulation of intrastate rates (Section 214) will influence rate elimination. A disproportionate share of intrastate rates are below cost (e.g., verified statement of R.A. Robb, North Carolina Utilities Commission, Docket No. R-66, Sub 93, June 1978).

These are just a few of the areas in which I believe the Staggers Rail Act will be helpful in the industry. Other helpful provisions include Section 202 (revised market dominance provisions), Section 207 (revised suspension provisions), Section 211

(permissive limited liability rates), Section 212 (discrimination provisions), Section 213 (exemption provisions), and Section 220 (revised long- and short-haul section). None of these changes will produce sudden dramatic impacts on rail profits. It will require a great deal of slow laborious effort to take advantage of these opportunities.

IMPACT ON CAPITAL INVESTMENT

I think the net effect of all of this will be a slow but steady increase in railroad profitability. But what impact will that have on capital investment? To look at that, it is first necessary to look at what the three major factors are that drive the capital investment process:

1. Prospective return and associated risk of the new investment,
2. Cost of new investment capital to the firm, and
3. Availability of investment funds.

All three of these factors are interrelated, but I will discuss them separately.

Impact on Investment Return and Risk

It would be natural to assume that improved railroad profitability resulting from regulatory reform would also improve the prospective returns on new investments. But not all prospective investments will be affected. Some investments are made purely for the purpose of reducing costs. An example of such an investment would be a new locomotive shop. The return on this investment would be a function of the difference in performing locomotive maintenance with existing facilities compared with performing the same maintenance in the new shop. Regulatory reform will have no direct impact on those savings.

Regulatory reform is, however, likely to increase the profitability of rail traffic and, thus, can increase the attractiveness of projects intended to bring new traffic to a railroad.

The prospective return from a new investment must be balanced against the prospective risk associated with that investment. The impact of regulatory reform on project risk is not clear. I have already discussed how the rail regulatory reform act should make innovative and experimental services less risky. But what about more conventional services that are necessarily the bulk of railroad business? In theory, economic regulation reduces the risk of an enterprise as long as that regulation is fair, consistent, and effective. But I believe that rates on most rail traffic have been governed primarily by competition and that regulation has served only to sporadically disrupt this process. Thus, it could be argued that regulatory reform will actually serve to reduce the business of risk of the railroad industry. Airline and truck deregulation, however, has clearly served to increase business risk in those industries. It seems too early to tell at present whether the same will occur in the railroad industry.

The table below shows the probable impact of selected sections of the act on railroad risk:

<u>Risk Factor</u>	<u>Probable Impact on Risk</u>
Contract rates (Sec. 208):	
New investment risk	Decrease
Rate flexibility	Unclear
Rate regulation (Secs. 201, 202, 203)	Unclear
Inflation-based rate increases (Sec. 206)	Slight decrease
Demand-sensitive rates (Sec. 209)	Decrease

<u>Risk Factor</u>	<u>Probable Impact on Risk</u>
Reciprocal switching (Sec. 223)	Increase
Railroad entry (Sec. 221)	Increase
Intrastate rates (Sec. 214)	Decrease
Rate bureaus (Sec. 219)	Increase

In summary, it seems likely that regulatory reform will tend to increase the returns from new traffic-generating investments, but it is not clear what net impact it will have on risk.

Impact on Cost of Capital

I do not believe regulatory reform will have an impact on the cost of capital. The cost of capital is the weighted average of the cost of debt capital and the cost of equity capital to the firm. The cost of capital is easy to ascertain; it is specified by contract between the investor and the borrower. It is a function of the perceived risk of the investment and of investors' opportunity costs for funds. Similarly, the cost of equity capital is also determined by perceived risk and by investors' opportunity costs. Unlike the cost of debt capital, however, the cost of equity capital cannot be observed directly. The cost of equity capital is the discount rate that investors use when comparing what they expect to be the future return from owning that stock against the present market value of the stock. Of these three variables, we can observe only the market price. Investors' expectations and the discount rate they are using can only be inferred.

The rate investors use of discount expected returns can be expressed as (3, p. 368)

$$E(k_j) = r_f + [E(k_m) - r_f] \beta_j \quad (1)$$

where

- $E(k_j)$ = investors' expected rate of return on security j ,
- r_f = risk-free return,
- $E(k_m)$ = expected rate of return on the market portfolio, and
- β_j = undiversifiable risk associated with security j .

In an efficient market, security prices will change sufficiently to equalize expected returns on securities with equal betas. This expected return $E(k_j)$ thus becomes the opportunity cost of capital for investments with risk β_j . If expected returns from a security were to rise, the security's market price would rise sufficiently to restore $E(k_j)$ to its former (equilibrium) level. Thus $E(k_j)$ would not change if investors' earnings expectations for security j changed. Only a change in the security's risk (β_j), or in market conditions [$(r_f, E(k_m))$], would change the cost of capital.

Rail stocks have enjoyed a tremendous bull market this year. It seems clear to me that investors' expectations of future rail profitability have increased greatly. But, as shown above, increasing share prices that reflect only increased expectations on the part of investors do not imply a change in the cost of equity capital. The cost of equity capital is a function of perceived risk and of security market conditions. So increased investor earnings expectations, by themselves, have no impact on the cost of equity capital.

There is no way to statistically demonstrate that the recent rise in rail stock prices reflects only a change in investor expectations. Clearly, inves-

tors' views of rail stocks have changed dramatically during the past year, and rail regulatory reform is partially responsible. For some stocks, it is equally clear that the increased value of natural resource holdings has also pushed up share values. The boom in export coal has helped some rail share prices as well. But nowhere do I see significant cause for investors to lower their risk assessments for rail securities. As a result, I do not believe that regulatory reform will affect the cost of capital to the railroad industry.

Impact on Availability of Investment Capital

If rail regulatory reform does indeed lead to increased rail profits, then it follows that internal cash generation will be increased and more equity capital will be available for investment. Until very recently, internally generated funds were the only source of equity capital available to most railroads. Financial managers and investors look with disfavor on new equity issues priced below book value. Limited profitability also served to reduce the amount of debt that the railroads could safely carry and, thus, limited the availability of debt capital as well. Increased internal cash generation will increase the amount of equity capital available for new investment and strengthen balance sheets enough to allow increased borrowing.

Another source of equity capital is opening up to railroads. Increased investor expectations have recently increased rail stock prices significantly. In fact, recently, several railroads have successfully sold new equity-related securities. This has been a healthy trend and has encouraged and enabled greater railroad capital investment. Class I railroads' capital spending nearly doubled between 1976 and 1979. Increases in investor expectations have not lowered the industry's cost of capital, but they have increased the availability of capital to the industry.

General Impact

Three significant factors affect the general impact of the trends noted here:

1. The returns, but not the risks, on many rail investment projects are likely to be improved by rail regulatory reform.
2. The cost of capital to the industry is not likely to be significantly affected by regulatory reform.
3. The anticipation by investors of significantly increased rail earnings has made greater amounts of investment capital available to the industry.

Thus, the industry will have more, but no-less-expensive, investment capital available to it for investment in projects that will probably be somewhat more attractive. Clearly this implies a significant increase in rail capital spending.

IMPACT ON INDIVIDUAL TYPES OF NEW INVESTMENTS

The following discusses the likely impact on each of five different categories of new investment. No project fits neatly into just one of these categories, but they are useful for conceptual purposes. The five categories are maintenance, cost reduction, capacity increases, revenue increases, and regulatory requirements.

Maintenance

Maintenance is not usually treated by accountants as

a capital expenditure. In the railroad industry, of course, a portion of fixed plant maintenance spending gets booked as capital, but most is treated as an operating expense. Functionally, I believe that maintenance is a capital expense. Maintenance represents resources invested now in order to obtain some benefit in the future. In the case of locomotive overhauls or track rehabilitation, those benefits are expected to be received for some years. These long-lived maintenance expenditures are functionally no different than many capital expenditures, and I believe they should be viewed in the same way. Earlier in this paper, I discussed deferred maintenance as the rational way to reduce plant capacity in response to declining profitability. It seems obvious that, if rail regulatory reform improves rail profitability, maintenance expenditures will be increased as well.

Cost-Reducing Projects

Rail regulatory reform will not increase the attractiveness of cost-reducing projects, but it will increase the funds available for them. Also, I believe that improved rail profitability will generate more optimism among rail employees and managers, and this is likely to lead to an increase in investment in cost-reduction projects as well.

Projects to Increase Capacity

It seems clear that these expenditures will become more common if the industry is successful in winning back traffic from other modes. The extent to which the industry will be successful in this area is dependent on many factors far beyond the scope of this paper. I will only point to the obvious--the railroads will increase capacity as required if profitable traffic is there.

Investments Required by Regulations

By this, I have in mind safety and environmental regulations, not economic regulations. There should be no direct connection between rail regulatory reform and increased spending on environmental or safety projects, but some indirect effects are possible. Improved railroad profitability could conceivably make the industry a more vulnerable target for those who push uneconomic expenditures in the name of increased safety. I hope that government will resist such pressures.

CONCLUSION

I see a potential for significantly increased railroad capital spending during the next decade. This increase has already begun, as a result of expectations of increased rail profitability. But expectations will not sustain an investment boom for very long. The 1980 act must be implemented in a manner that leads to improved rail profitability. The 1980 act will probably turn out to be only a good first step in the process of restoring rail financial health. Much hard work remains.

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Implications of Regulatory Reform for Intermodal Competition

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The Motor Carrier Act of 1980 will probably contribute only minimally to improved vehicle use and associated operating efficiency and will do little to strengthen the competitive position of motor carriers. However, the dynamic effects of increased competition from liberalized entry provisions and a greater emphasis on independent pricing will exert pressure for rate decreases, thus increasing the competitive strength of motor carriers. The overall effect may be some rather modest diversion of traffic from rail to truck. Given the revenue needs of the railroads and the context and objectives of the Staggers Rail Act of 1980, rate increases will almost certainly predominate over decreases in the post-legislation period due to provisions dealing with profit-maximizing freedom, the elimination of rates below cost, and surcharges. The Staggers Rail Act has little implication for costs and service performance. The contract rate provisions of the Staggers Rail Act may be more significant competitively than the pricing flexibility provisions. Experience with contracts is thus far too limited to generalize about their likely future impacts.

During 1980, the U.S. Congress passed and the President signed into law the Motor Carrier Act of 1980 and the Staggers Rail Act of 1980, two reform measures designed to reduce government regulation and

place greater reliance on competitive market forces to determine the quantity, type, and price of available transportation services. The objective of this paper is to assess the implications of these measures for intermodal competition.

The analysis reviews the manner in which both acts influence the internal structure of the respective modes (i.e., rail, truck, and coordinated rail-truck or piggyback). From these direct effects, intermodal implications can be determined.

Some critical questions considered are the manner in which the legislation changes the efficiency of the respective modes and, hence, influences the prices and services each makes available. Also, the analysis includes an assessment of various provisions with direct impact on existing pricing strategies and levels for each mode. The effects of the legislation on each mode are then combined to determine the intermodal consequences. A major consideration is the sensitivity of traffic allocations to

modal price relations that may change as a consequence of the legislation.

INTERNAL RAILROAD EFFECTS

The fundamental objective of the Staggers Rail Act, as stated in Section 3, is "to provide for the restoration, maintenance, and improvement of the physical facilities and financial stability of the rail system of the United States." This concern for the future of railroads stems from a recognition by Congress of the industry's long-term depressed earnings that are insufficient to generate funds for necessary capital improvements. Without higher earnings the railroad industry will undergo further deterioration or require additional federal subsidy. The main provisions of the act are directed at removing government regulations that have become unnecessary and inefficient and, consequently, have contributed to the industry's depressed earnings. Thus, by reducing regulatory burdens the industry will be in a position to improve its earnings performance.

The primary focus of the act is to reduce and/or eliminate the role of the Interstate Commerce Commission (ICC) in determining railroad rates. With ICC influence minimized, the expectation is that, due to their poor financial condition, railroads will concentrate on rate increases in contrast to rate decreases designed to attract traffic now handled by motor carriers. Thus, to the extent that the act facilitates such rate increases, competitive shifts of traffic from truck to rail are not an anticipated outcome.

The focus of this section is to analyze the act to determine whether the expectations are justified concerning a greater tendency toward rate increases rather than competitively inspired rate decreases.

Provisions Facilitating Rate Increases

Provisions of the act regarding the reduction of ICC control over railroad rates, as well as those dealing with surcharges on joint rates, will facilitate rate increases rather than competitively inspired rate decreases.

Title II of the act eventually removes the ICC from the regulation of railroad rates except in two situations: (a) where a rail carrier has market dominance over the transportation to which a particular rate applies or (b) where a rate fails to contribute to the value of the firm by being below the variable cost of the service. In all other cases, the carriers have the opportunity to adjust their rates in whatever manner they wish. The underlying assumption is that the existence of competitive alternatives to rail transportation (i.e., the absence of rail market dominance) will restrain unjustified rate increases. That rate increases rather than rate decreases are anticipated stems from the general depressed level of railroad earnings and, consequently, the need for more, not less, revenue as well as the fact that traffic not under ICC regulations, by its definition as non-market dominant, have lower revenue-to-variable-cost ratios than market-dominant traffic. The railroads are simply not in a position to lower revenues on such traffic through extensive rate cutting without further deterioration of their already depressed earnings.

The act does maintain, however, ICC regulatory control over rail market-dominant traffic. Despite a continuation of regulation, the act provides the railroads with ample opportunity to increase rates on this traffic. They are allowed to adjust rates quarterly without challenge on the basis of a rail

cost-adjustment factor calculated by the ICC. In addition, the act creates a zone of rate flexibility during its first four years (until 1984). Within the zone, carriers are permitted to increase their cost-adjusted rates without challenge as to their reasonableness as long as the increases do not raise the revenue-to-variable-cost ratio on traffic by 20 percent during any 1-year period or bring the ratio up to the threshold level for the determination of market dominance or 190 percent of variable costs, whichever is less. After 1984, the rate flexibility zone becomes smaller and is limited to carriers without adequate levels of earnings. It is anticipated that railroads will take advantage of the rate increase due to their depressed earnings and that such traffic, being market dominant, has an inelastic demand.

The second area in which the ICC still maintains authority regarding railroad rates under the act concerns situations in which the rail rate fails to contribute to the going-concern value of the firm by being below variable costs. After filing a complaint that a rate is in violation of this provision, the ICC will make a determination and, if the rate is found to be below variable costs, it will order the rate to be raised to the minimum level required by the act. Obviously, this provision of the act results only in rate increases and, consequently, will not bring about traffic shifts from truck or barge to rail.

At the three-digit Standard Transportation Commodity Code (STCC) level, there are various commodities in which the rail revenues were either below variable costs or only, at most, 10 percent above them in 1976. These results, based on an analysis of the 1976 railroad waybill sample (supplemented in that year with cost data for each waybill), are given in Table 1 (1). The list, restricted to commodities with at least 250 waybills in the sample, includes bulk items, such as crushed or broken stone, as well as manufactured goods, such as miscellaneous furniture or fixtures. Table 2 (2) gives the railroad share of the total traffic for the commodities listed in Table 1 that are also included in the Census of Transportation (2). Table 2 shows rail market shares varying from very high levels (in excess of 80 percent) for railroad equipment to low levels (21 percent) for miscellaneous furniture or fixtures. It is anticipated that rate increases might adversely affect rail market share for those commodities where rail share is currently medium or low and may have little or no effect for the rail-dominant commodities.

Another provision of the act facilitates rail rate increases by authorizing, under certain circumstances, the imposition of a surcharge in a joint rate situation by one carrier without the concurrence of the connecting carrier or carriers. The surcharge provision is designed to guarantee that no rail carrier will be forced to transport traffic in a joint rate situation if its share of the revenue, including any surcharges, is not at least 110 percent of its variable costs. The surcharge opportunity, however, is not available to carriers earning adequate revenues on lines that carried more than 3 million gross ton-rules of traffic per mile in the preceding calendar year. Furthermore, the provision includes a number of restrictions on imposing surcharges to protect small connecting carriers from being priced out of the traffic because of the surcharge by large carriers with alternative routes for the same traffic on which no surcharge is imposed. To date, as expected, the Consolidated Rail Corporation (Conrail) has been most active in filing surcharges in joint rate situations. Its surcharge activity has thus far involved furniture shipments,

Table 1. Commodities with low revenue-to-variable-cost ratios.

Commodity	No. of Waybills	Avg Revenue-to-Variable-Cost Ratio
Primary forest or wood raw materials	8199	0.82
Grain mill products	6897	1.05
Crushed or broken stone	3871	0.94
Chemical or fertilizer minerals	3026	0.77
Gravel or sand	2808	1.08
Converted paper or paperboard products	2393	1.09
Railroad equipment	570	1.08
Containers, shipping, returned empty	417	1.04
Fresh vegetables	380	1.07
Trailers, semi-trailers, returned empty	299	0.64
Miscellaneous furniture or fixtures	295	1.03

Table 2. Rail market share of commodities with low revenue-to-variable-cost ratios.

Commodity	Share (%)		
	Rail	For-Hire Motor Carrier	Private Truck
Railroad equipment	84.09	15.15	0.67
Converted paper or paperboard products	58.81	30.15	8.94
Primary forest or wood raw materials	50.10	0.55	49.24
Miscellaneous furniture or fixtures	21.47	39.72	38.17

coke (a coal by-product), and beer.

Provisions Facilitating Rate Decreases

The major exception to the general tendency for the act to expedite rail rate increases is the provision dealing with rail contract rates. Such rates had not been authorized until the ICC issued a policy statement in 1978 declaring that they would no longer be automatically rejected. The Staggers Rail Act formally authorizes railroads "to enter into a contract with one or more purchasers of rail services to provide specified services under specified rates and conditions" provided the contracts meet certain requirements. Some of the railroad contract requirements are that it will not (a) unduly impair the ability of the contracting carrier to meet its common carrier obligations, (b) harm a particular port due to unreasonable discrimination against the port resulting from the contract, and (c) unreasonably discriminate against shippers of agricultural commodities (including forest products and paper) due to a carrier's refusal to enter into a contract with them for the transportation of the same commodity under conditions similar to the proposed contract if the shippers are ready, willing, and able to enter into such a contract. Obviously, contracts between railroads and shippers generally should result in a combination of lower rates, better service through the dedication of equipment to perform the contract, better ability to plan the use of freight cars, and higher earnings to the railroads from the economies achieved.

The following list (from Rail Services Planning of the ICC, September 19, 1980) gives the commodities and services involved in rail contract rates that had been filed with the ICC prior to the Staggers Rail Act:

1. Reduction of empty movement of multilevel flatcars assigned to transport set-up motor vehicles;
2. Freight of all kinds--trailer on flatcar (TOFC);
3. Mineral wool--assured car supply and service standards;

4. Sheet steel--annual volume rates with guaranteed car supply;
5. Coke--95 percent of tonnage with allowances for late shipments;
6. Cement--annual volume in shipper-owned cars;
7. Corn--soybeans for export (trainload rates);
8. Import steel wire, cable--guaranteed car supply;
9. Concrete pipe or fittings--TOFC; and
10. Wheat--trainloads, annual volume, and joint line service.

Since the passage of the Staggers Rail Act, only one additional contract has been filed with the ICC. The commodities covered by contract rates thus far range from bulk commodities such as coke, wheat, and corn to manufactured items such as motor vehicles. Table 3 (2) provides rail market share data for those commodities, covered by contract rates, that are included in the 1972 Census of Transportation. As shown for some commodities (e.g., coke), railroads already have a very high market share and the contract rates may be viewed as an attempt by railroads to solidify their market position. For the other commodities, such as mineral wool, cement, and steel wire, rail market shares are below 30 percent and the contracts appear to be attempts by railroads to secure traffic gains from motor carriers or private trucks.

To the extent that the Staggers Rail Act facilitates rail contract rates motivated by a railroad effort to secure competitive traffic gains, there could be some intermodal shifts from truck to rail. The major unanswered question, then, is the extent to which railroads will use contract rates to compete aggressively with motor carriers to secure traffic gains. One caution is that the Staggers Rail Act clearly states that antitrust laws still apply to railroad-shipper contracts. As such, there is some reluctance by railroads to enter into some contracts that cover highly competitive products. The extent to which this provision will limit contract rates is highly speculative.

Although of less importance than the contract rate provision, the provision of the act that concerns rate bureaus may indirectly expedite a specific type of rate reduction. The act prohibits rate bureaus from permitting a rail carrier "to discuss, to participate in agreements related to, or to vote on single line rates proposed by another carrier." The only exception to this prohibition concerns general rate increases and broad tariff changes if, in such circumstances, the ICC determines that enforcement of the prohibition is not feasible.

If the prohibition leads to an increase in which such rates are independently determined, there exists a potential for competitively inspired rate reductions in certain circumstances. For example, under present rate bureau control, all available railroad routes between two points have the same rates for the movement of a given quantity of a particular commodity, regardless of the characteristics of the route (i.e., traffic density, length of route, and physical terrain) that affect the cost of providing transportation. If rates were independently set, then perhaps carriers with an advantageous route between two points would lower rates to reflect the available cost advantage. The rate decreases may be competitively inspired and result in traffic shifts from truck to rail.

The act also gives the ICC authority to exempt a rail transaction or service on determination that it is either of limited scope or is not needed to protect shippers from the abuse of market power. Such a transaction or service, it is assumed, would involve the transportation of non-market-dominant

Table 3. Rail market share of commodities covered in contract rates.

Commodity	Share (%)		
	Rail	For-Hire Motor Carrier	Private Truck
Mineral wool	26.02	58.89	14.77
Sheet steel	41.98	48.07	3.52
Coke	73.03	15.48	11.10
Cement	20.45	49.67	23.02
Steel wire, cable	16.99	61.50	18.21

traffic as defined by the act. Other provisions of the act already provide the railroads with the opportunity to set any rate they desire for such traffic; thus, the additional exemption authority given to the ICC will not provide railroads with any more pricing flexibility. However, the exemption of traffic from regulation will result in the removal of its antitrust immunity. This may result in more rate flexibility, stemming from removal of rate bureau participation, than would occur with the granting of rate freedom without the removal of antitrust immunity. However, speculations about the intermodal competitive consequences of the exemption provision are very difficult since the type of exemptions that the ICC will pursue is not apparent.

It is not anticipated, however, that the combined effect of these provisions will offset the tendency of the act to facilitate rate increases rather than decreases. As a result, the major consequences of the act will not be to generate shifts in traffic from truck to rail.

INTERNAL TRUCKING EFFECTS

The objectives of the Motor Carrier Act, particularly as they differ from those underlying the railroad legislation, significantly condition the types of responses that may be expected from the industry. The central theme was the substantial substitution of competitive market forces for mandatory rules of regulation. The expected payoff from this reorientation was generally lower rates arising from increased static efficiency from elimination of operating restrictions, from enhanced dynamic competitive pressures bringing lower costs, and from more competitive pricing associated with the limitations on rate bureaus. These gains were to be achieved from provisions dealing with entry control and rates that help small shippers and are mindful of energy goals.

In speculating about the potential effects of the trucking legislation, the industry's several segments must be separately considered. The regular-route general-commodity carriers provide both less-than-truckload (LTL) and truckload (TL) services. Some of their TL services are closely integrated with LTL operations while others are conducted quite independently through subsidiaries. The latter overlap closely with (and are a part of) the TL services of the irregular-route special-commodity carriers. The contract carriers overlap with both the irregular-route special-commodity services and with private carrier operations. Another quasi-segment is composed of the independent owner-operators, some of whom specialize in exempt agricultural product carriage with incidental leasing to certificated operators while others are more fully committed to leasing. Through leasing, they are particularly identified with the irregular-route carriers and with the TL subsidiaries of the regular-route carriers.

Entry Effects

The entry provisions of the Motor Carrier Act in-

clude those that produce a general relaxation of entry requirements as well as those that deal with specific aspects of entry control associated with operating restrictions. The broad relaxation is also accompanied by provisions that permit some new entry with only a fitness test and that broaden the agricultural exemption. These entry control provisions are designed to improve operating efficiency by enhancing vehicle use through more favorable load factors that are a function of the share of vehicle miles operated under load and the extent to which the full capacity of the vehicle is then used. A significant determinant of this performance measure is the extent that empty backhauls are problems. It is significant for purposes of this evaluation to recognize that efficiency gains from eliminating empty backhauls depend strictly on the logistical requirement of matched empty movements in opposite directions in substitutable vehicles. The entry provisions may also trigger dynamic structural changes in markets from new entrants and the introduction of additional capacity. These dynamic forces may also have load factor implications that alter intermodal competitive relations.

Speculation about potential impacts of this act on intermodal competition requires consideration of responses within the various industry segments and the associated intersegment effects. The LTL component of the regular-route carriers' operations, which is intimately associated with complex networks and terminal nodes, is not relevant for intermodal consideration except as it affects integration with TL services. According to available data, these integrated LTL-TL services enjoy a load factor of about 90 (which approaches a practical maximum). These data indicate a load factor for the regular-route carriers of about 85 (3). If the irregular-route special divisions realize a load factor comparable to that indicated for the irregular-route carriers (about 70), the integrated LTL-TL factor would approach 90. This favorable performance is due to the benefits of integration and to the apparent elimination of operating restrictions over the years by purchase and certificate modifications. The load factor ceiling of around 90 is attributable particularly to structural factors involving the overall balance of traffic flows to and from particular markets and to operating heuristics that require repositioning vehicles for service reasons. According to these indications, there is little prospect for efficiency improvements in the TL element of the integrated services of the regular-route carriers.

Efficiency gains (unreflected in load factors) arising from the elimination of operating circuitry mandated by the act may be possible. However, this restriction has been substantially eliminated and further gains from this source are estimated to be modest according to a recent study (4). The study also foresaw modest efficiency gains from the mandated investigation and elimination of restrictions on a case-by-case basis, including commodities, intermediate points, and backhauls. These findings are confirmed by the relatively and absolutely high load factors realized by the regular-route carriers in their integrated TL-LTL operations.

Since these TL operations are closely tied to the terminal nodes and associated network of LTL services, minimum market invasion under the relaxed entry rules may be expected. There may, of course, be some entrance into new markets that can be served with an existing terminal system and, in the less likely case, where the opportunities appear great enough to warrant network extension with a new terminal. Such moves, however, are apt to reduce load factors in the entered market. The case for

the specialized TL operations of these carriers is appropriately considered along with those of the irregular-route special-commodity carriers since they essentially fit into this category.

The load factors of these carriers is much less favorable, in the vicinity of 70 to 75, according to available data (3). The opportunity for increasing this performance nevertheless appears to be slim. The trucking industry is generally regarded as highly competitive. The entry policy recently pursued by the ICC has done much to round out two-way operations and could hardly be more liberal under the new act.

These specialized operators are not involved significantly in commodity authority or intermediate point problems. They have been involved in the circuitry problem only in connection with the gateway restrictions where liberalizing action has already been taken by the ICC. Significant efficiency improvement appears to be unlikely.

According to the foregoing indications, the entry provisions of the act will not have much impact on load factors and vehicle use of the irregular-route special-commodity carriers, although further consideration of this potential is required in connection with their association with independent owner-operators.

These observations should apply equally to the specialized (nonintegrated) TL business of the regular-route common carriers. The efficiency opportunities from trade-offs between these operators and the irregular-route carriers depend on the fundamental logistical requirement of opposite-direction empty hauls that are homogeneous with respect to vehicle type and commodity availability. But with the minor potential for improved vehicle use (and load factors) for regular-route carriers from the backhaul factor and the liberal backhaul authorizations accorded to the irregular-route carriers, the efficiency opportunities do not appear to be promising. The regular-route carrier integrated TL business is characterized by less regular and heavy volume traffic than the irregular-route carriers typically haul. Furthermore, they would not have the benefit of the integrated LTL traffic base to permit successful invasion.

There are reverse indications for the impact of the regulation on the private carriers and, in turn, on the other trucking segments. On the one hand, private carriers will be able to obtain operating authority within the limits of the "Toto" decision (Toto Purchasing and Supply Co., Inc., Common Carrier Application, March 10, 1978). With a captive traffic base, they will have the opportunity for load factor improvements largely at the expense of common carrier load factors. While this trade-off may be neutral or even beneficial for the system as a whole, it cannot protect common carrier customers from potentially adverse pricing effects. The exception would be in the logistical foundation case of opposite-direction homogeneous empty hauls, where the system and common carrier customers would gain. Such opportunities appear to be limited, however, in view of the liberal backhaul grants to the irregular-route carriers and the high load factors and limited backhaul potential gains for the regular-route carriers. However, marginal changes in the private carriage industry could have large impacts on common carriers, since the former is very large compared with common carriers.

On the other hand, the act may encourage some private carrier traffic to return to the common carriers. While this would apparently be minor, efficiency gains from improved common carrier vehicle use and competitive price reductions could result, as suggested in the subsequent pricing

discussion. But empirical evidence indicates that most private carriage is undertaken for service, rather than pricing, reasons (5).

It appears that, on balance, the legislative impact on private carriers and thus on the regulated sector of the industry and intermodal competition will be modest.

In combination with the ICC's new policy with respect to dual authority, the statutory invalidation of the "rule of 8" will provide special advantages to contract carriers. In view of the limited common carrier effects that have been described, there may be a real gain relative to the common carriers. With their generally heavy loadings and long hauls, this may intensify intermodal competition (6). The contract carriers will probably blend in with the irregular-route common carriers and realize the limited static efficiency effects that were described for that segment.

The independent owner-operators do not constitute a true "segment" to correspond to the irregular and regular-route common carriers. This element overlaps these regulated segments by leasing capacity to them. But it also embraces the exempt component that specializes in hauling agricultural products. These owner-operators were given special consideration in the act and they also may be affected by the more generalized provisions that liberalize entry. The basic question is the impact of the changed regulation on their relation to the rest of the trucking industry and thus on its competition with railroads.

The special provisions responded to the general expectation that exempt haulers frequently return empty and hence have very poor load factors, thus contributing to economic waste and to the operator's financial instability. The primary provisions of interest are the fitness-only test for processed food and fertilizer and the extension of the agricultural exemption to cover feed, seed, and plants moving to agricultural sites or businesses. Statutory and other qualifications limit the effectiveness of these provisions and their implications for intermodal competition. The fitness-only test for processed food and fertilizer applies only when the vehicle owner is the driver, and these commodities cannot constitute more than 50 percent of the owner-operator's annual volume. Furthermore, recently available data indicate that the exempt carrier component of owner-operators does not have unusually low load factors but reaches the 70-75 range that characterizes irregular-route and contract carriers. Return hauls are associated primarily with leasing of vehicles to the irregular-route special-commodity carriers. While vehicle use gains may be modest, there may be pricing implications (discussed later) from the fitness-only and exemption provisions.

Rate Effects

The primary rate provisions are (a) the zone of reasonableness that permits uncontested increases and decreases of 10 percent annually (with qualifications) and (b) the limitation on rate bureau powers. The mandatory prescription of joint rates between truckers with barge lines appears to have limited implications for intermodal competition.

The preceding discussion indicated that the prospects for substantial efficiency advances from improved vehicle use are modest at best, providing little basis for rate reductions and increased competitiveness. Consideration must be given, however, to the pricing effects of dynamic competitive pressures in combination with the weakened rate bureau role.

The regular-route general-commodity carriers are most likely to reflect such pricing pressures. There is evidence, however, that there is significant price competition in the integrated TL component of this segment. Independent actions account for 43 percent of the total actions of the rate bureaus serving these carriers. Some 80 percent of these independent actions apply to TL traffic (7). While this indicates substantial current price competition in this intermodal area, pressures are apt to increase with the curtailment of rate bureau activity.

With TL-LTL integration, potential LTL rate movements have uncertain implications for TL rates. Rates for the smallest shipment sizes are allegedly held too low by regulations and are accordingly apt to increase. On the other hand, there is reputedly little active price competition in the LTL component, which suggests reductions in these rates and thus pressure for countervailing increases in the TL rates.

As previously indicated, the rates of the irregular-route special-commodity carriers are generally regarded as competitive. However, the new owner-operator freedom to carry processed food, fertilizer, feed, and seed may enhance price competition to the extent that this track is more profitable than leasing. However, there are severe limitations on the freedom of transporting processed food and fertilizer. Furthermore, feed and seed transportation to agricultural sites and businesses is not a likely area of intermodal competition.

Private carrier gains outlined previously may add competitive pricing pressures. In summary, however, pricing effects of the act relevant for intermodal competition appear limited. The discernible effects are apt to result in reductions that encourage the diversion of traffic from rail to truck. However, the ultimate result, to be considered later, depends on the types of commodities affected and the sensitivity of traffic allocations of these commodities to changes in intermodal rate relations.

TOFC AS A COMPETITIVE FORCE

Specific provisions of the rail and truck acts may encourage TOFC development and thus have an impact on intermodal competition. The Motor Carrier Act eliminates the requirement that a trucker have operating authority to serve ramp points in order to use piggyback. The general exemption authority of the ICC granted in the Staggers Rail Act has potential implications for TOFC as an intermodal competitive force. The ICC has exempted from regulation the rail and truck services provided by railroads in connection with TOFC movements that would enhance its competitive potential [Ex Parte 230, Sub. 5, Improvement of TOFC/COFC Regulation (8)]. Furthermore, the fast growth of TOFC in Canada has been attributed previously to greater pricing flexibility and not to intermodal ownership as commonly credited (9). The two statutes together offer greater trucking freedom. The rail exemption and greater pricing flexibility should thus have a stimulating influence on TOFC as a competitive force.

CONCLUSIONS

The Motor Carrier Act will probably contribute only minimally to improved vehicle use and associated operating efficiency and thus will do little to strengthen the motor carriers' competitive position. However, dynamic effects of increased competition from liberalized entry and greater emphasis on independent pricing will exert pressure for rate decreases and increase the competitive strength of

the motor carriers. The overall effect may be some rather modest diversion of traffic from rail to truck.

There is little reason to expect any offsetting effects from the Staggers Rail Act due to the greater rate flexibility it provides. Given the revenue needs of the railroads and the context and objectives of the act, rate increases will almost certainly predominate over decreases because of profit-maximizing freedom, elimination of rates below cost, and surcharges. The Staggers Rail Act has little implication for costs and service performance. Furthermore, any efficiency advances realized will probably be absorbed primarily in profit improvement rather than be applied to rate decreases.

The contract rate provision may be more significant competitively than the pricing flexibility provisions. Some of the contracts filed thus far (prior to the act) appear to be competitively motivated. With the other motives apparent in many of these contracts, however, it is unlikely they can offset the price-increasing emphasis of the statute and the less favorable competitive position.

With TOFC exempted from regulation (including associated rail-owned trucking operations), optimal conditions have been established for its emergence as a competitor to both boxcar and straight-truck service. In fact, this potential development may represent the major effect on intermodal competitive relations. However, crediting the Staggers Rail Act with this possible effect is questionable, since it is quite possible that the ICC could have (and perhaps would have) exempted TOFC under the exemption provision of the Rail Revitalization and Regulatory Reform Act of 1976.

Excluding the uncertainty regarding the TOFC exemption and its possible competitive impact, the two acts together will barely change the intermodal competitive situation. The effect on relative rail-truck prices appears to be minimal and the influence of this variable on modal choice is, in any case, questionable (10-12). The railroads' competitive position is dictated primarily by service problems stemming from inherently complex production operations. The Staggers Rail Act may, however, provide the railroads with revenue relief that will ultimately assist in solving the service problem and thus, in the long run, affect intermodal competition.

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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

DAVID S. PAXSON

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 ^a (\$ billion)	All Specialized Carriers ^b (\$ billion)
Operating revenue		
TL and LTL carriers	19	11
TL carriers ^c	3.8	9.9
Net income		
TL and LTL carriers	0.60	0.32
TL carriers ^c	0.12	0.29

^a20% TL.

^b90% TL.

^cCalculated.

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	Irregular Route (Van)				
	Regular-Route Teamster ^a (\$)	Owner-Operator ^b (\$)	Company Union Driver ^a (\$)	Company Nonunion Driver ^a (\$)	Exempt Owner-Operator ^c (\$)
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

^aSalaries include fringe benefits (25 percent of base wage).
^bBase case.
^cReefer.

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 ^a	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 ^a	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 ^a	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.
^aIncludes 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 invariate, 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.

<u>Commodity</u>	<u>Union Drivers (%)</u>
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:

<u>Region of Load Origin</u>	<u>Union Drivers (%)</u>
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 non-cooperative 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

BYRON NUPP

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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Need for Future Regulatory Reform of Rail and Motor Carrier Industries

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The Motor Carrier Act of 1980 and the Staggers Rail Act of 1980 will result in significant reform of economic regulation of the respective industries. Further legislation changes will be necessary, however, to achieve the most efficient regulatory framework. Provisions that create intermodal inequities, increase risk, limit managerial flexibility, stifle innovation, and cause distortions in economic decisions should be revised or eliminated. This paper highlights those aspects of rail and motor carrier regulation that require future legislative and administrative attention and action.

In 1980, the motor carrier industry and the railroad industry experienced substantial regulatory reform as a result of the passage of the Motor Carrier Act of 1980 (July 1, 1980) and the Staggers Rail Act (October 14, 1980). Although the extent of regulatory changes will not rival those seen since the deregulation of air cargo in 1977 or the changes developing during the gradual deregulation of the air passenger industry, the new bills represent significant and positive steps. On the whole, both bills will improve the economic efficiency of the industries under regulation, but the work of regulatory reform is not complete. Provisions remain that will continue to cause inefficient distortions. New provisions have been introduced that may be improvements but that have a set of associated effects themselves. Those aspects of rail and motor carrier regulation that require future legislative attention and administrative action are highlighted here. In particular, provisions that cause intermodal inequity, discourage adequate return, increase risk, or limit flexibility are discussed.

STAGGERS RAIL ACT

The policy intents and the goals of the Staggers Act primarily focus on increased reliance on market forces to achieve economic efficiency. This act emphasized increased intermodal and intramodal competition, reduced regulatory barriers to entry and exit, and minimized regulatory burdens. Where regulation is deemed necessary, the Interstate Commerce Commission (ICC) is ordered to ensure adequate revenues, to make expeditious decisions, and to eliminate noncompensatory rates. The aim of the Staggers Act, as stated in the goals and the policy description, is the establishment of a healthy and efficient railroad system in the private sector. These mandates are consistent with the use of regulation only to improve efficiency where the market cannot achieve the same result. Despite this general tone, some aspects of the policy statement and the act should be noted with caution.

The extent to which national transportation policy advocates the use of railroad regulation to achieve nontransportation programs is a key concern. Traditionally, economic regulation of the transportation industries has been used as an instrument of social policy. For example, indirect aid to regions or industries is provided by holding transportation rates below the level that the market would set. As a result, these shippers face less-than-the-marginal cost of the resources used in the production of transportation services. Overconsumption of the transportation services results, and the shippers have an uneconomic, competitive advantage. Resources are drawn away from more productive uses;

this causes a social loss of productive output and a series of income transfers.

The use of transportation regulation to implement indirect social policies is convenient since transportation is ubiquitous, highly regulated, and relatively obscure to most citizens. Policies can be effected with minimal impact on consumer prices and no explicit accounting of the cost of various social programs. Such indirect aid should be offensive to taxpayers not only because it is inefficient, but also because it obscures information on the cost and even the existence of many forms of government aid. Direct aid programs should be used to encourage appropriate economic resource allocation. When national transportation regulation is saddled with nontransportation policies, efficiency is sacrificed, and transportation regulation deviates from its purpose.

Evidence of social policy manipulation is still apparent in the Staggers Act. The final transportation policy statement is "to encourage and promote energy conservation." Energy conservation is not a transportation-specific issue. It should be handled through an energy pricing mechanism faced by all industries so that current energy supplies will be channeled into the most productive uses.

Similarly, the limitation of railroad rates for recyclable material transportation to levels at or below the average revenue-to-variable-cost ratio that railroads need to cover expenses plus a fair return is distortive. According to the National Association of Recycling Industries, the railroads otherwise have an incentive to discriminate against recyclable materials traffic in order to make the materials noncompetitive with railroad-owned virgin materials (U.S. Senate hearing on Railroad Deregulation Act of 1979, 96th Congress, Session 1, Parts 1-4). Another basis for the provision was the national emphasis on conservation and recycling. In reality, the provision merely enforces a form of discrimination. Rates for the movement of virgin materials will be subject to the standard Staggers Act pricing rules, possibly rising above the average ratio of 150, according to the ICC's Office of Policy and Analysis. Manufacturers who buy recycled materials may face lower costs, thus gaining an anticompetitive and uneconomic advantage. Overconsumption of recyclables would result if buyers face less-than-the-true resource cost of recyclables' preparation and transportation. Finally, underconsumption of other unknown commodities will result as transportation rates for other commodities rise to cover total costs.

The goal to provide a regulatory process that balances the needs of the carriers, the shippers, and the public should be limited to protection of shippers and the public from market power or from externalities that they bear unfairly. The act fails to define the needs of all parties that are to be balanced, leaving a possibility of ICC interpretation of this goal as justification for these and other social policy measures enforced by transportation regulations. Incentives that would encourage private carrier investment, competition, and efficiency can be developed only if regulation permits the reasonable pursuit of self-interest by all

parties--i.e., carriers, shippers, and the public.

The vague wording of the Staggers Act leaves many areas open to ICC interpretation. The ICC is charged with the responsibility of ensuring adequate revenues and reasonable rates. The ICC also must avoid undue concentration of market power. All such aspects of railroad regulation that can be changed as new ICC representatives interpret the law are sources of financial risk. A private-sector investor has no reasonable certainty about the rules of the game into which the investor is placing long-term funds. In the projection of the future, neither the classic competitive constraints nor well-defined and stable regulatory guidelines can be assumed. The greater the number of vague legislative provisions, the higher will be the perceived risk of regulatory change, and, as a result, the higher the required rate of return on private capital. By failing to eliminate uneconomic uncertainty, the Staggers Act thwarts its own goal of increased private investment in the railroad industry.

Several examples of vague terminology exist in the maximum ratemaking provisions and they require ICC clarification. The definition of effective competition, for example, will be critical since the presence of competition will determine whether or not a railroad must prove rate reasonableness. The ICC is directed to include a return on capital in the fixed and variable cost determination, but the return on equity capital is limited to a level equal to the embedded cost of debt. This nebulous term remains undefined. It is hoped that it will not be interpreted at face value to allow equity investors to earn a return equal to the cost of historic debt. No rational investor would invest in an equity position, only to derive the same return as the less risky debt position offers. Also, the low average return likely to be found in historic debt structures relative to today's high market interest rates would preclude private investment in an equity position under this interpretation.

The ICC retains oversight of maximum ratemaking by means of a cost recovery percentage (CRP) based on an industrywide revenue-to-variable-cost ratio. Essentially, the CRP reflects the highest margin reasonably needed on some traffic in order to cover traffic with low returns. The concept of a CRP is not without problems. The CRP will be based on industrywide cost figures, imposing greater burdens on certain carriers. Although rates in excess of the CRP do not establish a presumption of market dominance or rate unreasonableness, freedom to price without investigation and suspension is lost for rates with ratios above the percentage. Those carriers that are currently less efficient, have higher costs, or more low-margin traffic may require rates with ratios above the CRP in order to cover costs. Low CRPs would make these railroads more susceptible to complaints and interference. Also, the system will be costly to administer. In order for a shipper to challenge a rate on the basis of a revenue-to-cost ratio, a great deal of information is required.

The CRP test does not rely on the influence of available competitive alternatives as a price regulator in the market. If Congress seeks to rely on the market as much as possible, any form of competition that will prevent abuse of market power should be considered, including carrier, geographic, or product competition. The Staggers Act mandates that coal competition from foreign sources be disregarded in the consideration of proposed rates. This is a disturbing note. The reality of the foreign coal competition is driven home by the ongoing purchases of Polish coal by Gulf Coast electric utilities (1,

p. 1). U.S. coal produced for export also is moved by rail, and competitive price pressures from Australian and other coal should serve to control rail rates. Possibilities like these demonstrate that, even if product competition is not a reality with fixed coal-burning facilities and conversion laws, there are other competitive pressures.

Other provisions will exert competitive pressures on railroad pricing. Entry provisions in the Staggers Act permit a new rail line to cross an existing line once a certificate of public convenience and necessity is granted. Reciprocal switching is mandated where the ICC wants to induce competition. The administration bill proposed mandatory trackage rights with adequate compensation. Presumably these provisions would introduce real or potential intramodal competitive pressure. The possibility of increased sympathy for pipeline eminent-domain legislation also should temper monopolistic pricing by carriers with long-run objectives. The new liberalized entry provisions of the Motor Carrier Act of 1980 will increase rail-truck competition in many markets.

The future of maximum railroad ratemaking reform is unclear. Suggestions have included caps on rates; permanent regulation of food, fiber, and resource rates; and an arbitration system similar to the Canadian system. None of these provisions seem necessary if adequate intermodal and intramodal competition is encouraged by Congress and carriers can employ contracts without arduous court intervention. The contract provisions, eased entry standards, and the restricted ability of railroads to come together in rate bureaus will heighten competition and permit protection of shippers by competitive market forces. Increased pricing freedom and flexibility will be promoted as well.

Many aspects of the Staggers Rail Act enhance railroad flexibility in other areas. Railroads can offer premium service at special rates to meet shipper service requirements. Similarly, carriers and shippers may agree to permissive liability rates that involve a lower rate in exchange for relieving the carrier of some share of liability for the traffic. ICC ability to control car supply is limited to emergency 30-day periods and incentive per diem is eliminated. However, flexibility has been reduced by some provisions of the bill.

The elimination of demand-sensitive rates limits railroad ability to react to seasonal demand shifts and truck competition. For storable commodities, higher peak rates could level seasonal-demand peaks somewhat, lessening railroad investment requirements. In the off-peak periods, railroads should be able to price more competitively relative to the truckers who are attempting to use their excess capacity also. In the absence of the authority to establish demand-sensitive rates, carriers will rely on the efficient marketing provisions that reduce the time required to change rates. Increases can be implemented in 20 days and decreases in 10 days. This is superior flexibility relative to the competitive motor carriers who have a 30-day notice requirement on most commodities, but remains too restrictive, particularly where both modes are not exempt for the commodity in question.

Several types of ratemaking flexibility will be denied to carriers found to be making adequate revenues. The limitations influence the zone of flexibility, the considerations in complaint resolution, and the application of surcharges. Adequate revenues may influence joint rates eventually. A disincentive for improved efficiency stems from carrier awareness that, if the ICC reviews a specific rate proposal, the rate could be held down or flexibility denied on the basis of overall carrier

revenue adequacy. Without this overall adequate revenue constraint, carriers might have pursued cost reductions to improve profits on traffic with approved, nonreviewable rates. The adequate revenue provisions effectively limits profits, cooling such incentives for efficiency and innovation.

Railroad flexibility is limited in the key area of labor protection. The Staggers Rail Act mandates labor protection during a 4-year period for employees harmed by entry, rate bureau reductions, or reciprocal switching agreements. Congress should not legislate resolutions of labor issues. Rigid labor clauses will hinder the successful rationalization of the railroad system and limit rail's ability to compete.

Restrictions on railroads' ability to reconfigure their systems to more economically viable sizes remain too inflexible. The end result of the abandonment debate was essentially a codification of current ICC practice, with the carrier retaining the burden of proof and gaining a somewhat shorter protest time. A financially responsible person, including a government agency, may subsidize or purchase and operate the line. The opportunity for inefficient cross-subsidy looms here. If federal, state, or local general tax monies are used to buy and subsidize such lines, then nonusers will subsidize low rates for transportation services and sponsor inefficient consumption of rail service where another mode might be more appropriate.

The ICC retains jurisdiction over an important reconfiguration strategy, railroad mergers, but the ICC must make expedited decisions and consider nonmerger alternatives. At the ICC's Commissioners' Meeting on Railroad Merger Policy (June 24, 1980), it was stated by ICC Chairman Darius Gaskins and others that carriers were not taking advantage of operating improvements that would increase productivity more than mergers. The ICC stressed a heavy burden of proof on merging railroads to demonstrate that less anticompetitive actions could not achieve the same results. The ICC expressed concern that pending mergers were inefficient distortions caused by regulatory incentives or were defensive responses to the flood of merger announcements. On the basis of these remarks, it seems likely that the passage of the Staggers Act will result in a tougher merger approval process. Despite concerns expressed over labor protection and necessary special considerations of transportation policy, there seems to be no reason to delay transfer of railroad merger approval to the U.S. Department of Justice as was proposed in the original bill (U.S. Senate Bill 796, Railroad Deregulation Act of 1979).

Controlled transfer, too, is broached (a) in the Staggers Rail Act by the section that allows the transfer of Consolidated Rail Corporation (Conrail) lines to a transferee railroad and (b) by the directive to the U.S. Railway Association (USRA) and Conrail to study rail properties that might be proposed for such transfers. The first provision is a positive step toward system rationalization, but the USRA review is inappropriate government interference. Conrail management should be encouraged and authorized to use controlled transfer to attain optimal plant size. As written, the provision substitutes the government's judgment for the managerial judgment of a for-profit corporation. Controlled transfer reform legislation should be permissive and not binding in nature.

Another type of industry reconfiguration, the development of multimodal transportation companies, remains illegal. The Staggers Act states that intermodal ownership as otherwise prohibited by U.S.C. Title 49 cannot be authorized by the ICC at its discretion. A multimodal transportation com-

pany's goal would be to maximize profits by using each mode at its optimal level. Predatory pricing and elimination of the independent motor carrier companies could not occur because of the lack of entry barriers in the motor carrier industry. Canada has found no adverse impacts of intermodal ownership, and positive impacts have been noted. For example, piggyback developed more rapidly and extensively in Canada as compared with development in the United States (2). It is archaic transportation policy to prohibit multimodal ownership in the United States.

The improved stability and reduced risk required to draw private investment capital to the railroads will not be promoted by all provisions of the Staggers Rail Act. Legislation of rates for the San Antonio utility's coal leaves a fear of other special interest provisions in the future. Also, contract commitments for agricultural commodities are limited to 40 percent of carrier equipment by car type. This restriction limits the guaranteed use of carrier equipment, thus increasing financial risk. A bias toward nonrailroad equipment is created. Simultaneously, railroads cannot discriminate among agricultural shippers under similar circumstances. ICC resolution of complaints by agricultural shippers who claim discrimination in contracts will be constrained by 40 percent equipment restriction.

The lack of a clear definition of common carrier obligation heightens instability, too. If rates are established at levels that would permit the attainment of an adequate rate of return, railroads will have the incentive to provide cars to every shipper who will pay the rate. The economic merit of a common carrier obligation--and its necessity with the increasingly competitive motor carrier sector providing profitable rural service--should be addressed.

Stability is enhanced by provisions that make approved rates and contracts nonreviewable. The mandate for ICC approval of state-level regulatory procedures also minimizes sources of change. ICC authority to suspend rates is limited, and shippers must make retroactive payments if a suspended rate is subsequently approved.

An area that requires reform in the future is the regulation of joint rates on through routes. The compromise on this controversial issue in the Staggers Rail Act was a surcharge provision that is designed to ensure revenues equal to 110 percent of variable costs. Although the provision is an improvement, the logic behind the choice of 110 percent of variable cost is unclear. Carriers with a high percentage of joint rates at 110 percent of variable cost not only lose flexibility, but they will have a more difficult time attaining an overall adequate return, unless the economics of through-route traffic are very unique. Other traffic is likely to require higher revenue-to-variable-cost ratios, causing traffic diversion, more complaints, and continued cross subsidies.

Further, the surcharge provisions make special allowances for surcharge cancellation if a class III railroad will be harmed or if service is necessary in the public interest. Another protectionist and anticompetitive provision permits the use of a negative surcharge to lower rates as long as the new rate is not less than the lowest total charge available over a competing route. Intramodal competition and efficient routing are not promoted by either of these limitations.

According to the ICC Office of Policy and Analysis, given the successful result of deregulated pricing and divisions in the agricultural transportation market, future regulatory reform should

emphasize deregulated divisions. At the minimum, the division should be based on each carrier's share of relevant activities associated with the movement, such as mileage or number of terminals. This type of division would encourage efficiency since it would not be cost-based. Ideally, joint rates based on the sum of rates submitted by each carrier should be in place, with carrier options to agree on a lower rate. Chaos is unlikely since it would be in the railroad's interest to maintain a workable system of rates. Shippers wishing to avoid the uncertainty of fluctuating rates have the ability to enter into long-term, fixed-price contracts. These necessary changes in the divisions procedures will be difficult to make at any time because major, powerful railroads will continue to resist the change.

The feeder-line development program of the Staggers Act should be eliminated. The program authorizes the ICC to mandate sale of a line when service is inadequate. The line must be sold at the greater value of liquidation or going concern. Because the act does not specify whether the going-concern value is to be that of the buyer or seller, the railroad losing its line also may lose its ability to extract some of the consumer surplus in purchase negotiations. Even if this were rectified, it is inconceivable that the government would impose such a confiscatory regulation on any industry. The seller is forced to provide labor protection that could reduce the effective purchase price below a constitutional minimum. Class I and II railroads may not purchase lines under the program, which is unjustifiable discrimination.

Beyond its confiscatory nature, implementation will be subjective and costly. The determination of what constitutes adequate service, the level of financial effects, and the likelihood of improved service are highly judgmental. A carrier that loses several lines to such sales could find itself interlining with a large number of marginal class III carriers who receive special treatment in divisions and surcharge considerations. The extent to which the feeder-line development program is harmful will depend on the ICC, but the provision is ripe for change in the future. Voluntary sales should be encouraged on the premise that carriers are rational and will sell a line when the offered price exceeds the value of the line to the current owner.

The most comprehensive reform mandate of the Staggers Rail Act is the exemption provision. The ICC is urged to deregulate those aspects of railroad transportation that need not be regulated to satisfy the transportation policy and either are of limited scope or are not subject to railroad abuse of market power. Review of potential exemptions can be initiated by the ICC, on the suggestion of a shipper, or by the U.S. Secretary of Transportation. ICC flexibility is curtailed by the limited-scope or market-power-abuse criterion. Since product competition is excluded from consideration of effective competition, some markets that may be regulated adequately by market forces may be defined as market dominated by rail. The scope test is a big umbrella that could shelter many commodities from exemption. In the future, ICC exemption authority should be broadened to permit exemptions where competition of any kind will protect rational shippers from market abuse.

The Staggers Rail Act seeks to encourage increased private investment in an efficient and economically healthy industry, but further reform is necessary to meet all aspects of this policy. Future laws should seek to provide a rate of return competitive with comparable investment opportunities. Uneconomic risk associated with railroad

investment should be minimized by the elimination of nonmarket sources of instability such as regulatory ambiguities. The stigma attached to the railroad industry as a policy instrument should be removed by provisions that recognize the for-profit nature of railroad operations. The goal of a private, efficient, and economic railroad industry would be supported further by provisions permitting increased management flexibility. This ability to manage should apply to operating decisions about labor use and plant rationalization, as well as to marketing decisions about price and service. Private capital will not be drawn to an industry where there is no opportunity for managerial response to a changing environment.

MOTOR CARRIER ACT OF 1980

The Motor Carrier Act of 1980 was signed into law by President Carter on July 1, 1980, after lengthy debate of several alternative bills. The industry historically has opposed deregulation and exerted considerable pressure to block reform. This act was designed to allow more competition to play a role in resource allocation in the industry. As with the Staggers Act, the compromise nature of the bill left many areas in need of future reform.

The act explicitly states that unnecessary regulation should be reduced. The ICC is to be given explicit direction for the regulation of the industry and well-defined parameters within which it may act pursuant to congressional policy. Further, the findings state that the ICC should not attempt to go beyond the powers vested in it by the Interstate Commerce Act and other legislation enacted by Congress. While the intent of Congress was to eliminate administrative and de facto law by the ICC, there is no guarantee that Congress is the repository of all knowledge or even that the Congress represents the will of the people. Potential dangers exist with too much congressional control.

Many of the provisions of the Motor Carrier Act were designed to reform ratemaking regulation to encourage competition. However, the act did not achieve total deregulation of pricing decisions. The debate over the best method for liberalizing ratemaking drew many suggestions, most centering around the concept of a no-suspend zone of freedom bound by a rate yo-yo. The compromise position of the Motor Carrier Act was a 10 percent rate yo-yo with an ICC option to expand the zone by 5 percent each year. The section is too restrictive. Given the results of previous studies by the U.S. Departments of Agriculture and Transportation, the ICC, and academia, it seems that rates are inflated. Real and perhaps nominal rates are likely to fall after deregulation, with decreases projected in the range of 20 percent, according to ICC Chairman Gaskins. Observations since the implementation of the act have shown rate decreases, but not through yo-yo use. The limited use of the yo-yo may be related to the exposure of these yo-yo rates to antitrust actions.

The yo-yo is based on existing rates that may limit the ability of a carrier to react to a new entrant. The existing rates may be well above cost, but the carrier will be able to lower those rates only by the amount of the yo-yo, unless the carrier relies on rate bureau changes. Meanwhile, the new entrant may price very close to cost, undercutting the existing carrier's rates. A wider rate yo-yo or unregulated pricing should be implemented. If entry is free or relatively free, there should be no problems on the upside limit. Rates could be subject to antitrust laws that would limit predatory pricing. Further pressure to widen the yo-yo is

likely. Since a 20 percent yo-yo was first proposed (U.S. Senate bill 796), the ICC considered 25 percent and the Federal Trade Commission recommended 30-35 percent--both in Ex Parte No. MC-137, No Suspend Zone-Motor Carriers of Property.

When the ICC makes rate evaluations, it must ensure that rates yield a net income adequate to support prudent capital outlays, cover depreciation, assure repayment of a reasonable level of debt, permit the raising of needed equity capital, attract and retain capital in amounts adequate to provide a sound motor carrier transportation system in the United States, and account for reasonable estimated or foreseeable future costs. The adjustment of rates to a standard-of-debt level can be distortive. It has been shown that, when rates are adjusted to support a level of debt, incentives are created that can lead to overinvestment and to lack of cost control.

Rate-making will also be influenced by the reform of rate bureaus, as initiated by the Motor Carrier Act. More change should be effected in rate bureaus. There is no reason to continue antitrust immunity for collective rate-making. Efficient carriers merely reap monopoly profits and inefficient carriers are sustained in business. It is hoped that carriers will use the rate yo-yo mentioned earlier and will cause the elimination of the rate bureaus on a voluntary basis. Carriers could be encouraged to break away from the rate bureaus by ICC adoption of a relatively low rate-of-return standard for collectively filed general rate increases requested under the rule-of-rate-making section. Rate bureau rate-making functions, except for the actual individual participants in joint rates, are not necessary and only contribute to higher, cartelized prices.

The 30-day notice requirements retained in the Motor Carrier Act should be shortened or eliminated. The ability to change rates rapidly to reflect demand and supply conditions is extremely important in optimally allocating resources among transportation modes. The motor carriers will compete against more liberal notice requirements for other modes and the flexibility of private carriage. Equity would demand similar treatment for all competing modes. Shippers wishing to retain rate stability can employ contracts. Alternatively, new and innovative tariffs could be filed that have a range of rates from point A to point B. The rate at any given time could depend on the value of an easily known trigger, such as a date or commodity production index, that would satisfy the notification criterion.

The influences on carrier flexibility are mixed. Like the Staggers Act, the Motor Carrier Act allows carriers to offer a mix of liability combinations to its customers. The new act authorizes the ICC to prescribe joint rates and through routes for motor-motor and motor-water movements when the ICC considers it desirable in the public interest. Although many have advocated this as a way to enhance and encourage intermodalism, dictation of routes and rates should be eliminated. The mandate of such rates imposes a regulatory burden on the carriers, increasing rather than decreasing regulation. The ICC should advocate the voluntary development of joint rates with eased ICC standards for approval.

Several aspects of the Motor Carrier Act relate to the use of transportation as an instrument of social policy. The provisions of the act that allow a motor carrier to provide transportation of recyclable materials without charge or at a reduced rate and direct the ICC to consider the effect of a rate on the movement of traffic are discriminatory. The special consideration for the provision of rural

services and the reasons behind the small-community service study are basically not transportation issues but social problems. Social policy restrictions are inefficient and should be replaced by direct forms of aid.

Although the Motor Carrier Act attempts to lessen the regulation of intermodal and intramodal competition by lessening many restrictions on entry, it is clear that entry decisions remain in the ICC's discretionary realm since entry must be consistent with national transportation policy. A master certificate approach would have broadened and simplified entry. The case-by-case approach will not provide the same level of substantial operating freedom and increased competition. Master certificated entry should be pursued by both the administration and the ICC in the future. A good case has not been brought in support of limited entry to the motor carrier industry. As long as the ICC maintains a procompetitive posture, virtually free entry can be allowed via administrative law, albeit on a case-by-case basis, but easier entry provisions should be legislated.

Eased entry is allowed in a number of cases without a specific finding of a public need, in particular for packages weighing less than 100 lb. The generic operation is actually a terminal less-than-truckload (LTL) as opposed to a truckload operation. As future technology allows larger shipments to be handled as a 100-lb shipment, free entry into those markets should be encouraged. The provision of eased entry in the market for larger LTL shipments would have created incentives to develop such technologies.

The restriction of 100 lb from one consignor at one location to one consignee at one location on any day makes no economic sense. A carrier obtaining a fitness-only certificate to carry packages weighing less than 100 lb incurs a heavy burden. If the carrier operates one or more vehicles with a gross vehicle weight rating of 10 000 lb or more, that carrier will then be subject to commercial motor vehicle regulations issued by the U.S. Department of Transportation for all operations. The provision is unfair and could preclude some operators from participating in the industry.

The changes taking place in certificate and entry restrictions raise many political and economic issues. Expanded authority to serve intermediate points and county-based territorial limits, as well as two-digit standard industrial classification authority, should imply an option to serve, but the common carrier obligation is undefined. Free entry and competition should ensure that obtaining non-discriminatory service is not a problem without maintenance of the common carrier obligation.

Conditions for protest of entry have been limited, but protests should not exist at all. Given the competitive nature of the trucking industry, the market should determine which carriers participate. Of course, a market-minded ICC could ignore protests and lower the expected future number of contested entry applications.

Unlike the Staggers Act, the Motor Carrier Act does not authorize the ICC to make commodity exemptions where competition is an adequate regulator. Such a provision would have strengthened the Motor Carrier Act. For equity and economic purposes, the ICC should have exemption authority for both modes. The act legislated some new agricultural exemptions, but, given the quality performance of the exempt agricultural carriers, the agricultural exemption should be expanded to include all agricultural and many nonagricultural products.

One agricultural product-related change enables owner-operators to carry the same weight of pro-

cessed food, edible food, and fertilizers as the weight of exempt products carried. Unfortunately the provision discriminates against fleet owners by requiring that the owner of the truck be in the vehicle. Artificial constraints like this champion the "little guy," but impose a noneconomic, competitive disadvantage on their competitors.

Not all aspects of exempt motor carrier service have moved toward deregulation. Ironically, the deregulated portion of the motor carrier industry is becoming more regulated in some areas while the regulated segment is becoming less regulated. Increased scrutiny of cooperatives and restriction of their services will increase the transportation cost to users of the system. The ICC is given the power to require the use of written contracts for the interstate movement of exempt agricultural products and for brokerage services provided in connection with such movements. Increased regulation contradicts the reform goals of the act.

Restriction of intercorporate hauling to subsidiaries that are 100 percent owned is unduly restrictive. The definition should be 51 percent or controlling interest. Defining the corporate family as only wholly owned entities may cause inefficient private operations and reduce the real impact of this provision. Given administration and shipper support, it would seem that a future legislative thrust will materialize in this direction.

The Motor Carrier Act embodies some attempts to stimulate the growth of the trailer-on-flatcar (TOFC) concept. Regardless of any benefits attached to TOFC, there is no reason that TOFC applications should be expedited relative to applications related to any other branch of motor carrier service. Entry into TOFC feedership by independent motor carriers and also by rail-affiliated motor carriers should be facilitated, and key-point restrictions on rail-affiliated motor carriers should be removed. If the ICC option, which is included in the Staggers Act to exempt truck service provided by railroads incidental to TOFC, is implemented, then all motor carriers will have the ability to feed trailers to railroads at hub terminals. Terminals could take advantage of any economies of scale in operation and may generate sufficient carloadings to various destinations in short time periods to allow run-through, dedicated TOFC trains.

The evidence of labor advocacy is evident in the act's establishment of a job bank. The motor carrier job bank to be maintained by the U.S. Secretary of Labor is a political element to protect workers in case of adverse impacts caused by regulatory reform. It is not the government's role to provide such a special service beyond the normal limits of the U.S. Department of Labor's job bank.

CONCLUSIONS

Although many provisions of the Staggers Act and the

Motor Carrier Act are positive steps toward increased reliance on competition as an economic regulator, the bills certainly do not eliminate all of the regulatory problems. The two industries continue to be saddled with restrictions on their management flexibility and profitability. In addition, inequities in the rules governing the two modes remain, causing uneconomic impediments to intermodal competition.

Both industries continue to be used for public policy purposes, especially in the key areas of energy conservation, small-community service, agricultural support, and recycled materials. The continuing use of transportation regulation as a policy tool is uneconomic and will serve to discourage private investors. Further reform should be aimed at the elimination of all nontransportation policies from transportation regulation.

Major differences between the bills exist in ratemaking sections. Differences in notice time, exemptions, rate yo-yo's, and control of intrastate rates may cause uneconomic modal choices. The existence of a long and short-haul clause for the railroads, but not for the motor carriers, will cause some major competitive problems in intermodal operations. Yearly car supply problems will be increased by the repeal of demand-sensitive rates for railroads while motor carrier rates for the products fluctuate. An income transfer will be made from the railroads to the agricultural sector, and railroads will remain unable to meet the prices of their competitors to improve their car use.

Further changes are necessary to achieve an appropriate atmosphere of competition for the rail and motor carrier industries. Given the past history of bipartisan support for regulatory reform and the new administration's transportation advisory group, it seems very likely that the deregulatory thrust will be continued by the Reagan Administration. The commitment to reform seems strong on the part of the ICC, Congress, and other powerful determinants of policy.

The focus of future legislation and current interpretation of the new bills should be on increased management flexibility, improved equity between the modes, reduced social policy provisions, and maximized competitive exposure. Multimodal ownership should be allowed and encouraged. The greater the reliance on competition as a regulator, the better will be the chances of developing an efficient, independent, and healthy transportation system able to meet the nation's needs.

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