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**PROCEEDINGS—**

*Twenty-fifth Annual Meeting*

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**TRANSPORTATION RESEARCH FORUM**

# ***PROCEEDINGS—***

## ***Twenty-fifth Annual Meeting***

Theme:

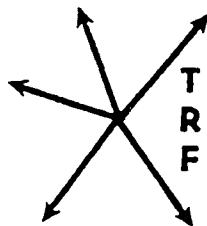
“Beyond Deregulation: Let Freedom Ring!”

**October 22-24, 1984  
Parker House  
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**TRANSPORTATION RESEARCH FORUM**  
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# The Impact of Railroad Boxcar Deregulation: A Case Study of Transcontinental Lumber

by Kevin Horn\* and John E. Tyworth\*\*

## ABSTRACT

Western softwood lumber shipped to markets east of the Rocky Mountains historically has been a major source of revenue for western railroads. Yet western transcontinental railroad lumber traffic has declined precipitously since the early 1970s, while the motor carrier share of this traffic has grown steadily.

The regulatory rate reforms of the 1980s offered new opportunities for western rail carriers to regain lumber traffic. The TOFC exemption, the "zone of rail carrier rate flexibility," and the authorization to establish contract rates have already altered patterns of lumber distribution. The Interstate Commerce Commission has recently exempted boxcar traffic from economic regulation. Since mills ship lumber on bulkhead flatcars or in boxcars, the exemption offers railroads additional pricing flexibility. This paper examines the effects of recent regulatory rate reforms, including the probable impact of boxcar deregulation, on western railroad lumber traffic.

### *1. Exemption of Boxcar Traffic from Economic Regulation:*

On April 29, 1983, the Interstate Commerce Commission (ICC) exempted rail transportation by boxcar of all commodities except non-ferrous recyclable materials.<sup>(1)</sup> Railroads are authorized to impose charges for storage or return of empty boxcars. In addition, railroads have the option to negotiate bilateral car hire agreements to apply in lieu of car hire rates prescribed by the ICC. The ICC retains jurisdiction over car hire and car service rules, mandatory interchange of equipment, reciprocal switching, car supply and freight car pooling agreements. The decision became effective January 1, 1984.<sup>(2)</sup>

The decision has resulted in over two dozen suits challenging the ICC's authority to deregulate boxcar rates and allow railroads to assess storage and empty return charges.<sup>(3)</sup> The Commission's decision to exempt boxcar transportation is based upon the perceived need of the railways for greater flexibility in marketing their services in a highly com-

petitive environment characterized by "vigorous truck competition." The Commission's principal justification for exempting boxcar transportation is that truck competition is pervasive and limits the railroads' pricing freedom.

The legality of the Commission's decision will not be addressed here. The decision will be reviewed in terms of its potential impact upon interregional and transcontinental rail movements of western lumber. The ICC does not specifically discuss intermodal competition for western lumber in its decision. In a brief review of paper and forest products, one of four commodity groups about which the "greatest cause for concern was presented," the Commission noted: Even though boxcars transport relatively high percentages of these commodities (paper and forest products), it is nonetheless apparent that railroads are generally subject to severe market constraints in pricing that transportation.<sup>(4)</sup>

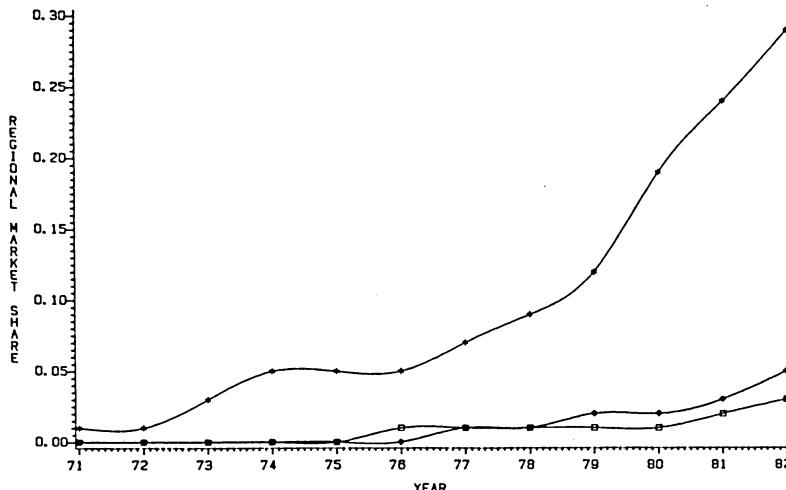
The implications of the boxcar exemption for the increasing volume and proportion of western lumber handled by motor carriers to midwest and eastern destinations are conjectural. The extent to which railways will be able to deter motor carrier competition by selectively utilizing exempt boxcars for large shipment sizes (wholesale distribution) is unknown. The effect of the exemption, which cancels railroad boxcar tariffs, upon the historical groupings, which characterize the rate structure for rail shipments of western lumber, is unknown. The relationship of exempt boxcar rates to TOFC and regulated and contract rates for other rail movements of western lumber is also uncertain. Western lumber could be handled in exempt boxcars, TOFC, or under regulated or contract rates in other rail equipment. The interplay between potentially different rate structures and exempt boxcar rates for shipper or carrier equipment with intramodal, intermodal, product and market competition may create an environment which fosters changes in lumber channels of distribution, including new middlemen who would broker exempt boxcar shipments.

This paper is oriented to the potential impact of the boxcar exemption upon western lumber. Western lumber is the focus of the paper because of the historically large railroad volume and market share for long-haul interregional and transcontinental movements. Western lumber is not intended to be representative of all boxcar commodities; however, the discussion should shed light upon the potential impact of boxcar deregulation for other commodities with similar transportation and competitive characteristics.

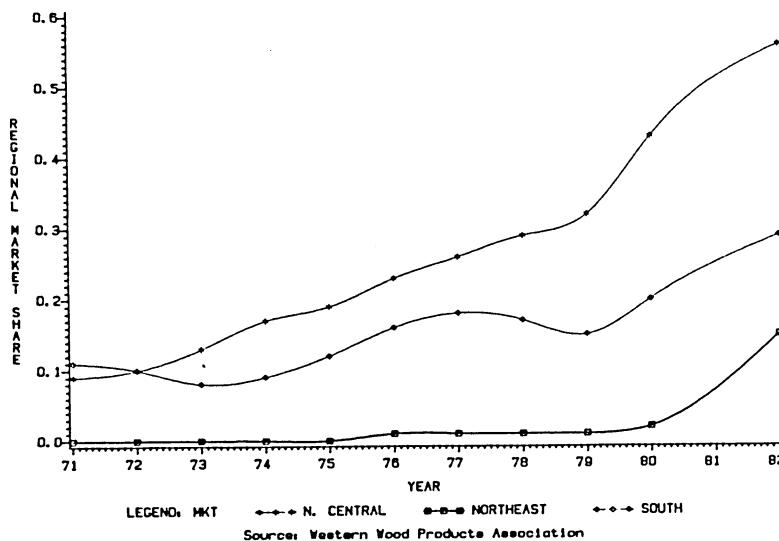
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TRUCK SHARE OF COAST REGION LUMBER TRAFFIC  
BY TRANSCONTINENTAL MARKET AREA 1971-1982



TRUCK SHARE OF INLAND REGION LUMBER TRAFFIC  
BY TRANSCONTINENTAL MARKET AREA 1971-1982



Sources: Western Wood Products Association

FIGURE 1. Market Share Trends.

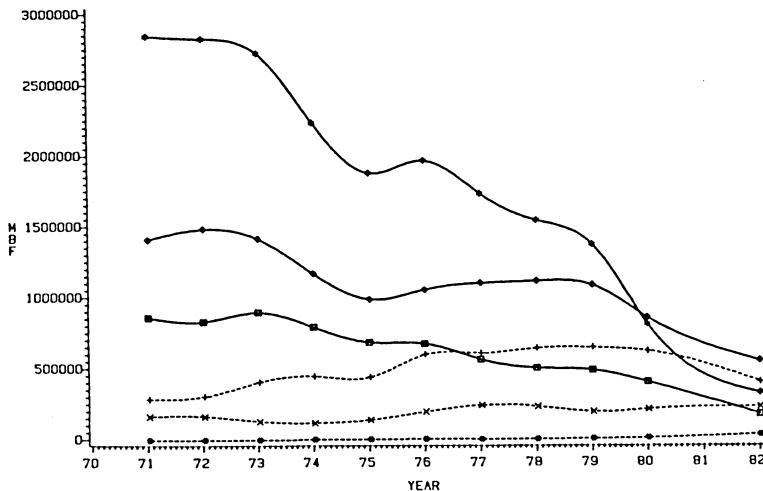
II. *Rail-Truck Competition for Western Trans-continental Lumber Traffic:*

1. *Market Share and Volume*

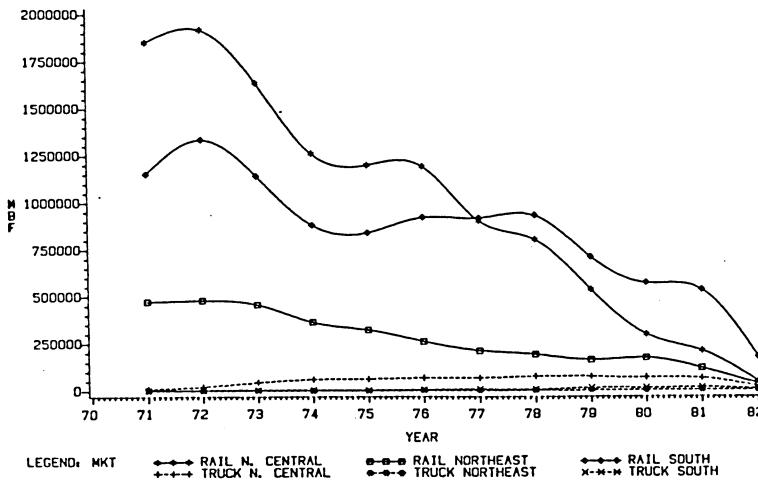
As Figure 1 clearly illustrates, from 1971 to 1982 the truck share of lumber traffic produced in the Coast Region (which essentially comprises western Oregon and Washington) and the Inland Region

(which represents the rest of the twelve western states) exploded in the north central states and grew at a low to moderate rate in the South and the Northeast. These trends, however, are explained more by the precipitous decline in railroad lumber traffic than by the growth in traffic for motor carriers. As shown in Figure 2, the volume of lumber (in units of thousand board feet or MBF) shipped by rail from the Coast Region to north central states plummeted

INLAND REGION RAILROAD AND TRUCK TRAFFIC  
BY TRANSCONTINENTAL MARKET AREA 1971-1982



COAST REGION RAILROAD AND TRUCK TRAFFIC  
BY TRANSCONTINENTAL MARKET AREA 1971-1982



Sources: Western Wood Products Association

FIGURE 2. Volume Trends.

from just under 2 million MBF in 1972 to about 175,000 MBF in 1980 and, after the 1980 housing market crash, to approximately 50,000 MBF in 1982. Although shipments to the South and the Northeast also declined during the same period of time, the rate of decrease is less severe. In fact, the volume of Coast Region lumber shipped to the South surpassed the amount destined to the North Central Region in 1977. On the other hand, the overall magnitude of truck traffic did not change much compared to rail traffic in the three market areas.

This basic pattern also applies, with one exception, to Inland Region lumber distribution. The level of truck shipments to north central states shows a more pronounced increase from 1971 to 1980 and the onset of the housing slump (see Figure 2).

Several major factors help explain these trends in volume and market share.<sup>(5)</sup> The importance of any single factor, however, remains controversial. Western mill owners, for example, believe that the growing disparity between railroad rates from competing lumber regions to consumption points (pri-

marily a result of the general rate increases throughout the 1970s) has been the principal cause.

In contrast, the position of the railroad industry is that rate levels, at most, play only a subordinate role. The main causes stem from shifting regional economic activity and population levels (such as the Sunbelt growth), and general economic conditions (such as interest rates, housing starts, and lumber prices).

Although the importance given to such causal factors often depends on one's role in the distribution process (shipper or carrier) and on the lumber producing region (West or South), there is evidence to suggest that both shifting regional economic activity and regional rate relationships have been and remain significant.<sup>(6)</sup> For example, while the relative importance of regional softwood production did not change much for western mills during the past twelve years (about a 2.5 percent drop), the relative importance of regional lumber markets did change substantially. Intraregional (western) lumber distribution increased by about 1 million MBF from 1971 to 1980. Moreover, while transcontinental rail lumber traffic was declining, intraregional rail shipments held firm at 1971 levels. Clearly, declining economic activity in the North Central Region and growth in the Sunbelt help explain these trends. Crammed with this explanation, however, are the rail transportation costs that have risen steadily since 1971 at a faster pace for western mills than for southern mills and have compressed the market areas that mills can profitably reach.

## 2. Equipment and Shipment Size

Throughout the 1970s, western lumber producers relied heavily on boxcars for transcontinental shipments. The average shipment in a 50-foot boxcar weighed about 75,000 pounds.

In addition, during the late 1960s and early 1970s, many of the large forest products companies began operating private rail car fleets to assure adequate car supply and secure the benefits of specialized equipment.<sup>(7)</sup> Fifty-foot all-door or wide-door boxcars and some flatcars constituted the fleet. To capture the maximum mileage allowance authorized for private cars, traffic managers used these freight cars for the long-haul transcontinental shipments.

In 1977, western rail carriers established an open-ended incentive rate structure applicable to both boxcars and flatcars. Rates carried larger minimum weight thresholds (85,000 lbs. and 120,000 lbs.) that encouraged larger shipment sizes.

Beginning in 1980, regulatory rate reforms accelerated the trends toward larger shipment sizes and also brought about a fundamental change in equipment usage. The TOFC exemption cleared the way for western railroads to promote wholesale service over high density traffic lanes, as well as truck competitive shipment sizes (about 40,000 lbs. to 45,000 lbs.) and service. The "zone of rail carrier rate flexibility" gave rail carriers the unfettered opportunity to restructure incentive rates to encourage large volume (150,000 lbs.) movements in flatcars, again, over major traffic lanes. Likewise, contract rates with large producers, shipper associations formed by smaller firms, shipping agents, and freight reload

centers have bolstered the trend toward larger shipment sizes.

## 3. Impact of Regulatory Rate Reform

Although regulatory rate reform has not yet had much of an effect on the total volume transcontinental lumber traffic, it has altered distribution patterns. As already indicated there has been a fundamental shift in the type of equipment used and in the average shipment size. It appears that western rail carriers are selectively targeting areas where they have inherent operational advantages: truck competitive shipment sizes by TOFC and large volume bulkhead flatcar movements, both over high density lanes.

Several channel intermediaries now play important parts in this pricing strategy. Shippers' agents enter into ramp-to-ramp service contracts with rail carriers and delivery contracts with motor carriers, quote rates to mills, and sell TOFC transportation. Likewise, freight reload centers operate as freight forwarders of bulk materials; they do not produce, wholesale, or own lumber.<sup>(8)</sup> The centers, which operate at major hubs such as Chicago, offer through rail-truck service, as well as shipment consolidation, mixed shipments, split loads, billing, or inventory control.

On the other hand, the use of retail (mill-to-customer) boxcar service and, concomitantly, transits (diverted "roller" boxcars) and private boxcar service has dropped off sharply. Consequently, it appears that the proposed boxcar exemption will not adversely affect western mills. On the contrary, creative pricing of exempt boxcar service may revive boxcar lumber traffic.

## III. Railroad Pricing Strategies for Exempt Boxcar Movements of Western Lumber:

The boxcar exemption provides railroads with a unique set of opportunities to attempt to selectively penetrate truck markets, rationalize the transcontinental lumber rate structure, and profitably substitute boxcars for other equipment. Boxcars could be utilized as a competitive tool to protect existing regulated western lumber traffic subject to motor carrier competition. For example, shippers could be offered incentive boxcar rates which are preconditioned upon the volume of lumber handled in other rail equipment. A shipper who agreed to a minimum annual volume contract rate could receive preferential car supply or boxcar rates for other movements.

Railroads may wish to utilize the boxcar as a mechanism to break into motor carrier markets. Selective rate reductions for western lumber could imbalance motor carrier operations resulting in increased empty mileage and lower revenue. Unless other traffic could be obtained and/or rate decreases on western lumber implemented, motor carriers would have to increase rates for westbound traffic. Motor carrier western lumber movements usually represent a backhaul movement for interregional and transcontinental movements of steel, machinery and other manufactured products that can be handled on a flatbed truck. If motor carrier lumber backhaul revenues could be diminished by exempt boxcars, railroads may be able to capture fronthaul

(westbound) movements of manufactured goods.(9)

Motor carrier markets could also be penetrated by using exempt boxcars to develop or test new lumber markets or channels of distribution. Exempt rates could be utilized to flexibly accommodate shipper marketing initiatives. Mills with excess capacity could be allowed low rates for boxcar movements to destinations that are not in competition with existing movements. In addition, railroads could use boxcars to test new distribution concepts such as lumber yards where high-volume long haul rail shipments are stored or reduced to truckload shipment sizes for delivery. In periods of excess capacity railroads may retain market share by providing reduced equipment detention charges for storage of lumber in boxcars at distribution centers.

Boxcar exemption affords the railroads a unique opportunity to rationalize the blanket rate structure which has characterized transcontinental lumber movements. Railroads have complained that the equalized rate structure for transcontinental lumber movements terminating in Official Territory was unprofitable. The blanket rate structure has been claimed to result in internal cross subsidization of western lumber movements to distant east coast cities by shorter movements to destinations near Western Truck Line Territory such as Memphis and Indianapolis. One western railroad concluded that it lost more revenue than it earned on transcontinental shipments to areas east of the Mississippi River. As a result the company almost completely withdrew from the transcontinental lumber market.

Exempt boxcar rates could be established which would completely eliminate the equalized rate structure unless cost or competitive circumstances warranted moderation. The pricing flexibility afforded by the exemption would enable the railways to establish cost based rates that would eliminate any elements of cross subsidization within the rate groupings for western lumber. It may be possible to decrease formerly equalized transcontinental rates to Official and Southern Territory destinations close to the Mississippi River. This has been the most intense area of truck competition for western lumber. Conversely, railways could increase boxcar rates to distant east coast destinations to recover costs or shed unprofitable traffic.

Railroads could also utilize exempt boxcars to rationalize the western lumber rate structure by inducing shippers to enter into contract rates for boxcars and other equipment. A dual boxcar rate structure could exist wherein fluctuating short-term spot rates would be established on a periodic basis.(10) Contract Rates would cover longer periods of time or traffic volumes.

In periods of chronic excess car supply for regulated traffic railroads could induce shippers to sign contract rates by offering low incentives for boxcars.(11) The incentives could be formally written into contracts for other equipment or retained in a letter of understanding that is not included in the contract for regulated movements filed with ICC. Because only a small proportion of railroad costs are directly variable, very low boxcar rates could be quoted without regulatory or judicial oversight. Promotional rates could become powerful incentives to induce shippers to enter into long-term contract

rates for other equipment. Under existing competitive and cost conditions it would be extremely difficult to assert that predatory pricing or restraint of trade had occurred. Moreover, by selectively offering very low boxcar rates, railways could exert considerable pressure upon individual shippers to enter into contract rates.

In periods of chronic car shortages, boxcar spot rates would rise to levels that would reflect shipper demand. Boxcar rates and equipment could be used as leverage to secure favorable long-term contracts from shippers for other equipment. The railway would utilize as many unencumbered boxcars in the spot market to maximize earnings and negotiate contract rates. The level of boxcar contract or spot rates could be preconditioned upon contract rates for other equipment.

Another opportunity afforded the railways by boxcar deregulation is the potential to substitute boxcars for other equipment devoted to particular western lumber movements. In periods of shortages of bulkhead flatcars the railway could maximize earnings by allocating cars to the most profitable movements. If shippers not receiving bulkhead cars could be profitably serviced by utilizing excess boxcar capacity, the railway would be better off. Low exempt boxcar rates could be quoted to satisfy shippers not receiving high capacity bulkhead flatcars under a discriminatory system of car distribution.

The boxcar exemption should be particularly attractive for western lumber because it will enable railways to negotiate bilateral agreements to minimize empty return movements of the equipment. Westbound boxcar rates could be published at levels substantially less than existing truck rates to utilize empty equipment. For example, the ICC has accepted 35 cents as the car mile cost of empty boxcar movements.(12) If railroads quoted loaded car mile rates of 70 cents for return movements of interregional and transcontinental lumber boxcars, these rates would be 30 to 40 percent less than applicable truckload rates.

The flexibility of exempt rates should enable railways to actively manage boxcar fleets assigned to western lumber. By designing a round trip rate structure shippers could have strong incentives to utilize boxcars to certain destinations where backhaul shipments can be economically handled. Where railways are unwilling or unable to carefully control boxcar movements—for example, a private car fleet or shortline railroad equipment, shippers or third parties could exercise control under contractual mechanisms. For example, a large western lumber shipper or broker could contract with railways for return movements of loaded boxcars at a rate of 70 cents per mile in exchange for favorable rates on lumber shipments. The shipper or broker could then locate backhaul movements which would be priced in competition with motor carrier rates. Both contract and spot backhaul rates could be offered by the boxcar broker to motor carrier shippers. The railway would handle empty western lumber boxcars in response to instructions from the broker. The contract between the broker and railway would provide for switching and repositioning charges in addition to linehaul movement.

Table 1

**Hypothesized Results of Boxcar Deregulation**

1. Boxcar exemption will increase the volume of western transcontinental lumber shipped in boxcars.
2. Boxcar exemption will decrease linehaul rates for western transcontinental lumber shipped in boxcars.
3. Boxcar exemption will increase rates for ancillary services such as reconsignment, diversion, and stop-off privileges.
4. Boxcar exemption will improve rail service (such as car supply, transit time, and on-time delivery) for western transcontinental lumber shipments.
5. Boxcar exemption will increase boxcar profitability through backhaul rates to reduce empty mileage associated with western transcontinental lumber movements.
6. Boxcar exemption will stimulate the use of long term (one year or more) contract rates for western transcontinental lumber shipments.
7. Boxcar exemption will result in fluctuating rates for western transcontinental lumber shipments that change in response to supply and demand.
8. Boxcar exemption will enable western railroads to recapture truckload size shipments (45,000 to 48,000 pounds) of western transcontinental lumber from motor carriers.
9. Boxcar exemption will result in increased minimum weights for western transcontinental lumber shipments.
10. Boxcar exemption will result in more incentive rates for high volume shipments over 60,000 pounds.
11. Boxcar exemption will decrease the volume of western transcontinental lumber transits shipped in "roller cars."
12. Boxcar exemption will decrease the significance of lumber brokers in the distribution of western transcontinental lumber.
13. Boxcar exemption will increase the competitive position of boxcars with exempt TOFC shipments of western transcontinental lumber.
14. Boxcar exemption will increase the competitive position of boxcars with regulated bulkhead flatcar shipments of western transcontinental lumber.
15. Boxcar exemption will increase the competitive position of western lumber mills with private boxcars relative to mills without private boxcar fleets.
16. Boxcar exemption will increase the number and size of private boxcar fleets of western lumber mills.
17. Boxcar exemption will result in rerouting of private boxcars away from traditional high mileage transcontinental routes because of surcharges by eastern railroads.
18. Boxcar exemption will eliminate the blanket rate structure for western transcontinental lumber shippers to points east of the Rocky Mountains.
19. Boxcar exemption will result in new middlemen—brokers and consolidators—who will negotiate boxcar rates and car supply for shippers.
20. Boxcar exemption will cause further reduction in the use of boxcars for western transcontinental lumber shipments.
21. Boxcar exemption will have no effect on the transportation of western transcontinental lumber.

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**IV. Unanswered Questions about Boxcar Deregulation and Western Lumber:**

The impact of boxcar deregulation upon western lumber will be conditioned upon the effectiveness of regulatory pricing freedom in a distribution environment characterized by domination of bulkhead

flatcars for large shipments and motor carriers for shipments less than 45,000 pounds. Unless the railroads are able to profitably provide sufficient incentives for shippers to utilize boxcars, the decline of this equipment for western lumber will continue.

A questionnaire was prepared to assess the impact of boxcar deregulation on western transcon-

tinental lumber and plywood shipments to points east of the Rocky Mountains. The questionnaire contained 21 hypothetical statements about the potential impacts of boxcar deregulation upon rates, service and equipment utilization, volume of transcontinental lumber shipments, and the role of intermediaries in the distribution channel. A list of the hypothesized effects of boxcar deregulation appears in Table 1.

The questionnaire was mailed to 110 traffic managers or chief executive officers of lumber mills and wholesalers that belong to the Western Wood Products Association (WWPA). The mills and wholesalers were asked to indicate the degree to which they agreed with the hypothetical statements about the impacts of boxcar exemption upon western transcontinental shipments. A five-point scale was used to rank responses as follows: 1—Strongly Disagree; 2—Disagree; 3—Not Sure; 4—Agree; and 5—Strongly Agree. A total of 35 useable responses was received. The response rate was 32 percent. The responses included 13 wholesalers and 22 mills.

Two-thirds of the mills and wholesalers that responded to the questionnaire indicated disagreement with the proposition that boxcar deregulation will have no effect on the transportation of western transcontinental lumber. One-fourth of the respondents were not sure, while nearly 8 percent agreed with the proposition. Their views about the specific nature of the potential effects are examined topically in the following sections.

#### Railroad Rates:

Table 2 presents the respondents' perceptions of what impact boxcar deregulation will have on railroad rates for western transcontinental lumber traffic. Unfortunately, a clear picture of rates for linehaul and ancillary services does not emerge. There is a slight tilt toward the view that deregulation will not produce lower linehaul rates or lead to higher rates for ancillary services. Likewise, the respondents lean slightly toward the view that minimum weights will increase.

On the other hand, a clearer pattern emerges for the other rate-related issues that are shown in Table 2. A substantial proportion (from 62 to 75 percent) agree that the boxcar exemption will: (1) stimulate the use of long-term contracts; (2) result in more volatile market-oriented rates; (3) increase incentive rates; and (4) eliminate blanket rate applications.

#### Lumber Traffic and Intermediaries:

If the perceptions found among the sampled shippers are correct, there appears to be little optimism that the boxcar exemption will help generate increased levels of railroad lumber traffic. As shown in Table 3, 54 percent of the shippers disagree with the view that boxcar lumber traffic will increase, contrasted to the 26 percent who agree. In addition, about two-thirds do not see the railroads recapturing truckload size shipments.

A majority of the respondents (59 percent) disagree with the assertion that the significance of lumber brokers will decrease. They (53 percent) tend

TABLE 2

### RESPONDENTS' VIEWS OF IMPACT OF BOXCAR DEREGULATION ON RAIL RATES FOR WESTERN TRANCONTINENTAL LUMBER

Issue: Boxcar exemption will	(Percent Responding*)				
	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1. decrease linehaul rates.	18	26	29	26	0
2. decrease rates for ancillary services.	0	29	32	23	15
3. result in increased minimum weights.	0	26	32	32	9
4. increase boxcar profitability through backhaul rates to reduce empty mileage.	0	17	23	47	12
5. stimulate the use of long term contracts.	3	9	21	44	24
6. result in fluctuating rates that change in response to supply and demand.	0	12	12	62	15
7. result in more incentive rates for high volume shipments over 60,000 lbs.	0	21	18	50	12
8. eliminate the blanket rate structure.	0	3	29	47	21

\* May not sum to 100 due to rounding.

Sample size (n) = 35 from population (N) = 110 Western Wood Products Association Members.

TABLE 3

**RESPONDENTS' VIEWS OF IMPACT OF BOXCAR DEREGULATION ON  
VOLUME OF WESTERN TRANSCONTINENTAL LUMBER AND  
IMPORTANCE OF INTERMEDIARIES**

Issue: Boxcar exemption will	(Percent Responding*)				
	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
9. increase boxcar lumber traffic.	18	26	29	26	0
10. enable western railroads to recapture truckload size shipments (45,000-48,000) from motor carriers.	15	50	9	23	3
11. decrease the significance of lumber brokers.	9	50	11	23	6
12. result in new transportation middlemen - brokers and consolidators - who will negotiate boxcar rates and supply with shippers.	3	21	23	44	9

\* May not sum to 100 due to rounding.

Sample size (n) = 35 from population (N) = 110 Western Wood Products Association Members.

TABLE 4

**RESPONDENTS' VIEWS OF IMPACT OF BOXCAR DEREGULATION ON  
TRANSPORT SERVICE AND EQUIPMENT UTILIZATION**

Issue: Boxcar exemption will	(Percent Responding*)				
	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
13. improve rail service (such as car supply, transit time, or on-time delivery).	18	38	32	6	6
14. decrease the volume of lumber transits in roller cars.	0	15	29	35	21
15. increase the competitive position of boxcars with exempt TOFC shipments.	3	21	41	29	6
16. increase the competitive position of boxcars with regulated bulkhead flatcars.	6	41	21	26	6
17. increase the competitive position of mills that use private boxcar fleets.	21	26	38	12	3
18. increase the number and size of private boxcar fleets used by mills.	29	38	29	0	3
19. result in rerouting private boxcars away from traditional high mileage routes to avoid surcharges levied by eastern railroads.	0	15	59	18	9
20. increase the use of boxcars for transcontinental lumber shipments.	15	12	29	41	3

\* May not sum to 100 due to rounding.

Sample size (n) = 35 from population (N) = 110 Western Wood Products Association Members.

to agree that the boxcar exemption will result in new transportation intermediaries who will negotiate rates and car supply with shippers.

#### Service and Equipment Utilization:

Most of the respondents (56 percent) do not see the boxcar exemption fostering service improvements; only 6 percent indicated a favorable outlook for service, while nearly a third (32 percent) were not sure (see Table 4). Similarly, 56 percent believe that the use of lumber transit privileges (which contribute to poor car utilization) will decline.

Considerable uncertainty characterizes the issue of whether the newly exempted boxcar shipments will become more competitive with exempt TOFC or with regulated bulkhead flatcar shipments. On

the other hand, there seems to be a consensus among the respondents that mills which use private boxcars will not have a competitive advantage and that private boxcar fleets will not increase. This view may be held because rail carriers now have more control over private car-hire mileage compensation levels. In addition, about three-fifths (59 percent) of the shippers sampled are not sure whether the boxcar exemption will result in rerouting of private boxcars away from traditional high mileage routes because of surcharges levied by eastern railroads.

Finally, the respondents are split over the issue of whether the boxcar exemption will mean further reductions in the use of boxcars for transcontinental lumber shipments. While 44 percent disagree, 27 percent agree, and the rest are not sure.

TABLE 5  
RESPONSES OF MILLS V. WHOLESALERS

Issue: Boxcar exemption will	Means*		t Statistic**	Level of Significance
	Mills	Wholesalers		
<b>Rates</b>				
1. decrease linehaul rates.	-0.04	-0.25	-0.69	0.49
2. decrease rates for ancillary services.	-0.83	-0.75	0.39	0.70
3. result in increased minimum weights.	0.22	0.08	-0.45	0.65
4. increase boxcar profitability through backhaul rates to reduce empty miles.	0.60	-0.08	-2.22	0.04
5. stimulate use of long-term contracts.	0.56	0.42	-0.56	0.58
6. result in fluctuating rates that change in response to supply and demand.	-0.61	-0.67	-0.23	0.82
7. result in more incentive rates for high volume shipments > 60,000.	0.48	0.33	-0.49	0.47
8. eliminate blanket rate structures.	0.61	0.75	0.73	0.47
<b>Lumber Traffic and Intermediaries</b>				
9. increase boxcar traffic	-0.04	-0.50	-1.57	0.13
10. enable western railroads to recapture TL (45,000 - 48,000 lbs.) shipments.	-0.30	-0.50	-0.62	0.54
11. decrease significance of lumber brokers.	-0.39	-0.08	0.97	0.34
12. result in new transport intermediaries.	0.13	0.67	1.87	0.07
<b>Service and Equipment</b>				
13. improve rail service.	-0.43	-0.33	0.38	0.70
14. decrease lumber transits	0.30	0.67	1.40	0.17
15. increase competitive position of boxcars with exempt TOFC shipments.	0.26	-0.17	-1.62	0.11
16. increase the competitive position of boxcars with regulated flatcars.	-0.17	-0.08	0.29	0.78
17. increase the competitive position of mills that use private cars.	-0.35	-0.25	0.38	0.71
18. increase number and size of private boxcar fleets used by mills.	-0.57	-0.67	-0.47	0.64
19. result in rerouting private cars away from high mileage routes to avoid surcharges by eastern railroads.	0.17	0.08	-0.39	0.70
20. increase level of transcontinental boxcar shipments.	0.30	-0.17	-1.60	0.12
<b>Overall Effect</b>				
21. have no effect on transportation of western transcontinental lumber.	-0.61	-0.58	0.12	0.91

\* Agree or strongly agree = 1; not sure = 0; disagree or strongly disagree = -1.

\*\* t-statistic used is for unequal variances when equal variances hypotheses is rejected (at 0.05 level).

**Mills and Wholesalers:**

The responses from mills and wholesalers were compared. Because the sample sizes are very small, differences in the responses of the two groups may not be detectable when the original five response categories are retained. One way to address this problem is to aggregate two or more response categories in a way that will not affect the overall thrust of the responses generated. In this instance, "strongly disagree" and "disagree" were combined and coded as -1; likewise "strongly agree" and "agree" were aggregated but coded with the value of 1. All "not sure" responses were coded as 0. Although these transformations reduce the levels of agreement or disagreement about a given issue, they do not detract from the substance of the responses.

Table 5 shows that the hypothesis of equal means (no difference between mill or wholesaler views) cannot be rejected (at the .10 level of significance) for nearly every issue listed in Tables 2-4. There are two exceptions. In the first instance, responses diverge over the issue of whether the boxcar exemption will increase boxcar profitability through backhaul rates to reduce empty mileage. The wholesalers tend to agree with the proposition, while the lumber mills, in general, are not sure or disagree. In the second case, mills and wholesalers split on the issue of whether the boxcar exemption will produce more transport intermediaries. The mills are generally divided on this issue, while wholesalers basically agree with the proposition.

**V. Conclusions:**

The impact of boxcar deregulation upon western transcontinental lumber traffic is characterized by substantial uncertainty and disagreement. The only clear indications are that deregulation will stimulate the use of contract rates; result in fluctuating exempt rates; increase the use of incentive rates; and rationalize existing rate structures. Shippers do not appear to believe that boxcar deregulation will decrease linehaul rates; decrease boxcar lumber traffic; divert truckload shipment size movements to boxcars; improve rail service; or enhance private car fleets. A majority of the respondents do not believe that boxcar deregulation will reduce the significance of lumber brokers. On the contrary, shipper responses lean toward agreement with the proposition that deregulation may increase participation of brokers and intermediaries in negotiating boxcar rates and supply for shippers.

The research findings are preliminary with respect to the implementation of boxcar deregulation and the small sample of mills and wholesalers. The results indicate, however, that the exemption of boxcar traffic from economic regulation is unlikely to

have a significant impact on the distribution of western transcontinental lumber traffic.

**NOTES**

1. Interstate Commerce Commission, *Ex Parte No. 346 (Sub-No. 8) Exemption From Regulation — Boxcar Traffic* (May 2, 1983).
2. Interstate Commerce Commission, *Ex Parte No. 346 (Sub-No. 8) Exemption From Regulation Boxcar Traffic* (December 2, 1983).
3. "Meeting Set to Simplify Review of Box Car Case; Rails Seek ICC Hearing," *Traffic World* (June 27, 1983) p.12.
4. Interstate Commerce Commission, *Ex Parte No. 346 (Sub-No. 8) Exemption From Regulation — Boxcar Traffic* (May 2, 1983) p. 12.
5. Interstate Commerce Commission, *Ex Parte No. 270 (Sub-No. 7) Investigation of the Railroad Freight Rate Structure — Lumber Products* (May 23, 1978) pp. 2550-2940.
6. John E. Tyworth and Ronald S. Koot, "The Impact of General Rate Increases on the Penetration of Midwestern Lumber Markets," *The Logistics and Transportation Review*, Vol. 17, No. 3, (September, 1981), pp. 343-359.
7. John E. Tyworth, "The Analysis of Shipper Operating Policies and Private Freight Car Utilization," *Transportation Journal*, Vol. 17, No. 1, (Fall, 1977), pp. 51-63.
8. Western Wood Products Association, "Changing Lumber Markets," (Portland, Oregon: 1983) p. 8.
9. Kevin Horn, "Truck Movements of Western Lumber: Marketing Implication for Railroads," (Washington, D.C.: Association of American Railroads) June 22, 1979, p. 7.
10. See for example Chessie System Railroads/Seaboard System Railroad *Exempt Boxcar Circular No. 10*, Item 20 (effective January 1, 1984), p. 3.
11. Railways may have substantially greater leverage with boxcars than TOFC to induce shippers into contract rates for regulated traffic because of differences in equipment capacity and shipment size. Attempts to use TOFC to secure contracts for regulated equipment will likely be constrained by competition from truckload motor carriers for 40,000 pound shipments. Boxcar incentives for larger shipment sizes (80,000 pounds) could be offered without direct substitution by a flatbed trailer.
12. Interstate Commerce Commission, *Ex Parte No. 346 (Sub-No. 8) Exemption From Regulation — Boxcar Traffic* (May 2, 1983), p. 25.