U.S. Department
of Transportation

**Federal Railroad
Administration**

**Interstate Commerce
Commission**

Office of Transportation
Analysis

A Survey of Shipper Satisfaction with Service and Rates of Shortline and Regional Railroads

Joint Staff Study

August 1989

PREFACE

This report presents the results of a shipper survey conducted jointly by the staff of the Federal Railroad Administration (FRA), an agency of the U.S. Department of Transportation, and the Interstate Commerce Commission (ICC). The survey was designed to provide information on shipper experiences with shortline and regional railroads created since 1980.

This report was prepared by staff of the FRA's Office of Economic Analysis and the ICC's Office of Transportation Analysis, and does not necessarily reflect the policies of the Administration or the ICC.

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EXECUTIVE SUMMARY

The Staggers Rail Act of 1980 (Staggers Act) ushered in a new era for the U.S. freight railroad industry and its shippers. By removing obsolete and restrictive regulations, the legislation gave carriers the flexibility to react quickly to the competitive marketplace, offering shippers rate and service levels responsive to their needs. In turn, market forces have required the railroads to reduce costs and promote efficient operations in order to attract and retain traffic. Often, these efforts have led to significant restructuring, as railroads have sold unprofitable or marginally profitable lines to operators whose lower costs allow them to continue to provide service.

The increase in the number of these smaller railroads has been dramatic. Almost half of the 424 independent shortline and regional railroads in operation in mid-1989 were formed since the passage of the Staggers Act. The creation of these new carriers has been aided by the ICC, which replaced burdensome and lengthy review of these transactions with streamlined procedures that allow lines to be sold to new operators in a timely manner, before service deteriorates.

The ICC and the FRA support shortline and regional railroad growth, and have undertaken projects to monitor this emerging segment of the industry and evaluate the effect of its growth on

shippers.[1] The primary focus of this study was to determine how shippers compare the services and rates offered by their new shortline or regional carrier with those of the railroad that had previously served them.[2] Additionally, we investigated whether perceived service and rate changes varied with characteristics such as shipper size and commodities shipped.

The population of new shortlines and regionals considered for this study was all 177 railroads formed since 1980 and still providing service as of October 1987 -- 14 regionals (defined as operating 250 miles or more of track) and 163 shortlines[3]. The 14 regionals operate, on average, 537 miles of track and haul about 1 million carloads annually. The 163 shortlines, with an average length of 48 miles, haul 700,000 carloads annually. The former have an average of about 215 shippers, compared to 14 for the latter.[4]

The study was conducted through a two-part sample. First, a carrier sample was chosen that included all 14 regionals and 64

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[1] As part of this effort, FRA recently submitted a report to Congress entitled Deferred Maintenance and Delayed Capital Improvements on Class II and Class III Railroads. (February 1989)

[2] Improvements in rates should not necessarily be construed as rate reductions, but as an overall sense of improved value to the shipper for what is being paid.

[3] The ICC's working definitions of regional and shortline railoads have been adopted for this study.

[4] Figures are based on ICC profile data for shortline and regional railroads, as well as shipper information compiled from this study.

randomly selected shortlines. The railroads in the sample provided lists containing approximately 5,500 shipper names and addresses. Questionnaires were mailed to a stratified sample of 627 shippers, 524 of which were subsequently identified as in-scope (those who either originate or terminate traffic on a sample railroad). Telephone follow-up helped achieve an extremely high response rate (493 out of 524, or 94 percent). The survey results are discussed below, starting on page 8, with a question by question summary of user responses presented in Appendix B and supplementary user results tables in Appendix C.

The user survey results showed a clear pattern of shipper satisfaction with both service and rates offered by the shortline and regional railroads created after the enactment of the Staggers Act, with no significant differences between responses of shortline and regional shippers. Table 1 shows that an overwhelming 94 percent of the survey respondents believed that service levels had been maintained or improved.[5] Shippers also responded favorably when asked about their current railroad's rates -- 88 percent reported that rate levels had improved or stayed the same.

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[5] The comparison scale in the survey had five ratings: much better, better, about the same, worse, and much worse. These five categories were collapsed into three -- improved, same, and worse -- in order to satisfy statistical testing requirements.

Table 1

Comparison of Service and Rates:
Existing vs. Previous Railroads

	Improved	Same	Worse	Total	Responses
Service	52%	42%	6%	100%	382
Rates	28%	60%	12%	100%	335

About three-fourths of the respondents provided at least one comment to supplement their answers to the formal survey questionnaire. Service-related comments indicated that the respondents were satisfied with the frequency of service the railroads currently offer. Some indicated that the railroad's operations were sufficiently flexible to service their needs on request, including nights and weekends. Overall, good communications appear to exist between these new railroads and their shippers, and in most cases, customers feel they are receiving responsive, personal attention.

In their rate-related comments, some shippers stated that rates had actually decreased, as a result of contracts, better routing of traffic, absorption by the railroad of more of the switching charges, among other factors. In contrast, those respondents dissatisfied with rate changes claimed that the imposition of surcharges and/or high demurrage charges were

factors in their higher rates.

To see whether satisfaction ratings differed by shipper characteristics, these shipper comparisons were evaluated against other factors such as shipper size and the availability of alternative transportation. For most categories, the degree of satisfaction with service and rates was not significantly affected by such factors as shipper's size, extent of reliance on the railroad, access to another railroad, or access to other modes of transportation.

There were a few interesting exceptions to this pattern. Shippers whose predecessor railroad was a Class I indicated significantly more often that rates had improved than did shippers with prior Class II or III railroad service. An evaluation of responses by major commodity shipped revealed that receivers of grain indicated more frequently that service had improved than did receivers of pulp/paper products. Similarly, with respect to rates, receivers of grain reported improvements more often than did receivers of several other major commodity groups.

Although the intent of the questionnaire was to survey current rail users, some sampled shippers no longer used their study railroad; 56 shippers fell into this category. Twenty-five of these shippers cited unacceptable rates and/or inadequate service as principal reasons for terminating service. Among the non-

railroad-related causes, seven stated that plant closings and cutbacks in operations were responsible for discontinuing service. Four other shippers cited changes in business conditions and production processes, and one commented that customers requested that lumber products be delivered by truck.

Overall, the majority of these former users stated that when they terminated use of rail service they shifted to all-truck. However, several said that they were now shipping by trailer-on-flatcar (TOFC) and a combination of truck and TOFC, using a railroad other than the study carrier.

In conclusion, the user survey results found a clear pattern of shipper satisfaction with both service and rates offered by the shortline and regional railroads created after the enactment of the Staggers Act. The surveyed shippers clearly believed that their current rail service had improved or stayed consistent with prior levels. Additionally, most appeared to believe that rate levels had not deteriorated.

INTRODUCTION

Purpose of the Study

The Staggers Rail Act of 1980 (Staggers Act) removed many regulatory restraints from the U.S. freight railroad industry. As a result of this partial deregulation, carriers now have the flexibility and incentive to react quickly to market forces by offering rate and service levels responsive to shippers' needs.

Since passage of the Staggers Act, there has been a dramatic growth of shortline and regional railroads. (As used here, the former operate fewer than 250 miles of track; the latter operate 250 miles or more.) Streamlined sales procedures implemented by the ICC to replace burdensome and lengthy Federal review of proposed transactions have allowed linehaul carriers to improve productivity, reduce costs, and maintain service, by selling unprofitable or marginally profitable lines to lower-cost rail operators. Approximately 200 new regional and shortline railroads have been created since 1980.

The ICC and the FRA have supported shortline and regional railroad growth, and have undertaken projects to monitor this emerging segment of the industry and to evaluate the effect of its growth on shippers.[6] [7] This survey was designed to examine

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[6] As part of this effort, FRA recently submitted a report to Congress entitled Deferred Maintenance and Delayed Capital Improvements on Class II and Class III Railroads. (February 1989)

shipper satisfaction with shortline and regional railroads by comparing service and rates of the new carriers with those of the prior rail operation.

The 1980's growth in shortline and regional railroads has generated controversy. Critics express concern that shippers are left with fewer rail service options, that the lines sold are not financially viable, and that employees affected by line sales are not afforded labor protection benefits. Supporters of shortline and regional railroad growth argue that the creation of these new railroads preserves rail service and employment, and improves rail service and profitability. It is hoped that the survey results will assist policymakers in assessing how this growth in shortline and regional railroads has affected shippers.

Scope of the Survey

The study focused on current and former users of rail service begun since 1980 and still in operation, to ensure that data collection would not present major problems.[8] The study team

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[7] The term shippers will always include both shippers and receivers, except where the two are discussed separately.

[8] A survey of former users of terminated new rail service was considered and rejected, because of the difficulty of surveying inactive railroads and their shippers. Appendix E presents limited information on railroads that began service since 1980 and ceased operating prior to 1988, and on those railroads which subsequently resumed operations prior to 1988 with a new owner or operator.

also weighed surveying communities affected by new rail operations, in order to determine the broader effects of shortline and regional railroad growth. However, methodological limitations made this additional investigation impractical as well.

Shipper Sample

Sampling procedures and related statistical methods are detailed in Appendix D of this study. Key numbers and procedures are highlighted in the text.

The study population of rail carriers was all 177 railroads formed since 1980 and still providing service as of October 1987. It included 14 regionals and 163 shortlines. From this carrier population group, all 14 regionals and 64 randomly-chosen shortlines were selected for the carrier sample. Complete shipper lists were obtained from 75 of the 78 carriers (three carriers were dropped from the study, because two were inactive and one went out of business). These shipper lists, which were audited for completeness and consistency, yielded approximately 5,500 shippers.[9] These shippers were then divided into two groups: regional railroad shippers (approximately 4,500) and shortline shippers (approximately 1,000). From these, 331 regional and 296 shortline shipper names were selected,

[9] Twenty-seven percent of these shippers were later identified as out-of-scope. For further details, see Appendix D, page 2.

representing 71 of the 75 railroads that provided shipper lists. Four shortlines, with a combined total of only seven shippers, had none of their shippers chosen in the random selection process.

Each of the 627 rail shippers was contacted by phone to verify if the shipper was still operating and to identify the company official most knowledgeable about rail service. Questionnaires were then mailed to 641 shipping facilities (some shippers operated more than one facility). Telephone follow-up was used to encourage completion of questionnaires. A total of 493 useable responses was received from 524 in-scope facilities.

The Survey Instrument

The survey instrument was a questionnaire consisting of 10 questions. Respondents no longer using the railroad were asked to complete only Question #1 -- a list of reasons why they stopped using that railroad's service. All current users were asked to complete Questions #2-10. These questions called for some general shipper profile data, such as size of company and volume of traffic. The heart of the survey was Question #7. It asked shippers to compare the existing railroad with the previous railroad in terms of both service and rates. The comparison scale had five categories: much better, better, about the same, worse, and much worse. (The complete questionnaire, mailed in August 1988, appears in Appendix A.)

USER SURVEY RESULTS

Background on Respondent Shippers: Shortlines

Fifty-four percent of the respondent shortline shippers are located east of the Mississippi River. On the average, they employ 123 people at the survey location, and are part of companies with over 3,700 employees. Twenty-nine percent of the respondents are single-location companies.[10]

Virtually all of the shortline respondents (96 percent) indicated that rail service was available before the current railroad took over; 87 percent indicated that they had used the previous rail service.[11] For 82 percent of the shortline users, the predecessor railroad was a Class I railroad.[12] Respondents had used rail service at their present location for an average of 24 years.

As indicated in Chart 1, the commodities most frequently received by railroad at the survey locations are fertilizer,

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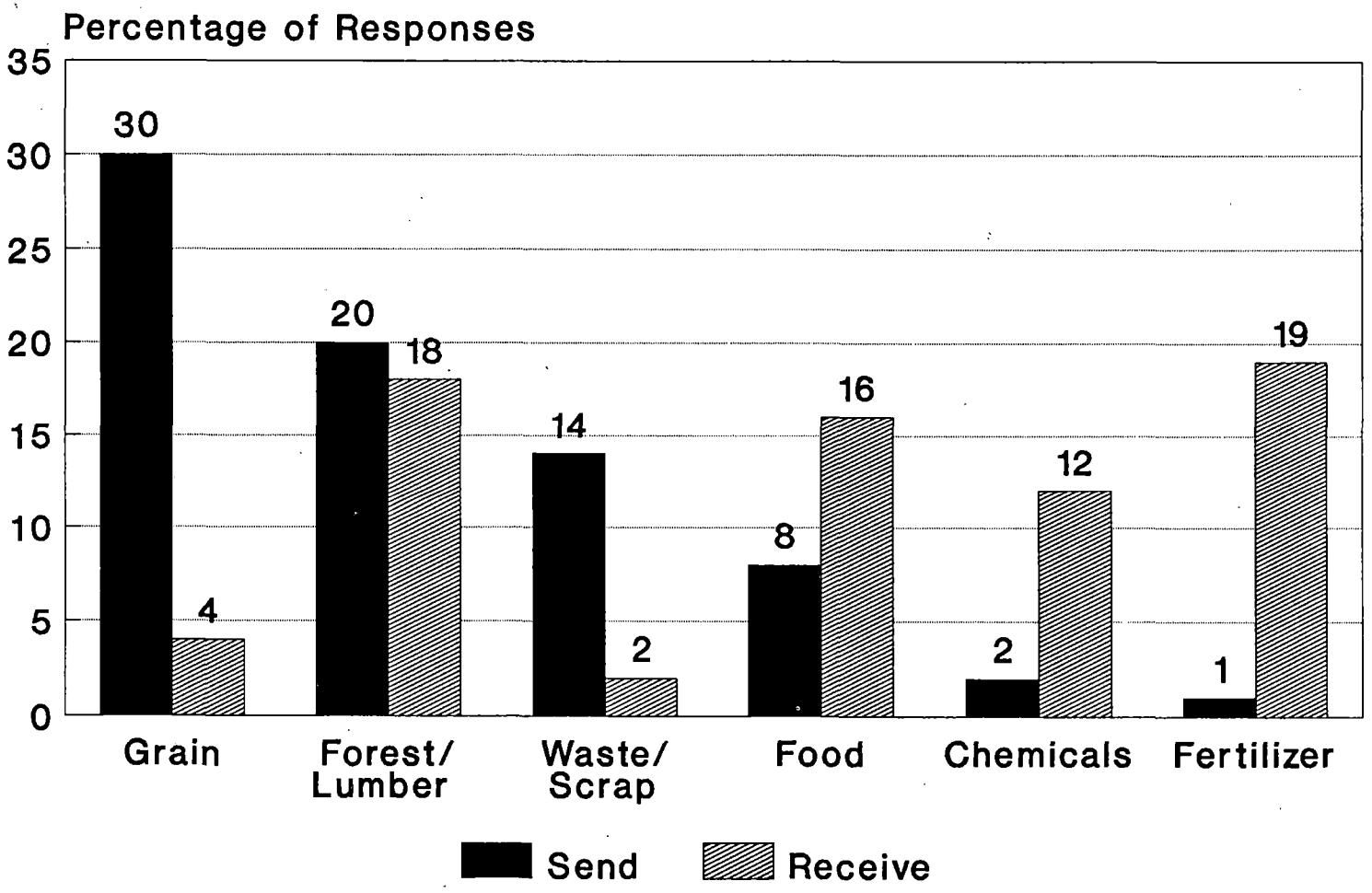
[10] Companies were assumed to be single-location shippers when their reported local employment and total employment were equal.

[11] The primary reasons why 4 percent stated that they had no previous railroad service were: 1) the shipper disputed the fact that the railroad serving him had been transferred since 1980; and 2) the shipper moved to the rail line after it began operations and was unaware of previous rail service at that location.

[12] The class of the predecessor railroad was determined from independent ICC data.

CHART 1

MAJOR COMMODITIES: SHORTLINE RAILROADS



forest/lumber products, food products, and chemicals. The commodities most frequently sent by rail are grain, forest/lumber products, and waste/scrap. The surveyed rail users send an annual average of 508 rail carloads and receive 268 carloads. Twenty percent rely on the railroad for over 75 percent of all their inbound tonnage, and 28 percent for over 75 percent of their outbound tonnage. About one-third receive daily service, and a full three-quarters receive service at least once a week. A number of shippers (about half who submitted comments) indicated that the railroad provides them service as needed. Eight percent of the shortline respondents have an ownership interest in or control of their railroad.

Background on Respondent Shippers: Regionals

Fifty-five percent of the respondent shippers utilizing regional railroads are located east of the Mississippi River. These shippers employ an average of 236 employees at the survey location and are part of companies with an average of 6,101 employees. Thirty-five percent of these companies have a single location.

Virtually all of the regional railroad shippers (99 percent) affirmed there was rail service at the survey location before the existing railroad initiated service, and 93 percent indicated that they had used the prior service. Ninety-seven percent of shippers on regional lines indicated they were previously served

by a Class I railroad. They had used rail service for an average of 24 years. As indicated in Chart 2, the regional shippers' top commodities received by railroad are food products, grain, pulp/paper products, fertilizer, forest/lumber products, and chemicals; the top commodities sent are grain, waste and scrap, forest/lumber products, food products, and pulp/paper products.

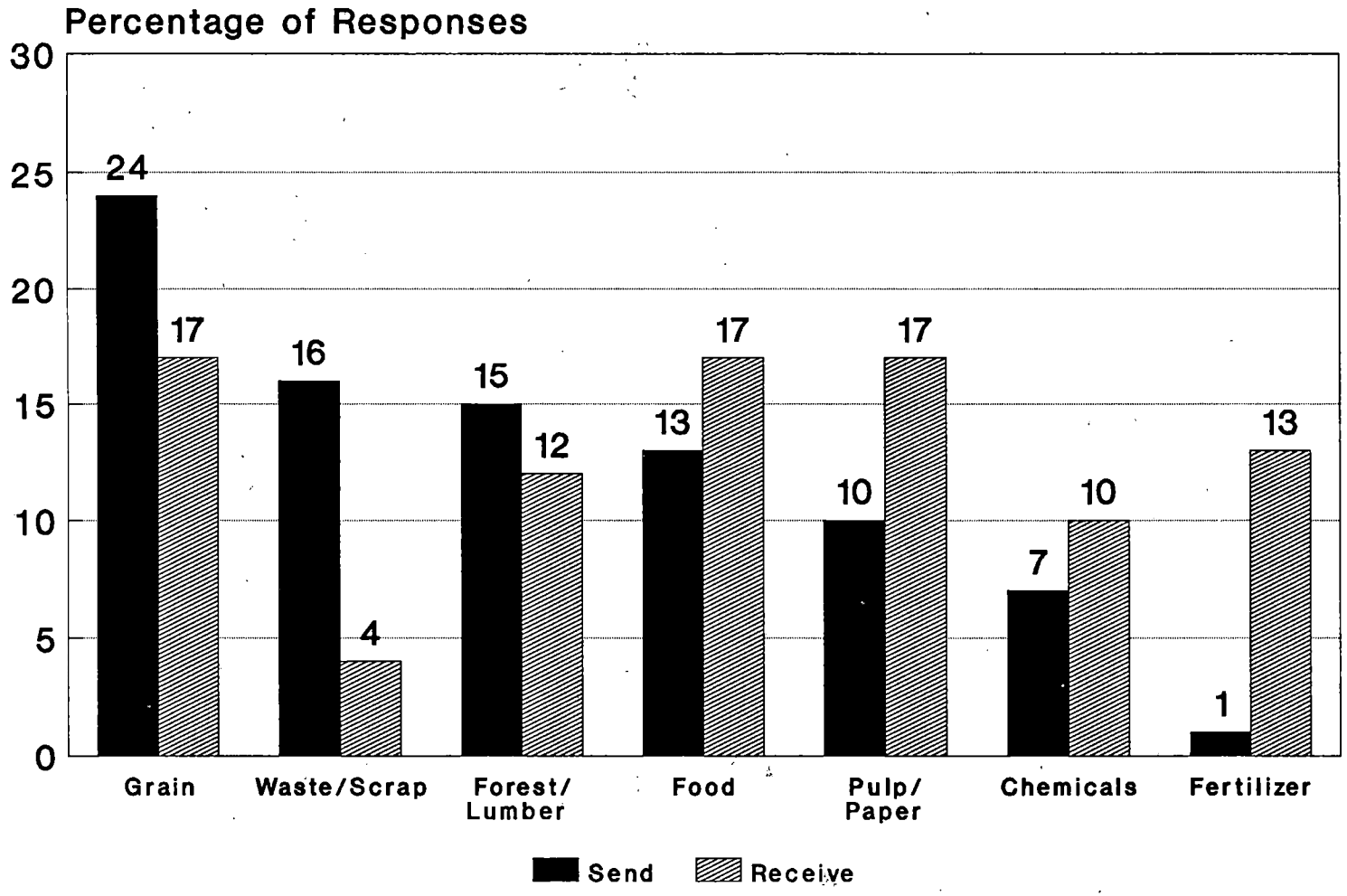
As with the shortline users, regional rail users send more carloads than they receive -- an average of 664 carloads outbound and 416 carloads inbound. Thirty-four percent of the shippers rely on the railroad for over 75 percent of their inbound tonnage, and thirty percent for over 75 percent of their outbound tonnage. Fifty-three percent of these shippers have their plant served daily and a full 85 percent receive service at least once a week. Nearly 40 percent of those providing comments stated that their railroad provides service as needed. None of the respondent shippers located on a regional railroad has an ownership interest in or control of the railroad.

Survey Findings

The survey found a clear pattern of satisfaction with both service and rates offered by the shortline and regional railroads created after the enactment of the Staggers Act. Shippers were asked to compare the service and rates of their existing railroad with those of the previous railroad, choosing from the following alternatives: "much better," "better," "about same," "worse," and

CHART 2

MAJOR COMMODITIES: REGIONAL RAILROADS



"much worse." In order to satisfy statistical testing requirements for the number of responses, the five categories were then collapsed to three for analytical purposes: the "much better" and "better" responses were combined into what is referred to as "improved", "about the same" was renamed "same", and "worse" or "much worse" became "worse."[13]

The basic issue investigated was whether service and rates have improved under the new railroad. This issue was tested further to see if responses varied with characteristics such as shipper's size, ownership interest in the current railroad, commodities shipped, extent of reliance on the railroad, access to another railroad, and contingency plans if the rail service had been discontinued. Statistical testing was performed to determine which groupings of these characteristics, if any, had significant differences where service and/or rates had improved.[14] [15]

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[13] This regrouping allowed statistical tests of significance, which were conducted at the 90 percent significance level unless otherwise noted.

[14] Data are reported for all users combined either where a Chi-Square test indicates that the distribution for the shortline and regional railroad respondents does not differ at the 90 percent level of significance, or where there are not enough observations to perform a Chi-Square test.

[15] Improvements in rates should not necessarily be construed as rate reductions, but as an overall sense of increased value to the shipper for what is being paid.

Chart 3 indicates that 94 percent of the respondents believe that service has improved or stayed the same, with only 6 percent believing service has deteriorated. With respect to rates, 88 percent responded that rates have improved or remained the same -- 12 percent believed that rates have worsened. From the survey responses, there was no way to determine if shippers viewed all rate increases unfavorably, or just those which exceeded the rate of inflation.

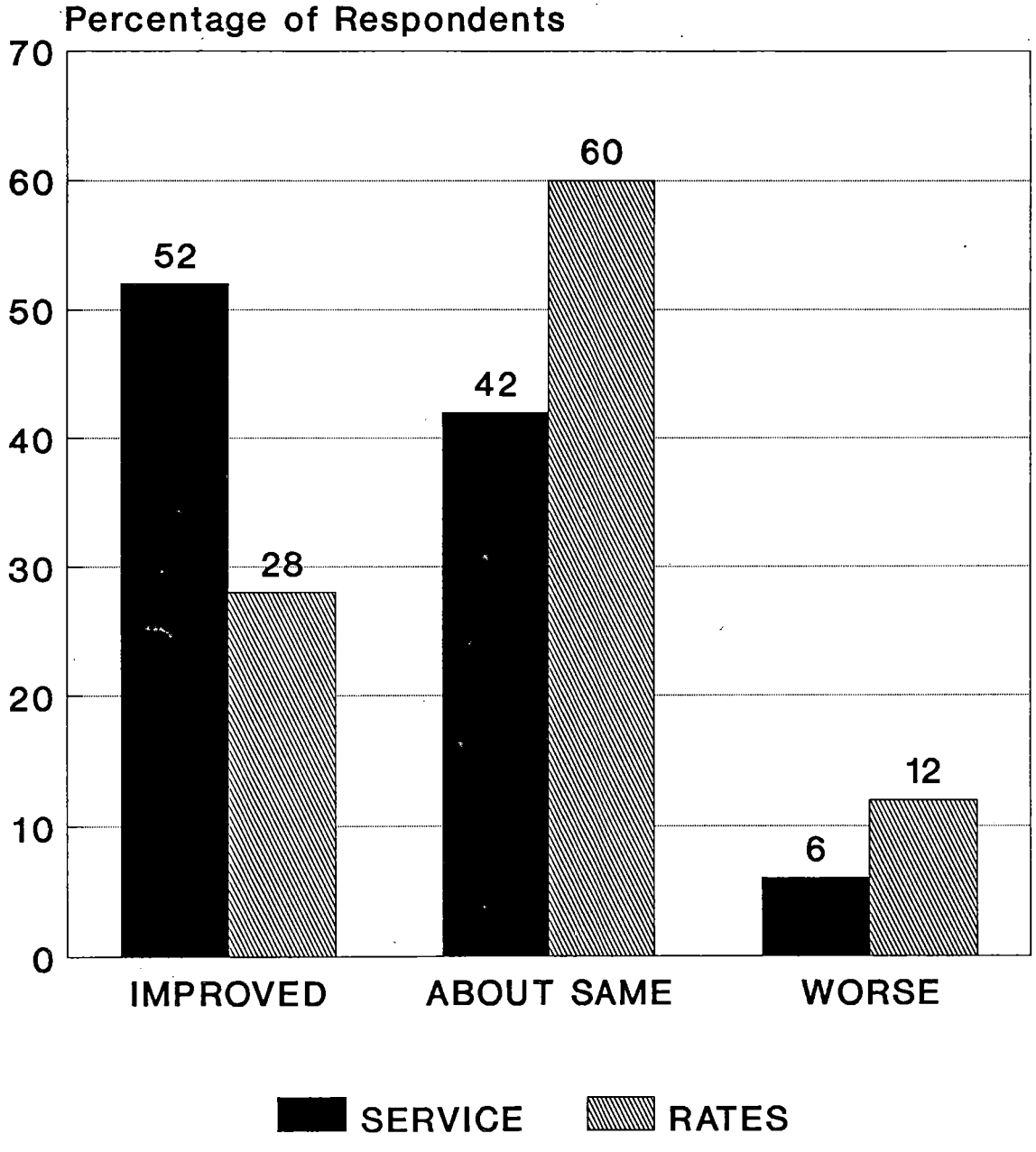
Service Comments[16]

Among the shippers' service-related comments, positive or favorable ones were roughly double the negative or unfavorable comments. Out of 68 written comments, 43 were positive and 21 negative. The remainder were either neutral or indicated a comparison could not be made with the previous service. Fourteen of the favorable comments indicated that good communications exist between the railroad and its shippers, and in most cases these shippers believe they are receiving responsible, personal attention. Some of these were among the seven respondents who also noted that the carrier serving them was flexible enough to provide service upon request, and that service was timely and

[16] About three-quarters of the rail user respondents supplemented at least one of their survey questionnaire answers with a comment. These comments were not subjected to statistical testing, because individuals who take the extra effort to provide comments tend to do so because they feel strongly about an issue and their comments may not be representative of the entire survey sample.

CHART 3

COMPARISONS OF SERVICE AND RATES FOR EXISTING VS. PREVIOUS RAILROAD



more frequent than with the previous railroad. This carrier responsiveness appears to have promoted a good working relationship between the railroads and their shippers.

Five respondents reported that they are aware of and are sympathetic to -- at least in the short term -- certain problems the carriers face in providing good quality service. They recognize that the serving carriers are dependent on interline connections. Two respondents noted that their problems with service were the result of the carrier's inability to supply empty cars.

Rate Comments

For the 100 respondents providing written comments concerning rates, 24 had negative comments and 16 had positive ones; the remaining either expressed a neutral judgment or were non-evaluative. As mentioned in the discussion on rate responses, it is also unclear from these rate-related comments if respondents viewed all rate increases unfavorably, or just those which exceeded the rate of inflation. Forty-nine stated that they were receivers of rail-shipped commodities and were unaware of the specific freight charges on the commodities they received, since freight bills were paid by the party who originated the shipment. In three of the other comments, shippers complained that rail rates were no longer available to certain destinations. In two of these cases, it was unclear if the study railroad or the

connecting railroad was responsible. In the third case, the connecting carrier allegedly would not offer joint rates. Three respondents claimed that rates were too high, citing the imposition or passing-on of surcharges by the railroad serving their facility. Two shippers thought that demurrage charges imposed by the serving carrier began too quickly and were too high.

In contrast, some respondents stated they were pleased with the way rates had been lowered by the railroad serving them. In seven of these cases, traffic moved under contract with reduced rates for specified volumes. One respondent reported that rates had decreased because the larger connecting carrier was absorbing more of the switching charge; another stated that the railroad serving its facility helped them obtain better rates through favorable traffic routing.

Shipper Size

The respondents' service and rate comparisons were analyzed to determine if their evaluations differed according to selected shipper characteristics. Shipper size, one of these characteristics, was measured in three ways: shipper employment at the survey location; whether the company was a single or multi-plant firm; and the annual rail traffic level at the survey location. Satisfaction with service and rates was not significantly affected by shipper size, no matter which measure

was used. The analysis indicates that small shippers' perceptions of service and rates did not differ significantly from those of larger shippers.[17]

Rail Share

Respondents were asked to estimate what proportion of their inbound and outbound freight was shipped by rail. These estimated rail shares were calculated by dividing rail tons received or shipped by total tons received or shipped via all modes at the survey location. Neither responses for improved service nor improved rates differed significantly by various levels of inbound or outbound rail shares, indicating that the perception of changes in service and rates did not depend on rail share. For example, among respondents who relied heavily on outbound rail service -- i.e., over 75 percent of their outbound traffic -- 93 percent thought service had improved or remained the same. Similarly, for those relying on rail service for up to 25 percent of their outbound traffic, 94 percent indicated that service had improved or remained the same.

Statistical tests indicated that shippers' reliance on rail service from their existing and previous carriers did not differ significantly. Of the 173 comments received on previous or existing rail share, approximately two-thirds were neutral.

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[17] For information on the distribution of responses to service and rate changes by various shipper size measures, see Tables C-4 - C-6, Appendix C.

Among the prominent comments, ten respondents cited reduction in rail share because of cutbacks in service and/or unattractive rates offered by their current carrier compared with those of the previous railroad. Lost transit privileges and inadequate car supply were singled out, but these respondents did not indicate whether the serving railroad or the larger connecting railroad was principally responsible for these service reductions. Three respondents stated that some of their customers or suppliers now prefer truck, indicating that in some cases receivers had removed their rail facilities and that some suppliers were not equipped to load railcars. Two shippers of building materials stated that, in most cases, they relied on the railroad for hauls greater than 400 to 600 miles.

Five respondents reported that their increased rail share was a result of economic fluctuations and the corresponding level of activity at their facilities, rather than any change in rail service quality. Two commented that equipment upgrading by the present carrier allowed them to ship more per car; however, one increased and one decreased rail share. One stated that they had not changed rail share, but they might increase rail use if service became more consistent.

Other Characteristics

Responses were examined by the geographic distribution of shippers, level of frequency of service, and type of rail traffic

(inbound only, outbound only, or both). None of these characteristics was a statistically significant factor in affecting the distribution of responses for changes in service or rates. Specifically, responses were not significantly different for various levels of service frequency, type of traffic (send only, receive only, or send and receive), or for shippers located either east or west of the Mississippi River.[18]

Transportation Options

To determine the transportation options available to the study shippers, respondents were asked to indicate if they had access to railroads other than the study carrier (through switching, additional sidings, truck-rail, or TOFC service), and what their contingency plans would have been had their line been abandoned rather than acquired by a new shortline or regional carrier.

Fifty-one percent of the respondents indicated that they currently had access to at least one other railroad. If their line had been abandoned, 73 percent of the respondents indicated that they would have used another railroad, or truck/rail or all truck service. An additional 13 percent indicated that they would have had to cut back operations or close down completely if

[18] The sample was too thin to determine if other geographic differences existed.

service had not been continued.[19]

Access to additional transportation service, whether all-rail, truck/rail, or all-truck service did not appear to make a difference in respondents' perception of the service and rates of the study carrier. There were no significant differences between the responses of shippers with access and those who indicated that cessation of service would have forced them to cut back operations or close down altogether.

Significant Differences

There were several exceptions where improved rates and/or service did differ significantly for various groupings of shipper characteristics. As shown in Chart 4, respondents whose former carrier was a Class I railroad indicated improved rates significantly more often than respondents whose previous service had been provided by a Class II or Class III railroad. (There were no significant differences in the case of improved service.) Charts 5 and 6 present data on the distribution of service and rate responses for the top commodities received. Receivers of grain reported improved service significantly more often than receivers of pulp/paper products. Receivers of grain also indicated improved rates significantly more often than receivers

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[19] For sake of consistency, if a shipper checked alternatives involving truck service, but commented that using truck was not an economically viable option, the truck response was not counted.

CHART 4

RATE COMPARISON BY CLASS OF PREVIOUS RAILROAD OWNER

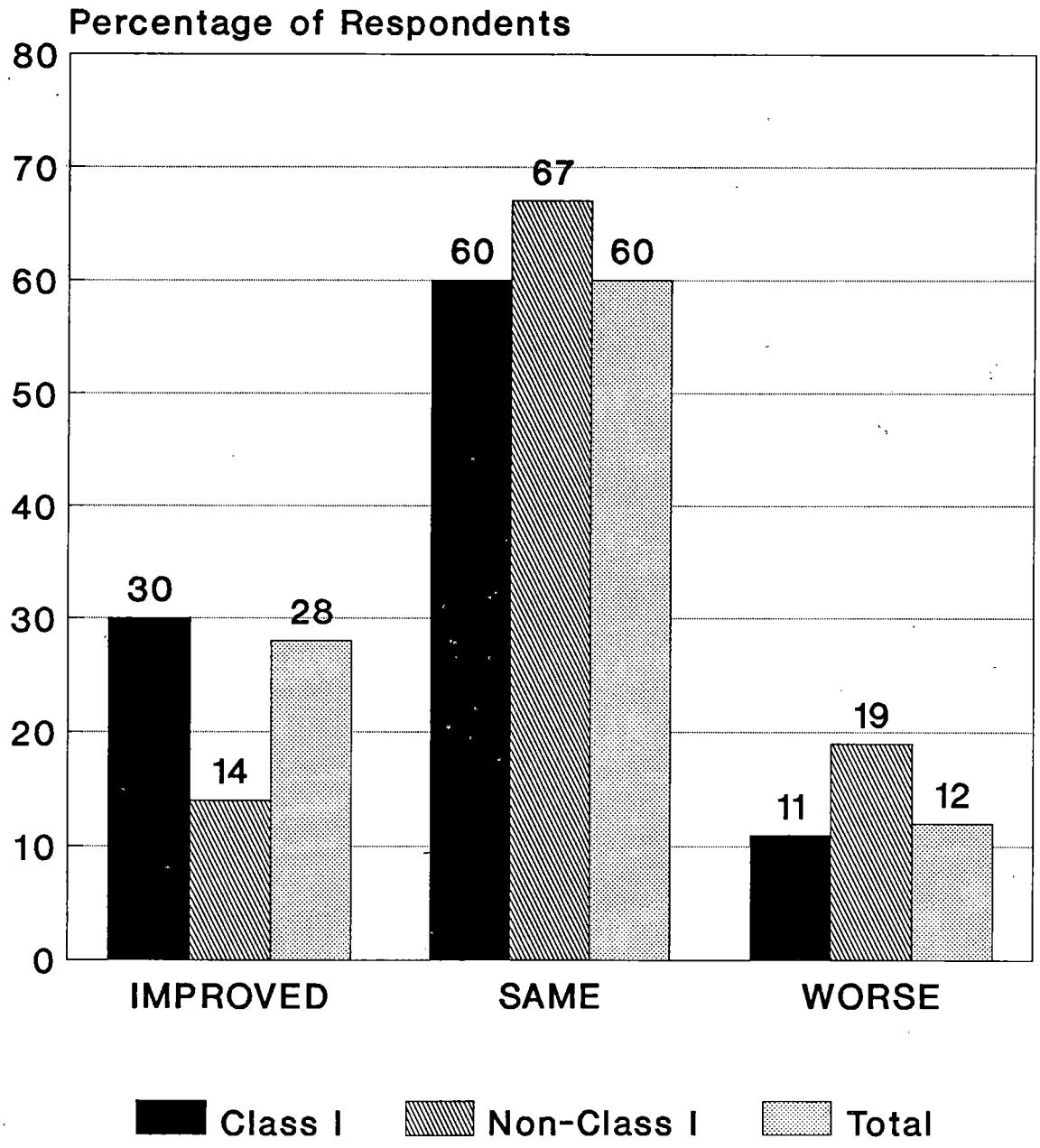


CHART 5
SERVICE COMPARISON
BY MAJOR COMMODITIES RECEIVED

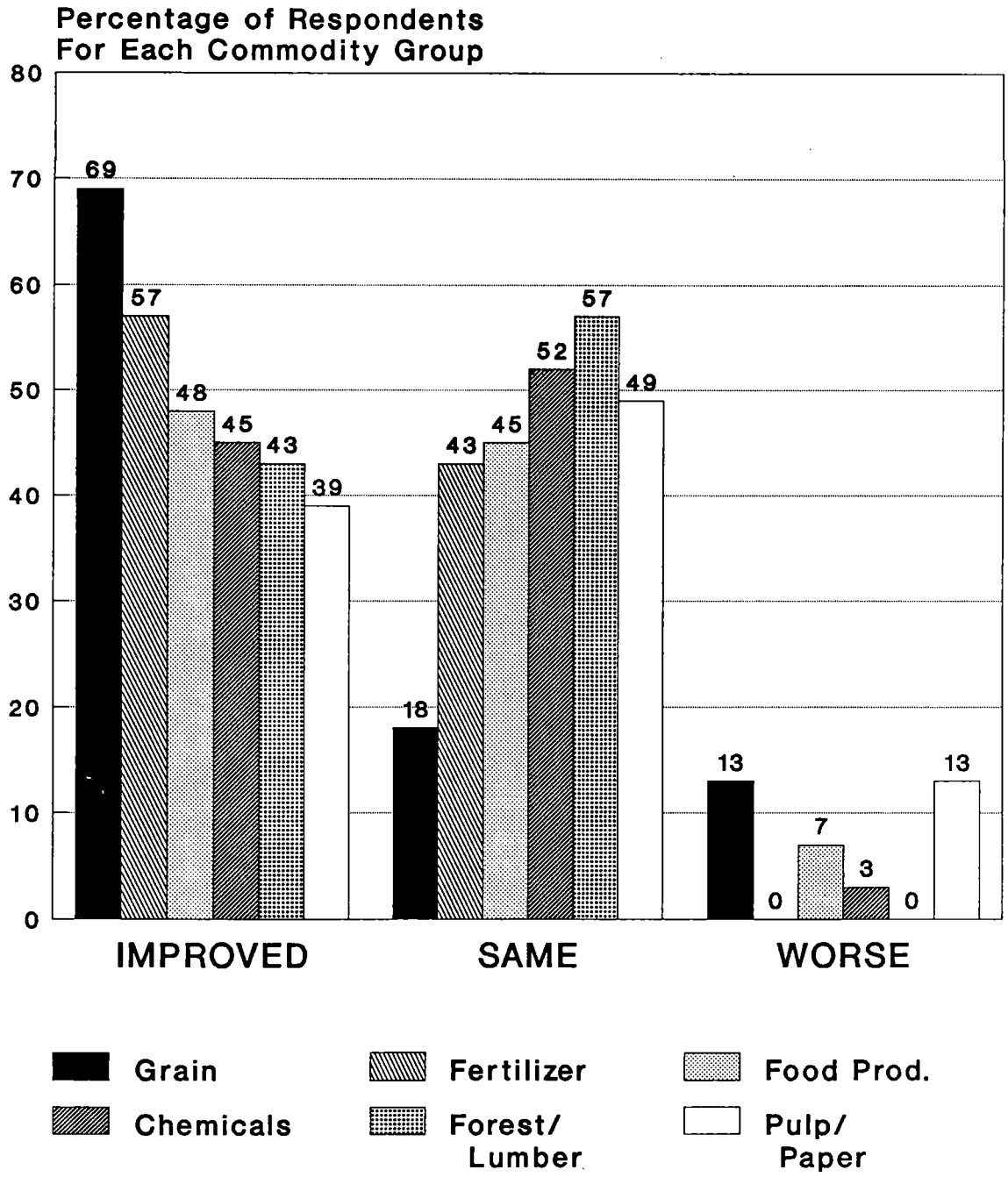
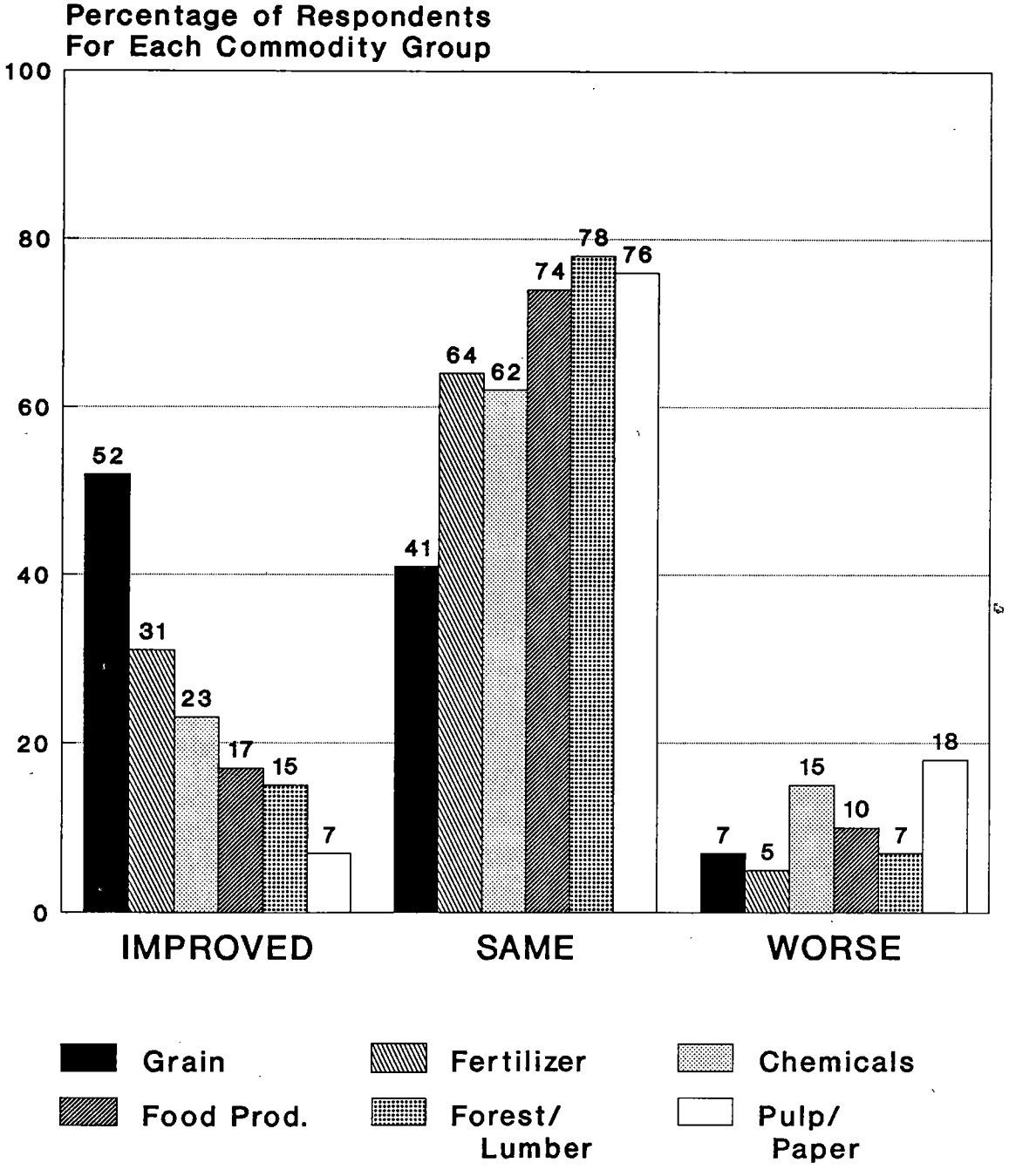


CHART 6
RATE COMPARISON
BY MAJOR COMMODITIES RECEIVED



of food products, forest/lumber products, and pulp/paper products.[20] Receivers of fertilizer reported improved rates more frequently than receivers of pulp/paper products.

In contrast, there were no significant differences in shipper responses to service and rate questions for any of the top commodities sent.

Years of Service

Total years of rail service was also a factor governing shippers' perceptions of service changes. Fifty-seven percent of the respondents with over 25 years of rail service indicated improved service, compared to 44 percent for those with 10 or fewer years of service. Changes with respect to rates, however, did not vary significantly with the total number of years served by rail.

Ownership

Four percent of all respondents (20 shortline shippers) indicated that they had an ownership interest in their present railroad. As indicated in Charts 7 and 8, a significantly greater proportion of owners than non-owners felt service and rates had improved. The former was confirmed at the 95 percent level of significance.

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[20] At the 95 percent level of significance.

CHART 7

SERVICE COMPARISONS FOR EXISTING VS. PREVIOUS RAILROAD BY OWNERSHIP INTEREST

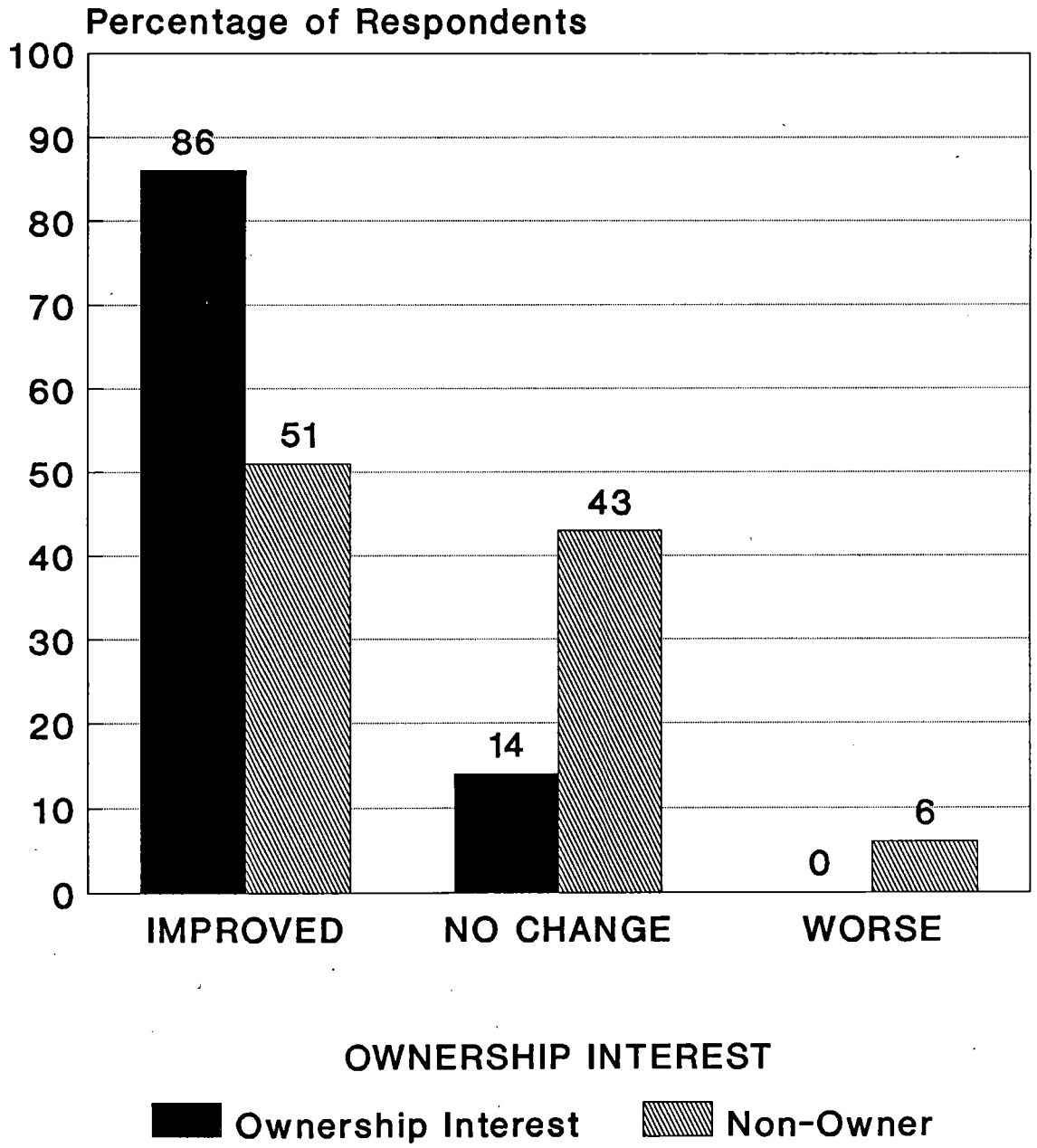
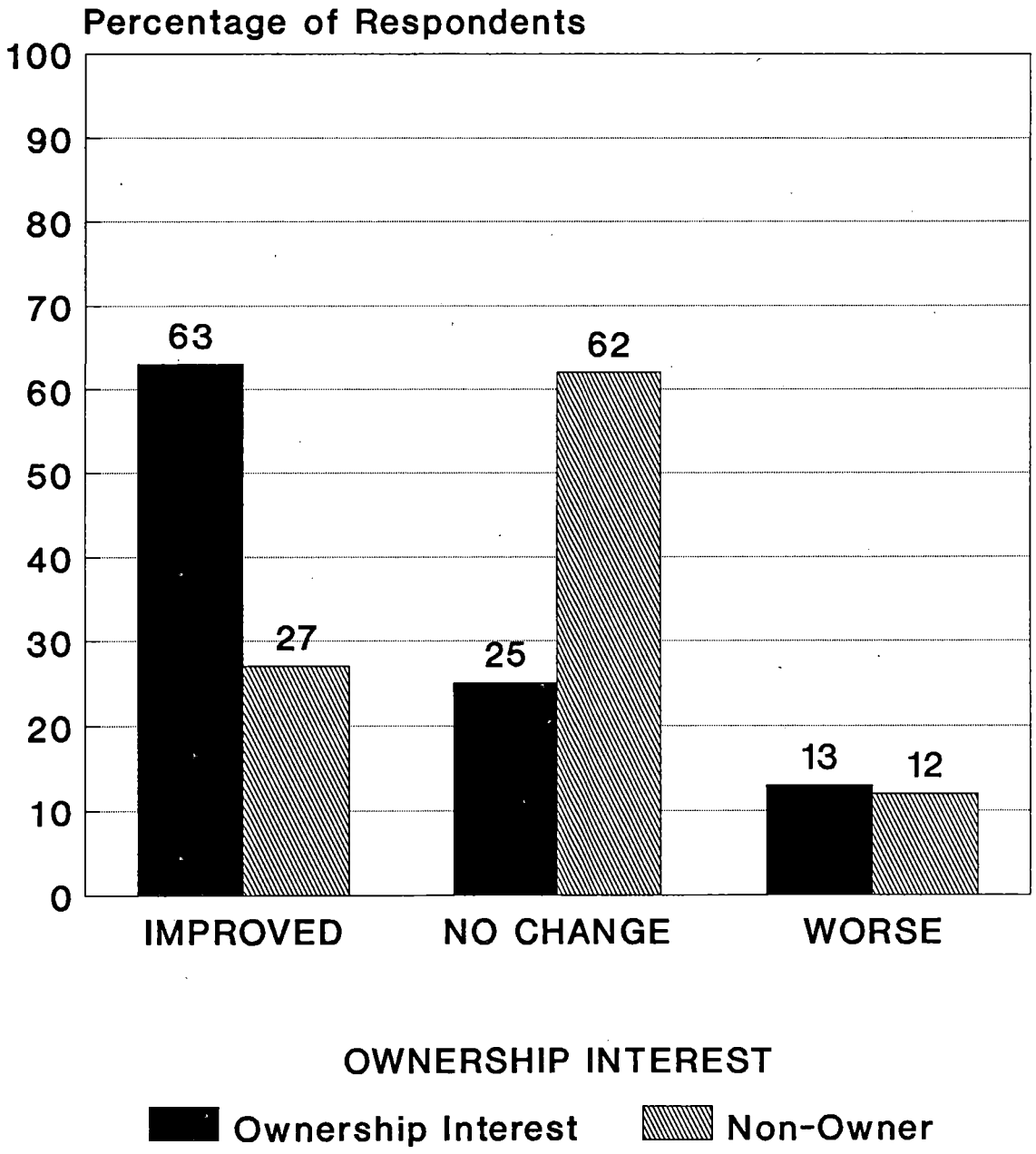


CHART 8

RATE COMPARISONS FOR EXISTING VS. PREVIOUS RAILROAD BY OWNERSHIP INTEREST



RESPONSES OF FORMER USERS

Although the primary intent of the questionnaire was to survey current railroad users, former users were also captured. Of the 493 survey respondents, 56 (11 percent) stated that they no longer use the railroad. Of this group, 29 formerly used shortline railroads and 27 formerly used regional railroads.[21]

The survey was designed to accommodate this possibility and to obtain information on the causes of the shippers' decision to stop using the study railroad. In answering Question #1 of the survey, former users were asked to check all applicable reasons for discontinuing use of rail service (e.g., poor service, high rates) as well as the form of transportation currently used (see Appendix A, Question #1 for the possible response choices). Respondents were also allowed to provide reasons not already enumerated on the survey in their comments.

As Table 2 shows, former users of shortline and regional railroads cited unacceptable rail rates and/or inadequate rail service as the most frequent reason(s) for discontinuing railroad

[21] Statistical tests to determine if there were significant differences between former users of shortlines and regional railroads were not conducted because of the insufficient number of responses.

Table 2

Responses Indicating Reasons
For Terminating Study Railroad Service[22]

Reason For Discontinuing Rail Service	SL (%)	REG (%)	Total (%)	Responses
Unacceptable Rates	51	33	40	23
Inadequate Service	36	22	28	16
Responding to Both Unacceptable Rates and Inadequate Service	34	19	24	14
Closed Plant	7	7	7	4
Cut Back Plant Operations	4	11	8	4
Other Reasons (no longer use product that was received by rail; receivers request shippers to stop using railroad; use of other railroad, etc.)	20	15	17	9
Unspecified	16	33	27	14
Number of Respondents	29	27	56	

SL = shortline REG = regional railroad

[22]Since former users were instructed to answer all that applied, the sum of the percentages from each column may be greater than 100 percent.

The responses of shippers who provided comments but did not select the comparable response item were counted under that response in this and the succeeding table.

use at the survey location. Fifty-seven percent of the former users specified reasons other than service and rates as being principal causes for stopping the use of rail service. Among these, seven percent of the shortlines' shippers and seven percent of the regionals' shippers ceased operation of the plant along the rail line. None of these shippers, however, attributed the plant closings to any actions taken by the railroads. A total of four shippers -- comprising only four percent of the shortlines' respondents and 11 percent of the regionals' respondents -- stated that they stopped using the railroad because they cut back their own operations at the facility along the rail line. One of these four respondents believed the actions of the railroad had negatively affected their business. A significant proportion of all former users (27 percent) cited no specific reason why they stopped using rail service; they represented 33 percent of the former regional railroad users and 16 percent of the former shortline users.

Use of Other Modes

In most cases, respondents who stopped using the services of the railroad reported a shift to another mode of transportation. Table 3 below indicates that former users of shortline and regional railroads overwhelmingly shifted to truck, including use of TOFC. Other respondents indicated that they were shipping via another railroad, with some responding that they were shipping or receiving by another mode in addition to the use of another

railroad or truck. Overall, 22 percent did not indicate to which mode, if any, they switched; the majority of these respondents are former users of regional railroads.

Some former users switched modes because of better rates offered by trucks. For several shippers, business conditions shifted, and the products they received or shipped by rail were either no longer used in production, no longer demanded, or the customer requested the shipper to stop delivering by rail. One former user stated that shipments from its facility were not large enough to justify using rail.

Table 3

Use of Other Modes by Former Users of Rail for Surveyed Facilities Still in Operation[23]

Mode	SL (%)	REG (%)	Total (%)	Responses
All Truck	72	56	62	33
TOFC	4	4	4	5
Responding To Both Truck & TOFC	7	4	5	3
Other Railroad	7	4	5	3
Mode Other Than Railroad or Truck	3	4	4	2
Did Not Comment On Mode	9	30	22	11
Number of Respondents[24]	27	25	52	

SL = shortline REG = regional railroad

[23] Since former users were instructed to answer all that applied, the sum of the percentages of each column may be greater than 100 percent.

[24] The number of respondents has been reduced by excluding those who answered that their facilities along the study rail line are closed.

APPENDIX A

QUESTIONNAIRE

APPENDIX A

RAILROAD USER SURVEY (FORM OTA 1)

Approved by OMB 3120-0128
Expires: 12/31/89

Interstate Commerce Commission Use Only

Attach Label

Facility____ of_____
Region_____
Agent_____
Process_____

----------THESE LINES ARE FOR HEADING INFORMATION CORRECTIONS ONLY--------

Railroad:_____
Company:_____
Mailing Address:_____
Responding Official:_____
Title:_____ Phone:_____
Facility Location:_____

INSTRUCTIONS

HEADING INFORMATION

- "Responding Official" is the traffic manager or employee most knowledgeable about transporting freight by rail to and from this facility. If this person is different than the official named above, please forward this questionnaire to the appropriate person, and make any corrections needed on the lines provided.

NON-USERS

- If you no longer use this railroad, please complete ONLY QUESTION 1 and return the questionnaire. Seasonal or sporadic users, as well as regular users, should complete Questions 2-10.

QUESTIONNAIRE--General

- Please answer all questions wherever possible. Reasonable estimates are acceptable.
- All questions in this survey apply to your facility served by the railroad indicated above.
- "Rail Service" includes pick-up and delivery of freight by rail car or trailer-on-flatcar (TOFC) at your facility, as well as by rail car or TOFC at a team track.
- Please feel free to consult with others if necessary.

QUESTIONNAIRE--Specific Questions

- QUESTIONS 5, 6, and 7
  These questions also require information regarding the MOST RECENT previous railroad service at this location.
- Question 5(c)
  If you used either the existing railroad or the previous railroad for less than a one-year period, please convert number of carloads to an annual basis. If there was no service from the "Previous Railroad", or you did not use it, still answer this question regarding "Existing Railroad."
- Question 10
  Do not check "By truck to another rail location" or "By trailer-on-flatcar (TOFC)" unless it is a practical option.

RAILROAD USER SURVEY

Date:_____ Shipper Number:_____

USERS

If you still use this railroad, PLEASE SKIP Question Number 1, and answer Questions 2 through 10 and return the questionnaire.

NON-USERS ONLY

1. Why did you STOP using this railroad's service at this location? Please check all that apply.

- ☐ Your company cut back operations at this plant.
- ☐ Your company closed operations at this plant.
- ☐ Railroad service was inadequate.
- ☐ Railroads rates were unacceptable.
- ☐ Your company shifted to all truck movement.
- ☐ Your company now uses trailer-on-flatcar (TOFC) to some other rail siding.
- ☐ Other. Explain._____

_____

_____

_____

If you have completed Question 1, PLEASE SKIP Questions 2 through 10, and return the questionnaire. Thank you.

RAILROAD USER SURVEY

Shipper Number:_____

2. How long has your company used railroad service at this location, including service provided by all previous railroads?

_____

3. List the major commodities your company sends or receives by this railroad at this location.

Send_____

Receive_____

4. (a) How many of your company's employees work at this location?

_____

(b) What is the total number of employees in your company?

_____

5. (a) Was there rail service at this location before the existing railroad began operating? ___ yes ___ no

(b) Did you use the previous rail service? ___ yes ___ no

(c) Please compare your annual rail shipments (no. of carloads):

INBOUND RAIL (carloads)		OUTBOUND RAIL (carloads)	
Existing Railroad	Previous Railroad	Existing Railroad	Previous Railroad

(d) Please estimate rail tons as a % of total tons you ship at this location by checking the appropriate line in each column.

Rail Tons as % of Total (Estimate)	INBOUND		OUTBOUND	
	Existing Railroad	Previous Railroad	Existing Railroad	Previous Railroad
0%				
1 - 25%				
26 - 50%				
51 - 75%				
76 - 99%				
100%				
	(Check One)	(Check One)	(Check One)	(Check One)

Comments:_____

_____

_____

6. Compare how often this railroad serves your plant at this location with how often the previous railroad did. (If there was no previous service or you did not use it, still answer regarding "Existing Railroad.")

	Existing Railroad	Previous Railroad
Number of times per week		

Comments:_____

_____

_____

Shipper Number_____

7. Please compare your existing railroad service and rates to what they were under the previous railroad. (If there was no previous service, or you did not use it, please disregard this question.)

	Much Better	Better	About Same	Worse	Much Worse
(a) Service (check one)	☐	☐	☐	☐	☐
(b) Rates (check one)	☐	☐	☐	☐	☐

Comments_____

_____

_____

8. Does your company have any ownership interest in or control of this existing railroad?

___ yes ___ no

9. What was your company's contingency plan if railroad service had not been transferred to the existing owner? Check all that apply.

_____ Shift to trailer-on-flatcar (TOFC).
_____ Shift to all-truck movement.
_____ Truck to or from nearest railroad.
_____ Cut back operations at this location.
_____ Close operations at this location.
_____ Purchase the rail line.
_____ Had no plan.
_____ Other. Explain. _____

_____

_____

10. What access does your facility have to another railroad? Check all that apply.

☐ No other access
☐ By another railroad's siding at this facility
☐ By truck to another rail location
☐ By trailer-on-flatcar (TOFC)
☐ By reciprocal switching
☐ Other (Specify)

Comments_____

_____

_____

- End-
-Thank you-

APPENDIX B

DISTRIBUTION OF USER SURVEY RESPONSES

APPENDIX B
Distribution of User Survey Responses[1] [2]

Question:	SL	REG	TOTAL	TOTAL NO. OF RESPONSES
2. How long has your company used railroad service at this location, including service provided by all previous railroads?	(avg. no. of yrs.) 24	24	24	430
3. List major commodities your company sends or receives by this railroad at this location.[3]				
Send:	(%)	(%)	(%)	
Grain	30	24	26	65
Farm Products(excl. grain)	2	2	2	4
Metallic Ores	1	0	0	1
Coal	2	1	1	4
Non-metallic minerals	5	1	2	7
Food Products	8	13	11	25
Forest/lumber products	20	15	17	43
Pulp/paper products	3	10	8	16
Chemicals(except fertilizer)	2	7	5	11
Coke/petroleum prods.	0	2	1	2
Stone/clay/glass prods.	4	0	2	6
Metals and prods.	2	3	3	6
Motor vehicles & equip.	3	1	2	5
Waste & scrap	14	16	15	36
Forwarder & shipper assn.	0	0	0	0
Fertilizer	1	1	1	2
All other	6	8	7	17
Receive:	(%)	(%)	(%)	
Grain	4	17	11	31
Farm Products(excl. grain)	2	0	1	3
Metallic Ores	0	0	0	0
Coal	2	3	2	7
Non-metallic minerals	4	2	3	10

[1] The shortline, regional, and total responses have been weighted by the sampling rates, as explained in Appendix D.

[2] Survey results for former users are presented in the text on pages 25-29.

[3] Totals may add to more than 100 percent because respondents were allowed to provide up to three commodities.

		SL	REG	TOTAL	TOTAL NO. OF RESPONSES
Receive (cont.)		(%)	(%)	(%)	
Food Products		16	17	17	52
Forest/lumber products		18	12	15	50
Pulp/paper products		7	17	13	38
Chemicals(except fertilizer)		12	10	11	37
Coke/petroleum prods.		6	6	6	19
Stone/clay/glass prods.		8	4	6	20
Metals and prods.		6	4	5	16
Motor vehicles & equip.		1	1	1	4
Waste & scrap		2	4	3	11
Forwarder & shipper assn.		0	0	0	0
Fertilizer		19	13	15	52
All other		2	6	5	13
		(avg. no. employees)			
4.(a) How many of your company's employees work at this location?		123	236	172	415
(b) What is the total number of employees in your company?		3712	6101	4759	420
		(%)	(%)	(%)	
5.(a) Was there rail service at this location before the existing railroad began operating?	YES:	96	99	98	427
	NO:	3	1	2	8
	N/A:	1	0	0	2
(b) Did you use the previous rail service?	YES:	87	93	90	390
	NO:	13	7	10	46
	N/A:	1	0	0	1
(c) Compare your annual rail shipments:		(avg. no. carloads)			
Inbound: Existing Railroad		268	416	330	309
Previous Railroad		276	377	320	261
Outbound: Existing Railroad		508	664	587	233
Previous Railroad		316	647	490	199

		SL	REG	TOTAL	TOTAL NO. OF RESPONSES
5.(d) Estimate rail tons as a % of total tons you ship at this location.[4]					
Inbound:	Existing Railroad	(%)	(%)	(%)	
	1-25%	43	37	40	122
	26-50%	21	14	17	54
	51-75%	16	15	16	51
	76-99%	13	26	20	56
	100%	7	8	7	23
	Previous Railroad	(%)	(%)	(%)	
	1-25%	43	39	41	108
	26-50%	22	11	16	46
	51-75%	14	16	15	41
	76-99%	13	26	20	51
	100%	8	8	8	21
Outbound:	Existing Railroad	(%)	(%)	(%)	
	1-25%	44	44	44	102
	26-50%	20	11	14	37
	51-75%	8	15	12	25
	76-99%	19	19	19	44
	100%	9	11	11	25
	Previous Railroad	(%)	(%)	(%)	
	1-25%	49	43	45	91
	26-50%	22	18	20	42
	51-75%	8	11	10	19
	76-99%	15	19	17	35
	100%	6	9	8	16

[4] Both here and in Question 6, blank and 0 percent responses were not presented because they could not be unambiguously distinguished from each other on the survey forms.

	SL	REG	TOTAL	TOTAL NO. OF RESPONSES
6. Compare how often this railroad serves your plant at this location with how often the previous railroad did.				
Existing Railroad	(%)	(%)	(%)	
0.1 - 2.0 times a week	26	17	21	79
2.0 - 4.9 times a week	42	30	35	135
5.0 and over times a week	32	53	44	146
Previous Railroad	(%)	(%)	(%)	
0.1 - 2.0 times a week	33	19	24	82
2.0 - 4.9 times a week	41	32	36	114
5.0 and over times a week	26	49	40	114
7. (a) Compare your existing railroad service to what it was under the previous railroad	(%)	(%)	(%)	
Much Better	28	20	23	93
Better	23	33	29	106
About same	43	41	42	161
Worse	3	5	4	15
Much worse	3	1	2	7
7. (b) Compare your existing railroad rates to what they were under the previous railroad	(%)	(%)	(%)	
Much better	10	7	8	28
Better	14	23	20	64
About same	63	59	60	203
Worse	12	10	11	37
Much worse	1	1	1	3
8. Does your company have any ownership interest in or control of this existing railroad?	(%)	(%)	(%)	
Yes	8	0	4	20
No	91	99	96	415
N/A	1	1	1	2

	SL	REG	TOTAL	TOTAL NO. OF RESPONSES
9. What was your contingency plan if railroad service had not been transferred to the existing owner?[5]	(%)	(%)	(%)	
Shift to TOFC	7	6	7	30
Shift to all-truck	71	57	62	278
Truck to or from nearest railroad	21	33	28	113
Cut back operations at this location	6	6	6	26
Close operations at this location	11	8	9	45
Purchase the rail line	4	2	3	14
Had no plan	8	18	14	55
Other	18	17	17	77
10. What access does your facility have to another railroad?	(%)	(%)	(%)	
No other access	53	39	45	206
By truck to another railroad location	34	39	37	158
By reciprocal switching	9	16	13	53
By another railroad's siding at this facility	3	7	5	21
By TOFC	9	6	7	34
Other	4	5	5	19

[5] Both here and in Question 10, totals may exceed 100 percent because respondents were asked to check all answers that applied.

APPENDIX C

SUPPLEMENTARY TABLES

APPENDIX C

SUPPLEMENTARY TABLES[1]

Table C-1

Service and Rate Comparisons

	Improved	About Same	Worse	Total	Responses
Service	52% (2.7)	42% (2.7)	6% (1.2)	100%	382
Rates	28% (3.9)	60% (3.1)	12% (2.8)	100%	335

Note: ( ) represents standard error.

---

[1] These 20 tables further examine the survey response data. As with data presented elsewhere in this report, this appendix condenses the questionnaire's five response categories into these groupings: "improved," "about same," and "worse." These tables (except C-1 and C-12) present service and rate comparisons that are analyzed by particular shipper characteristics.

As an example of the information displayed in these tables, data in Table C-7 show that: a) 69 percent of the grain receivers indicated service had improved, b) 45 percent of food product receivers indicated service was about the same, and c) 13 percent of pulp/paper receivers indicated service had become worse.

Table C-2

Service and Rate Comparisons
by Class of Previous Owner

Prev. Owner	Improved	Same	Worse	Total	Responses
SERVICE					
Class I	52%(4.1)	43%(3.3)	6%(1.5)	100%	330
Non-Class I	53 (5.0)	41 (4.4)	6 (3.2)	100	52
Total	52 (2.7)	42 (2.7)	6 (1.2)	100	382
RATES					
Class I	30%(4.3)	60%(3.8)	11%(2.1)	100%	289
Non-Class I	14 (3.1)	67 (6.4)	19 (5.8)	100	46
Total	28 (3.9)	60 (3.1)	12 (2.8)	100	335

Table C-3

Rate Comparison
by Years of Railroad Service

Years	Improved	Same	Worse	Total	Responses
1-10	29%(3.9)	61%(5.8)	10%(1.9)	100%	85
11-25	29 (5.8)	58 (7.6)	13 (4.3)	100	128
>25	28 (4.3)	61 (2.3)	11 (2.7)	100	118
Total	28 (4.3)	60 (3.1)	12 (2.8)	100	331

APPENDIX C

SUPPLEMENTARY TABLES[1]

Table C-1

Service and Rate Comparisons

	Improved	About Same	Worse	Total	Responses
Service	52% (2.7)	42% (2.7)	6% (1.2)	100%	382
Rates	28% (3.9)	60% (3.1)	12% (2.8)	100%	335

Note: ( ) represents standard error.

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[1] These 20 tables further examine the survey response data. As with data presented elsewhere in this report, this appendix condenses the questionnaire's five response categories into these groupings: "improved," "about same," and "worse." These tables (except C-1 and C-12) present service and rate comparisons that are analyzed by particular shipper characteristics.

As an example of the information displayed in these tables, data in Table C-7 show that: a) 69 percent of the grain receivers indicated service had improved, b) 45 percent of food product receivers indicated service was about the same, and c) 13 percent of pulp/paper receivers indicated service had become worse.

Table C-2

Service and Rate Comparisons
by Class of Previous Owner

Prev. Owner	Improved	Same	Worse	Total	Responses
SERVICE					
Class I	52%(4.1)	43%(3.3)	6%(1.5)	100%	330
Non-Class I	53 (5.0)	41 (4.4)	6 (3.2)	100	52
Total	52 (2.7)	42 (2.7)	6 (1.2)	100	382
RATES					
Class I	30%(4.3)	60%(3.8)	11%(2.1)	100%	289
Non-Class I	14 (3.1)	67 (6.4)	19 (5.8)	100	46
Total	28 (3.9)	60 (3.1)	12 (2.8)	100	335

Table C-3

Rate Comparison
by Years of Railroad Service

Years	Improved	Same	Worse	Total	Responses
1-10	29%(3.9)	61%(5.8)	10%(1.9)	100%	85
11-25	29 (5.8)	58 (7.6)	13 (4.3)	100	128
>25	28 (4.3)	61 (2.3)	11 (2.7)	100	118
Total	28 (4.3)	60 (3.1)	12 (2.8)	100	331

Table C-4

Service and Rate Comparisons
by Firm Employment at Survey Location

Service	Improved	Same	Worse	Total	Responses
Local Emp.					
1-10	58%(7.4)	37%(5.0)	5%(4.6)	100%	127
11-100	47 (2.2)	47 (2.2)	6 (2.2)	100	143
over 100	52 (6.8)	42 (9.1)	6 (2.5)	100	93
Total	52 (3.8)	42 (3.5)	6 (1.5)	100	363
Rates					
Local Emp.					
1-10	36%(4.0)	56%(5.0)	8%(2.5)	100%	116
11-100	26 (2.7)	62 (3.6)	12 (2.9)	100	124
over 100	20 (10.8)	68 (6.2)	11 (3.6)	100	81
Total	28 (3.9)	62 (3.0)	10 (1.8)	100	321

Table C-5

Service Comparison
by Ratio of Local to Total Firm Employment

Ratio	Improved	Same	Worse	Total	Responses
Below 5% but not 0%	58%(6.5)	36%(4.2)	6%(2.3)	100%	91
5% - less than 50%	54 (6.4)	38 (10.0)	8 (2.6)	100	110
50% - less than 100%	53 (2.5)	41 (3.0)	6 (3.8)	100	40
100%	45 (4.9)	52 (4.7)	4 (1.1)	100	114

Table C-6

Rate Comparison
by Ratio of Local to Total Firm Employment

Ratio	Improved	Same	Worse	Total	Responses
Below 5% but not 0%	18%(6.6)	67%(12.4)	15%(6.1)	100%	35
5% - less than 50%	25 (5.7)	65 (6.7)	11 (3.3)	100	63
50% - less than 100%	36 (10.8)	57 (11.1)	7 (5.8)	100	21
100%	25 (11.3)	60 (9.2)	15 (5.6)	100	41

Table C-7

Service Comparison
by Major Commodities Received[2]

Commodity	Improved	Same	Worse	Total	Responses
Fertilizer	57 (11.1)	43 (11.1)	0 (n/a)	100	48
Forest/Lumber	43 (7.4)	57 (7.4)	0 (n/a)	100	42
Food Prod.	48 (8.2)	45 (11.6)	7 (4.6)	100	32
Chemicals	45 (11.0)	52 (8.3)	3 (3.3)	100	30
Pulp/Paper	39 (6.8)	49 (11.1)	13 (6.4)	100	28
Grain	69%(9.0)	18%(9.5)	13%(8.4)	100%	17

[2] Data presented in Tables C-7 through C-10 are ranked in order of the number of unweighted responses.

Table C-8

Rate Comparison
by Major Commodities Received

Commodity	Improved	Same	Worse	Total	Responses
Fertilizer	31 (8.8)	64 (8.8)	5 (3.5)	100	42
Forest/Lumber	15 (6.5)	78 (3.8)	7 (4.5)	100	32
Food Prod.	17 (7.0)	74 (10.4)	10 (5.6)	100	29
Pulp/Paper	7 (5.0)	76 (4.9)	18 (2.0)	100	25
Chemicals	23 (6.5)	62 (18.7)	15 (7.6)	100	23
Grain	52%(9.9)	41%(12.3)	7%(6.2)	100%	17

Table C-9

Service Comparison
by Major Commodities Sent

Commodity	Improved	Same	Worse	Total	Responses
Grain	60%(10.9)	36%(8.6)	4%(2.7)	100%	58
Forest/Lumber	38 (9.0)	54 (5.7)	8 (4.5)	100	38
Waste/Scrap	37 (13.9)	47 (8.5)	16 (6.7)	100	31
Food Prod.	56 (7.3)	42 (7.3)	2 (2.0)	100	21

Table C-10

Rate Comparison
by Major Commodities Sent

Commodity	Improved	Same	Worse	Total	Responses
Grain	45%(6.2)	48%(7.3)	7%(3.3)	100%	56
Forest/Lumber	23 (7.5)	54 (12.6)	23 (7.4)	100	33
Waste/Scrap	31 (11.1)	52 (14.6)	17 (7.0)	100	30
Food Prod.	30 (10.8)	58 (18.3)	12 (7.7)	100	19

Table C-11

Rate Comparison
by Volume of Outbound Cars

Annual Cars	Improved	Same	Worse	Total	Responses
1-50	33%(7.9)	54%(5.9)	13%(4.3)	100%	61
51-250	22 (6.5)	67 (4.4)	11 (3.0)	100	62
over 250	42 (7.5)	42 (4.4)	17 (3.8)	100	75

Table C-12
Changes in Frequency of Service

Frequency (times per week)	Existing Railroad	Previous Railroad	Difference
0.1 - 1.9	19%(1.7)	25%(0.4)	-5%(1.7)
2.0 - 4.9	34 (2.8)	35 (2.3)	0 (2.2)
5.0 and over	46 (1.6)	41 (2.2)	6 (2.4)
Total	100%	100%	
Responses	301	301	

Table C-13

Service Comparison
by Frequency of Service

Frequency (times per week)	Improved	Same	Worse	Total	Responses
0.1 - 1.9	39%(7.8)	52%(9.8)	9%(2.0)	100%	61
2.0 - 4.9	52 (2.9)	41 (4.2)	7 (2.6)	100	117
5.0 and over	56 (4.9)	40 (3.8)	4 (1.7)	100	135
Total	51 (2.7)	43 (3.5)	6 (1.0)	100	313

Table C-14

Rate Comparison
by Frequency of Service

Frequency (times per week)	Improved	Same	Worse	Total	Responses
0.1 - 1.9	19%(8.8)	57%(14.2)	24%(9.5)	100%	21
2.0 - 4.9	24 (6.8)	63 (11.5)	12 (5.2)	100	41
5.0 and over	32 (7.6)	62 (6.4)	7 (1.2)	100	76
Total	28 (9.2)	62 (8.0)	11 (3.2)	100	138

Table C-15

Service Comparison
by Inbound Rail Share

Rail Share	Improved	Same	Worse	Total	Responses
1-25%	52%(3.7)	43%(5.4)	5%(2.2)	100%	106
26-75%	56 (3.9)	37 (7.5)	7 (2.6)	100	89
76-100%	49 (4.9)	48 (2.7)	3 (2.1)	100	74
Total	52 (2.9)	43 (2.6)	5 (2.0)	100	269

Table C-16

Rate Comparison
by Inbound Rail Share

Rail Share	Improved	Same	Worse	Total	Responses
1-25%	32%(5.6)	57%(7.5)	11%(3.3)	100%	91
26-75%	20 (1.7)	70 (4.3)	10 (3.4)	100	74
76-100%	22 (10.6)	71 (10.3)	7 (1.4)	100	66
Total	26 (4.4)	65 (3.3)	10 (3.0)	100	231

Table C-17

Service Comparison
by Outbound Rail Share

Rail Share	Improved	Same	Worse	Total	Responses
1-25%	48%(4.7)	46%(3.4)	6%(2.2)	100%	92
26-75%	64 (12.8)	32 (6.4)	4 (2.7)	100	55
76-100%	50 (6.6)	42 (7.8)	7 (3.3)	100	63
Total	53 (4.6)	41 (3.1)	6 (1.8)	100	210

Table C-18

Rate Comparison
by Outbound Rail Share

Rail Share	Improved	Same	Worse	Total	Responses
1-25%	28%(7.0)	59%(5.3)	14%(3.8)	100%	85
26-75%	32 (2.5)	54 (2.6)	14 (4.8)	100	53
76-100%	41 (6.0)	49 (9.5)	11 (4.0)	100	60
Total	33 (4.3)	54 (3.5)	13 (2.1)	100	198

Table C-19

Service Comparison
by Access to Another Railroad

Access	Improved	Same	Worse	Total	Responses
Yes	53%(3.2)	40%(2.8)	7%(2.1)	100%	181
No	50 (7.4)	45 (6.9)	5 (1.6)	100	196

Table C-20

Rate Comparison
by Access to Another Railroad

Access	Improved	Same	Worse	Total	Responses
Yes	26%(7.3)	63%(4.7)	12%(5.9)	100%	148
No	29 (3.9)	59 (5.1)	12 (1.7)	100	182

APPENDIX D

SURVEY METHODS

APPENDIX D

SURVEY METHODS

INTRODUCTION

This appendix describes key steps taken to ensure the validity and quality of the survey data and analysis. It covers major statistical issues, such as sampling and estimating characteristics of the study. It also addresses operational procedures, such as auditing customer lists, identifying appropriate respondents, and improving data consistency.

DEFINITIONS

Universe, Sampling Frame and Reporting Unit

The UNIVERSE for this study consists of shippers, not railroads. It includes all shippers who originate or terminate traffic on railroads that began operating between 1980 and 1988, and are still operating. Many of these shippers have facilities along the tracks and sidings of the railroads. Some are served indirectly by a railroad through switching, including reciprocal switching. And still others have off-line facilities that access the tracks or sidings by truck (drayage) or trailer-on-flatcar (TOFC). In the case of off-line facilities, the truck and TOFC equipment may be shipper owned or pooled. Shippers who utilize a new railroad only as a bridge carrier[1] are not included in the UNIVERSE. Besides existing users, the study also includes shippers who ceased utilizing this new rail service some time during the twelve months prior to the survey. This universe of existing and former users of ongoing, new rail service is approximately 5,200 shippers.

Over 190 new railroads began operating during this time period. Through merger, acquisition, or service failure this number was reduced to 177 railroads: 14 regionals and 163 short lines.

The SAMPLING FRAME used for selecting units for this study is the set of individual shipper lists obtained from 75 of these 177 new railroads. The REPORTING UNIT is the actual facility on, or served by, the new railroad. Since a shipper may have more than one facility on a given railroad's line, especially along the larger regional railroads, an individual shipper facility is the reporting unit.

SAMPLING

As with most surveys, critical statistical issues arose in

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[1] A bridge carrier is a line-haul carrier connecting two other carriers.

this survey on the matters of sampling, weighting responses, and estimating standard errors. This appendix subsection treats sampling. (Additional statistical issues are addressed elsewhere in this appendix.)

In this study of railroad user satisfaction, the sampling was a two-part process: (1) a sampling of railroads; and (2) a sampling of those railroads' shippers. To accomplish Part 1, the 177 railroads were stratified into three groups:

Stratum I. Small Short Lines (105),
Stratum II. Large Short Lines (58) and
Stratum III. Regional Railroads (14).

Independent of this study, the ICC had adopted a working definition of "regional railroads" as any carrier over 250 miles in length; "short lines" included all other newly formed lines. For sampling purposes in this study, however, "short lines" were further stratified as those with 8 or fewer customers (based on preliminary estimates) and those with 9 or more.

These three strata were used to randomly select railroads from whom shipper lists would be requested. For Stratum I, 35 railroads were selected by four replicates (3 railroads were later deleted: 2 were inactive and 1 was out of business). For Stratum II, 29 railroads were selected by four replicates. For Stratum III, all 14 railroads were chosen. Combined, these selected railroads initially totaled 78 and were pared as a result of the three deletions to 75. The four replicates are subsamples drawn from the sampling frame intended to facilitate estimation and testing.

Each of these 75 railroads was then asked both by letter and phone to provide its complete customer list. Each of the 75 railroads cooperated, providing a total SAMPLING FRAME of 5,534 shipper names[2]. To sample shippers from this frame, the three strata were again used. In essence, the 5,534 shipper names were assigned to three groups instead of just one. From these, 627 shippers were randomly selected. These 627 shippers were served at a total of 686 separate facilities, bringing the total sample to a potential 686 reporting units.

To draw shipper names from these three "hats", two different methods were used. From Strata I and II, shippers were sampled sequentially from each of the study railroads. From Stratum III, shippers were drawn in four replicates.

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[2] Approximately 27 percent of these names were later identified as out of scope. The in-scope shipper frame thus contained an estimated 4,000 customers. See also the "Out-of-Scope Shippers" discussion on the following page.

The sampling rates by strata for selecting first railroads and then shippers from railroad shipper lists are shown in Appendix Table D-1, "Stratification and Sampling--Railroad User Study," Columns 2 and 6, respectively. The overall effective rates for selecting shippers from all new railroads are shown in Column 7. The weighting factors used in the estimation procedure are shown in Column 8. [The weighting factor is the inverse of the overall effective sampling rate.]

OTHER PROCEDURAL MATTERS

Auditing Railroad Shipper Lists

The shipper (i.e., customer) lists submitted by the 75 sampled railroads were all individually audited to ensure completeness. (Initially, a sample of 9 lists from the 75 was audited. However, as a result of deficiencies found among these 9, a decision was made to audit all 75 of the study frame shipper lists.) ICC agents visited each railroad and used wherever feasible the demurrage or waybill records to check completeness of the submitted shipper lists.

Identifying Shipper Contacts

After auditing all lists and drawing a 627 member shipper sample (from the 5,534 set), ICC and FRA staff telephoned each shipper to obtain or verify the following information:

1. Company (name).
2. Mailing address of company.
3. Name and title of responding official.
4. Responding official's phone number.
5. Facility location served by the study railroad.
6. Number of shipper's facilities served by the study railroad.

Out-of-Scope Shippers

Despite the extensive auditing efforts, shipper lists from several regional railroads still contained numerous out-of-scope shippers. These names were not omissions, but rather, extraneous entries. There were several categories of these added shippers: (1) shippers who were billed by the candidate carriers, but who neither originated nor terminated traffic with that carrier (i.e., "bridge" traffic); (2) shippers whom carriers had included as potential customers; and (3) shippers who had closed or moved elsewhere.

This incidence of extraneous shippers occurred primarily with carriers submitting lengthy computer listings of billed customers. ICC auditing procedures were aimed at ensuring that

new railroads did not omit any potentially dissatisfied shippers from their customer lists. Since these auditing procedures were designed to identify any customer who had been served in the prior twelve months and who was conceivably omitted from a railroad shipper list, the process of identifying and eliminating names of non-users had not been fully implemented through this phase of the survey procedures.

Some out-of-scope shippers were later identified in the subsequent telephone contact phase. Even in this phase, however, numerous shippers' receptionists or other staff promptly identified the company's official most knowledgeable about rail service without confirming whether the study railroad at least picked-up or delivered traffic to that shipper. Consequently, most out-of-scope shippers were later identified through comments on their returned questionnaires.

Appendix Table D-2 shows that 162 of the total potential reporting units were identified as out-of-scope. Some 27 facilities (9 percent) among the short line shippers and 135 (36 percent) of shippers served by regionals were out of scope. Those facilities were necessarily removed from the sample base and consequently widened the confidence intervals slightly from those originally computed. However, their removal from the sample base creates no sampling bias and does not impair the statistical validity of the study findings.

Response Rate

Appendix Table D-3, Response Rate, shows that of the 524 total facilities in scope, 493 facilities responded. Thus, the overall response rate was 94 percent. The response rate for shippers served by shortline railroads was 96 percent; 92 percent for those served by regional railroads. This is an extremely high response rate for a voluntary survey. The rate is presumably attributable to a combination of extensive survey team follow-up efforts and an apparently high level of shipper interest.

Controlling Non-sampling Errors

Non-sampling errors can occur in basically two ways: (1) through variations in the reporting of different individuals of the firm at the shipping facility; and (2) the inconsistencies and errors in reporting individual items in the questionnaire. Because it was assumed that individual respondents' replies represented the traffic experience for the particular facility, it was important to obtain the responsible and knowledgeable traffic official or manager to respond to the questionnaire about the facility. Thus, when the ICC field agents or other survey persons contacted each of the study shippers during the initial screening, the callers asked for the name of the "traffic

director or whoever at your company knows the most about the rail service your company uses at this (plant) location." In addition, the questionnaire indicated that the responding official should feel free to consult with others if necessary.

To limit item non-response and erroneous reporting, all the completed questionnaires were reviewed to identify blank items and inconsistencies among the reported items. Respondents were contacted to clarify or correct the responses in question. In some cases, respondents could not answer questions about certain items. Item 7(b) was left blank when the respondent shipper, usually the consignee, did not pay the freight charges and could not give information on comparison of rates between the existing and previous railroads. Half of items 5 and 6, and all of item 7 were left blank when the respondent shipper did not use the services of the previous railroad.

ADDITIONAL STATISTICAL ISSUES

Ratio

Ratios were the basic statistical estimate derived in the study. A ratio is defined as the division of one aggregate Y (variable) by another aggregate X (variable)[3].

To obtain the aggregate $\hat{Y}$ (which can stand alone as an estimate) for the stratum h, the sample values Y are multiplied by the weighting factor W:

$$\hat{Y}_h = W_h \sum_{i=1}^{n_h} y_{hi} = \sum_{i=1}^{n_h} W_h y_{hi}$$

where n_h is the number of facilities in the sample for the h^{th} stratum. To obtain $\hat{X}$, substitute x for y in the above formula. To get the aggregate $\hat{Y}$ for shortline railroads, sum the results for strata h=1 and 2. To get the aggregate $\hat{Y}$ for all railroads combined, sum the results from each stratum h=1, 2, and 3.

$$\hat{Y} \text{ (shortline railroads)} = \hat{Y}_1 + \hat{Y}_2$$

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[3] The count of facilities is often used as numerators and denominators in our study and the results are shown as proportions or percentages. Statistically these are actually ratios because of the way we sampled the facilities.

$$\hat{X} \text{ (shortline railroads)} = \hat{X}_1 + \hat{X}_2$$

$$\hat{Y} \text{ (all RRs combined)} = \sum_{h=1}^{3} \hat{Y}_h$$

$$\hat{X} \text{ (all RRs combined)} = \sum_{h=1}^{3} \hat{X}_h$$

The formula for the ratio f_h for one stratum is:

$$\hat{f}_h = \hat{Y}_h / \hat{X}_h$$

For combined strata the following formulas apply:

$$\hat{f} \text{ (shortline RRs)} = (\hat{Y}_1 + \hat{Y}_2)/(\hat{X}_1 + \hat{X}_2)$$

$$\hat{f} \text{ (all RRs combined)} = \sum_{h=1}^{3} \hat{Y} / \sum_{h=1}^{3} \hat{X}$$

Standard Errors

Because random sampling was used to select shippers and their facilities, the variability of estimates for ratios and aggregates due to sampling can be estimated. The standard error is the statistical measure of this variability. To facilitate the computing of the standard errors, the four subsamples (replicates) were used.[4]

For any estimate $\hat{U}$, the estimates for each of the four subsamples making up the sample from which U was derived. These are:

$$\hat{U}_k \text{ , } k = 1, 2, 3, 4$$

The detailed computations for making these estimates are as follows:

$$\hat{U}_{hk} \text{ (ratio)} = \hat{Y}_{hk} / \hat{X}_{hk}$$

for the k^{th} subsample in the h^{th} stratum.

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[4] See W. Edwards Deming, Sample Design in Business Research, Wiley, 1960, p. 437.

$$\hat{U}_k \text{ (ratio)} = \sum_{h=1}^{3} \hat{Y}_{hk} \; / \; \sum_{h=1}^{3} \hat{X}_{hk}$$

for the k^{th} subsample for all railroads combined,

$$\hat{U}_k \text{ (aggregate)} = 4\hat{Y}_{hk}$$

for the k^{th} subsample in the h^{th} stratum.

$$\hat{U}_k \text{ (aggregate)} = \sum_{h=1}^{3} \hat{U}_{hk}$$

for the k^{th} subsample for all railroads combined.

The four estimates from the subsamples were scanned to determine the estimate with maximum value, $\hat{U}_k$ (max) and the estimate with the minimum value $\hat{U}_k$ (min). To obtain the standard error (SE), the following formula was used:

$$SE = | \hat{U} \text{ (max)} - \hat{U} \text{ (min)} | \; / \; 4.1$$

Testing Differences

The following procedure was used to test the difference between the estimate $\hat{U}_1$ from subset one and $\hat{U}_2$ from subset two where the subsets of reports are mutually exclusive:

Compute the standard error of the difference $[SE_{1-2}]$ and divide it into the absolute difference as shown below to yield the "t" value.

$$t = | \hat{U}_1 - \hat{U}_2 | \; / \; [SE_{1-2}]$$

where $| \hat{U}_1 - \hat{U}_2 |$ represents the absolute difference between $\hat{U}_1$ and $\hat{U}_2$ and

$$SE_{1-2} = [(SE_1)^2 + (SE_2)^2]^{1/2}$$

If the "t" value is greater than 3.18, then the difference between the two estimates is significantly different at the 95 percent confidence level.

To test the difference between the estimate $\hat{U}$ and another estimate $\hat{V}$ where both are derived from the same reports, the following test was used:

1. Create a new variable z where

$$z_{hi} = (u_{hi} - v_{hi})$$

and for each report there is a positive value u_{hi} with a corresponding positive value v_{hi}. For the difference $(u_{hi} - v_{hi})$ the sign may be either positive or negative.

2. Calculate $\hat{Z}$ as shown below (formula shown applies to all strata combined). For less than three strata, apply summation to specified strata.

$$\hat{Z} = \sum_{h=1}^{3} W_h \sum_{i=1}^{n_h} z_{hi}$$

3. Calculate the t value as shown below where $SE(\hat{Z})$ is the standard error for $\hat{Z}$.

$$t = \hat{Z}/SE(\hat{Z})$$

4. If t value is greater than 3.18, then there is a significant difference between the estimate $\hat{Z}$ and zero.

Table D-1

Stratification and Sampling - Railroad Users Study

Stratum(a)	Universe Count of New Railroads (1)	Sample Rate for Selecting Railroads (2)	Number of Study RRs(b) (3)	Number of Shippers for Study Railroads (4)	Sample Rate for Selecting Shippers for Study Railroads (5)	Number of Shippers Selected (6)	Overall Sample Rate for Selecting Shippers(c) (7)	Weighting Factor, W_h (8)
All Railroads Combined	177	0.47	75	5534	0.113	627	0.092	N/A
I. Shortline RRs, Small	105	0.33333	32	285	0.5018	143	0.1673	5.977
II. Shortline RRs, Large	58	0.5	29	734	0.2084	153	0.1042	9.597
III. Regional RRs	14	1	14	4515	0.0733	331	0.0733	13.643

a. Regional railroads are those railroads with 250 miles or more of road. All those railroads with less miles of road are defined as shortline railroads. Shortline railroads were stratified into small and large railroads; respectively those with eight or less shippers and nine or more shippers based on preliminary survey results.

b. There were three railroads that were dropped from the study for stratum I, the Logansport & Eel River, Oklahoma Central, and Franklin County Railroads. The first and the second were inactive and the third was out of business.

c. The overall effective sample rate for selecting shippers was computed by dividing 627 (number of shippers selected) by 6838 (the original estimate of shippers in the universe).

Table D-2

Number of Selected Facilities Out of Scope of Study
Railroad User Survey

Stratum	Total Number of Facilities Selected in Study (a) (1)	Number of Study Facilities Out of Scope of Study (a) Not Listed at Address (2)	Number of Study Facilities Out of Scope of Study (a) All Other (3)	Number of Facilities In Scope of the Study (b) (4)
All RRs Combined	686	33	129	524
Shortline RRs, Small	148	1	12	135
Shortline RRs, Large	163	0	14	149
Regional RRs	375	32	103	240

a. There may be more than one facility for a shipper selected for a study railroad.

b. Number of in-scope facilities is obtained by subtracting the values for the second and third columns from the first.

Table D-3

Response Rate, Railroad User Survey

Stratum	Number of Facilities In Scope of the Study (1)	Number of In Scope Facilities Responding to Study (2)	Percent of Facilities Responding to Study (3)	Population Estimate for Facilities Responding to Study (4)
All Railroads Combined	524	493	94%	5,154
Shortline RRs, Small	135	129	96%	771
Shortline RRs, Large	149	144	97%	1,382
Regional RRs	240	220	92%	3,001

APPENDIX E

TERMINATED NEW RAIL SERVICE

Table E-1

New Shortlines On Which Service Ceased[1]

Railroad	Operating Years	Miles	Former Railroad	Comments
Ashuelot Line	1982-83			
Elkhorn & Walworth	1983-84	38	Milwaukee Rd	Insurance problems
Falls Creek	1980-88	5	Penn Central	
Franklin County	1985-87	10	Seaboard	Low volume; poor track
Fulton County	1981-85	15	Erie Lackawana	Connection disconnected
Jersey Central Term.	1981		Penn Central	Lease terminated
Keota-Washington	1984-86	15	Rock Island	
Marion County	1984-85	6	Seaboard	Shipper went out of business
Minneapolis Valley	1984-85			
Morrison Creek	1982-84			
Northern Missouri	1984-86	153	Norfolk & Western	Bridge washout
OHI-Rail	1982-83	39	Conrail	
Ontario Eastern	1982-83	20	Conrail	Shipper went out of business
Prairie Central	1981-84	161	Penn Central	Undercapitalized
Raccoon River	1981	10	Milwaukee Rd	Low volume; high car costs
Seattle & North Coast	1982-84	51	Milwaukee Rd	Bankruptcy 6/84

[1] This table contains 16 shortline railroads that began operations after 1980 and ceased operating prior to 1988; nearly all of these carriers terminated service less than three years after start-up. Former users of these carriers were not included in the survey.

Table E-2

New Shortlines On Which Service Ceased But Was Later Renewed[2]

Railroad	Operating Years	Miles	Former Railroad	New Operator	Current Miles
Andalusia & Conecuh	1983-87	9	Central of Georgia	Ala. & Fla. Rwy	2
Brandon	1981-82	53	Rock Island	Kyle Railways	53
Chelatchie Prairie	1981-85	30	Longview,Portland & Northern	Lewis & Clark	30
Chillicothe Southern	1986-87	39	Norfolk & Western	Chillicothe-Brunswick Rail Maint. Authority	39
Enid Central	1982-83	64	Rock Island	Okla-Kansas-Texas	9
Indiana Midland	1985-86	24	Penn Central	Carthage, Knightstown & Shirley	24
Iowa Railroad	1981-84	552	Rock Island	Iowa Interstate	552
Johnsonburg, Kane, Warren & Irvine	1982-85	55	Penn Central	Allegheny	55
Mahoning & Hazelton	1984-85	11	Reading	Panther Valley	11
Moxahala Valley	1983-86	32	Penn Central	Ohio Southern	32
Okarche Central	1982-83	59	Rock Island	OKT	59
Ottumwa Connecting	1984-85	2	Norfolk & Western	Colorado & Eastern	2
So. Central Arkansas	1982-84	56	Rock Island	E. Camden & Highland	25
Wisconsin Western	1982-85	115	Milwaukee Road	Wisconsin & Calumet	115

[2] This table contains 14 railroads (different from those in Table E-1) -- 13 shortlines and one regional -- that commenced service after 1980, ceased operating, and then renewed operations prior to 1988 with a new owner or operator. Users of these railroads were included in the survey.