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# Staff Papers Series

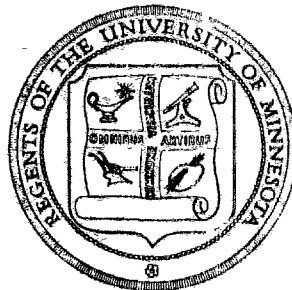
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RAIL AND TRUCK RATES UNDER PUBLIC  
REGULATION: CORN AND SOYBEAN  
TRANSPORTATION IN MINNESOTA, 1970-1979

by

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and Jerry Fruin



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RAIL AND TRUCK RATES UNDER PUBLIC REGULATION:  
CORN AND SOYBEAN TRANSPORTATION IN  
MINNESOTA, 1970-1979

Although federal and state regulation of railroad rates by the Interstate Commerce Commission (ICC) and similar state agencies has been a fact of life for almost a century, Minnesota's trucking industry is now just completing its first decade of regulated rates. The Minnesota Public Service Commission (PSC) issued its first minimum rate requirements for the trucking industry in 1970.

The rates approved by the ICC and PSC play an important role in Minnesota's agricultural economy because railroads and trucks are the primary competitors for intrastate grain and oilseed shipments. In this paper, railroad and truck rates for corn and soybeans for 1970-1979 will be compared and some implications of changes in these rates for the state's producers will be discussed.

County-by-County Rate Comparison

The first task of this paper is a county-by-county comparison of truck and single car railroad grain rates for 1970-1979. Rates in effect for both railroads and trucks in the years 1970, 1973, 1975, 1977, and 1979 were taken from Minneapolis Grain Exchange Rate Books and orders of the PSC (see References). Then, the cost for moving soybeans and corn (both move at the same rates) was calculated from the county seat of each of 69 soybean producing counties to Minneapolis.<sup>1/</sup> The point of using this

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<sup>1/</sup> In a few cases, rail rates from the county seat were not published. The rate from a nearby town was used. Where two rail rates for different lines were published for a particular origin, the lesser rate was chosen.

hypothetical transportation pattern, as opposed to using actual geographic dispersion of corn and soybeans across processors and other markets, was used to highlight the changes in rate structures. Recognizing that Minneapolis is a major, but not the only market for Minnesota corn and soybeans, this simplification will be used throughout this paper. The results of the comparison of rates from corn and soybean producing counties to Minneapolis are shown in Tables 1-3, and illustrated in Figures I.

In 1970, the beginning of the period when both railroads and trucks were regulated, the two modes were strongly competitive for intrastate grain traffic. Thirty of the 69 counties had single car rail rates to Minneapolis that were lower than the corresponding truck rate; 18 counties had less expensive truck rates; truck and rail rates to Minneapolis from 21 counties were identical (Table 3 and Figure I).

In 1973, the year of the Arab oil embargo and the first round of fuel price increases which are now pushing diesel fuel prices steadily towards \$1.00 per gallon, railroads continued their domination of short haul grain rates. Truck costs rose faster than rail rates during 1970-1973, so that in 1973 only eight of the 69 counties showed a definite rate advantage for trucks.

Only two years later, the situation was completely reversed. No counties had a rail rate advantage; 66 would have been better off using trucks. Truck rates increased during 1973-1975, but railroad rate increases during those years were much sharper.

By 1977, not one county showed a single car rail rate to Minneapolis that was equal to or lower than the competing truck rate. The relatively small volume rail shipper who depended on single car rail rates now had to pay more for rail than truck transport, a situation which continued into 1979.

TABLE 1. Single Car Grain Rates (¢/cwt.) to Minneapolis from Selected Counties, Minnesota, 1970-1979

County	Rail Point	Rail Line	1970	1973	1975	1977	1979
AITKIN	DRAINERD	BN	16.0	19.0	22.0	29.5	35.0
ANOKA	ANOKA	BN	18.5	22.5	25.0	42.0	50.0
BECKER	DETHROIT LAKES	BN	20.5	23.5	24.5	44.0	49.0
BENSON	FOLEY	BN	20.0	23.0	24.0	43.0	48.0
BIG STONE	ORTONVILLE	MIL	19.0	22.0	23.0	40.0	45.0
BLUE EARTH	MAUKATO	CNW	19.0	22.0	23.0	40.0	45.0
BUKOWI	NEW ULM	CNW	12.0	16.0	17.0	22.0	25.0
CARLTON	CARLTON	BN	29.5	33.0	34.0	46.0	50.0
CASS	CHASKA	CNW	25.0	29.0	30.0	39.0	43.0
CHIPPEWA	REHIDJI	BN	16.0	19.0	20.0	25.0	29.0
CHISAGO	MORRISVIDEO	MIL	19.0	22.0	23.0	29.0	33.0
CLAY	NORTH BRANCH	BN	27.0	31.0	32.0	41.0	45.0
CUTTWOOD	MOORHEAD	CNW	16.0	19.0	20.0	25.0	29.0
CROW WING	WINDOHN	CNW	16.0	19.0	20.0	25.0	29.0
DAKOTA	BRAINERD	MIL	19.0	22.0	23.0	29.0	33.0
DODGE	HASTINGS	MIL	19.0	22.0	23.0	29.0	33.0
DOUGLAS	DODGE CENTER	CNW	16.0	19.0	20.0	25.0	29.0
FARIBAULT	ALEXANDRIA	BN	15.0	18.0	19.0	24.0	28.0
FILLMORE	WINNEBAGO	CNW	13.0	16.0	17.0	22.0	26.0
FREEDORF	PRESTON	MIL	19.0	22.0	23.0	29.0	33.0
GOODHUE	ALBERT LEA	CNW	19.0	22.0	23.0	29.0	33.0
GRANT	ELBOW LAKE	SOO	19.0	22.0	23.0	29.0	33.0
Houston	LOUSTON	MIL	19.0	22.0	23.0	29.0	33.0
ISANTI	CAMBRIDGE	BN	18.0	21.0	22.0	28.0	32.0
JACKSON	JACKSON	MIL	11.0	15.0	16.0	21.0	25.0
KANABEC	MORA	BN	11.0	15.0	16.0	21.0	25.0
KANDIYOHI	WILLMAR	BN	11.0	15.0	16.0	21.0	25.0
LAC QUI PARLE	WADSWORTH	CNW	19.0	22.0	23.0	29.0	33.0
LE SUEUR	LAKE CENTER	MIL	22.0	25.0	26.0	33.0	37.0
LITCOLD	LAKE BETTON	CNW	22.0	25.0	26.0	33.0	37.0
LYON	MARSHALL	BN	22.0	25.0	26.0	33.0	37.0
MAHONOMET	MAHONOMET	SOO	22.0	25.0	26.0	33.0	37.0
MARTIN	FAIRMONT	MIL	16.0	19.0	20.0	25.0	29.0
MCLEOD	GLENCROFT	MIL	16.0	19.0	20.0	25.0	29.0
MELNER	LITCHFIELD	BN	16.0	19.0	20.0	25.0	29.0
MILL LACS	MILACA	BN	16.0	19.0	20.0	25.0	29.0
MORRISON	LITTLE FALLS	BN	13.0	16.0	17.0	22.0	26.0
HOWE	AUSTIN	CNW	12.0	15.0	16.0	21.0	25.0
LUKUNY	ST. PETER	CNW	19.0	22.0	23.0	29.0	33.0
MCCOLLET	ST. PETER	CNW	19.0	22.0	23.0	29.0	33.0
MORRIS	WORTHINGTON	CNW	22.0	25.0	26.0	33.0	37.0
OLMSTEAD	ROCHFESTER	CNW	22.0	25.0	26.0	33.0	37.0
OTTERTAIL	FERGUS FALLS	BN	22.0	25.0	26.0	33.0	37.0
PIPESTONE	PIRE CITY	BN	22.0	25.0	26.0	33.0	37.0
POPE	PIPESTONE	BN	22.0	25.0	26.0	33.0	37.0
REDWOOD	GLENDWOOD FALLS	CNW	22.0	25.0	26.0	33.0	37.0
REDAVILL	REDWOOD FALLS	MIL	22.0	25.0	26.0	33.0	37.0
RICE	OLIVIA	MIL	24.0	27.0	28.0	35.0	39.0
ROCK	FARIBAULT CREEK	BN	19.0	22.0	23.0	29.0	33.0
SCOTT	SHAKOPEE	CNW	19.0	22.0	23.0	29.0	33.0
SMITHBURNE	ELK RIVER	BN	19.0	22.0	23.0	29.0	33.0
STABLEY	GAYLORD	CNW	19.0	22.0	23.0	29.0	33.0
SILARH	ST. CLOUD	CNW	19.0	22.0	23.0	29.0	33.0
SILFELLE	OWATONNA	BN	19.0	22.0	23.0	29.0	33.0
SILVEIS	MORRIS	BN	19.0	22.0	23.0	29.0	33.0
SMITH	MORRISON	BN	19.0	22.0	23.0	29.0	33.0
TODD	LONG PRAIRIE	BN	19.0	22.0	23.0	29.0	33.0
TRAVERSE	WHEATON	MIL	22.0	25.0	26.0	33.0	37.0
WABASHA	WABASHA	MIL	22.0	25.0	26.0	33.0	37.0
WADENA	WADENA	BN	22.0	25.0	26.0	33.0	37.0
WASILLA	WASECA	CNW	22.0	25.0	26.0	33.0	37.0
WASHINGTON	ST. JAMES	BN	22.0	25.0	26.0	33.0	37.0
WATONWAN	ST. JAMES	BN	22.0	25.0	26.0	33.0	37.0
WILKIN	HIRE CREEK	CNW	22.0	25.0	26.0	33.0	37.0
WINDONA	WINDONA	CNW	22.0	25.0	26.0	33.0	37.0
WRIGHT	BUFLALO	SOO	22.0	25.0	26.0	33.0	37.0
YELLOW MEDICINE	GRANITE FALLS	BN	22.0	25.0	26.0	33.0	37.0

1/ 1970 Rail point was Wascea.

2/ 1973 Rail point was Norwood.

TABLE 2. Truck Grain Rates (¢/cwt.) to Minneapolis from Selected Counties, Minnesota, 1970-79.

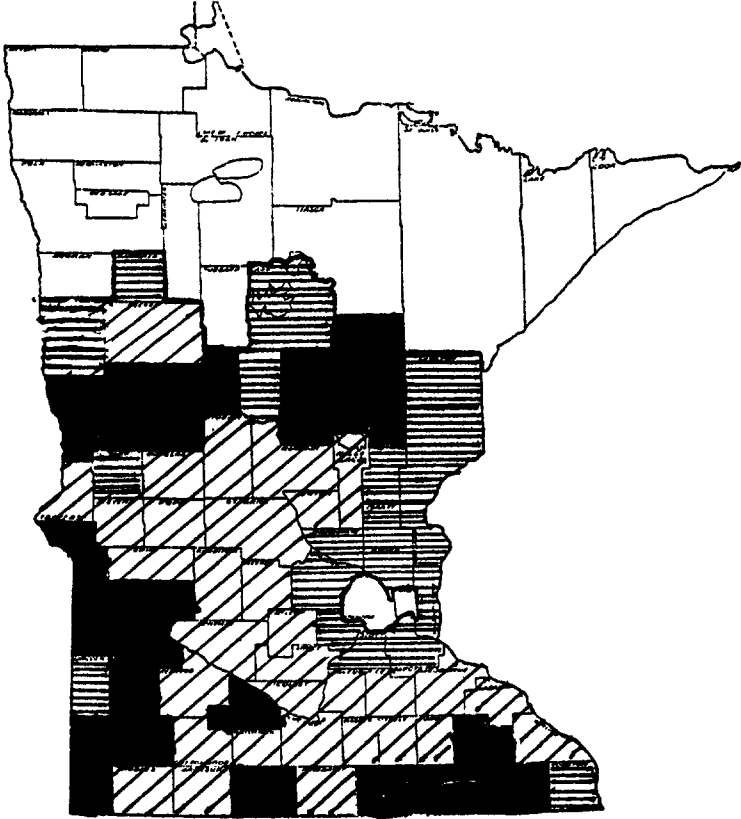
County	County Seat	Miles to Mpls.	1970	1973	1975	1977	1979
AITKIN		123.	0	0	0	0	5
ANOKA		118.	16	1	2	2	3
BECKER	DETOIT LAKES	194.	2	2	3	3	4
BENSON		166.	2	2	3	3	4
BIG STONE	ORTONVILLE	162.	2	2	3	3	4
BLUE EARTH	MANWATO	178.	5	5	5	5	5
BROWN	NEW ULM	57.	1	1	1	1	1
CARLTON	CARLTON	129.	0	0	0	0	0
CASS	CHASKA	125.	0	0	0	0	0
CHIPPEWA	WALKER	155.	0	0	0	0	0
CHISAGO	MONTEVIDEO	126.	0	0	0	0	0
CLAY	CENIER CITY	140.	0	0	0	0	0
COTTONWOOD	MOOREHEAD	237.	0	0	0	0	0
CROW WING	WINDOM	130.	0	0	0	0	0
DAKOTA	BRAIMERS	118.	0	0	0	0	0
DODGE	HASTINGS	133.	0	0	0	0	0
DUGLAS	HANTORVILLE	173.	0	0	0	0	0
FARIBAUT	ALEXANDRIA	132.	0	0	0	0	0
FILLMORE	BLUE EARTH	112.	0	0	0	0	0
FREEBORN	PRESTON LEA	96.	0	0	0	0	0
GOODHUE	ALBERT LEA	56.	0	0	0	0	0
GRANT	RED WING	160.	0	0	0	0	0
HOUSTON	ELBOW LAKE	150.	0	0	0	0	0
ISANTI	CALEBONIA	141.	0	0	0	0	0
JACKSON	CAMBRIDGE	154.	0	0	0	0	0
KANABEC	JACKSON	62.	0	0	0	0	0
KANDIYOH	MORA	93.	0	0	0	0	0
LAC QUI PARLE	WILLMAR	155.	0	0	0	0	0
LESEUER	WADISON	61.	0	0	0	0	0
LINCOLN	LAC CENTER	170.	0	0	0	0	0
LYON	IVANHOE	123.	0	0	0	0	0
MAHONMEN	MARSHALL	130.	0	0	0	0	0
MARTIN	MAHONMEN	128.	0	0	0	0	0
MCLIOD	FAIRMONT	53.	0	0	0	0	0
MELKER	GLENCOE	57.	0	0	0	0	0
MILLE LACS	LITCHEFIELD	63.	0	0	0	0	0
MORRISON	MILACA FALLS	93.	0	0	0	0	0
MOWER	LITTLE FALLS	99.	0	0	0	0	0
MURRAY	AUSTIN	174.	0	0	0	0	0
NICOLET	SLAYTON	67.	0	0	0	0	0
NOBLES	ST. PETER	171.	0	0	0	0	0
OLMSTEAD	MOR THINGTON	183.	0	0	0	0	0
OTTERTAIL	ROCHESTER FALLS	173.	0	0	0	0	0
PIPESTONE	FERGUS FALLS	162.	0	0	0	0	0
POPE	PINE CITY	121.	0	0	0	0	0
REDWOOD	PIPESTONE	108.	0	0	0	0	0
REDWOOD FALLS	REDWOOD FALLS	96.	0	0	0	0	0
RENVILLE	OLIVIA	49.	0	0	0	0	0
RICE	FARIBAUT	201.	0	0	0	0	0
ROCK	LUVERNE	226.	0	0	0	0	0
SCOTT	SHAKOPEE	64.	0	0	0	0	0
SHERBURNE	ELLY RIVER	121.	0	0	0	0	0
SIDLEY	GAYLORD	82.	0	0	0	0	0
STEARN	ST. CLOUD	64.	0	0	0	0	0
STEELE	ST. TONNA	148.	0	0	0	0	0
STEVENS	OWAPIS	121.	0	0	0	0	0
SWIFT	MORPIS	181.	0	0	0	0	0
TODD	BENSON PRAIRIE	185.	0	0	0	0	0
TRAVERSE	WHEATON	149.	0	0	0	0	0
WABASHA	WADENNA	175.	0	0	0	0	0
WADENA	WADENA	149.	0	0	0	0	0
WASECA	WASECA	205.	0	0	0	0	0
WASHINGTON	STILLWATER	118.	0	0	0	0	0
WATONWAN	ST. JAMES	120.	0	0	0	0	0
WILKIN	BRECKENRIDGE	118.	0	0	0	0	0
WINONA	WINONA	136.	0	0	0	0	0
WRIGHT	BUFFALO	117.	0	0	0	0	0
YELLOW MEDICINE	GRANITE FALLS	117.	0	0	0	0	0

TABLE 3. Comparison of Grain Rates to Minneapolis from Selected Counties, Minnesota, 1970-1979.

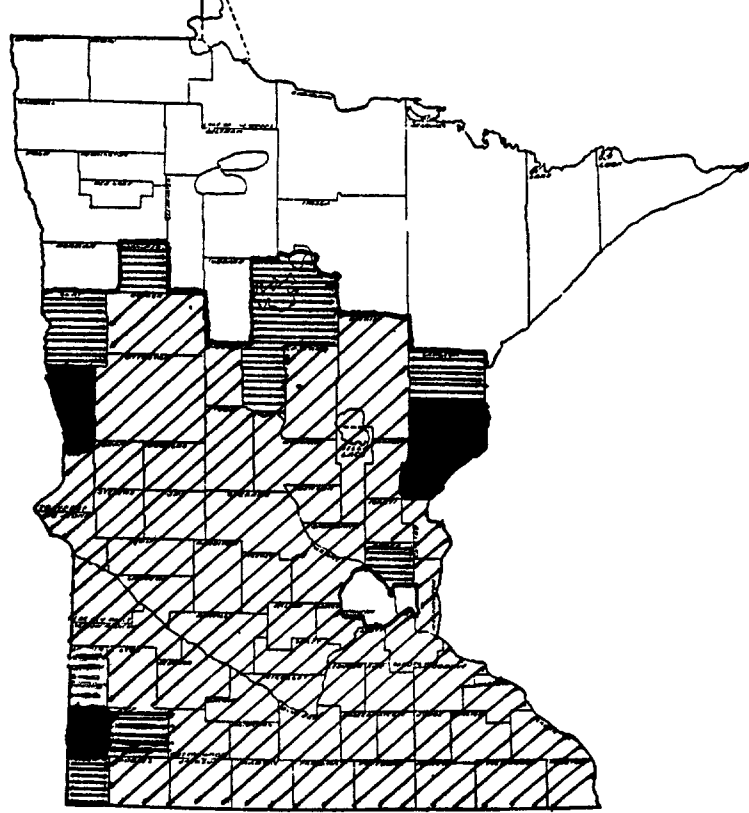
County	Miles to Mpls.	Code 1/				
		1970	1973	1975	1977	1979
AITKIN	123.					
ANOKA	118.	*	R	T	T	T
BELKNER	194.	R	R	R	R	R
BENSON	166.	R	R	R	R	R
BIG STONE	162.	R	R	R	R	R
BLUE EARTH	178.	R	R	R	R	R
BROWN	87.	*	T	T	T	T
CARLTON	129.	T	T	T	T	T
CARVER	185.	T	T	T	T	T
CASS	126.	T	T	T	T	T
CHIPPEWA	140.	T	T	T	T	T
CHISAGO	237.	T	T	T	T	T
CLOYONWOOD	141.	T	T	T	T	T
CROW WING	130.	T	T	T	T	T
DAKOTA	130.	T	T	T	T	T
DODGE	131.	T	T	T	T	T
DOUGLAS	120.	T	T	T	T	T
FARIBAULT	115.	T	T	T	T	T
FILLMORE	54.	T	T	T	T	T
FREEBORN	160.	T	T	T	T	T
GOODHUE	154.	T	T	T	T	T
GRANT	154.	T	T	T	T	T
HOUSTON	154.	T	T	T	T	T
ISANTI	162.	T	T	T	T	T
JACKSON	193.	T	T	T	T	T
KANABEC	155.	T	T	T	T	T
KANDIYOHI	170.	T	T	T	T	T
LAC QUI PARLE	146.	T	T	T	T	T
LESCUER	128.	T	T	T	T	T
LINCOLN	127.	T	T	T	T	T
LYON	65.	T	T	T	T	T
MAHONMEN	99.	T	T	T	T	T
MARTIN	177.	T	T	T	T	T
MCLEOD	171.	T	T	T	T	T
MCKER	183.	T	T	T	T	T
MILLE LACS	162.	T	T	T	T	T
MORRISON	193.	T	T	T	T	T
MOWER	61.	T	T	T	T	T
MURRAY	174.	T	T	T	T	T
NICOLLET	177.	T	T	T	T	T
NOBLES	171.	T	T	T	T	T
OLMSTEAD	175.	T	T	T	T	T
OTTERTAIL	162.	T	T	T	T	T
PINE	193.	T	T	T	T	T
PIPESTONE	108.	T	T	T	T	T
POPE	108.	T	T	T	T	T
REDWOOD	196.	T	T	T	T	T
REHVILLE	49.	T	T	T	T	T
RICE	201.	T	T	T	T	T
ROCK	26.	T	T	T	T	T
SCOTT	62.	T	T	T	T	T
SHERBURNE	64.	T	T	T	T	T
SIBLEY	64.	T	T	T	T	T
STEARN	148.	T	T	T	T	T
STELLE	121.	T	T	T	T	T
STILWENS	119.	T	T	T	T	T
SWIFT	181.	T	T	T	T	T
TODD	185.	T	T	T	T	T
TRAVERSE	149.	T	T	T	T	T
WABASHA	175.	T	T	T	T	T
WADENA	26.	T	T	T	T	T
WASICA	115.	T	T	T	T	T
WASHINGTON	203.	T	T	T	T	T
WATONWAN	118.	T	T	T	T	T
WILKIN	36.	T	T	T	T	T
WINONA	117.	T	T	T	T	T
WRIGHT		T	T	T	T	T
YILLOJ		T	T	T	T	T
MEDICINE		T	T	T	T	T

1/ T designates less expensive truck rate, R designates less expensive rail rate, and \* designates equivalent rates

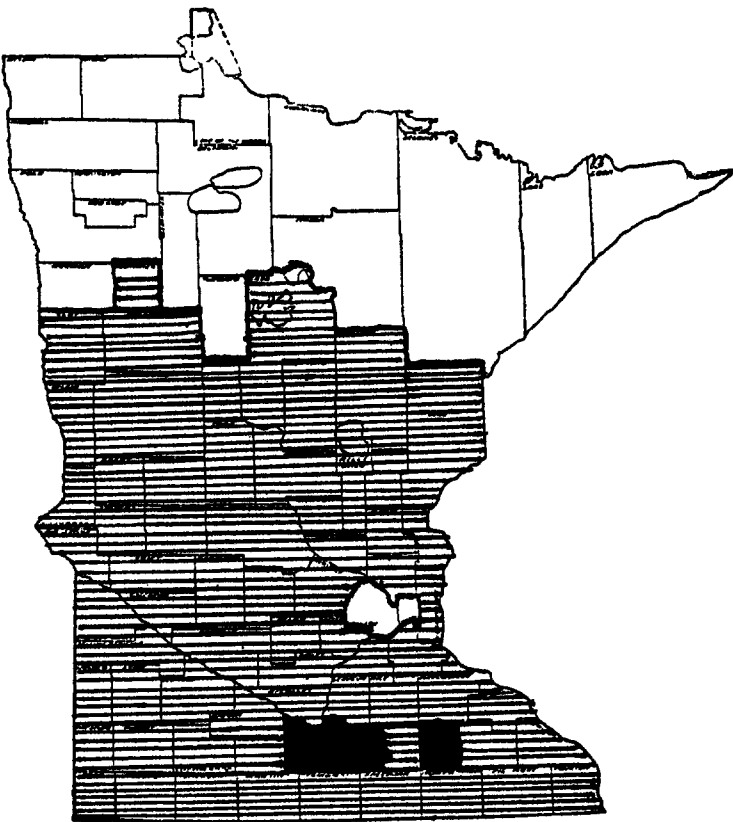




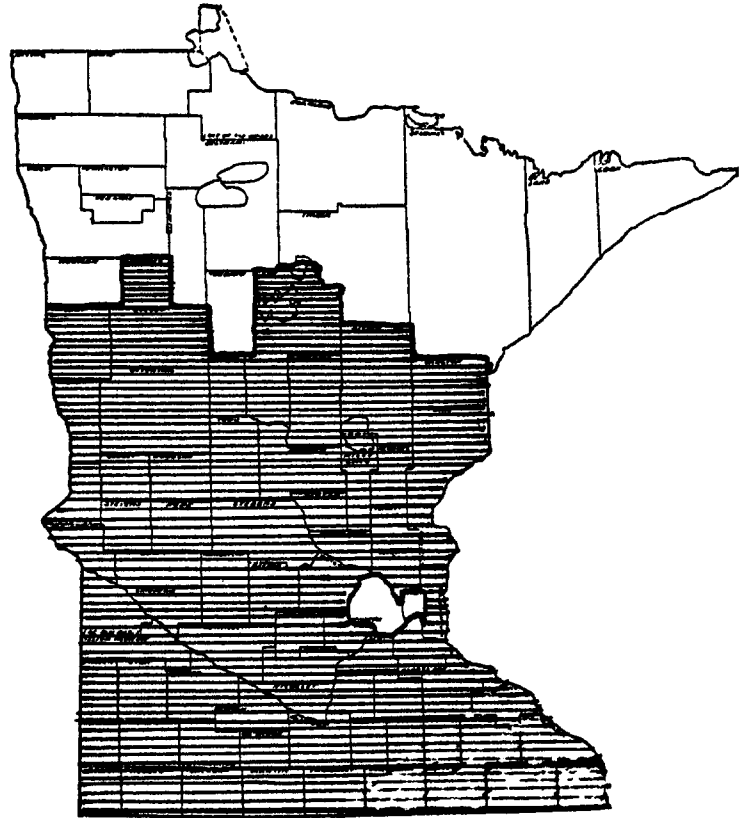
1970



1973



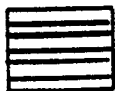
1975



1977, 1979



Counties where rail rates are lower than truck rates



Counties where truck rates are lower than rail rates



Counties where truck and rail rates are equal

Figure 1. Relative Truck and Rail Transportation Rates for Corn and Soybeans, 1970, 1973, 1975 and 1977, by County, to Minneapolis.

### Rail vs. Truck Cost Comparison

The economic effect of rising truck and rail rates on the total transportation cost for Minnesota's soybean crop depends on both the actual rates and the amounts shipped at those rates. A ten percent rise in rates for a county shipping a relatively small amount of soybeans may well have less an effect on total transportation costs than a five percent increase for a major grain producing county.

A number of total transportation cost estimators that account for both rate and volume effects are conceivable. The approach used here was to estimate the weighted average rate moving a constant "benchmark" crop from the 69 counties to Minneapolis. This heuristic device assumes a simplified transportation pattern and constant level of grain production to highlight changing rate structures.

The "benchmark" crop used was the sum of the 1970-79 average soybean production of the 69 counties and one-half of the 1970-79 average corn production of those counties [6]. Only one-half of the corn crop was included to reflect the relatively large proportion of Minnesota's corn production that is used on-farm or locally for feed.

The weighted average rate for moving the benchmark crop from the 69 counties to Minneapolis was calculated using railroad and truck rates in effect for 1970, 1973, 1975, 1977, and 1979. Results are shown in Table 4.

If the benchmark production of all 69 counties was shipped to Minneapolis at 1970 single car rail rates, the average rate would have been 14.7¢/cwt. (8.2¢/bu.). The average rate of moving the crop to Minneapolis at 1970 truck rates would have been 15.0¢/cwt. (8.4¢/bu.).

Had the benchmark crop been shipped to Minneapolis at 1973 rates, the average truck rate would have been 19.9¢/cwt. (11.1¢/bu.) and the rail-

Table 4. Weighted Average<sup>1/</sup> Truck and Single Car Rail Rates to Minneapolis, 1970-1979

Mode	1970	1973	1975	1977	1979
	----- (¢/cwt.) -----				
Rail	14.7	17.6	25.8	28.2	33.5
Truck	15.0	19.9	22.4	25.0	29.3

<sup>1/</sup> The weighted average rate was computed by multiplying the rate for each to the 69 counties by its benchmark crop quantity, totaling the counties and then dividing by the total volume of the benchmark crop.

roads would have averaged 17.6¢/cwt. (9.9¢/bu.). The railroads' cost increase of 19.7 percent over 1970 was more than matched by the trucking industry's 32.7 percent increase.

The trucking industry's average rate for the same job rose another 12.6 percent to 22.4¢/cwt. (12.5¢/bu.) in 1975, but the railroads increased their average rate by 46.6 percent to 25.8¢/cwt. (14.5¢/bu.). In a single two year period, the railroads' rate advantage over trucks was eliminated.

Since 1975, both trucks and rails have continued their increases at about the same rate--roughly a 30 percent increase during 1975-1979-- so the rail-truck competitive situation has shown little change.

Overall, the 1970 average truck rate of 15¢/cwt. rose to 29.3¢/cwt. in 1979. During the same period, the average rail rate for moving the benchmark crop from the 69 counties to Minneapolis rose from 14.7¢/cwt. to 33.5¢/cwt. For the first decade of regulation of both modes, the truck cost increase was 95.3 percent; the rail cost increase was 127.9 percent.

#### Ton-Mile Comparison

The changing relative rates between railroads and trucks have important implications for the amount of grain traveling to market on the state's rails and public highways. For purposes of analyzing general trends, the "benchmark" crop of the 69 counties will again be used. The total ton-mileage involved in hauling the benchmark production of all 69 counties to Minneapolis, figuring distances in highway miles from county seats, is 1.3 billion ton-miles. The hypothetical ton-miles of benchmark production transported to Minneapolis by truck and single-car rail are presented in Table 5. It was assumed that truck shipments would be used if the truck rate was less than or equivalent to the corresponding rail rate.

Table 5. Ton-Miles of Corn and Soybeans Shipped, by Mode, Assuming Least-Cost Mode Selection and Benchmark Commodity Volumes, 1970-1979.

Mode	1970	1973	1975	1977	1979
	----- (1,000 ton-miles) -----				
Rail	530	1,101	0	0	0
Truck	818	247	1,348	1,348	1,348

If each county selected rail transport only if it was less expensive than trucks, 530 million ton-miles would have been the railroad industry's share of the total at 1970 rates. The rail share would have been even larger at 1973 rates--1.1 billion ton-miles, or 81.7 percent of the total grain traffic.

The rate reversal of 1973-1975 would, of course, also reverse the ton-mile situation. At 1975 rates, the trucking industry would haul the entire 1.35 billion ton-miles. For 1977 and 1979, the entire 1.35 billion ton-miles would also be traveling the state's highways if relative rates were the only criterion for transportation mode selection.<sup>2/</sup>

#### Transportation Rates vs. Corn and Soybean Prices

The impact of rising transportation costs on the incomes of grain producers depends upon how increased transport costs compare to grain prices.

Figure 2 presents indices of seasonal average corn and soybean prices against an index constructed from the least-cost combination of rates to Minneapolis. Seasonal average prices are taken from Minnesota Agricultural Statistics--1979. The least-cost transportation mix for each year was calculated by: a.) comparing rail and truck rates for each county; b.) choosing the lower rate; c.) multiplying the lower rate by the county's 1977 production; d.) aggregating costs over all counties. By 1977 the least-cost transportation solution was equal to an "all truck" solution. Indices were then constructed for the price series and transportation costs using 1970 = 100.

Figure 3 shows that soybean price trends have on the average been more than sufficient to offset rising transportation costs. The weighted

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<sup>2/</sup> Relative rates are of course not the only criterion. Timeliness, equipment, availability, the potential for loss or damage, provision of loading and unloading equipment, firm loyalty, and auxiliary services all can effect transport mode choice.

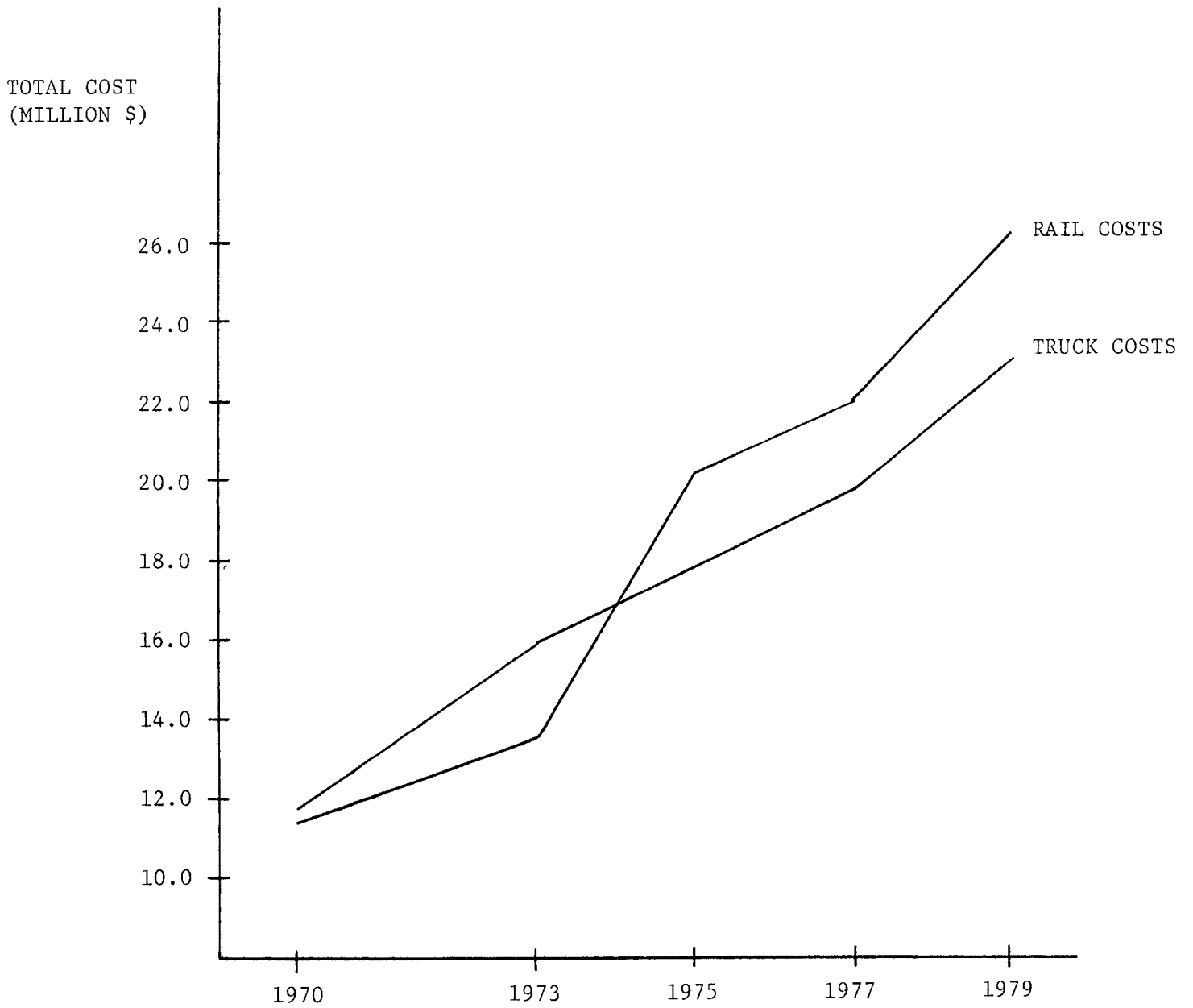


FIGURE 2: TRUCK AND RAIL COSTS OF TRANSPORTING 1977 MINNESOTA SOYBEAN PRODUCTION TO MINNEAPOLIS UNDER 1970, 1973, 1975, 1977 AND 1979 RATE STRUCTURES

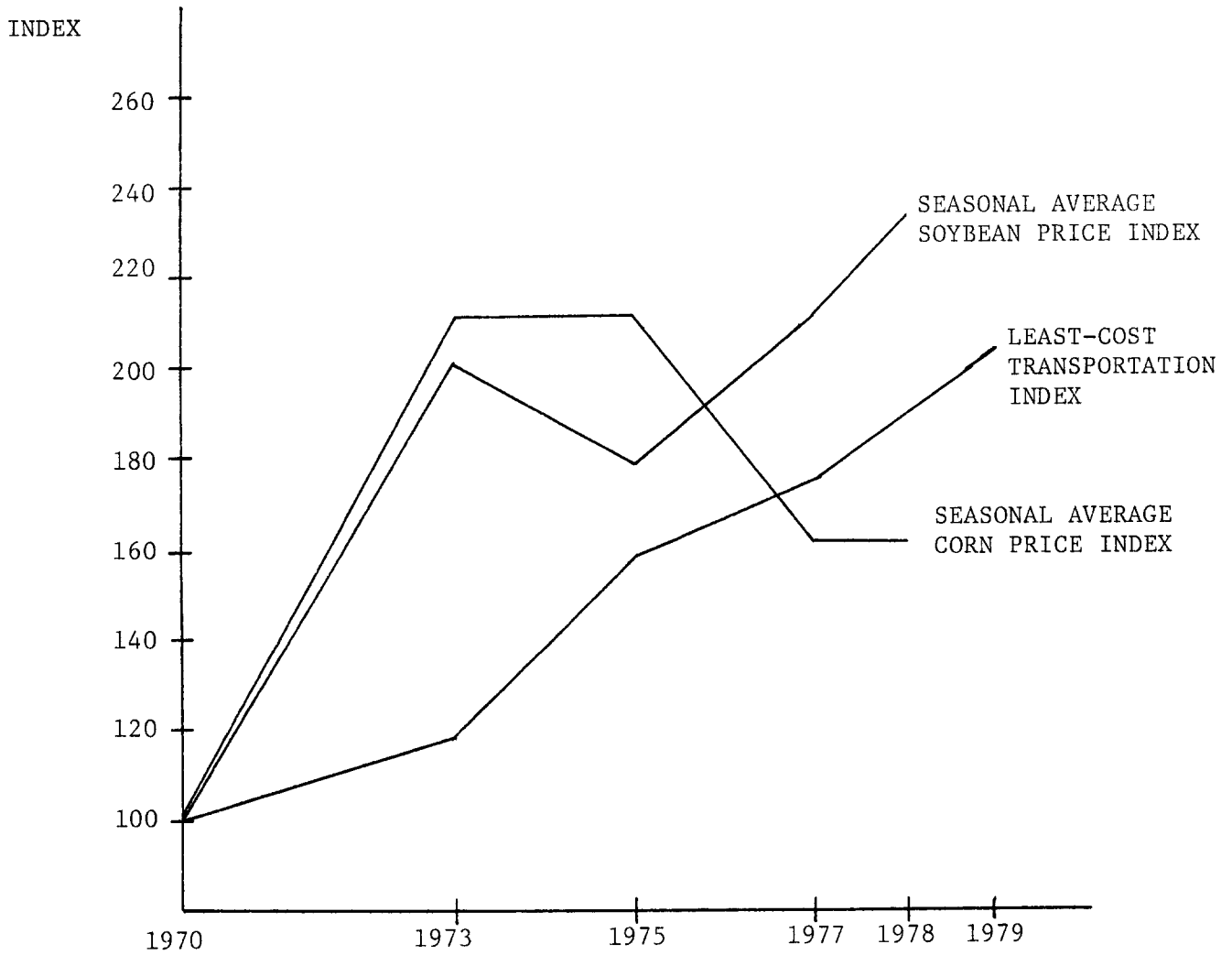


FIGURE 3: INDICES OF SEASONAL AVERAGE CORN AND SOYBEAN PRICES WITH INDEX OF LEAST-COST TRANSPORTATION RATES



average least-cost per bushel of shipping soybeans to Minneapolis increased from about 9¢ per bushel in 1970 to about 17¢ per bushel in 1979. Considering an increase in seasonal average soybean prices from \$2.79 per bushel in 1970 to \$6.55 in 1978, the increase in transportation costs per bushel represents a relatively small portion of the price of soybeans. While initially corn prices rose sufficiently to offset rising transportation costs, average prices after 1975 indicate greater vulnerability of corn to higher rail and truck rates. With seasonal average corn prices in 1978 being \$1.90 per bushel, transportation costs approaching 17¢ per bushel would represent a higher portion of the price of corn than was the case for soybeans, i.e. 9 percent as opposed to 2.6 percent.

#### Comparison of Single- and Multiple-Car Rates with Truck Rates

As single-car rail rates were escalating after 1973, railroads began to institute multiple-car rates. These rates are substantially lower, reflecting economies realizeable in assembling and handling larger volumes. Table 6 compares 1978 single-car rail, multiple-car rail, and truck rates from selected source points in southern Minnesota with multiple-car handling capabilities to Minneapolis. Multiple-car rates are substantially lower than the comparable single-car rail or truck rates. While multiple-car rates represent savings opportunities for producers situated near terminals with multiple-car facilities, smaller shippers facing single-car rates are at a relative disadvantage.

#### Findings and Implications

The purpose of this report was to describe the changes in the structure of single-car rail and truck rates for soybean transportation since the Minnesota Public Service Commission issued its first minimum rate require-

Table 6. Comparison of Single- and Multiple-Car Rail Rates with Truck Rates from Selected Minnesota Points to Minneapolis, 1978 Rates

Source Point	Distance to Minneapolis (miles)	Single-Car Rail	Multiple-Car Rail	Truck
		-----(\$1 cwt.)-----		
Jackson	154	37.5	32.0	34.0
Welcome	137	37.0	22.0	30.0
Pipestone	193	47.0	26.0	41.0
Winona	118	26.5	18.0	26.0
Red Wing	54	21.0	15.0	18.0
Wells	111	28.5	18.5	26.0

Sources: Minnesota Public Service Commission, 79-055-RD, February 6, 1979, Minneapolis Grain Exchange, Grain Rate Book No. 17, Supplement No. 1, June 19, 1978.  
Chicago, Milwaukee, St. Paul and Pacific Railroad Tariff #18710-D effective 8-4-78.  
Chicago and Northwest Tariff #17194-C effective 7-78.

ments for trucks in 1970. A simplified geographic dispersion of Minnesota soybeans was assumed as a descriptive device to highlight the changes in truck and rail rates. The most notable finding of the study was the inversion of relative single-car rail and truck rates since 1970. Single-car rail rates were sufficiently competitive with trucks in 1970 so that elevators in most counties would have shipped corn and soybeans to Minneapolis by rail. Between 1973 and 1975 trucks became the lower-cost mode. By 1977, using only the relative rates, all counties should have chosen trucks over single-car rail in shipping corn and soybeans to Minneapolis. Relaxing the assumption that all counties ship all of their corn and soybeans to Minneapolis would not change the essence of the conclusion: Single-car rail rates are no longer competitive for intra-state corn and soybean shipments. Where single-car shipments actually take place, factors other than cost-minimization must enter. Shippers may be committed to rail transport by virtue of long-term leasing obligations of rail cars, and through fixed facilities for loading and unloading rail cars. Users may prefer rail cars during rail car shortages because they can effectively retain the incoming cars and use them for outbound movements. Other users require or desire rail cars because unloading can be planned and scheduled or because of the outbound rate advantages they get because of the "transit privilege."<sup>3/</sup> These users may pay a premium for rail delivery greater than the rate advantage of inbound truck shipments. Also, under certain market conditions, such as strong export demand conditions, high soybean prices might justify getting the soybeans to market by any means possible. However, truck rates from throughout the state to Minneapolis are now less than single-car rail.

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<sup>3/</sup> The transit privilege allows the owners of commodities that are processed or stored enroute to pay the equivalent of a through rate from the original origin to final destination. Certain conditions, including the payment of a fee must be met, but the freight savings to the processor can be quite significant.

As grain shipment by truck becomes increasingly a rational economical decision, the number of ton-miles of grain traveling Minnesota highways will increase. The unavoidable corollary to greater truck traffic is accelerated highway depreciation. The rate of increase and the amount of road damages depend critically upon weight restrictions imposed upon trucks and the adequacy of the enforcement of weight restrictions.

The lack of rail shipments from small elevators will cause the railroads to ask for even more abandonments of their branch lines and possibly lines now considered "main lines."

One solution is the development of more points which can ship at multiple-car rates.

While multiple-car rates compete very effectively with truck rates, not all areas produce enough corn and soybeans to justify multiple-car facilities. These areas will become more dependent on truck transportation. In those areas where corn and soybean production is dense enough to obtain multiple-car rates, the economies of size in transportation will add impetus toward greater concentration in grain assembling and transshipment. Capital needs of the remaining elevators will increase along with their market power.

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