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Recent Changes in Costs of Shipping Forest Products by Rail

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Abstract

Costs for shipping lumber, plywood, and paper by rail are used by the USDA Forest Service in periodic timber assessments to measure the average cost of transporting forest products from producing locations to the point of final consumption. The Staggers Rail Act of 1980 authorized deregulation of the Nation's railroads. The purposes of this study were to determine whether changes in transportation costs have occurred since deregulation and to analyze the effects of deregulation on transportation costs between regions. The effects of the Staggers Rail Act on rail freight rates and services offered to this sector of the U.S. timber economy are discussed, as are changes in comparative advantages for the various regions. Results for these transportation costs indicated that some changes have occurred since passage of the Staggers Rail Act, although changing economic conditions may have also affected these costs.

Keywords: Forest products, costs (transportation), Staggers Rail Act.

Introduction

Rail transportation rates are used by the Forest Service, U.S. Department of Agriculture, in the periodic Renewable Resources Planning Act (RPA) timber assessments to measure the average cost of transporting forest products from producing locations to the point of final consumption. These costs provide the necessary link between the supply and demand functions of the Timber Assessment Market Model (TAMM) and also allow TAMM to solve for equilibrium prices and trade flows for all regions (Adams and Haynes 1980). We collected rail transportation costs, deflated to 1967 dollars, for shipments of lumber, plywood, and paper in 1974, 1977, 1981, and 1984.

Literature Review

Before 1980, the ratesetting process for all railroads was regulated by the Interstate Commerce Commission (ICC). For over 60 years, the commission controlled freight rates and set minimum and maximum charges on a case-by-case basis. Rate increases or reductions were based on railroad revenues and traffic levels, not on the cost of service (Mitchell 1981).

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In 1980, Congress passed the Staggers Rail Act (U.S. Laws, Statutes, etc. 1980) to reduce regulation of the Nation's railroads. One major goal of the act was to improve the financial condition of the railroads while balancing the needs of railroads, shippers, and the public (General Accounting Office 1983). Improvements included changing the ratesetting process, converting to a cost-of-service accounting system, and allowing railroads and shippers to negotiate individual long-term contracts.

ICC rate regulation was limited by the Staggers Act to rates for those areas where railroads have sufficient market dominance to exercise monopoly pricing. Nearly two-thirds of railroad rates are now free from the old system of maximum-rate regulation (Moore 1983). Railroads are now able to customize services to the needs of the shippers. Under the new ratesetting regulations of the Staggers Act, intermodal shipments using competing carriers and shipping modes are now facilitated (Roberts 1981).

The new accounting system provides a way to measure the cost of railroad service and to price these services quickly, easily, and competitively. Rates can now be set in response to supply and demand of cars, labor, and other cost components and to meet competition from other transportation modes (General Accounting Office 1983). More accurate pricing results from allocating costs directly to services. These new accounting methods eliminate inequitable or nonprofitable rate structures.

Allocating costs for long-haul, large-volume, heavy-loading commodities, such as forest products, is now done on a ton-to-ton-mile basis. Terminal costs are allocated in proportion to tons loaded and unloaded, and line-haul costs are allocated in proportion to the product of tons carried and miles traveled (Radford 1981). Identifying nonprofitable traffic is also possible under this new system (Shaffer 1981). This method serves as a form of value-of-service pricing and tends to allocate a larger portion of fixed costs to those commodities that face an inelastic demand curve and rely mainly on rail transportation because of bulk, weight, or distance.

Considerable work has been done on the consequences of deregulation on agricultural products, which indicates that deregulation has allowed rate structures to change. Few studies have focused on the effects of deregulation on forest products shipments.

Between 1977 and 1980, the railroad industry raised rates an average of 15 percent per year. Between 1980 and 1984, rates rose an average of 6.2 percent annually (Chapman 1985). Bureau of Labor Standards used the ICC 1-percent waybill sample to calculate rate changes for the 2 years before and after passage of the Staggers Act. Overall rates increased 38 percent over the 2 years before the act. During the 2 years after the act, rates increased by 18 percent. Rates for pulp and paper products and for wood and lumber products increased 40 and 41 percent, respectively, between 1978 and 1980. Between 1980 and 1982, the increase for pulp and paper was 17 percent, and for wood and lumber products it was 19 percent (General Accounting Office 1983). Part of the decline in rates is attributable to the Staggers Act, but changes in traffic levels, technology, depressed markets in 1980-82, and capacity use must also be considered as factors.

These changes in the ratesetting process forced changes in the source of the rail freight rate data I used in the assessment. Before 1980, the data were provided by the Commodity Operations Division of the Agricultural Stabilization and Conservation Service, U.S. Department of Agriculture, from rail tariffs published by the railroads. Because of deregulation, tariff books providing uniform rates for forest product commodities are no longer available for public use. The ICC 1-percent waybill sample has provided similar information for some shipments, but the waybills do not include contract traffic (General Accounting Office 1983). A greater volume of solid wood and paper products is moving under contracts, which reduces the ability to measure the costs of shipping forest products by rail.

The ICC waybill sample is a 1-percent sample of all railroad waybills for terminated carload line-haul shipments (Fehd 1975). A waybill contains all the information necessary for the railroads to transport a shipment and to prepare a bill. This includes the commodity shipped, size, origin and destination, the routing, types of service provided, type of railcar used, and the freight rate.

Study Objectives

I had two main objectives in this rail transportation cost study. The first was to determine whether changes in real average transportation costs for forest products had occurred since deregulation. The second objective was to analyze changes in transportation rates both over time and between supply regions. The effects of the Staggers Rail Act on rail freight rates for forest products were viewed in the context of these objectives. Changes in comparative advantages for transportation rates and new opportunities in Eastern and Southern markets for forest products were also considered in this study.

My major hypothesis was that rail transportation rates have remained constant, in real terms, since 1974; however, changes on individual supply-demand routes after deregulation may occur. Deregulation under the Staggers Act shifted the ratesetting process to a cost-of-service basis. Some routes may exhibit rate increases while other routes benefit from rate reductions. Changes in economic conditions may cause short-term fluctuations in the rates without noticeably affecting the long-term trend. Thus, the result may be to cancel out the effects of many individual changes.

Methods

The first step of this study was to update the Forest Service rail transportation cost data base containing information for 1974, 1977, and 1981 to include data for 1984, the latest year available. The methods used to update the data set and conduct the analysis followed those of Adams and Haynes (1980), with the exception of changing the source of the data. The Economic Research Service, U.S. Department of Agriculture, provided a computer tape of the 1984 lumber and wood products and the paper series extracted from the ICC waybill sample.

These data were aggregated, by the waybill origin and destination codes, to the county level. Previous analyses aggregated the tariff information to representative cities. These cities were chosen to best represent supply centers for the TAMM supply regions (table 1) and population centers for the TAMM demand regions (table 2). To avoid disclosure problems and because of differences between tariffs and the waybill sample, the 1984 data are aggregated to the counties (tables 1 and 2) associated with the original cities sampled.

Data for each center were then aggregated from the waybill sample into average transportation rate estimates for each supply and demand region arc. Rates for lumber and plywood were deflated to 1967 dollars by using the Bureau of Labor Standards price index for railroad freight—wood or lumber products; rates for paper products were deflated by using the price index for railroad freight—pulp, paper, or allied products. Missing values were estimated by using regression analysis of adjacent routes and previous sample data. These data are listed in appendix 1.

The first objective of the study was to determine whether changes in the average rail transportation rates had occurred since the Staggers Rail Act continued deregulation efforts begun in previous legislation. Of principal concern was whether or not rail transportation rates had remained constant in real terms, both before and after deregulation. This was accomplished by using regression analysis on the logarithms of each transportation rate with time as the independent variable. If the t-statistic testing the coefficients of this relation was significant, a trend in the data existed.

The second objective was to analyze changes in transportation rates for the individual supply regions over time. Testing changes among different supply regions was also part of this objective. Trends in real rail transportation rates over time were analyzed with linear regression techniques. The effects of rail deregulation between different supply regions was surveyed qualitatively, because insufficient data existed to use analytical methods.

Table 1--Supply regions used in calculating freight rates

State	County	City	Supply region
ME	Kennebec	Augusta	Northeast
NY	Oneida	Utica	Northeast
WI	Brown	Green Bay	North-Central
IN	Vigo	Terre Haute	North-Central
NC	Craven	New Bern	Southeast
GA	Lowndes	Valdosta	Southeast
AL	Wilcox	Pine Hill	South-Central
LA	Webster	Spring Hill	South-Central
MT	Missoula	Missoula	Northern Rocky Mountains
CO	Larimer	Fort Collins	Southern Rocky Mountains
UT	Iron	Cedar City	Southern Rocky Mountains
AZ	Navajo	Snowflake	Southern Rocky Mountains
ID	Ada	Boise	Northern Rocky Mountains
WA	Spokane	Spokane	Pacific Northwest--east side
WA	King, Mason	Shelton	Pacific Northwest--west side
OR	Deschutes	Bend	Pacific Northwest--east side
OR	Lane	Springfield	Pacific Northwest--west side
CA	Shasta	Anderson	Pacific Southwest

Table 2--Demand regions used in calculating freight rates

State	County	City	Demand region
MA	Essex, Middlesex, Suffolk, Norfolk	Boston	Northeast
NY	Bronx, New York, Queens, Kings, Richmond	New York	Northeast
PA	Allegheny	Pittsburgh	Northeast
DC	District	Washington, DC	Northeast
MI	Macomb, Oakland, Wayne	Detroit	North-Central
OH	Hamilton	Cincinnati	North-Central
IL	Cook, Du Page	Chicago	North-Central
NC	Guilford	Greensboro	South
TN	Shelby	Memphis	South
GA	De Kalb, Fulton	Atlanta	South
FL	Pinellas	St. Petersburg	South
MN	Ramsey, Hennepin	Minneapolis	North-Central
MO	Clay, Jackson	Kansas City	North-Central
LA	Jefferson, Orleans	New Orleans	South
TX	Dallas, Tarrant	Dallas	South
TX	Harris	Houston	South
MT	Lewis and Clark	Helena	Rocky Mountains
CO	Adams, Denver, Arapahoe, Jefferson	Denver	Rocky Mountains
UT	Salt Lake	Salt Lake City	Rocky Mountains
AZ	Maricopa	Phoenix	Southwest
OR	Multnomah, Washington, Clackamas	Portland	Northwest
CA	Contra Costa, Marin, Alameda, San Francisco, Santa Clara, San Mateo	San Francisco	Southwest
CA	San Bernadino, Los Angeles, Riverside, Orange	Los Angeles	Southwest

Results

Objective 1, determining whether rail rates have remained constant, was accomplished by using log-linear regressions. The relation between time, the independent variable, and the rail freight rate indicated whether a trend existed in the data. These regressions were run for all supply-demand arcs for all three products. Not all the supply-demand routes tested significant for constant freight rates; that is, no trend existed.

In the research done by Adams and Haynes (1980), all supply-demand arcs tested not significant. Their conclusion was that no trend existed on any of the arcs and that overall rates, in real dollars, remained constant between 1974 and 1981. Using the same methods in this analysis, I found that half of the lumber and paper and one-third of the plywood supply-demand arcs showed changes in rail freight rates. These results indicated that rail freight rates are no longer constant, in real dollars, on all supply-demand arcs. It is likely that the flexibility of the Staggers Rail Act of 1980 has allowed rate adjustments on many arcs.

The first part of objective 2 was to assess where changes have occurred since the Staggers Act was passed. The second step was to assess the changes that occurred for different supply regions. This analysis evaluated the changes in comparative advantage occurring for each supply region given changing rate structures. Both steps were done for lumber, plywood, and paper products. Results for the three product groups differed, thereby reflecting differences in trading patterns.

Regressions for all lumber supply regions supplying the Northeastern demand region (fig. 1) were significant, except for the Southeastern supply region. These results indicated a trend in the rail rates for lumber shipments on these supply-demand arcs. Rate increases from the Western regions were more dramatic than those from other regions, but all regions retained their comparative advantage in accessing Northeastern markets.

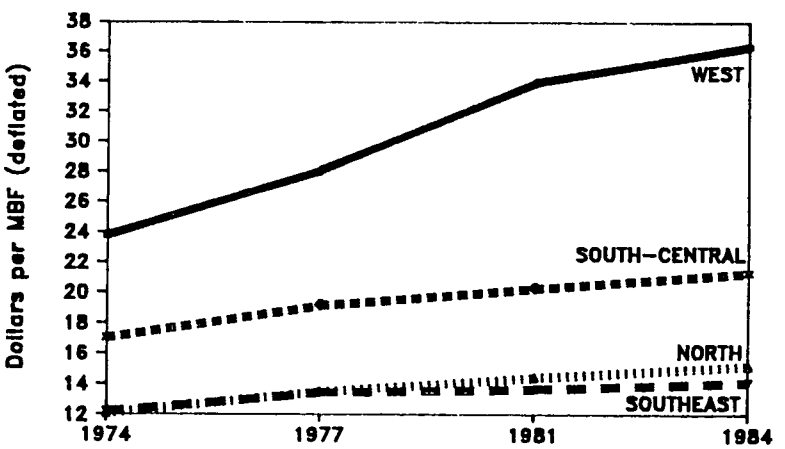

Figure 1—Freight rates for lumber shipments to the Northeastern demand region.

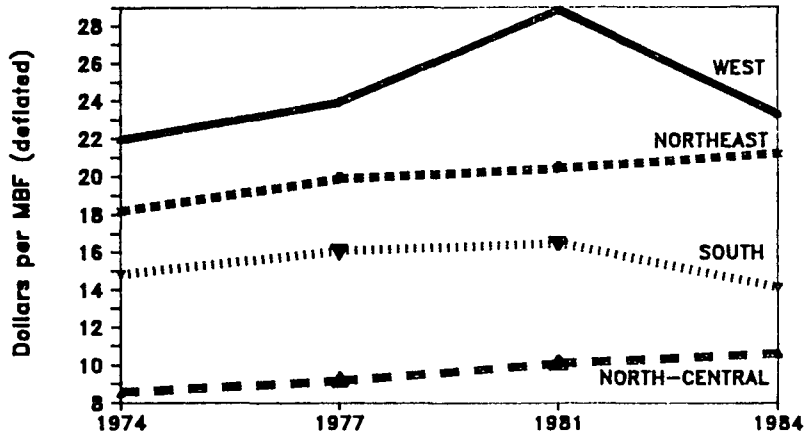

Figure 2—Freight rates for lumber shipments to the North-Central demand region.

In contrast, lumber freight rates from the Western and Southern regions to the North-Central demand region (fig. 2) fell between 1981 and 1984. Lumber freight rates from the Western supply regions to most other demand regions remained constant, however. Freight rates from the Northeastern and North-Central supply regions rose during this period. The Northeast, North-Central and Southern regions supplying the North-Central demand region all tested significant, indicating that these rates changed.

Rail freight rates for lumber shipments to both the Northwestern and Southwestern demand regions retained their comparative advantages. Rates for the Eastern supply regions increased relative to Western rates. The Northeastern supply region displayed the greatest increase.

Rates for the North-Central and Southern supply regions to all demand regions also increased after 1981, suggesting that the Staggers Rail Act had an effect on rate setting there. These arcs all tested significant for a change in the rates under objective 1.

Plywood transportation rates to the North-Central and Northeastern demand regions behaved much like the rates for the Southern demand region (fig. 3). Only the Northeastern and North-Central supply regions tested significant for the North-Central and Northeastern demand regions. This suggested that the rate structures have changed in those two regions. Rates from the Western supply regions have fallen more than rates for shipments originating in the East. Not all these changes tested significant; those that did originated in the East. Rates for plywood shipments from the Northeast into all demand regions, except the South, have also risen. Consumption exceeds production in this region, which indicates that shipments from this region are negligible (Adams and others 1988).

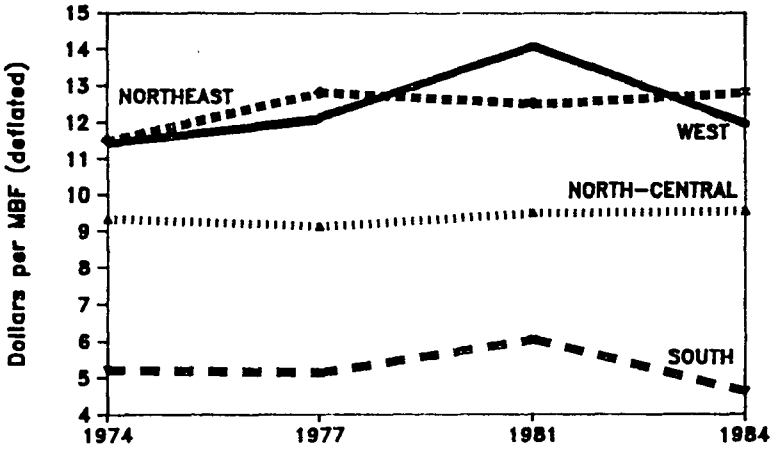

Figure 3—Freight rates for plywood shipments to the Southern demand region.

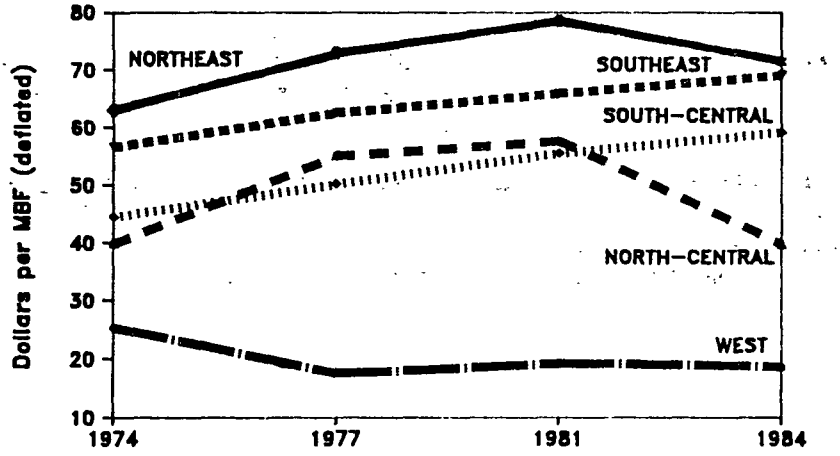

Figure 4—Freight rates for paper shipments to the Southwestern demand region.

Plywood transportation rates to Western demand regions remained constant for Western supply regions. The Eastern supply regions generally tested significant, and rates on these arcs increased between 1981 and 1984. The Northeastern supply region tested significant on all Western arcs, and rates rose appreciably. This fit the hypothesis that deregulation would raise rates more on longer arcs and lower them on shorter routes.

Freight rates for paper behave differently. Most of the arcs testing positive for changes in the freight rates originated in the West. The Southwestern (fig. 4), Rocky Mountain, and Southern demand regions were the destinations most commonly showing changes over time. Rates to the West from the Northeast and the South dropped between 1981 and 1984, while the rate for the North-Central arc continued to climb. The Southeastern and South-Central arcs supplying the Southwest, Northwest, and the Rocky Mountains all tested positive for rate changes.

Conclusions

Changes in rail transportation costs for forest products have occurred since 1981. Rail freight rates are no longer constant for lumber, plywood, and paper products. On individual arcs, rate changes are occurring as adjustments are made.

Railroads are now able to quickly introduce new services, such as multiple-car rates, and are able to adjust freight rates to market conditions, such as car surpluses or shortages. This results in changes in freight rates, which are often beneficial to the shipper, because greater efficiencies and economies of scale can now be employed.

This trend is partially reflected in the data. Many of the changes found during this analysis are occurring between the major timber supply regions and the major population, or consumption, centers. Unfortunately, differentiating the effects of the Staggers Rail Act of 1980 from other factors is extremely difficult. Changes in economic conditions and traffic levels also affect rates but cannot always be differentiated. Shippers can now use contracts to guarantee rates and services, but information on contract rates is not included in the waybill sample.

Freight rates for lumber shipments to the Northeast, for example, have all changed since deregulation. These changes reflect, in part, the ability of the railroads to respond quickly to changing market conditions. Deregulation of the railroads allows forest products producers to reach traditional and new markets for their products. Deregulation has sometimes resulted in closure of unprofitable rail lines, which has adversely affected individual mills.

The results of this study indicated that major changes are occurring in the rail freight rate structures for lumber, plywood, and paper products. These changes are occurring regionally as both railroads and forest products shippers take advantage of new opportunities provided by deregulation and responsiveness to market forces.

Acknowledgments

Peter Kerr, U.S. Department of Transportation, provided information on the suitability of the ICC 1-percent waybill sample for this study. Robert Bennett, USDA Economic Research Service, assisted in accessing the 1984 waybill sample and in providing computer tapes.

Condensation of the ICC 1-percent waybill sample was a necessary step in this analysis. Jonna Kincaid, scientific programmer, College of Forest Resources, University of Washington, provided the programming services and data compilation support necessary to accomplish this. Ray Souter, mathematical statistician, USDA Forest Service, Pacific Northwest Research Station, provided guidance throughout the analysis.

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Appendix 1—Lumber, plywood, and paper rail transportation rates for 1974, 1977, 1981, and 1984

Supply region	Year	Demand region: Northwest	Southwest	Rocky Mountains	North-Central	Northeast	South
		LUMBER					
		- - - - Dollars per thousand board feet (1967 dollars) - - - -					
Pacific Northwest--west side	1974	4.62	14.62	16.04	22.81	24.50	24.38
	1977	4.52	14.61	16.39	24.83	28.96	25.34
	1981	4.63	16.99	16.32	29.96	35.22	29.77
	1984	4.64	13.06	11.98	20.15	38.80	25.40
Pacific Northwest--east side	1974	9.44	14.66	15.03	21.46	23.40	22.89
	1977	5.69	14.51	14.32	23.28	27.60	23.61
	1981	5.42	16.69	14.57	27.84	32.88	27.80
	1984	4.08	12.19	12.70	24.26	33.20	24.26
Pacific Southwest	1974	10.71	8.94	15.60	21.54	23.40	22.42
	1977	10.28	10.37	15.65	23.71	27.66	24.27
	1981	10.60	11.84	17.26	28.62	33.65	28.43
	1984	10.56	9.51	10.88	25.17	37.07	25.17
Northern Rocky Mountains	1974	15.27	18.62	14.37	19.04	23.14	21.21
	1977	15.20	18.86	14.85	21.22	25.62	22.48
	1981	17.33	22.99	16.33	25.24	32.59	25.85
	1984	15.93	20.16	15.18	21.83	35.73	24.77
Southern Rocky Mountains	1974	18.98	10.41	22.85	21.54	23.40	22.42
	1977	22.29	11.01	23.99	23.44	26.71	23.70
	1981	20.66	11.36	24.57	28.21	33.38	27.04
	1984	21.22	11.68	25.15	30.43	36.71	28.58
North-Central	1974	24.63	24.63	24.30	8.57	14.58	17.07
	1977	27.83	27.83	24.81	9.18	16.56	15.82
	1981	32.00	32.00	28.41	10.11	18.03	17.59
	1984	34.46	34.46	29.78	10.63	19.17	17.76
Northeast	1974	26.31	26.31	26.31	18.20	9.53	19.40
	1977	28.96	28.96	29.29	19.90	10.40	20.68
	1981	40.10	40.10	39.59	20.44	10.83	22.37
	1984	44.70	44.70	44.02	21.19	11.26	23.36
South-Central	1974	24.63	24.43	23.13	13.80	17.03	8.42
	1977	26.23	26.07	24.27	15.50	19.14	9.23
	1981	29.92	29.70	26.45	15.32	20.26	9.65
	1984	31.68	31.46	27.56	9.96	21.34	4.61
Southeast	1974	26.31	26.31	25.83	15.86	12.18	11.31
	1977	27.67	27.67	26.16	16.63	13.45	10.22
	1981	32.25	32.25	29.01	17.65	13.66	11.04
	1984	34.23	34.23	30.07	18.25	14.15	10.95

Appendix 1—Lumber, plywood, and paper rail transportation rates for 1974, 1977, 1981, and 1984 (continued)

Supply region	Year	Demand region: Northwest	Southwest	Rocky Mountains	North-Central	Northeast	South
		PLYWOOD					
		Dollars per thousand square feet, 3/8-inch basis (1967 dollars)					
Pacific Northwest--west side	1974	2.42	7.66	8.41	12.23	13.87	12.74
	1977	2.37	7.66	8.59	13.02	15.18	13.64
	1981	2.43	8.91	8.98	15.71	18.47	15.61
	1984	2.41	8.08	6.60	10.19	15.84	12.19
Pacific Northwest--east side	1974	4.49	6.97	7.14	10.29	11.81	10.88
	1977	2.70	6.90	6.81	11.07	13.12	11.22
	1981	2.58	7.94	6.93	13.23	15.80	13.16
	1984	1.94	7.27	6.01	11.53	13.58	11.76
Pacific Southwest	1974	5.09	4.25	7.42	10.33	11.83	10.66
	1977	4.89	4.93	7.44	11.27	13.15	11.51
	1981	5.04	5.63	8.21	13.60	16.00	13.52
	1984	5.02	4.94	8.47	12.67	15.70	11.89
Northern Rocky Mountains	1974	7.26	8.85	7.19	9.06	11.15	10.08
	1977	7.45	9.20	7.21	10.09	12.18	10.69
	1981	8.24	10.93	7.76	12.00	15.49	12.29
	1984	8.57	10.61	5.41	8.80	12.94	7.82
Southern Rocky Mountains	1974	9.02	4.95	10.86	10.33	11.83	10.66
	1977	10.60	5.23	11.40	11.14	12.70	11.26
	1981	9.82	5.40	11.68	13.41	15.87	12.85
	1984	10.09	5.55	11.95	14.44	17.21	13.59
North-Central	1974	13.02	13.02	13.13	5.13	9.12	9.35
	1977	16.21	16.21	14.16	5.09	9.45	9.12
	1981	16.92	16.92	15.09	5.68	10.36	9.51
	1984	18.22	18.22	15.75	5.87	10.77	9.56
Northeast	1974	13.91	13.91	13.91	8.90	4.76	11.50
	1977	17.79	17.79	17.70	10.30	5.59	12.81
	1981	21.20	21.20	21.07	11.93	6.63	12.50
	1984	23.63	23.63	23.46	12.94	7.26	12.83
South-Central	1974	13.02	12.92	12.76	7.93	9.85	4.45
	1977	15.28	15.28	13.80	8.30	10.59	4.88
	1981	15.82	15.70	13.98	8.07	10.76	5.60
	1984	16.75	16.63	14.39	5.62	11.07	2.55
Southeast	1974	13.91	13.91	14.52	9.27	7.01	5.98
	1977	16.34	16.33	14.96	8.63	7.47	5.40
	1981	17.05	17.05	15.34	9.34	7.32	6.50
	1984	18.10	18.10	15.61	9.36	7.43	6.68

Appendix 1—Lumber, plywood, and paper rail transportation rates for 1974, 1977, 1981, and 1984 (continued)

Supply region	Year	Demand region: Northwest	Southwest	Rocky Mountains	North-Central	Northeast	South
		PAPER					
		- - - - - - Dollars per short ton (1967 dollars) - - - - - -					
Pacific Northwest--west side	1974	13.80	21.94	18.68	39.30	60.31	36.10
	1977	15.50	18.97	22.21	46.45	71.01	40.97
	1981	16.77	21.18	23.53	47.85	66.21	49.12
	1984	17.76	20.92	25.15	44.53	65.84	42.06
Pacific Northwest--east side	1974	18.49	32.17	17.38	39.30	60.31	36.10
	1977	17.97	16.75	20.55	46.45	71.01	41.64
	1981	20.76	17.97	21.73	47.85	66.21	49.12
	1984	21.51	17.19	23.18	50.70	68.17	53.46
Pacific Southwest	1974	18.49	22.28	20.70	39.30	60.31	36.10
	1977	21.83	16.75	26.60	47.23	71.01	40.59
	1981	25.02	18.86	31.33	47.85	66.21	49.12
	1984	27.19	17.72	34.88	50.70	68.17	53.46
Northern Rocky Mountains	1974	35.98	38.56	22.58	35.12	56.11	34.56
	1977	39.19	46.59	27.74	37.36	56.07	37.35
	1981	45.01	51.49	31.48	47.89	66.18	48.25
	1984	48.02	55.80	34.45	52.15	69.53	52.81
Southern Rocky Mountains	1974	26.86	9.41	25.36	40.45	60.81	34.85
	1977	28.53	9.68	20.43	21.11	37.00	27.16
	1981	35.24	8.77	28.81	38.68	66.21	32.57
	1984	38.04	11.21	24.87	33.41	68.01	31.53
North-Central	1974	39.85	39.85	33.92	17.00	30.06	23.24
	1977	57.21	55.10	46.07	16.59	23.44	24.06
	1981	57.74	57.74	49.08	18.84	26.30	27.30
	1984	39.70	39.70	24.69	14.37	17.60	28.68
Northeast	1974	63.09	63.09	53.05	29.06	16.60	31.12
	1977	72.91	72.91	61.89	29.41	15.20	30.68
	1981	78.56	78.56	68.88	30.02	15.27	35.60
	1984	71.52	71.52	51.95	30.34	13.34	37.10
South-Central	1974	44.53	44.53	37.64	23.99	32.70	11.11
	1977	50.21	50.22	41.50	23.66	27.05	12.48
	1981	55.62	55.62	48.24	27.41	36.94	20.84
	1984	59.32	59.32	51.77	28.55	38.35	24.08
Southeast	1974	56.65	56.65	47.95	24.01	24.67	16.33
	1977	62.67	62.67	52.21	21.18	18.32	14.37
	1981	66.02	66.02	54.65	22.09	21.92	16.68
	1984	69.14	69.14	56.88	21.45	21.00	16.80

The **Forest Service** of the U.S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives—as directed by Congress—to provide increasingly greater service to a growing Nation.

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