BIBLIOGRAPHY OF GRAIN TRANSPORTATION RESEARCH
1981-1986*

by

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BIBLIOGRAPHY OF GRAIN TRANSPORTATION RESEARCH

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This bibliography covers the research literature in grain transportation and related topics in transportation deregulation that has been published since the passage of the Staggers Rail Act of 1980 and the Motor Carrier Act of 1980. The bibliography covers the time period from 1981 through 1986.

Transportation became a major research issue for agricultural economists during the decade of the 1970’s. Shippers and carriers handled greatly increased grain exports. These increased exports placed pressure on a transportation system hampered by inflexible regulation of the railroads, equipment shortages, and logistics bottlenecks. These topics dominated the agricultural transportation research of the 1970’s. In the 1980’s, shifts have occurred in grain transportation research as a consequence of the leveling of export demand, deregulation, user fees for ports and waterways, deterioration of the rural road system, and other issues.

The literature search included table of contents reviews of journals which regularly had articles dealing with agricultural transportation issues. The journals reviewed were:

The American Journal of Agricultural Economics
The American Economic Review
The Canadian Journal of Agricultural Economics
The Journal of the Northeast Agricultural Economics Council
Land Economics
Logistics and Transportation Review
The North Central Journal of Agricultural Economics
The Rand Journal
The Southern Journal of Agricultural Economics
The Transportation Journal
Transportation Research Forum
Bibliographical abstracts were obtained of the articles from these journals covering grain transportation and deregulation in the United States. Articles published in Canada pertaining to issues involving the United States transportation system were also included.

A search of the Agricultural Online Access (AGRICOLA) system was conducted from the University of Minnesota Department of Agricultural and Applied Economics’ Waite Library to incorporate departmental staff papers, extension bulletins, book chapters or entire books, and other appropriate publications into the bibliography. AGRICOLA is maintained by the National Agricultural Library, a division of the USDA, and includes the above types of materials as well as the agricultural journals listed above.

The AGRICOLA search used the following keywords: Transport, Rail, Truck, Ship, Barge, Vessel, and Motor. The group of articles including one of these key words in its title were limited to those published in the United States or Canada from 1980 to present. The list of articles included only those from the distribution and marketing section of AGRICOLA. Next, all articles containing key words such as produce, livestock, fertilizer, and other commodity specific nongrain terms in their titles were excluded. This resulted in a 671 entry bibliographical list of articles and papers.

The articles in the 671 item list were evaluated by entry. The items in the listing deemed useful were located and reviewed, resulting in annotated additions to the previous entries from the journal table of...
A further source for transportation articles included sources indicated by other research and/or by the agricultural transportation literature.

Potential sources not covered in this bibliography include the Economic Literature Index, The Books in Print database, government publications databases, and Dissertation Abstracts Online database. The Economic Literature Index includes transportation publications not specifically of agricultural products. Books and government documents have only partial coverage in AGRICOLA, therefore additional searches would add to the existing entries from these sources.

Special features of the bibliography include a boldfaced entry of the University or organizational affiliation of the principle author and in some instances of the secondary author, a brief annotation for most entries, and the location and call number of many of the nonjournal articles in the department's Waite Library or in the St Paul Campus Library (SPCL).

While the bibliography was created primarily for agricultural researchers in the University of Minnesota, it should be useful for others involved in research on agricultural transportation.

Those interested in agricultural transportation research published before 1981 should consult the following bibliographies:


Bebee, Charles N. 'Transporting Commodities and Rural People: 1969-1978." Quick Bibliography Series, National Agricultural Library,
USDA, September, 1979.

An annotated bibliography listing publications pertaining to Canadian Agriculture was recently published. This bibliography includes some USDA publications in addition to those completed by Canadian researchers. The bibliography is:

BIBLIOGRAPHY


Describes and quantifies rail initiatives and their impacts on wheat transportation in Kansas since the Staggers Rail Act.


Baumel, C. P., C. R. Hurburgh, and T. P. Lee. "Estimates Of Total Fuel Consumption In Transporting Grain From Iowa To Major Grain Importing
Countries by Alternative Modes and Routes." Agricultural and Home Economics Experiment Station, Iowa State University, 1985.
Measurement and construction of equations for grain transportation fuel requirements from Iowa to Amsterdam and Japan. (Waite 378.777 A445 90)

Identifies several alternative policies to deal with the problem of inadequate funds to rebuild and maintain all the existing county roads and bridges.

Analysis of barge rate elasticities on a regional basis.

Quick Bibliography Series, National Agricultural Library, USDA, March, 1981.

Quick Bibliography Series, National Agricultural Library, USDA, September, 1979.

Analysis of the impacts of truck deregulation in Florida.

Beilock, Richard, P. Garrod, and W. Miklius. (Univ. of Florida).
Tested and found that observed price variations in truck rates are consistent with competitive behavior.

Beilock, Richard, J. H. Koburger and J. P. Morgan. (Univ. of Florida).
"Explaining Truck Rate Variation For Produce Shipped the Northeast." Journal of the Northeast Agricultural Economics Council, April 1984: 25-32.
Explanation of models developed to examine the determinates of weekly truck rates for produce shipped to the Northeast.

Belcher, Gary L., J. R. Jones, and K. K. Lindberg. (Univ. of Idaho).
"Inland/Ocean Waterborne Transportation Innovations and Port Changes."
Discusses the containerization of transoceanic general cargo
shipments and the opportunity for the shipment via the mode for dry peas.

Binkley, J. K. (Purdue Univ.). "Marketing Costs and Instability In the International Grain Trade." American Journal of Agricultural Economics, February 1983: 57-64.
Views the reductions of flexibility in grain trade due to increased fixed costs.

Empirically examines the major factors accounting for cross-sectional differences in ocean freight rates for grains.

Gives results of a study on the effects of users fees on river barge shipments of agricultural commodities.

General discussion of transportation deregulation.

Indicates model efficiency in projecting rail traffic as compared with actual data for nine modeling procedures.

Describes how Idaho producers have adopted marketing methods to take advantage opportunities offered by changing the transport structure. (SPCL)

Evaluation of studies completed by academic researchers, determining concerns and perceptions from these studies. (Waite 385.1 C37)

Discusses the significance of transportation in agriculture, followed by a discussion of the theory and concepts underlying transportation research and a review of previous research activity.


Cowen, Janna and J. R . Felton. (Univ. of Wisconsin/River Falls and Univ. of Nebraska). "Operating-Ratio Regulation Of Earnings In the Trucking Industry." Logistics and Transportation Review, 21 #2: 145-160. Presents a model of firms under operating ratio constraints and evaluates leasing for such firms.
An industry perspective of causes of the barge industries plight and some responses by barge companies.

Focuses on the expansion and changes that characterize the soybean industry, addressing issues that influence decisions made by those involved in soybean and soybean products. Uses a transshipment model to simulate flows. (Waite: 378.762 D463 65)

Reviews the development of short line railroads in the United States. The paper examines the origin of the modern short line rail industry, reviews the lines' characteristics and performance, and identifies factors in their success or failure.

Describes the Canadian experience and perspective of transport reform.

Description of motor carrier regulation studies at the University of Nebraska from 1977-1980.

Felton, John R. "Grain Transportation In the Upper Great Plains: Market Dominance Of Effective Competition." Department of Agricultural Economics, University of Nebraska, 1983.  
Analyses and evaluates the statutory and administrative tests of market dominance and suggests a procedure for the determination of the "reasonableness" of rates in situations where railroads exercise substantial market power. (Waite 378.782 D347 SP 83-4).


Fields, Valerie J. and D. F. Kraft. (Univ. of Manitoba, Winnipeg). "The Influence Of Grain Freight Rates On the Farm Land Market In the Prairie
Provinces." *Logistics and Transportation Review*, March, 1981: 37-70. Tests the hypothesis that statutory freight rates have increased farm land prices in the Canadian prairie provinces.


Fuller, Stephen. "Contracting Rail Freight Services For Country Elevators In the Texas Panhandle." *Texas Agricultural Experiment Station, Texas A&M*, June, 1984. Focuses on the economic feasibility of upgrading 10 country elevators to load multiple car wheat shipments in a 15 county area in the Texas Panhandle. (SPCL TX1000B 1473)


reviews arguments for and against regulation, compares regulations between intrastate and unregulated carriers in Texas. (SPCL TX1000 B1400 34)

Fuller, Stephen, M. Paggi, and J. Lamkin. (Texas A&M) "Effect Of Intrastate Agricultural Motor Carrier Regulation On Rates and Service: The Texas Experience." Transportation Journal, 1983. Reports research that compares rates and service perception for regulated and unregulated motor carriers. Compares the service perceptions of small and large shippers for the regulated or unregulated motor carriers.


Fuller, Stephen, O. Sorenson, M. Johnson, and R. Oehrtman. (Texas A&M). "Alternative Wheat Collection and Transportation Systems For the
Examines means of improving efficiency of the transportation portion of the export wheat handling system in the Southern Plains.

Focuses on a network methodology to assess the impact of changes in an agricultural marketing system. Applied to the export wheat marketing system in the U. S. Southern High Plains.

Model development and application in analysis of the current program of rail line rehabilitation in Canada.

Reports results of a survey of a survey of farm operated grain trucks. (Waite 378.784 D34 A47 183)

Derives estimated of excess capacity for the U. S. rail system. Finds evidence of a substantial number of nonviable light density lines.

Examines the effects of regulatory reform on U. S. rail performance since Staggers as reported from a survey of shippers.

Discusses the effect of the ICC's implementation of policy in shaping the transportation system.

Addresses the physical relationships between fuel use in the barge industry and reduced depth dredging.


Harper, Donald V. and J. C. Johnson. (Univ. of Minnesota) "The Potential Consequences Of Deregulation Of Transportation Revisited." Land Economics, May, 1987: 137-147. Examines how accurate the predictions of the advocates of reform have turned out to be thus far. Includes summary of studies of trends in rates.

Harris, J. M. "Ocean Fleet Shipping Rates, Capacity, and Utilizations For Grains." ERS Staff Report, United States Department of
Agriculture/ERS, November, 1983.
Information on trends in capacity, utilization, and shipment rates for the dry bulk freight market used to ship agricultural commodities.

Develops a linear programming model to analyze the effects of variations in the levels of supply and demand for soft red winter wheat on the domestic marketing system. Focus on increased southern supply and additional Chinese and Middle-Eastern demand. (Waite: 378.74772 A47247 86-5)

Empirical study of interregional and intertemporal characteristics of U. S. grain transportation rates, covering years 1978-1983.


Analyzes the effects of proposed waterway user charges on grain shipments by barge.

Uses mathematical programming to evaluate values of multi-car grain loading facilities.

Empirical illustration of why people argue P-VC is not a meaningful criterion of market dominance.


Address whether Canadian railways should be allowed to continue collective ratemaking in the context of the current regulatory framework in Canada.

Describes Canadian limited rail regulation enacted in conjunction with the Staggers legislation.


Johnson, Marc A. "Evaluating Resource Allocation To Freight Transportation In Rural Areas: Rural Roads and Bridges." *Demonstration...
Project: USDA, North Carolina State University, and North Carolina Agricultural Experiment Station, Sep 1, 1982.

Demonstrates a five step procedure for indexing "access" attributes of specific rural road and bridge projects.


Assessment of the likely effects of transportation regulatory reform on transportation opportunities of agricultural shippers and rural communities.


Reply to Koo's Comment of Johnson's December 1981 Impacts article.


Develops a procedure to study the relationship between the structure of a static economy and its rail freight traffic.


Analyzes the effects of policy changes on productivity in trucking over the last twenty years.


Outlook for 1985 transportation. Briefly discusses system consolidation, contract rate growth, and rural road deterioration.


Describes and quantifies inequities in rail transportation since Staggers and describes and quantities the impacts of those initiatives. (Waite: A108.239 R13)


Determines an optimal U. S. Grain distribution system for 1990
using a spatial equilibrium model based on a linear programming algorithm. (Waite 378.784 D346 82003)


Develops a model of the U. S. grain transportation system to evaluate the optimal grain distribution and transportation system under alternative rate structures and institutional constraints.


Discussion of Johnson's "Impacts on Agriculture of Deregulating the Transportation System and Fruin's Article of the same title both found in AJAE December, 1981.

Koo, Won W. "A Survey Of Grain Handling and Transportation Models." North Dakota Agricultural Experiment Station, December, 1986.


Studies the distribution of tariff and transport costs among producers and consumers for wheat exports.


Analyzes railroad rate structures for shipments of grain in the U. S. (Waite 378.784 D346 82004)


Analyzes railroad rate structure for grain shipments in the U. S. and evaluates impacts of grain rail rate deregulation in the U. S. grain industry. (Waite 378.784 D34 A47 152)

Koo, Won W. and P. J. Joerger. "Spatial Equilibrium Analysis Of the U. S.

Uses a quadratic programming model to evaluate spatial equilibrium conditions for the U.S. wheat industry under alternative trade restrictions and transportation costs. (Waite: 378.784 A475 99)


Editors for numerous Linear, Network, and Econometric models applied to Agricultural Transportation.


Evaluates the effects of changes in the transportation rate structure on the grain distribution system and on the economic need for more subterminals in North Dakota. (Waite: 378.784 D34 A47 198)


Uses an econometric study to identify and estimate the U. S. grain rail rate structure.


Provides information regarding the likely structure of the grain transportation and distribution system in 1990.


Uses a quadratic programming model to evaluate the transfer of costs imposed by tariffs and freight rate changes.


Empirically examines the relationship between endowments and trade when transportation costs are considered in determining trade patterns of agricultural products. (Waite 378.784 D 346 86015).


Proposes and discusses a vessel licensing fee as an alternative to taxes on import-export value or import-export tonnage. Discusses the range of license charge levels under a cost recovery target of $250 million.


Expands on the Harrer-Binkley model, introducing explanatory independent variables and port specific rate evaluation.


Investigates the extent and importance of rate competition among railroads since Staggers. Constructs models of inter and intra model competition.


Examines the anticompetitive motivations for refusals to interchange traffic among railroads.


Examines the ICC's approach to maximum rate deregulation of railroad pricing. Advocates a "Uniform Ratio Rule" as a price ceiling for rail freight rates for captive shippers.


Views the rail industries changes since Staggers, discussing Ramsey Pricing.


Analysis of rail/truck competition for Minnesota's grain traffic.
Importance of distance and volume for rate implementation before Staggers.


Myles, Albert E. and A. J. Allen. "Projected Effects Of Barge User Taxes On Grain Marketing In the Tennessee Tombigbee Waterway Area Of Mississippi." Department of Agricultural and Applied Economics, Mississippi State University, December, 1985. Emphasized the relative impact of alternative levels and types of user charges on barge shipments and total marketing costs. (SPCL MP3990 SP-73)

Myles, Albert E. and A. J. Allen. "Rail Transport In the Grain Market: An
Overview." Department of Agricultural Economics, Mississippi State University, May, 1984.
Provides information on grain transported by rail carriers and on alternatives to grain rail shipment.

**National Transportation Statistics Annual Report.** U. S. DOT Research and Special Programs Administration (Waite TD 10.9)


Presents preliminary results of research on grain producers adaptation to transportation rate changes focusing on the Peace River Valley region. (Waite 378.7123 D47 0-10)

Assessed the impact of the combined effect of the Motor Carrier Act of 1980 and a Michigan Public Service Commission law deregulation intrastate commerce. (SPCL MI3080 AR-465)

Explores issues of the Federal highway budget and the post-interstate era.

Presents a model for season expansion and its applications to Duluth/Superior. Assesses the likely contribution of seasonal extension. (Waite: Staff Paper 86-10)


Western Rural Development Center, 23, Oregon State Univ.


Discusses the contribution that user charges and investment policy can make toward long term maintenance of the highway system.


Views market, technological, and institutional changes in the transportation system. Considers changes that have occurred in the 1980's.


Discussion of regulatory reform pertaining to railroads, with evidence of the impacts of such reform on Kansas wheat markets and hypotheses about additional impacts of such reform.


Reviews cost and market characteristics in rail transport considering impacts of new regulations.


"Summary Of Public Hearings On Agricultural Transportation." Rural Advisory Task Force. United States Department Of Agriculture and Department of Transportation.

Analysis of testimony given in twelve public hearings held by the task force.


Uses a functional market model analyzing a theoretical inland waterway user charge. Breakdown of charges by domestic producers, export firms, and foreign consumers. (Waite: A1.36 1705)


Transportation in America: A Statistical Analysis Of Transportation In the United States. Transportation Policy Associates. (annual) (Waite 380.5 T73).


Traylor, H. D., J. A. Musick, and D. Santamara. "Grain Flows and Selected Characteristics Of Grain Handling Firms In Louisiana." Department of Agricultural Economics and Agribusiness, Louisiana State University, September, 1983. Presents data from grain surveys from 1971-78 on the characteristics of grain handling firms in Louisiana. (SPCL LA1020 DR/619)


Review and recommendations concerning east bound canola movements from Thunder Bay under various methods of payment of the Crow benefit.


Conference on Transportation including:
Defines needed infrastructure are development in foreign countries and its potential impact on U.S. exports.

Dunn, James W. (Penn. State) "Forecasting Ocean Freight Rates."
Defines the theory of ocean shipping rates and uses it to address future shipping rates.

Fuller, Stephen, and H. Viscencio-Brambilla. (Texas A&M) "Port User Fees: Potential Effect On the Export Grain Marketing System."
Evaluates the impact that a deep draft port user fee would have on interport competition and export grain flows.

Hill, Lowell D. (Univ. of Illinois) "Quality Deterioration During Transportation and Handling Of U. S. Grain Exports."
Identifies the causes of quality reduction during export of grains and urges incentives to correct the situation.

Hauser, Robert, and C. P. Baumel. (Univ. of Illinois and Iowa State) "How Consolidation and Mergers Are Affecting Prices and Efficiency."
Describes the grain transportation industry for U. S. export ports in terms of empirical measures of competitiveness.

Summary of the nature of U. S. and international maritime policies attempting to allocate cargoes to ships of one nations flag.

MacDonald, James M. (USDA/ERS). "Development In Grain Rail Rates and Services Since Deregulation." Discusses date collection problems since Staggers and the requirement of separating the effects of other factors when viewing the impact of rate changes.

McWilliams, Ruth T. (USDA). "Rural Roads and Bridges: Necessary For the Nations Growth and Competitiveness." Describes problems with rural roads and the effect on commerce.

Parker, Barry D. (Industry-Brokerage). "Use Of Freight Rate Futures To Hedge Against Freight Rate Increases In the Dry Bulk Freight Market." Investigates the potential for Hedging with Futures to reduce rate risk.

Peters, Hans J. (World Bank). "Developments In Trade and Associated Transport Between Industrialized and Developing Countries, With a Specific Reference To the Pacific Basin." Views Shipping developments and policies for various nations and their impacts on ocean bound commerce.

Sorenson, L. Orlo. (Kansas State Univ.). "Railroad Deregulation: Overview and Issues." Addresses changes in agricultural transportation that have accompanied Staggers.

Vandervook, Charles G. (U. S. DOT). "Infrastructure Deficiencies In Africa: Overview Of Current Conditions." Describes conditions and requirements for the African transportation situation.


United States Department of Agriculture/ Economic Research Service.

United States Department of Agriculture/Office of Transportation.

Makes policy recommendations in response to public testimony, proposals made by task force members, and congressional mandate. Recommends a method of monitoring agriculture's transportation needs, the formation of a policy framework to guide governmental decision making, and suggests solutions to continuing transportation problems.

United States Department of Commerce/ Bureau of the Census. "Truck Inventory and Use Survey." 1982 Census of Transportation, June, 1985. Provides data on the physical and operational characteristics of the Nation's truck population by state. (Waite TC 82-T--)


Evaluates the effect of the proposed deep draft port user fees on export grain flow patterns and provides insight into marketing system adjustment costs which may result from such fees.

Uses a spatial model to identify how export-grain flow patterns are altered by deepening several U. S. Gulf Ports.

Determines the extent that managerial decisions limit the achievement of the full economic benefit of a rationalized grain marketing system.

Comments on recent developments in motor carrier deregulation and the probable long term consequences of this policy.

Review of transportation models described primarily for intercity transportation issues.

Includes data on waterborne rice exports from the southern region, ports of lading and countries of destination. Includes an analysis of rice exports by transaction type and type of shipping. (SPCL LA 1020 DAE 662)

Wilson, A. G. and E. W. Tyrchniewicz. "Options and Alternatives For Rail Branch Lines Affected By Abandonment. The University of Manitoba Transport Institute, Occasional Paper No. 1, April, 1986.
Suggest a framework for evaluation of the options and alternatives to branch line abandonment to enable identification of relevant gains and losses.

Wilson, William. "Estimation Of Demand Elasticities For Transportation Modes In Grain Transportation." Department of Agricultural Economics, North Dakota State University, 1982.
Obtained derived demand functions for North Dakota grain shipments. Elasticities were derived for own and cross rates.
Analysis of modal demand for grain transportation in light of recent regulatory developments.

Develops intermodal competition in grain using the dominate firm price leadership model.

Wilson, William W. "Pricing and the Seasonal Demand For Grain Transportation In North Dakota." Department of Agricultural Economics, North Dakota State University, August, 1981.
Develops the conceptual affects of transportation pricing on seasonal movements and presents results on empirical estimates of seasonal grain movements in North Dakota.

Views speed of adjustment for rail rates after deregulation.


Uses theory of the dominant firm price leadership to explain price and output behavior and equilibrium in grain transportation.

Evaluates the effectiveness of using alternatives in rail rates to stimulate export market development of wheat shipment to Pacific Northwest ports.

The effects of alternative rail configurations to the Pacific Northwest market are analyzed with particular attention to westbound shipments. Also analyzed the sensitivity of the spatial distribution HRS wheat with respect to changes in rates and expansion in Asian markets for HRS. (Waite 378.784 D34 A47 189)
Evaluation of alternatives for pricing rail branch line service in Western Canada.

Discusses procedures and results of the estimation of rail branch line cost functions.

Reviews and compares models using North Dakota grain movements. Evaluates these model's results in pre and post Staggers time periods.

Develops and estimates a structural equilibrium model of the transportation market for a limited geographical region. (Waite 378.784 D346 85009)

Intended to provide information on the changing business environment in grain transportation firms. Focus on short line railroad developments in North Dakota. (Waite: 378.784 D34 A47 181)