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**32nd TRF Annual Forum
Long Beach, California
October 10-12, 1990**

The Use of Graphics-Based Software in Transportation

*Session Organizer and Moderator: Carl Van Dyke
ALK Associates*

Sponsored by the TRF Personal Computer Users Chapter

This session examined a broad spectrum of graphics-based computer applications, focusing on software that operates on micro-computers and UNIX workstations. Examples were taken from the motor carrier and railroad industries. Topics included the use of non-transportation specific commercial software, train schedule planning, video disk based truck routing software, satellite tracking systems, and geographic/network information systems.

Panelists:

- James Blaze,
Director, Strategic Analysis,
CONRAIL
- Dale Honeycutt, Senior Member,
Technical Staff
Environmental Systems Research Inst.
- Mark Hornung, Senior Vice President,
ALK Associates, Inc.
- Robert Fitzsimmons,
Routing Technologies Software, Inc.
- Dejan Jovanovic, Transportation Dept.,
Burlington Northern Railroad

Surface Transportation Policy in The 1990s

*Session Moderator: Wayne K. Talley,
Old Dominion University*

- *Transportation Policy In The
1990's and Railroad-Motor
Carrier Market Shares*
by Michael W. Babcock,
Kansas State University and
H. Wade German,
American Education Institute

Government has a long history of involvement in the transportation industry. Every freight carrying mode has been subjected to long periods of regulation, some due to alleged monopoly tendencies and others due to potential "destructive competition." Substantial deregulation of the freight transportation sector occurred in the late 1970s and early 1980s. Government has also spent vast sums on transportation facilities and services. These promotion programs, along with regulation, have distorted transportation prices and produced economic inefficiency. In March, 1990 Transportation Secretary Samuel Skinner released a national transportation policy statement

which attempts to solve some of these problems.

The objective of this paper is to measure the impact of some transportation policy changes that may occur in the 1990s. Specific objectives are to measure the impact on truck-rail market shares of the following public policies:

1. An increase in motor carrier highway user fees.
2. Repeal of the Federal Employers' Liability Act (FELA).
3. Increased truck trailer size and weight limits.

The objectives are accomplished through estimation of a rail market share model for truck-rail competitive manufactured goods traffic. Explanatory variables include rail and motor carrier prices, interest rates, truck trailer cub capacity, and dummy variables to measure the impact of the Motor Carrier Act of 1980.

Results of the study are:

1. Railroads would gain (motor carriers lose) 23.1 million tons of manufactured goods in 1988 if motor carrier operating taxes and licenses doubled. This amounts to 1.6% of 1988 total railroad freight tonnage and 3.4% of 1988 total railroad freight revenue.
 2. Railroads would gain (motor carriers lose) 8.5 million tons of manufactured goods in 1988 if FELA was repealed, assuming motor carriers held prices constant. This amounts to 0.6% of 1988 total rail freight tonnage and 1.2% of 1988 total rail freight revenue.
 3. Railroads would lose (motor carriers gain) nearly 500 million tons of manufactured goods in 1988 if unrestricted nationwide use of double 48-foot truck trailers were permitted. This would virtually eliminate railroads from the manufactured goods transport market.
- *A Research Model to Assess The Impact of the Staggers Rail Act of 1980 Upon Canadian Transborder Traffic*,
by Fernando Llanos, Consultant,
Federal Pioneer, Canada and
Richard Lande,
Concordia University, Canada

This paper describes how a transborder data computer bank was programmed into a macro Lotus 1-2-3 program in order to measure changes to the transborder revenues of the Canadian railways. The computer model followed the same geographical and commodity classifications identified in the Canadian Transport Commission Commodity Flow reports from 1968-1985. The model's data bank was thus composed of files containing the published information relative to the number of railcars, tons, the amount of freight revenue (expressed in Canadian dollars), as well as the number of ton-mile and car-miles respectively. Each computer file contained the relevant data for the period of one year and relating to one direction of transport for one commodity type. There were five types of commodities (agriculture,

livestock, mining, forestry and manufactured products) which were input throughout the 18-year span. The origin and destination classifications adopted in the CTC reports divided Canada into seven regions and the United States into nine regions.

The statistical data from each of the annual CTC Commodity Flow reports was entered into the computer model so that pre- and post-Staggers revenue trends of CP Rail and CN Rail for any one of the five commodity groups and for any specific combination of Canadian region origin and U.S. region destination could be discovered.

This CTC data was incomplete in that it did not encompass all actual carload revenues of the two Canadian railways for U.S. destined merchandise. For example, shipments which originated on provincial railways, such as the British Columbia Railway or Ontario Northland Railway, and then were not included.

- *Transportation Deregulation, JIT, and Inventory Levels*
by Paul D. Larson,
University of Alberta, Canada

The decade just past, the 1980s, was a time of declining inventory levels for many American business firms. Dollar inventory/sales ratios for manufacturing firms in the U.S. dropped from 1.87 in 1980 to 1.61 in 1987, and the ratio of inventory to GNP fell from 18.37 in 1980 to 14.82 in 1986. This paper analyzes the impacts of (1) air, rail, and motor carrier deregulation and (2) just-in-time (JIT) delivery on inventory levels in the United States.

Using empirical measures, this study finds that the impact of deregulation on manufacturing inventory has been indirect. Transportation deregulation has been followed by increasing interest in just-in-time (JIT), which in turn has led to lower ratios of manufacturing inventory to sales. No direct (statistically significant) relationship between deregulation and manufacturing inventory/sales ratios was found. Moreover, JIT and the "service economy" appear to be more strongly related to lower inventory/GNP ratios, than is transportation deregulation. This result serves to clarify Delaney's arguments on the relationship between deregulation and inventory carrying costs.