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# JTRF Covers Entire Spectrum of Transportation

**T**he *JTRF* includes articles covering the entire spectrum of transportation, from “Grain Transportation in Texas,” involving railroads and motor carriers to “The Effects of Roadway Capacity on Peak Narrowing,” an analysis of urban motorists’ commuting patterns. The *JTRF* also contains articles on air and motor carrier transportation.

In “Smaller Aircraft for More Profits,” Terence Fan asks the question, “what should airlines optimize in the long run with regard to number and type of aircraft?” One alternative is to maximize the airline’s expected revenue based on a fixed maximum seating capacity through limiting the number of seats made available to certain fare classes. Another objective is to minimize costs, based on deterministic unconstrained demand and fixed fares. However, Fan assumes that the airline’s objective in aircraft purchase decisions is not to maximize revenue alone or to minimize cost alone, but to maximize profits. The author develops a profit maximizing model for aircraft size selection based on an assumed distribution of fares and operating costs of alternative aircraft types. Empirical estimation of the model results in a profit maximizing fleet with one class seating capacity of 70 to 85 seats. This result occurs, despite the per-seat cost advantages of larger aircraft because revenue declines faster than operating cost as aircraft seating capacity increases. Fan determined that the optimal aircraft size as determined by the revenue maximizing or cost minimizing criteria is significantly larger than that of the profit maximizing model.

In “Changes in Concentration Among Never-Regulated Ornamentals Carriers: Implications for LTL,” Richard Beilock and Mohammad Rahmani examine the question of the impact of economic deregulation on the structure and performance of the LTL motor carrier industry. Beilock and Rahmani point out that concentration increased in the general freight LTL sector following deregulation in 1980 as the four firm concentration ratio rose from 0.23 to 0.43 between 1978 and 1987. However, the authors contend that while deregulation and concentration were coincident, causation has never been determined. To determine if deregulation caused LTL concentration, Beilock and Rahmani examine changes in concentration among Florida ornamental plant haulers, a never-regulated segment of the trucking industry which shares some characteristics with general freight LTL carriers such as local pickup trucks, terminals, and linehaul vehicles. The authors argue that if concentration increased among never-regulated ornamentals carriers, the case would be weakened for deregulation-induced increases in concentration among general freight LTL carriers. Using a variety of concentration measures, Beilock and Rahmani point out that concentration in the TL (one-stop) segment of Florida ornamentals trucking was unchanged in the 1984-2001 period, but that concentration did increase in the LTL (multistop) segment of the industry especially for shipments greater than 500 miles. Since the post deregulation patterns of concentration change were similar for

general freight LTL carriers and never-regulated multistop ornamentals firms, Beilock and Rahmani conclude that this result is consistent with the hypothesis that changes in concentration in general freight LTL were coincident with, rather than caused by, deregulation. However, the authors also point out that deregulation may have fostered accelerated adjustments to changes in LTL size-related economies.

In "Grain Transportation in Texas: Survey Results, Future Trends, and Policy Prescriptions" the geographic focus shifts from Florida to Texas. Authors Jerry Jamieson, Robert Harrison and Steve Fuller examine current and future Texas grain transportation issues using data from surveys of grain-handling firms and interviews of trucking and rail firm representatives. The motivation for the study came from legislation passed in Texas in 1999, requiring a grain transportation study of the state. The authors mailed a survey to 515 Texas firms involved in grain transportation including country elevators, terminal elevators, export elevators, feed mills, flour mills, rice driers and rice millers. In addition, personal interviews were conducted with representatives of the Burlington Northern Santa Fe (BNSF) and Union Pacific (UP) railroads. A telephone survey of 19 trucking firms yielded information on fleet characteristics, trip destinations, trip lengths, truck rates versus rail rates, and advantages of truck transportation of grain relative to rail. The survey of country elevators, feed mills, and rice driers indicated that these firms had increased their truck grain shipments while reducing their rail grain shipments, and the major reason was worse rail service. Another result of this survey was that truck service was rated above average while rail service ranked below average. Country elevators and feed mills indicated the most dissatisfaction with railroads, while terminal elevators and other large grain shippers were more satisfied with rail service. The trucking survey revealed several service advantages of trucks relative to rail for Texas grain transportation including on-time delivery, greater logistical control of delivery, delivery to more locations, and a constant rate schedule.

In "The Effects of Roadway Supply on Peak Narrowing," Jihong Zhang et al. examine how urban roadway supply affects commuting behavior of urban motorists. All US cities experience peak period road congestion, and peak spreading refers to commuters who depart for work at a less preferred time in order to avoid congestion. The authors point out that increases in highway supply affect peak period congestion by narrowing the peak. By traveling closer to the peak some commuters have greater travel time costs, but also receive the benefit of traveling closer to their preferred times. The measurement of this benefit is the goal of the paper. The authors use 1995 Nationwide Personal Transportation Survey (NPTS) data to investigate how workers in US Metropolitan Statistical Areas (MSAs) respond to highway supply differences in terms of their departure time to work. The authors accomplish this by using a model in which departure time deviation from the peak is made a function of roadway supply, highway congestion, and urban area population. After estimation of this relationship the model is expanded to include other factors identified in the literature as likely to impact work departure times. Empirical estimation of the model revealed that increased roadway supply results in a smaller deviation from the peak time (peak narrowing) and that the relationship is statistically significant. However, the impact of roadway supply on peak narrowing is relatively small. Other variables found to have a statistically significant relationship to peak narrowing are roadway congestion level, the sex of the driver, full time worker status, MSA population, and commuting distance.

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