

A Message from the JTRF Co-General Editors

The Summer 2009 issue contains a wide variety of contemporary transportation topics that is the distinguishing characteristic of *JTRF*. Topics in this issue include the following:

- Texas toll road impacts
- Railroad economies of scale, scope, and density
- Driver behavior at railroad-highway crossings
- Grain traffic on the St. Lawrence Seaway
- Safety effectiveness of left-turn lanes
- Modeling statewide freight movement
- Maritime accident reporting systems

In “Variations in Toll Road Impacts: Case Studies from Texas,” Kalmanje and Kockelman forecast and compare the effects of added toll roads in Austin, Dallas-Fort Worth, and El Paso, Texas. The authors employ travel demand models for these three locations which consist of trip generation, destination choice, mode choice and departure time choice models for four trip purposes – home-based work, home-based non-work, non-home-based work, and non-home-based non-work. In El Paso the authors found that the gains from congestion reduction are concentrated in a one-mile neighborhood of the toll road, with negligible impacts elsewhere. In Austin, the greatest benefits arise near toll road intersections and ends of the system. In Dallas-Fort Worth the impacts were greatest near the toll roads with welfare improvements falling with distance from the toll road.

Bereskin uses an econometric rail costing model to measure various railroad economies in “Railroad Economies of Scale, Scope, and Density Revisited.” He employs an econometric cost model using publicly available Association of American Railroads data to examine railroad average and marginal costs. The model is decomposed into individual elasticity estimates for operating variables to examine economies of scope. Bereskin measures economies of scale by varying the size of the firm through multiplying the capital stock measurements by varying amounts, and estimating the cost as firm capital stock is varied between 0.25 and 2.0 times the 2005 level. Bereskin found that the rail industry has exhausted the possible economies of scale but still can gain from economies of density and scope. He also noted there appears to be little economic justification for mergers creating transcontinental rail systems.

In “Study of Driver’s Behavior at Passive Railroad-Highway Grade Crossings,” Rys, Shah, and Russell examine railroad-highway grade crossing safety. The paper presents an overview of drivers’ behavior at different passive warning signs at Kansas railroad-highway grade crossings with emphasis on drivers’ stopping behavior at STOP signs. The authors, using video cameras, conducted a field study of nine grade crossings with selected warning devices to determine drivers’ stopping behavior at STOP signs. The authors concluded that the majority of drivers did not stop at the STOP signs at grade crossings. They also found that a higher percentage of drivers stopped at crossings with poor sight distance on the approach than on approaches with good sight distance.

Fuller and co-authors examine U.S. and Canadian grain exports in “Analysis Factors Influencing Grain Traffic on the St. Lawrence Seaway.” The authors offer background on St. Lawrence Seaway grain traffic and related geographic grain flows, and employ a regression analysis to identify and measure factors responsible for the downward trend in Seaway grain traffic. The authors also discuss the likelihood of a reversal in the decline of Seaway grain exports. The authors found that Europe’s decline in demand for U.S. and Canadian grain, the demise of the Soviet Union, Asian imports of

North American grain, changes in U.S. and Canadian railroad regulation, and the European Union's agricultural subsidies are the reasons for the decline in Seaway grain traffic.

In "Safety Effectiveness of Offsetting Opposing Left-Turn Lanes: A Case Study," Naik and co-authors discuss the benefits of intersection safety of left-turn lanes by widening the width of the lane-line marking between the left-turn lanes and their adjacent through lanes. The authors concluded that simple comparison of crash frequencies between "before" and "after" widening of the lane line marking wouldn't be appropriate. So they utilized an Empirical Bayes (E-B) procedure that accounts for the effects of regression-to-mean (RTM) bias in before and after (B-A) safety studies. The authors utilized 12 approaches to three intersections in Lincoln, Nebraska. Results from the analysis of the treated (wider lane-line markings) intersection approaches and 36 non-treated approaches suggest statistically significant improvements in safety at the treated intersections.

Mitra and Tolliver present a model of statewide truck trips using publicly available federal and state data in "Framework for Modeling Statewide Freight Movement Using Publicly Available Data." The authors apply the model to North Dakota but since the databases are available for all states the model is transferable to any state. The authors develop a state level commodity-by-industry input-output table customized from a national input-output table to disaggregate trips to the traffic analysis zone (TAZ) level. The principal data source is *Freight Analysis Framework* (FAF) data but includes many other data sources such as U.S. Bureau of the Census, Surface Transportation Board, U.S. Army Corps of Engineers, Bureau of Transportation Statistics, and U.S. Department of Transportation.

In "Expansion of the Reporting System Paradigm to the United States Maritime Industry," Bixler discusses a maritime accident and incident reporting system to enhance maritime safety. Bixler analyzes eight recent U.S. maritime accidents that reveal gaps in maritime safety information sharing. He then develops a prototype maritime safety reporting system designed to deal more effectively with information sharing gaps revealed in the discussion of the eight maritime accidents. Bixler discusses the effects of the 2001 terrorist attack on maritime security and how previous work in aviation security reporting could be applied to a maritime reporting system.

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