An Enhanced Freight Activity Micro-simulation Estimator (FAME) Model using FAF3.0 dataset

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Abstract

Freight transportation is significant element of economic growth of any country. Over years, the freight transportation industry has evolved and decision making process has become more complicated. In this environment, micro-simulation freight transport models are effective instruments for behavior forecasting and will help planners and decision makers in decision making process in the freight transport industry. This paper discusses the use of a micro-simulation model for freight transportation modeling to replicate the annual commodity flows of the year 2007 in the United States. The model used for this study is called FAME (Freight Activity Micro-simulation Estimator) which is a behavioral micro-simulation model for freight transportation. It has been developed by the transportation research team at UIC in 2010 using Freight Analysis Framework (FAF2.0) dataset. The model can simulate commodity movements at a very disaggregate level of firm-to-firm. In this research work the overall FAME model is upgraded to not only use the newly released FAF3.0 dataset as the main input to the simulation, but also the models performance is significantly enhanced by improving data structure and overall data flow throughout the simulation. The enhanced FAME model is then used to simulate commodity flows of the entire United Sates. The annual flows are broken down into firm-to-firm flows and the shipment size and transport modes are determined. The simulation results of the model and its validation analysis are presented in this paper.

Keywords: Freight transport – FAME - Micro-simulation model –FAF3.0.

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