

29 JULY 2022

WORKSHOP: FREIGHT TRANSPORTATION MODELING

Time: 8 AM – 11 AM (US East); 12 noon – 3PM (GMT or CET-2)

Join Zoom Meeting <https://tudelft.zoom.us/j/98227342382>

PART 1: MODELING FREIGHT EQUITY IMPACTS IN FREIGHT TRANSPORTATION PLANNING: WHY, HOW, and WHAT.

Abstract

While transport efficiency evaluation remains significant, equity assessment in freight transport planning remains uncommon and needs to be better understood. Equity is defined here as “the distribution of benefits and costs over members of society.” Three key components of equity can thus be identified: the distribution of costs and benefits; the population groups impacted by this distribution; the principle that establishes whether a particular distribution is ethically and socially acceptable. In such a context, the workshop will address three main questions:

1. Why do we need to model freight equity?
2. How can modelers (research and practice) help to deliver predictions of these impacts?
3. What is needed to model freight equity?

Subtopics: Environmental justice and external costs, Community liveability impacts and affordability, Labour market impacts, Accessibility and connectivity impacts, inequality.



AGENDA

Equity Issues in
Planning: MPO case
study

Defining Equity in
Freight Transport

State-of-Practice
Equity Modeling

Breakout and Panel
Discussion

Conclusion

Presenters

Reese Brewer, Frontier MPO,
USA

Lori Tavasszy, Delft University of
Technology, Netherlands

Monique Stinson, Argonne
National Laboratory, USA

Sushant Sharma, Texas A&M
Transportation Institute, USA

WCTR – TRB Joint Virtual Meet & Workshop

PART 2: ADVANCES IN DATA-DRIVEN FREIGHT MODELLING

Time: Part 2 Kick-off at 9:30 AM (US East) or 1:30 PM (GMT).

Abstract

In contrast to theory-driven models, data-driven transport models have very flexible functional forms unconstrained by theory, to allow the patterns that characterize a system to emerge from the available data. A major advantage of this approach includes a detailed capture of behavior not yet explained by theory; a disadvantage is a difficulty to reproduce and interpret models.

Usually, these models yield surprising insights and results that challenge conventional models. This session brings together 4 recent cases of data-driven freight modeling, which have accumulated interesting lessons about different approaches, in terms of technical feasibility and impacts on practice. Recent advances reported here include an ABM with natural language–deduced strategic behavior of stakeholders, population synthesis approaches using truck tour data, optimal zoning approaches enhancing the accuracy of freight generation models, and neural network-based identification of routing and scheduling patterns.

Subtopics: Data-driven approaches in ABM, truck population synthesis, descriptive tour models, freight generation and zoning

Workshop co-sponsored by:

- TRB Standing Committee on Freight Transportation Planning and Logistics (AT015)
- WCTR Special Interest Group B5 – Freight Modelling

Organizers: Lori Tavasszy (WCTR) & Sushant Sharma (Chair, TRB Standing Committee on Freight Transportation Planning and Logistics)

AGENDA (Part-2)

Freight Generation and Zoning

Agent-Based Freight Framework Development

Tour-based Synthetic Truck Population Generation

Data-Drive Descriptive Tour Model

Conclusion

Presenters

Agnivesh Pani, Indian Institute of Technology BHU Varanasi, India

Monique Stinson, Argonne National Laboratory, USA

Haggai Davis, New York University, USA

Ali Nadi, Delft University of Technology, Netherlands



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