Truckload vs. Intermodal

MIT Supply Chain Management
Students: Tianshu Huang, SCM 2017
Students: Bernarda Serrano, SCM 2017
Advisor: Chris Caplice
Co Advisor: Francisco J Jauffred

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Motivation / Background

- Currently, mode choice decisions are based on freight rate and lead time
- Other attributes, such as transit variability, impact total logistics cost as well, yet they are not studied in depth

Key Question / Hypothesis

1. What's the transit time distribution of truckload vs. intermodal?
2. How to incorporate transit variability into mode choice?
3. How should a company make mode choice to minimize total logistics cost?

Methodology

1. Preliminary Research

- Existing literatures on mode choice.
- Company's logistics requirements.

2. Data Mining

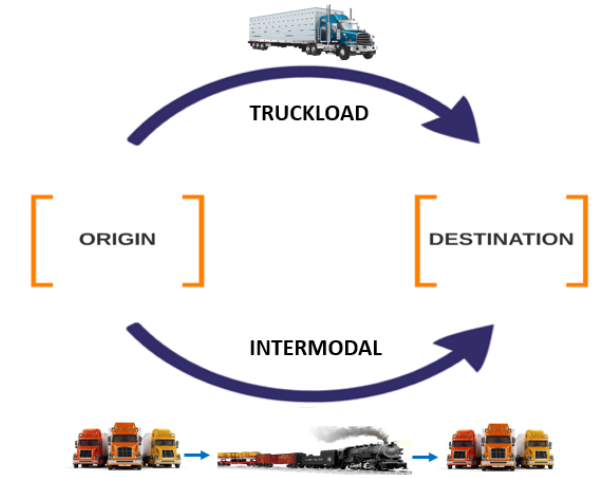
- Generate transit distribution, mode cost, etc. using company's internal data.

3. Model Building

- Develop an optimization model via Mixed Linear Integer Programming.

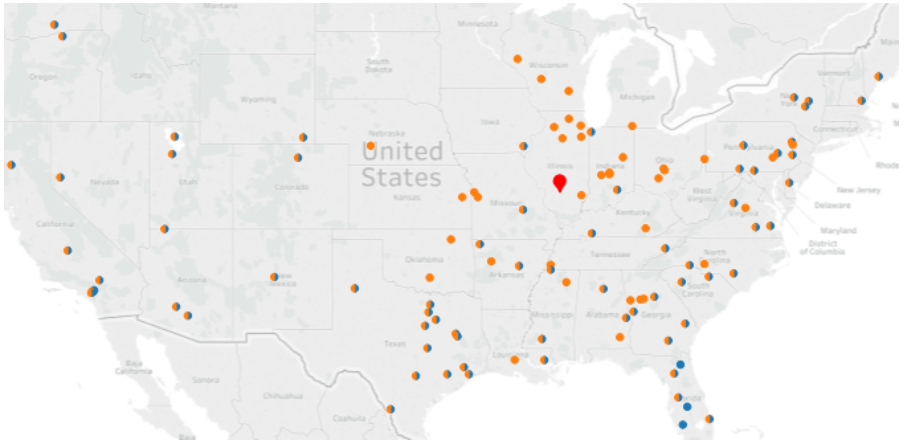
4. Model Testing

- Testing the model with real data via CPLEX Optimizer.

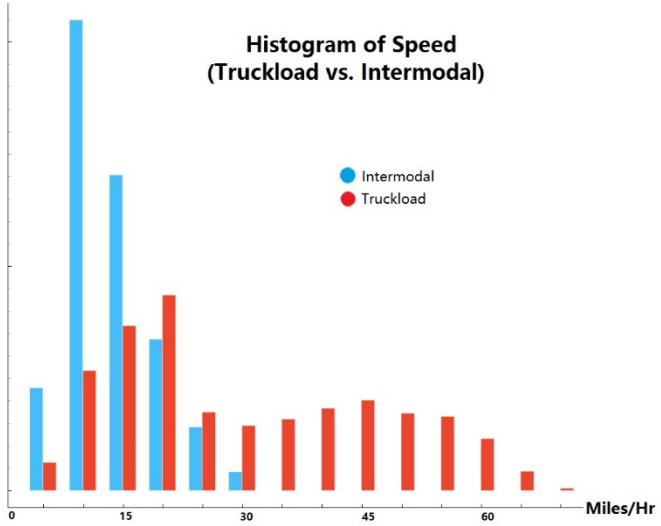


Research focus

Shipping Destinations



Initial Results



Expected Contribution

- An optimization model that helps the company to minimize the total logistics cost by making optimal mode choice.
- Insights of carrier performance and transit time distribution

Tianshu Huang

Bernarda Serrano