Project motivation:
- Little known about freight movements at the intra-metropolitan level
- Lack of comprehensive, consistent data on freight flows within metropolitan areas
- No “theory of urban freight”.

Conceptual Framework--Freight Landscape: Freight flows depend on the spatial organization of freight supply and demand, and on the transportation facilities within the metropolitan area.

- The example of retailing to illustrate how development density might affect retail deliveries.

Model 1: \( Y_i = f(S_i, D_i) \), where
- \( Y \) = truck flow density in zone \( i \),
- \( S \) = vector of transport supply and relative location measures
- \( D \) = vector of transport demand measures (population and employment density) for zone \( i \)

Model 2: \( Y_i = f(S_i, P_i, E_i) \), where
- \( P \) = vector of population characteristics
- \( E \) = vector of employment industry sectors

Data:
- Population characteristics: 2010 US Census
- Employment characteristics: 2010 Longitudinal Employer-Household Dynamics (LEHD)
- Transport system data and the output from 2008 baseline regional transportation model: Southern California Associations of Government (SCAG)
Table 1 Share of population and employment combinations

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<th>P Q1</th>
<th>P Q2</th>
<th>P Q3</th>
<th>P Q4</th>
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</table>

Results:
- Reasonable level of explanatory power
- Differences between total vehicles and trucks as expected
- Coefficient for the spatial lagged term is highly significant.

Model 1
- Transport supply variable coefficients have expected signs
- General relationship of density seems to hold
- Simple population/employment combinations perform surprisingly well

Model 2
- Similar to model 1 for transport variables
- Population and employment characteristics are generally significant and with expected signs