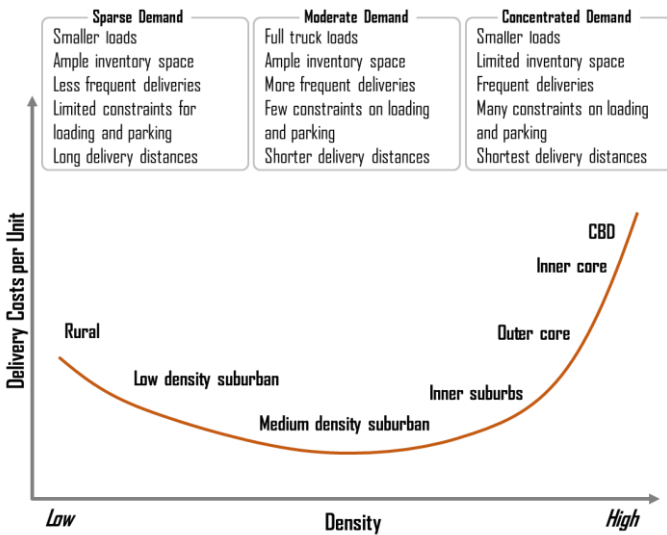


Genevieve Giuliano, Sanggyun Kang, Quan Yuan

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

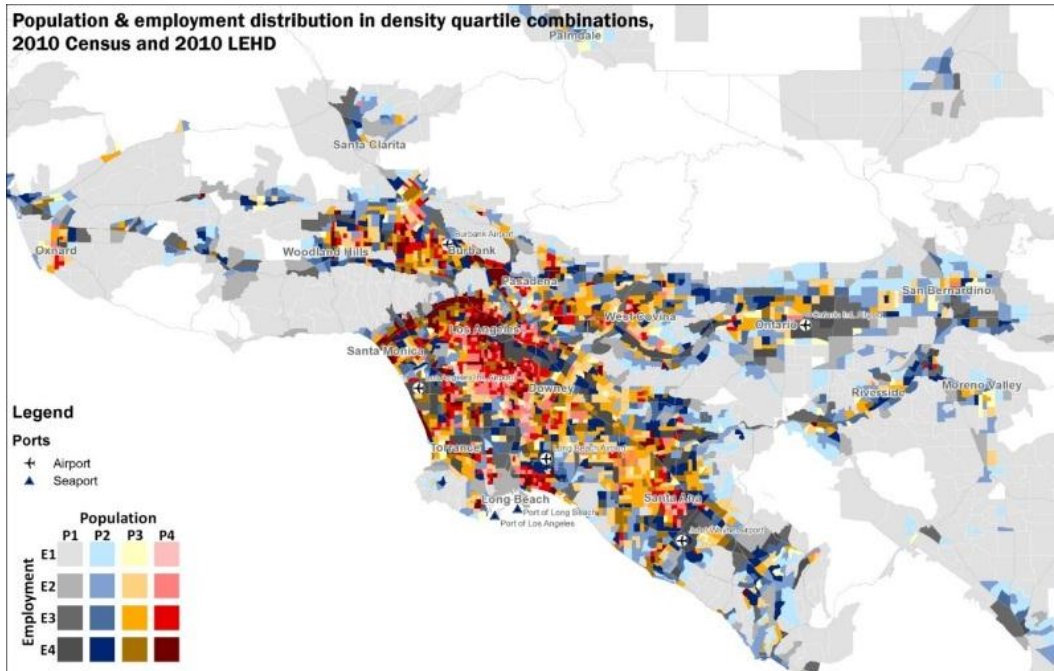
Data:

- 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)

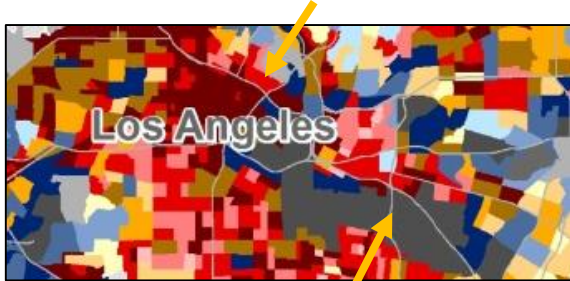
► Table 1 Share of population and employment combinations

	P Q1	P Q2	P Q3	P Q4
E Q1	14.7	5.6	2.8	1.4
E Q2	3.3	8.1	8.0	5.4
E Q3	2.6	5.6	8.6	8.3
E Q4	4.5	6.0	5.8	9.3

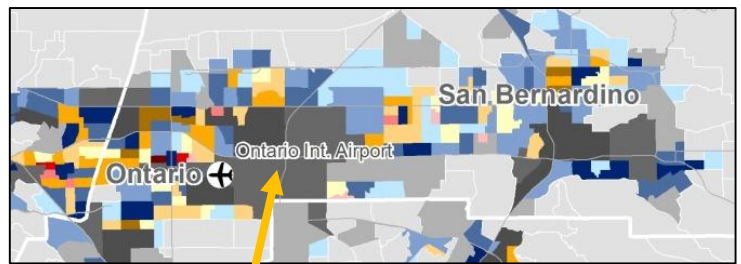
▼ Figure 2 Population and employment distribution in density quartile combinations



LA Downtown



Old industrial zone



Ontario airport industrial zone

- 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