

Daily travel patterns were associated with social mixing across five cities

Five official travel surveys revealed Daytime Mixing (DM) by integrating mobility with socioeconomic and demographic information.



302,796
— survey participants



16% lower
— using neighborhood proxies



50–69%
— explained by daily destinations



BOSTON



CHICAGO



HONG KONG



LONDON



SÃO PAULO

1 Home-based estimates can miss part of daily life:

Mobility traces often infer people's characteristics from their home neighborhoods. These proxies may be unreliable in compact, socioeconomically mixed cities and may miss life-course, gender or caregiving patterns.



2 Following daily life across five cities:

This cross-sectional study combined official travel surveys from Boston, Chicago, Hong Kong, London and São Paulo. Participants also reported socioeconomic and demographic information.



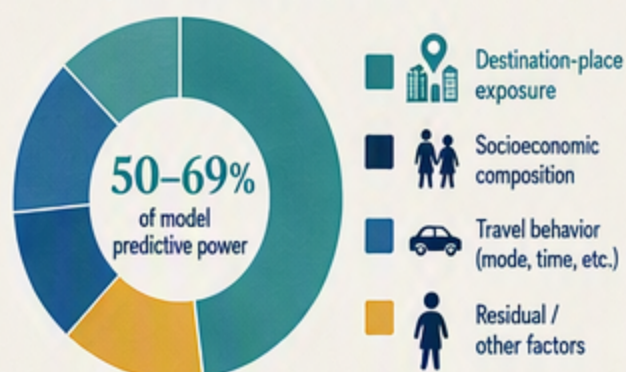
3 Neighborhood proxies estimated less mixing:

Using census-neighborhood median income instead of self-reported household income produced daytime social-mixing estimates that were 16% lower on average.



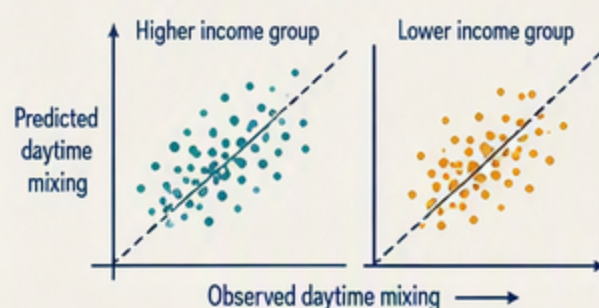
4 Daily destinations mattered most:

The Lindeman, Merenda and Gold (LMG) decomposition identified destination-place exposure as the dominant explanatory group. It accounted for 50–69% of model predictive power across the five cities.



5 Similar totals may hide different urban experiences:

Models transferred between income groups became less accurate, suggesting that similar aggregate mixing may conceal structurally different urban experiences. Age and inferred caregiving responsibilities were also associated with different mixing patterns.



6 Read these patterns as associations:

Public-transit trip share was positively associated with Daytime Mixing in all five city models. This cross-sectional study did not establish causality.

