Travel and the Built Environment

Insights from the Sprawl Index and Neighborhood Types



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RESEARCH QUESTION

Which measures best capture the relationship between the built environment and travel behavior?

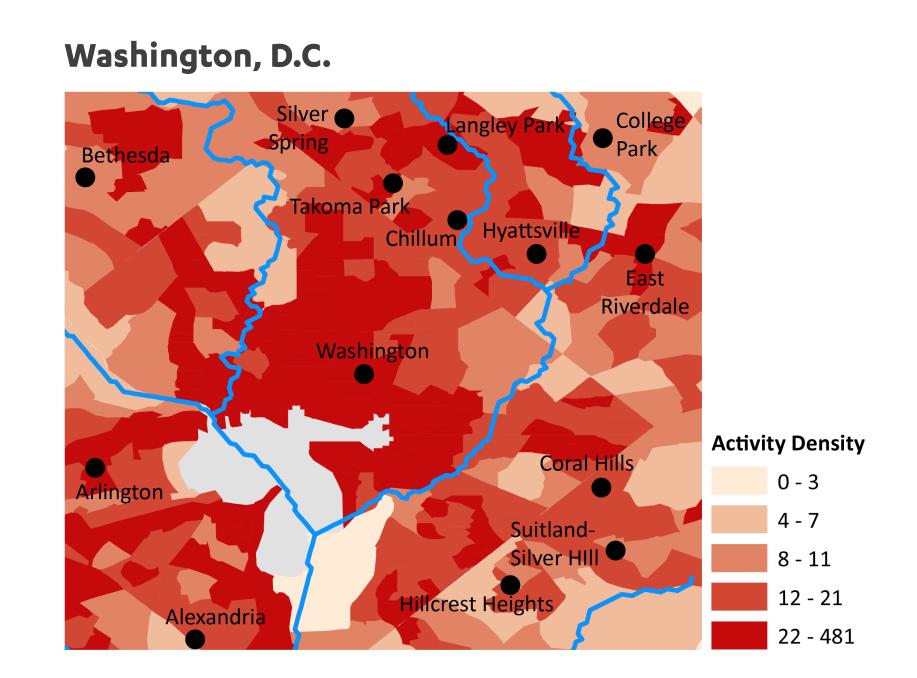
BUILT ENVIRONMENT MEASURES

ACTIVITY DENSITY

Measure: Continuous; Two components: population and employment density

Scale: Census block/tract, county, MSA

Availability: National Source: U.S. Census



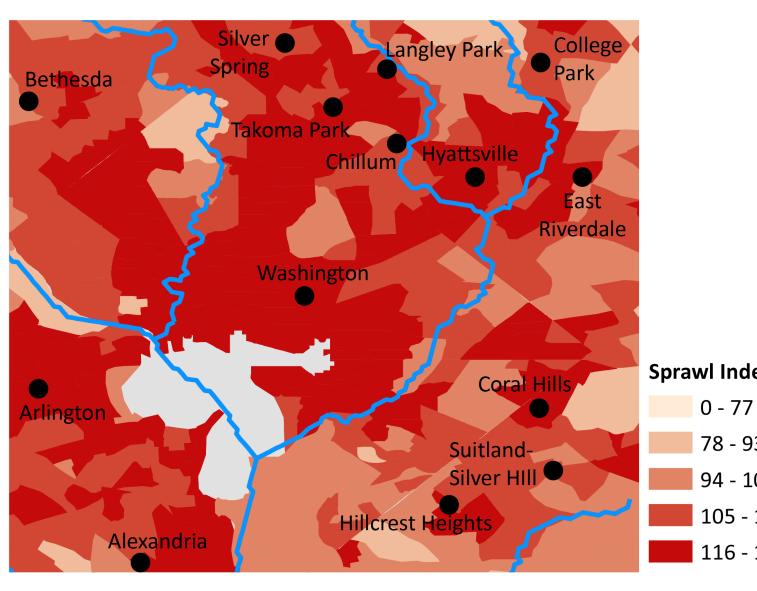
SPRAWL INDEX

Measure: Continuous; Four factors: density, land use mix, activity centering, and street connectivity

Scale: Census tract, counties, MSAs, and UZAs

Availability: National, non-rural

Washington, D.C.



NEIGHBORHOOD TYPES

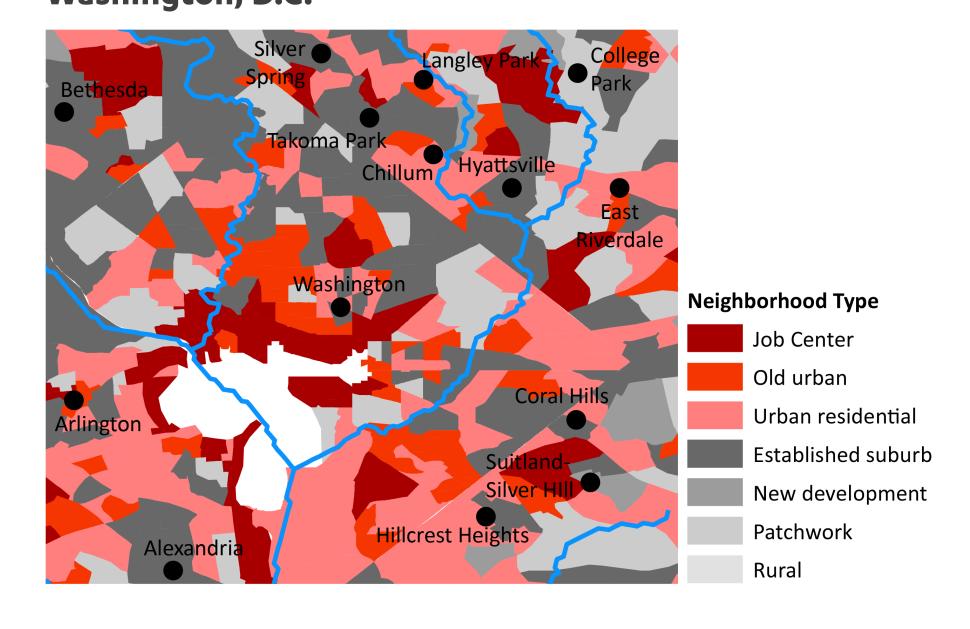
Measure: Categorical; Five factors: density, diversity, transience, established, accessibility

Scale: Census tract

Availability: National

Source: Voulgaris et al. (2017) goo.gl/Xdpgp7

Washington, D.C.



MULTIVARIATE ANALYSIS

For each dependent variable, four separate models with different explanatory variables:

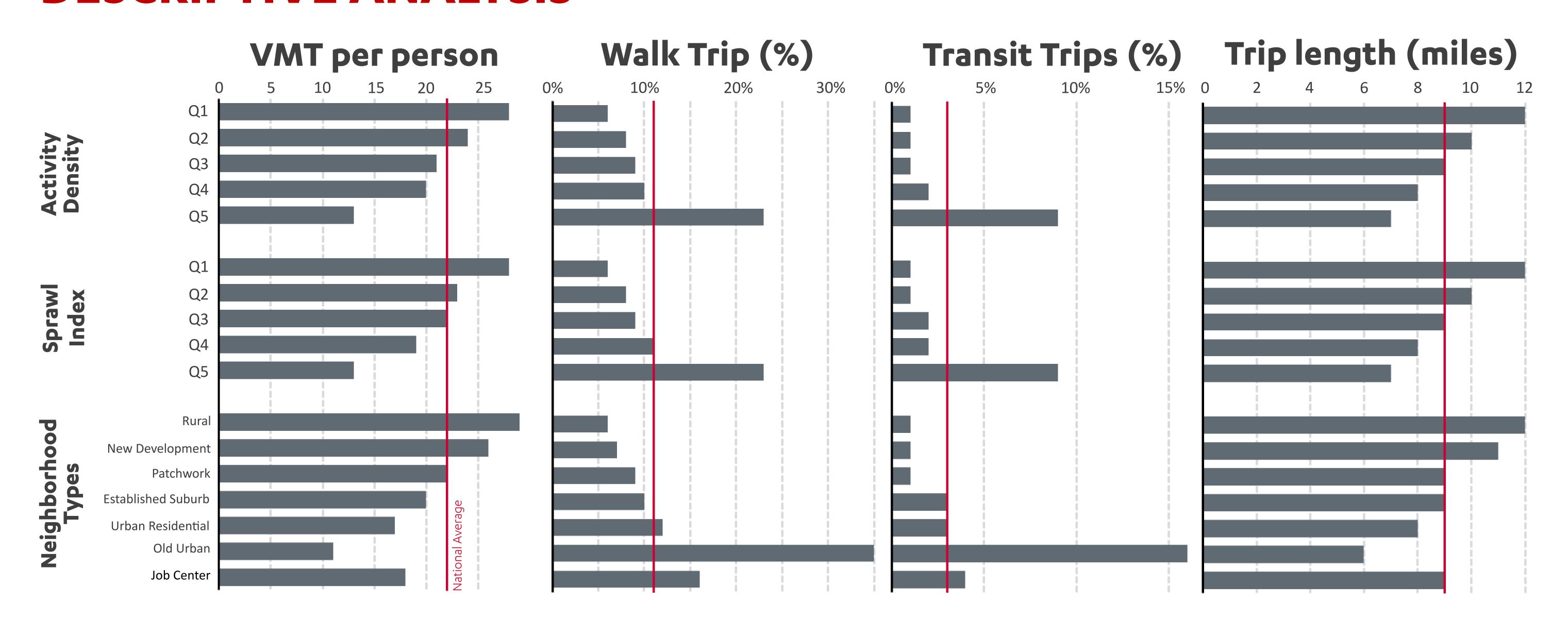
- Model 1: Activity density
- Model 2: Sprawl index
- Model 3: Neighborhood type
- Model 4: Sprawl index & Neighborhood type

Control Variables:

- Age (and age²)
- Sex
- Race/ethnicity
- Employment
- Internet use
- Education level
- Number of adults
- Number of children
- Household income (log transformed)

Assess fit with Akaike Information Criterion (AIC)

DESCRIPTIVE ANALYSIS



RESULTS

Relative model fit (% worse AIC than best-fitting model)

