ESTIMATING THE EFFECT OF MOBILITY AND FOOD CHOICE ON OBESITY

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ABSTRACT
A majority of Americans are overweight/obese. Previous studies have indicated that the topographical features of the built environment and personal initiative affect individual mobility and food choice, which in turn impact energy balance. This research contributes to the literature by considering northern New England, a region with a unique rural and seasonal environment. The analysis simultaneously estimates the size and significance of individual mobility and food pattern choices on energy balance while accounting for both seasonality and individual perceptions of navigability of the built environment in northern rural climates.

CONCEPTUAL MODEL

DATA & METHODS
Transportation in Your Life Poll (2008-2009)
• A four-season panel survey was conducted in Vermont, New Hampshire, and Maine.
• Respondent locations were geocoded from the panel data addresses (n=654), and respondents’ perceptions and behavior will be used as independent variables in the model. Independent variables include:
  • Mobility
    – Motorized mobility – e.g. “Do you have a driver’s license?” “Do you have access to public transit?”
    – Active mobility – e.g. “How many minutes do you exercise each week?” “Do you enjoy physical activity?” “Do you believe you should walk and take more?”
    – Climatic characteristics – e.g. “Are you afraid to drive in bad weather?” “Has weather affected your travel plans?”
  • Amenity accessibility – e.g. “Are you able to go to the grocery store as often as needed?” “Are you able to get to recreational activities as often as wanted?”
  • Food choice – e.g. “In the past week, have you eaten at a fast food restaurant?” “Do you choose to eat a healthy diet?”

 Nielsen Claritas Business Data (2010)
• By geocoding utilization and recreational amenities within ten miles of northern New England (excluding Canada), respondents’ actual built environment can be incorporated into the model in terms of opportunities to consume (restaurants, grocery stores) and burn (gyms, parks, trails) energy.

BACKGROUND

Mobility
• Neighborhood characteristics facilitating non-motorized mobility include:
  – Presence of sidewalks (Kitamura et al., 1997; Tрапед et al., 2003)
  – Scenic natural surroundings (Lee and Moudon, 2006)
  – Mixed-use zoning (Frank and Pivo, 1994)
  – Nearby recreational amenities (Tрапед et al., 2003)
  – Weather conditions affect mobility, particularly in the winter months (Goin et al. 2005; Chalodinsky et al., 2012)
  – Active commuting negatively impacts BMI (Hamers et al., 2008; Wen et al., 2008)

Food Choice
• Obesity is influenced by personal diet preferences (Huang et al., 2003; Lohtii–Koeki et al., 2002)
• Income and education levels impact food choice (Drewnowski and Specter, 2004)
  – On average, people of lower socioeconomic status opt for low-cost foods with high caloric density
• Fast food visits positively correlate with BMI (Niemeier et al., 2006)
• Accessibility to supermarkets and convenience stores impact BMI (Inagami et al., 2006; Powell et al., 2007)

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Works Cited