ACTIVE TRANSPORTATION
BEYOND THE URBAN CENTERS

Rates of bicycling and walking using an alternate urban-rural typology

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Context & Purpose of Research

Insufficient data is never enough to prevent people from casting judgment—even about subjects they cannot possibly understand.

"Our goal is to have a system where people can go from one place to another more safely, reliably, efficiently, and affordably for both now and the future."
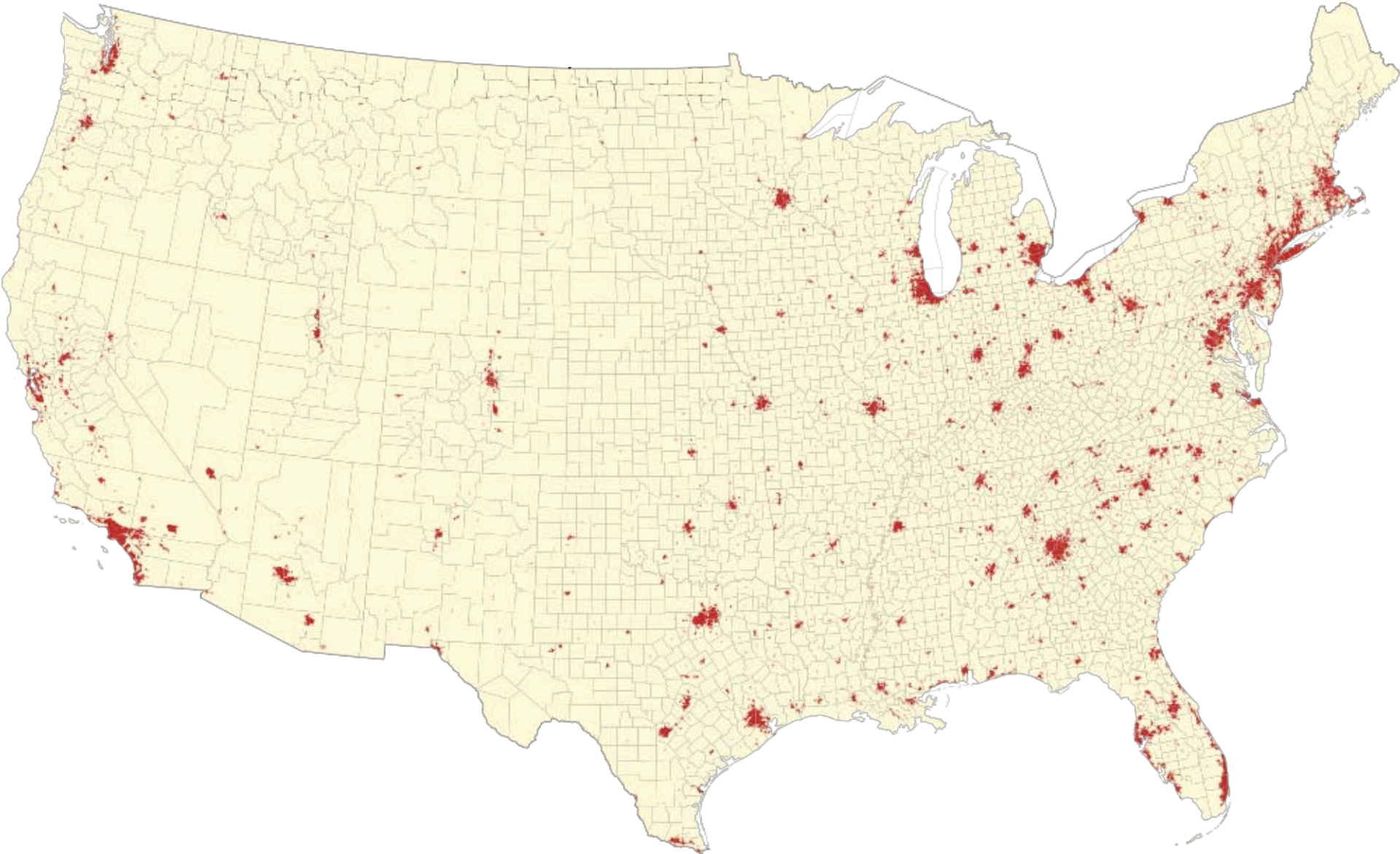
-Dr. Tianjia Tang, FHWA

Presentation Outline

- Urban-Rural Typologies
- NHTS Active Transportation (AT) Analysis
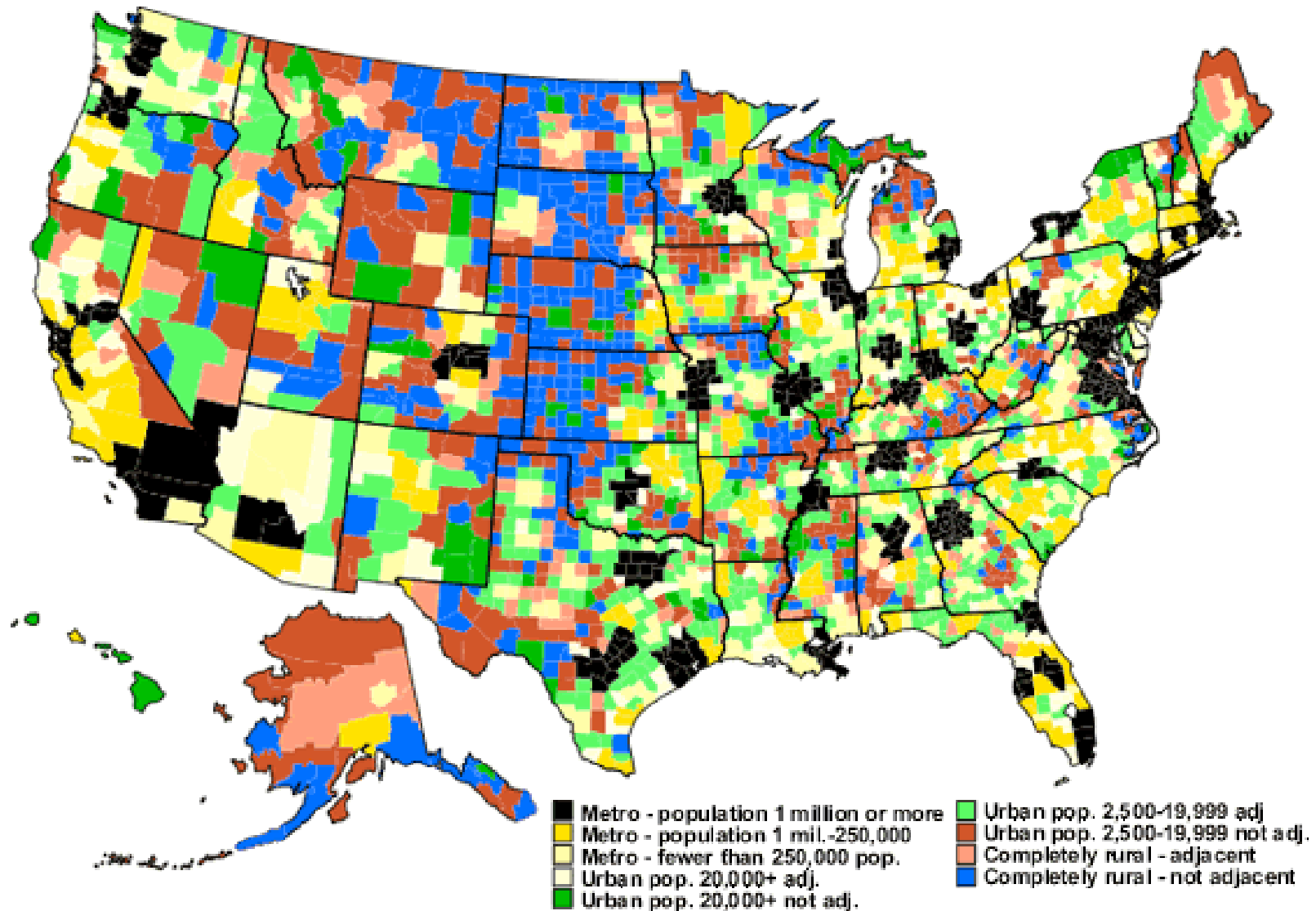- Implications, Limitations & Further Research

Urban/Rural Typologies

- Goals
  - Definition of "Rural"
  - Finer geography than county-level
  - Tap into broader framework
- Options beyond URBRUR
  - HBHUR Variable
  - USDA's RUCA Codes
  - RUCA Codes with HHS Adjustment

Urbanized Areas & Urban Clusters

Rural Urban Continuum Codes, 2003

Metro - population 1 million or more
Metro - population 1 mil.-250,000
Metro - fewer than 250,000 pop.
Urban pop. 20,000+ adj.
Urban pop. 20,000+ not adj.
Urban pop. 2,500-19,999 adj
Urban pop. 2,500-19,999 not adj.
Completely rural - adjacent
Completely rural - not adjacent

Source: USDA, Economic Research Service.

HBHUR Variable* from NHTS

HBHUR designation

RUCA Codes

- USDA ERS v. 2

1 Metropolitan area core: primary flow within an urbanized area
2 Metropolitan area high commuting: primary flow 30% or more to UA
3 Metropolitan area low commuting: primary flow 5% to 30% to UA
4 Micropolitan area core: primary flow w/in Urb Cluster 10,000-49,999
5 Micropolitan high commuting: primary flow 30% or more to large UC
6 Micropolitan low commuting: primary flow 10% to 30% to large UC
7 Small town core: primary flow w/in Urban Cluster of 2,500 to 9,999
8 Small town high commuting: primary flow 30% or more to a small UC
9 Small town low commuting: primary flow 10% to 30% to a small UC
10 Rural areas: primary flow to a tract outside a UA or UC

http://www.ers.usda.gov/Data/RuralUrbanCommutingAreaCodes/2000/

Adjusted Grouped RUCA Codes

1 Urban Center

2 Other Urban

3 Large Rural Core

4 Other Large Rural

5 Small Rural Core

6 Other Small Rural

7 Isolated Rural

Advantages: Symbolic, Census Tract Geography, Integrates Population + Travel Behaviors

http://depts.washington.edu/uwruca/ruca-data.php

RUCA Typology for the lower 48

RUCA Typology with Cities Larger Than 50,000 and County Names

Legend

- · Places Over 50,000
- ⊛ Places Over 500,000
- ⊛ Places Over 100,000
- ▢ State Border
- ▢ County Lines

Typology
- ▉ Metro Center
- ▉ Other Urban
- ▉ Large Rural Core
- ▉ Other Large Rural
- ▉ Small Rural Core
- ▉ Other Small Rural
- ▉ Isolated Rural

NHTS A.T. analysis by RUCA

- NHTS 2009 version 2.1,
- Generated RUCA code and Adjusted Grouped RUCA from geo-referenced data set
- Ran analyses to determine influence of geography on rates of Bicycling and Walking
- Eliminated trips of over 75 miles and trips with no mode share reported

Mode Split for All Trips (%)

Mode	UC	OU	LR	LR-o	SR	SR-o	IR	Total
SOV	39.2	41.6	44.3	42.0	43.7	44.7	42.4	40.2
HOV	42.3	47.0	43.8	48.0	45.2	44.0	45.9	43.4
Transit	2.9	0.4	0.4	0.2	0.2	0.5	0.05	2.1
Walk	**12.0**	**6.7**	**8.5**	**6.1**	**7.2**	**7.3**	**7.4**	**10.6**
Bike	**1.1**	**0.9**	**1.1**	**0.8**	**1.0**	**0.8**	**0.8**	**1.06**
School Bus	1.6	2.6	1.4	2.1	1.8	2.1	2.3	1.7
Other	1.0	0.8	0.7	0.8	0.9	0.7	1.2	1.0
Total	100	100	100	100	100	100	100	100

Mode Split for Work Trips

Mode	UC	OU	LR	LR-o	SR	SR-o	IR	Total
SOV	74.7	80.1	79.5	78.5	75.4	78.2	76.4	75.9
HOV	14.4	15.9	15.9	17.8	17.2	18.6	19.2	15.2
Transit	5.0	0.5	0.4	0.05	0.3	0.8	0.08	3.6
Walk	**3.9**	**1.7**	**3.3**	**2.8**	**3.7**	**1.7**	**3.4**	**3.5**
Bike	**0.8**	**0.4**	**0.3**	**0.2**	**1.6**	**0.03**	**0.1**	**0.7**
School Bus	0.07	0.3	0.03	0.03	0.15	0.02	0.11	0.1
Other	1.0	1.2	0.6	0.6	1.7	0.7	0.7	1.0
Total	100	100	100	100	100	100	100	100

Further Findings

- Composition of work vs. other purpose active transportation trips varies according to geography, meaning that NHTS is essential for understanding potential of active transportation – census commute data insufficient.

- Farming economy communities do not show a bias against active transportation.

- Trip lengths vary according to RUCA – further analysis needed, but it may be due to greater length of recreational walking and bicycling trips.

Limitations & Further Analysis

- Sample sizes for Other Small Rural are low (56 bike trips)
- Overall sample-size limitations prevent meaningful second-order analysis for demographic and detailed trip purpose comparisions.
- RUCA codes for 2000 somewhat out of date—effect on significance of findings is unknown.
- 2010 Census RUCA will not be available before 2012.
- Run analysis on NHTS 2001 data set would provide desirable confirmation of findings.
- Influence of trip length distribution in these areas.
- Are regional data-sets available to further this analysis?

Research Implications & Questions

1. Great promise for Active Transportation beyond the urban centers.

2. RUCA could be useful standard variable for NHTS

3. "Distance, Density and Destinations" factors highlighted in planning research may be insufficient for this comparison of larger geographic influences. Possible candidates? Safety? Social cohesion? VMT volumes?

4. What methodological tools are needed to better understand mode-shift promise for low frequency modes?

Thank you!

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