The Influence of the Built Environment on Obesity in Oregon
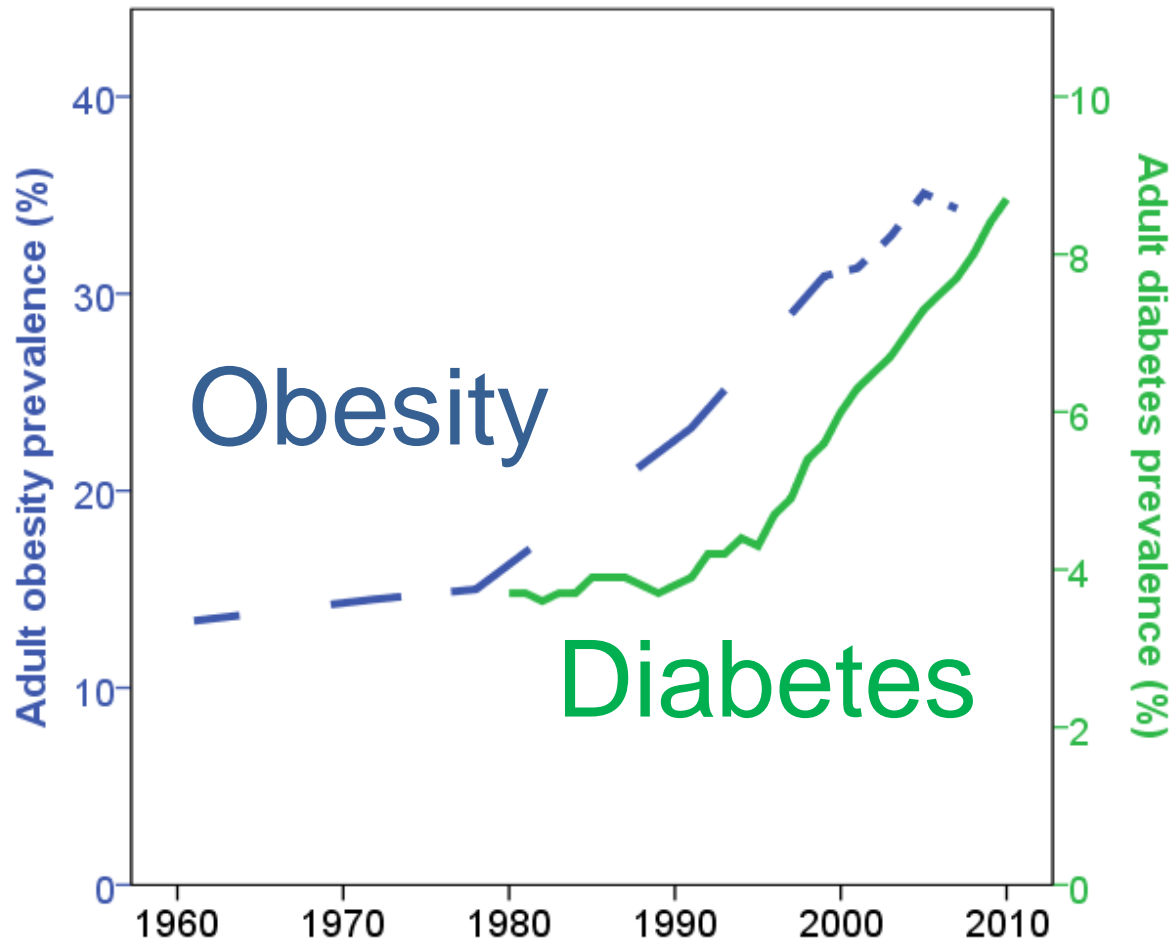
Daniel Morris, MS, PhD

OPHA 68th Annual Meeting and Conference

October 8, 2012
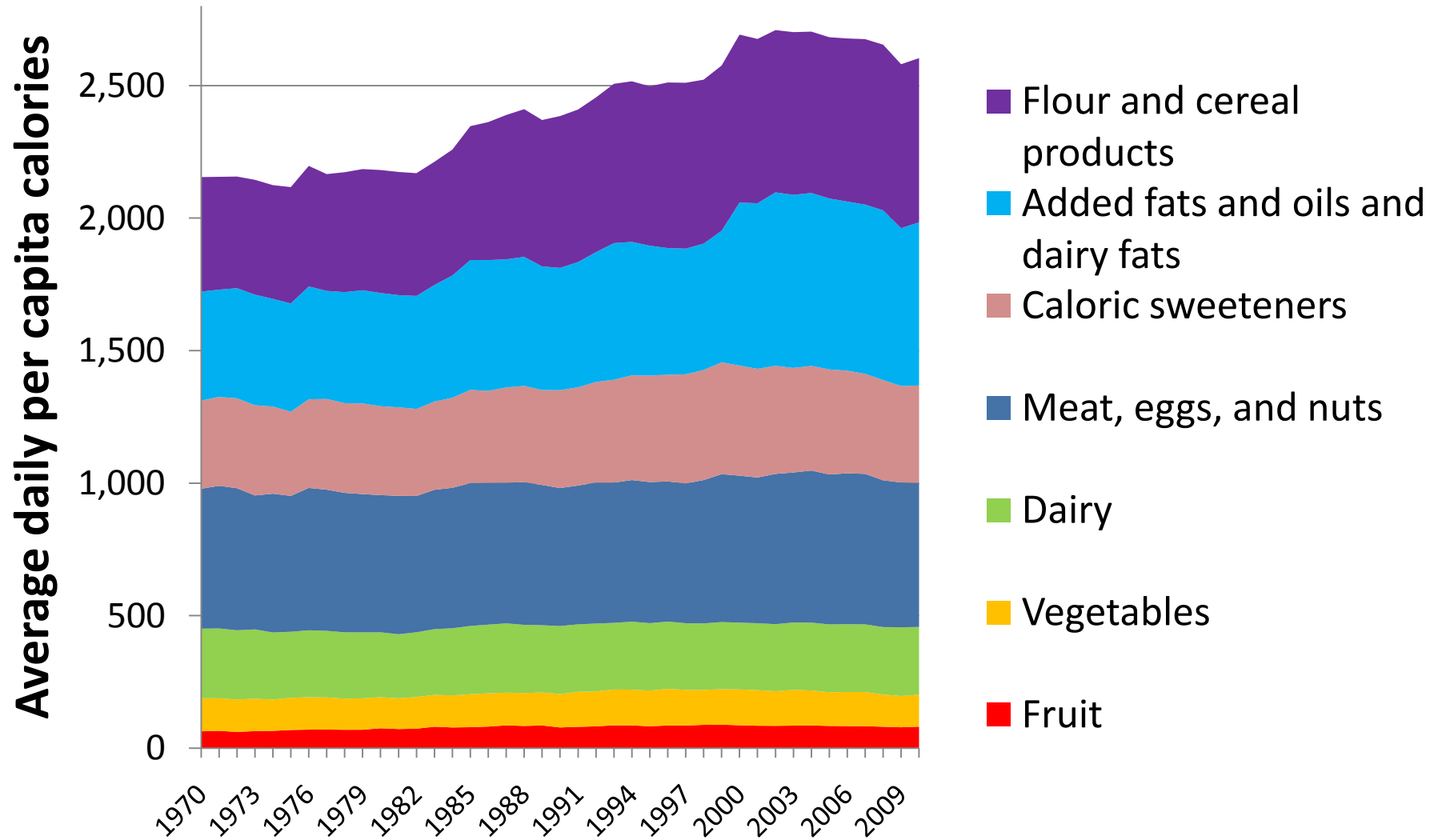
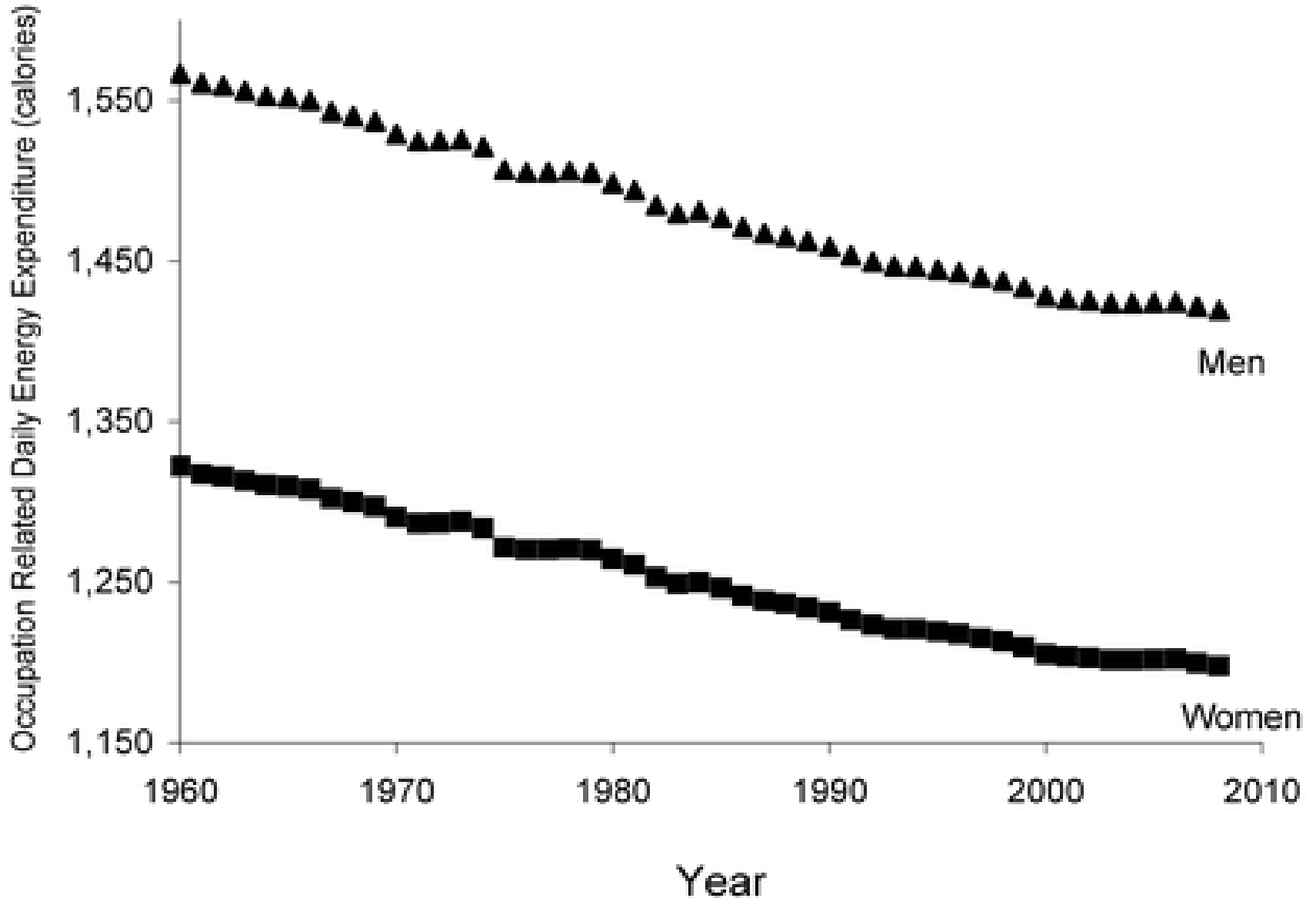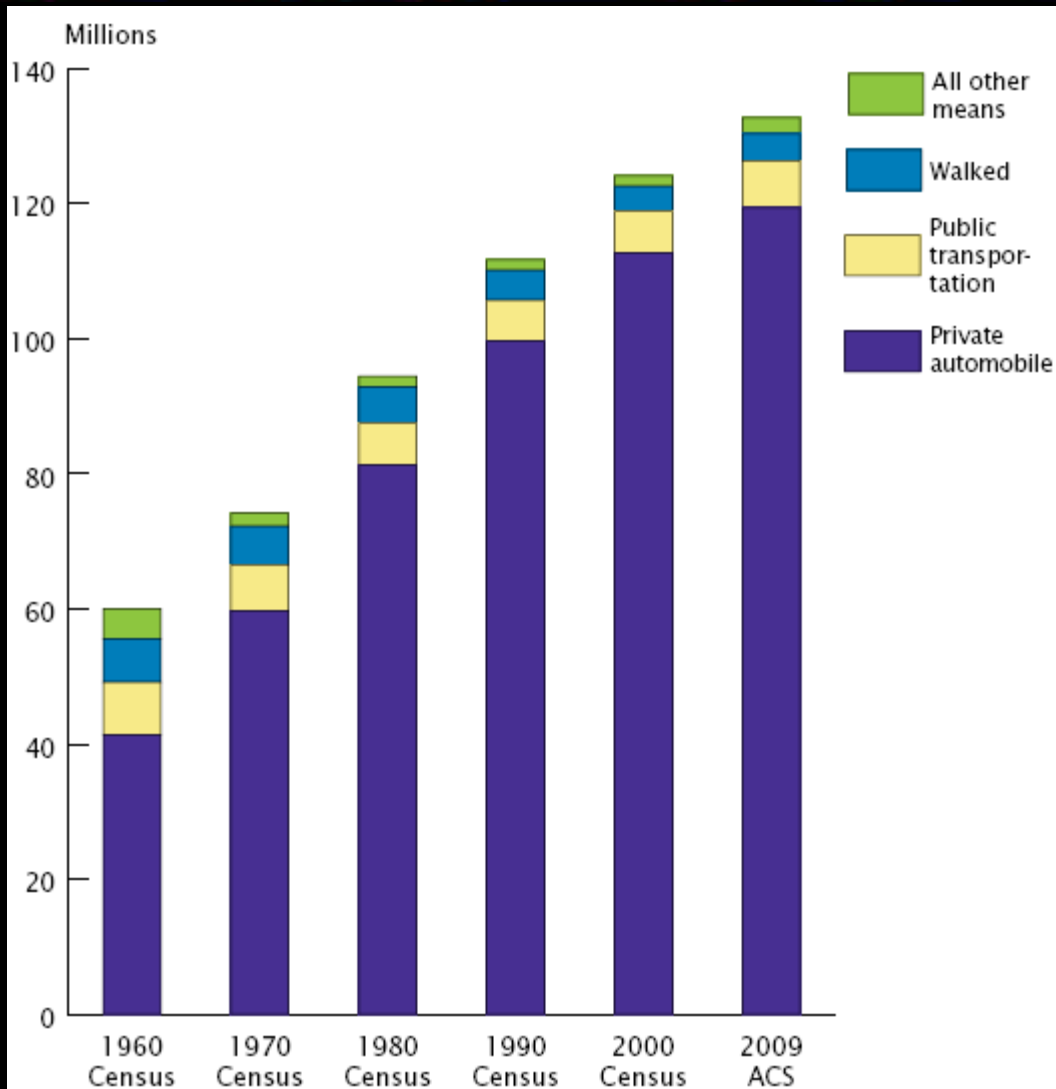Chauncy Morlan (1869-1906)
modeledbehavior.com

Trends in food consumption

Average daily per capita calories from the U.S. food availability, adjusted for spoilage and other waste (USDA)

Trends in energy expended at work

Church TS, Thomas DM, Tudor-Locke C, Katzmarzyk PT, et al. (2011)
http://www.plosone.org/article/info:doi/10.1371/journal.pone.0019657

Transportation
to work
1960 - 2009

Preventing obesity

- Avoid sugary drinks and fast food
- Drive less, walk and bike more
- Prepare your own food
- Watch less TV
- Sleep more
- Don't sit all day
- Have wealthy parents

NEW **DOUBLE DOWN** SANDWICH

IT'S HERE!

- Where do the heaviest Oregonians live?

- What about those places contributes to excess weight?

Obesity data from DMV records

Oregon Health Authority
Environmental Public Health Tracking

DMV records are a valuable resource for obesity surveillance in Oregon

Daniel S. Morris, MS, PhD; Stacey S. Schubert, MPH; Duyen L. Ngo, PhD, MPH;
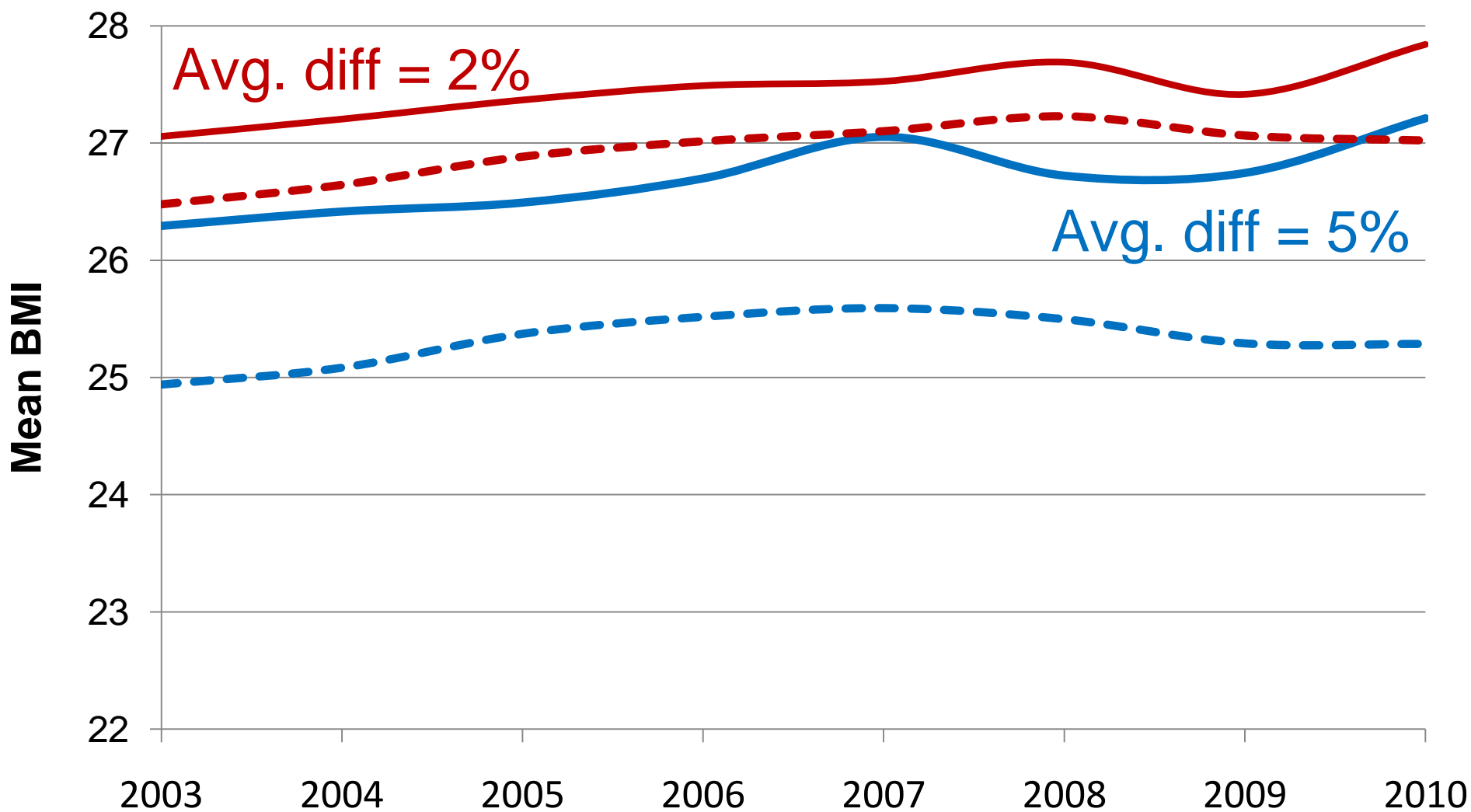Dan Rubado, MPH; Eric Main, AICP; Jae P. Douglas, MSW, PhD
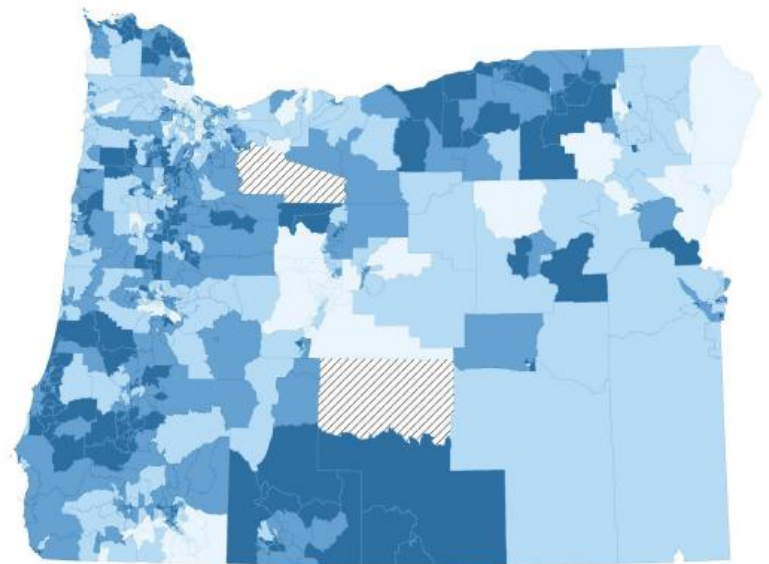
Oregon Environmental
Public Health Tracking

Oregon
Health
Authority

Mean BMI, Oregon BRFSS and DMV

- - - Women DMV   —— Women BRFSS   - - - Men DMV   —— Men BRFSS

Avg. diff = 2%

Avg. diff = 5%

Mean BMI

28
27
26
25
24
23
22

2003   2004   2005   2006   2007   2008   2009   2010

Age-adjusted estimates from Oregon BRFSS and DMV records, adults 18-84

	10 Highest Avg. BMI	10 Lowest Avg. BMI
1	WARM SPRINGS	ASHLAND
2	IRRIGON	LAKE OSWEGO
3	WILLAMINA	SUNRIVER
4	SILETZ	WEST LINN
5	GRAND RONDE	BEND
6	STANFIELD	SISTERS
7	CHILOQUIN	CORVALLIS
8	LAFAYETTE	CANNON BEACH
9	WINSTON	PORTLAND
10	AUMSVILLE	HOOD RIVER

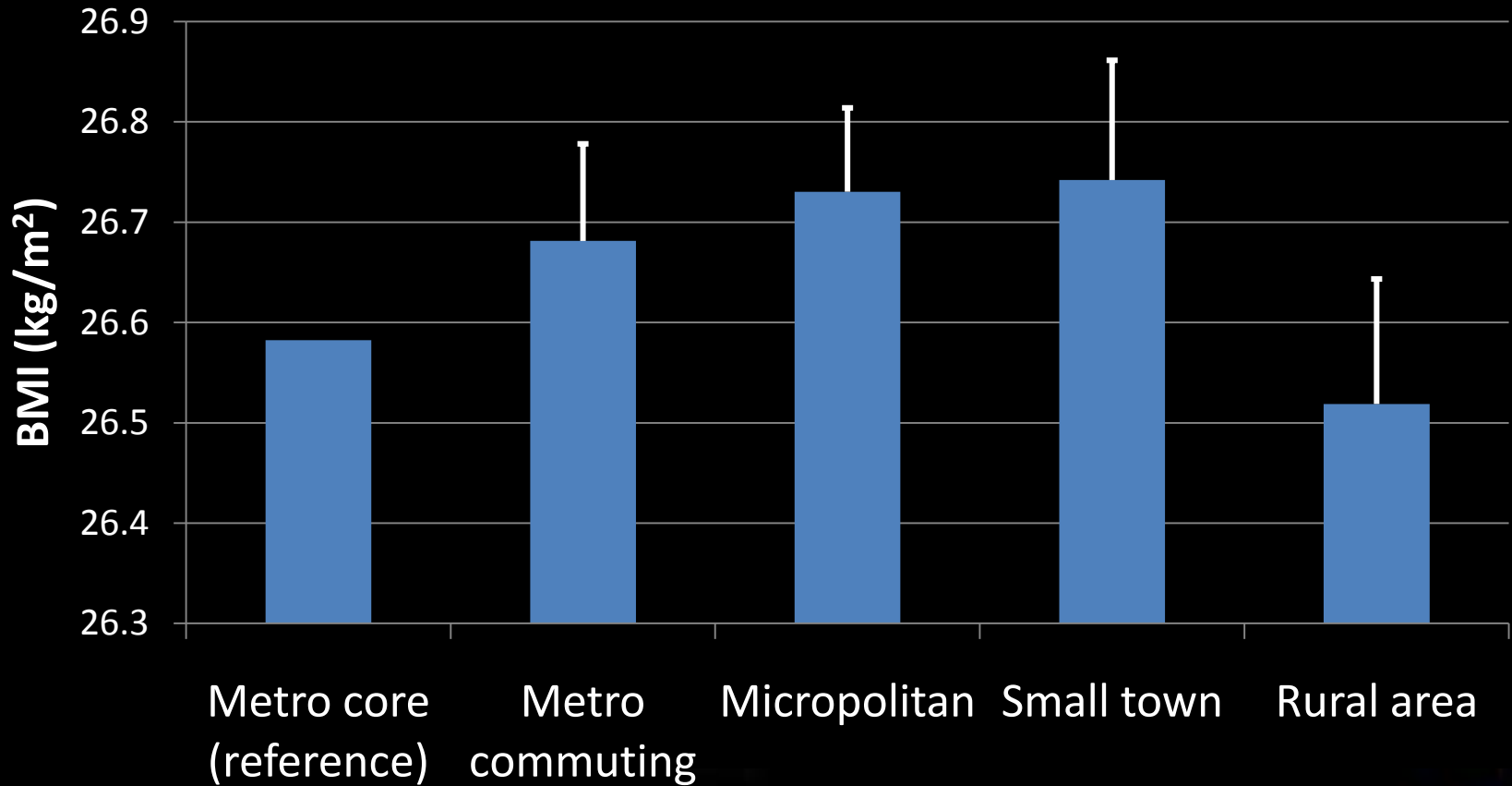DMV records 2003-2010, among the 200 most populous places in Oregon

Rural Urban Commuting Areas

Legend
- Metropolitan core
- Metropolitan commuting
- Micropolitan core
- Micropolitan commuting
- Small town
- Rural
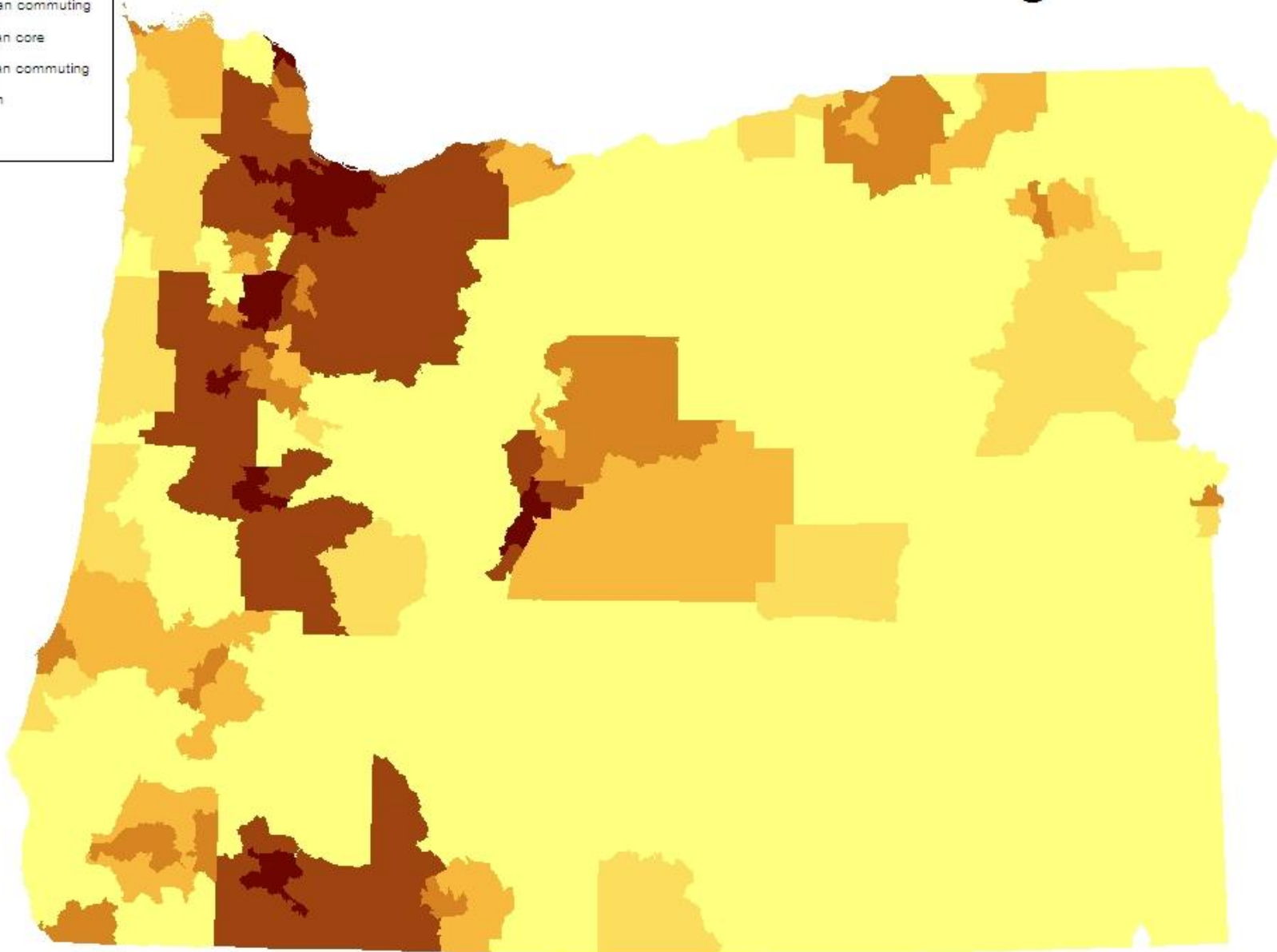
Mean BMI of census tracts

From regression analysis of age-adjusted mean BMI for 825 census tracts in Oregon, adjusted for education, race/ethnicity, and home value
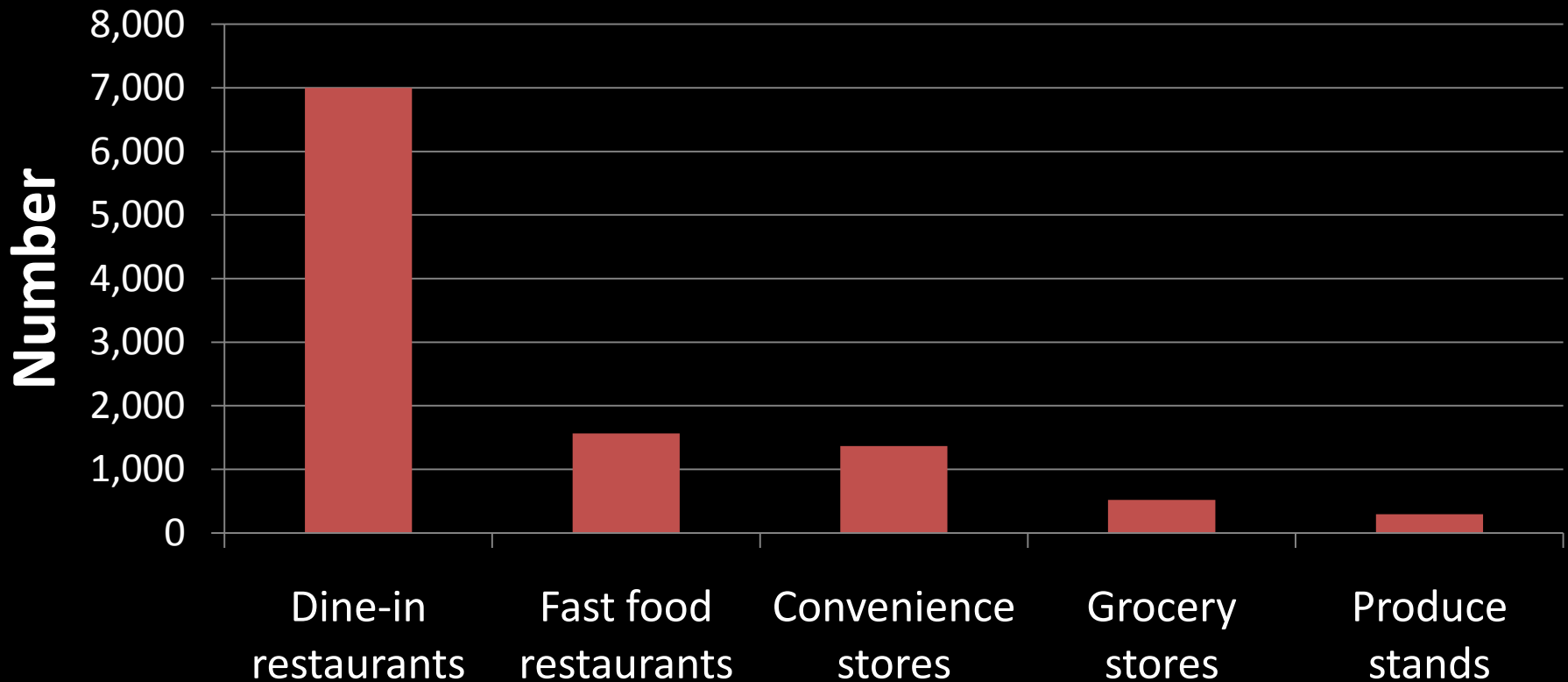
THE FOOD ENVIRONMENT

Food environment in Oregon

Oregon Employment Department,
Oregon Farmer's Market Association

Food environment by RUCA

Legend:
- Dine-in restaurants (red)
- Fast food restaurants (blue)
- Convenience stores (green)
- Grocery stores (white)

Y-axis: Number per 10,000 people (0 to 25)

X-axis categories: Metro core, Metro commuting, Micropolitan, Small town, Rural

Oregon Employment Department

Food environment and obesity

	Difference in average BMI
Fast food & convenience stores per square mile (per +1)	⬆ $\beta = +0.02$ kg/m^2
Grocery and farm stands per square mile (per +1)	⬇ $\beta = -0.08$ kg/m^2

From regression analysis of age-adjusted mean BMI for 825 census tracts in Oregon, adjusted for education, race/ethnicity, and home value
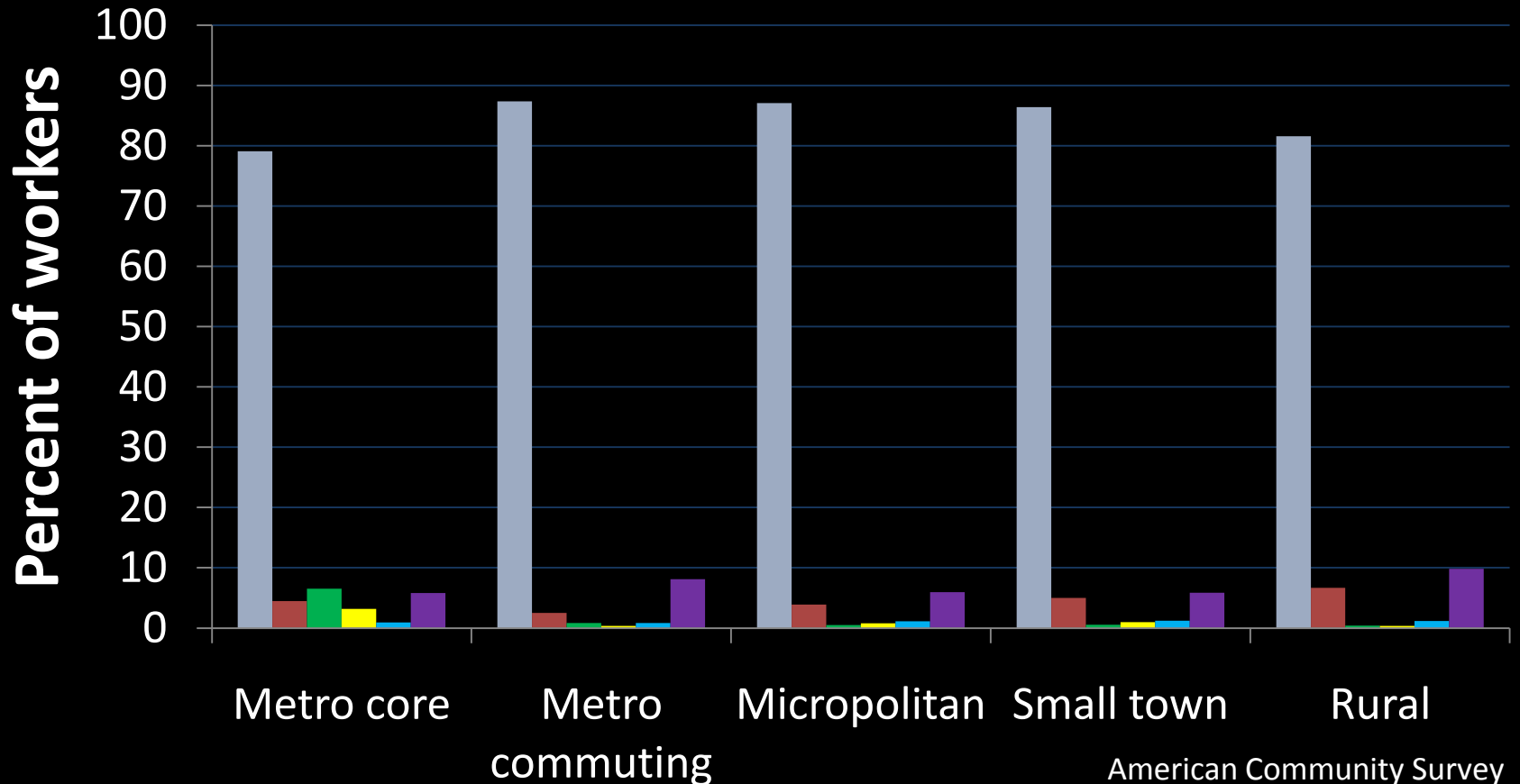
THE TRANSPORTATION ENVIRONMENT

Travel in Oregon

- 1,162 miles of freeways

- 6,471 miles of arterial roads

- 186,667 miles of local roads

- ???? Sidewalks (5,330 miles in Metro)

- ???? Bike lanes (648 miles in Metro)

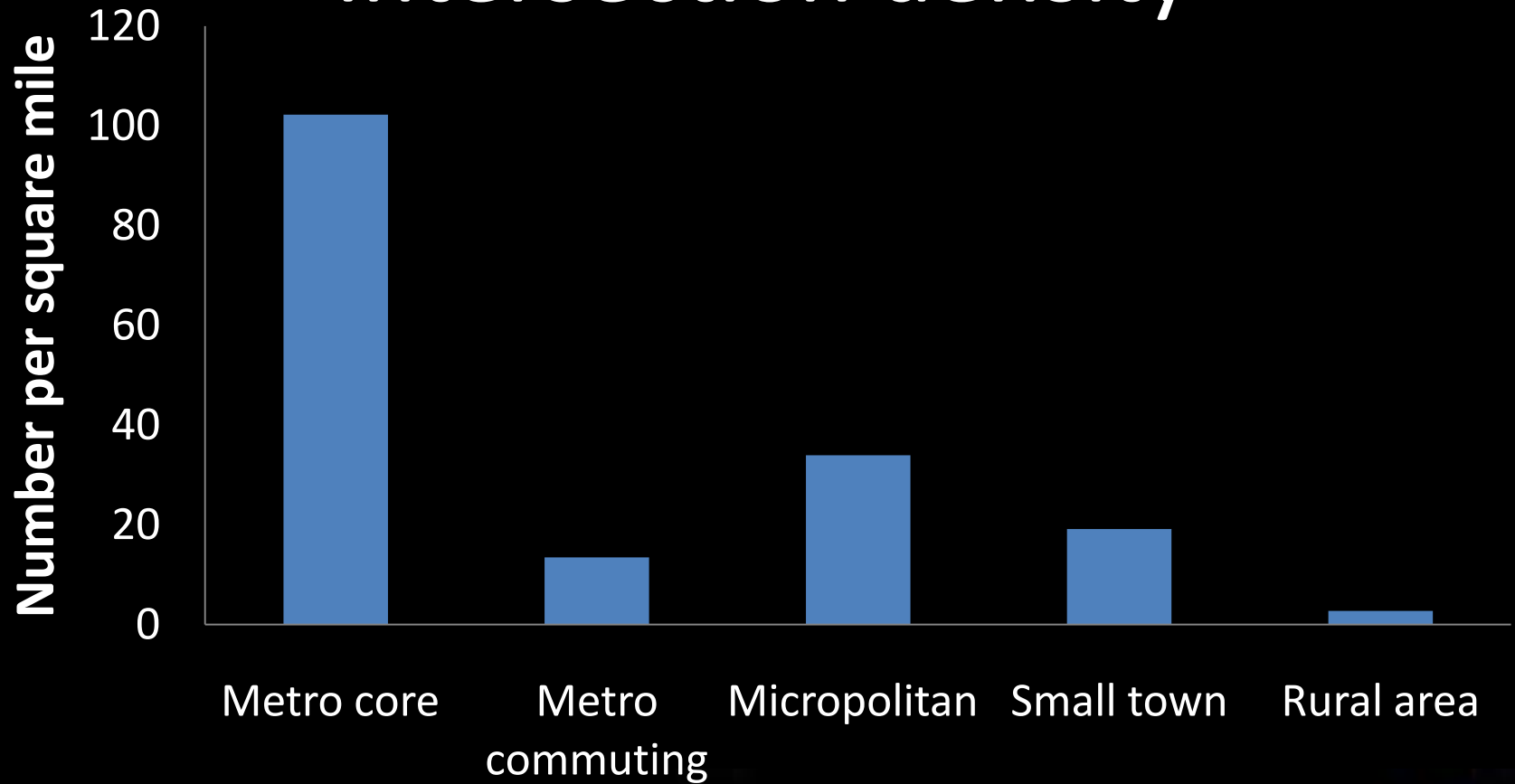- 76 miles of light rail and street car tracks (+13 miles under construction)

Commuting to work in Oregon

American Community Survey

Intersection density

Census Bureau

Transportation and obesity

	Difference in average BMI
People commuting to work by car (per 10% increase)	β = +0.13 kg/m^2

From regression analysis of 825 census tracts in Oregon, adjusted for education, race/ethnicity, and home value
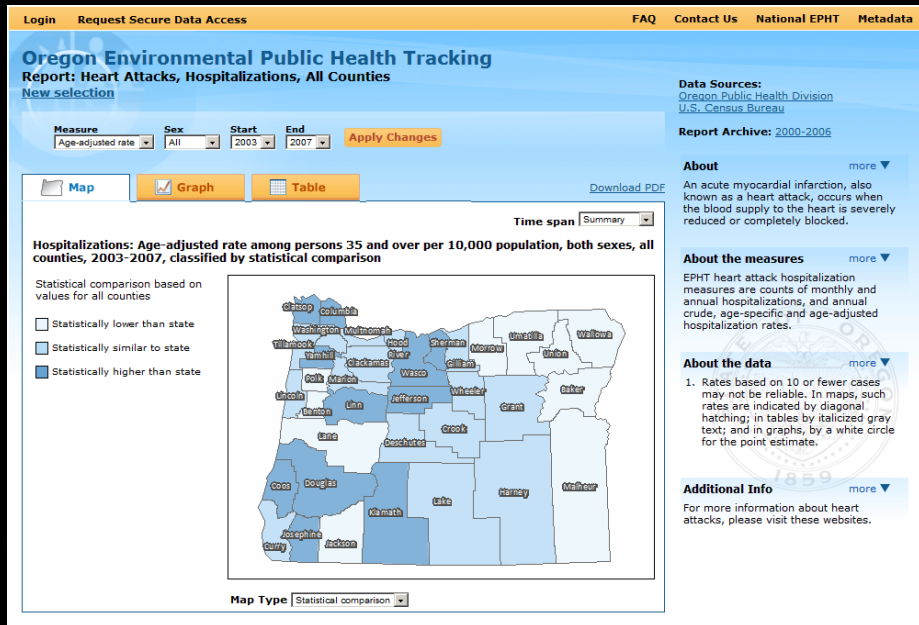
Next steps

- Regression models using proximity data
- Compare change over time
- Share findings

Thank you!

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971-673-1210

epht.oregon.gov

facebook.com/OregonEPHT