



Washington University in St. Louis

Factors influencing choice of commuting mode

Lin Yang

J. Aaron Hipp, Deepti Adlakha, Christine Marx,
Rachel Tabak, and Ross Brownson



Active Living Research

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Active commuting



Background

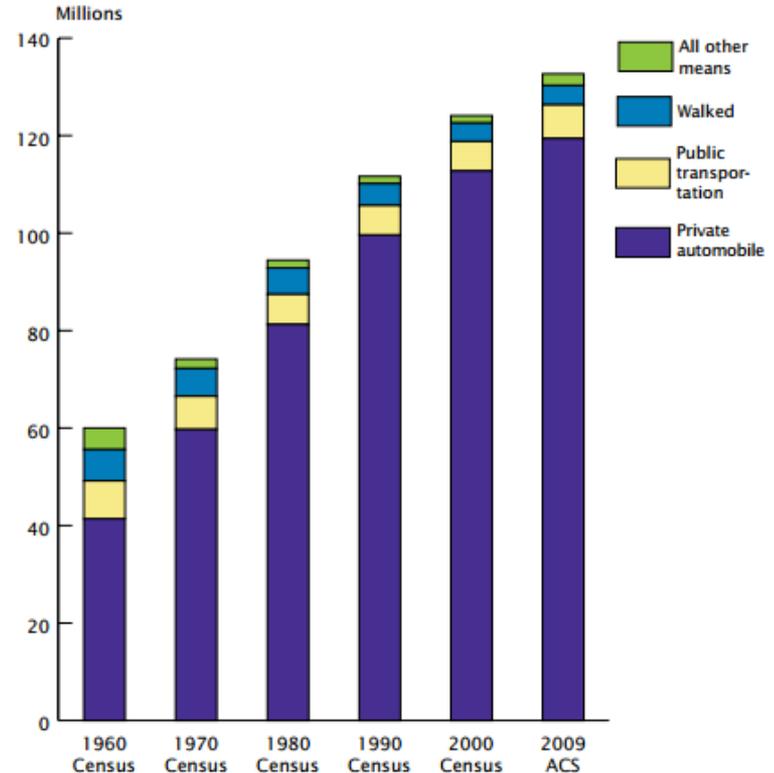
2009 American Community Survey (McKenzie and Rapino, 2011)

- Adults 16 years and older who travelled to work.
- 86.1 percent commuted in a car, truck, or van.
- About 5 percent commuted by public transportation.
- About 3 percent walked to work.
- All other transportation modes were used by less than 1 percent.

Figure 2.

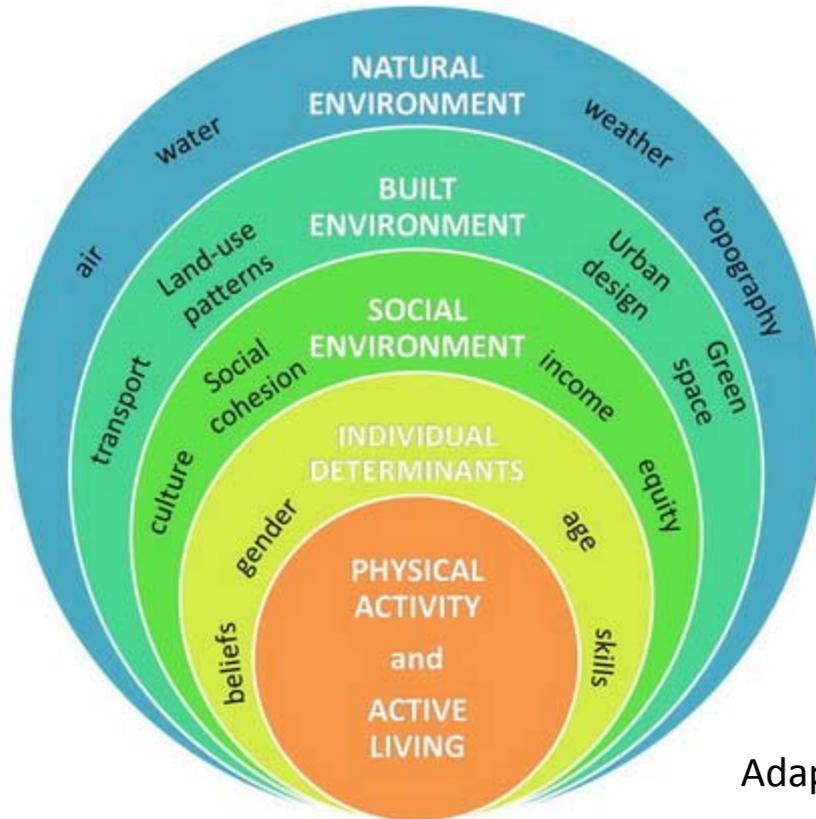
Means of Transportation: 1960 to 2009

(Workers 16 years and over. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see www.census.gov/acs/www/)



Sources: U.S. Census Bureau, Decennial Census, 1960, 1970, 1980, 1990, 2000; U.S. Census Bureau, American Community Survey, 2009.

Background



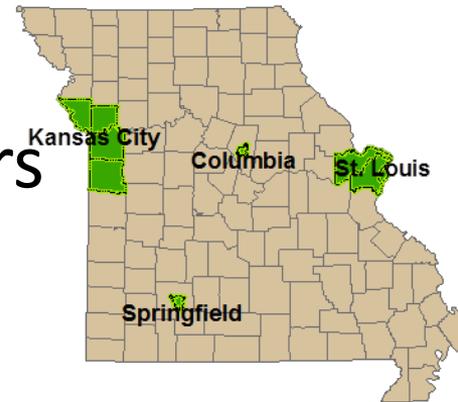
Adapted from Dahlgren and Whitehead, 1991

Aim

- To examine employees' choices of commuting mode
 - in relation to*
 - home neighborhood environment
 - worksite neighborhood environment, and
 - worksite policies and supports

Methods: Study Design

- Supports at HOme and Work for Maintaining Energy-balance
- Telephone-based survey (2012-2013)
- 2,015 employed adults aged 21- 65 years living in counties of 4 Missouri metro areas
- >20 hours outside of home; >5 co-workers



Methods: Main outcome

- Self-reported usual mode of travel to work
 - Driving alone or carpool
 - Public transit
 - Multi-modal or active commuting (walking* & cycling)

*walk accumulated at least 10 minutes of activity

Methods: Main exposure, cont.

- Home neighborhood built environment features
- Worksite neighborhood built environment features
 - Each were self-reported using 10 Qs from the Physical Activity Neighborhood Environment Survey (PANES)

Methods: Main exposure, cont.

- Worksite physical activity support and policy
 - Self-reported 18 questions asking whether specific policies or features supporting PA were available at the worksite and if the participants ever used them.

Methods: Covariates

- Sociodemographic and individual characteristics
 - self-reported age, gender, race, weight and height for BMI marital status, education, household income, number of vehicles in the household, number of children younger than 18 years old in the household, and chronic conditions including heart disease, diabetes, and cancer.
- Commuting distance
 - Self reported home and work addresses to calculate their shortest distance using ArcGIS v10.1 (1-3 miles, 3.1 – 6 miles, 6.1 – 10 miles, and more than 10 miles).

Methods: Data Analysis

- Descriptive by commuting mode
- Two multivariate logistic regressions using car driving as reference commuting mode
 - (1) the correlates associated with using public transit
 - (2) the correlates associated with using AC mode

Results: Socio-demographic

- There were more women (69.3%) than men.
- The majority of participants were white (67.0%).
- The majority were overweight or obese (64.3%).
- A large portion (n=1184, 88.9%) commuted by car, while 4.9% (n=65) used public transit and 6.2% (n=83) used multi-modal or active commuting.

Results: Public transit vs. Driving

Reference: Driving (n=1184)	Public Transit (n=65)					
	Unadjusted logistic regressions			Adjusted multiple logistic regressions ^b		
	OR	95% CI	p	aOR ^a	95% CI	p
Home neighborhood environment						
Transit stop within a 10-15 mins walk from home (ref: Disagree)						
Agree	4.09	1.63 - 10.29	0.003	3.78	1.00 - 14.9	0.05
Worksite policy and support						
Worksite Incentive to use public transit (ref: No)						
Yes but not used the incentive	0.76	0.27 - 2.16	0.60	0.81	0.25 - 2.65	0.73
Yes and used the incentive	18.2	9.81 - 33.7	<.001	23.9	10.4 - 54.8	<.001
^a Adjusted for age, sex, race, BMI, education level, and household car ownership						
^b Pseudo r ² = 0.462						

Results: Public transit vs. Driving



Reference: Driving (n=1184)	Multi-modal or AC (n=83)					
	Unadjusted logistic regressions			Adjusted multiple logistic regressions ^b		
	OR	95% CI	p	aOR ^a	95% CI	p
Commuting distance (ref: 1-3 miles)						
3.1-6 miles	0.30	0.17 - 0.51	<.001	0.23	0.12 - 0.42	<.001
6.1-10 miles	0.11	0.05 - 0.27	<.001	0.14	0.06 - 0.35	<.001
>10 miles	0.09	0.04 - 0.19	<.001	0.12	0.05 - 0.29	<.001
Worksite neighborhood environment						
Several free or low cost recreation facilities around worksite (ref: Disagree)						
Agree	4.63	1.55 - 13.8	0.01	1.85	1.03 - 3.32	0.04
Worksite provides place to lock your bike (ref: No)						
Yes but not used the bike facility	1.48	0.87 - 2.52	0.15	1.24	0.69 - 2.24	0.47
Yes and used the bike facility	15.7	7.60 - 32.5	<.001	9.17	3.86 - 21.8	<.001
^a Adjusted for age, sex, BMI, and household car ownership						
^b Pseudo r ² = 0.328						

Results: AC vs. Driving

Stay active at work.

It's easier than you think. Here are some ideas:

- Take the stairs.
- Take frequent stretch and walk breaks.
- Get out and move during lunch.



Indiana State Department of Health



Conclusions

- Home and worksite neighborhood environment, worksite supports and policies all matter.
- Changing the physical environmental feature?
- Worksite intervention?
- Longitudinal study with robust design is required.

Thank you

Lin Yang, Ph.D @ TREC WUSTL

yangl@wudosis.wustl.edu