Texas A&M Transportation Institute

Exploring the Connection Between Destination Access and Public Health

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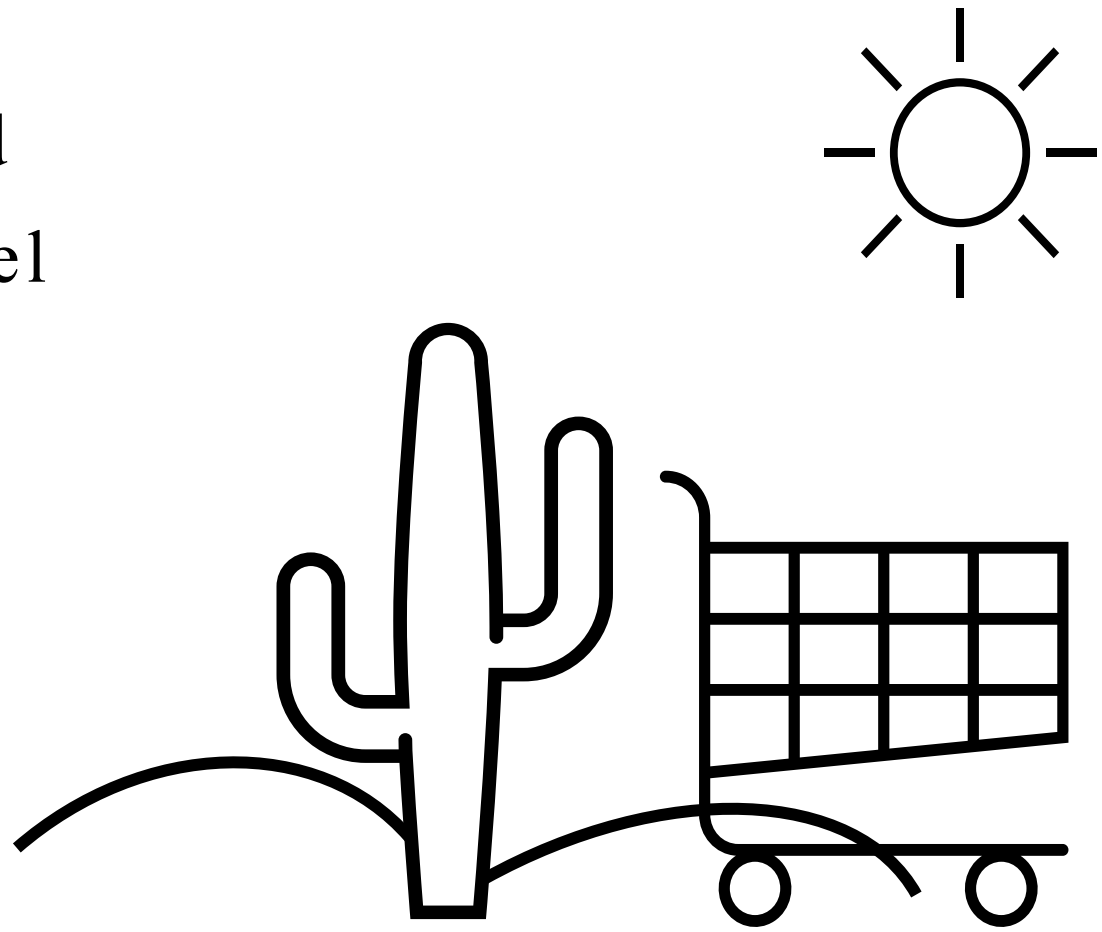
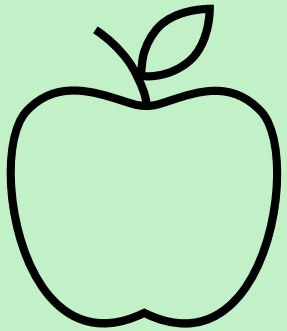
Food Deserts

Regions where people have limited access to healthy and affordable food due to having low income or long travel times to find healthy options.

- Higher incidence of obesity
- Higher prevalence of diabetes
- Inverse are “Food Swamps”

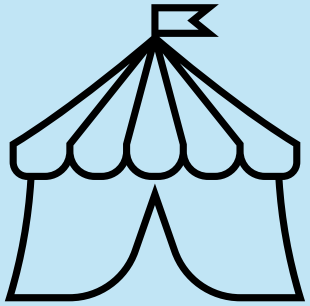


Destinations



- SNAP retailers by car
- SNAP retailers by walk

- Federally qualified healthcare centers by car
- Standalone urgent care by car
- Rural health clinics by car



- Museums, zoos, aquariums, and botanical gardens by car
- Fairgrounds by car
- Sports venues by car

Health Outcomes

Cancer Rate

Coronary Heart Disease Rate

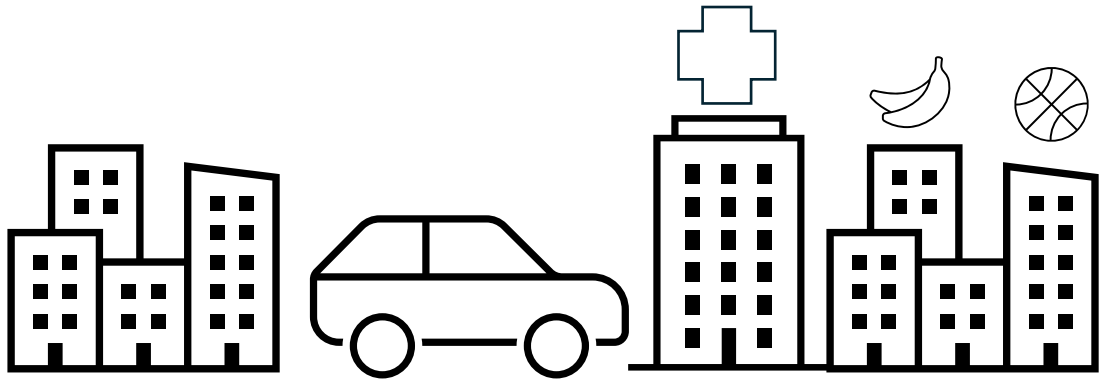
Obesity Rate

Chronic Obstructive Pulmonary Disease Rate

Diabetes Rate

Objectives

Hypothesis: better destination access to services is associated with better health outcomes.



- Which destinations are worth prioritizing in transportation planning?
- What steps should be taken to promote a healthy populus?
- What further information about destination access is worth pursuing?

Findings

Cancer rate among adults by time to nearest...

Destination Type	Estimate
Intercept	4.1417881
SNAP retailer by car	0.5296823
Federally qualified health center by car	0.0272463
SNAP retailer by walk	0.0786189
Sports venues by car	-0.0623330
Fairgrounds by car	-0.0633600

Every minute of driving time to the nearest SNAP retailer is associated with a 0.53% increase in cancer rates, or 5.3% for every 10 minutes.

Nothing else comes close.

*Model reduced to statistically significant variables

Findings

Health Outcome	Associated % increase per minute drive by SNAP retailer
Cancer rate	0.5296823
Chronic obstructive pulmonary disease (COPD) rate	0.4325118
Coronary heart disease rate	0.4068182
Obesity rate	-0.3660960

It appears that good access to food may have the strongest association with health.

Findings

Diabetes rate among adults by time to nearest...

Destination Type	Estimate
Intercept	13.860195
Urgent care facility by car	0.0566104
Museum, zoo, aquarium or botanical garden by car	0.0449153
Sports venues by car	-0.133462
Fairgrounds by car	-0.081145

Diabetes does not appear to be significantly associated with any travel time influences. This is likely because the rate includes both type 1 and type 2.

Limitations and possible expansions

- Destination types are proxies for other things: healthcare availability, physical activity, mental health, etc.
- Other destinations may be better representations, displaying more strong results.
  - Gyms/recreation centers/courts, primary hospitals, parks, or social hubs
- Time to destination does not reflect mode choice. Communities that walk more may be more affected by walk times.
- Lack of transit data in rural areas. Focusing on urban areas might provide more opportunities of analysis.

Questions

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