Perceived accessibility if the private car is no longer an option

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- How can we assess the progress of DRT (and other new) transport solutions?
- Are standardized performance metrics necessary and/or enough?
- What about individual experiences (user benefits)?
  - E.g. user acceptability, impact on individual accessibility

Background

- Sustainable accessible alternatives to the private car
- Changes in transport systems affect accesibility
  - Social inclusion
- People are sensitive to negative changes (Brenner et al., 2007)
  - **Loss aversion** (Novemsky & Kahneman, 2006/Kahneman & Tversky, 2007)
  - Driving cessation
  - Substitutability

So what is perceived accessibility?

Captures individual perceptions of accessibility based on

- Individual prerequisites and prefereces
- Perceived possibilities for travel (e.g. knowledge of mode options and routes)
- How easy it is to use different (combinations) of travel modes

Perceived accessibility differs between (groups of) individuals. ”Every individual within a specific geographical area can´t be expected to experience the same level of accessibility”

Definition

"how easy it is to live a satisfactory life by help of the transport system" (Lättman, Olsson, & Friman, 2016)

Objectives

1) Present and develop a method for assessing levels of perceived accessibility (before and) after a fictional transition to sustainable travel.

2) Analyze within-levels of perceived accessibility among car travelers before and after a transition to sustainable travel.

3) Analyze between levels of perceived accessibility among frequent and less-frequent car travelers after a transition to (only) sustainable travel

Method

- Malmö, Sweden
- N = 2711 (1876)
- Overall perceived accessibility - PAC
- Perceived accessibility “given that the car is no longer an option for daily travel”
- Main travel mode
  - Car 1141, bike 743, PT 616, walking 176
- Residential area
- Sociodemographics (Ages 18-95 [M = 49.85, SD = 18.90])

Perceived accessibility scale items

	Perceived Accessibility Scale (PAC) (PAC: α=.90, Lättman et al., 2018) Daily Travel	Perceived Accessibility Scale (PAC 2) "if the car is no longer an option"
Item 1	Considering how I travel today, it is easy to do my daily activities	It is easy to do my daily activities without a car
Item 2	Considering how I travel today, I am able to live my life as I want to	I am able to live my life as I want to without a car
Item 3	Considering how I travel today,I am able to do all activities I prefer	I am able to do all activities I prefer without a car
Item 4	Access to my preferred activities is satisfying considering how I travel today.	Access to my preferred activities is satisfying without a car

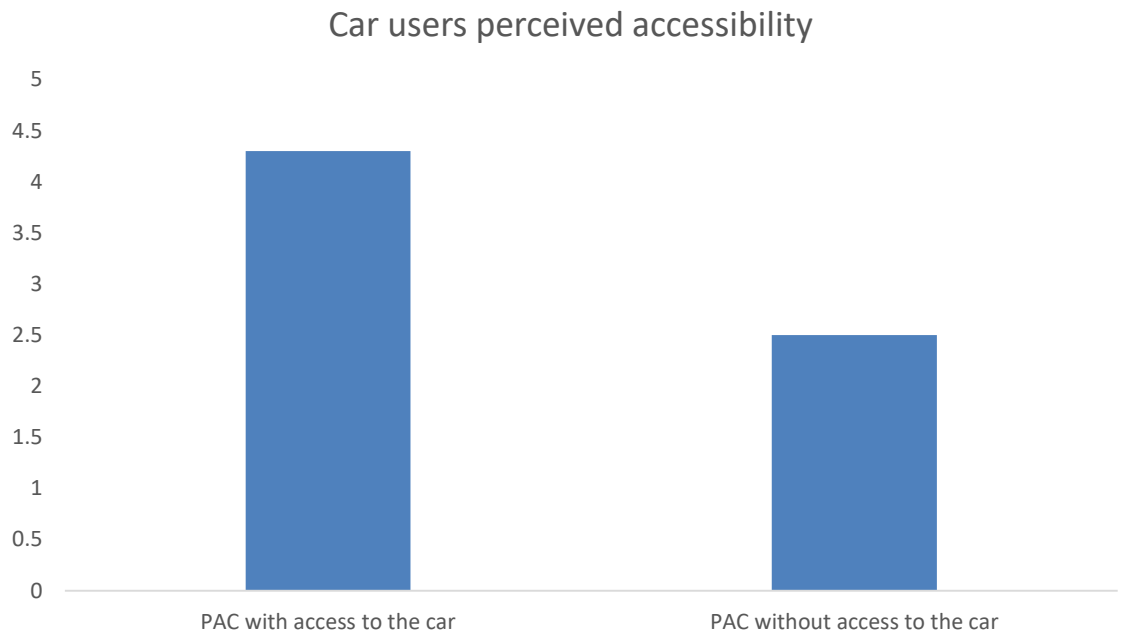
Results

1) *Present and develop a method for assessing levels of perceived accessibility after a transition to sustainable travel.* (α=.88, N=1926; ML, 74% explained variance)

Item	Accessibility index (PAC)
It is easy to do my daily activities without a car	0.87
I am able to live my life as I want to without a car	0.86
I am able to do all activities I prefer without a car	0.84
Access to my preferred activities is satisfying without a car	0.75
Eigenvalue	2.74
% of variance	76.29

Before and after

Significant differences in perceived accessibility depending on if the private car is an option for travel or not



M= 5.72 **M =3.94**

(n=1876, t = 4.56, p < .001, df = 1875, r =.38 (r^2=.14).

No car scenario

Frequent car users experience significantly lower level of accessibility when restricted to sustainable modes (n = 1103, M = 3.31, sd = 1.81)…..than do less frequent car users (n=823, M = 4.74, sd = 1.68)

(t = 17.64, p<.001)

Main mode car	M= 3.31*,n= 1103
Bike	M= 4.75, n= 402
Mainly walk	M= **5.01**, n= 103
Public transport	M= 4.71, n= 295

* p< .001

Women higher than men

Differences depending on residential area

- The study tested and validated a method that has the ability to detect differences in perceived accessibility.
- The results show that all car users will experience a transition to sustainable travel modes negatively. They feel that they will not be able to live their lives the way they want to without the private car.
  - Effect worse for frequent car users.

- The method, with its results, gives an opportunity to analyze and discuss how the transport modes of the future should be designed in order to maintain (perceived) accessibility, minimize the effect of loss aversion, and make adaptation processes easier.
  - Are DRT solutions enough for reversing psychological consequences (such as) loss aversion, that are likely to occur when one need to discard the private car?
- I*dentifying marginalized groups*, or considering *issues of justice*.
  - Who are we actually planning for? Who are these DRT - services beneficial for?