Literature overview - Safety Perception Scores

Data Science Project 2022/2023

Faculty of Economics and Social Sciences

University of Tübingen

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1 Literature Overview

Argumentation for scale of 1-5:

- Hazard perception tests in vehicles (Crundall, 2016; Wetton et al., 2010; Castro et al., 2014)
- Safety perception of pedestrians (Park and Garcia, 2020)

Perception important, related to physical disorder:

- Causal relationship between disorder, fear and crime (Wilson and Kelling, 1982) ('Broken windows theory')
- Perception influenced by
  - physical disorder: urban decay, neglect, uncut grass, and poor street lighting
  - physical nature of environment, associations with crime like parks, areas near the railway line whereby the built environment provides hiding places for potential criminals (Snyders and Landman, 2018)
- alternative approach on physical disorder, focus on graffiti (Doran and Lees, 2005)
- fear-gender gap (Johansson and Haandrikman, 2021)

However, perception not necessarily related to actual crime rates:

- Perception bias: perception does not necessarily correlate with crime rates (Zhang et al., 2021)
- Psychology: people recognize bias in human judgement for others, but not for themselves ('bias blind spot') (Pronin, 2007)

2 Expert Feedback

Email: sent to Landman, Fan, Park 31.01.2023

Dear Prof. ,
we are 3 students from the University of Tübingen in Germany, who are developing an app displaying safe routes home for pedestrians (especially women).
The routing chooses the safest route based on two different data sources. The first one is factual crime rate data that we get from classified police reports. The second data source are safety perception ratings of google maps pictures that we have from a survey that we ran. Participants were shown street images and had to rate how safe they would feel walking home at night in the specific setting on a scale of 1 to 5.
Now we are left with the task of combining this perception information with the factual scores from the crime rates. However, we are not sure how to weight these two scores. We are especially unsure about how reliable perception scores are. During our research on this topic, we came across your paper 'Perceptions of crime hot-spots and real locations of crime incidents in two South African neighbourhoods' from 2018 which points more towards that perception might not actually correlate with crime rates. We would be very thankful if you could quickly tell us your thoughts on this or give us your assessment.
In case you have any further questions please don't hesitate to ask. Thank you very much for your help!

Literature Research & Responses from Landman & Fan support the decision to include perception as people actually feel unsafe in certain areas, but weight perception lower as opposed to actual crime reports to account for bias.

We choose to weight perception with (1/3) and the crime reports with (2/3).
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