

Safety is one of many factors influencing the individuals' mobility. Ensuring safety along the door-to-door Public Transport (PT) trips is a fundamental challenge to those responsible of providing the service. Around the globe, PT travelers' experience is comprised of moving times (on-board and walking/cycling) and waiting and transferring times. Waiting times are a paramount part of the entire trip since it is usually despised by travelers and has been found to be a key component when creating an overall satisfaction evaluation of a door-to-door PT trip [Abenzoza et al., 2017a]. It is known [eg. Liggett et al., 2001] that waiting times environments (stops and stations) are highly criminogenic areas since more potential victims and criminals concentrates there.

Travelers' perceived safety is more important than actual safety since it: influences the decision to use PT [eg. Ingalls et al., 1994 and Lusk, 2001], affects perceived travel and waiting times [Iseki and Taylor, 2009] and travel mode choice. Moreover, there is a strong link between travelers' safety perceptions and overall travel satisfaction which in turn affects PT re-purchasing and recommendation. Travelers' safety perceptions has been found to be amongst the most important determinants of travel satisfaction [Iseki et al., 2006] consistently along a 13 years-period [Cats et al., 2015]. Therefore it is fundamental to study how safety is perceived by travelers in these waiting environments.

Previous studies [eg. Ingalls et al., 1994; Loukaitou-Sideris et al. 2000, Liggett et al. 2001] have demonstrated that fear of crime and safety perceptions are correlated with actual crime, surrounding environment and overall design quality and features of the transport facilities. However, they have failed to investigate for bus stops whether the factors (RTI, stops and stops surrounding characteristics) influencing safety perceptions vary regarding the time of the day (day and night) and the type of crime (person and property). They have also failed to investigate whether travel frequency moderates the effect of the factors.

Focusing on bus stops the objective of this study is twofold. First, the article takes a new look at the factors that might influence travelers' declared safety perceptions. This is done by assessing the importance of Real Time Information (RTI) and the environmental characteristics of bus stops at day and night and for different types of crime (personal and property), after controlling for travelers' individual characteristics (socio-demographics), their trip characteristics and their previous victimization. Second, the article aims to broaden the current knowledge (eg. Tucker, 2003; Currie et al., 2013) of how age, gender and travel frequency moderates the effect of stop design, RTI, surrounding characteristics and crime experience on safety perceptions. Obtaining the key design and information factors that minimize travelers' unsafety perceptions will allow stakeholders (PT authorities and operators) and those responsible for designing and maintenance of stops to provide perceived safer environments to wait for the bus.

Taken together, the existing literature suggests that individual and environmental factors have an impact on travelers' declared perceived safety at bus stops. For the purpose of this study, we follow the recent strand of Western research on perceived safety in transit

environments and hypothesize that perceived safety at bus stops is related to the environmental conditions at the station itself but also to its surroundings, such as the land use and socio-economic and city contexts. Individual characteristics are also expected to affect traveler's perceived safety. Hence, this study will test the following set of hypotheses:

- (1) Assuming CPTED principles, travelers' perceived safety is reduced by bus stops with poor capacity to promote natural surveillance (opaque surface, few passengers, few passers-by). Their perceived safety is affected negatively in bus stops that are crime attractors/generators (more criminogenic). Equally important is the bus stop surroundings. Travelers perceived safety is impacted by bus stops surroundings (mixed land use more criminogenic than other land use types).
- (2) Travelers' individual characteristics also matter in determining declared perceived safety levels. We expect that women declare feeling less safe than men. Passengers' that have been victimized by crime tend to declare feeling less safe at bus stops than those who haven't being a victim of crime. Those who are frequent bus users tend to be familiar to the bus stop and declare being more satisfied with their safety (familiarity)
- (3) According to routine activity theory, travelers' perceived safety vary over time, following individuals' daily rhythmic patterns of activities. They declare being less safe in the evening time than during the day.

This ongoing study employs a dataset collected in 2016 with a random sample of 123 travelers who waited at 6 different bus stops in Stockholm, Sweden. The stops were selected so that they vary in their environmental characteristics such as land use, number of passers-by and crime counts. The stops differ also in terms of their service characteristics, such as their design, frequency of service and passenger volumes. The survey included questions related to safety perception (general, at day and at night), for different types of crime (involving both offences against the person and the property), crime experience, socio-demographic, travel characteristics, planning and information variables. SPSS will be employed to perform the OLM models.

References:

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