



# Understanding the urban travel attitudes and behavior of Tbilisi residents

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## ABSTRACT

In recent decades the public transport network in Tbilisi, Georgia has decayed, while the number of private automobiles has increased dramatically. This study seeks to expand our understanding of the Tbilisi population's urban transport attitudes and behavior. It elaborates on the perceived strengths, weaknesses, and potentials of the public transport system, and seeks to understand the reasons for the increased use of private automobiles. A questionnaire survey was conducted among Tbilisi car drivers ( $n=159$ ) and public transport users ( $n=163$ ). The results show that most of the survey respondents preferred to use a private car and avoid using public transport. Particularly important factors include time issues such as schedules and frequency, plus comfort and safety issues. Tbilisi residents value their time and want to use it efficiently. Changing residents' travel behavior will require making the public transport options competitive with the perceived advantages of the car. The study offers recommendations for more effective urban transport policy, including incentives to encourage greater use of public transport in Tbilisi.

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## 1. Introduction

### 1.1. Background

The bulk of research in urban transport has focused mainly on economic calculations and engineering analyses. This has given a clear picture of certain aspects of transport systems, but has failed to resolve many transport-related problems. There have been fewer efforts to understand the social basis of transport behavior, though it is increasingly recognized that considering phenomena such as social norms and habitual behavior is at least as important as issues of economic and engineering optimization (Lyons, 2004). Effective public policy must consider transport as a part of everyday life and behavior, and an integral part of modern culture (Jensen, 1999).

Differences in people's attitude and personality traits lead to their attributing varying importance to environmental considerations, safety, comfort, and convenience, and could be a key to improving the urban transport situation. Gärling et al. (1998) found that attitudes towards flexibility, comfort, and environmental issues all influence one's choice of transport. Ibrahim (2003) examined the attitude of car owners and non-car owners towards transport modes in Singapore, and found that car owners and non-car owners portray different attitudes towards various

transport modes. This suggests that different strategies may be needed to change transport behavior of various social groups.

Beirão and Cabral (2007) conducted a qualitative study of public-transport users and car users in order to understand travelers' attitudes towards transport and to explore perceptions of public transport service quality. They found that in order to increase public transport usage, the service should be designed in a way that accommodates the levels of service required by customers and by doing so, attract potential users. Furthermore, the choice of transport is influenced by factors such as individual characteristics and lifestyle, the type of journey, the perceived service performance of each transport mode, and situational variables. Paulley et al. (2006) described a range of factors affecting the demand for public transport, concentrating on the influence of fares, quality of service, income, and car ownership.

Hiscock et al. (2002) conducted interviews with car owners and non-car owners in Scotland, to investigate the psycho-social benefits people seem to derive from their cars. They found that cars were seen to provide protection from undesirable people and events, and provided autonomy because car use was seen as being more convenient, reliable, and providing access to more destinations than public transport. Cars were also seen to give prestige and other socially desirable attributes such as competence, skill, and masculinity. To make public transport more attractive, the authors suggested that policy makers consider how to make it provide similar sorts of benefits, targeting the different needs of various population groups.

Several authors have analyzed the transport transition that accompanies post-socialist economic and political transition

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(see e.g. Grime and Duke, 1996). Many urban residents in transition countries now have greater affluence and have a wider choice of private transport options, while the public-sector transport options become less significant. Specific to the former Soviet republic of Georgia, located in the south Caucasus region, few studies to date have examined the sociological aspects of transport issues in the capital city of Tbilisi. Karanadze (2006) reviewed transport-related issues in Georgia, discussing key barriers to sustainable transport development including the legislation system, fuel quality, traffic management, vehicle condition, health effects, public transport, and public participation. Khuchua (2002) investigated car sharing in Tbilisi during the previous decade, revealing several possible barriers to implementation including the inflexibility of the existing travel behavior of potential participants and low public and political accessibility. Vardosanidze (2006) offered insight into sociological aspects of transport system functioning in Tbilisi. He reported that the population of Tbilisi feels discomfort from transport chaos, but they also see ways to overcome it. These studies hint at the importance of sociological aspects of urban transport, yet no study to date has specifically focused on the attitudes and behavior of Tbilisi residents to public versus private transport options. Such a study could potentially contribute to a more effective public policy towards urban transport in Tbilisi.

### 1.2. Study objectives

Tbilisi, with a population of about 1.2 million, is experiencing rapid growth in levels of mobility. During the last decades, traffic volume in Tbilisi has rapidly increased, in particular the number of private automobiles. In late Soviet times there were 15 cars per 1000 inhabitants. By 2000 this had risen to about 70 vehicles per 1000 inhabitants, and by July 2005 there were about 100 vehicles per 1000 inhabitants in Tbilisi. The situation is dramatically different in the public transport sector. Tbilisi used to have a very well developed public transport system including metro, city buses, trolley-buses, trams, mini-buses, and taxis. The Soviet Union traditionally gave overriding priority to mass public transport (White, 1979). During the 1990s the municipal bus service virtually collapsed, and is now slowly improving after the Tbilisi municipality purchased additional buses in 2004. Tram and trolley-bus service has been eliminated from Tbilisi. The metro network remains in operation and attracts a significant number of riders, but metro transport is limited to certain areas of the city. The gap in urban transport service, for those residents who do not own a car, has been filled by the numerous, flexible, though less comfortable “marshrutka” mini-buses. The metro and bus systems are owned and operated by public authorities, while mini-buses are privately owned and operated but are licensed and regulated by public authorities.

No integrated, long-term transport planning has been done for Tbilisi. The increased use of private cars has created problems for the city and its inhabitants, though the ongoing transition in urban transport has occurred largely without debate or study of urban transport demand and how it might best be satisfied. Urban transport is a complex issue with multiple factors to consider, including sociological aspects such as the travel-related attitudes and behavior of the urban residents. The present study investigates the relationship between car driving and public transport use, and seeks appropriate policy incentives that encourage people to use public transport rather than drive cars.

The study is based primarily on a survey of urban travel attitudes and behavior of Tbilisi residents. Acknowledging the complexities of understanding attitudes and behavior (Ariely, 2008), including the potential gaps between stated and revealed

preferences, a specific focus of the survey is on policy incentives that could encourage people to use more public transport. The rationale for this study is that people's attitudes could form obstacles, but also solutions, to effective urban transport, by finding practical incentives that encourage the use of public transport. Knowledge of these factors could generate ideas for effective policy measures that Tbilisi authorities could implement in terms of public and private transport management for the benefit of city residents.

## 2. Methods

A questionnaire survey was conducted among Tbilisi car drivers ( $n=159$ ) and public transport users ( $n=163$ ). The aim of the survey was to understand how people think about and use private and public transport, and their anticipated reaction to potential transport policy measures. A number of questions were asked for basic demographic variables like age, gender, income, occupation, place of residence, etc. These demographic data served as independent variables for analysis of most of the subsequent questions. Another key series of questions were asked for information on usage habits of public and private forms of transport. Additional questions were tailored for public transport users and car drivers, and went into further detail on frequency, mode, distance, and other factors related to their urban travel habits.

Further questions were specific to the perceived relative advantages and disadvantages of private cars and public transport options. Questions regarding costs, comfort, safety, routes, and other factors explored the advantages and disadvantages of different transport options including cars, buses, metro, trolley-buses, mini-buses, etc. The general aim of the survey questions was to determine the factors that would increase the desirability of using the public transport system, and what incentives would encourage public transport use and discourage private car use. Some questions were formulated in a way to find out specific government policy measures that could encourage a change in transport behavior, including residents' opinions about appropriate transport management.

A pre-test survey exercise was conducted among 20 respondents to discover unclear questions, ambiguities, sensitive issues, and other potential weaknesses of the survey questionnaire. These issues were then corrected in the final version of the survey that was given to the general population. The survey was conducted in the Georgian language.

The full survey was then conducted using the intercept survey method. Convenience sampling was used, whereby people who at the time of the sampling were either using a car or were using a form of public transport were approached and asked to complete the survey questionnaire. Car drivers were approached in parking areas as they entered or left their vehicles. Effort was made to vary the sampling to include various parts of the city, as well as various times of day and days of the week. Professional drivers such as bus or taxi drivers were excluded from the survey. A total of 159 car drivers and 163 public transport users completed the survey. The refusal rate was higher among car drivers than among public transport users, and generally was motivated by “lack of time” by the potential respondent, though this difference among the groups was not quantified or controlled for. Data from the completed questionnaires were manually entered into a computer database and analyzed using statistical software.

The quantitative survey activity was complemented by a review of the existing literature and by dialogue with Tbilisi municipal authorities. Government documents, academic articles, books, and internet sources were accessed to increase the

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