



Free Public Transport in Athens: a stated preference approach

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INTRODUCTION

The **continuous growth of transport demand** along with the increased traffic congestion has potential detrimental impacts, which threaten the environment, the economic competitiveness and the social cohesion in Europe. The new **mobility requirements** motivated the European Commission to take radical steps for the development of sustainable urban transport systems. Providing a **reliable public transport service** is considered to be an important element for creating sustainable mobility

OBJECTIVES

The objective of the present study is to **investigate the preferences towards free public transport in Athens** and to identify the most important factors that affect the choice of the Athenians towards transport means.

DATA COLLECTION

A **stated preference method** was selected as an appropriate analysis method. In order to conduct such an analysis, a specially designed questionnaire was developed and answered in the form of an **e-survey by 234 Athenians**. The questionnaire was divided into four sections and includes a total of 27 questions. Among the questions, participants were asked to declare **their preference in ten hypothetical scenarios**. Table 1 shows the ranges of the respective values. The fourth section of the questionnaire regards participants' **demographic and socioeconomic characteristics**, namely gender, age, annual income, education background, occupation etc.

Table 1: Descriptive statistics of the analysis variables

Variables	Change mode to PT			Stay at existing mode
Cost variation	-100%	-75%	-50%	0%
Time variation	-20%	0%	+20%	0%
Comfort variation	high	unvaried	low	0%

METHODOLOGY

Logistic regression models (binary and multinomial) were developed. The binomial model answers to the question "would you use free public transport?" with possible answers "yes" or "no".

the MNL model quantifies respondents' choice related to the means of transport (PT or existing), as a function of travel cost, travel time, trip comfort and a set of independent variables from the first, second and fourth section of the questionnaire survey.

Utility function: $U_{in} = a_0 + a_1x_1 + a_2x_2 + \dots + a_nx_n + \varepsilon_{in}$

Probability of choosing each alternative: $P_i = \frac{e^{U_i}}{1 + e^{U_j}}$

RESULTS

Results demonstrate that **61.8% would prefer the public transport to be for free** in the region of Athens. However, when it comes to changing the current transport mode, things get more complicated. The **faster and more comfortable** the journey, regardless of cost reduction, **the more likely it is to opt for free public transport** instead of staying in the existing means of transport. Beliefs, travel and demographic characteristics were also found statistically significant.

Table 2: Results of Multinomial Logistic Model

Parameters	β_i	p-value	Odds Ratio
(Intercept)	-0.011	0.966	-
Cost	-0.799	<0.001	0.450
Time	-1.648	<0.001	0.192
Comfort1	-0.188	<0.001	0.829
Comfort2	0.692	0.577	1.997
OTHER1	-0.652	<0.001	0.521
USE_PT72	-0.428	<0.001	0.652
DIS_PAC/GE84	0.428	<0.001	1.534
LOW_COST86	-0.371	<0.001	0.690
IN2	-0.057	0.577	-
IN3	-0.654	<0.001	0.520
AGE2	-0.124	0.229	-
AGE3	0.335	<0.001	1.398
Log-Likelihood	-1328.8		
McFadden R ²	0.182		
Likelihood ratio test	562.55		

CONCLUSIONS

With the idea of free public transport remaining a subject of **political and policy making debate**, it is important that public, professionals, decision makers and researchers shed more light on this field. This study analyses the opinion of Athenians with respect to a potential modal shift from different means of transport to free public transport. This stated preference analysis is expected to be of interest not only to Athens but would also be instrumental in **supporting relevant stakeholders in other cities** which discuss the introduction of similar policies.

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