

Analysis of Preferences for the Use of a Bicycling Sharing System in Athens

G. Yannis, P. Papantoniou, E. Papadimitriou, A. Tsolaki
National Technical University of Athens



INTRODUCTION



As nowadays sustainable urban mobility is becoming more and more critical for a balanced combination of economic development and living standards, the new policy of Athens includes the promotion of cycling and the implementation of a **bike-share program**, as increasing cycling might lead to several **advantages** such as reducing congestion, improving air quality, providing complementary services to public transport, improving city's image and branding as well and offering residents an active mobility option.

OBJECTIVE

The objective of the present re-search is **the analysis of the parameters influencing the use of a bicycle sharing system in Athens**, a city without a strong culture of cycling. Among other things, the influence of the existence of bicycle lines was studied, in order to assume whether safety plays an important role in user's decision or not.

DATA COLLECTION

Stated preference method was chosen as a suitable method of analysis by a specially designed questionnaire, which was filled out in the form of an **e-survey**

Questionnaire design

- The first part of the questionnaire comprises eight questions regarding the **driving behaviour** and habits of the participants
- The second part includes three questions targeted to make the interviewee familiar with the concept **of using bicycle** and the reasons of choosing it for a daily transport mode or not
- The third part of the questionnaire aims to investigate users' **switching behaviour** through a specific stated preferences (SP) survey
- The fourth part contains seven questions with regard to the **demographic** characteristics of the sample

Implementation

- The on-line survey data were collected from a sample of 252 participants
- The online survey was **spread** via pages of social network, personal e-mail, and personal contact at central areas of the Municipality of Athens



Analysis methods

- Descriptive statistics
- Logistic regression models

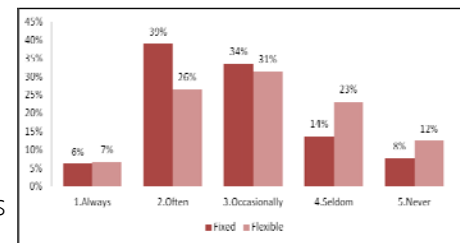
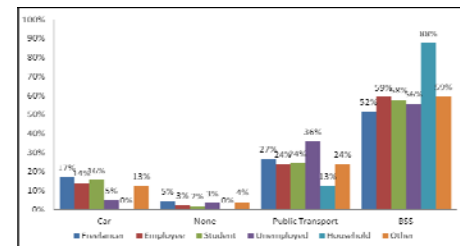
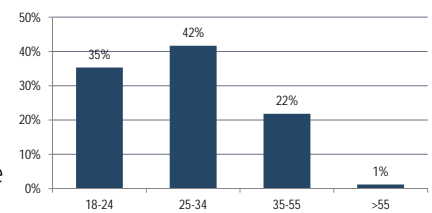
DESCRIPTIVE ANALYSIS

Sample criteria

- Goal-oriented
- Law of Inertia of Large Numbers
- Accurate representative of the universe
- Proportional
- Random selection

Questions analysed

- Stated behaviour choices
- Gender
- Age
- Education
- Occupation
- Income
- Family
- Flexible working hours



REGRESSION MODELS

Logistic regression models were developed:

Independent variables	BSS			Car			Public Transport		
	β_i	Wald	e_i	β_i	Wald	e_i	β_i	Wald	e_i
DISCRETE VARIABLES									
Convenience	0.96	9.44		0.54	6.25		0.54	6.25	
Age	0.91	5.61					0.60	3.33	
Gender	2.48	2.06		2.78	2.30		3.25	2.69	
CONTINUOUS VARIABLES									
Time	-0.08	-15.99	-0.58	-0.04	-6.97	-0.77	-0.08	-15.99	-1.32
Cost	-0.27	-1.36	-0.03	-0.18	-5.26	-0.87	-0.18	-5.26	-0.17

CONCLUSIONS

The probability of choosing a Bicycle Sharing System is highly affected by:

Time

Increased travel time affects negatively the probability of choosing a BSS

Cost

Increased cost affects negatively the probability of choosing a BSS

Travel comfort

The absence of bicycle lanes affects negatively the probability of choosing a BSS

Gender

Men prefer a BSS

Age

Young people aged 18-24 years old prefer a BSS

