



# Motivations and barriers to bicycle commuting: Lessons from Poland



Elżbieta Biernat <sup>a,\*</sup>, Sonia Buchholtz <sup>b</sup>, Piotr Bartkiewicz <sup>c</sup>

<sup>a</sup> Department of Tourism, Collegium of World Economy, Warsaw School of Economics, Al. Niepodległości 162, 02-554 Warsaw, Poland

<sup>b</sup> Department of Economics, Collegium of Economic Analysis, Warsaw School of Economics, Poland

<sup>c</sup> Collegium of Economic Analysis, Warsaw School of Economics, Poland

## ARTICLE INFO

### Article history:

Received 22 October 2017

Received in revised form 26 March 2018

Accepted 26 March 2018

### Keywords:

Bicycle commuting

Motivation

Barriers

Poland

Factor analysis

Cluster analysis

## ABSTRACT

We make use of a nation-wide survey *Bicycle use in everyday commuting* ( $n = 1159 + 300$ ) to identify the motivations and barriers to commuting by bicycle in Poland. Only 10.9% of adult Poles commute this way, and 7.6% do so frequently. Bicycle is also rarely considered a dominant mode of transport. In many cases, it is the choice of the worse-off individuals (poorly educated, less wealthy, rural areas dwellers etc.). Based on factor and cluster analysis of declared motivations, we identified 4 segments of commuters: conscious, forced, pro-health, and lifestyle cyclists. The first group rates existing road infrastructure, cycling facilities and safety issues differently than non-cyclists. The availability of basic facilities (parking place, cloakrooms, showers) is declared significantly more often by cyclists, while car drivers' behaviour on the roads is evaluated more negatively, comparing to non-cyclists.

© 2018 Published by Elsevier Ltd.

## 1. Background

Cycling is one of the forms of physical activity that offers multiple benefits to its participants. Apart from satisfaction (Cavill, Kahlmeier, Rutter, Racioppi, & Oja, 2008; De Hartog, Boogaard, Nijland, & Hoek, 2010), cycling provides considerable flexibility vis-a-vis other modes of transport (Akar & Clifton, 2009) and at the same time makes commuting affordable, thereby increasing social cohesion (Gatersleben & Appleton, 2007). It also offers a convenient way to combine physical activity with transportation, which has cost-effective contributions to health and longevity (De Hartog et al., 2010; Oja et al., 2011; Reynolds, Winters, Ries, & Gouge, 2010). Finally, from a societal point of view, the importance of cycling lies in reducing carbon footprint and other emissions, lowering the external costs of transportation, including congestion, noise, etc. (De Geus, De Bourdeaudhuij, Jannes, & Meeusen, 2007; Woodcock et al., 2009).

Despite those benefits, popularity of cycling varies across the world enormously: from 1 to 2% in Canada and the United States to 17% in Japan and 19% in China (Mason, Fulton, & McDonald, 2015). Even its prevalence in Europe varies significantly – per latest Eurobarometer public opinion survey, in 2014 for 7% of Poles bicycle was the preferred mode of transportation, compared to 8% EU average, and far below the champions of cycling such as the Netherlands (36%), Denmark (23%) and Sweden (17%) (European Commission (EC), 2014). During the 7 years covered by the three consecutive Eurobarometer surveys, prevalence of cycling in Poland slightly declined: in 2007, 11% of Poles treated the bicycle as their preferred means of transport (EC, 2007, 2011, 2014). This downward trend seems to be corroborated by scant data gathered by the Central

\* Corresponding author.

E-mail addresses: [elzbieta.biernat@sgh.waw.pl](mailto:elzbieta.biernat@sgh.waw.pl) (E. Biernat), [sonia.buchholtz@sgh.waw.pl](mailto:sonia.buchholtz@sgh.waw.pl) (S. Buchholtz), [bartkiewicz.p@gmail.com](mailto:bartkiewicz.p@gmail.com) (P. Bartkiewicz).

Statistical Office of Poland (CSO). Over the course of a similar period (2005–2013), bicycle ownership as well as spending on bicycles and their maintenance slightly declined (CSO, 2006, 2010, 2014). At this point there is no consensus on the reasons for both the low popularity of cycling and the decline in bicycle use in Poland.

As of today, existing literature offers incomplete information on the decision: who takes up cycling, what influences it and what motivating factors and barriers for both active and prospective cyclists are. The available literature is dominated by surveys of current and potential cyclists (De Geus et al., 2007; Gatersleben & Appleton, 2007), yet usually limited to a particular city or district (Damant-Sirois, Grimsrud, & El-Geneidy, 2014; Heesch & Sahlqvist, 2013; Willis, Manaugh, & El-Geneidy, 2013). To our best knowledge, nation-wide studies are rare, with the notable example of Wardman and colleagues for the UK (Wardman, Tight, & Page, 2007). Such a study has never been conducted for a CEE country.

We attempt to fill in this gap. The aim of this article is to provide a detailed picture of bicycle commuters, as well as to analyse motivations and barriers for cycling. This should assist policymakers in the popularization of cycling as a form of leisure-time physical activity (LTPA) in Poland, as well as facilitate solving other problems, such as air pollution and urban congestion. We contribute to the existing literature in several important ways. We base our findings on a CEE country nation-wide study of bicycle commuting patterns, contrary to the overwhelming majority of studies. This allows us to include a wider range of current and potential bicycle commuters, whose motivations and habits can be quite different to those exhibited by e.g. city dwellers. Furthermore, by correlating our classification of bicycle commuters with socio-economic variables we are able to build recommendations that are tailored to the specific needs of groups identified in our analysis.

## 2. Material and methods

### 2.1. Dataset

The research question is addressed by the analysis of the results of a survey *Bicycle use in everyday commuting (Używanie roweru w codziennym przemieszczaniu)* commissioned by the Ministry of Sport and Tourism of the Republic of Poland, and conducted by the TNS survey company in Nov-Dec 2015. The survey's aim was to identify the determinants of choosing a bicycle as a means of commuting (i.e. moving to work, school or back home), and their barriers. To our best knowledge, the survey has not been scientifically utilized yet.

Due to the small fraction of frequent cyclists, the study used a combined CAPI (*computer-assisted personal interview*) and CATI (*computer-assisted telephone interview*) database. The CAPI subsample covers 1159 respondents aged 15+, representative for the Polish adult population, conducted in two waves of omnibus survey with random-quota sampling (random sampling of site and the sample compliant with population structure). The CATI subsample covers 300 respondents and represents frequent bicycle commuters cycling at least 6 months. In order to maximize the information pool, we implemented the following analytical strategy: (1) we analysed the prevalence of cycling and cyclists using the CAPI subsample; (2) we used the combined sample consisting of the entire CATI subsample and all CAPI respondents who indicated on frequent bicycle use for at least 6 months (*extended CATI subsample*;  $n = 369$ ), in order to analyse cyclists' motivations; (3) we compared extended CATI subsample with sample completion to establish the regularities in barriers' perception. The detailed sample structure is presented in Table 1.

### 2.2. Questionnaires

Both CAPI and CATI surveys have compatible questionnaires. CATI survey includes: (1) household equipment, (2) commuting experiences, (3) road infrastructure, (4) facilities at the destination, (5) surroundings and public transport experience, (6) experiences and expectations of bicycle commuters, (7) demographic and socioeconomic characteristics. The CAPI survey has an additional module examining cyclists' behaviour on the road. Selected questions relevant for further estimations, are analysed below.

Cycling frequency. Respondents were selected to our study based on three criteria:

1. means of commuting over the past year – a multiple-choice question with car, public transport, train, motorcycle, bicycle, walking and other as possible answers,
2. dominant means of commuting – among those selected,
3. frequency of bicycle use over the past year – if bicycle was selected.

The answer to the third question distinguishes 4 groups of cyclists: those who cycle regularly (i.e. most days of the week) for at least 6 months, regularly for 3–6 months, regularly for 1–3 months, or occasionally (from time to time). CATI subsample (and extended CATI subsample) covers only the individuals cycling regularly for at least 6 months.

Motivations. The respondents were asked to assess eight motives for cycling by rating statements on a 1 (completely unimportant) to 5 (extremely important) scale each:

Download English Version:

<https://daneshyari.com/en/article/7258021>

Download Persian Version:

<https://daneshyari.com/article/7258021>

[Daneshyari.com](https://daneshyari.com)