

# The Demand for Sports and Recreational Services in Germany

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## Abstract

### Introduction

Although a lot of research is focused on the analysis of sports and recreational (SAR) expenditure (for an overview see Lera-López & Rapún-Gárate, 2007 [6]), some shortcomings exist regarding data reliability and applied analysing techniques:

(1) While direct inquiring techniques have the problem that some consumers neither precisely recall the time nor the amount they spent (see Legohérel & Wong, 2006 [5]), public data sources often omitted several important items on SAR expenditures (see Davies, 2002 [2]).

(2) In addition, only a few papers consider the distinction of purchase and expenditure decision in methodological framework (sample selection problem, see Weagley & Huh, 2004 [8]).

(3) Furthermore, research on sports services representative for Germany (see Meyer & Ahlert, 2000 [7], Weber et al., 2004 [9]) is based on data older than 15 years.

With this paper data of the continuous household budget survey (CHBS), covering  $n=8,000$  households, is used to analyse the SAR service expenditure in Germany. The written record of household accounts avoids the mentioned problem of data collection while the deep structured items contain a wide range of SAR services (like entrance fees for sport events, swimming pools, fitness centres or ski lifts). With the objective of detecting general SAR service expenditure patterns for Germany, the paper aims at providing consistent up-to date information for the development of market segmentation strategies in this area.

### Theoretical Background

Applying microeconomic duality theory the demand for goods and services could be derived from expenditure functions (see Deaton & Muellbauer, 1999 [3]). Considering the impact on SAR expenditure in general, various findings suggest that rather demographic or sociocultural background variables are supposed to have a major impact on SAR expenditures than economic variables like price (e.g. see Lera-López & Rapún-Gárate, 2007 [6]), which is highly in line with "new" consumer theory developed by Becker (1965 [1]). The so called household production theory states that

consumption activities are produced by means of the input of market goods, time, human capital and other inputs.

### Methodology

To detect the demographic (e.g. age, degree of urbanisation, region), sociocultural background (e.g. educational level, occupation, household size) and economic (income) determinants underlying consumer expenditure on SAR services in Germany, hierarchical structured regression analyses with expenditure items as dependent variables are applied. Since not all households spent their income on all SAR service items, we are faced with the so called censored sample problem (see Deaton & Muellbauer, 1999 [3]). Applying ordinary least squares estimation (OLS) focused on (1) censored and uncensored observations as well as only on (2) uncensored observations would yield biased estimates (see Intriligator, Bodkin & Hsiao, 1996 [4]). To avoid biased estimates we applied Tobit Type I and II (Heckit) models.

### Results and Discussion

With 8.1 Billion euros, German households spent nearly one percent of their disposable budget on SAR services in 2005. Since estimated regression models show rather high variance explanatory power (values of corrected R square measure up to 20 percent), the set of selected determinants seems to be quite appropriate to explain the German household expenditure pattern on SAR services. Hence, these results support the findings that demographic as well as sociocultural background variables are essential to detect SAR expenditure patterns. Furthermore the correction for sample selection seems to be inevitable in methodological context.

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