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Balancing innovation and continuity – Experiences with survey design adaptations of the German Mobility Panel

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Abstract

The German Mobility Panel is one of the longest-lasting studies with a basically unchanged design in mobility behaviour research world-wide. As a result one central asset of this study is the provision of time series data. Nevertheless in repeated surveys, design changes are sometimes inevitable due to new research questions or external developments. Since 1994 the German Mobility Panel has seen only minor design adaptations. After nearly 20 years with a more or less unchanged design, declining participation rates by certain person groups and new survey methods have required fundamental changes in the survey design. This paper describes design changes to the German Mobility Panel in 2013 and analyses the first outcomes generated by the methodological changes.

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1. Introduction

One of the central characteristics of repeated or even continuous surveys is the possibility of providing data to describe the dynamics of change. This requires continuity in both the design and the method of a survey (Ampt et al., 2009; Transportation Research Board, 2011, pp. 61ff.). Otherwise any observed changes cannot be distinguished

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from methodological artifacts and thus cannot be assigned to changing frameworks or changed behaviour. Nevertheless, changes are sometimes inevitable in the design of repeated surveys. Reasons might be new research questions or external developments. Therefore there is an issue about handling inevitable methodological changes (Ampt, 2013).

This paper explains design changes to the German Mobility Panel (MOP). Due to the nature of the panel approach these modifications affect the survey results for the following two or three years at least. Our first results show that methodological changes can be dealt with by a careful design without endangering the survey results and the consistency of the time series.

The paper starts with a short introduction to the MOP survey design as it has been used for the last 20 years. Then we discuss the problems that had come up in the last few years which have motivated some design changes. Finally these changes are presented and we report how the transition in design was managed.

Regarding the outcomes of the survey we present results of the first wave after the implementation of the new design. As the design modifications took place smoothly and step by step over a period of three years, we concentrate on the first year's results and, because of the still small sample sizes, do not look at joint effects by different recruitment and reporting approaches. We show typical effects in terms of key mobility indicators and we discuss the outcomes against the objective to keep the survey "continuous". We end with some recommendations from the perspective of the first year's evaluation on how a change can be managed easily.

2. The German Mobility Panel

Since 1994 the German Mobility Panel (Zumkeller et al., 1997; Zumkeller, 2009) annually collects data about the travel behaviour of the German population. Every year approximately 1,000 households with 2,000 persons (age 10 years and older) contribute to the MOP survey by filling in a trip diary for one week. As it is a panel survey, the MOP keeps households and persons in the sample for three consecutive years. The survey always takes place in autumn and the reported weeks are chosen not to contain any holidays ("everyday travel"). Participants provide a completed trip diary containing information about all their trips during a whole week, such as distances, modes, purposes and start and arrival times. They also provide information on socio-demographic characteristics. Participation is voluntary, and not all persons in the household have to participate in the survey to allow the household to be counted as a valid participant. The MOP is a rotating panel, where each year a certain proportion of the households leave the survey after three years of participation and are replaced by a new cohort of first year reporters ("planned replacement"). Beyond this, dropouts from year to year also occur ("unplanned replacement").

Amongst other data sources, the MOP substantially contributes information for developing transportation infrastructure in Germany. It is carried out on behalf of and funded by the German Federal Ministry of Transport and Digital Infrastructure. The Institute for Transport Studies of the Karlsruhe Institute of Technology (KIT) is responsible for the design and scientific supervision of the survey. The market research institute TNS Infratest conducts the fieldwork.

The German Mobility Panel is one of the longest-lasting studies with a basically unchanged design in mobility behaviour research world-wide. One of its central assets is the provision of time series data. The MOP is a multi-purpose instrument. Besides the observation of intrapersonal behaviour changes and options for intrapersonal analysis, the MOP data is used for regular reports of travel demand developments to the German Federal Minister of Transport and Digital Infrastructure. Both aspects require observation of behaviour which must not be distorted by any methodological or random impacts, that is the MOP requires a certain level of continuity. Therefore a main requirement is for the survey design to be robust and stable.

The combined multiday (seven days) and multiperiod (panel) approach leads to substantial respondent burden (Chlond et al., 2009; Zumkeller et al., 1997). Therefore the outcomes of the study are influenced by certain selectivity and attrition effects and the overall success of the panel is endangered by dropout behaviour during days of the reporting week and between the three waves (years) (Chlond et al., 2013; Kuhnimhof et al., 2006). It is known that certain attrition effects depend on socio-demographic characteristics such as age. For the MOP we observe the following panel repetition rates depending on the age (numbers given for the cohort 2011):

- 10 to 17 years: 80% second year, of those 90% third year
- 18 to 25 years: 81% second year, of those 77% third year