# Interest into travel-related interventions among urban movers and non-movers

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Research Highlights:

- Studying interdependencies between residential relocations, life events, policy intervention and travel behaviour change
- Predicting interest in policy intervention as indicator of a preparational stage of behaviour change
- Only perceived accessibility (but not relocation) predicts interest in interventions
- Perceived mobility relevance of residential relocation crucial to understand travel behaviour change

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## Abstract

Movers are expected to be more open to travel behaviour change and corresponding interventions than non-movers due to weakened mobility habits. However, evidence is mixed, the role of relocation for travel behaviour (change) is not yet well understood, and the assumed openness to change has hardly been addressed systematically. This study focuses on how far relocation predicts individual interest into an intervention to motivate the use of alternative travel modes. We emphasize the theoretical argumentation and explore how to address this question empirically. We surveyed movers before their move (N=186) and non-movers (N=572), and offered them the chance to order a Mobility Package promoting public transport, cycling, and carsharing. Whether participants ordered a package, thus indicating a preactional stage of travel behaviour change, was regressed on relocation, current changes in life, mobility habit strength, consideration to reduce car use, and perceived destination accessibility. While changes in life and relocation did not predict interest, the interaction revealed a negative impact: Movers who reported that moving house was provoked by changes in their personal life were clearly less interested. Unexpectedly, mobility habit strength and enhanced consideration to reduce car use revealed no impact on interest, while perceived accessibility enhanced interest. We interpret that not relocation as such, but the experienced mobility relevance that derives from changed individual and structural conditions associated with residential relocation or changes in life might be a better indicator of interest. We suggest further research on the conceptualization, measurement and fertilization of mobility relevance during changing circumstances.



## Keywords

residential relocation, habit, behaviour change, intervention, openness to change, mobility relevance

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# 1. Introduction

Although knowledge about the impact of carbon-based travel as well as pro-environmental attitudes are constantly on the increase within the population of Germany and great parts of the European Union, an adequate shift towards less carbon-intense travel behaviour cannot be observed (European Commission 2014, European Environment Agency 2015, Umweltbundesamt 2012, 2014). Research on voluntary behaviour change considers the concept of personal habits to represent one of the bottlenecks of transforming motivation into action, since the automaticity of behaviour outperforms the deliberate intention to behave otherwise (Wood and Rünger 2016, Gardner 2015, Orbell and Verplanken 2015, Schwanen et al. 2012, Klöckner and Verplanken 2013).

One occasion when mobility habits are expected to be weakened, though, is residential relocation, due to associated changes in everyday life and spatial patterns. This might thus provide a suitable moment to implement information and incentive based interventions to change travel behaviour. Many studies report considerable changes in travel behaviour after a residential relocation (Aditjandra et al. 2012, Beige and Axhausen 2012, Klinger and Lanzendorf 2016, Kroesen 2014, Scheiner and Holz-Rau 2013a, 2013b, Thomas et al. 2016, Verplanken et al. 2008). However, studies testing the hypothesis that these changes are likely to be reinforced or directed by adequate interventions reveal mixed results and, if at all, small-size effects (Graham-Rowe et al. 2011, Richter et al. 2011, Müggenburg et al. 2015, Chatterjee and Scheiner 2015). These empirical data are not yet fully reliable, neither permitting an understanding of the processes of reacting to interventions nor the derivation of practical recommendations. In fact, the most critical point is that hardly any of these studies tested *how* residential relocation affects travel behaviour change.

In terms of information and incentive based interventions, Bamberg (2006, 2013b) showed that individual motivation is central to the intervention's success. In an experimental study he offered a mobility package to people who plan to move to Frankfurt. Those who reported the highest motivation to change behaviour benefitted most from the intervention (2006:834). This insight has been reinforced by studies demonstrating the importance of intrinsic as well as incentive-led interest in an intervention either theoretically (Lally and Gardner 2013) and or implicitly (Verplanken and Roy 2016, Eriksson et al. 2008). In the latter studies, subjects could choose between interventions targeting at different behavioural domains in order to assure the highest motivation in the applied intervention. However, to the best of our knowledge interest in an intervention has neither been addressed explicitly as a variable nor been related to residential relocation and accompanying life events. We do not know yet, when and which people are likely to be interested in interventions promoting more sustainable travel behaviour. Based on the habit concept (Verplanken and Orbell 2003), we only assume movers are.

Hence, this study aims to contribute to existing research in three ways. First, it approaches interest in an intervention as an outcome variable, measured in a non-self-reported manner. Second, it widens the theoretical approach by considering relocation as predictor simultaneously with variables from both a psychological and a planning perspective. Third, it adds field data of a sample of both inner-city movers and non-movers to the body of evidence. In the following, we derive hypotheses from the current state of knowledge (Section 2), introduce the method and variables applied to test them (Section 3), report the results of data analyses (Section 4), and discuss these results against the state of knowledge (Section 5). We conclude by reflecting on the study's contribution to research and practice.

## 2. Residential Relocation, Interventions, and Travel Behaviour Change

First, in this section we refer to work on the habitual and stable character of everyday travel behaviour. Second, we focus on studies analysing the role of residential relocation for weakening habits and trigger changes in travel behaviour. In doing so, we discuss three different causal perspectives of how relocations and travel behaviour relate to each other. Third, we reflect on the role of individual and structural variables in the context of a residential move. Fourth, we review work analysing if interventions such as awareness campaigns or trial tickets for public transport reinforce the relation between residential relocation and travel behaviour change. Fifth and most importantly, we address the need to understand behavioural change as a stage-based cognitive process. Finally, we derive hypotheses guiding the data collection and analysis.

*Habitual travel behaviour and likelihood of behavioural change*

Everyday travel behaviour shows a highly habitual character, people do not deliberately decide every day on the mode, route and time they travel, for example to work or school. Habit is understood here as "cognitive structures that automatically determine future behaviour by linking specific situational cues to (…) behavioural patterns" (Klöckner and Verplanken 2013: 198). Habitual behaviour is reinforced by four central features, i.e. frequency, stable circumstances, success and automaticity (ibid). Thus, the more a certain travel behaviour is repeated successfully on a regular and automatic basis as well as within an unchanged spatial and social context, the less behavioural change is likely to occur (ibid). The concept of habitual travel behaviour and empirical findings indicate that past travel behaviour is the strongest predictor of present travel behaviour, a phenomenon which became known as 'state dependence' (Beige and Axhausen 2012, Klinger and Lanzendorf 2016).

*Habitual behaviour, residential relocation and behavioural change*

As a consequence of this habitual character of everyday travel it is a plausible, but yet untested assumption that travel habits are weakened by residential relocation, and mediate or moderate a change in travel behaviour. Various scholars critically discuss this assumption as somewhat simplified (Chatterjee and Scheiner 2015, Cao et al. 2009, Walker et al. 2015, Gardner 2015, Verplanken and Roy 2016). However, the proposed close link between habitual behaviour and stable contextual factors is in line with studies showing that the impact of residential moves on travel behaviour is especially strong when the move involves a change of urban form and accessibility characteristics (Beige and Axhausen 2012, Scheiner and Holz-Rau 2013a, 2013b) The same applies for studies indicating the influence of a changing social environment in the course of a residential relocation (Aditjandra et al. 2016, Lin et al. 2018, Gim 2017). It is still debated, though, *how* residential relocation affects travel behaviour (Bamberg 2006).

Furthermore, the theoretical rationale in terms of motivation to change, which is inherent to voluntary behaviour change, is widely neglected. It seems that the underlying hypothesis states that residential relocation brings about a *tabula rasa* due to weakened habits, so to say an openness to change in the direction suggested by the content of the intervention. But conventional wisdom suggests that residential relocation occurs for a reason and, thus, is most often associated with further internal or external changes in a person's life that may affect travel behaviour. Hence, the mobility biography approach discusses three alternative causal perspectives regarding the role of residential relocation (Müggenburg et al. 2015):

A) Residential relocation is the *consequence* of an intended or necessary change in travel behaviour (e.g. Stanbridge and Lyons 2006, Chatterjee and Scheiner 2015). For example, a continuous rise in environmental concern finally motivates the disposal of one's car (Kaiser et al. 2010), or an illness impedes a person from continuing to drive a car, both changes leading to the necessity to relocate in order to travel with alternative modes (Hefter and Götz 2013). Characteristically, to our knowledge, the role of personal reasons and motivations for moving house has not yet tested with an experimental and control group design.

B) Residential relocation is a *mediator*, affecting travel behaviour via self-selection processes (pre-move) and adaption processes (anticipated and post-move) (Bamberg 2006, 2007, Cao et al. 2009, Oakil et al. 2014, Scheiner and Holz-Rau 2013b). For example, a person moving in with her partner might self-select to the area that supports the travel behaviour to which she aspires, whether it be the former or a different one. In contrast, a person moving to a bigger home in a more expensive district due to higher income adapts to the local social norm or car-promoting infrastructure (e.g. available parking space, poor accessibility/lack of alternative modes) by buying a car, whether in anticipation before or in realization after the move (see also Thomas et al. 2016).

C) Residential relocation is a *correlate* of other changes that cause a change in travel behaviour, especially changes in household composition, job conditions, levels of income and status, and accessibility patterns (Scheiner and Holz-Rau 2013b, Schäfer et al. 2012, Müggenburg et al. 2015, Walker et al. 2015, Graham-Rowe et al. 2011, Prillwitz et al. 2007) but also some unmeasured processes (Thøgersen 2012, Thomas et al. 2016). For example, the birth of a child may independently entail the purchase of a car and moving house to a bigger residential unit.

Thus, all three alternative causal perspectives challenge the simplified assumption that a residential relocation and accompanying habit discontinuity lead to more or less undirected openness to any sort of behaviour. Instead, residential relocation should be perceived as an opportunity to activate behavioural orientations, which already latently exist. Ultimately, research suggests different directions regarding whether and how residential relocation might be related to travel behaviour (change) and little is known about how to describe the circumstances that enhance the motivation to change one's travel behaviour as well as the interest in related interventions. This is to say that the habit concept in the course of residential relocation is best understood as being interlinked with preferences, biographical traits, and motivations to move. This tension between changing context and enduring preferences reveals the need for exploratory work (Müggenburg et al. 2015, Chatterjee and Scheiner 2015).

*Individual and structural perspectives: biographical influence, life events and socio-spatial context*

Each of the three causal perspectives on the relationship between residential relocation and travel behaviour implies certain interdependences of individual and structural or contextual aspects.

First, to better understand the individual dimension, it seems reasonable to draw from a life-course perspective and the concept of mobility biographies. Correlational studies based on national panel surveys or retrospection show a coincidence of residential relocation with changes in household composition and employment/education conditions, while at the same time demonstrating that such changes can affect travel behaviour much more than they induce residential relocation (Müggenburg et al. 2015). Additionally, "the functional value as well as the meaning of consumption activities could change with life events" (Schäfer et al. 2012). Beyond altered capabilities, life events probably involve

changes in social roles, personal values, or short- or long-term priorities that are presumably but not necessarily reflected in travel behaviour (Bamberg et al. 2015, Clark et al. 2016, Prillwitz et al. 2007, Scheiner and Holz-Rau 2013b, Jaeger-Erben 2010). This fuzzy "mind-set of being 'in the mood for change'" (Verplanken and Roy 2016) is a challenge for the design of any targeted behaviour change intervention. There is considerable demand for both conceptual work and systematic analysis of interactions between life events and contextual factors in different domains and their interaction with travel behaviour and interest in related offers and interventions (Müggenburg et al. 2015, Chatterjee and Scheiner 2015, Scheiner and Holz-Rau 2013b). It seems appropriate to at least measure parallel life events when examining the impact of residential relocation on travel behaviour.

Second, psychological as well as planning and transport research agree on the necessity to complement the individual dimension by a structural perspectives to predict behavioural change. In addition to the relevance of habit strength and consideration to reduce car use, the impact of structural conditions at the (new) place of residence such as spatial arrangements and socioeconomic patterns is striking. Travel behaviour is so deeply connected to the socio-spatial context (Gardner 2015, Bamberg et al. 2015) that not only transport research finds structural variables, especially destination accessibility, to be some of the strongest predictors of travel behaviour (Prillwitz et al. 2007, Scheiner and Holz-Rau 2013b, Cao et al. 2009, Ewing and Cervero 2010), but also studies focusing on individuals increasingly consider structural variables relevant (Verplanken and Roy 2016, Bamberg 2006, 2007, Walker et al. 2015, Cairns et al. 2008, Thøgersen 2012, Schäfer et al. 2012, Müggenburg et al. 2015). In studies focusing on residential relocation influencing individual travel, spatio-structural and socio-structural variables have been included as changes in personal social networks and social environment (Lin et al. 2018), the inclination towards a certain travel mode among residents (Gim 2017) as well as perceived safety, sociability and accessibility (Aditjandra et al. 2016). However, most psychological models still empirically neglect structure-related variables beyond perceived behavioural control or rated attractiveness. There is generally a need to simultaneously examine individual and structure-related variables and explore their respective impact on travel behaviour. In this study, we focus on mobility habit strength and the level of consideration to reduce car use, thus assuming an individual-focused perspective, and perceived accessibility, thus assuming a structural perspective.

*Travel-related interventions targeted at residential movers*

Practitioners have taken the potential impact of residential relocations on everyday travel behaviour as an opportunity to design travel-related interventions, tailored at the people who are new or soon-to-be new residents. To examine the mutual influences between residential relocation, travel-related intervention and travel behaviour, the state of the art research paradigm is to experimentally test the moderation effect of residential relocation on the effect of an intervention on travel behaviour change, at best by applying a controlled pre-post design to a randomized sample (Graham-Rowe et al. 2011, Bamberg et al. 2015). However, only few studies follow this paradigm, and meta-analyses are not yet applicable (Graham-Rowe et al. 2011, Richter et al. 2011, Müggenburg et al. 2015, Chatterjee and Scheiner 2015). There is evidence that a residential relocation facilitates the effect of behaviour change interventions (Loose 2004, Bamberg 2006, 2007, Verplanken and Roy 2016, Richter et al. 2011, Thøgersen 2012), but effect sizes of the moderation effect of relocation on the effect of an intervention are mostly small. Moreover, variables are operationalized in many different ways, often by combining residential relocations (predictor) and travel behaviour (outcome) with other features, e.g. a change in residence or workplace (Thøgersen 2012), or a combination of several pro-environmental behaviours (Verplanken and Roy 2016). Additionally, travel behaviour is measured in various ways, e.g.

in terms of mode choice, car ownership, or miles travelled, which in turn allows for different explanations of the effects found.

Despite these methodological challenges, diverse studies focus on the interplay between interventions, habit and life events. They found that interventions are more effective in case of strong habits (Eriksson et al. 2008, Garvill et al. 2003) or within stable life situations (Schäfer et al. 2012), that habit has no effect at all (Bamberg 2006, Walker et al. 2015, Langweg 2007), and that reflection on travel behaviour appears at all points during the process of relocation (Stanbridge and Lyons 2006). This last finding suggests to understand travel behaviour change related to residential relocation and travel-related intervention as a stepwise sequence of different phases.

*Stage-based models including motivation, contemplation and preparation prior to behavioural change*

Any motivation to (not) change travel behaviour in any certain direction results from the complexity and meaning of eventual changes in a person's life. Referring to what has been said about the relation of residential relocation and travel behaviour, the chance to influence travel behaviour of house movers through information and incentive-based intervention vitally relies on a pre-existing disposition towards sustainable travel or a general interest in reconsidering one's travel behaviour. That chance is apparently small, as illustrated by studies showing that respondents do not tend to opt for travel-related measures when they can choose between interventions targeted to various domains of behavioural change (e.g. Lally et al. 2010, Verplanken and Roy 2016). People favour behavioural changes regarding for example diet, snacking, consumption, waste, water use, or energy use over changes in travel behaviour. The difficulty in changing travel behaviour as compared to other behavioural domains stems from its high path dependency, its strong interconnectedness with spatial structure, and its interweaving with the activities of other household members.

Further evidence is provided by work finding no or only marginal effects on travel behaviour when controlling for change motivation, i.e. for holding motivation constant (Eriksson et al. 2008, Bamberg 2013a, Bamberg et al. 2015). Bamberg (2006, 2007) also statistically tested the impact of motivation and found that high motivation enhanced the intervention's effectiveness.

To understand the role of pre-existing motivation in more detail, an increasing number of travel behaviour studies conceptualizes behavioural change as a stepwise cognitive process. Most of these studies refer to the so-called Transtheoretical Model (TTM), originally developed by Prochaska and Velicer (1997) for analysing health behaviour. The authors identified five consecutive stages of behavioural change, i.e. precontemplation, contemplation, preparation, action and maintenance. The rising consideration and intention, described by the stages of contemplation and preparation, has empirically been captured in various ways in travel-related research. Biehl et al. (2018) asked directly if respondents have contemplated making a routine trip using a specific mode and if they consider using this mode in the near future as realistic. Thigpen et al. (2015) identified consideration and likelihood of increased cycling by asking ‘‘Have you thought about bicycling to campus?’’ and ‘‘How likely are you to bike to campus in the next six months?’’. Bamberg (2013a, 2015) developed a more integrative framework, called stage model of self-regulated behaviour change (SSBC), combining elements from the model of action phases (MAP, Gollwitzer 1990), the theory of planned behaviour (TPB, Ajzen 1991) and the norm activation model (NAM, Schwartz and Howard, 1981). He asks for respondents' current travel behaviour and car-use goal for the next four weeks (decrease, increase, unchanged) to assess four stages of behavioural change, i.e. predecision, preaction, action and

postaction. Interestingly, this stage model suggests that interventions should be tailored to the specific needs of people in certain stages to be more successful. For people in the preactional stage Bamberg (2013a: 158) recommends "interventions that support them in selecting a specific action. Interventions that provide credible information about the availability of different behavioural alternatives as well as their pros and cons may be effective in this stage." Bamberg (2009) understands stated interest in information about alternative modes as an indicator for subjects' orientation towards alternative travel modes that, facilitated by the perception of attractive travel options and perceived behavioural control, mark the entrance into the preactional stage.

These findings are relevant for our own study in a twofold way. First, we argue that interest in an intervention as described by Bamberg (2013a) can be understood as indicator for entering or being in a preactional stage. In a review of travel-related marketing campaigns for new residents he found that this interest is often already apparent long before the actual move and that its intensity is dependent on the perceived context change (Bamberg 2009: 9, 127). This is in line with Scheiner's (2006: 289) concept of "spatial mobility as process", which considers the spatial and social structures prior to the move as crucial for the subsequent behavioural change. Second, to the best of our knowledge, there is no study yet, that systematically assesses predictors of these preparation and preactional stages preceding the actual behavioural change. Thus, we aim to explore what factors are at play for people reconsidering their travel behaviour and being interested in behavioural alternatives.

*Hypotheses*

Hypotheses have been derived from literature review. The habit discontinuity approach and respective empirical findings suggest that movers are more open to changing travel behaviour than non-movers. Additionally, the mobility biography approach and empirical findings suggest that the occurrence of changes in life also impose a greater openness towards alternative behaviour options. Thus, we hypothesize: residential relocation and the occurrence of life changes independently enhance interest in a proposed intervention promoting more sustainable travel options, while there might also be an additional positive interaction effect (Hypothesis 1).

Furthermore, we wanted to simultaneously explore the predictive power of individual and structural variables in predicting the interest in alternative travel options. Individual variables were represented in this study by the consideration to reduce car use and by mobility habit strength; structural variables were represented by perceived accessibility. Due to empirical evidence showing the relevance of some consideration to behave differently for the success of a soft-policy intervention, we expected participants to be more open to change their travel behaviour the more they considered a reduction in car usage. Following the habit discontinuity approach, despite the ambiguity of relevant empirical findings, we expected the interest of participants in the intervention to increase with weaker mobility habit strength. We furthermore expected participants to be more interested in the intervention the better they perceive the structural conditions, i.e. perceived destination accessibility, to be. Thus, we hypothesize: low mobility habit strength, high consideration to reduce car use, and high perceived accessibility independently enhance openness to change one's travel behaviour, while the effect of perceived accessibility might additionally be qualified by low mobility habit strength and a high consideration to reduce car use (Hypothesis 2).

The approach chosen here is explorative in two ways. First, to the best of our knowledge it is the first study defining interest in an intervention, assumed to represent a preactional stage of behavioural

change, as a dependent variable. Second, the research question on predictors of interest into a travel-related intervention is part of a broader project that at its core focusses on the process of habit change during relocation and its implication for travel behaviour (Thronicker 2015).

## 3. Methods

A survey entitled "Housing and mobility – enhancing quality of living in the city" was conducted among residents and movers in Leipzig, a city of about 500,000 inhabitants in Germany. The survey was part of a quasi-experimental pre-post field experiment focussing on habit change and its implications on travel behaviour during residential relocation (Thronicker, 2015). While the analysis of the experimental design used the data of 357 subjects who also participated in the post-measurement, the present analysis used the data of the total of 758 subjects who participated in the pre-measurement. Theoretical reasoning and empirical evidence stress the sensitive phase prior to an anticipated event as being particularly important in terms of preparatory activities and decisions determining behaviour after the event. Based on their comprehensive interview data on life events as windows of opportunity for (travel) behaviour change, Schäfer et al. (2012) conclude that "the period before the life event seems to be very crucial" (p.81). The qualitative work by Stanbridge and Lyons (2006) yielded the impressive number of about 70% of movers who had "travel most on their mind" before they accept an offer for a property (p.10). Likewise, Scheiner (2005, 2006) argues that relocation is a process that starts long before the actual change of residence. Thus, we proceed on the assumption that those who prepare residential relocation can be considered movers already before they actually move. Although pre-move data is vital to the study of a relocation-induced window of opportunity, to our knowledge, only Bamberg (2006) contacted movers prior to their move.

In this study, movers were contacted via housing agencies when they showed up at the agency to sign the rental contract for their new apartment. Movers filled in the questionnaire about three months prior to their move (mean = 43 days, s = 30 days, min = 1, max = 116). The housing agencies also contacted residents who had been living in their apartment for at least three years and did not plan to move.

Table 1 compares the overall sample with two assumingly representative samples of the city. Movers of the present sample were younger than residents, which is an expected finding. About 75% of residential relocations in the present sample were inner-city moves. Gender, age, marital status, education, income, and car use (modal split) have been included as control variables into the binary regression models (Tables 3 and 6).

| | Subsamples | | Sample of study N = 758 | Sample of SrV Leipzig 2008 | Sample city of Leipzig 2008 |
|---|---|---|---|---|---|
| | Mover (N=186) | Non-Movers (N=572) | | | |
| Age & Gender (%) | | | | | |
| 18-20 | 12 | 0,2 | 3 | 25 | 21 |
| 21-30 | 40 | 21 | 25 | | |
| 31-40 | 16 | 9 | 11 | 35 | 33 |
| 41-50 | 9 | 11 | 11 | | |
| 50 -65 | 16 | 20 | 19 | 41 | 46 |
| >65 | 8 | 39 | 31 | | |
| Women | 59 | 58 | 58 | 53 | 52 |
| Marital Status (%) | | | | | |
| single | 68 | 59 | 61 | 1.9* | 1.7* |
| partnership | 32 | 41 | 39 | | |
| Education (highest exam) (%) | | | | | |
| school exam | 37 | 26 | 29 | n/a | n/a |
| occupation/ study exam | 62 | 73 | 70 | | |
| Income (%) | | | | | |
| < 600 Euro | 23 | 14 | 16 | n/a | n/a |
| 600-1000 Euro | 25 | 30 | 29 | | |
| 1001-1500 Euro | 22 | 25 | 25 | | |
| 1501-2000 Euro | 14 | 17 | 16 | | |
| 2001-3000 Euro | 13 | 11 | 11 | | |
| > 3000 Euro | 2 | 3 | 3 | | |
| Permanent availability of (%) | | | | | |
| car | 59 | 61 | 60 | 40 | 36 |
| season ticket | 54 | 33 | 38 | n/a | n/a |
| bike | 80 | 72 | 74 | 75 | n/a |
| Modal Split (%) | | | | | |
| car | 31 (s=.33) | 30 (s=.33) | 30 (s=.33) | 39 | 45 |
| public transport | 24 (s=.25) | 22 (s=.26) | 22 (s=.26) | 19 | 23 |
| bike | 14 (s=.23) | 12 (s=.21) | 13 (s=.22) | 14 | 32 |
| foot | 32 (s=.24) | 36 (s=.27) | 35 (s=.26) | 27 | |

* mean household size

**Table 1** Description of sample (age, gender, marital status, education, income, mobility tools, modal split), compared to samples of representative surveys (SrV= Mobility in Cities - System of Representative Travel Surveys (Ahrens 2009) and statistical data provided by the city of Leipzig (Stadt Leipzig 2012))

The intervention consisted of a mobility package called "Your mobility package 'On the way in Leipzig.'" It contained information to use public transport, car sharing, and cycling in Leipzig as well as the possibility to order a free one month ticket for public transportation, a free three months membership at car sharing and limited free usage, and a free bike check-up and bike city map. Participants could order all of these options. The package was constructed for the purpose of this study and offered in cooperation between the municipality and the research institute. Together with the survey, participants received a separate sheet of paper that informed them about the content of the mobility package. On the sheet, participants could indicate, whether or not they would like to receive a package. If they were interested, they were asked to provide their current and their new address as well as the date of their move. The package was sent to the current address. Only in case the move was within the next two weeks, the package was sent two weeks after the move to the new address.

The following variables were assessed:

Predictor variable 1: *Residential relocation*. Via housing agencies we contacted both residents who had been living in their current home for at least three years and who had indicated that they were not considering relocation, and movers when signing the rental contract for their new apartment, i.e. about three months prior to their actual move. Places of residence and relocation destinations were located in the inner districts of the city (Fig. 1).


**Fig. 1** Districts of the city of Leipzig (Stadt Leipzig 2012), coloured districts indicate study area, i.e. place of residence (residents) and destination of relocation (movers)

Predictor variable 2: *Current life changes*. Within the explorative approach applied here, we aimed to record any current change in different life domains suggested as being relevant by previous research (for a review Scheiner and Holz-Rau 2013b, Müggenburg et al. 2015). Also, while stressing proximity of the event in question, we explicitly allowed for any sequence of events. Residents responded to the question "From time to time things change in life. Have there been any changes in your life recently, or are there any approaching?" There was a choice of potential family-, work/education-, and mobility-related changes (Table 2). Movers responded to the question "How did your residential relocation come about?" and were offered the same list of circumstances, and in addition housing- and

neighbourhood-related circumstances that might also provoke a residential relocation (Table 2). A pre-test and the evaluation of answers to the open "other"-category did not reveal further events.

| Recent or approaching changes in life (referring to residents), or circumstances potentially provoking a residential relocation (referring to movers), respectively. | Additional circumstances potentially provoking a residential relocation (referring to movers). |
|---|---|
| Family-related changes/circumstances:<br>• Move-in with partner<br>• Move-out/separation from partner<br>• Birth or move-in of child<br>• Move-out of child or other person<br>• Illness/accident<br>Work/Education-related changes/circumstances:<br>• New workplace/place of education<br>• More/less working hours<br>• Termination of work/education (retirement, job termination, graduation…)<br>• Higher/lower income<br>Mobility-related changes/circumstances:<br>• Availability of a car<br>• Non-availability of a car<br>• Driving licence<br>• New season ticket<br>• Disposal of season ticket<br>Other, namely: [open answer] | Mobility-related circumstances:<br>• Poor provision with shops and facilities in the neighbourhood, e.g. groceries, authorities, local surgeries, schools, kindergarten.<br>• Poor provision with options for cultural and leisure activities<br>• High travel costs<br>• Poor access to public transport<br>• High distance to important places/persons (place of work/education, local surgeries…)<br>Housing- and neighbourhood-related circumstances:<br>• Size of residential unit<br>• Barrier-freedom<br>• Poor housing conditions<br>• High rent<br>• High vacancy rates<br>• Trouble with landlord<br>• Poor environmental quality<br>• High criminality<br>• Poor neighbourhood<br>• Poor image of city district |

**Table 2** Current life changes and circumstances potentially provoking a residential relocation as requested in the survey.

Predictor variable 3: *Mobility habit strength* was assessed by four items of the Self-Report Habit Index (SRHI; Verplanken and Orbell 2003). Participants were asked for the most frequently used travel mode for the most frequent trip of the last month, and then reported on 7-point scales ("strongly agree" to "strongly disagree") to the items: "The travel mode just mentioned … I use automatically for that trip.", "… I use for that trip without having to plan beforehand.", "… I use for that trip without thinking whether I could use another travel mode.", "… is typical for me." (Cronbach's alpha = .75). The distribution of individual scores was expectedly positively skewed. The scores were logarithmized and reversed, then ranged from 0 to 2 with high numbers representing a strong habit. Given the line of argumentation of the habit concept, any mobility habit, i.e. regardless of the transport mode it refers to, should be weakened during relocation. In theory, the habit concept as such is *un*specific in terms of current mode choice. However, since the intervention is mode-specific, a dichotomous variable coded whether a person expressed a car related habit (1) or a non-car related habit (0), i.e. a habit referring to cycling or public transport use.

Predictor variable 4: *Consideration to reduce car use* was assessed by a 5-point scale ("strongly agree" to "strongly disagree") in response to the item "I wonder whether I maybe should reduce my car usage [for movers: at the new living place]". The item was chosen according to Stanbridge & Lyons (2006) and Bamberg (2013a). High numbers represent strong consideration.

Predictor variable 5: *Perceived accessibility by eco-modes*. We focused on the accessibility of individually relevant destinations (Ewing and Cervero 2010, Curl et al. 2015) by public transport,

cycling, and walking. Objective measurements of destination accessibility differ considerably from subjective perceptions (Curl et al. 2015). But since the latter is central to understanding individual behaviour, subjectively perceived accessibility related to respondents' current place of residence was measured. The choice of pre-move accessibility patterns is in line with our understanding of behavioural change as stage-based process. Since we focus on the pre-actional phase of behavioural change, indicated by an interest in the mobility package, the impact of current circumstances for anticipating the residential move and post-move travel behaviour (Scheiner 2006: 289, figure 1), is crucial to our analysis. This is particularly true, when interpreting the concept of 'state dependence' (Beige and Axhausen 2012) in a way that people aim to act in the future similar how the act currently. Participants responded using 5-point scales ("very unsatisfied" to "very satisfied") to six items: "Opportunities to get things done by… walking.", "… cycling.", "… using public transport.", "Accessibility of place of work/education by public transport.", "Accessibility of downtown by public transport.", "Provision of shops and facilities in the neighbourhood, e.g. groceries, authorities, local surgeries, schools, kindergarten". Since the distribution of average scores was, as expected, positively skewed, the scores were reversed, logarithmized, and back-reversed, then ranged from 0 to 2 with high numbers representing high perceived accessibility.

Outcome variable: *Interest in a mobility package promoting the use of eco-modes*. Separately attached to the survey, participants were asked to indicate whether or not they would like to receive the mobility package. Stated interest into the package implies that the person is aware of alternative travel options, generally perceives behavioural control to use them, and has a basic orientation towards their usage. Hence, we perceive stated interest in receiving the mobility package as a behaviour-based proxy for a basic openness to use more sustainable modes of transportation, i.e. to enter the preactional stage of behaviour change.

## 4. Results

This section presents the results of the analyses for both hypotheses.

*Predictors of interest: life changes versus residential relocation*

Hypothesis 1 assumed that residential relocation and the occurrence of life changes independently enhanced interest in receiving a mobility package, and that there might be an additional positive interaction effect. 93 movers (50%) and 254 residents (44%) were interested in receiving the Mobility Package (MP). Residential relocation (yes/no) and the occurrence of life changes (yes/no) were significantly related to each other, sharing about 6% of variance (N=758, r=.244, 95% BCa CI [.176, .314], p<.01). A first logistic regression model on interest (yes/no) indicates that neither relocation nor life changes predicted interest (Table 3). However, the interaction term suggests that life changes in combination with a residential relocation significantly and clearly reduced the odds in terms of interest. The model fit, however, was small.

| | | | | Odds Ratio | 95% BCa CI for Odds Ratio/EXP(B) | |
|---|---|---|---|---|---|---|
| | B | SE(B) | Sig. | Exp(B) | Lower | Upper |
| Gender | .126 | .162 | .437 | 1.135 | .825 | 1.559 |
| Age | -.078 | .055 | .157 | .925 | .831 | 1.030 |
| Marital Status | -.071 | .190 | .711 | .932 | .641 | 1.354 |
| Education | .182 | .189 | .334 | 1.200 | .829 | 1.738 |
| Income | .092 | .076 | .227 | 1.096 | .944 | 1.272 |
| Modal Split Car use | -.460 | .258 | .074 | .631 | .381 | 1.046 |
| Relocation (yes/no) | .132 | .211 | .530 | 1.141 | .755 | 1.724 |
| Life changes (yes/no) | -.042 | .201 | .835 | .959 | .646 | 1.422 |
| Life changes by relocation | -.943 | .401 | .019 | .389 | .177 | .855 |
| Constant | .076 | .288 | .793 | 1.079 | | |

$R^2_{CS}$=.02 (Cox & Snell) $R^2_N$=.03 (Nagelkerke) $R^2_L$ = .87 (Hosmer-Lemeshow), Model $X^2(9)$=15.65. p=.075

**Table 3** Coefficients of the models predicting whether a participant was interested in receiving a mobility package, N=734 [95% BCa bootstrap confidence intervals based on 1000 samples]. The availability of a public transport pass did not affect the model.

To better understand the results, we explored the relation and impact of different life changes and circumstances provoking residential relocation. 253 residents (44%) reported current life changes, and 177 movers (95%) reported circumstances provoking their move (Fig. 2). Movers mentioned family, work, or mobility related changes almost twice as often as residents did, but just as often as housing or accessibility related reasons to move. Maybe, as soon as the family, work, or mobility related changes result into the decision to move – and thus possibly solve the associated challenges – an additional adjustment of travel behaviour is no longer necessary, resulting in not being interested into a mobility package. However for residents, the challenges might not yet be resolved. And as far as they entail mobility relevance there may be still a basic openness to change behaviour, which is reflected by an interest into the mobility package.

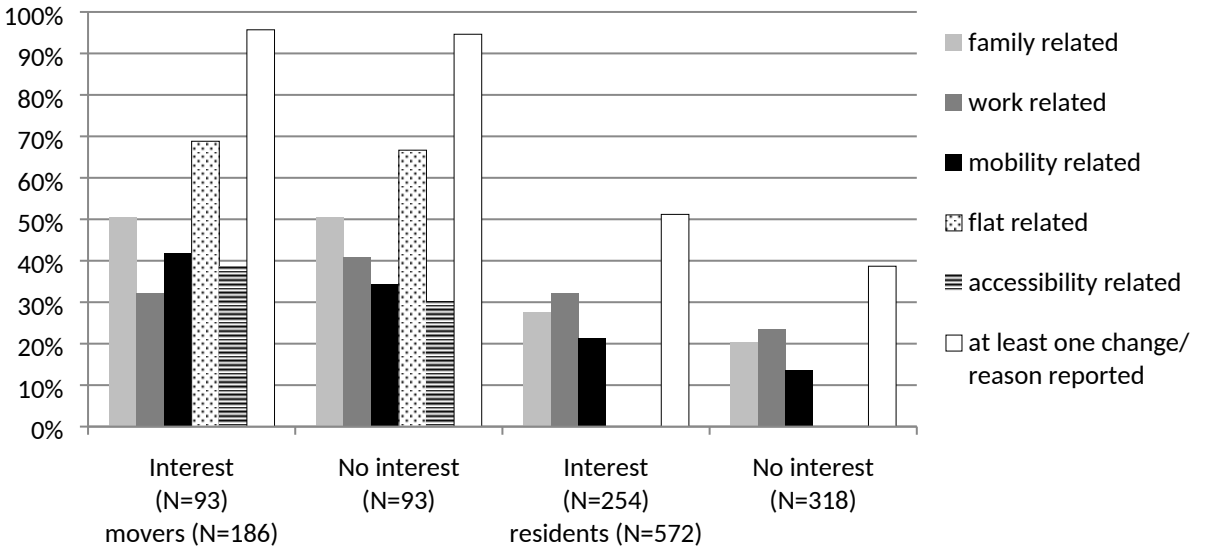

**Fig. 2** Percentage of residents and movers with and without interest into the intervention who reported different types of life changes or reasons to move. Multiple answers were possible.

Family-, work-, and mobility-related life changes (N=572 residents) were significantly positively related ($r_{family\text{-}work}$=.332, 95% BCa CI [.246, .418], p<.001, $r_{family\text{-}mobility}$=.210, 95% BCa CI [.125, .298], p<.001, $r_{work\text{-}mobility}$=.244, 95% BCa CI [.151, .333], p<.001). In contrast, concerning reasons to move (N=177 movers), only work- and mobility-related circumstances appeared to be associated (Table 4). The correlation results motivated analysis of the regression of interest on the domains of life changes. Controlling for age, gender, and car use, the different domains of changes did not predict interest (for movers: p-values were above .18, for residents, p-values were above .12). Interestingly, car use decreased the odds in terms of interest for movers (Exp(B)=.368, p=.041, b= -.999, BCa CI [-2.152, -.059]), but was of no effect on interest for residents (Exp(B)=.743, p=.280, b= -.297, BCa CI [-.858, 257]).

| | Work related | Mobility related | Housing related |
|---|---|---|---|
| Family related | -.097 [-.247, .072] | -.046 [-.271, .101] | .122 [-.024, .261] |
| Work related | | .254** [.111, .398] | -.169* [.001, .074] |
| Mobility related | | | .140 [.000, .286] |

Note. * p < .05 ** p < .01

**Table 4** Correlation of domains of reasons to move (N=177, 95% BCa CI based on 1000 samples)

*Predictors of interest: personal variables versus structural variables*

Hypothesis 2 assumed that low mobility habit strength, high consideration to reduce car use, and high perceived accessibility independently enhanced interest in a mobility package, and that the effect of perceived accessibility might be intensified by low mobility habit strength and high consideration to reduce car use. Correlation of the predictor variables are displayed in Table 5.

| | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| 1 Perceived accessibility by eco-modes | .122* [.051, .199] | -.009 [-.089, .074] | -.185** [-.256, -.113] | .095* [.018, .168] |
| 2 Mobility habit strength | | -.096* [-.165, -.031] | -.149** [-.225, -.073] | -.075 [-.152, .008] |
| 3 Consideration to reduce car use | | | .186** [.104, .261] | .101* [.024, .175] |
| 4 Relocation (yes/no) | | | | .225** [.152, .293] |
| 5 Life changes (yes/no) | | | | |

Note. * p < .05 ** p < .01

**Table 5** Correlation of perceived accessibility, mobility habit strength, consideration to reduce car use, relocation, and life changes (N=647, 95% BCa CI based on 1000 samples)

A second logistic regression model on interest (yes/no) including the additional predictors perceived accessibility by eco-modes, mobility habit strength, and consideration to reduce car use was conducted. Since the habit concept is *un*specific in terms of the current travel mode and suggests that any mobility habit weakens during relocation, we applied the predictor habit strength no matter the mode it referred to. The analysis indicates that perceived accessibility enhanced the odds regarding

interest in a mobility package (Table 6). Habit strength and consideration unexpectedly yielded no effect, neither directly nor indirectly as a moderator to perceived accessibility. The data suggest that participants who perceived accessibility by eco-modes to be satisfactory had a higher chance of being interested in a mobility package on eco-modes, regardless of their habit strength, their level of consideration to reduce car use, whether they relocated or experienced life changes, and even regardless of their current amount of car use. The model fit was small.

While the habit concept is *un*specific in terms of the current travel mode, the mobility package specifically promotes the use of non-car travel modes. Therefore, we conducted the regression analysis again only with participants who indicated a car habit (N=223). Results show that no predictor yielded a significant influence on interest ($R^2_{CS}$=.03 (Cox & Snell) $R^2_N$=.04 (Nagelkerke) $R^2_L$ = .210 (Hosmer-Lemeshow), Model $X^2(13)$=6.67. p=.918). We then conducted the same regression model with only participants who indicated a non-car habit (N=380). It yielded a significant influence of age (Exp(B)=.85, 95% CI [.73, .99], p=.034) and of perceived accessibility ((Exp(B)=1.99, 95% CI [1.01, 3.90], p=.046) (Model fit $R^2_{CS}$=.06 (Cox & Snell) $R^2_N$=.07 (Nagelkerke) $R^2_L$ = .63 (Hosmer-Lemeshow), Model $X^2(13)$=21.52, p=.063).

| | | | | Odds Ratio | 95% CI for EXP(B) | |
|---|---|---|---|---|---|---|
| | B | SE(B) | Sig. | Exp(B) | Lower | Upper |
| Gender | .016 | .174 | .926 | 1.016 | .722 | 1.430 |
| Age | -.089 | .059 | .132 | .915 | .814 | 1.027 |
| Marital Status | -.079 | .203 | .699 | .924 | .620 | 1.377 |
| Education | .191 | .204 | .349 | 1.211 | .811 | 1.808 |
| Income | .099 | .082 | .229 | 1.104 | .940 | 1.297 |
| Modal Split Car use | -.435 | .293 | .137 | .648 | .365 | 1.149 |
| Relocation (yes/no) | -.032 | .221 | .884 | .968 | .628 | 1.493 |
| Life changes (yes/no) | .172 | .179 | .338 | 1.187 | .836 | 1.686 |
| Perceived accessibility | .485 | .260 | .062 | 1.625 | .976 | 2.705 |
| Habit strength | .141 | .144 | .330 | 1.151 | .867 | 1.527 |
| Consideration | .000 | .066 | .998 | 1.000 | .878 | 1.139 |
| Perc. accessibility by habit strength | -.171 | .391 | .663 | .843 | .391 | 1.816 |
| Perc. accessibility by consideration | -.263 | .181 | .146 | .769 | .539 | 1.096 |
| Constant | .033 | .307 | .914 | 1.034 | | |

$R^2_{CS}$=.03 (Cox & Snell) $R^2_N$=.04 (Nagelkerke) $R^2_L$ = .89 (Hosmer-Lemeshow), Model $X^2(13)$= 18.44, p=.142

**Table 6** Coefficients of the model predicting whether a participant was interested in receiving a mobility package, N=636 [95% BCa bootstrap confidence intervals based on 1000 samples]. The availability of a public transport pass did not affect the model.

## 5. Discussion

This section summarizes the findings and discusses them regarding the role of residential relocation for travel behaviour change against the conceptual assumptions illustrated in the literature review. It results in a suggestion to consider the mobility relevance of a residential relocation and other life events as a criterion indicating a window of opportunity for behaviour change interventions.

In answer to the hypotheses, life changes in combination with a residential relocation clearly reduced the odds regarding interest in a mobility package. Personal variables, i.e. mobility habit strength and consideration to reduce car use, were of no predictive power in terms of interest, while an increase of the structure-related variable perceived accessibility seemed to enhance the odds regarding interest. Before interpreting the findings, two limitations have to be mentioned. First, the model fit of the binary regression models applied to predict interest in a mobility package were small. Therefore, in our interpretation of the results we focused on the confidence intervals of specific predictors. Second, the spatial and infrastructural variation accompanying the inner-city relocations considered was limited. Notwithstanding the similarity of the situation before and after relocation we found that half of our sample of movers ordered a mobility package. This suggests even more promising findings for moves between more contrasting spatial and social arrangements.

*Relocation, life events and behavioural change*

To interpret the unexpected finding that half of the sample of movers did *not* order a mobility package, and thus did not indicate to be in a preactional stage of travel behaviour change, as well as the finding that perceived accessibility was the only predictor of enhanced interest, we reflect our results against the assumptions on the role of relocation for travel behaviour.

A) In the view of relocation being the *consequence* of other, mobility relevant changes, moving house can be understood as part of the solution towards the challenges that are caused by family-, work-, or mobility related changes in one's life. If these challenges are expected to be resolved by moving house, maybe including anticipated adjusted travel behaviour, a rejection of further information or additional behaviour change seems reasonably (Schäfer et al. 2012). This interpretation is supported by our finding that, at the time when the new rental contract already had been signed, relocation was associated with lower habit strength and higher consideration to reduce car use, but under the condition of accompanying life changes with a clearly reduced interest into the mobility package. Interventions to steer mobility behaviour of movers who relocate in order to solve a personal mobility relevant issue have to be implemented much earlier in the process of considering relocation and follow an individual consulting approach. Certainly, we apply an analytical view at the "pure" causal chains. In reality, a mobility problem might be solved only partly or only for some trips by relocating.

B) In the view of relocation being *mediator* of other changes, moving house is induced by circumstances that entail no mobility relevance themselves, e.g. enlarging the size of the apartment, but via self-selection or adaption processes in terms of the new living place still affect travel behaviour (Kley 2011, Klinger 2017). The finding that relocation, habit strength, and consideration yielded no effect on interest seems coherent given that self-selection and anticipated adaption should have been settled at the time of the survey, while post-move adaption could not yet have taken effect. In addition, the majority of movers relocated within the inner city and, thus, encountered virtually constant public social norms and infrastructural conditions. Therefore, significant behavioural self-selection or adaption processes are not to be expected (Scheiner and Holz-Rau 2013b). Given that residential relocation might well be experienced as emotional or cognitive stress (Schäfer et al. 2012), mobility habits could also be expected to strengthen in order to compensate for the mental load, and thus impede a behaviour change (Busch-Geertsema 2018, Neyer and Lehnart 2015, Thøgersen 2012, Verplanken et al. 1994). Although our data do not confirm this assumption and rather indicate a weakening of habit strength due to relocation, we found that car users among movers were significantly less interested into the mobility package. Car use among residents had no effect on

interest. That finding might indicate that house-moving car users were not in a preparational (Prochaska and Velicer 1997) or preactional (Bamberg et al. 2013a) stage of behavioural change, whereas these people are supposed to be the target group of the intervention. Also, the impact of perceived accessibility on interest possibly indicates an affirmation of existing travel orientations (see interpretation of intervention as last-push by Bamberg 2006). This is in line with the finding of state dependence, i.e. previous travel behaviour is a strong predictor of current travel behaviour, even in the course of key events (Beige and Axhausen 2012). In sum, it might be argued that the point of time the mobility package was offered was either too late or too early: Too late, because the new place of residence has already been chosen. Too early, since various relocation studies show that some time after a move a period of re-considering and adjusting behavioural patterns is likely to occur (Axisa et al. 2012).

C) In the view of relocation being a *correlate* to changes in travel behaviour, both are triggered by a third variable, e.g. the birth of a child. Our results support the interpretation that changes in life that involve the necessity to move house, but also entail mobility relevance may well lead to weakened habits and higher consideration of travel-related issues. When looking for a solution for the mobility-related issue high perceived accessibility by eco-modes may encourage individuals to take the use of eco-modes into consideration and order a mobility package. Here, individual attention is given to the original change in life, while relocation appears to be a by-effect.

Overall, the interpretation of the results against the assumptions concerning the role of relocation for travel behaviour emphasizes that relocation as such does not reveal much about its subjective mobility relevance. The importance and variety of the underlying changes in life are too critical to be neglected when aiming to efficiently place soft-policy interventions to change travel behaviour. Eventually, the high amount of interested people among movers and residents and the difficulties to predict that interest point at the challenge to transfer individual mobility relevance into systematic behaviour change interventions.

*Subjective mobility relevance*

Subjective mobility relevance provides an alternative angle to the question of what predicts openness to change one's travel behaviour, i.e. what opens the window of opportunity for soft-policy interventions. Mobility relevance means the presence of a perceived mobility-related issue that subjectively requires attention. It translates a change in life, i.e. any event, long-term decision, or process into a mobility key event (Klöckner 2005, Müggenburg et al. 2015), regardless of its causal relation with travel behaviour. According to the presented data and our interpretation, not all residential moves entail mobility relevance. For example, a residential relocation from countryside to city might be mobility relevant for movers due to considerable changes in infrastructure and accessibility patterns (Bamberg 2007 (Munich), Schäfer et al. 2012 (Berlin), Bamberg 2006 (Stuttgart), Scheiner and Holz-Rau 2013b). At the same time, other events enter the limelight. Changes in infrastructure as such can yield mobility relevance, too (Walker et al. 2015, Graham-Rowe et al. 2011, Möser and Bamberg 2008, Fujii et al. 2001, Prillwitz et al. 2007, Marsden and Docherty 2013, Clark et al. 2014), but also changes beyond structural conditions. A new job can turn out to be mobility relevant, for example due to the employer's strong vision or employees' social norm of using eco-modes (Schuppan ongoing work). Importantly, also changes in social roles or identities might be mobility relevant due to changed values, e.g. being a caring parent or employee/retiree of a specific company (Schuppan ongoing work, Jaeger-Erben 2010, Klinger 2017). Finally, processes of personal

development might also become mobility relevant, e.g. due to changed priorities, values, attitudes, goals, or lifestyle. The idea that mobility relevance instead of relocation as such may indicate a more specific window of opportunity to change travel behaviour has already been theoretically elaborated by other scholars (e.g. Müggenburg et al. 2015), but finds empirical support in the data presented here. Thus, we suggest mobility relevance should be regarded as a criterion which helps to bridge the individual and structural factors influencing travel behaviour after a residential relocation by activating a cognitive process that leads to a change or reinforcement of the previous behaviour. In line with these considerations, our study found evidence for both personal influences (life events) and structural ones (perceived accessibility). Because of the study's explorative character, an assessment of the relative importance of personal and structural factors with regard to their mobility relevance is not possible and open for further research.

## 6. Conclusion and future research

In sum, half of the participants in our sample were interested in the mobility package, which we understand to indicate a preactional stage of behavioural change. Interest was reduced for movers who reported changes in their personal life or who mainly used the car, and enhanced with stronger perceived accessibility by environmentally friendly travel modes.

The findings of our exploratory study might encourage further research in at least two directions. First, as an indicator of a window of opportunity to implement information and incentive based interventions to change travel behaviour, we suggest looking for life changes with high mobility relevance evolving from their individual and structural circumstances (such as attitudes, social norms, accessibility patterns, and infrastructure provision). Relocation can, but does not necessarily entail mobility relevance. To deliver an intervention to movers without controlling for the mobility relevance of the move is similar to giving cough medicine to everyone going to see a doctor. Second, the behaviour suggested by the intervention needs to be perceived as an attractive way to tackle the mobility issue the receiver presumably faces. Future research on travel behaviour change during residential relocation should adopt interventions that are tailored to the specific individual and (new) structural context of movers.

Practitioners are well-advised to (a) look for indicators of mobility relevance to define a target group for the intervention, e.g. people that are affected by severe changes in infrastructure (e.g. due to relocation from the countryside to the city or between different mobility cultures (Klinger & Lanzendorf 2016), varying socioeconomic circumstances, or transport disruption), social roles, identities and norms (e.g. due to belonging to another social group), or their system of values and priorities (e.g. due to illness or new responsibilities). Furthermore, we suggest (b) to make sure the intervention promotes a truly attractive behavioural option. The research community is advised to develop a measure of mobility relevance to identify changes in life that are likely to be relevant for one's travel behaviour, and to test its effect on openness to change travel behaviour. In doing so, empirical work needs to develop adequate scales to capture the mobility relevance arising from the individual and structural factors and processes linked to life changes. Since there is variation among different geographical and cultural frameworks with regard to what is adequate and crucial for defining mobility relevance, we would like to encourage more studies on social and spatial factors influencing travel behaviour change within non-western contexts (Plyushteva & Schwanen 2018).

The empirical results in this study are rather weak. While the theoretical argumentation is the main part of this study, the empirical part has been a first attempt to test the theoretical concept. In contrast to the current study, future research should also address movers after their move when they actually experienced the conditions of the new place of residence. A comparison of movers who were offered a mobility package before their move with movers who were offered the package after the move would be very helpful. Going beyond stated interest, research about the interrelation of being interested in a package and actually changing travel behaviour remains most wanted. In general, we recommend a more in-depth investigation of the mutual interdependence of between residential choice, travel behaviour and interest in alternative travel modes.

Overall, we would like to encourage further research on ways to induce or enlarge mobility relevance and thus to widen and deepen the window of opportunity for behavioural change.

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