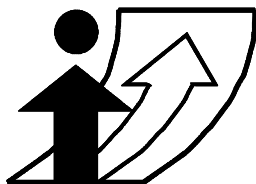

Mobility biographies. A new perspective for understanding travel behaviour

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1. Introduction

Changes in individual's travel behaviour play a central role when assessing the impact of policies designed to affect the travel of persons or when forecasting the future demand for travel. Previous research has very much focused on daily travel and factors affecting this from a static perspective. However, dynamic changes are an important element of travel behaviour (see Goodwin et al. 1987 and Goodwin 1998), and these dynamic effects cannot be captured with static models and cross-sectional data (Dargay 2001). We assume that travel behaviour research until now has been limited in its ability to understand individual's behavioural changes because of at least three limitations which were important for the research design presented below: first, surprisingly little research has been carried out on the effect of long term decisions on travel behaviour (as an exception see for example Cervero and Landis 1992, Ommeren et al. 1999 on the impact of job relocations on commuting) although previous research showed that habits play a central role for the short-term decisions (Bamberg 1996, Axhausen et al. 2001; for leisure travel see Lanzendorf 2001). Therefore, the question how and when travel habits change becomes of interest and, thus, how decisions on a higher time scale affect the travel habits. Second, most frequently travel research is limited to the use of cross-sectional instead of longitudinal data. Although panel studies are frequently suggested to overcome these deficits, the long duration of data collecting, high costs and high panel mortality rates limit their feasibility and reliability. Moreover, panels do not adjust flexibly enough to new research questions. Finally, travel research focuses more on statistical correlations between relevant factors than on causal relationships. To our knowledge the use of qualitative methods and the search for causal relationships between relevant factors is still very limited.

In this paper we present the theoretical framework of 'mobility biographies' with which we aim to address the limitations of previous research by using a life course approach. The life course approach has been put forward by demographic and housing researchers in various research fields. From this viewpoint people's behaviour can be explained by its continuity over life time and by specific events that involve major changes in other domains of life. The term 'mobility biography', then, refers to the total of an individual's longitudinal trajectories in the mobility domain and assumes that events in these trajectories exist or, put in other words, that at certain moments in individual's life the daily travel patterns, the car ownership or other mobility characteristics change to an important degree.

The aim of this paper is to develop further the theoretical framework of the life course approach for the empirical analysis of mobility biographies. The purpose of the paper can be

summarized in three points: first, we review methodologies to assess dynamic changes of travel behaviour (section 2); second, after discussing the role of habit for behavioural changes (section 3), we suggest a theoretical framework for the analysis of travel behaviour changes based on a life course approach (section 4); and, finally, we present the results of a literature review on events affecting travel behaviour in the life course framework.

2. Methodologies – State of the art

In this section we discuss the state of the art of methodologies for the longitudinal analysis of travel behaviour. Most travel behaviour research uses cross-sectional data (Gärling and Axhausen, 2003) which is easier, faster and cheaper to obtain than time series or panel data and which can easily be adjusted to the needs of a research problem. This type of data is of limited use for the assessment of travel behaviour dynamics because it yields only data for one point in time and ignores people's history which likely affects subsequent choices (Gärling and Axhausen, 2003). However, frequently from age or life cycle variables conclusions about the effect of time on travel are drawn although these could be caused by other factors, for instance a detailed analysis showed that age cohorts behave different and therefore age is not the only factor but for example a generation effect is hidden, too. The main limitations of cross-sectional data can be summarised as showing only statistical relationships but not causalities; the data from different studies is due to methodological differences frequently hard to compare.

Moreover, Simma & Axhausen (2001) argue that some relationships between relevant variables for explaining travel behaviour are time lagged such as the travel distances by car availability or public transport usage by season-ticket ownership. These effects could only be investigated by panel data but not with cross-sectional data (similarly Dargay, 2001).

Travel diaries over several weeks like for the mobidrive (e.g., Axhausen et al. 2001) or the Uppsala survey (e.g. Hanson and Huff 1982) aim at capturing intra-personal variability (Schlich and Axhausen 2003). Although these are longitudinal types of data collection, they are only of limited relevance for the analysis of mobility biographies in this paper since they collect no data on intra-personal behaviour changes. In the following section we examine three methods in detail that can yield empirical evidence to our research question: pseudo-panels from time series data, panel data and retrospective interviewing techniques.

2.1 Pseudo-panels from time series data

The 'pseudo-panel' methodology refers to the construction of cohort data from time series data by tracing the cohort in each of the cross-section data sets and calculating the cohort averages for car ownership, income etc. for each year as observations in a panel (Dargay 2001; the methodology was introduced by Deaton 1985). For example, Pendyala et al. (1995) use the pseudo-panel methodology to show with the Dutch National Travel Survey that the relationship between car ownership and income is not constant over time and conclude that the income elasticity changes with the level of motorization. Dargay (2001) shows with this method for the UK that the effect of rising income on car ownership is stronger than that of falling income. Earlier examples can be found for the determinants of car ownership entry and exit (Jansson, 1989) or for car ownership and licence holding (Van den Broeke, 1988).

However, with the pseudo-panel methodology changes are only observed on the aggregate level of age cohorts and, therefore, only little information about the reasons for the observed changes is available in the data set. For example, if there are regularities of the car distances over life-time discovered, how can these be explained? Is it because of the aging or are other factors like the available income or health problems underlying this observation? Additional information is necessary to answer these questions.

The obvious advantage of pseudo-panels is that they use data that already exists over long time periods and therefore allows to assess long-term effects. Furthermore it is a relatively cheap and quick method since no new data needs to be collected while, with newly designed panel studies it takes several years before long-term effects can be analysed. The main disadvantage of pseudo-panels is that they do not allow to assess individual's behaviour changes but stay on the aggregate level. Moreover, they frequently are not adjusted to the relevant research theme since they are as long-term time series frequently not specific enough and relevant variables for the problem under discussion may be missing.

2.2 Panel data

Panel data refers to a methodology with continuously repeated surveys for analysing behavioural changes with the same sample of persons. The advantages of this methodology for investigating dynamic aspects of travel behaviour have frequently been articulated (Goodwin et al. 1990, Hensher 1985, Kitamura 1990, Kitamura et al. 2003, Raimond and Hensher 1997) although only a minority of studies is of that kind (for an innovative example see the Puget Sound Transportation Panel Survey which includes a series of attitudinal questions, too; see Puget Sound Regional Council, 1997; Clifton and Handy, 2001; Kuppam et al. 1999). Among

the advantages of are (Duncan et al. 1987, Kitamura et al. 2003): first, the preparation of more coherent and accurate forecasts and the monitoring of trends in the population; second, the reduced amount of time between an event of interest and an interview and, hence, a reduced imprecision due to memory loss; third, the reliability of measurement since for example attitudes, travel behaviour, expenses or income are reported regularly and not from retrospective questions like in cross-sectional surveys; fourth, a better statistical leverage in sorting out causal patterns; and, finally, potential reduction of survey costs. If sampling errors are usually lower for longitudinal surveys than for repeated cross sections as put forward by Duncan et al. (1987) is, however, questioned by Kitamura et al. (2003).

Some methodological problems arise with the use of panel studies. Most frequently the so-called panel mortality is mentioned which means that with each wave of the panel a certain number of participants quits the survey and has to be replaced by new participants. Therefore, in a long-term perspective only a certain share of the initial participants is still in the panel and only for this group the intended behavioural changes can be observed. But, since the selection of this subgroup is dependent on various reasons it is not an arbitrary subsample and therefore the statistical representativeness of the sample may be biased. Another disadvantage of the panel methodology is that it takes several waves and, normally, years before it delivers the data it was constructed for. Meanwhile, the research needs and questions may have changed and, therefore, the panel might yield only a part of the required data. Therefore, it does not in all cases deliver the quick responses to actual policy or planning problems like suggested by the proponents of the methodology. Axhausen (1993) stresses another important weakness of the panel methodology. Repeated questioning of the same persons could affect their attitudes toward the research issue and, therefore, observed changes would not only be the outcome of factors analysed but of a methodological artefact, too, which is hard to disentangle. Finally, Hensher and Wrigley (1986) and Kitamura and Bunch (1990) point to statistical problems like how to include time lagged dependent variables in panel data models and how to solve the problem of heterogeneity versus true state dependence.

2.3 Qualitative retrospective data

Although retrospective data can be drawn both from quantitative and qualitative surveys, we will draw our attention in this section on the question what type of information from qualitative retrospective data can be derived for our purpose. Since the reliability of retrospective data is one key problem, we argue that with a qualitative survey the reliability of retrospective interviews related to mobility biographies is expected to be sufficiently high while for a quantitative survey the reliability question needed to be answered first.

In recent years several authors reviewed qualitative methods in transportation research (e.g., Grosvenor, 2000; Clifton and Handy, 2001; Mehndiratta et al., 2001; Røe, 2000). Clifton and Handy (2001) argue that although qualitative methods have been used in transportation studies before, “the field has been predominantly entrenched in a quantitative paradigm for some time” due to the historical dominance of the engineering disciplines. Moreover, skills and training for qualitative research may lack. Similarly, Røe (2000) argues that the close connection of transport geography with policy decision-making, the frequent co-operation with engineers in urban planning, the advantages of quantitative methods for simulation studies, the focus on motorised transport and the male dominance are some of the reasons for the quantitative dominance while other subdisciplines of geography experienced important advances through qualitative and interpretative methods.

Qualitative methods rather complement than substitute quantitative approaches by their depth and breadth (Grosvenor, 2000) and by the ability to discover causal relationships (Clifton and Handy, 2001) while mathematical modellers tend not to be concerned with understanding social objects (Sayer, 1992). As Mehndiratta et al. (2001) put it, transportation researchers frequently analyse the structural elements of the physical, technological, institutional and social environment that affect travel. But they have difficulties to analyse the rules of process that characterise and explain the behaviour of individual agents in the modelled context, and the fundamental rules governing interactions among agents since the rules applied, like for instance ‘utility maximising’, are not adequate and do not consider other elements of decision-making like habits, incomplete information or uncertainty. Qualitative methods can help to fill this gap.

Qualitative techniques for travel behaviour research include focus groups, interviews or participant-observation techniques (Clifton and Handy, 2001). They can improve the design (prior to quantification) and the interpretation of traditional surveys (post-quantification, e.g., Handy et al., 1998), can be used parallel with quantification (e.g., Jones et al., 1985) and they can be independent of quantitative surveys (e.g., Gaber and Gaber, 1999; Kurani et al., 1994).

Clifton and Handy (2001) argue that attitudes are becoming increasingly important for transportation research and provide additional explanatory power beyond demographic, socio-economic and neighbourhood characteristics for travel behaviour (e.g., Kitamura et al., 1997; Handy and Yantis, 1997; Kuppam et al., 1999; Mokhtarian and Salomon, 2002). Since attitudes allow to measure qualitative factors that are important for travel behaviour and they are difficult to include in surveys, qualitative methods can explore these.

The advantages of a qualitative, retrospective method include that a view back on factors of change in relevant situations can be taken. Robinson (1992) argues that autobiographical

memory refers only to the recall of events in which a person has directly participated, and which is opposed to incidents in other people's lives which one knows only through observation or instruction. This autobiographical memory is used for biographical information (Ladkin, 2002). Ladkin (2002) argues that autobiographical events are successfully remembered from across the lifespan and, therefore, personal biographical information is likely to be remembered for the analysis of mobility biographies. Furthermore the recall of autobiographical events improves if events are important for the self-schema, linked to long-term goals and the events are pleasant and memorable. By adequate techniques, the memory recall of respondents can be improved, that is by starting with the most recent event and tracing events backwards in time and by describing the event to be recalled accurately (Ladkin, 2002).

The application of qualitative methods can be time and cost intensive (Clifton and Handy, 2001): first, to understand the situation and relevant elements for the decision-making of the respondents is time consuming; second, the recruitment of participants may take time and creativity; third, it may need financial and other incentives to recruit participants; fourth, high skills, both technical and related to the research subject, are required from the interviewers which is costly again; finally, the data reduction can be laborious and, hence, costly again. However, when comparing the retrospective technique with longitudinal data collections, the latter are much more time consuming, expensive and have higher attrition rates (Ladkin 2002, Dex 1991).

3. Habits and changing travel behaviour

In this paper we understand habits as the repeated performance of behaviour sequences by individuals. Habits are used when the costs of searching for alternatives are too high, the expected gains of alternatives are too uncertain or if the repetition of past solutions makes behaviour easier and less risky, in particular if the person acts under constraints of time, budget or social commitment (Gärling and Axhausen, 2003). In social psychology the past behaviour, the intention and the situational opportunities and constraints are potential determinants of behaviour (Eagly & Chaiken, 1993; Gärling et al. 1998). Intention is defined as the probability with which the actor consciously assigns to an engagement in a particular behaviour. Intention and habit are therefore reciprocal: the stronger determinant habit for an actual behaviour is, the weaker determinant intention is, and vice versa. The formation of an intention, thus, is preceded by a deliberate information processing including the choice of a decision strategy, the information search, the selection and construction of alternatives and the evaluation of these alternatives, and a habit is defined as the choice of a behaviour without deliberation (Gärling and Axhausen, 2003).

Travel behaviour is to a large extent habitual, daily travel patterns tend to repeat themselves daily, weekly and perhaps annually (e.g., Lanzendorf 2001, Pendyala et al. 2001). Therefore, if choices are non-deliberate they may be difficult to influence with travel demand management strategies like for example individualised marketing of public transport, travel blending, information services, variable message signs, low key increases in out-of-pockets for parking, and management of parking spaces or with rational arguments like increased costs since the person making the choice tends to discount relevant information, thus the question arises how habits can be broken? (Gärling and Axhausen, 2003).

For changing habitual behaviour Dahlstrand and Biel (1997) argue that additional measures are necessary. Garvill et al. (2003) in a field experiment ask subjects about their choices for home-based trip chains to make the choices more deliberate. They find that temporally the car use in the experimental group decreases for those with a strong car-use habit. In another study, Fujii et al. (2001) found that a forced change of a driving to work routine by the reconstruction of a highway raised the awareness for the attractiveness of alternatives to the car. With a one month free bus ticket, Fujii and Kitamura (2003) increased the bus use frequency and the positive attitudes towards bus of an experimental group of car drivers even one month after the experimental phase since the car choices became less habitual.

Finally, Bamberg et al. (2003) showed that after a residential change a free public transport ticket plus related information increased car users' choice of public transport considerably – irrespective of the past frequency of car use and against the starting hypothesis that frequent car users would be more resistant to change their travel modes. They conclude that automatic travel behaviour is not in all cases resistant to change since an awareness and evaluation of choices exists.

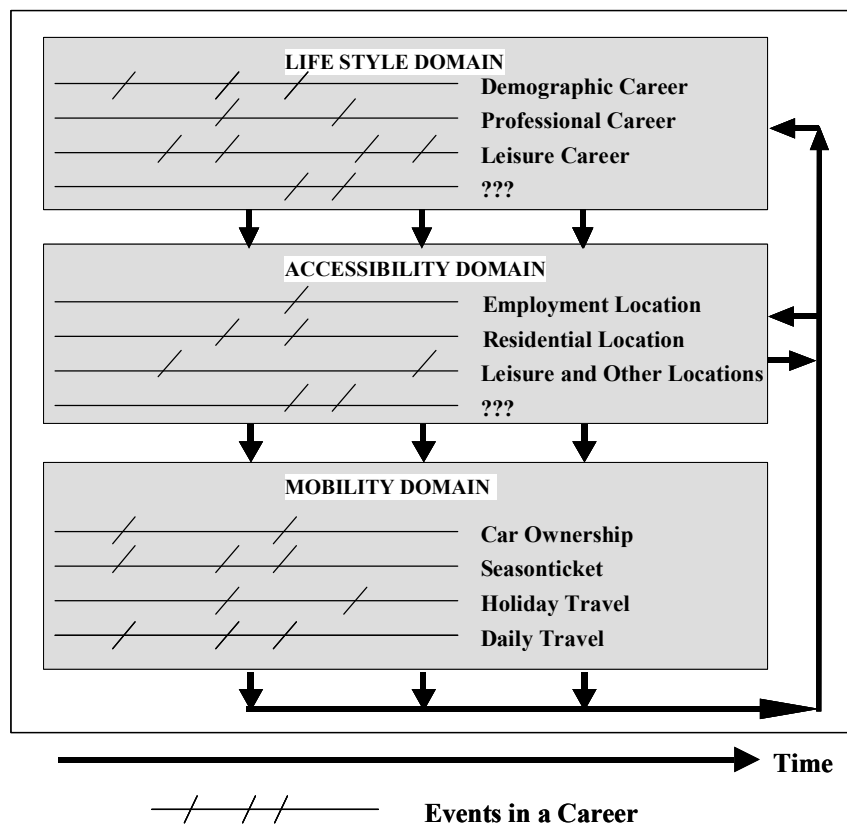
However, the focus of this paper is less on the effect of incentives for changing attitudes and, ultimately travel behaviour. Although we consider attitudes as a part of the explanation of travel behaviour and related dynamics, attitudes are only one subjective element of behaviour explanations among other subjective and objective factors.

4. Mobility biographies – A theoretical framework for further analysis

Given the results of the previous sections, we believe that with a biographical approach, we may deliver new insights in the development and causalities that explain travel behaviour. With this paper we present a theoretical framework challenging the limitations of previous research by using a life course approach. The life course approach has been put forward by demographic and housing researchers in various research fields (see Wissen and Dykstra 1999, Mayer and Tuma 1990). From this viewpoint people's behaviour can be explained by its continuity over life time and by specific events that involve major changes in other domains of life. For analytical purposes, the life course can be subdivided into a series of life course trajectories: events and stages between events in certain domains of life. It is the key interest of life course researchers to analyse the probability of interactions of different life course trajectories. Demographic issues (e.g., Wissen & Dykstra, 1999) and residential relocations (e.g., Dieleman, 2001; Mulder & Hooimeijer, 1999; Ommeren et al., 1999; Vlist, 2001) are some applications of this approach.

For the application of the life course approach to the travel behaviour analysis we use a theoretical framework suggested by Salomon (1983). By modifying and adding a temporal dimension to his theoretical framework (see figure 1), we distinguish between three life domains covering the relevant trajectories for travel behaviour: the life style domain referring to the social, cultural or political environment like the formation of a family, the participation in labour force or the orientation towards leisure; second, the accessibility domain with the relevant locations of residence, job, leisure or others activities and, therefore, of relevant urban form elements; and, third, the mobility domain with the availability of modes (car ownership, public transport season ticket) and the actual activity and travel patterns.

Figure 1 Life domains and related events that affect mobility biographies



Source: adapted and modified from Salomon 1983

With ‘mobility biography’ we refer to the total of the longitudinal trajectories in the mobility domain and assume that events in these trajectories exist or, put in other words, that at certain moments in individual’s life the daily travel patterns, the car ownership or other mobility characteristics change to an important degree. With the hierarchical structure of the model discussed above, we expect that the life style and the accessibility domains affect the mobility biography notwithstanding the fact that this effect may occur vice versa, too.

In contrast to Salomon’s (1983) model, we included commuting and car ownership to the mobility domain although we acknowledge that the relevant decisions take place relatively seldom when compared with other daily travel decisions. However, for analytical purposes, we found it useful to distinguish the decisions that directly affect travel from other choices. Moreover, we included season tickets, which are probably less important in the U.S.A. than in Europe, in the model since these are comparable to car ownership for explaining the decision-making. However, it should be noted that the relationships between long-term commitments for certain travel modes by car ownership or season ticket and short-term travel decisions are more complicated than generally expected (see Simma and Axhausen, 2001). Therefore, the

trajectories should be considered independently. Finally, we added the trajectory of holiday travel to the mobility domain since holidays form an important part of an individual's life style and daily travel is in one or the other way interrelated with the life style and the holiday travel. Furthermore, short and long holiday trips have been mainly overlooked by the community of transportation researchers yet.

In the next section we ask about which events in lifetime are important for understanding the mobility biographies.

5. Events in individual's mobility biographies

Although habits are responsible for the main part of travel behaviour, we already mentioned that this habitual behaviour may change over time, sometimes immediately and sometimes time lagged with other events in the life course. In this section we ask about the type of events that may influence changes of travel habits. We distinguish between changes in the life style domain including demographic, educational, professional or leisure events, and changes in the accessibility of places like residence, workplace, shopping, leisure facilities or transport infrastructure.

Life style domain

With life style domain we refer to all those constraints and preferences for travelling that result from life choices in the broader range of a life course and that are not part of the daily travel and activity choices, of the long-term commitment toward travel modes (e.g., car ownership, season ticket) or the accessibility of places. In particular, we refer in this domain to the demographic and household careers like formalized by the life cycle concepts, to educational and professional careers including the actual state of being employed or not, the type of employment and the retirement. Other areas of individual's life choices like leisure activities, children's activities and household arrangements like the distribution of reproduction tasks are part of this domain, too. In the life style domain we may distinguish, first, between personal and household characteristics that both are relevant and, at the same time, between the more 'objective' characteristics like income, age, household structure, leisure activities and the more 'subjective' characteristics like attitudes or orientations toward travel, modes, leisure and other activities. In our understanding, subjective and objective characteristics are strongly interrelated and depend on each other. For instance, leisure activities and orientations reflect each other strongly. Although effects of objective and subjective characteristics are some-

times hard to discern, we emphasise that both are possibly relevant for mobility biographies by enforcing each other.

Age and generation effects

The first empirical evidence we review is that age and generation affect the rates of car-ownership. With a cohort analysis on pseudo-panel data of the UK it has been shown that households with the head of household in his/her early 50ies have the highest rates of car-ownership which can be explained as an effect of the life cycle since income and the number of adults in these households with frequently adult children is relatively high (Dargay 2001). This pattern is repeated by each age cohort. However, the age cohorts show one important difference: more recent cohorts reach at each 'age' higher rates of car ownership than earlier cohorts. This effect can be named as a generation effect.

Household composition – life cycle

With qualitative data from couples with children, Heine et al. (2001) conclude that children in households and their age affect the distribution of household responsibilities, professional careers, the car availability and ownership and, ultimately, travel in a fundamental way. In particular, they argue that after the birth of a child, activity patterns of the parents change. While before the birth, travel and activity patterns of men and women are not too different, with the birth of a child women mainly stop working and take over the maintenance tasks in the household. However, in a deal with their partner, most frequently for fulfilling the diverse maintenance and child care tasks women take over the car access – at least if there is only one car in the family. On the other hand, the male partner commutes by public transport or bicycle to the workplace but has no responsibility for maintenance anymore. With growing children, the women frequently re-enter the labour market again, mainly part-time and care-taking tasks change – from being present to becoming a taxi-driver: from home to kindergarten to school and afterwards to leisure activities or friends. Therefore, the children generate tight time schedules for part-time working women which frequently can be best fulfilled by the automobile. When the children reach the age of adolescence they frequently are socialised by the automobile representing independence (from the parents) and being a part of the society and of the peers. Therefore arriving at the age of being allowed to drive a car by law, frequently translates immediately in high rates of driving licences and orientations toward car driving as a leisure and activity on its own. These attitudes, mainly of male young adults, only change when founding a family with the use of and the attitudes towards a car becoming less oriented on automobiles but more pragmatic, for instance by handing over the car responsibility to the child's mother (Heine et al. 2001).

Income

Income and prices for transport have for long been seen as the main factors for explaining the amount and the mode of travel. However, already Golob (1990) argued with panel data and structural equation modelling that income has both an immediate and a dynamic influences on car ownership, the latter by affecting life style decisions. Recently, Dargay (2001) supported this finding and added with a cohort data analysis constructed from the 1975 to 1995 UK Family Expenditure Survey that car ownership rates respond much more to raising than to falling incomes (similarly, Goodwin 1998 and Pendyala et al. 1995). For the time lag with which individuals respond to changes in income or prices, Dargay (2002) points to the persuasiveness of habits, inertia, high search costs, uncertainty and imperfect information which let individuals only make slow adjustments of their behaviour. For the complete adjustment to new prices or income, Dargay (2002) expects that four years are necessary.

Educational / Professional career

We already mentioned the effects of a job pause due to the birth of a child by women on travel. Another impact is that the first job affects car ownership and travel in an important way by an increasing income which allows a broader range of travel options like shown above. Furthermore, the location of the first job may be further away from the actual residence. For staying living in that place, a car might be necessary to reach the workplace in a considerable amount of time, a reason which for some inner-city residents who were able to conduct their activities without a car before, leads to the purchase of a car (see Heine et al., 2001). In any case, a first job or a job change, frequently related with an increase in income, is an events in the life course that may affect travel related decisions. Another change of the professional career is the retirement which allows for a new arrangement of lifestyle choices. The availability of more free time and the new time arrangements affect travel (e.g., Kaiser 2003).

However, it should be remarked that the availability of a car affects the job search on its own. If no car is available, the probability of finding an adequate job is restricted to jobs in the vicinity or which are easy to reach by public transport, for instance those in the inner city.

Leisure activities and related attitudes

Leisure activities and orientations are a main expressive element of individual's life styles and their way of showing membership of a peer group or of distinguishing themselves from others (Lanzendorf, 2001). Research on life styles, mobility styles and attitudes as well as their effects on travel has drawn considerable attention of transport researchers over the past years. There seems to be a common acknowledgement that the introduction of subjective under-

standings and perceptions advances the quality of explanations in travel behaviour research. However, little is known about how these factors change over time and how this affects travel choices. For families, Heine et al. (2001) found that males change their attitudes toward cars once they become fathers. Before, automobiles played an important part in leisure activities for fun riding etc., later the car use becomes much more pragmatic. Heine et al. (2001) conclude that the car use and the related attitudes change from an irrational to more rational although it is unclear if the total amount of car travel reduces over time since with children new travel needs arise that frequently are coupled with car use.

Moreover, Heine et al. (2001) state that with the birth of a child parent's leisure activities change. Although fathers tend to continue with their independent leisure activities more than women, there is a tendency of more common 'family' activities on weekends which are mainly organised around the child's interest. When the child is under the age of three, leisure activities are closer to home than before and different in type. When the child grows, the activities tend to become more diverse by maintaining extensive networks of social relationships or by visiting leisure theme parks. The family car is used to travel to most of these activity places although cycling is frequently perceived as an attractive alternative by families on weekends. Furthermore, changing leisure activities of children may affect family activities on weekends and, thus, the related travel.

Although the importance of leisure activities and attitudes for travel has been shown in a number of studies (Kitamura et al. 1997, Lanzendorf 2001, Fliegner 2002), it remains an open question how changes of these affect the mobility biographies.

Accessibility domain - Spatial factors

Changes of the transport system

Travel behaviour researchers repeatedly confirm that improving the public transport service level and reducing the service level of car transport affect mode choices (e.g., Everett & Watson 1987, Hensher & Button 2000, Ben-Akiva and Lerman 1985). However, Fujii and Kitamura (2003) argue that the impact of travel demand management measures like road pricing, new public transport systems or traffic restrictions results from affecting the beliefs, attitudes or routines to travel. Therefore, they conclude, when transport service levels change only temporary, this may however change the psychological factors and, hence, the travel behaviour permanently. From their empirical results they recommend to include temporary struc-

tural changes in the list of TDM measures.

Spatial factors

The residential relocations and daily travel patterns, in particular for commuting or for social contacts are closely related (Ommeren et al., 1999; Vlist, 2001). However, as Heine et al. (2001) put it, sometimes it is hard to distinguish between cause and effect when families move with the first child to suburban areas and start commuting by car. Evidently, the decisions are interrelated and important to disentangle for a better understanding of what causes an important share of car travel. Heine et al. (2001) argue that car ownership shows a double character for young families. On the one hand it allows the search for suburban, detached family houses with gardens and a safe environment for the children. On the other hand, it necessitates further car travel due to the lack of shopping or leisure facilities, friends or jobs in the neighbourhood and quality expectations for services (e.g., the children's doctor) that can only be fulfilled in the urban areas. However, they also show that families exist who they call young 'urbanites' who are less frequent but who stay living in urban neighbourhoods although their income would allow to afford the suburban living. But instead these families want to continue their urban lifestyle with qualities different from the suburban ones.

Similarly, the frequent location of higher education facilities like universities close to the inner cities of European cities allows students to live without an own car and to develop an urban life style which is shaped by activities mainly in urban areas and which uses mainly non-car travel modes, for instance enforced by public transport season tickets for students.

Heine et al. (2001) report another effect of the spatial environment. While families in suburban neighbourhoods tend to buy a second car for pursuing their needs, urban residents stay with one car only since they have enough opportunities to access destinations with other modes.

Since the literature on the effects of urban form on travel is broad, we will not go in any further detail here. However, we expect to explain the relationships between urban form and travel from the biographical viewpoint in a more clearly way.

6. Conclusions

With this paper we asked for the impact of events in the life course on travel related decisions. ‘Mobility biography’ referred to the total of the longitudinal trajectories in the mobility domain and we assumed that events in these trajectories exist that make them change considerably. With the hierarchical structure of the choice model, including life style and accessibility choices that affect the mobility domain, we broadened the look to other life trajectories that are relevant for mobility behaviour.

First, we asked about the adequate methodology to capture the relevant effects in the life course for the mobility biography. Although pseudo-panel or panel studies offer some advantages over other methodologies, we concluded that retrospective qualitative interviews are the best methodology to explore the variety of possible interactions and to discover causal relationships between different life domains. For understanding decision patterns in a complex reality, we favoured the qualitative methodology.

Second, since habits form an integral part of most travel decisions, we asked about the consequences for policy instruments. From empirical evidence we found, nevertheless, that travel decisions can be affected by information or incentives. However, sometimes the consequences of changes are time lagged.

Third, the literature review showed various aspects to be relevant for the interactions between various parts of the life trajectory. Without repeating the details it seems worth noting, that the approach enhances our understanding of individual’s decision-making and the relevant factors for these decisions. From these results we expect further steps forward from an own empirical research which was not available for the preparation of this paper yet. However, it is expected to present first empirical results at the IATBR conference in Lucerne.

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