

The Meaning of Geographical and Social Aspects for Private Mobility in Cities

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Abstract

In spite of urban projects and numerous sources of information about the necessity of the protection of natural resources, most people have not yet adopted an appropriate manner of behaviour. A number of studies concentrate on quantities of mobility, but very few – if any – focus their attention on the underlying structures of the individual organisation of everyday life. My aim is to examine the feasibility of sustainable development from the perspective of Weber's "Handlungstheorie," or theory of action. I will investigate the relations between spatial and social factors that lead families in urban areas to a specific choice concerning the means of meeting their daily transportation needs.

Mobility connects the different spheres of habitation, work, education, procurement and spare time.

Social and spatial changes have increased the need for mobility. Although cities usually have a good public transportation infrastructure, they increasingly suffer from the burden of private transportation. Therefore it is of particular interest to inquire about the reasons for intensive utilisation of individual vehicles. Families have to co-ordinate the needs of several individuals, so their organisational efforts are quite high and they are, for this very reason, especially suited as subjects of investigation.

Regarding selected districts, social and spatial grounds for the selection of means of transportation are to be evaluated by means of empirical social research. Possible indicators could be the necessity of accomplishing several activities in one trip, or the cost of transportation for commuting in relation to people's available resources.

Introduction

Up to now, the realisation of sustainable development has been considered a question of a more effective use of natural resources. In an attempt to reduce waste, new technologies have been developed and, for example in the automobile industry, recyclable materials have replaced less environmentally friendly materials. In recent years, German city planners have attempted to make vehicular traffic less effective and thereby less attractive by reducing lanes on streets and highways, increasing the costs for parking spaces, and improving bike paths and public transportation. Despite these efforts, vehicular traffic continues to increase unabated. This suggests that quantitative research and the solutions offered by new technologies are not sufficient for the sustainable development of cities. The following article will introduce a new perspective in the field of horizontal mobility based on the theory of action point of view. Mobility and the selected means of transportation of families in cities will be investigated.

Mobility is an enhancement as well as a necessity for the management of everyday life. The mode of transportation selected by an individual is influenced by particular aims, motives, intentions and an affective or rational sense. A family is a social subsystem, a special kind of group defined by role conceptions and specific social interaction.

Theoretical Approach: Theory of Action

Elements of Max Weber's Theory of Action

In his numerous writings, Max Weber (1864-1920) developed the idea of an interpretative sociology and the basics of today's various manifestations of a theory of action. The cognitive interest is the human action: the method of discovery, investigating and understanding the intention of the action. Presented here is a short synopsis of the main terms and ideas, because they are significant for this thesis. It is, however, not yet clear what specific connection this thesis will share with the theory of action, or what it may add or refine.

Action

According to Weber, the term "action" means all human actions as far as they have a sense, an intention, a motive, and an aim. These actions should also be oriented towards external objects in order to influence them in some manner. An omission of, or failure to perform an action is also considered an action. (Thieme 1997) That means that there exists a close connection between mastering a concrete situation and a person's inner feelings: his or her wishes, ambitions, and convictions. (Schaefers 2002)

Intention and its Comprehension

An action is determined by intention and sense, both being based on certain motives and purposes. The action is committed in a goal-oriented and reflective manner. (Schaefers 2002) Weber distinguishes between several types of action according to intention. (Weber 1956; Thieme 1997; Henecka 1993) Here are the four types:

1. A target-oriented rational action, which is concerned with nothing but achieving the desired result while minimising resources used.
2. A value-based rational action, which is focused solely on an irrational value without considering if the underlying target can be achieved.
3. An affective action, which is based on momentary moods and emotions.
4. A traditional action, which follows traditions and irrational customs.

Since every action is caused by either an objective or subjective sense, scientific analysis of human action has to take that sense into account when trying to explain social phenomena. (Kaesler 1995) This is true even though the limits of expedient actions are often undefined and many proceedings consist of comprehensible and incomprehensible elements. (Weber 1956) It is relatively easy to understand those motivations that are either rational or affective, and it is often the case that a subjectively believed sense as an action's motivation can be deduced by looking at social norms.

This thesis will try to evaluate and comprehend, based on Weber's theory of action and by means of empirical research, the motives that lead families in cities to favour private modes of transportation. This

shall redound - within the realm of sustainable development – to the possibility of changing those motives and circumstances that induce a resource-intensive mobility.

Everyday Life

Everyday life is that sphere of action where people acquire fundamental social orientations. Everyday life is determined by inter-subjectivity and unquestioned facts and conditions. (Meuser 1994) People develop habits and acquire everyday tasks, tend to accept the status quo of social conditions, and try to avoid serious conflicts. Everyday life describes intimate situations based on self-evident expectations. (Fuchs-Heinritz 1994)

There are three reasons to choose families as the subject of investigation: Firstly, the familial structure continues to be the most common life-style in Germany. Secondly, families have high levels of expenditure when attempting to meet the different needs of several people of different ages. Thirdly, children observe and acquire the familiar social constructs and often only revise these at a later age, if at all.

Social Aspects that determine Everyday Life

Common Social Aspects of a Family's Everyday Life

Apart from the common socio-demographic factors relating to adults (age, level of education, occupational status, income), the number and the ages of the children in a family and the apportionment of gainful work and household tasks between the parents have considerable effects on the co-ordination of families' everyday lives. Each family member also has, appropriate to his or her age, basic needs like shelter, work, education, procurement and spare time. Highly interesting, then, is the question as to what kind and what volume of mobility a family requires to meet these basic needs. To what extent do these basic needs induce mobility, and how far do spatial structures and the social reality of families entail the volume of traffic?

Definition of "Family"

From a macro-sociological perspective, family is a social institution that adduces a special social achievement. (Nave-Herz 1998) On the micro-level, family is considered a subsystem of the society or a group defined by means of interaction patterns and specific role ascriptions. Typical for families is:

1. that the biological and social natures manifest themselves in the form of repetitive and social functions
2. a distinction between generations and
3. a specific relationship of cooperation and solidarity amongst the family's members. (Nave-Herz 1998)

The Apportionment of Reproduction and Gainful Work

Now as before, the guiding principle of the nuclear family of middle-class Germany is the polarisation of gender roles. (Peukert 2002) It is chiefly the men who care for the family's livelihood, while women are mainly responsible for looking after the household and the education of the children. Dependent on children's ages, the employment of women in western Germany increased considerably between 1992 and 2002. During these ten years, the employment rates for mothers increased by

- 18% for mothers of children aged 1-3
- 28% for mothers of children aged 3-6 and
- 33% for mothers of children aged 6-10. (Institut für Demoskopie Allensbach 2002)

A representative study conducted in the Karlsruhe area found that in 36% of families with young children, both parents were employed.¹ The volume of women's employment is not specified, but the trend of development describing the simultaneousness of family and employment is obvious. (Peuckert 2002) In eastern Germany, in areas formerly belonging to the German Democratic Republic, female employment was the rule and not the exception. The day-care infrastructure was good enough to accommodate this.

Because of the tendency of males to minimise engagement in the fields of household upkeep and education, women have to carry a triple-encumbrance: independent of the volume and nature of their own employment, they also have to concern themselves with the complete organisation and coordination of familial everyday life and the education of the children. (Peuckert 2002)

I am going to investigate the effect of female employment on the family's mobility and these women's grounds for choosing a particular means of transportation.

Spatial Attributes Determining Everyday Life

Concepts of Space

Everyday life occurs in a particular space and is influenced by this space. Space as a segment of the earth's surface is not just the distribution area of different geo-ecological factors. Apart from physical factors like relief, climate, soil, and vegetation, cultural imprints – settlement structures, buildings and infrastructure facilities – affect the organization of everyday life. Thus, it is interesting to question the manifestation of societal conditions within the reality of space. That, in turn, means that we must look at a segment of the earth's surface that is physically filled in order to analyse the connections and interdependencies between human society and its physical environment.

Strictly speaking, urban ecology registers the functions and structures of urban eco-systems. While ascertaining the physical site characteristics, it disregards direct or indirect influences on the specific site, such as which social groups take on a value or significance based on which value system and in which way? On the other hand, the social sciences are criticized because of their partial blindness for spatial conditions so that social reality appears like a space-less construct or an incomplete projection of social reality.

This thesis shall rely on a spatial concept that determines the corresponding relationship between social and spatial phenomena. Thus those aspects obstructing the sustainable development at the level of individual actors shall be enlightened.

Within geography, Weichart (1999) distinguishes between six spatial concepts that can be selected according to different research subjects. The 'relativistic space concept' interprets space as a result of the relationship between physical-material objects. This relationship between material system elements decisively affects ecological, social, and economical processes. The affected people ascribe a sense to physical-material facts and integrate them into specific contexts of action. Therefore, specific aspects or sections of physical locations can be interpreted as social elements. A hindrance to this concept is the problem of mapping. These things with an ascribed value, relevant for everyday life, and appertaining to

the material world can be mapped to physical addresses. There is, however, no way to map the tension network based on physical relations and which can be associated with social reality and human subjects.

Three Levels of Space

This thesis works from the micro-level, with the single human being at the centre. The intermediate level considers the specific correlation of work and life within cities. These two levels always show simultaneous connections within the macro-level of a national constitutional society. (Läpple 1991)

In order to select a sphere of action and to register all the coherences, it is necessary to take into consideration all three levels of space at the same time, as micro-, intermediate-, and macro-space have their own characteristics and their own more or less abstract possible arrangements between spatial-material structures and social circumstances. Therefore the three spatial levels cannot but remain intertwined. Sustainability demands consideration of this connection: the idea is that macro-level problems can be solved by changing people's behaviour on a micro-level.

Everyday Life and Space

As mentioned above, everyday life and space are mutually dependent. On one hand, because of changed economical and social conditions, the necessity that people and goods be mobile has increased. On the other hand, the readiness for mobility of the people affected seems to have increased as well. The increase in mobility can be seen in association with political decisions on the macro-level and the realisation of the ideas of land use planning on the intermediate-level, both of which help to create the framework for using space on the micro-level.

Besides housing locations, places of employment have the greatest stability. The sectoral as well as the social law structure of places of work have a central-peripheral differentiation. (Fassmann; Meusburger 1997) That means that in urban areas, the volume of professional places of work within the third economic branch is exceedingly high. A valid fundamental is that the higher the level of qualification the steeper the central-peripheral gradient. (Fassmann; Meusburger 1997) At the same time, young families with high wages tend to settle down in the suburbs or in the surrounding countryside. This cannot be explained solely by passive factors, but by a central-peripheral descent of property prices. In a 2002 review of the city of Karlsruhe about "Mobility in Karlsruhe and the suburbs of Karlsruhe," for example, it was found that 22% of all jobs in Karlsruhe are executed by inhabitants of the suburbs and the surrounding countryside regions. This dispersion can be observed in other spheres of life, too.

Functions of Everyday Life

A German school of socio-geography based in Munich in the 1970s named 7 functions of human existence necessary for determining the occupancy of societal space: habitation, work, procurement [supplies/provisions], education, relaxation, road use, and communication. (Maier et al. 1977) These functions should be gaugeable, independent from social strata, in both spatial and temporal levels. They should be useful for the ascertainment of human space exploitation. (Werlen 2000) Both communication and road use are considered as mediators between the different locations of functions and the practice of those functions. (Maier et al. 1977) That is the reason why mobility is not a field of research of its own within socio-geography. There is no useless mobility; it is always a part of the other functions. (Werlen 2000)

Another interpretation is provided by the field of urban ecological research, which determines the effects of mobility based on such factors as traffic emissions and an exceeding consumption of resources. But urban ecology does not research the causes of mobility.

This thesis determines the possibilities for fulfilling the functions of everyday life and their induced mobility exemplified by the city of Karlsruhe. The persistence of people's spatial distribution is dependent on their particular sphere of life. As mentioned earlier the locations of habitation and employment are most stable, while the locations of free-time activities and supplies are the most variable. (Meusburger 1998) Therefore, the important question to ask is why, and in which manner, people coordinate their mobility and whether they use different means of transportation in the fields of

- supplies
- work
- free time and
- education

How are spatially flexible spheres of life connected to their locations? What roles do attainability and connections play in regard to public transport systems? Which means of transportation can actually be used in everyday life? Under which conditions do means of transportation prove unpractical for specific paths? Can we consider a city compact when there exists within it a series of knots of locations and actions of the functions of human everyday life? Is a mode of mobility that fulfils the criteria of sustainability actually possible in cities? If not, which spatial or social modifications are necessary?

Functions of Everyday Life of Families

Within the frame of the ascertainment of time planning in German households in 1991/92, the Federal Statistic Office of Germany proposes a list of activities that is based on the functions of everyday life. (Statistisches Bundesamt 1991/92) The combination of these functions produces a complex network of activities that are chiefly organised and often executed by mothers. In this section, activities will be assigned to the different spheres of life. These activities require high levels of mobility in order to carry them out and also to obtain their prerequisites. It is assumed that the people affected follow an intention and that their actions include an objective or subjective sense which makes mobility necessary and causes increases in traffic. It is also assumed that, with a raise in the number of children, the economical and organisational expenditures for fulfilling everyday life's functions and for meeting the needs of family life increase.

Habitation

Expenditures of moving will not be considered here. Objects of the investigation are families already living in a flat they have to care for and maintain in a way they consider to be habitable. The mobility and the choice of means of transportation necessary in this case shall be determined.

Work

The mobility and the chosen means of transportation of both adults for commuting or – in the case of unemployment – for seeking a job shall be determined. Important is the level of employment of the parents, which takes into account the idea that one person may hold several jobs. Of particular interest is the division of labour between the parents depending on the number and age of the children.

Supplies

The mobility for all household purchases shall be considered. Also to be determined is the mobility necessary for filling official and organisational needs or for individual household-related inclinations. The necessary mobility for health care, children and all services used must also be taken into account.

Education

One factor to be determined is based on the expenditures of mobility and the chosen means of transportation necessary regarding adult education. Another is the expenditures of mobility and the chosen means of transportation necessary for the children on their way to institutions of education or day-care centres. Do the children cover the distances on their own or are they accompanied by their parents? How significant a role do the children's ages and the safety of the urban roadways and paths play, and how does that relate to the time budget of the family on the other hand?

Spare Time

It is necessary to determine individually, for every member of the family, which means of transportation is used for every activity in his or her spare time.

Spatial Aspect of Meeting the Needs of Families in Cities

Social conditions and some aspects preferred by the families determine everyday life and mobility behaviour. In addition, there are numerous spatial factors that can be influenced by the family members indirectly or not at all: the possible locations of enterprises, purchasing- and supply-facilities and bus stops or train stations are defined by city- and land-use-planning or the national economic policy. The spatial relation between habitation and the above-described functions, as well as volume and quality of paths and means of transportation as an alternative for car usage, shall be determined.

Mobility

For the urban ecology research, JAHN & WEHLING (1999) suggest a three-dimensional concept of mobility. They distinguish spatial mobility as mobility and movement in the physical-geographical space from socio-spatial mobility and socio-cultural mobility. They define social-spatial mobility as mobility and movement to social places of functional activities which could be separated from the spatial mobility by urban land-use planning. JAHN & WEHLING consider the socio-cultural mobility as mobility and movement to or between positions in a space of social differences. Therefore, they pay attention to the symbolic meaning of the choice of means of transportation. They subscribe to a school of action theory that emphasises the symbol-mediated character of social action. JAHN & WEHLING consider as socio-culturally mobile those who make use of many options for representing social positions but also those with the ability of filling a highly esteemed social rank in reality or in a symbolic way. They suppose every movement to be a composition of all three differently weighted dimensions, still influenced by individual motorised mobility. (Jahn; Wehling 1999)

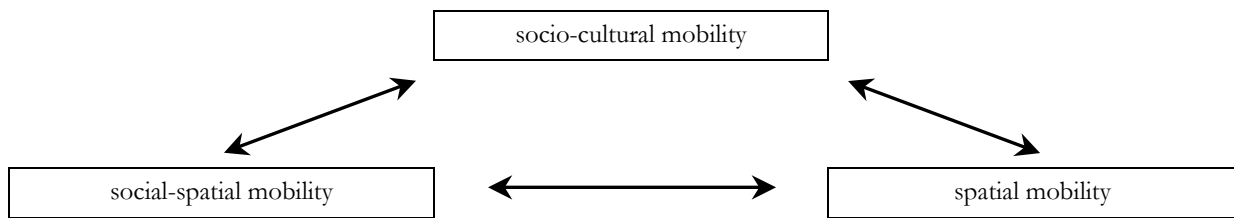


Figure 1: Levels of Mobility.

From the perspective of the theory of action, the target of every kind of mobility is to meet the needs of everyday life. The necessity and the extent of mobility is a question of urban land-use planning. However, the choice concerning the means of transportation is based on a subjective sense. This sense can be grounded in a traditional, affected or rational way. This objectively or subjectively-meant sense determining the choice of means of transportation for the people affected shall be investigated in order to explain the social and spatial correlations and to enable changing them in the future.

In his description of the post-modern life-style, WERLEN speaks of the spatial and temporal “de-anchorage” of different spheres of life. (Werlen 2000) Spatial and temporal dimensions do not determine the content of action any longer, but they are merely formal aspects of human action. Considering the paths of transport of different goods and the availability of these wares on the global market, one can agree with that within industrial societies. Also, some occupations function with an enormous need for mobility, caused by globalisation. It is exactly these unscrupulous resource-intensive means of transportation used that cause an extensive occupancy of space and pose large temporal inter-generative dimensional issues. That means that, in the context of mobility, two temporal scales have to be considered at the same time: the comparatively short-term advantage for the people actually affected and the long-term repercussions for current and future generations. The conjecture can be formed that people do not think about the micro-level temporal-spatial axis in connection with the macro-level one. That could be one of several possible explanations for the significant discrepancy between environmental attitudes and environmental behaviour. In order to be able to answer questions regarding the sustainable development with mobility as the objective, quantifiable aspects have to be considered together with subjective and qualitative factors.

Social-spatial Aspects of Families’ Mobility

To meet the needs of everyday life, different levels of mobility are necessary. These levels are dependent on the distances between the functional areas and the number and the age of the family members.

Table 1: Needs of Mobility, on a given day, of a family with two children.

Need of Mobility	Habitation	Work	Supplies 1	Supplies 2	Education1	Education2	Spare-time
P1	X	X	X				X
P2	X	X		X	X	XX	
C1	X			X		X	X
C2	X				X	X	

P1 = Parent 1 Procurement 1 = Purchase (e. g. for household) Spare-time = Activities not at Home

P2 = Parent 2 Procurement 2 = Service

C1 = Child 1 Education 1 = Day-care Centre

C2 = Child 2 Education 2 = School

This hypothetical matrix provides an example of some of the places that could be visited on a single day by one family with two school-aged children. One of the children also attends a day-care centre. Both of the parents are gainfully employed at different places.

At the end of the working day, Parent 1 goes shopping and picks up the eldest child (Child 1) from a spare-time activity. Together with this child, Parent 1 returns home. Parent 2 takes the younger child (Child 2) to the day-care centre and, after that, takes Child 1 to school. Then parent 2 commutes to his or her place of employment. After work, Parent 2 picks up Child 2 from school. Therefore, Parent 2 visits the functional place Education 2 a second time before returning home. That same day, Parent 2, together with Child 1, procures a service from the field of Supplies 2.

Physical-spatial Aspects of Families' Mobility

Mobility is required to meet the needs of everyday life. Different places located at various distances from each other and reachable by different means of transportation and under several conditions have to be visited.

Table 2: Travelling Times of Different Means of Transportation on a Single Day of Parent 1.

Time of Travelling P1 in minutes	Habitation → Work	Work → Procurement 1 + Transport of 5 Bags of Foodstuff	Procurement 1 → Spare-time + Transport of 5 Bags of Foodstuff	Spare-time → Habitation + Transport of 5 Bags of Foodstuff
Car = 65	2 on foot 20 commuting time = 22	1 on foot 10 travelling time = 11	20 travelling time = 20	10 travelling time 2 on foot = 12
PTS = 128 Waiting Period: 28	2 on foot 7 by train 3 waiting 15 by train 5 waiting 8 by bus 5 on foot = 45	5 on foot 3 waiting 8 by bus 5 by train 3 on foot = 24	3 on foot 2 waiting 15 by train 10 waiting 15 by train 1 on foot = 46	1 on foot 10 by train 2 on foot = 13

P1 = Parent 1 Procurement 1 = Purchase (e. g. .for household)

C1 = Child 1 Spare-time = Activity not at home

This fictitious example not only points out the relevance of the location connections and the transportation development of the different places; the influence of the number and the age of the children should also become clear. If this family had no children, Parent 1 would manage with less household purchases and would not need to pick someone up from a spare-time activity. Such coherence shall be represented in this thesis!

Ascertainment of the Motives for the Choice of Means of Transportation of Families

In 2002, internal data about the citizens and their mobility behaviour was determined in response to the city of Karlsruhe's request for said information. The results were that every household consists of an average of 2,3 people, that 52% of all households have a car, and that for a quarter of all households, two or more cars are available. On a single working day, mobile people take an average of four trips. They spend nearly one hour in transit and they travel an average of 20 km a day. 27% of Karlsruhe's citizens combine several activities in one trip. 33% of all trips are for spare time purposes, 22% for purchases, and 18% for commuting. 56% of all trips taken by private car involve escorting other people, 53% of the trips, the way to work and back, and 44%, purchasing goods.

To determine the motives for choice of different means of transportation, families should be chosen in two boroughs of Karlsruhe. They should be debriefed for socio-demographical aspects and for their actions for fulfilling their daily needs as well as their motives for their choice of the means of transportation.

Proceeding from the mapping of the location relations of the different functional areas, places visited and the chosen means of transportation shall be compared concerning their available alternatives.

Social (e. g. the parental situation of employment) and spatial (e. g. the available grocery stores) motives for the choice of the means of transportation shall be investigated. The results might be new perceptions for urban land-use planning to reduce the necessary mobility and to decrease individual vehicle traffic.

Notes

¹ Employed single parents count as two employed parents.

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