Shopping Facilities and Mobility Behaviour in East Germany: The Significance of Distance in the Choice of Store for Grocery Shopping

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After the collapse of the socialist system, far-reaching structural changes took place in East Germany, with particular rapidity in two specific areas: in retailing with the trend towards large-scale outlets in peripheral locations, and in passenger transport with the trend towards longer journeys made by car. As far as attractive local retail facilities are concerned, it is important to establish what potential they have in this specific context with regards to both supply and demand. A closely linked issue is that of the significance of distance as a determining factor in the choice of store for grocery shopping.

This article presents significant findings of empirical case studies which analysed the extent of actual use of existing local retail facilities at the level of individual households, taking into account differentiating characteristics with regard to both supply and demand. The findings from the urban and rural case study areas show that distance-related transport behaviour in grocery shopping is highly heterogeneous. The more comprehensive and modern the shopping facilities in a neighbourhood are, the closer these shops, the greater is the likelihood that local shopping facilities will be used; smaller, car-less households shop significantly more frequently in their immediate neighbourhood than larger, car-owning households, especially in rural areas. On the whole, while many motorised households avail of shopping facilities in their immediate neighbourhood so long as the range of goods on offer is large and competively priced, quite a number of households do not use these facilities but undertake quite long car journeys to alternative shopping destinations instead.

The empirical results show that distance, as a negative time and cost factor in the choice of shopping destination, is of only moderate significance for numerous households. Such a pattern of preferences reflects the fact that East German society has a particular affinity to consumption and automobility, which has its roots in the socialist era and established itself with

quite a radical dynamism after the collapse of the socialist system, an affinity which however is universal in character. It should not, however, be concluded from this that the planning model of a „city of short journeys" is unrealistic and ineffective; for such a model reinforces the potential of attractive local facilities when applied in planning practice, providing an option which is appreciated by many citizens.

1. Introduction

The fall of the Berlin Wall in November 1989 marks a turning point in recent history and is perceived worldwide as a memorable symbol of the failure of the socialist system in comparison with the modern Western world whose cornerstones are a free market economy, multi-party democracy and an affluent society. The potential for personal material advancement was much less in Eastern Germany than in Western Germany; private consumption and individual (motorised) mobility were very limited. This discrepancy was not the product of a broad social consensus, but was primarily a result of the inefficiency of the economic system. Dissatisfaction with material deficits was one of the chief reasons for the progressive decline of East German citizens' loyalty to their state and for the „implosion" of the socialist system after the fall of the Berlin Wall; in the East German parliamentary elections in 1990 the population clearly demonstrated its preference for a Western lifestyle.

Immediately after the political turnaround, a radical transformation of the patterns of supply and demand in consumption and mobility set in. Everywhere in the GDR, an extreme boom began in the construction of large-scale retail outlets offering cheap goods on „green field" sites, and in the sale of new and used Western cars, reflecting the preferences of East German society and its perceived need to „catch up"; the boom was aided by numerous transfer payments from Western Germany to businesses and private households.

Apart from practical benefits, the new shopping centres and newly purchased cars also symbolise two areas in which the collapse of the Eastern German system has had mostly positive effects from the citizens' point of view; in other areas such as the economy or employment, recent developments are characterised by numerous negative effects. The former GDR seems to be a transforming society with a strong affinity to consumption and automobility, which, unlike other Eastern European countries, has been able to put this into practice because of the high level of financial support received.

What effect did these developments have on individuals' shopping choices and their transport behaviour when shopping for groceries? An associated issue relevant to planning is that of the potential for attractive local retailing services (as an element of sustainable urban development) in this specific context. In the former GDR, a favourable factor is to be found in the inherited settlement structure in the form of large-scale estates of prefabricated, high-rise housing with a high residential density; an unfavourable factor is the tendency already mentioned to travel by car to shop in the new developments at more distant locations.

Grocery retailing structures have, however, also changed considerably in Western European states in recent decades: the supply of retail outlets has altered in favour of large-scale, cheap

stores in peripheral locations, while demand has swung in favour of travelling by car to shop for large quantities. With regards to the current potential for local provision of retailing services this touches upon the general issue of the relationship between supply and demand: What influence do settlement structures have on transport behaviour, what significance does distance have for locational choices relating to everyday activities?

This article presents the central findings of an empirical study of spatial shopping behaviour in the former GDR. A central aim of the study was to measure and analyse the significance of distance in the choice of store for grocery shopping in the context of new behavioural options. The empirical basis is the actual shopping behaviour of households; both urban and rural areas were studied. The focus is specifically on the extent to which the households studied actually use existing shopping facilities in their immediate residential neighbourhood, the factors which influence this use and the extent to which they do so. On the supply side, shopping facilities within and outside the immediate residential neighbourhood are taken into account in quantitative and qualitative terms; on the demand side sociodemographic status and car availability are taken into account. Before the description of the methodical design (Chapter 4), the presentation of the empirical results (Chapter 5) and their discussion (Chapter 6) the study's theoretical framework (Chapter 2) and the specific structures in East Germany are described (Chapter 3).

2. Theoretical framework

2.1 The development of settlement and transport

In recent decades, the development of settlement and transport in the Western world has been characterised by a considerable dynamism with a clear tendency: favouring scattered and monolithic land-use structures, and favouring transport by motor car. These two trends are closely interlinked and are particularly advanced in the USA. The transformation of settlement and transport structures has not met with a solely positive response; there is widespread unease as to the ecological, social and economic effects of the dominance of the private motor car. One response has been the development of planning strategies which aim for a greater mix of uses and higher densities and a renaissance of the compact, „European“ city (Schreckenberg, 1999). In this model, changed land-use patterns should form the basis for changed mobility behaviour with regards to both distances and means of transport, where short journeys and walking and cycling should become more important once again.

It is however unclear whether such a strategy can be successful. This question is part of the wider issue of the connection between land-use and mobility, i.e. how settlement structures influence mobility patterns (Bahrenberg, 1998). Many studies on this theme already exist, and their very different methodological approaches have sometimes produced very different results; Ewing and Cervero (2001) provide a useful overview. In spite of many discrepancies, there is a general agreement that the connection between settlement and mobility structures has weakened over time as a result of improved infrastructure and falling transport costs; the continuing existence of a significant correlation is hotly debated (Handy, 2002). In general it is to be expected that the results of any study will vary according to the type of activity and

the specific constellation of settlement and transport examined; for example, there is a difference between journeys to and from work and those made for leisure purposes, and there are major structural difference between North American and Central European regions which influence the correlation between land-use and transport.

2.2 Transport behaviour when shopping for groceries

The transformation in grocery provision is an interesting example of the trend in the general development of settlement and transport in recent decades, with regards to both supply and demand. Structural change in retailing has led to a considerable reduction in the provision of local facilities; at company level a high degree of concentration of firms has taken place, at a spatial level a loose network with stronger nodes has developed. Likewise, consumers' transport behaviour has altered radically, whereby long shopping journeys made by car have increased. These two aspects are interconnected: the use of cars by private households has been an important precondition for the success of the new, large-scale shopping outlets, usually in peripheral locations, as well as a significant product of their success.

With regards to the provision of local retail services today, the question arises whether and to what extent there is a connection between supply and demand, i.e. between the existence of local retail services and their use. Two hypothetical extremes can be identified: in the case of complete dependency, all households with a retail outlet in their immediate neighbourhood use this; all other households are practically forced to shop outside their immediate neighbourhood. In the case of complete independence, shops within the residential neighbourhoods have absolutely no competitive advantage due to their specific location, all households choose their retail provider according to other criteria. This issue is thus connected to the question of the role played by distance as a criterion in the choice of store: in the one extreme case being 100%, in the other extreme case 0%.

Transport behaviour when shopping for groceries is an interesting object of research which could throw some light on the significance of distance in the spatial organisation of daily activities. Firstly, shopping is an activity characterised by a high degree of freedom in the choice of destination (Recker and Kostyniuk, 1978). Secondly, groceries belong to the category of convenience goods which are purchased relatively frequently, directly and with the least possible expenditure of time or effort, which is why distance generally plays a larger role in the choice of destination than is the case with goods in the higher order goods categories (Handy and Clifton, 2001). Distance is of primary significance for transport behaviour, as in the planning strategy mentioned above this is the theoretical starting point for effecting change in the means of transport used; there is an affinity between short shopping journeys and the choice of walking/cycling and a means of transport (Snellen, 1999).

2.3 Decision-making processes in the choice of store for grocery shopping

The choice of store for grocery shopping is subject to a wide range of factors which can be grouped in three categories: the range of goods on offer, store type and store location. The first category includes the breadth and depth of the range of goods stocked, their quality and price levels. The category „store type“ includes store size, freedom of movement within the store and the presentation of the goods, as well as staff friendliness, service and the amount

of time spent queuing at cash desks. The third category includes the distance between stores and home, accessibility with various means of transport and parking facilities at the store, as well as the potential to link the shopping trip with other activities. This is not an exhaustive list of relevant factors, and they sometimes overlap as well as being interdependent, which however does not reduce their significance.

With regards to the choice of a particular store, the weighting of the individual factors in accordance with personal preferences is important, as well as the evaluation of these factors for known stores in the context of individual perception; are as a rule actual decision usually made in favour of the store providing the maximum benefit to the customer. For various reasons it is quite difficult to describe this decision-making process correctly at the theoretical level and to analyse it accurately at the practical level.

Firstly, it must be borne in mind that individual preferences can vary according to the situation. It is possible that a decision may be made in favour of several stores where different groceries are purchased; an alternative approach is to divide one's grocery shopping into a big shop, usually carried out on a weekly basis, augmented by several smaller shopping trips to different stores. Empirical studies show that this type of shopping behaviour is widespread (Holz-Rau et al., 1999; Handy and Clifton, 2001). Where several stores are regularly used there is usually one in which the greater part of the groceries are bought.

Apart from the methodological problems resulting from multiple shopping trips, the researcher is faced with the difficulty of determining the benefit to the consumer of a shopping trip to a particular store. One possible approach consists in viewing this benefit as a linear combination of the products of importance and satisfaction for the individual factors; when using such an approach it is debatable whether affective and cognitive components can be associated multiplicatively, whether the individual factors can be associated additively and whether the data can be assigned to a metric scale. It is also unclear how possible discrepancies with actual shopping behaviour should be interpreted (cf. Dichtl et al., 1978; Dichtl et al., 1982).

Likewise, when collecting data the extent to which the households' statements concerning their attitudes and perceptions in the context of grocery shopping can be relied upon is unclear. The empirical information has a high degree of validity only when the persons surveyed are willing and able to think sufficiently seriously about the decision-making process underlying their choice of store; given the complexity of the process it is doubtful if this condition is always met.

2.4 The significance of distance in the choice of store

From a geographical point of view, the spatial dimension in this decision-making process is of greatest interest, especially the relative significance of distance in the context of all the other factors. In classical benefit maximisation models, distance has a negative sign, reflecting individual expenditure of time, energy and costs to overcome distance: the greater the distance to a potential shopping destination, the lower the potential benefit (Handy and Clifton, 2001). The form of the partial benefit function is variable, depending on the weighting of this determining factor.

The systemic approach represents an opposing view, which sees transport both at the distance and the modal level not merely as the means to an end, a way of reaching a chosen destination by optimal means, but as an end in itself (Handy et al., 2003). According to empirical studies, many participants use the time spent travelling to relax or reflect, which gives distance a positive value, at least to a certain degree (Salomon and Mokhtarian, 2001). At the same time the motor car is an object, and driving an activity which have such a high individual value and are so deeply culturally embedded, not only in the Western world, that they can hardly be explained by rational-functional factors alone; this also implies a positive value for distance (Marsh and Collett, 1986; Heine, 1995; Giese, 1997; Kuhm, 1997; Rammler, 1999).

There have not been very many studies which address the issue of the significance of distance in store choice; four of these studies will be described briefly here. The emotional-symbolic level of determination has not been addressed by any of these studies.

In Buffalo, New York, Recker and Kostyniuk (1978) studied the factors which influence the choice of shopping destination in urban grocery shopping; the study was based on a written questionnaire survey of ca. 300 households from six areas. Three sets of variables were taken into account: individual preferences regarding quality, convenience and service, and the extent to which these were met by existing shops, individual assessment of these shops' accessibility, and the number of alternatives available. Statistical analysis of the responses showed that the individual factors work together in a complex manner, varying according to the type of store preferred; overall, accessibility in a non-linear form occupied a central position.

In Berlin, Holz-Rau (1991) studied the types of supply and demand structures that favour short, non-motorised grocery shopping journeys; the empirical basis of this study was a telephone survey of 260 households from residential areas with different levels of shopping facilities, with questions relating to shopping behaviour on a specific day. Emphasis was placed on the extent of shopping in the nearest store, which is determined by three factors with varying degrees of relevance. The availability of a car ranks before distance to the store in question and its size: the longer the journey and the smaller the sales area, the less often shopping will be done in the immediate neighbourhood. The central influencing factor is mobility status: car-owning households use local facilities much more rarely than households which do not own a car.

In Stockholm, Svensson (1998) carried out an analysis of preferences in grocery shopping taking quality and distance into account. The empirical basis for the study was a written questionnaire survey of ca. 1,200 households from three residential districts. Actual and hypothetical shopping behaviour were examined. The results show that there is a significant socio-demographic facet to the likelihood of shopping in the immediate neighbourhood, which tends to be favoured by older people, smaller households and households without a car. Also, many households expressed an intention to shop mainly in their neighbourhood in the future, as long as choice and prices are acceptable.

In Austin, Texas, Handy and Clifton (2001) analysed the potential for reducing motorised private transport by providing attractive local facilities. The study was based on a written questionnaire survey of ca. 1,400 households from six residential districts with varying types of shopping facilities; this was supplemented by discussions in focus groups. They deter-

mined the extent to which existing neighbourhood services are used and analysed individual determining factors. The findings are rather sobering: on average over the districts, only a third of the households usually shop for groceries in the nearest shop, because these shops do not fully meet many consumers' requirements as to choice, prices and quality. There are no sociodemographic parameters which significantly affect this shopping behaviour – with the exception of sex: women are less likely to use the nearest shop than men. However, the district as a settlement structure parameter which substantially reflects respective shopping alternatives within and beyond the immediate neighbourhood attains a significant level.

The findings of these studies are quite disparate with regards to the significance that distance has for store choice in grocery shopping. In Recker and Kostynuik's (1978) and Svensson's (1998) studies, this is given much more weight than in Holz-Rau's (1991) and Handy and Clifton's (2001) studies, which possibly has to do with their respective methodological approaches. While the first two studies used empirical data relating to attitudes or hypothetical behaviour when shopping for groceries, the latter two studies are based on empirical data relating to actual behaviour, probably thus reflecting the potential use of local services more realistically. Thus Handy and Clifton and Holz-Rau demonstrate very convincingly that „corner shops“ are scarcely capable of providing comprehensive local services given the current framework of supply and demand: while many people wish for a grocery shop in their immediate neighbourhood, they only carry out significant shopping there (if such a service exists at all) if it meets their requirements, which are usually quite high. This leads to the question, of considerable weight for planning theory and planning practice, of the form local shopping facilities must take if they are to be used sufficiently by local residents.

2.5 Conceptual approaches in this study

The aim of this study is to analyse the significance of distance in the choice of store for grocery shopping in Eastern Germany. The methodological approach consists of an examination of the actual behaviour of representatively selected households in differently structured areas, both urban and rural. The focus is on the extent to which these households use existing local shopping facilities in their immediate residential neighbourhood and on the supply and demand factors that influence this use and the extent to which they do so.

The factors currently influencing the availability of local shopping facilities in Eastern Germany differ significantly from those in Western Germany and other European states where economic development has been determined by the principles of the market economy for many decades. These differences relate to both supply and demand and are a result of the specific course of development both during the socialist era and since the collapse of the socialist system in 1989/1990.

With regard to spatial shopping behaviour, three areas are of primary significance: (grocery) retailing, (car) traffic and urban development. In contrast to Western Germany, structural development in Eastern Germany is characterised by a far-reaching break in 1990 and a radical transformation in the following years, so that a special situation has arisen, possibly temporarily. The following section describes the specific structures in Eastern Germany in the three areas mentioned above.

3. Structures specific to Eastern Germany

3.1 (Grocery) retailing

In the retailing system of the planned economy of the former GDR, state authorities decided stock and prices, locations and investments. There was a minimum level of competition and very little entrepreneurial freedom. In comparison to the Federal Republic of Germany (FRG), development was fairly stagnant; the network of shops thinned out in the GDR as well, but until 1989 there had been practically no growth in sales areas. In the grocery sector there was only about half as much sales space per inhabitants in the East, compared to the West. The store types were relatively undifferentiated; there were traditional, small neighbourhood stores and larger, more modern „Kaufhallen“ (supermarkets), usually in the new, large-scale, high-rise housing developments. Shopping journeys tended to be shorter, because a denser network of sales outlets was established for reasons of infrastructural policy. There were considerable deficits in the breadth, depth, amount and quality of the range of goods on offer, due primarily to production problems and affecting fresh goods most; however, many everyday goods were heavily subsidised. It was a retailers' rather than a consumers' market, with practically no incentives towards differentiation and expansion (Achen, 1996).

These deficits in retailing provision left their mark on the East German population. Although it was most evident in the case of middle and high order goods, consumer satisfaction was also quite poor in the low order segment; a central cause was the continual presence of the West German state. Through West German television, which could be seen almost everywhere in the former GDR, East German citizens were very familiar with the range of goods available in the West. The same effect was produced by the Intershops, where Western goods were sold in the GDR for Deutschmarks in order to profit from the high level of hard currency import resulting from the large numbers of Western visitors to the GDR following the detente policies of the 1970s. By the 1980s such shops were to be found all over the GDR. The expansion of the Intershops had other fatal consequences, splitting society into citizens with Western contacts and those without, and leading to a false acceptance of the Deutschmark as a second currency. In the 1980s problems with the supply of consumer goods worsened in the GDR. Their frustration because of unfulfilled promises of prosperity played a large role in the ultimate rapid fall in the population's loyalty to party and state and made the collapse of the socialist system unavoidable.

After the collapse of the socialist regime in 1989, the retailing landscape changed radically in the space of very few years. Intense competition began in the grocery sector; almost all of the major West German companies entered the East German market, which was well protected by state subsidies (transfer payments). New store types such as hypermarkets and discounters appeared on the market, and continue to enjoy a high level of popularity because of limited spending power in the East. Sales areas expanded remarkably: with massive financial support from the state, new retailing outlets were erected everywhere, initially largely in car-friendly locations on the urban periphery. This went against all urban development and planning guidelines, which were of little effect in the early years. The new shopping facilities were significant at a symbolic level for the East German population: as a sign of the longed-for

economic upturn, and also as a symbol of Western modernity, which had been inaccessible to them for many years. In the meantime, the growth in sales area in the „new“ states is so far advanced that provision per inhabitant is much higher than in the West, not only in the grocery sector; in the medium-term it is foreseeable that many stores will close down. The high level of competition in East German retailing was one of the chief reasons why the price index for groceries in 1993 was 8% below the West German level. Given all these circumstances, it is hardly surprising that consumers are generally satisfied or very satisfied with the new shopping opportunities, according to surveys (for details see Achen, 1999; Kulke, 1997).

3.2 (Car) traffic

The development of passenger traffic in the GDR was remarkably similar to that in the West, but it was much less dynamic. The volume of traffic, measured in kilometres per person, rose continually, due mainly to the extensive nature of housing development and the erection of new industrial areas at the edges of the cities, as well as considerable leisure and holiday traffic. The private motor car became increasingly important, while the share of public transport declined not only relatively, but ultimately in absolute terms as well. This reflected the fact that private car ownership was increasing steadily in Eastern Germany: in 1988 the level of motorisation had almost reached half that of the West at 225 cars per inhabitant (see figure 1).

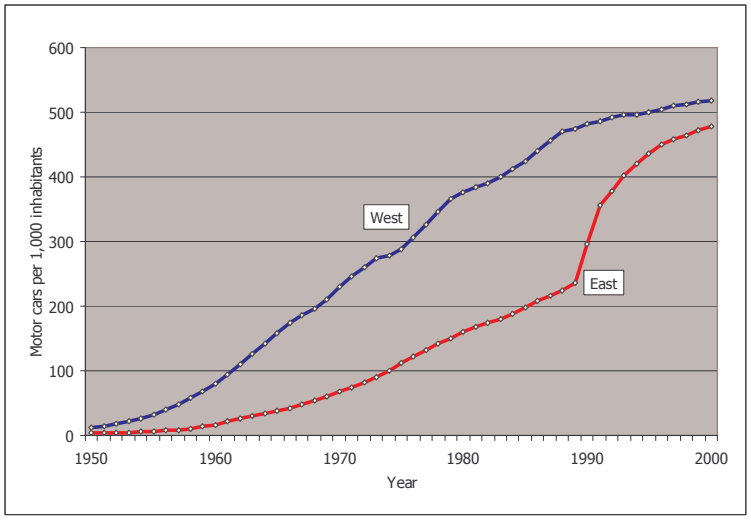

Figure 1. Level of motorisation in East and West Germany 1950–2000
Source: German Institute for Economic Research (1950-1993), Federal Office for Building and Regional Planning (1994-2000)

In the GDR, transport policy was characterised by a large gap between ideological ideals and actual measures undertaken: on the one hand was the declared primacy of public transport, as an expression of the collective lifestyle of a socialist society, on the other hand the competition with the FRG, which more or less forced a deviation from the soviet model (Kaminsky, 1999). As early as the 5th SED party convention in 1958, the then chairman Ulbricht propagated the aim of overtaking the West German standard of living concerning the provision of consumer goods by 1961, and promised „more cars and refrigerators“. Thus began a „wave

of motorisation“ in the East (Weymar, 1985). The state profited insofar as the increased individual motorised traffic compensated for the serious deficits in public transport, and the high purchase costs siphoned off general purchasing power which benefited the economic balance in the short term. On the other hand this development contravened ideological principles, as the purchasing prices worked against the aim of evening out social differences; likewise they prevented the optimal use of national economic resources, as imported fuel was very expensive. This leads to the assumption that the state leadership was well aware of the links between political stability, social satisfaction and automobility, and that in this point at least the much-cited unity of people and party actually existed (Kuhm, 1997; Wolle, 1998). The high purchase costs and long waiting lists did nothing to lessen the attraction of owning one's own vehicle, which (as in the West) was a symbol of individual prestige and was carefully looked after. Given the level of social regimentation, the motor car had an important compensatory function as a sort of „licensed escape“, by means of which the individual's desire for freedom and privacy could be fulfilled.

After the collapse of the socialist regime in 1989, the predisposition of East German society to automobility, already observable in the socialist era, manifested itself radically, and car number and car use increased remarkably. In only two years the level of car ownership increased to 79% of the West German level and by 2002 it was at 93% of the West German level (see figure 1). According to the official income and consumer sample survey, car ownership per household had already reached 93% by 1998, for households with a chief earner under 55 years of age it was as high as 102%, although disposable income was much lower than in the West (Nünnich and Illgen, 1999). This involved a tremendous concentration of expenditure for the purchase of a car; according to calculations made by the Federal Office of Statistics in 1991, twice as high a proportion of a household's budget was expended on this item in the newly acceded states as in the „old“ federal states (Bolleyer and Burghardt, 1994). According to questionnaire surveys in the year of unification (1990), the purchase of a „Western“ car was the most frequent consumer wish, which over 40% of households had fulfilled by autumn 1991 (Barthel and Schüttauf, 1994; Wenke, 1994). At the same time, the distribution of transport types had changed very much in the favour of the motorised private transport (Hesse, 1999). According to data from the SrV (system of representative traffic surveys), the share of everyday trips made by car rose from 24% in 1987 to 42% in 1998, while public transport experienced a dramatic loss in the same period, falling from 26% to 14% (Ackermann et al., 1998).

The attraction of motorised individual transport has obviously not suffered from increasingly frequent delays in traffic jams because the improvement of infrastructure could not keep pace with the rate of motorisation (Stein, 1992). On the contrary: according to the results of two long-term studies carried out by market research institutes, the motor car has an intrinsic value in the „new“ states which has proven to be very stable.

In the annual Allensbacher Market and Advertising Analysis (AWA, www.awa-online.de), representatively selected persons are asked whether the statement „driving is always fun“ applies to them. As figure 2 shows, the level of agreement among those with a driving licence and a car in their household is somewhat higher in the East than in the West, with values around 35% in all the years between 1991 and 2002. Considerable differences emerge with

regards to the statement „driving is no fun at all“, which however was only put up to 1996; the level of agreement in the East is up to 17% lower than in the West. The values for the former GDR are all the more remarkable given the fact that the external conditions (infrastructural quality) were quite unfavourable, especially in the early years after unification.

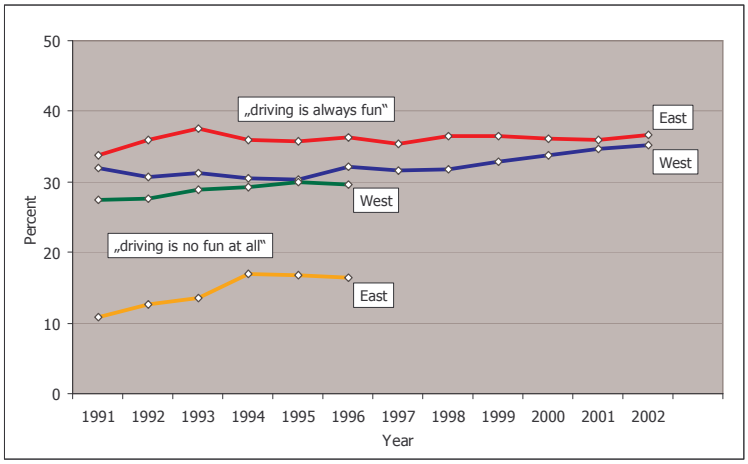

Figure 2. Attitudes to cars in East and West Germany 1991–2002
Source: Institute for Public Opinion Research Allensbach

Likewise, in the annual Typology of Wishes (TdW, www.tdwi.com), representatively selected persons are questioned as to their attitude to cars; the data are freely available on the internet. As in previous years, the current figures for 2003/04 show that the level of agreement with the statements presented vary noticeably between East and West. Persons with a driving licence and a car in their household are asked if they agree with the following statements: „I can no longer imagine living without a car“ evoked 71% agreement in the East and 60% in the West, „my car is more than a means of transport“ was agreed with by 41% in the East and 31% in the West, „when I drive I can tune out completely“ with 29% agreement in the East and 23% in the West.

3.3 Urban development

Urban development in the GDR was characterised by the erection of large new housing estates in all larger and medium-sized cities; in the 1970s and 1980s alone, more than 2.1 million rental apartments were completed in prefabricated blocks, usually on the urban periphery. In contrast, the existing older housing stock was completely neglected; restoration and maintenance of late nineteenth century housing were practically non-existent. New, single-family housing was also of almost no significance. By 1989 there were a total of 144 large-scale housing estates, each with more than 2,500 residential units, and these were home to a quarter of the East German population. In the light of the dramatic deficits in older housing, the level of satisfaction with the housing situation in these compact new estates was quite high; their infrastructure was relatively modern (Fuhrich and Mannert, 1994; BBR, 2000).

After 1989 suburbanisation processes began in the East, with a different sequence of events from the pattern common in the West: First, retail outlets were opened in the urban periphery, followed by production units and finally by rental and owner-occupied housing. The prefab-

ricated estates retained their popularity initially; in the course of privatisation the existing shopping facilities were almost entirely taken over by Western companies. It was only at the end of the 1990s that large numbers of apartments in the big estates began to remain empty, as a result of the general decline in population in East Germany as well as the newly available alternatives on the housing market. Nevertheless, the settlement structure preconditions for the „city of short journeys“ planning concept are still relatively favourable in Eastern Germany.

4. Data and methods

4.1 Data collection

The empirical results presented in this article are from a household survey on shopping behaviour and satisfaction with shopping facilities in the „new“ federal states, which was carried out in June 1995 in the context of a larger research programme on the „Transformation of locational structures in Eastern German retailing since 1990“ (Achen, 1999). Development in this sector is characterised by a drastic gain in significance for peripheral locations at the local level and the regional level, closely linked to a high degree of concentration at company level and extreme growth of sales space. It was the aim of the research project to analyse this development with regard to its political, administrative, economic and social determining factors, at a global level and using regional case studies. The focus of the household survey was on consumers' preferences, with regard to both opinions and behaviour, in choosing between the primary and secondary locational network; the primary network includes all store locations within the built-up area, the secondary network includes all store locations beyond this area, i.e. all locations on the peripheries of towns and settlements. From a sectoral point of view, the main emphasis was placed on clothing and textiles; a secondary focus was on groceries. In this context, data were collected relating to behaviour (store location, store type, usual means of transport, average length of journey etc.), satisfaction (in general and with selected attributes within the individual sectors, in comparison with the socialist period) and attitudes to the new „green field“ retail outlets.

The standardised oral survey was implemented in six areas in the federal state of Brandenburg between 80km and 120km from Berlin (see figure 3): in two higher order centres (Cottbus, Frankfurt/Oder), in two middle order centres (Finsterwalde, Templin) and in selected rural communities in two districts (Spree-Neisse northwest of Cottbus, Elbe-Elster southwest of Finsterwalde). In all areas, the households were selected by means of random route procedure; the starting points of the routes were distributed all over the respective areas and in each area 32 such interview routes were chosen. In the urban areas the survey was announced in a personal letter to each of the selected households and in a press release, in the rural districts by means of a leaflet distributed to all households. In the case of a refusal (23%) or repeated absence of the members of a household (23%), the interviewers visited previously determined substitute households. Acceptance was greater in the rural districts than in the towns and cities. A total of 3,272 interviews were carried out in the six districts.

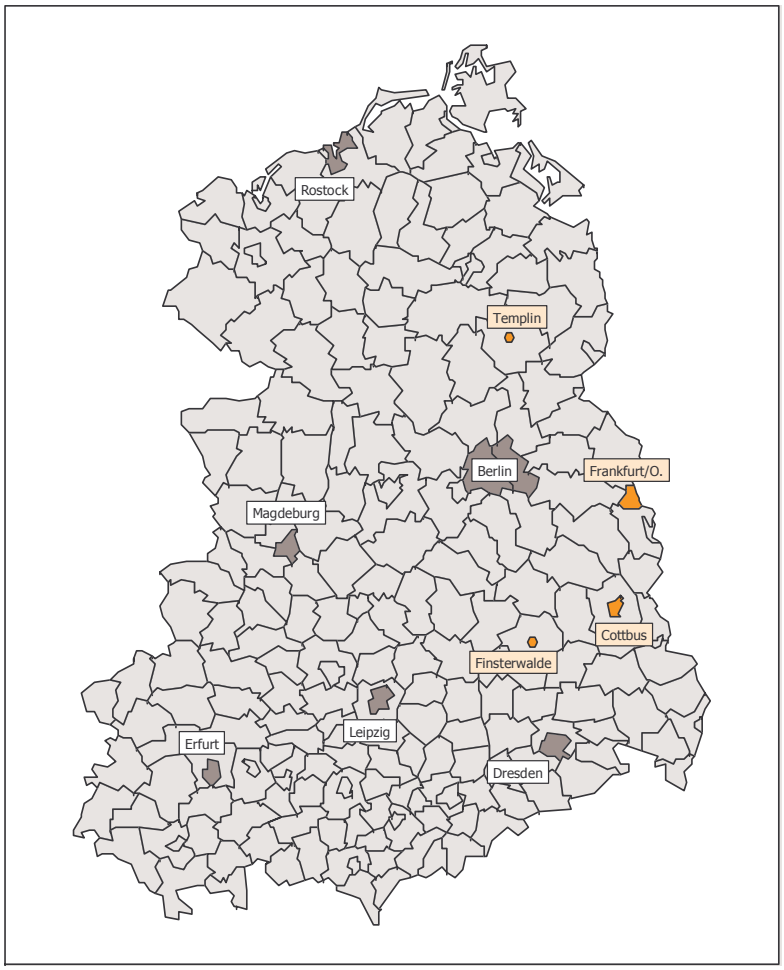

Figure 3. Position of the urban study areas in East Germany

4.2 Shopping facilities in the areas studied

Table 1 shows selected aspects of grocery shopping facilities in the four towns, based on structural data from a retail survey carried out by the author early in 1995. The stores are divided into five categories according to their type: *hypermarkets* with a sales area of more than 2,000m², *larger supermarkets* with a sales area of 1,000m² to 2,000m², *smaller supermarkets* with a sales area of 200m² to 1,000m², *discounters* with sales areas between 400m² and 800m², and *traditional grocery shops* under 200m². There are marked differences between the four towns. A hierarchy emerges in the number of hypermarkets, corresponding to the size of the towns, from three in Cottbus to one in Templin. The latter is not a result of low demand in this middle order centre, but is due to the municipality's restrictive planning policy, which has rejected all planning applications for peripheral locations; instead five discounters have opened within the built-up area, contributing significantly to the good quality of grocery retail facilities in the town. In three of the four cities there are ca. 0.3 hypermarkets per 1,000 inhabitants, in Templin the value is double this. The total grocery sales area per inhabitant is much higher here than in the other towns; but even in the other towns the

grocery sales area has more than doubled since 1989. In comparison to the other towns, Finsterwalde has fairly modest facilities with 6 modern type stores.

Table 1. Inhabitants, number of grocery stores and number modern grocery stores in the urban survey areas

		Town			
		Cottbus	**Frankfurt (Oder)**	**Finster-walde**	**Templin**
Inhabitants	(in 1,000s)	123.2	80.8	21.7	14.0
Number of grocery stores	Hypermarket	3	2	1	0
	Big supermarket	5	4	2	1
	Small supermarket	7	6	1	3
	Discount store	18	11	2	5
	Grocery	22	10	9	4
Number of modern grocery stores	Total	33	23	6	9
	per 1,000 inhabitants	0.27	0.28	0.28	0.64

In the two rural study areas, about one quarter of the households surveyed live in a place with at least one modern type grocery store with a sales area of more than 200m², about half of the households live in a place with one traditional grocery store and about one quarter live in a place with no grocery store at all. In the Spree-Neisse district, the lower order centre Burg falls into the first category with two smaller supermarkets, Dissen, Fehrow, Werben, Papitz and Guhrow come into the second category, and Kunersdorf, Striesow, Schmogrow and Briesen have no grocery store. In the Elbe-Elster district, Rückersdorf falls into the first category with one smaller supermarket, Doberlug, Sorno, Oppelhain, Friedersdorf, Lindena and Gruhno are in the second category, and Lugau, Pechhütte, Fischwasser, Eichholz and Drößig have no grocery store. Close to Doberlug, there is a small supermarket on the road linking the subsidiary centre Doberlug-Kirchhain to the main part of the settlement.

4.3 Sociodemographic structure of the households

The sociodemographic structure of the households is shown using two parameters in the statistical analysis: firstly car ownership, and secondly their composition in terms of persons, where three factors are taken into account: whether its members are employed or not, the number of adults and the number of children. Four categories have been identified, after Snellen et al. (1999): (a) Households with no one in employment and with one adult member, (b) households with no one in employment and at least two adult members, (c) households with at least one employed person and with no children, (d) households with at least one employed person and with children. There is no information on household income; out of consideration for the specific past experience of citizens of the GDR as a totalitarian Big Brother state, such sensitive data were not collected in a survey which is not anonymous.

As table 2 shows, household composition is fairly uniform in the six study areas. In all areas, the proportion of households with members in employment falls between 66% and 70%, this figure is lower only in Finsterwalde (58%), which is characterised by a high number of older

citizens. Within this group the households with children are in the majority. The group of households with no members in employment consists primarily of retired persons; within this group the single-person households form a large minority.

Table 2. Household composition and car ownership in the urban and rural survey areas

		Town				District	
		Cott-bus	Frank-furt (Oder)	Fin-ster-walde	Tem-plin	Spree-Neiße	Elbe-Elster
		Households (%)					
Household composition	none working, one adult	15	15	19	13	12	9
	none working, two adults	19	19	23	17	19	21
	working adult(s), no children	31	25	27	29	31	29
	working adult(s), children	35	41	31	41	38	41
Car ownership	yes	73	73	68	79	81	82
	no	27	27	32	21	19	18
Number of households		*n=578*	*n=543*	*n=532*	*n=510*	*n=533*	*n=576*

In contrast, there are certain spatio-structural differences in car ownership, which is almost ten points lower in the two higher order centres (73%) than in the two rural districts. This difference corresponds to general patterns in East and West Germany, whereby car ownership is lower in urban areas and agglomerations than in rural areas. There is also a difference of almost ten points between the two middle order centres; this reflects the fact that Templin is at the centre of the extremely rural Uckermark region while Finsterwalde has large numbers of pensioners who don't own a car.

4.4 The statistical analysis

The statistical analysis was carried out separately for the urban and rural study areas and in each case took place in three steps. Firstly, the structure of current shopping behaviour was portrayed in terms of three parameters: (a) the store type of the shop where the households do most of their grocery shopping, (b) the means of transport usually used, and (c) the distance between the home and the preferred shop. In the four towns the distance was divided into three categories, bearing in mind the perspective of a pedestrian: short journeys up to 250m, medium journeys from 250m to 500m and long journeys over 500m. Taking the street network into account, the first category corresponds roughly to an actual walk of up to 300m (5-10 minutes) and the second category means a walk of up to 600m (10-15 minutes). In the two rural districts the limits for journey length were tripled to 750m and 1,500m because of the loose and largely linear settlement form. All the data refer to the store where the household buys most of its groceries; in the case of a multiple answer the closest store was chosen. The variety and complexity of individual shopping behaviour was reduced to this primary destination with regard to the issue of the profitability of modern local shopping facilities; for secondary destinations primarily serve special requirements and/or needs arising because of forgetfulness, which alone can scarcely suffice to secure the economic basis for comprehensive and cheap shopping facilities in the residential neighbourhood. The primary destination usually corresponds to the store generally visited to shop for large quantities or the weekly shopping.

Secondly, the locational structure of existing grocery shops was described with regard to their distance from the households surveyed, using the same categories listed above. Taking store type into account, two values were recorded: the total number of shops and the subtotal of modern type stores. The latter was recorded because it can be assumed that traditional shops are not considered as a primary shopping destination by many households because of their usually limited range of goods and higher prices.

A comparison of supply and demand structures immediately shows that neighbourhood shopping facilities are only actually used by a certain section of consumers. This poses a central question: what factors determine shopping behaviour with regard to the distance travelled to the shop where a household does most of its grocery shopping, and to what extent is each of these factors significant? In order produce a differentiated analysis, a logistic regression was carried out between the non-use of existing shopping facilities as a dependent variable and four potential influencing factors as independent variables using SAS/STAT (proc catmod); two of the factors relate to sociodemographic status, two to the built environment. The logistic regression was always calculated in two variants: for the immediate neighbourhood and the wider neighbourhood. The analysis included all households surveyed with at least one grocery store in their neighbourhood.

5. Empirical results

5.1 Urban study areas

Shopping behaviour and distance to shops

As shown in table 3, the structure of demand varies quite considerably between the four urban locations, but this results largely from the supply structures, measured by sales area. The greatest differences emerge among the hypermarkets, which are used much more frequently by the residents of the two high order centres than by those from the two middle order centres; this is compensated by the greater concentration of shoppers from the middle order centres on discounters. Overall, the new low-priced forms – hypermarkets and discounters – are well-represented everywhere; in Finsterwalde and Templin they attract just fewer than 50%, in Frankfurt 50% and in Cottbus considerably more than 50% of households. It is worth noting that in Finsterwalde every sixth household continues to shop primarily in a traditional grocery shop; in the other towns this store type is of practically no significance as a primary shopping destination. In contrast, the towns vary only moderately in the distances covered for shopping purposes: in the four towns, 43%-50% of households travel a long distance for grocery shopping, and 28%-39% of households have a short journey. There is a slight difference between the two middle order centres, shopping journeys generally being shorter in Templin, because of the compact nature of the settlement and the higher density of modern shops.

The following tendencies can be observed in the choice of means of transport: where a car is available it is used for shopping by about every second household. Together with pedestrians

the car drivers are most numerous, with values between 38% and 45%; in the higher order centres these values are somewhat higher, in the middle order centres a little lower (table 3). The bicycle as a means of transport plays a significant role in Finsterwalde (because of the many pensioners) and in Templin, where it has a long tradition as a means of transport in rural areas (Förschner, 1993); in Frankfurt it is of practically no account because of the topographic unsuitability of the Oder terraces, which results in a certain degree of significance for public transport services. The values correspond roughly with the forecast for Eastern German shopping traffic made by the DIW (German Institute for Economic Research, www.diw.de) using the SrV (system of representative traffic surveys) of 1994: on foot 41%, bicycle 12%, public transport 10%, car 38% (Kloas and Kuhfeld, 1996). The public transport value is higher here, which is quite reasonable, as public transport is used more frequently for the purchase of many goods from the non-food sector such as clothing, shoes and books, which weigh less and have a smaller volume.

Table 3. Preferred store types, means of transport and trip lengths (urban survey areas)

		Town			
		Cottbus	**Frankfurt (Oder)**	**Finsterwalde**	**Templin**
		Households (%)			
Preferred store type	Hypermarket	43	28	9	1
	Big supermarket	15	28	29	13
	Small supermarket	15	15	11	38
	Discount store	24	27	35	45
	Grocery / other shop	3	2	16	3
Trip length	short: up to 250 m	32	35	28	39
	medium: 250-500 m	18	19	26	18
	long: more than 500 m	50	46	46	43
Means of transport	On foot	41	49	31	40
	Bicycle	12	3	31	19
	Public transport	2	5	0	0
	Car	45	43	38	41

The three parameters are closely interlinked: there is a strong connection between the length of the shopping journey, and store type and means of transport. As is to be expected, journeys to hypermarkets and discounters are longer, while journeys to supermarkets and especially to traditional grocery shops are shorter. Cars are used more for longer journeys, bicycles for medium length journeys and short journeys are made on foot. The extent to which motor cars are used for grocery shopping beyond the immediate neighbourhood is remarkable: 60% of all shopping journeys over 250m and 75% of all shopping journeys over 500m are made by car.

Table 4. Distance to the nearest grocery store and to the nearest modern grocery store (urban survey areas)

		Town			
		Cottbus	**Frankfurt (Oder)**	**Finster-walde**	**Tem-plin**
		Households (%)			
Grocery store	short: up to 250 m	87	76	52	69
	medium: 250-500 m	12	23	46	17
	long: more than 500 m	1	1	2	14
Modern grocery store	short: up to 250 m	69	72	29	68
	medium: 250-500 m	27	22	43	13
	long: more than 500 m	4	6	28	19

Naturally, the locational structure of grocery shops and their distance from the households surveyed is a significant factor. As table 4 shows, in all four towns more than half of the households surveyed have a grocery shop in their immediate neighbourhood (within 250m) although the values differ considerably, from 87% in Cottbus to 52% in Finsterwalde. The nearest shop for the remaining households in three of the four towns is usually at a distance of between 250m and 500m, with the exception of Templin where the nearest grocery shop for 14% of the households surveyed is at a distance greater than 500m. The proportion of modern type stores is lower in the immediate neighbourhood in all the towns, as would be expected. Nevertheless, in Cottbus (69%), Frankfurt (72%) and Templin (68%) more than two thirds of the households surveyed have such a store in their immediate neighbourhood, but in Finsterwalde only 29% of households have a modern store within 250m. This figure for Finsterwalde corresponds with the proportion of households who have to travel more than 500m to the nearest such store (28%).

If the availability of grocery shops is compared with the journeys made (distance covered), it becomes apparent that a considerable proportion of households does not make use of grocery shops in their immediate neighbourhood. Thus in Cottbus and Frankfurt, 87% and 76% of households respectively have a grocery store within 250m but only 32% and 35% respectively state that their most frequent grocery shopping journey is less than 250m. Even when modern store types are available in the neighbourhood (within 250m of 69% of households in Cottbus and 72% in Frankfurt), they are not necessarily availed of. It is essential to identify the factors which influence the use (or non-use) of shopping facilities and their relative importance.

Factors influencing the use of neighbourhood shopping facilities

The utilisation of existing local shops was analysed at two levels: for the immediate neighbourhood within a radius of 250m and for the wider neighbourhood within a radius of 500m. A logit regression was carried out between this use and four potential influencing factors; two of these factors were related to sociodemographic status and two to the spatial environment. The database in each case consists of all households surveyed in the four towns with a least one grocery shop in their neighbourhood; for the analysis of shopping within a radius of

250m n=1,541 (71% of the 2,163 households surveyed in the four towns), for the analysis of shopping within a radius of 500m n=2,070 (96% of the households surveyed).

Table 5 shows the estimated logits for non-use of an existing grocery shop in the individual sub-categories and their probable error. Only primary effects are shown here; in spite of the considerable sample size, interaction effects between the sub-categories of the individual variables were almost always not statistically significant. With regard to interpretation, it should be born in mind that the logit is defined here as the natural logarithm of the quotient of the estimated probability of non-use and use of local shopping facilities among the households of the relevant sub-category: the higher the logit the less likely the probability of shopping being done in the immediate residential neighbourhood - and the other way around; there is however not a linear relationship between the individual values. The probability is the probability of error for the hypothesis that this logit is actually different from zero.

The sociodemographic status of a household is described by car ownership (as a dummy variable) as well as its composition (with four categories). The spatial environment of a household is described firstly by the provision of shops in the immediate neighbourhood, where two factors are taken into account: the number of modern type stores and the type of store. Under store type four categories are taken into account: (a) no modern store, but one (or more) traditional grocery shop(s), (b) a small modern store with a sales areas of less than 1,000m² (small supermarket, discounter), (c) a large modern store with a sales area of more than 1,000m² (large supermarket, hypermarket), (d) at least two modern stores. As a second variable the towns themselves (each taken as a whole) are also included in the analysis in order to allow for effects arising from differences in shopping facilities in the four towns. Thus as regards the use of neighbourhood shopping facilities, the first variable can be seen as a pull factor, the second variable as a push factor.

Firstly, the structures in the immediate residential neighbourhood. The intercept is very close to zero; thus according to the logit model on average the estimated probability of shopping in this neighbourhood is about as high as for shopping beyond the immediate neighbourhood. As table 5 shows, all four variables have a statistically significant influence on the extent to which existing local shopping facilities are actually used. The two sociodemographic variables have a roughly equal degree of influence. The probability of grocery shopping outside their immediate neighbourhood is greater for households with a car (l=0.498), as would be expected, likewise among households with children where one or more adults are in employment (l=0.455), while the probability is lower for an unemployed one person household (l=-0.448); the other two households' types barely diverge from the general mean. This reflects the fact that the one person households, mostly consisting of retired people, have a lower income and are in general more strongly oriented to the immediate neighbourhood, while the opposite is true of the families with children.

Table 5. Logit-Model (urban survey areas)

		Vicinity up to 250 m		Vicinity up to 500 m	
		logit	**prob.**	**logit**	**prob.**
Constant		-0.015	0.829	-0.045	0.576
Car ownership (dummy)	yes	0.498	0.000	0.699	0.000
Household composition	none working, one adult	-0.448	0.002	-0.275	0.039
	none working, two adults	-0.003	0.981	0.006	0.951
	working adult(s), no children	-0.004	0.971	0.030	0.739
	working adult(s), children	0.455	0.000	0.240	0.006
Number of modern grocery stores	none	1.401	0.000	1.557	0.000
	one small store	0.186	0.063	0.049	0.683
	one big store	-0.332	0.010	-0.500	0.001
	two or more	-1.254	0.000	-1.106	0.000
Town	Cottbus	0.314	0.001	0.422	0.000
	Frankfurt/Oder	0.198	0.060	0.274	0.002
	Finsterwalde	-0.656	0.000	-0.467	0.000
	Templin	0.144	0.203	-0.229	0.016

In contrast, the nature of shopping facilities in the immediate neighbourhood plays a much greater role in influencing the extent to which they are used, with a clear pattern emerging: the probability of households with no modern store in the neighbourhood shopping outside the neighbourhood is very high (l=1.401), for those with a small modern store it is a little higher than average, for those households with on larger modern store in the neighbourhood it is somewhat lower, among those households with several modern stores in their neighbourhood the probability of their shopping outside the neighbourhood is much lower than average (l=-1.254). This reflects the remarkably high expectations of consumers in the former GDR. A higher degree of acceptance of local shopping facilities only occurs when these include at least one modern store, largely because of their lower prices and better choice. There are however clear distinctions within this segment: local facilities are only widely accepted when they include at least one large modern store. The presence of several modern stores is received more favourably, offering the consumers a greater range of choice according to their preferences; competition among the stores has a positive effect on their attractiveness to consumers.

The influence of location (specific town) on spatial shopping behaviour is not quite as strong, but still considerable: while in Finsterwalde there is a high probability of shopping in the immediate neighbourhood (l=-0.656), because of the limited number of alternatives, the probability is noticeably less in Cottbus (l=0.314), due to the comprehensive shopping facilities in the town, which has three hypermarkets on its periphery. In Finsterwalde those households with several modern shops in their neighbourhood have a maximum of four possibilities for shopping outside their neighbourhood, while even in Templin there are seven possibilities beyond the households' immediate neighbourhoods.

Structures in the wider residential neighbourhood: As table 5 shows, all four variables also have a statistically significant influence on the degree of use of local shopping facilities; likewise, the inner structure of the sub-categories with regards to their logits is practically unchanged for the individual variables. Such stability can of course be partly explained by the fact that the immediate neighbourhood is a subset of the wider neighbourhood. Nevertheless, three remarkable differences can be identified in comparison with the immediate neighbourhood.

Firstly, car-ownership has a greater influence, as the difference in the probability of use of local shopping facilities by car-owning and car-less households has increased considerably. This provides a clear indication of the spatial limits of acceptance of local shopping facilities for motorised households, for whom shops at a distance of up to 250m are apparently of primary significance; the shops at a medium distance between 250m and 500m are very important for the remaining households, especially when there is no adequate alternative in the immediate neighbourhood. Secondly, the composition of the households has less influence, as the difference between the logits of those two household types which differ most in their spatial shopping behaviour has fallen considerably. This clearly points to the relevance of shopping facilities in the immediate neighbourhood for unemployed one person households, mostly consisting of retired persons. It is however also an indication that the households with adults in employment and with children have a certain resistance to distance in grocery shopping.

There is also a clear difference between the study areas; the probability that local shopping facilities will be used is lower in the higher order centres and higher in the middle order centres. This results mainly from the number and type of shopping alternatives available in the towns, where the higher order centres have distinct advantages. The towns' order of rank, Cottbus before Frankfurt, Templin before Finsterwalde, corresponds exactly with their order of rank in the number of modern type stores; also there are at least two hypermarkets in the higher order centres, while the middle order centres have either none or only one, which is only moderately accepted by the consumers (see table 3).

5.2 Rural study areas

Shopping behaviour and distance to shops

As table 6 shows, the store types where the households mostly shop vary considerably between the two regions. In the Spree-Neisse district, 68% of primary demand is satisfied in hypermarkets, and concentrated on two of these: Allkauf in the west and Kaufland in the northwest of Cottbus; otherwise only smaller supermarkets are of any significance with 21%, while traditional grocery shops only account for 8% of demand. In contrast, in the Elbe-Elster district only 7% of primary demand is met by hypermarkets, largely because of the greater distances to such stores, while smaller supermarkets and discounters account for 72% of demand, and 19% of the households shop mainly in traditional grocery shops.

Table 6. Preferred store types, means of transport and trip lengths (rural survey areas)

		District	
		Spree-Neiße	**Elbe-Elster**
		Households (%)	
Preferred store type	Hypermarket	68	7
	Big supermarket	1	2
	Small supermarket	21	40
	Discount store	2	32
	Grocery / other shop	8	19
Trip length	short: up to 750 m	20	28
	medium: 750-1.500 m	2	10
	long: more than 1.500 m	78	62
Means of transport	On foot	13	16
	Bicycle	11	17
	Public transport	3	1
	Car	73	66

There are only moderate differences in shopping distances. In the Spree-Neisse district 78% of households regularly travel more than 1.5km for their grocery shopping, in the Elbe-Elster district the figure is 62%; in the latter 10% of households travel a medium distance between 750m and 1,500m, mainly households from the subcentre Doberlug who shop in the newly built supermarket at the edge of the settlement. The means of transport used also vary little. In the Spree-Neisse district 73% of households travel by car to do their grocery shopping, in the Elbe-Elster district the figure is 66%, which corresponds largely with the respective proportion of long distances or the nearest shop; about half of the remaining households go on foot or by bicycle. There is a strong correlation between the distance to shops and the means of transport used; in the two rural districts 89% of households used their car for a journey of more than 750m, while 92% used their car for a journey of more than 1,500m; however, 33% of households cycle to the shops within a radius of 1.5km.

Table 7. Distance to the nearest grocery store and modern grocery store (rural survey areas)

		District	
		Spree-Neiße	**Elbe-Elster**
		Households (%)	
Grocery store	short: up to 750 m	74	72
	medium: 750-1.500 m	4	6
	long: more than 1.500 m	22	22
Modern grocery store	short: up to 750 m	28	22
	medium: 750-1.500 m	0	26
	long: more than 1.500 m	72	56

The structure of shopping facilities in the neighbourhood of the households surveyed is almost identical in both districts (see table 7): in both cases, ca. 75% of households have a grocery shop in the immediate neighbourhood, about 5% at a medium distance and 20% at a long distance. However, the proportions are very different as regards modern type stores: in both districts just under 25% of households have such a store in their immediate neighbourhood, and in the Elbe-Elster district a further 25% (in Doberlug) have one at a medium distance; but for most households the nearest such store is more than 1.5km away.

Factors influencing the use of local shopping facilities

A logistic regression between the use of local shopping facilities and the same four potential influencing factors was also carried out for the two rural districts, and in two variants as with the urban areas: for the immediate neighbourhood within a radius of 750m and for the wider neighbourhood within a radius of 1,500m. The shopping facilities are a dummy variable in the analysis, either there is a modern type store in the neighbourhood or there is none; the number and type of these shops are not taken into account because of the lack of variety. The database consists of all households surveyed in the two regions with at least one grocery shop in their neighbourhood: for the analysis of the immediate neighbourhood n=814 (73% of the 1,109 households which were interviewed), in the wider neighbourhood n=864 (78%).

As can be seen in table 8, all four variables have a statistically significant influence on the extent to which existing local shopping are used. A comparison of the two neighbourhood variants shows that the logits for the individual subcategories differ little between the two variants. There are however considerable differences in comparison to the urban study areas. The intercept is now positive, which means that the existing local facilities meet with a lower level of acceptance. Car ownership has a much greater relevance for spatial shopping behaviour in rural areas; the motorised households differ much more strongly from car-less households in their willingness to travel long distances in order to reach a grocery shop that satisfies their requirements. In contrast, the relevance of household composition for shopping behaviour continues stable, and thus weaker than mobility status.

Table 8. Logit-Model (rural survey areas)

		Vicinity up to 750 m		**Vicinity up to 1.500 m**	
		logit	**prob.**	**logit**	**prob.**
Constant		0.039	0.716	0.019	0.862
Car ownership (dummy)	yes	0.912	0.000	0.858	0.000
Household composition	none working, one adult	-0.232	0.300	-0.199	0.386
	none working, two adults	-0.199	0.222	-0.206	0.196
	working adult(s), no children	-0.070	0.638	-0.049	0.734
	working adult(s), children	0.501	0.002	0.454	0.002
Modern stores (dummy)	yes	-0.769	0.000	-0.834	0.000
District (dummy)	Spree-Neiße	0.437	0.000	0.345	0.000

The specific shopping facilities are less important than in urban areas, which can be interpreted as a further indication of the consumers' high expectations, for whom even a modern type store in their home place is often only moderately attractive. The influence of the study area is less important than in the urban areas, but still apparent: in the Elbe-Elster district it is more probable that residents will use local shopping facilities than in the Spree-Neisse district. This can largely be explained by the regional locational pattern of hypermarkets, which favours consumers in the Spree-Neisse district.

6. Discussion

What is the essence of the empirical analysis of distance-related behaviour in urban areas? Factors of locational structure seem to have a greater weight than sociodemographic factors, which is in accordance with Ewing and Cervero's (2001) general findings on distance-related mobility behaviour. This can be seen as an optimistic indicator of the chances of success for planning strategies which attempt to influence mobility behaviour by goal-directed intervention in spatial structures. There is a broad range in the use of existing local shopping facilities, with two marked dividing lines as regards distance and store type: beyond the immediate neighbourhood, or where there is no modern type store, there is a marked fall-off in consumer acceptance. Within the „inner“ segment, i.e. of those households with at least one modern type store in their immediate neighbourhood, there is also a considerable difference in that these households only shop close to home when there is a larger store, or even better, several larger stores, in the immediate neighbourhood. This can be seen as a strong indicator of the preferential structure of the East German population in grocery shopping, where distance is often only of moderate significance as a (negative) time and cost factor in the choice of shopping destination, which according to Gould et al. (1998) is also true for other Western countries.

Such a pattern of preference is strongly linked to car ownership, which is a central determining factor for spatial shopping behaviour. Overall, the extent of non-use of existing local shopping facilities is worrying: 56% of motorised households shop farther away in spite of the presence of a modern type store in their immediate neighbourhood. Svensson's (2002) conclusion, attributing the non-use of existing facilities largely to the fact that these consist of smaller shops which cannot compete with larger stores in terms of choice and price, is not supported by this study.

Two further determining factors emerge: household type and shopping alternatives. The empirical results show on the one hand that one person households not in employment shop more frequently in their immediate neighbourhood, households with children and with one or more adults in employment shop less frequently in their immediate neighbourhood. They also indicate that existing local shopping facilities are used less in direct proportion to the attractiveness of shopping facilities beyond the immediate neighbourhood. The (usually car-owning) households who shop outside their immediate neighbourhood prefer large-scale hypermarkets or cheap discounters on the urban periphery, who thus serve as an impediment to a denser network with more pronounced clusters in the inner area; at the same time such

shopping behaviour limits the potential of the planning model of a „city of short journeys“ (cf. Bergmann, 1997).

With regard to distance-related shopping behaviour in rural areas, it can be observed that socio-demographic factors are about as important as factors of locational structure. In comparison to urban areas, shopping facilities in the immediate neighbourhood are less relevant and car-ownership is more important. Both of these points fit into the previous pattern of argument. Firstly, in the rural areas the differences in the quality of local shopping facilities are much less; larger stores and store clusters, which are highly significant for urban shopping behaviour, rarely exist here because of the lower population density. Thus it is hardly surprising that the existing differences are less relevant for shopping behaviour. Secondly, the greater relevance of car-ownership is closely linked to the specific nature of the shopping facilities, as the car-owning households can more easily act out a preference for large-scale facilities than the car-less households which are more tied to local shopping facilities.

Thus a high degree of readiness to travel longer distances for grocery shopping can be identified, within certain limits which are set by regional constellations: in the Elbe-Elster district the nearest hypermarkets are too far away to be a realistic regular destination for most households. The limits are however quite high: as shopping behaviour in the Spree-Neisse district shows, (one-way) journeys of 10-15km to a hypermarket do not detract from its attractiveness. The non-use of existing local shopping facilities in rural areas is disturbing: 50% of all households, and 60% of car-owning households shop farther away in spite of the presence of modern shopping facilities in their immediate neighbourhood. Frehn's (1995) findings (in a study of shopping behaviour in a rural region in the south of the former GDR) that there is a high level of acceptance of such local facilities, are not confirmed by this study.

Can such distances in grocery shopping possibly be explained by the fact that this activity is linked with another activity as part of a chain of trips? In the interviews, the households were asked how long the journey to the shop where most groceries are bought takes on average, and in the cases where this journey took 20 minutes or longer, they were then asked if they linked shopping with another regular activity such as the journey to work. Only 4% of households fell into this category. However, it is possible that many households systematically under-estimate the length of their regular shopping trip; many of the journeys described cannot be made with the stated means of transport in the time stated. With regards to a possible chain of trips, it can be observed that about one quarter of those households don't do their shopping as an isolated activity, the opposite being true of three quarters of the households. These figures confirm the findings of a study of daily mobility behaviour in Cologne carried out by Holz-Rau et al. (1999), according to which shopping for large quantities of groceries is usually undertaken as an independent journey.

7. Conclusion

This article examines the role played by distance in the choice of destination for grocery shopping in Eastern Germany – in a society which has been characterised by far-reaching processes of transformation in practically all areas of life since the demise of the socialist

system. A closely associated issue is the nature of the correlation between the type of local shopping facilities and the extent to which they are used. Empirical findings from case studies provide a clear result with ambivalent implications for the planning model of sustainable urban development: the good news is the statistically significant existence of such a correlation, the bad news is the moderate strength of the correlation.

Firstly, it can be observed that existing local shopping facilities are used more the larger their sales area and the more varied the range of stores at a location; this correlation is particularly evident in the case of motorised and/or rural households. Secondly, numerous households travel long distances for the purpose of grocery shopping, in spite of having at least two modern-type stores in their immediate neighbourhood. In car-owning households this type of shopping behaviour is very common: in the higher order and middle order centres more than a third of the motorised households do not use local shopping facilities, in the lower order centre Burg this is the case in more than half the households.

Thus it can be said that distance as a factor in the choice of store for grocery shopping is of only moderate significance for a considerable proportion of East German households. For these households, the cost of surmounting the obstacle of distance in terms of time, energy and financial cost apparently weighs less than the benefit to be gained from such travelling. Such behaviour utilises the option available in a modern market economy system to choose a shopping location in accordance with individual attitudes and evaluation. In contrast, the former socialist system was characterised by a dense network of not very large stores with a largely uniform, limited range of goods, so that there was little alternative to the use of local shopping facilities. Thus East German grocery retailing as it was shortly before the collapse of the socialist system in 1989 resembled West German retailing in the early 1960s in many ways.

What then are the preferences of those households travelling long distances by car for their grocery shopping? With regard to their shopping destination, they mostly visit hypermarkets and discounters – two store types that did not exist in the former GDR, but which continually gained in significance in the West over the last few decades. Given the extent of underprovision with retailing facilities, they entered the market in East Germany with considerable rapidity and have since attained a stronger position there than in the West; the locations of the new stores, especially those opened during the initial phase, are mainly in peripheral areas of towns and cities. Accordingly such consumer behaviour can be seen as a general reaction to the structural economic change in the sector. At the same time there are also specific motives for the high level of acceptance of these two store types in East German society, directly related to their distinguishing characteristics: the range of goods in the hypermarkets, the cheapness of the discounters.

The range of consumer goods available today provides a sharp contrast to the lack of consumer goods during the long socialist period, which produced a strong desire for the Western „consumer paradise“ in East Germany society. This desire played a major role in the result of the first free parliamentary elections in March 1990, when East German citizens gave expression to their primary interest in the immediate improvement of their material living conditions as opposed to political self-determination. During the process of German unification

this continued in the disputes over the exchange rate and income adjustment, when the East Germans called for financial compensation for the deprivation of the socialist era. At the same time, low prices were a significant criterion in the choice of shopping destination, as the strong desire for western brand-name products was restricted by limited household budgets; the disparities in income levels and employment between Eastern and Western Germany have by no means been eliminated since unification of the two states in October 1990.

One essential precondition for the remarkable success of the two above-mentioned store types in Eastern Germany was the rapid increase of car ownership after 1989 (see figure 1); otherwise many of the new shopping destinations would hardly have been accessible for many households. This development was anticipated early on by investors in the secondary locational network, who focussed on the profitability of new commercial properties; otherwise involvement in such locations would have been very risky (cf. Franz et al., 1996). In the first two years post-1989 there was hardly any functional pressure in favour of car ownership arising from dispersed settlement structures; at that time East German cities and towns were characterised by relatively short potential journeys (Fliegner, 1998). The car boom primarily reflects specific mobility and consumption preferences of the former GDR and is strongly symbolic of social integration in western society and individual freedom of movement (Stein 1992); according to representative surveys the motor car continues to be held in high regard today.

It is reasonable to assume that these preferences also influence grocery shopping behaviour. Using one's own car stands for a new, western lifestyle which contrasts sharply with the old, East German style and nurtures a willingness to undertake longer journeys for shopping. At the same time, visiting new store types in new buildings at new locations also represents a new lifestyle, where shopping is an „experience“ or „event“ for which longer journeys are readily accepted (Frehn, 1999). It is however difficult to prove the existence and strength of such factors, as the symbolic-emotional motivators for individual behaviour are generally located in a highly complex, partially unconscious sphere which is often only of secondary relevance, and which resists evaluation based on standardised interviews. Some indication of opinion can be gained from editorial comments in East German local newspapers, where the new shopping facilities have been consistently positively, even euphorically received, with reports of the „joys of the shopping paradise“, „3000 m² of shopping fever“ and „God's blessing for the Cottbus-Center“.

How has East German transport behaviour developed since the empirical survey was carried out in the summer of 1995? It is now almost 15 years since German reunification. It is possible that the behaviour observed in this study was an initial reflex reaction to socialist conditions, which has since weakened or even disappeared in the context of „catching up on modernisation“. Unfortunately, there are no more recent studies which approach the issue in a differentiated manner, so that this question must remain open for the time being. The representative cross-section survey „Mobility in Germany“, carried out in 2002, will probably provide interesting findings relating to some of the issues discussed here; up to now only very general findings have been made available for the area of the former GDR. Overall, both the level of motorisation and the market share of hypermarkets and discounters in Eastern Germany have continued to rise in the last 10 years, although actual spending power has largely

stagnated. Thus it can be assumed that transport behaviour in grocery shopping has probably not changed radically.

The East German affinity to consumption and car travel, which has its roots in the socialist era and established itself with quite a radical dynamism after the collapse of the socialist system, is not unique: developments in East Germany must be seen as evidence of the universal character of those two elements which are associated with modernity and are highly attractive in themselves, independent of the prevailing state system (Meyer, 1997). With regards to transport behaviour, a significant section of society is by no means primarily interested in minimising the time and cost of (auto) mobility in their choice of location for daily activities determined; their real priorities lie elsewhere.

It would, however, be a mistake to conclude that the planning model of a „city of short journeys" is obsolete; this model has significant ecological and energy-related advantages as well as economic and social ones. As far as locational structure in retailing is concerned, this model reinforces the potential of attractive local shopping facilities as an option for the citizens, if it is applied in planning practice. The empirical results of this study show that a large proportion of the population makes use of the option to shop for groceries in their immediate neighbourhood given a certain qualitative standard; in this case retail provision and demand preferences match. The results also show, however, that another section of the population doesn't make use of such an option, because the existing services do not meet their requirements, particularly with regard to prices and the range of goods available; associated with this is a willingness to travel longer distances for grocery shopping and thus to use a car for this purpose.

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