

COMMUTING FOR RETAIL SHOPPING AS A PART OF THE DAILY URBAN SYSTEM (BRNO, THE CZECH REPUBLIC)

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ABSTRACT:

Economic and social changes in the Czech Republic after 1990 have, besides others, been reflected in the shopping habits of its inhabitants. Not only the “standard” form of everyday shopping for basic provisions in corner shops is common today, but also daily visiting of specialized retail chain stores or shopping areas has become a standard phenomenon. Such daily shopping trips are often intertwined with commuting to work, school, or other services and have become an important factor in the daily lives of residents (not only in the larger agglomerations). This phenomenon has led to the creation of stronger links between the inhabitants within a daily urban system. It is the aim of this contribution to present and discuss selected results of commuting for retail shopping in Brno hinterland (the Czech Republic) with emphasis on daily foodstuffs shopping.

Keywords: *commuting to retail shops, retail gravity models, shopping habits, daily urban system, daily foodstuffs shopping, Brno agglomeration, the Czech Republic.*

1. INTRODUCTION

Shopping habits of the Czech population were influenced by the directives of the centrally-controlled socialist economy in the field of internal commerce, which determined the locations of consumption and even what would be sold where for decades before 1990. Socialist retail trade featured many differences (in assortment, space, etc.) from the West-European retail trade model (*Drtina and Krásný, 1989*). This fact enhanced the revolution in the retail behaviour of Czech consumers after the first foreign retail chains started to operate in the Czech Republic and opened the first supermarkets and discount stores during the initial years of the transformation. A subsequent wave included previously unknown large-scale retail shopping concepts, such as hypermarkets and shopping centres, which changed the shopping model and consumer behaviour in the Czech Republic forever. The reaction of the Czech consumers was rather remarkable; they quickly adapted to the new conditions and this fact is corroborated, for example, by the Czech Dream feature movie, introduced in 2002. This movie has been also presented in other countries beyond the Czech Republic.

Changes in shopping habits and behaviour became a new phenomenon of Czech society after 1990. The new dimension of the large-scale multi-national chain stores and shopping centres not only pushed the formerly traditional retail shopping forms to the back of the shoppers' minds but also significantly changed cultural habits connected with shopping for several generations of people. A visit to a shopping centre has become an attraction, entertainment, a way of spending leisure time or even a specific form of social

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event - to be in the “centre of events” - not only for young people but even for retired people, for instance. A new shopping concept has been created over the course of time and is characterized by a combination of essential shopping functions and the non-commercial or even recreational attributes of the shopping areas - this is similar to the situation in other countries (Butler, 1991; Bäckström, 2006). Also Guy (1998) emphasizes so-called *leisure shopping* as an important form of the currently widely understood shopping process in his classification of consumer behaviour. Shopping centres, especially when localized in city centres (the so-called *inner-city-development*), increase the recreational potential of these cities and determine a new dimension of city tourism in the post-industrial stage of city development (Clark et al., 2003; Kowalczyk, 2005).

It is clear that contemporary shopping is a much more complex and interdisciplinary phenomenon than in previously, especially when taking into account the general state of Czech society (generally the Central-European region) where changes have been realized with much greater vigour than in market economy countries. The spectrum of these changes is rather wide (see below), for example the frequency of shopping that determines the basic rhythm of the daily urban system (Berry, 1967; Hall, 1974; Bezák, 2000). Irregular and weekend activities of various population groups have been acquiring ever stronger positions and shopping itself (especially during weekends) is frequently not the primary objective in contrast to daily commutes (Mitrková, 2008). We are witnesses to the growing share of non-daily commuting for retail shopping, or for services in general, and this growth is facilitated by the operation of shopping centres and other large-area retail stores at city peripheries (the so-called *out-of-town centres*), which significantly participate in the decentralization of retail shopping functions in the urban structure and the establishment of polycentric city arrangements (Knox and Pinch, 2000; Heineberg, 2006).

As described in the study of Muliček, Osman, Seidenglanz (2010), retail shopping has become, in the globalization period, a significant propeller of changes in urban structures and belongs to the key actuators of consumption in cities. Shopping in retail stores is one of the basic repeated human activities in space-time in the time geography concept (Hägerstrand 1975; Pred 1977; Ira 2001). From this viewpoint shopping can be considered frequency commuting for retail shopping and within this framework of reference we can study human movement into shopping locations that stimulate consumer demand for shopping and other accompanying services. The size and direction of the commute are scaled according to the types and locations of the retail units in the urban structure, i.e. depending on the gradual arrangement of the retail network that correlates with the frequency hierarchy of satisfying the needs of the population by the goods of daily, frequent and occasional demand (Szczyrba, 2006).

Readers from Central and Eastern Europe could be interested in some German studies devoted to detailed assessments of retail gravity and retail behaviour of consumers (Kulke, 1992) or to analyzing the impacts of shopping centres in the regions of former East Germany (Jürgens, 1994). Szczyrba (2005) is the author of the largest-scale study from the Czech environment devoted to the development and transformation of the retail network, encompassing also population retail behaviour and including a case study supported by a questionnaire survey.

It is the aim of this article to assess the intensity and character of relations between rural communities and suburban satellites in the Brno hinterland and the city itself, both within the frame of the daily commute for retail shopping or shopping in general, and within the frame of irregular visits to shopping centres at the edge of the city. This approach is rather common in the research of consumer behaviour. In this article we will discuss

selected aspects of retail gravity and selected elements of the changing shopping habits of the Brno agglomeration inhabitants; this assessment is based on the results of a large questionnaire survey performed in the communities of the Brno hinterlands.

2. THE ADDITION OF OUR OWN METHODOLOGICAL APPROACH

In contrast to a commute to work or to schools the commute to services data is not available from any official statistical source; it is not gathered even within the population, house and apartment census. To assess this phenomenon and to compare possible changes in the gradients, commute directions, influence areas, settlement powers, c., it is necessary to perform repeated surveys, mostly in the form of questionnaire surveys or interviews. Many studies published so far have been methodically based on questionnaires as the most widespread method of quantitative research (*Flowerdew and Martin, 2004*).

As far as the methodical approach itself is concerned, we are, from a statistical viewpoint, aware of certain limitations on the sample caused by specific features of the model area. Conclusions drawn from the research results may not always have a general descriptive value due to the natural aspect of the respondents' replies' subjectivity and incomplete territory coverage (it is impossible to contact all inhabitants of the studied territory). This we consider the highest risk in the below presented approach. Results based on soft factors reflect reality much better, though, than using hard data, which is not actually available in reality.

Within the scope of the recommended sexual and age structures based on the values for the South-Moravian Region, this was a respondent quota sample. A quota selection imitating known characteristics of the population in the sample is considered a suitable methodical approach, despite some problems (the influence of the questioner and difficulties with controlling his/her work). The number of respondents in the surveyed municipalities (see below) can be considered sufficiently representative for the model territory of the Brno agglomeration and can be used as a basis for certain generalizations. When using the term "municipality inhabitants" we identify these inhabitants with the interviewed respondents even though we know that these are not the replies of all inhabitants but only of the surveyed sample.

The primary data file was based on a questionnaire survey of municipality inhabitants whose commuting time to the centre of Brno was limited by the 30 min isochrone. These are municipalities from the districts of Brno-venkov, Blansko, Břeclav, Vyškov, Znojmo and Žďár nad Sázavou, which comply with the condition of time accessibility. The district of Brno - venkov, as the natural hinterland of the Brno agglomeration, was primarily studied as a whole and it is also used below.

The survey was performed in 228 municipalities with 252 000 inhabitants as of the end of 2010. The number of respondents reached 6,300 persons, or rather 6,300 filled-in questionnaires. The survey, performed with the help of Masaryk University students, took place in the form of short controlled interviews; the numbers of addressed people differed according to the sizes of the municipalities from 10 to 100. The quota selection of respondents older than 15 was corrected by a structure of sex and age to the average values for South Moravian Region and subdivided into age categories with an emphasis on young people up to 25 years and 35 years of age, middle generation and retired people (60 and 65 years of age and more).

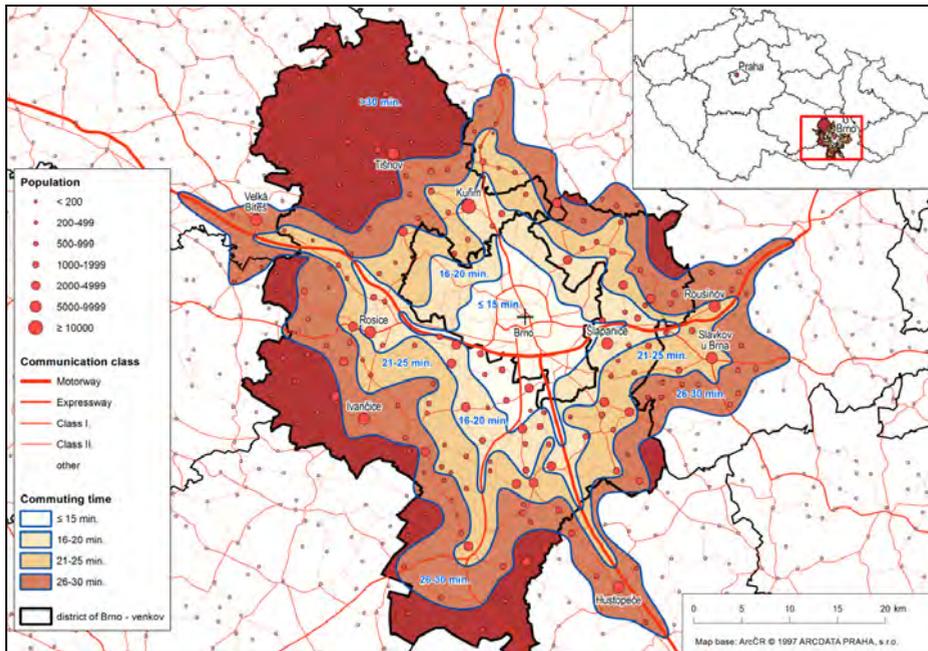


Fig. 1 Location and definition of the studied territory within the Czech Republic
(Source: Own processing)

Travel time required to reach the target of the commute may play a significant role when making decisions about commuting for shopping. The 30-minute isochrone is considered to be a commuting time that people are willing to endure when commuting for shopping beyond their places of residence. The isochrones are depicted on all graphical outputs together with the elementary road network (motorways and limited-access highways that penetrate deeper into the Brno hinterlands).

3. SELECTED RESEARCH RESULTS - SHOPPING FOR BASIC FOODSTUFFS IN THE DAILY URBAN SYSTEM OF BRNO

The simple typology in **Fig. 1** represents the prevailing direction (over 50%) of basic foodstuffs shopping. More than a half of the surveyed population (54%) shops for basic foodstuffs mostly in their place of residence, the remaining part shops in equal parts in Brno and in another municipality (23%). When segmenting according to the number of municipalities you can see the increased share of prevailing purchases in the place of residence (60% of municipalities) and in another municipality (30%) while the share of the Brno centre declines.

In the case of purchases *predominantly in the place of residence* (type 1), these are mostly municipalities with larger populations in an area where the inhabitants perform their daily shopping for basic foodstuffs in their municipalities of residence due to their sound retail shopping facilities.

Shopping *predominantly in Brno* (type 2) is preferred by people from municipalities adjacent to Brno where it is easy to commute for shopping (public transportation, integrated transportation system) and most of the people also work in Brno. Type 3, i.e. shopping

predominantly in another municipality is a necessity for people from smaller municipalities with insufficient retailing infrastructure.

Data in **Table 1** confirm the assumption that the number of people purchasing basic foodstuffs directly in their municipality grows with the size of the municipality while the number of people commuting for shopping into a larger municipality in the surroundings significantly declines. Inhabitants of various municipality size categories shop in Brno rather equally; about one quarter of shoppers commute to Brno, except for people from the smallest municipalities with less than 200 inhabitants.

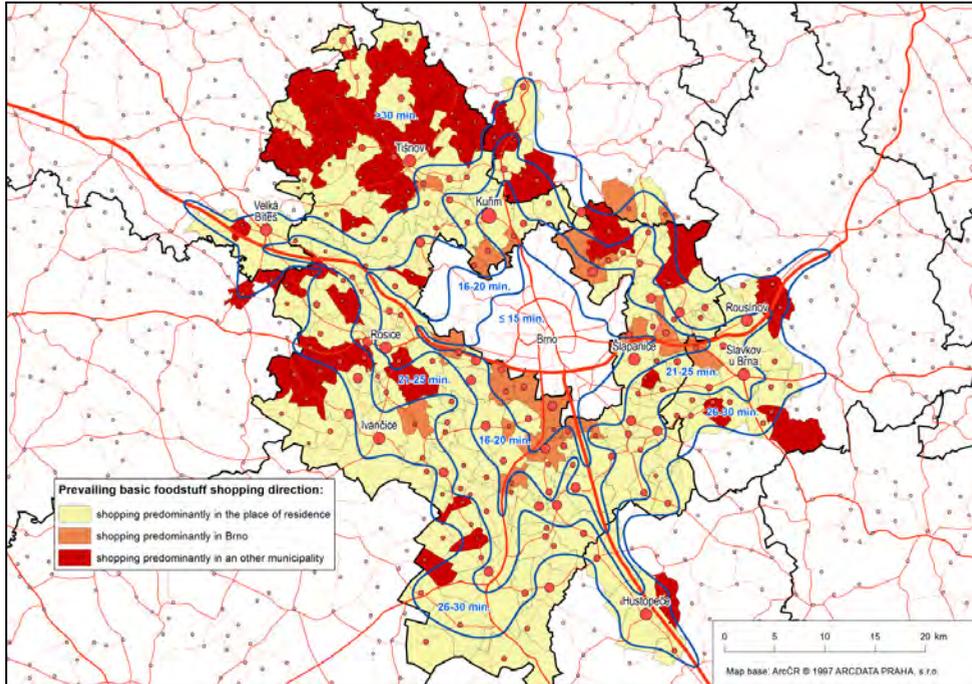


Fig. 2 Typology of the prevailing gravity for basic foodstuffs shopping.
(Source: Own survey and graphics)

Table 1. Relationship between municipality size and prevailing direction of shopping

Municipality size (number of inhabitants)	Prevailing shopping direction		
	Predominantly in the municipality	Predominantly in Brno	Predominantly in the surroundings of the municipality
less than 200	25 %	9 %	66 %
200 - 499	34 %	17 %	49 %
500 - 999	50 %	25 %	25 %
1,000 - 1,999	60 %	25 %	15 %
2,000 and more	70 %	23 %	7 %

(Source: Own survey and calculations)

Table 2 illustrates the decline in willingness to shop for basic foodstuffs predominantly in Brno with the growing travel time from the city centre. Except for the shortest time interval there prevails shopping for basic foodstuffs in the place of residence. With the growing travel time from Brno the inhabitants of smaller municipalities make use of the easier daily commute to a nearby larger centre with sufficient retail facilities.

Table 2. *Share of commuters for basic foodstuffs shopping from the three basic directions relative to the travel time from the centre of Brno*

Time from Brno (min)	Prevailing shopping direction		
	Predominantly in the municipality	Predominantly in Brno	Predominantly in the surroundings of the municipality
up to 15	43 %	53 %	4 %
16 - 20	57 %	30 %	13 %
21 - 25	59 %	25 %	16 %
26 - 30	57 %	17 %	26 %
over 30	46 %	10 %	44 %

(Source: Own survey and calculations)

More than half of municipality inhabitants commute for basic foodstuffs shopping to Brno from only a few municipalities in the immediate hinterlands and this confirms the fact that this share declines with the travel time. This again depends on the transportation infrastructure quality, or rather, on the existence of higher-level roads.

The frequency of shopping for basic foodstuffs is also intertwined with the prevailing shopping direction within the context of the performed typology (predominantly in the place of residence, predominantly in Brno, predominantly in another nearby municipality; see **Fig. 3**). Daily frequency of shopping for basic foodstuffs is preferred by about 30% of respondents and a decisive majority of them does so in the place of residence (80% of responses in the particular municipality). Half of the inhabitants shop several times a week, both in the place of residence (60% of responses) and sometimes in Brno. 16% of respondents shop for basic foodstuffs once a week and central Brno is the gradient place in one half of these cases, the place of residence occupies a less prominent position. Brno is decisively represented (80% of replies) in the least numerous frequency of shopping for basic foodstuffs - several times a month; only 4% of respondents shop in this way. It is clear that the importance of the width of the offer provided by the Brno retail network grows with the declining frequency of shopping for basic foodstuffs; this decline is represented by very small absolute values, though.

The replies of the respondents imply a relationship between the basic foodstuffs shopping and the course of the week. During the working part of the week most people shop (70%) predominantly in the place of residence (60% of the answers in the particular municipality) and sometimes in Brno. Weekend shopping for basic foodstuffs is very limited (5% of respondents) and Brno is predominantly the place of shopping. A quarter of respondents shop when they need to, predominantly in the place of residence (60% of answers). The means of transport to the place of basic foodstuffs shopping is dominated by walking (44%) and going by car (37%), while public transport and going by bicycle feature a much smaller share (15% and 5%, respectively). The following **Table 4** clearly presents the relationship between the places of basic foodstuffs shopping and the means of transport within the context of the above-presented typology of the prevailing direction of shopping.

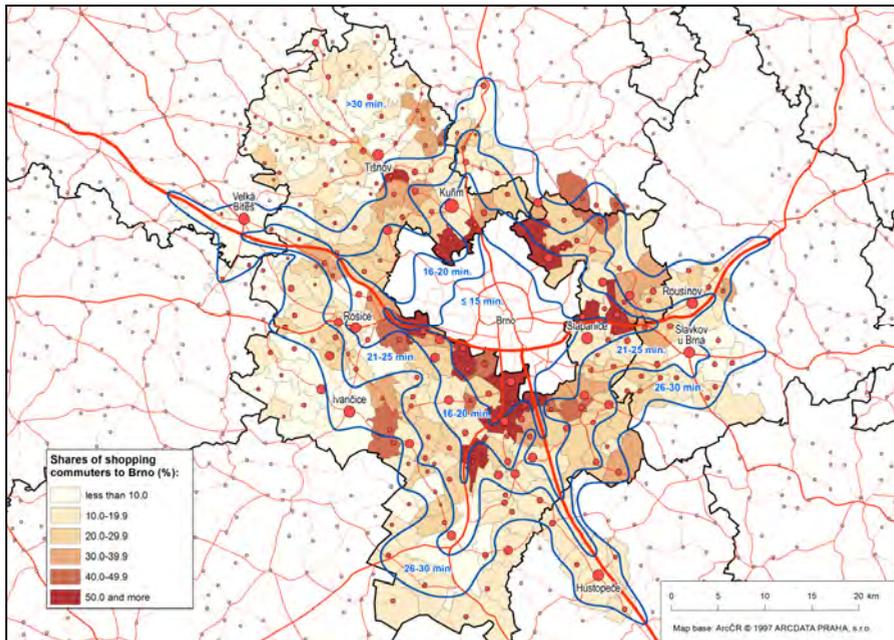


Fig. 3 Intensity of commuting for basic foodstuffs shopping to Brno
(Source: Own survey and processing)

Table 3. Frequency of shopping for basic foodstuffs by selected characteristics

Frequency of shopping for basic foodstuffs	Selected characteristics
Daily	- usually people from large families (4 and more members), most frequently right in the municipality (walking)
Several times a week	- not dependent either on the number of family members or on the means of transportation and point of purchase
Once a week	- usually singles and small families, mostly going to Brno by car
Several times a month	- not dependent either on the number of family members or on the means of transportation and point of purchase

(Source: Own survey)

There is also a significant relationship between commuting to work and commuting for shopping. **Table 5** clearly demonstrates the relationship between work in the place of residence and the prevailing form of shopping for basic foodstuffs at the same place. A similar way of shopping is preferred also by mothers on maternity leave and retirees, who move mostly within their municipality. Nearby larger local centres (Blansko, Tišnov, Rosice, Slavkov u Brna, Pohořelice and others) are used for shopping mostly by those that commute there to work. Mostly people that work or study in Brno (both permanent residents and commuters) shop for basic foodstuffs in the city.

Table 4. Relationship between the place of basic foodstuffs shopping and the means of transport

Direction of shopping	Prevailing shopping direction		
	Predominantly in the municipality	Predominantly in Brno	Predominantly in the surroundings of the municipality
Car	19 %	42 %	39 %
Public transport	18 %	42 %	40 %
Bicycle	86 %	3 %	11 %
Walking	93 %	2 %	5 %

(Source: Own survey and calculations)

Table 5. Relationship between the place of shopping and commuting to work

Place of work	Prevailing shopping direction		
	Predominantly in the municipality	Predominantly in Brno	Predominantly in the surroundings of the municipality
In the place of residence	62 %	26 %	12 %
In nearby municipalities	45 %	6 %	49 %
In Brno	33 %	56 %	12 %
Retirees, maternity leave	68 %	10 %	22 %
Students	47 %	38 %	15 %

(Source: Own survey and calculations)

Shopping for basic foodstuffs connected with travel from work (or to work) is typical for people that work in Brno or in any other larger town close to their places of residence (Blansko, Tišnov, c.). They use their travel from work for shopping and the car is the most frequent means of transport. One half of the respondents set out exclusively for shopping and these are mostly people that shop in their place of residence. One half of the representatives of this partial sample do not perform any regular labour activities - these are students, retirees, mothers on maternity leave and the unemployed. The place of employment therefore significantly influences the place of shopping and shopping habits.

4. DISCUSSION AND CONCLUSION

This survey was performed in the Brno hinterlands and revealed many interesting results. The selected survey questions were aimed at revealing the retail gradient and patterns in the shopping behaviour of consumers in the rather wide hinterland of Brno. Let's summarize now the most important results of the performed analyses.

It has eventually turned out that the size of the municipality does not decide the prevailing direction of shopping for basic foodstuffs towards the central Brno, but only towards a larger centre in the vicinity of the particular municipality that is sufficiently equipped for daily shopping. In this context the settlement structure has an implicit influence on the daily retail gradient. The number of people purchasing basic foodstuffs directly in their municipality grows with the size of the municipality while the number of people commuting for shopping into a larger municipality in the surroundings significantly

declines. Municipality size has no decisive influence on the intensity of shopping for foodstuffs in Brno, unless we take into account the following facts.

If you think about the development of the assortment structure in the city retail network, you can see that it has been significantly decentralizing; or rather the foodstuffs stores have been losing their share to non-foodstuffs stores. This is a change in assortment relations that had been noted already by Drtina and Krásný (1989). On the other hand, the centres of Czech cities (including Brno) are exposed to the gradual process of commercialization (Ilnicki, 2001; Sýkora, 2001), resulting in pushing foodstuffs stores out of the city centres. The consequence is the removal of the foodstuffs shopping centre of gravity into the housing development areas and to the city peripherals where you can find supermarkets and hypermarkets, frequently as parts of the shopping centres. When watching the movements of the inhabitants in the daily urban systems there arises the rather logical question, what will be the future development of the foodstuffs store sector in Brno? It is likely that the current state will be even more modified to the detriment of the city centre, which will increase the burden on the peripheral locations. Then there is the implied question, what will be the development of foodstuffs stores in the close hinterlands of Brno, where we can see both daily and non-daily realization of a majority of foodstuffs shopping in the foodstuffs stores in Brno or in the shopping centres at the edge of the city? Should this network of foodstuffs stores in rural municipalities in the hinterland of Brno be further reduced (this is a general trend) then the resulting increased frequency of retail interactions would certainly reflect in the daily urban system of the Brno city.

It is quite logical that with the growing travel time from Brno the inhabitants of smaller municipalities make use of the easy daily commute to a nearby larger centre for the basic foodstuffs shopping. The decisive factor for daily foodstuffs shopping is therefore the distance in time or kilometres and the sufficient retail attractiveness of the nearby centre. The significance of the Brno retail offer width grows with the declining frequency of shopping for basic foodstuffs. As far as the transportation method is concerned, distance is the decisive factor once again; shopping in the place of residence is realized mostly by walking, in another centre or in Brno by car or public transport. As further demonstrated by the analyses, the linkage to the place of employment significantly influences the place of shopping for basic foodstuffs and other shopping habits. Brno is the place of shopping mostly for people that work or study there (permanent residents or commuters), a place of residence is where mostly seniors, mothers on maternity leave and the unemployed do their shopping. The respondents' education level has virtually no impact on the basic foodstuffs shopping habits.

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