SPATIAL PATTERNS OF DAILY AND NON-DAILY COMMUTING FOR RETAIL SHOPPING: THE CASE OF THE BRNO CITY, CZECH REPUBLIC

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Abstract

Retailing has become a significant driver of changes in the urban environment and one of the key setters of consumption rhythms in the Czech Republic after 1989. Commuting for retail shopping represents a significant part of daily mobility of inhabitants within the city. Weekend and irregular (specialized) shopping in shopping centers at the city periphery has grown in importance recently. The inner city is not a primary destination when buying foodstuffs anymore and it has been losing its position even in shopping for other than foodstuffs goods. A survey implemented within the inner Brno City has provided a view into the spatial patterns of urban shopping behavior and analyzed shopping places of local inhabitants. The paper presents and discusses selected results of the survey.

Shrnutí

Prostorové modely denní a nedenní dojížďky za maloobchodem: příklad města Brna

Maloobchod se po roce 1989 stal v České republice významným hybatelem změn v urbánním prostředí a jedním z klíčových rytmizátorů spotřeby. Dojížďka za maloobchodem tvoří významnou součást denních pohybů obyvatel v rámci města. V posledních letech ovšem získávají stále silnější postavení víkendové a nepravidelné (specializované) nákupy v nákupních centrech na městské periferii. Centrum města již není primárním cílem při nákupu potravin a pozici ztrácí také pro nákupy nepotravinářského zboží. Šetření v rámci vnitřního Brna umožnilo nahlédnout do nákupních zvyklostí a konfrontovat místa realizace nákupů místních obyvatel. Příspěvek přináší vybrané výsledky šetření a diskusní komentáře.

Key words: *commuting for retail shopping, retail gravitation, shopping centers, Brno, Czech Republic*

1. Introduction

The Czech society, which had demonstrated signs of cultural and economic isolation before 1989, has been cast into the globalization context and has started to cope with its consequences (Mlčoch et al., 2000; Frič, Potůček, 2004 and others). Before 1989, the shopping behavior of the Czech population had been determined by directives of the centrally controlled socialist economy in the field of internal commerce, which obligatorily specified the locations of consumption including the spectrum of goods to be sold.

The socialist retail trade showed many contradictions (concerning the assortment of goods, spatial distribution etc.) in comparison to the Western European retail trade model (Drtina, Krásný, 1989). The lack of space for shopping, in comparison with market economies in Western Europe, was a prominent issue in the previous Czech (Czechoslovak respectively) Republic, according to Krásný (1990).

The Czech society very quickly adapted to innovations in the field of retail trade and decisively changed its shopping habits. The first large-area stores of foreign retail chains started to appear in the country with a huge wave of privatization and liberalization of the economic environment in the first half of the 1990s (Szczyrba, 2005; Kunc et al., 2012). This *first initial phase* of the consumer behavior transformation was based on the development of new supermarket networks that were built both on the green-fields at locations with the absent retail supply and on the premises of the former socialist food stores according to their own operating requirements. The *initial stage* of the foreign retail chain penetration into these markets was rather wary and the growing expansion and related transformation of shopping customs can be observed only later (Dicken, 2003). In this context, the *second stage* (the second half of the 1990s) of the retail shopping transformation was characterized by even more intensive development of additional large-scale store formats, first in the form of discount stores and later by the "hypermarket boom". This was followed by a quick increase in the popularity of shopping in these modern large-scale stores. Retail trade is not as sophisticated a field as manufacturing and research (especially in terms of requirements put on the labour force), which resulted in a relatively rapid opening of new stores all over the residential system (Viturka et al., 1998).

It is quite apparent that contemporary shopping is a much more complicated and multidimensional phenomenon than in the previous period (in comparison to former models of shopping behavior assuming that the direction of commuting is determined just by two dominant factors: distance and price), and especially when related to the Czech environment (concerning the extent of shopping areas and a supply of goods and related services), where any changes were performed much more forcefully than in the market-economy countries. The spectrum of changes is relatively wide (see below), for example the frequency of shopping, which, besides other things, determines the basic rhythm of the daily urban system (e.g. Berry, 1967; Bezák, 2000).

It is the aim of this paper, which is based on the results of a wide questionnaire survey with inhabitants of the Brno City, to analyze spatial shopping mobility (retail gravitation) and evaluate selected characteristics of behavior among the inhabitants of this regional metropolis. We focus on both the daily and non-daily (irregular) commuting for retail shopping while comparing the shopping for daily needs and irregular visits especially to shopping centers both at the edge of the city and in the inner city.

2. Theoretical background

The shopping behavior and the related spatial mobility are functions of both the personal characteristics of shoppers (decision-makers) and conditions of the surrounding environment (decision-making environment) (Lentnek et al., 1976). People living in a same environment may behave differently within the environment for many reasons. These can be individual needs and motivations, different information about the conditions of the environment (supply range and quality) or factors consisting in so-called spatio-temporal constraints – mostly financial possibilities and spatial mobility (Lloyd, Jennings, 1978).

For many decades before 1989, the shopping behavior of the Czech population was determined by directives of the centrally controlled socialist economy in the field of internal commerce, which, besides other things, obligatorily specified the locations of consumption including a spectrum of goods to be sold. The localization of retail shops did not reflect the distribution of demand with the purchasing power, which resulted in the overloading of most inner cities while the building of new shopping centers in the newly constructed housing developments was rather inadequate (Szczyrba, 2005).

Their locations in cities were economically irrelevant and therefore even the cities lacked any incentives for investments in shopping center constructions (Musil, 2001). No significant change was brought about even by the increased intensity of building new department stores during the 1970s and 1980s, which was aimed at eliminating the growing dissatisfaction of the population with the range and quality of the commercial supply. This rather joyless state of affairs was often in a sharp contrast with sometimes rather unreasonable construction of retail shopping capacities in rural areas while maintaining generally below-average investment levels in the development of retail shopping as compared with the West European countries. Stressing of these social principles reached in the then Czechoslovakia the highest level from the Central European group of socialist countries (Krásný, 1990).

Globalization trends of retail shopping belong among the most visible features of the socioeconomic transformation of the Czech society after 1989 (Cimler, 2001; Szczyrba et al., 2006; Starzycná, 2010). The new dimension of large shops and shopping centers of multinational chains not only pushed the former traditional forms of retail shopping out of the shoppers' attention but it also significantly altered the cultural customs and patterns of shopping-related behavior in several generations (for similar topics see also Szczyrba, 2005; Starzycná, et al., 2010; Kunc et al., 2012a; Spilková, 2012). A visit to a shopping center has become an attraction, entertainment and a form of leisure time activity for young people but also for seniors. The environment of shopping malls provides people not only with opportunities for satisfying their shopping needs but it also gives them a space for satisfying their aesthetic (visual) and social needs (to be in the center of events, meet other people, show their social status or just stroll around and watch life passing by – see Bauman, 1996).

A new concept of shopping has appeared in the course of time, characterized by a combination of basic shopping functions and shopping place attributes ranging from non-commercial to recreational; this situation has become similar to the situation in other countries (Butler, 1991; Dallen, 2005; Bäckström, 2006). Also Guy (1998) emphasizes, within his classification of consumer behavior, the so-called leisure shopping as a significant form of the currently widely understood process of shopping. Shopping centers, especially when located in inner cities (inner-city-developments) increase their recreational potential and establish a new dimension of city tourism industry in the post-industrial stage of city development (Clark et al., 2003; Kowalczyk, 2005).

In the context of the above-stated facts it is quite apparent that irregular and weekend activities of various population groups in shopping centers and hypermarkets increasingly grow in importance and, in contrast to the daily commuting for shopping, the purchasing of goods is often not a primary purpose to visit a shopping center (especially during weekends) (Mitríková, 2008). We are witnesses of an increasing share of non-daily commuting for retail shopping or services in general, which is caused by the operation of shopping centers and other large retail stores at city peripheries (so-called out-of-town centers). The fact increasingly participates in the decentralization of retail functions within the urban structure and in the origination of a polycentric arrangement of cities (Heineberg, 2006; Knox, Pinch, 2009). Retail shopping has become a significant driver of changes within urban structures at the time of globalization and it is one of the key setters of consumption rhythms in the cities (Mulíček et al., 2010).

Cities have always played a role of natural centers for the shopping tourism industry due to their commercial function; yet until recently, this role was exclusively based on central locations offering their customer-tourists a wide spectrum of specialized retail shops. The post-industrial stage of urban development has witnessed their spatial-functional transformation and origination of new inner cities, though (Matlovič, 2000; Sýkora, 2001; Węcławowicz, 2003). It is necessary to note that shopping centers were one of the causes of this transformation since they changed the previous concept of mono-centric functional arrangement of cities (Brown, 1992; Guy, 1994; England, 2000; Dallen, 2005; Bäckström, 2006 and many others).

Shopping in retail shops is one of basic repeated spatio-temporal human activities and therefore it is a popular study object for Time Geography (e.g. Miller, O´Kelly, 1983; Scott, He, 2012). It can be understood as a frequent commuting for retail shopping where you study movements of people into shopping places that stimulate the demand of consumers for shopping and consuming of additional services. The extent and direction of commuting are ranked according to the type and location of retailing units within an urban structure, i.e. they depend on an arrangement of the retail-shop network in tiers, which correlates with the hierarchy of satisfying the population's needs for goods of daily, frequent and casual demand (Szczyrba, 2006).

Research works studying the retail gravity models (especially concerning shopping centers) are rather frequent research tasks. They focus on the reason of the functioning of shopping centers or availability of retail facilities in the inner city. The authors mostly strive to describe, at specific examples, a shopping behavior model for the given population with respect to the selection of locations for their shopping (Timmermans et al., 1982; Coshall, 1985; Bacon, 1995; Marjanen, 1995; Findlay et al., 2001; McEachern, Warnaby, 2006; Jackson et al., 2011). Several studies of German authors dealing with the detailed evaluation of retail gravity model and shopping behavior of consumers (Kulke, 1992) or analyzing the functioning of shopping centers in the regions of the former East Germany (Jürgens, 1994) are also interesting and rather pertaining to the Czech environment.

Czech geographers have focused on typical large-area retail markets and newly-built shopping centers with the aim of evaluating geographical and sociological aspects of the shopping centers' retail gravity, consumers' shopping behavior changes and their development in time (Smolová, Szczyrba, 2000; Spilková, 2003; Ordeltová and Szczyrba, 2006; Mulíček, 2007; Kunc et al., 2012a) and also the environmental impacts on the land (Koželouh, 2010). Szczyrba (2005) is the author of the first work containing a case study supported with a questionnaire survey focused on the development and transformation of the retailing network while taking into account the retail shopping behavior of the population. For information about the subsequent development both in Czech and foreign retailing networks with a focus on shopping centers see Spilková (2012a).

3. Research methodology

3.1 Data collection

An absolute majority of empirical studies quoted in the theoretical discussion are methodically based on questionnaire surveys as the most widespread quantitative research method (Flowerdew, Martin, 2005). The most common research strategy of acquiring data when studying retail gravity within large retail units is a method of interviewing respondents directly in hypermarkets and shopping centers or in their surroundings (usually at parking lots) where people are asked questions on retail gravitation issues, place preferences of shopping, shopping frequency, behavioral intentions and their motivations, etc.

It is also possible to use questionnaires filled with the respondents directly in their households or places of residence. This method is nevertheless time consuming and limited by small space coverage (this approach is used for surveys conducted in a single town or municipality). A different strategy was applied e.g. by Maryáš (1983) who, due to the large size of the studied territory (whole Czech Republic), used a method of questioning mayors of municipalities - their answers were supposed to substitute for the otherwise unavailable data from individuals living in the municipality.

Despite the time consumption, we selected the second above-described method for the purpose of our research, i.e. questioning at the places of residence. The questionnaire survey was performed by means of standardized structured interviews conducted by trained questioners (students of Masaryk University in Brno) during autumn 2011 and spring 2012.

3.2 Study area and the sample of respondents

The survey was realized in Brno, the second largest city in the Czech Republic (with approximately 379,000 inhabitants as of January 1, 2012). For the purpose of sampling of respondents and further analysis of data, the study area was subdivided into urban districts, which were grouped into relatively homogeneous units according to their morphogenetic similarities within the city structure (location within the city with respect to the historic center, type of development, etc. (cf. Mulíček, 2007) – see Fig. 1. These units can be identified with the cadastral districts of Brno, which can be further identified with the municipal districts for the sake of simplification. Relevant data analyses and interpretations were subsequently performed at this spatial level.

The sample included 1,600 respondents older than 15 years with permanent residence in Brno. The structure of the respondents sample is based on a two-stage quota sampling. At the first stage, we determined the numbers of respondents within the individual aggregated urban districts relative to their total populations; the number of respondents ranged from 15 to 100 according to the size of the urban district (the populations varied from 335 (minimum) to more than 25,000 (maximum), the average being 8,000). The second stage featured the selection of respondents

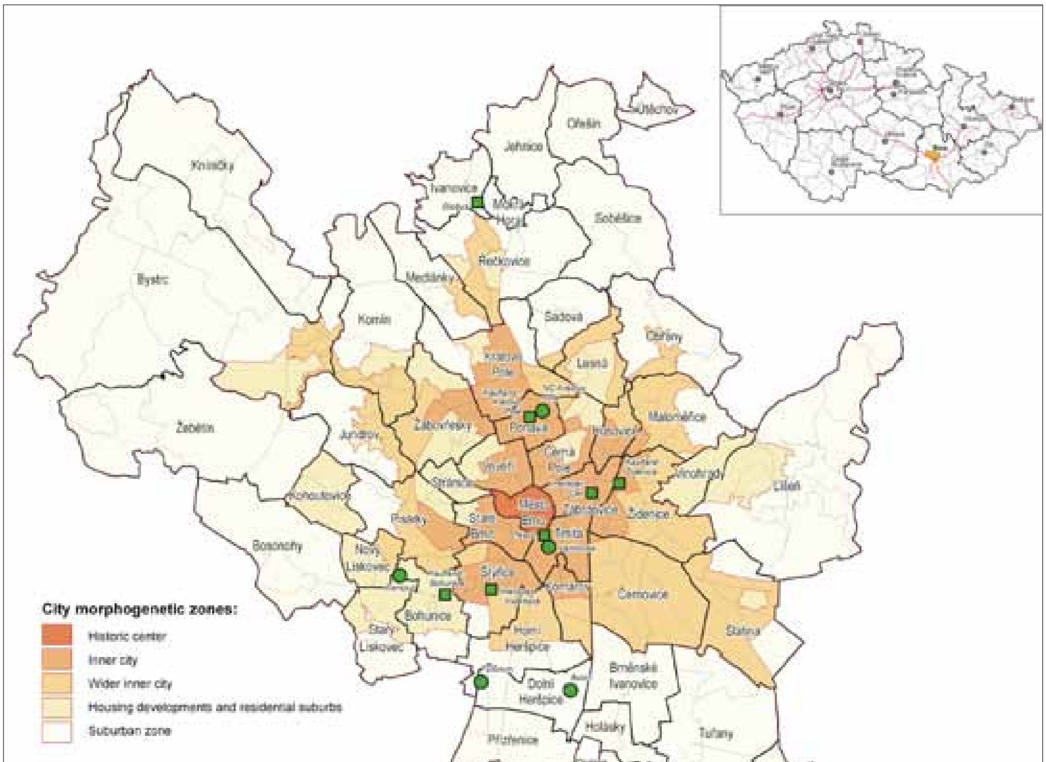

Fig. 1: Area under study: Brno City and its location within the Czech Republic, its internal structure and main shopping centers. Source: Authors

based on a quota sampling according to basic demographic characteristics (gender, age, education) to simulate a general structure of the Brno population. Intentionally, we reduced the representation of the youngest and the oldest age categories in the sample as compared to general population while the representation of the middle age categories with the biggest purchasing power in relation to shopping is relatively more frequent (Tab. 1).

3.3 Research questions and hypotheses

We used a questionnaire form similar to other research works conducted in this field of study (Kulke, 1992; Marjanen, 1995; Findlay et al., 2001; Szczyrba, 2002; Jackson et al., 2011, Kunc et al., 2012a and others). Basic questions of the questionnaire, relevant to this paper, were focused on the places of shopping and retail gravitation and they were divided into the categories of "daily shopping, weekend/weekly shopping and specialized/irregular shopping“, means of transportation, time distance and shopping frequency.

We also asked the respondents whether they were missing any specific type of a shop in the city and about their perception of changes in the structure and supply of retail shopping within the past years. The last section of the questionnaire was focused on their visits to the shopping centers in Brno; here we asked about the motivational factors for shopping in the shopping centers, means of transport, average time spent in the inner city and average spending in the shopping centers. The mentioned issues were analyzed in relation to the respondents´ socio-demographic characteristics (gender, age, education, number of household members), their place of residence and place of work.

The hypotheses that drive this survey were defined as follows:

- Large shopping centers and hypermarkets significantly dominate over smaller retailing units from the viewpoint of a share in the realized shopping volume;
- Retail gravitation and shopping patterns of people are significantly influenced by their socio-demographic (age, education) and socioeconomic (economic activity, income) characteristics; and
- The expanding network of retail shops in the post-socialist cities (represented by the Brno City) and the development of supplies during the past few years are perceived by inhabitants as significantly positive.

Data obtained from the questionnaires were digitized and analyzed via the SPSS software using descriptive statistics and the correlation analysis. Selected data were subsequently spatially analyzed and visualized in the GIS environment. Selected results of the analyses are presented in the form of tables and cartographic outputs hereinafter.

With regard to the research methodology, we are aware of certain limits concerning the interpretation of the obtained results, which are burdened with a certain level of generalization (limited number of respondents in municipal districts with few inhabitants) and at the same time reflecting spatial and transportation specifics of the model territory, i.e. the City of Brno. This survey cannot be considered a representative image of the whole Czech population with regard to the sample selection, yet the obtained results have an important informative and predictive value and can be used to infer some general conclusions. The value of the results has to be considered also from the viewpoint of the acute lack of other "hard data" in this field of retail research.

Categories		Survey sample [%]	Brno population [%]
Gender	Male	42	48
	Female	58	52
Age	0–15	Not included	14
	15–19	2	4
	20–29	27	13
	30–49	45	30
	50–59	14	13
	60 and more	12	25
Education	Basic	5	18
	Secondary without GCE	20	30
	Secondary with GCE	45	34
	Tertiary	30	18

Tab. 1: Structure of the sample of respondents

4. Results

Shopping frequency can be simply divided into three basic types: daily shopping, weekly (weekend) shopping and irregular (specialized shopping). Food products and small-volume articles for individual needs prevail in regular daily shopping. Weekend or weekly shopping is focused on food and general merchandise (drugstore goods, household articles, etc.) in larger volumes. Irregular shopping includes a wide assortment of consumer goods mostly of non-food character, such as footgear, electronics, furniture, kitchen ware, toys, books, etc. This is just an introductory division, for more detailed description see below.

According to the three above-specified frequency types of shopping it is possible to divide the retail gravitation of the Brno inhabitants into five different spatial locations:

- In the place of residence and its surroundings (this area is delimited by the border of the specific municipal district);
- In the Brno inner city (includes the historic core and the area in the vicinity of the railway station where you can find the Tesco department store and the Galerie Vaňkovka shopping center);
- In the shopping centers at the edge of Brno (includes the following shopping centers: Globus, Olympia, Avion Shopping Park, Futurum and Campus Square);
- Somewhere else in Brno (areas with retailing units, except for the three above-mentioned locations); and
- Somewhere else outside Brno (areas beyond the administrative border of the city).

As shown in Figs. 2 and 3, daily shopping is done mostly (68%) at the place of residence and its surroundings as expected. Specifically in Brno, these are town districts with large numbers of inhabitants and good retailing facilities – Královo Pole, Veveří, Žabovřesky, Židenice, Pisárky and large housing development complexes such as Bystrc, Bohunice, Starý Lískovec, Nový Lískovec, Lesná, Líšeň and Slatina and also suburbs with small numbers of inhabitants, such as Tuřany, Chrlice and Žebětín, where local people prefer small shops and self-service shops. In the inner city of Brno, foodstuffs are mostly purchased by people living in the inner city itself and in the adjacent town districts: Trnitá, Komárov and Stránice but also by people from distant peripheries, such as Ivanovice and Dvorska. In these cases, the place of shopping is linked to the place of work. Shopping centers are preferred for daily shopping only by inhabitants of northern suburbs Mokrá Hora, Útěchov, Ořešín and Ivanovice (the influence of the Globus hypermarket, which can be considered a shopping mall due to its size and many small outlets in the shopping arcade under a single roof) and southern suburbs Dolní Heršpice, Horní Heršpice, Přízřenice and Holásky with a strong attraction of three shopping centers Futurum, Avion Shopping Park and Olympia. Inhabitants of the other municipal districts do their daily shopping in other municipal districts rather than in their places of residence. For the location of individual municipal districts, shopping centers and hypermarkets see Fig. 5.

Places of weekly (weekend) shopping within the area of inner Brno are much more balanced (Fig. 4). The most significant part of the inhabitants (37%) rather surprisingly do their shopping (similarly as their daily shopping) at places of their residence and their surroundings. The fact demonstrates that inhabitants of many municipal districts use the ever wider supply of various types of retailing concepts (self-service shops, supermarkets, hypermarkets, discount stores,

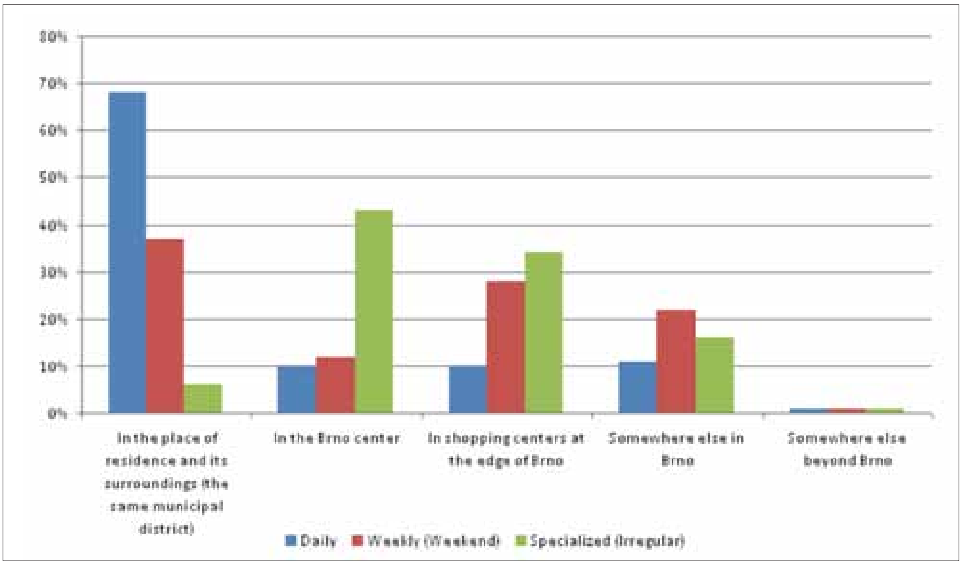

Fig. 2: Place of shopping according to the three basic frequency types of shopping. Source: Authors´ research

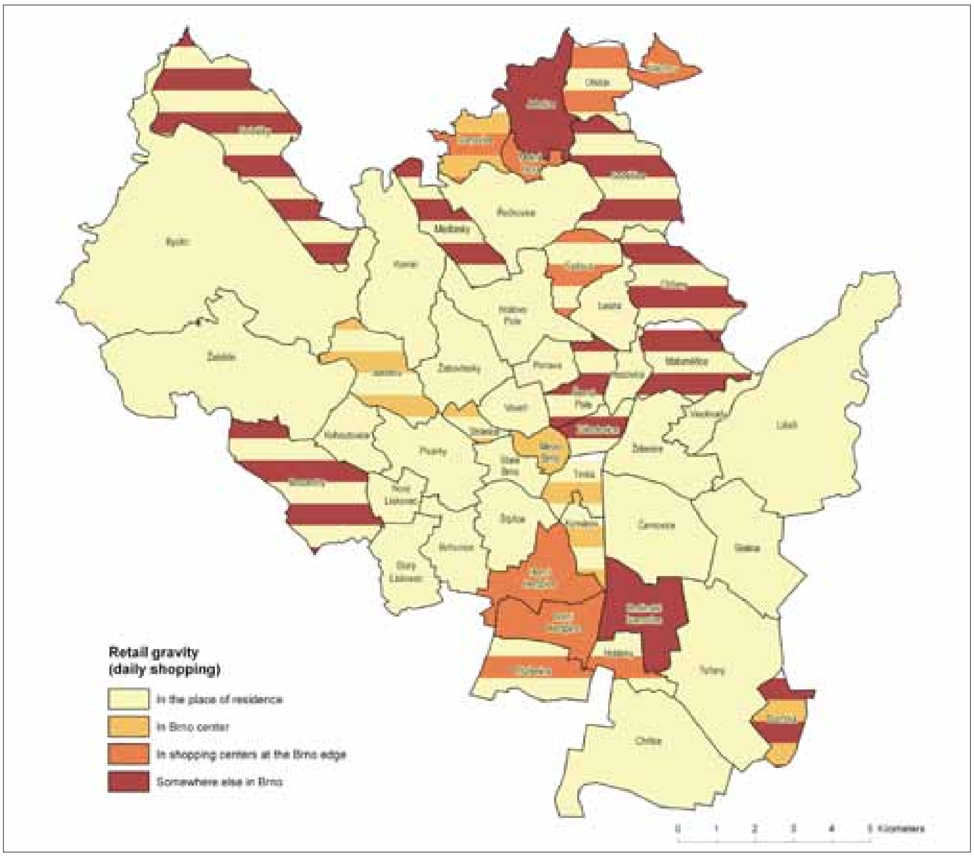

Fig. 3: Places of daily shopping in the individual town districts, related to the respondents' places of residence
Source: Authors´ research

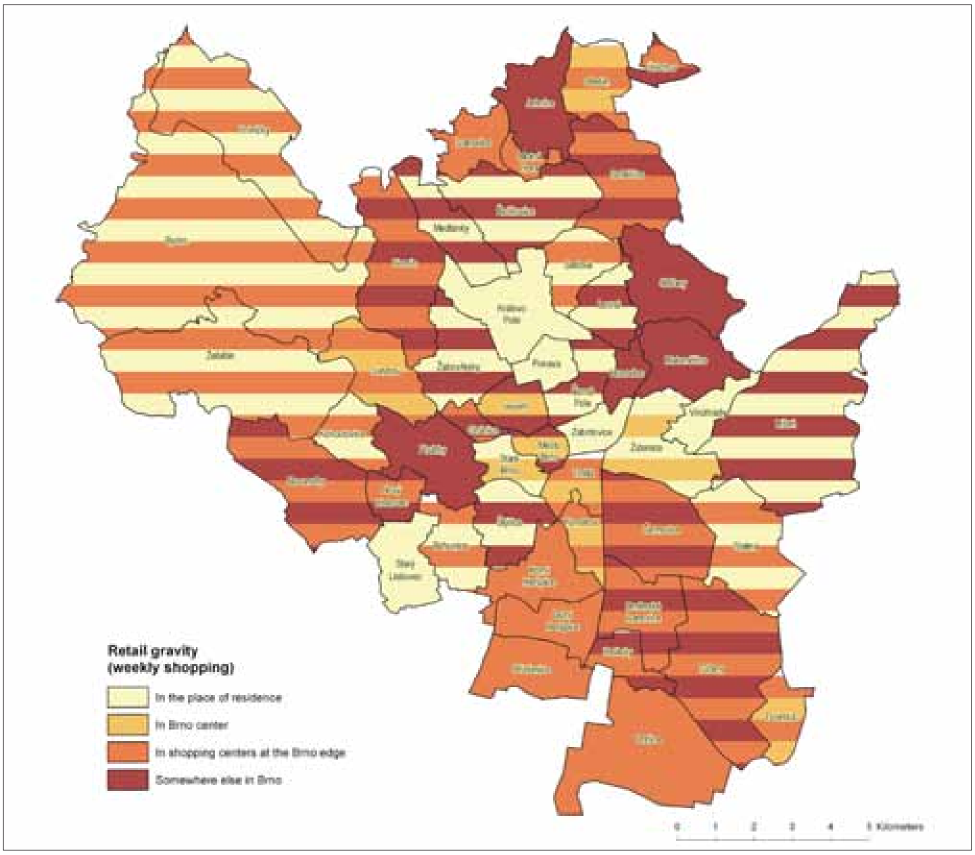

Fig. 4: Places of weekly shopping in the individual town districts, related to the respondents' places of residence
Source: Authors´ research

etc.) located close to their places of residence for larger and regular shopping. Yet here you can see the growing importance of the shopping centers at the edge of the city (28%).

Weekly shopping at the place of residence and its surroundings is preferred especially by the inhabitants of the municipal districts of Královo Pole, Ponava (here you can see also the impact of the Královo Pole shopping center in this municipal district), Zábrdovice (high-density housing development and very good retailing facilities), and housing developments in Starý Lískovec and Vinohrady (also a sufficient concentration of shops). Weekly shopping in shopping centers is typical of the northern (Ivanovice, Mokrá Hora) and southern suburbs (Horní Heršpice, Dolní Heršpice, Přízřenice and Chrlice), where the above-described shopping centers represent very attractive shopping islands (much more distinctive than in the case of daily shopping).

Weekly shopping outside their place of residence is a choice of inhabitants in municipal districts located especially in the eastern part of the city (Obřany, Maloměřice and Husovice) without any shopping centers or hypermarkets. With a slight overstatement we could speak about a retail-undersized eastern part of Brno. Similar replies were provided also by the respondents from the northern and rather sparsely populated suburb of Jehnice and central Pisárky, where no large-area markets exist either but these municipal districts have very good transport connections to the surrounding districts with better facilities. The inner city is not a preferred location for weekly shopping gravitation.

The inner city (43%) and shopping centers at the city outskirts (34%) are preferred locations for specialized and irregular shopping. Considering the popularity of shopping centers in recent years and their "ability" to wipe out small shops in the inner city, a reversed order might be expected in this specialized shopping. This could be the result of the attraction of the very popular shopping center Galerie Vaňkovka and the Tesco department store (Tesco hypermarket), which, owing to their locations and accessibility belong to the inner city.

For the gravitation of individual town districts, or rather inhabitants living in them, to the shopping centers and hypermarkets see Fig. 5. Similarly to the previous figures (daily and weekly shopping), it also depicts the most frequently represented shopping directions. The northern part of the city is governed by the Globus hypermarket and by the shopping center of Královo

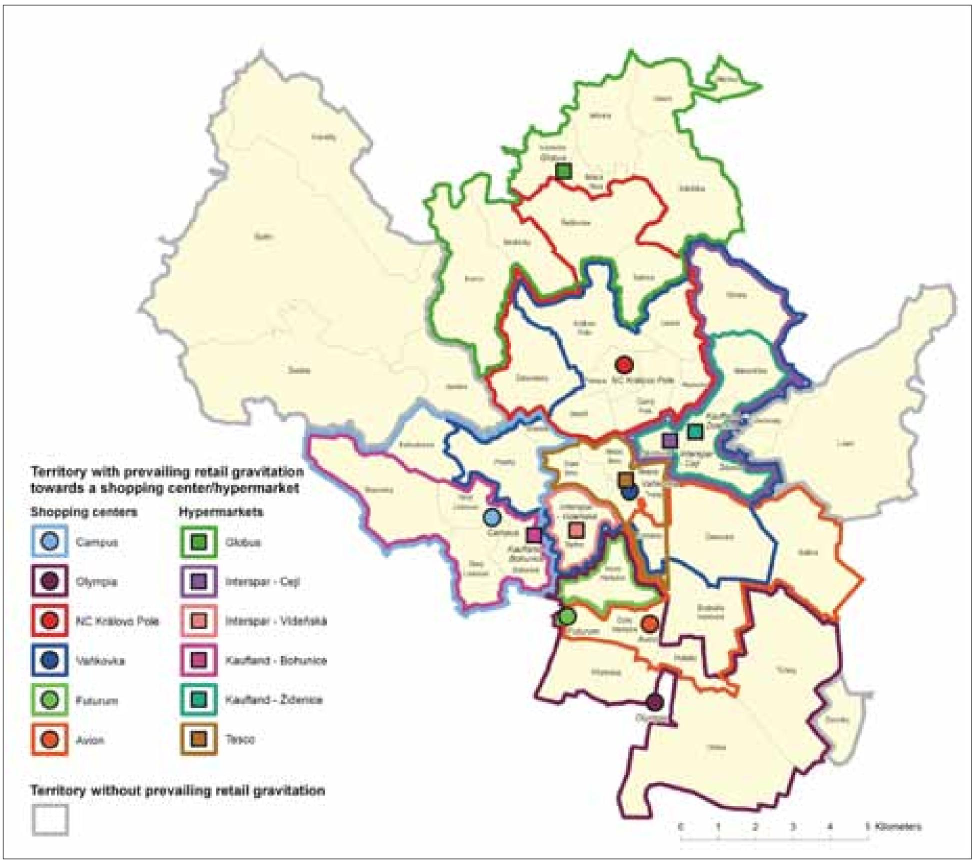

Fig. 5: Gravitation to shopping centers and hypermarkets of the inhabitants of municipal districts
Source: Authors´ research

Pole – their spheres of influence partially overlap. In the south, we can find the dominant Olympia shopping mall and the Avion Shopping Park, while the youngest shopping center Campus Square gradually strengthens its position in the west and the Interspar and Kaufland hypermarkets hold their positions in the east. The Vaňkovka Shopping Centre and the Tesco hypermarket compete for customers in the densely populated inner city; their competition in non-food products (specialized goods) is clearly being won by the first subject especially for young and middle-aged customers. Some municipal districts in the north-west, east and south-east of the city do not exhibit a clear gravitation to shopping centers and hypermarkets; their inhabitants divide their favor evenly among multiple subjects. These are both large housing development complexes (Bystrc, Kohoutovice, Vinohrady, Líšeň and Slatina) and suburbs with small populations and rural developments (Kníničky, Žebětín and Dvorska).

Besides the spatial location of districts within the Brno City and their proximity to shopping centers and hypermarkets also the factors of district size and population (that determine the local supply and demand) significantly affect the shopping gravitation of inhabitants. The bigger is the size of a district, the higher is the percentage of people shopping at the place of their residence (daily, weekly and specialized – with insignificant differences in the latter case). Consequently, the inhabitants of smaller districts tend to shop much more in the shopping centers and hypermarkets. For more detailed analysis see Tab. 2.

With regard to the socio-demographic characteristics of inhabitants, the results of our research proved that the share of persons shopping at their place of residence is the highest in the oldest-age category while differences among other age categories are negligible. Despite the fact that seniors tend to watch for various discounts offered by supermarkets and shopping centers located in the outskirts of Brno and then take an advantage of them in their free time (meaning "anytime") using cheap public transport, the trend did not statistically reflect in their preferences for daily shopping. Seniors also have the lowest share among the visitors of shopping centers as concerns the weekly shopping.

Teenagers are most frequently represented among shoppers in the inner city in the case of daily shopping (probably because a majority of secondary schools are located there) and they also constitute the most frequent category among the visitors of shopping

Factors	Category	Dependent variables					
		daily shopping in (…)			weekly (weekend) shopping (…)		
		place of residence	city centre	shopping centers	place of residence	city centre	shopping centers
District size (population)	< 5,000	40%	16%	**24%**	9%	14%	**47%**
	5,000–10,000	65%	**20%**	7%	36%	**16%**	25%
	10,000–20,000	77%	8%	6%	46%	10%	23%
	> 20,000	**85%**	4%	1%	**49%**	11%	13%
Age	15–19 years	64%	**24%**	4%	32%	**16%**	**35%**
	20–29 years	66%	12%	10%	35%	**16%**	28%
	30–9 years	67%	10%	**11%**	35%	10%	29%
	50–59 years	68%	11%	**11%**	36%	15%	25%
	60 and more	**77%**	6%	6%	**43%**	11%	16%
Education	Basic or secondary without GCE	**72%**	10%	8%	**44%**	**12%**	19%
	Secondary with GCE	67%	12%	10%	33%	**12%**	27%
	Tertiary	67%	10%	**12%**	32%	**12%**	**32%**
Economic activity	Work in Brno	69%	10%	8%	**37%**	12%	26%
	Work outside Brno	49%	18%	20%	14%	4%	**57%**
	Student	56%	12%	**24%**	32%	8%	48%
	Unemployed	62%	**29%**	0%	24%	**33%**	33%
	Maternal leave	60%	5%	20%	23%	2%	35%
	Pensioner	**70%**	9%	8%	34%	1%	18%

Tab. 2: Differences in the shopping gravitation according to the district size, age, education and economic activity
Source: Authors´ research. Categories with the highest frequencies of the respected variables are in bold

centers. The share of people shopping in shopping centers slightly grows with the level of education. The frequency of shopping in shopping centers also correlates with the economic situation of households represented by their monthly income rates. These results can be interpreted in such a way that the shopping centers in the city outskirts are more frequently used by people with higher incomes, which are mostly related to higher achieved education. These people also more frequently commute to work by cars, which provide them with higher mobility and therefore wider choice of shopping locations.

Regarding the characteristics of economic activity, people working in Brno and retirees prevail among people shopping at their places of residence. The inner city is most frequently used for shopping by the unemployed, who combine their trips with other rounds not connected with work activities (services, gaming rooms, restaurants, etc.). Also people commuting to work out of Brno often shop in the centre (the ones who travel by public transport from stations located in the city centre). Shopping centers at the edge of Brno are primarily used by students, people working outside Brno (commuting daily by their own cars) and also by mothers at maternity leave (also traveling mostly by cars). Shopping beyond the place of residence (in other districts) is done for non-regular (weekly) shopping rather than for daily shopping. They are mostly visited by mothers on maternity leave (40%) and seniors (35%) – here we can see their trips for cheaper shopping, not however to distant shopping centers but to closer hyper- and supermarkets.

A more specific analysis of the survey results makes it possible to find out about the popularity of specific retailing units for the individual frequency types of shopping (for more details see Tab. 3). Especially supermarkets with branches in most municipal districts (in Brno: Albert 23 markets, Billa 10 markets, Brněnka – a regional chain, 25 markets) and small shops with foodstuffs or miscellaneous merchandise are preferred for daily shopping. The Kaufland (3 markets in Brno) and Tesco (4 markets in Brno) hypermarkets hold their positions, too. No significant preferences were demonstrated in the case of weekly shopping; the Globus hypermarket (1 market in Brno) and the Olympia shopping mall joined behind the above-mentioned chains in daily shopping. Specialized (irregular) shopping is dominated by the Vaňkovka shopping mall located in the inner city, followed by the Tesco and Olympia hypermarkets. The fourth place is occupied by small specialized shops in the inner city.

The mode of transport to shopping is primarily determined by the frequency, type and direction of shopping (see also Fig. 6). Daily shopping at the place of residence or in a closer neighborhood is mostly done on foot, as expected (60% of answers). Cars are most frequently used for weekly and specialized shopping (each 52%) – this is mostly given by the peripheral location and adaptation of shopping centers and hypermarkets for car transportation. When weekly and especially specialized shopping is done in the inner city, the public transport is widely used too (22% and 41%, respectively).

Cars are used for shopping slightly more frequently by men than women, which is quite surprising especially in the daily shopping. Cars are used for shopping most frequently by the middle generation (30–49 years) and least frequently by seniors over 60 years of age, as expected. The use of cars grows with the achieved education level and the use of public transport and walking decreases correspondingly.

If we focus on basic foodstuffs only, we can interpret the shopping frequency as well. Mothers on the maternity

Daily shopping		**Weekly (weekend) shopping**		**Specialized (irregular) shopping**	
Albert (Ahold) – supermarket	26%	Tesco – hypermarket	15%	Galerie Vaňkovka – shopping center	26%
Small shops except for larger chains	15%	Albert (Ahold) – supermarket	14%	Tesco – hypermarket	16%
Billa (Rewe) – supermarket	14%	Billa (Rewe) – supermarket	10%	Olympia – shopping center	15%
Brněnka – supermarket (regional chain)	7%	Globus – hypermarket	6%	Small specialized shops in the inner city	14%
Kaufland – hypermarket	7%	Olympia – shopping center	5%	Avion Shopping Park – shopping center	6%
Tesco – hypermarket	6%				

Tab. 3: Percentages of individual retailing units in all types of shopping. Source: Authors´ research

leave and working people from larger families do their shopping on the daily basis (37% of all answers). They mostly shop close to their places of residence. Retired people and the unemployed shop for foodstuffs twice or three times a week; once a week or a lower frequency is typical for the youngest age category 15–19 years (most of the shopping do their parents). Concerning gender and education, no significant statistical differences were discovered among the individual categories.

When considering the shopping for basic foodstuffs according to the types of retailing units, supermarkets are the most preferred units (over a half of all answers – see Tab. 1 above). They are followed by hypermarkets and smaller self-service shops. When considering social groups, the expectation was confirmed that smaller shops and discount shops are mostly used by older age categories, supermarkets and hypermarkets by young people and middle-aged generation. In terms of age, gender and education, shopping centres do not exhibit significant differences in the composition of their customers as compared with other types of shops.

Table 4 shows that over a half of all non-food shopping occurs in the shopping centers. They are distantly followed by hyper- and supermarkets and by smaller shops in the inner city. Older age groups (over 50 years) again prefer smaller shops in the vicinity of their places of residence and supermarkets; young and middle-aged generations do their shopping for non-food products especially in the shopping centers and hypermarkets. For example, 70% of respondents younger than 20 years shop in the shopping centers while only 25% of persons older than 60 years shop there. Education shows only a weak correlation – people with higher education shop more frequently in the shopping centers and smaller shops in the inner city while avoiding the supermarkets, which are mostly used by people with elementary education.

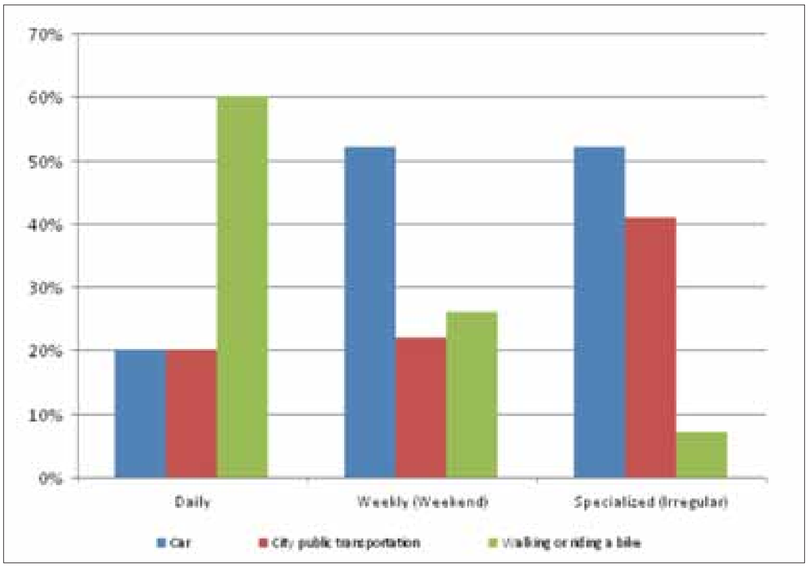

Fig. 6: Transport modes used for the three most frequent basic types of shopping. Source: Authors´ research

Figs. 7 and 8.: Crowded parking places of the Hypermarket Globus in days after Christmas holiday (a time of the first sales) and photo of the Galerie Vankovka – a shopping centre located close to the historic centre and the main railway station, an example of successful revitalization of a post-industrial brownfield site (Photos: Josef Kunc)

Food - retailing unit type		Non-food - retailing unit type	
Supermarket	54%	Shopping center	54%
Shopping center	20%	Hypermarket	15%
Smaller self-service shop	12%	Supermarket	13%
Shopping center	7%	Smaller shop in the inner city	12%
Shop with across-the-counter sales	4%	Smaller shop near the place of residence	5%
Discount shop	3%	Discount shop	1%

Tab. 4: Preferences for the individual types of retailing units for the shopping of food and non-food products
Source: Authors´ research

When asked: "*What type of shop do you really miss in the city?*", 77% of respondents replied that none. This simple answer is based to a great extent on the wide choice of retail units, which is typical for a city of Brno's size. It is a reaction to the currently peaking phase of the retailing network transformation, which has been going on for 20 years in the Czech Republic. Those respondents, who replied to this question descriptively, were mostly people younger than 20, who traditionally long for more shops with textiles and seniors who miss shops with domestic wares. Gender and education did not show any significant differences.

The preceding question was related to another question concerning a change in the respondents' shopping behavior in the past five years. This is a time that respondents were able to actually remember and put into context. For answers see the following Tab. 5. For over a half of the respondents nothing significant changed near their habitual shopping places. Increased numbers of shops and enlarged assortment at their places of residence and a need to do their shopping outside the place of residence due to the lack of supply were perceived by about the same numbers of respondents. Only 13% of respondents preferred the newly opened large-area markets; this was a reaction to the fact that hypermarkets and shopping centers appeared in Brno mostly about 10–12 years ago.

5. Discussion and conclusions

Our research conducted within the borders of Brno city was aimed at revealing some specific areas of retail gravitation and shopping behavior of the inhabitants. Daily shopping (mostly basic foodstuffs) is realized mostly at the place of residence (2/3 of answers) and in the close vicinity; supermarkets and small shops that are not part of established retail chains are the preferred shopping units. The role of hypermarkets and shopping centers has been secondary so far but, as pointed out in some studies based on commuting for retail shopping in urban environments (Marjanen, 1995; Szczyrba, 2002; Mitríková, 2008 and others), their role will grow in the future.

Weekly shopping is logistically much more balanced. Compared with our expectations specified in the hypothesis, the place of residence and its close surroundings (37% of answers) still prevails, followed by shopping centers at the edge of Brno and other municipal districts beyond the place of residence. Many locations (Fig. 4) recently saw the opening of new hypermarkets (and also supermarkets) with a wide supply of goods and frequent discounts, and people living in their vicinity take advantage of this. Significance of shopping centers at the edge of the city is already very apparent (28%).

The inner city (43% of answers) and shopping centers at the edge of the city (34%) are preferred for specialized or irregular shopping; here we expected a reverse order, though. The growing significance of shopping centers, with regard to smaller specialized shops in the inner city, for shopping performed both by the inhabitants of the city and its hinterlands, is rather clear from other research works as well (Szczyrba, 2002; Lowe, 2005; Crosby, 2005; McEachern, Warnaby, 2006; Van Leeuwen, Rietveld, 2011; Kunc et al., 2012a, 2012b). Localization of the popular shopping centre Galerie Vaňkovka and the department store Tesco with

Have you noticed, in the past five years, approximately, any change in your shopping behavior?	
No significant changes occurred in the vicinity of my habitual shopping places	51%
I shop close to my place of residence since the availability of shops and the assortment of goods increased there	17%
I shop mostly outside of my place of residence since the necessary shops and the assortment of goods are not available there	16%
New large-area markets were opened and I prefer them	13%

Tab. 5: Preferences for the individual types of retailing units selling food and non-food products
Source: Authors´ research

a hypermarket played a certain role in the preference for the inner city. The Galerie Vaňkovka shopping centre, which is located close to the historical centre and the main train station, can be regarded as an example of successful regeneration of a brownfield site (a complex of industrial factories) and revitalization of the city centre (a similar example is the Bullring shopping centre in the central part of Birmingham city, UK). If we abstract from the frequency types of shopping, the shopping centers are explicitly preferred for purchasing non-food products (54% of all shopping) while the supermarkets dominate with the same share in the shopping for foodstuffs.

The statistical analysis of the survey results revealed several correlations between the individual population groups and the places of shopping. The hypothesis was confirmed that the share of people shopping at their place of residence grows with age. On the contrary, it was not confirmed that young people explicitly prefer shopping centers mostly located in the city outskirts. It is the young people below 30 who are most represented among the people shopping in the inner city and only then among the people shopping in the shopping centers. This is a kind of need to confirm one's social status – to be seen in the brand-name shops and shopping centers, i.e. to be in the "center of action" – this has been corroborated in studies by Kunc et al. (2010), Jackson et al. (2011) and Spilková (2012b). Once again, the locality of the Vaňkovka shopping center, which immediately links with the historic inner city, plays its role in Brno. Education has no significant influence on retail gravitation; only in the case of shopping centers we can see a more significant increase in the share of shoppers with higher achieved education.

When considering specific population segments and their work activities in connection with the places of shopping, seniors are profiled as inhabitants of the city who prefer both their place of residence and other municipal districts of Brno. Seniors travel beyond their place of residence to take advantage of discount actions and discounted foodstuffs, drugstore goods, etc. offered by hypermarkets and supermarkets. The inner city is used for shopping mostly by the unemployed while the shopping centers are used by working people and mothers at maternity leave. A part of the working population takes an advantage of the possibility to do their shopping at the place of their work.

A majority of the respondents (60%) do their daily shopping within a walking distance; car trips dominate for the weekly and specialized shopping (for similar topics see e.g. Brown 1991; Marjanen, 1995; Findlay et al., 2001; Szczyrba, 2002; Mitríková, 2008; Wagner, Rudolph, 2010 etc.). Public transport is also much used for visits to the shopping centers in the city outskirts; it is mostly used by seniors, mothers at maternity leave and teenagers.

The last tested hypothesis did not provide an unambiguous answer to the question about an improvement in the selection of retail shops and expansion of services in most Brno municipal districts in recent years. The prevailing neutral answer about the scope of change in the habitual places of respondents' shopping reflects the current state of inaction connected with the global economic recession. Building of new retailing concepts in the Czech Republic stopped by 2008 and people have apparently "become accustomed" to the new retailing standard, which doesn't grow fast but gets gradually corrected by means of filling in gaps in the market, increasing competition and growing supply of services (see also Kunc et al., 2012b; Spilková, 2012).

Czech inner cities, including Brno, have been exposed to the constantly intensifying process of commercialization and driving of grocery stores out of the inner cities is one of the consequences of this process (Sýkora, 2001; Ilnicki, 2001; Poole et al., 2002; Kunc et al., 2012b). Floorspace of grocery stores in the Brno inner city (not only here but also in other municipal districts) has been gradually shrinking (Mulíček, Osman, 2009) and there has also been shrinking the floorspace of specialized non-foodstuffs shops. The center of shopping for both food and non-food products is being transferred to the housing development zones and to the city periphery where you can find supermarkets and hypermarkets, which are frequently parts of shopping centers.

On the other hand it is necessary to note that many small specialized shops, "evening grocery stores", farmer shops, etc. have recently opened in the Brno inner city and they have found their customers. It is well-known, that the Tesco chain, for example, is going to build a network of smaller grocery stores in the Czech inner cities (Tesco Express concept). Large developers with new shopping and administrative projects are going to enter the inner cities; competition will be tough, though. Developers certainly do not avoid building new shopping centers in the vicinity of historical city centers, see Brno. Just take a look at large Czech cities, such as Prague (e.g. the shopping center Nový Smíchov, or planned Copa center at Národní třída, which will certainly not be the only object of this type) and Ostrava (Nová Karolína) or nearby Bratislava (Aupark), Krakow (Galerie Krakowska), English Birmingham (BullRing shopping centre) and many others.

What will be the development of retailing within the context of the daily urban system in a central European city such as Brno? The inner city will keep losing its position as far as weekly and irregular shopping is concerned. For daily shopping it will serve its residents who feel no need to travel somewhere else - this has been demonstrated by our research as well. Also the people working in the inner city will be able to take advantage of shopping facilities close to their places of work. Some small specialized shops will remain, large-area formats will be exceptions and if any of them get established they will be under very strong competition. New secondary "inner cities" will be gradually established around the shopping centers with strong gravity effects and they will attract residential and administrative functions. These and other similar questions will be answered in rather near future.

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