

## Potential food deserts and food oases in a post-communist city: Access, quality, variability and price of food in Bratislava-Petržalka



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### ABSTRACT

Delimitation tools and definitions of food deserts have not been internationally unified so far. Such comprehension ambiguity may lead to variability in research methods as well as to terminology mismatch in the research. In general, assessment of accessibility of selected (large-scale) food stores network in a region is considered as a suitable tool to identify the food deserts, but this is certainly not the only approach. In our paper some other approaches (such as measuring quality, variability and food price) are assessed together with supermarkets and hypermarkets accessibility examination. Results gained by analyses based on various methodological approaches are then compared and confronted, which simultaneously allows us to compare the individual approaches. For our case study purposes, the largest housing estate in Slovakia's capital city was selected.

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### Introduction

In the last decade, research on food deserts conception has become increasingly common, but there are many of earlier papers focused on inequalities in the food retail environment (Beaulac, Krisjansson, & Cummins, 2009; Walker, Keane, & Burke, 2010). In the U.S., several theories on how food deserts are formed have been postulated (Walker et al., 2010). One of the theories has been associated with both the development and closure of stores (Guy, Clarke, & Eyre, 2004). It is believed that the growth of large chain supermarkets offer consumers a better quality, variety and price for food options. The expansion of these large food stores localized out of a city has forced the smaller (independent) food stores to close. This may lead to formation of areas where variety of healthy foods is poorly accessible. Supermarkets generally offer a variety of healthy foods at reasonable cost; food access is defined by accessibility to a supermarket or a large grocery store. This conclusion led to definition food deserts as areas characterized by limited access to healthy and affordable food (Apparicio, Cloutier, &

Shearmur, 2007; Jiao, Moudon, Ulmer, Hurvitz, & Drewnowski, 2012).

Several definitions of food deserts can be found in relation with different disciplines. Cummins and Macintyre (2002, p. 2115) defined a food desert as: "[...] area, where foods are expensive and relatively unavailable." Other authors have defined the food deserts as "[...] areas of poor access to the provision of healthy affordable food, usually related to lack of large retailers." (Gregory et al., 2009, p. 259). Wrigley (2009, p. 398) conventionally defined the food deserts as areas of poor access to the provision of healthy affordable food where the population is characterized by deprivation and compound social exclusion. Russell and Heidkamp (2011) claim that a food desert refers to an area, typically at the scale of the neighbourhood or greater, where residents have a highly limited access to adequate retail sources of healthy and affordable foods. The residents live in relatively disadvantaged areas, such as in an urban or a rural neighbourhood, where socioeconomic inadequacies are exacerbated by a lack of transportation options with which to seek other, better retail food sources (e.g. supermarkets) further away. Several authors identify with this definition (Apparicio et al., 2007; McEntee & Agyeman, 2010; Walker et al., 2010).

Even though the food deserts have recently become a focus of numerous scientific studies (Beaulac et al., 2009; Charreire et al.,

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2010; McKinnon, Reedy, Morrissette, Lytle, & Yaroch, 2009; Walker et al., 2010), the issue still keeps the interdisciplinary character, which on the one hand enriches the multicriteria approach, but on the other hand indicates a certain fragmentation in comprehension of the topic. The innovations rooted in new retail geography stem from its capability to reveal impacts of retail transformation on urban and regional economics and many studies associate with “store wars” and “food desert” issues (Rice, 2009).

The key attributes of the food deserts and their residents may be as follows (see Guy & David, 2004, p. 223): (i) the residents are physically disadvantaged in terms of mobility and accessibility; (ii) the residents suffer from economic disadvantage, too, due to generally lower incomes; (iii) the above mentioned factors lead to an insufficient nutrition/diet, as the consumers usually consume cheaper food; (iv) the residents are spatially disadvantaged due to lack of food stores in their environment; (v) the local stores offer only a limited range of food-products for higher prices compared to the large-scale grocery stores.

Except for the concept of food deserts, we are confronted with the concept of so-called food oases which are in contrast with the food deserts (Short, Guthman, & Raskin, 2007; Walker, Block, & Kawachi, 2012) and vice versa.

The aim of this paper is to assess the methods and data necessary to identify potential food deserts (food oases) in our case study focused on a post-socialist housing estate (Petržalka, a part of the capital city of Bratislava). Forasmuch as this problem is of a multi-disciplinary nature, the following hypotheses were derived from geographical, economic and health aspects of the whole issue:

- H1 Spatial accessibility of large grocery stores up to 1 km will characterise most of the Petržalka's territory and only a minor part of the area (population) will coincide with potential food deserts.
- H2 Food prices in large grocery stores are lower than in small-scale stores. Accessibility of cheaper food will be satisfactory for most of the housing areas territory. The less favourable food costs will generate formation of potential food deserts in the neighbourhood.
- H3 Large grocery stores provide healthier foods, thus the food quality controls register lower incidence of spoilage in comparison with small stores. The stores with the highest spoilage incidence induce formation of potential food deserts in their neighbourhood.
- H4 The size of area of both potential food oases and potential food deserts will depend on the variables utilized in the analysis.
- H5 Geographical information systems represent an appropriate and effective tool of identification and mapping of food deserts.

## Study area

The case study area is located in the south-western part of Slovakia at the state border with Hungary and Austria (Fig. 1). The city of Bratislava is divided into 17 boroughs, of which Petržalka is the most populated. Petržalka is the largest prefabricated housing estate in Central Europe, and one of the most ambitious projects of the former communist regime. Large-scale standardization, a limited number of available housing types without variety, and poor quality resulted in depressing rows of blocks of flats made out of concrete panels (Lizon, 1996) and this was especially true for the project of Petržalka.

Later in the 1980's the existing housing capacity in Petržalka was extended by a so-called “housing stock intensification” (Halás &

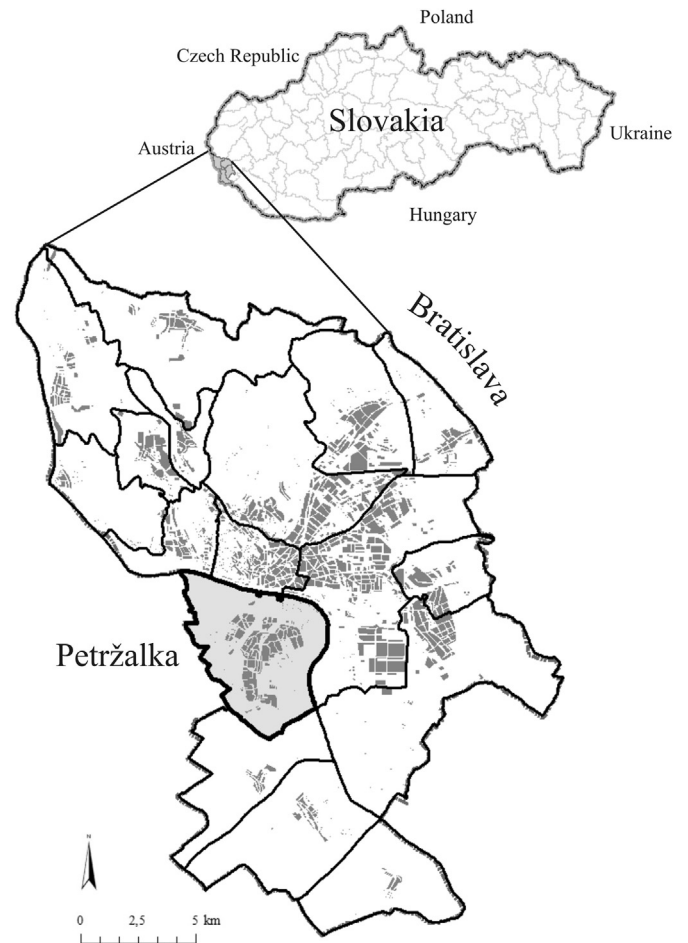


Fig. 1. The study area.

Džupinová, 2007), which is still carrying on (Šveda, 2014). As of 2011, Petržalka registered 105,842 inhabitants (source: Statistical Office of the Slovak Republic), which represented 25.7% of the city population. The population density reaches to nearly 3700 thousand residents per km<sup>2</sup>, which ranks the site among the territories with the highest population densities in Slovakia (Buček & Korec, 2013).

Nearly 15% of households in Petržalka have a per capita income which places them in the at-risk-of-poverty group according to this measure of relative poverty, and just over half (51%) of the households show per capita incomes below the median for the region. At the other extreme, 30% of households have relatively high per capita incomes, reflecting the polarisation of income in the city and the attendant social inequalities that this gives rise to. While the level of risk from poverty is lower than that recently estimated by the European Commission for the country as a whole (at 21%), it is still relatively high and the existence of half of the households below the median income level suggests that there are considerable numbers of households which could quite easily fall below the poverty threshold if circumstances were to change for the worse (Smith & Rochovská, 2006).

Compared to developed European economics, the retail business in former Czechoslovakia (and in Petržalka) was underdeveloped (Fertalová & Szczyrba, 2006; Szczyrba, 2005), and negatively assessed in many aspects (Krásný, 1992):

- (i) Density of the retail network (expressed by number of stores per 1000 inhabitants) was very low (approximately half the

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