

СВІТОВА ЕКОНОМІКА ТА ГЛОБАЛЬНЕ ПІДПРИЄМНИЦТВО

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URBAN FOOD SECURITY IN TERMS OF REGION OF SLOVAK REPUBLIC

ABSTRACT. Urban food security could be defined as the key factor for developing of economies. Purpose of the paper is to define extreme areas in urban food security — food deserts projecting as the threats for urban food security research. The object of the examination is retail offering assortment of food in a selected region of Slovakia. Paper is using methods of analyzing, comparative analysis based on descriptive analysis and as interpretative tools were used geographic information systems (GIS). Results point on trend of substitution of traditional food retail units by large-sized formats as for example hypermarkets. This means that worsening situation in urban food security results also from mentioned modernization fact. Paper results in pointing on different areas with characteristics as food deserts as a key terms of urban food security.

KEYWORDS: availability of food, food desert, food security, food retail.

1 INTRODUCTION

Availability of food represents key factor for developing of economies. There are regions with inadequate possibility of saturation of basic and essential needs of human — called food deserts. It does not exists uniform approach to determine food deserts due to many views on their definition. But it is necessary to say that issue of food security represents very sensitive and important area. Thanks to mentioned reasons, every approach in research of food deserts is original and it could contribute to the overall effort to find optimal solution for (urban) food security.

2 OBJECTS

The object of the examination is retail offering assortment of food in a selected region of Slovakia. Work is based on the classification of retail formats according to the methodology of the Statistical Office of the Slovak Republic.

Table 1

MODIFICATED CLASSIFICATION OF RETAIL FORMATS

General formats	Specialized formats
Shopping malls	Stores with meat, sausages
Shopping centers	Stores with fish, poultry
Hypermarkets	Stores with bread
Mixed stores	Stores with sweets, delicacies
Supermarkets	Stores with beverages
Foodstuffs (wide assortment)	Stores with fruits and vegetables
Food stalls	Stores with milk and milk products
Food machines	Stores with rational nutrition food
	Other specialized food retail formats

Source: Own procession according to methodology of the Statistical Office of the Slovak Republic

Table 1 shows all types of stores that this institution includes under the grocery stores. In order to achieve the highest veracity of the research results and the transparency of the model, there is a narrowing of the selection of the retail food store formats (Table 1 — name of formats written in Bold font). There are selected general types, analysis of which offers results applicable to food retail at universal level. The described definition of the investigated object was also subordinated and limited to the availability of relevant data.

Spatial definitions for which statistics are exploring are the boundaries of the Slovak Republic with specific application on the level of selected region with partial areas. In the perception of Eurostat methodology is the administrative area of the state on the basis of the Nomenclature of Territorial Units for Statistics — NUTS, specifically NUTS levels 3 and below.

In the compactness of the territory, it was also characterized the more pronounced barriers that disrupt this integrity. These included,

for example, natural conditions in the region, some of which may be considered barriers to the development of food retailing. It's also pointing on various socio-economic barriers that greatly limit the potential for further utilization and development of food retailing in the given area.

3 METHODS

Approach in paper is based on key accessibility rate quantified by partial rates, considering characteristics of the regions as natural barriers, transport network, the nature and structure of consumer income and expenditures. As the methods of analyzing the results of the initial models were used perceptual and comparative analysis based on descriptive analysis.

As interpretative tools were used geographic information systems (GIS). For cartographic methods were applied techniques and cartodiagrams cartogram method and also figural characters [10; 8]. For interpretation, paper used help of graphs, tables and images to define individual correlations. Paper defines extreme area in urban food security using results of own contributions which have shaped these areas for a specific region [4; 5], and contributions of domestic and foreign authors [1; 6; 11]. The contribution shall be also based on the knowledge of classical gravity model of W. Reilly (1931) which is linked to model of Huff (1963) and also taking into account the recommendations of authors who were interested in the similar issues in the past (for example authors Anselin, Handy, Niemeier or Talent).

4 FOOD DESERTS IN TERMS OF URBAN FOOD SECURITY

Paper point on trend of substitution of traditional food retail units by large — sized formats as for example hypermarkets. This means that worsening situation in urban food security results also from mentioned modernization fact. Nowadays, retail managers localize their units according to possibilities for improving of their market share. And increasingly neglect their traditional role of ensuring quality food for inhabitants. Bonanno defines the region's motivating agents to locate food retail across two areas [2]:

1. Demand — driven factors

These include market size, population and income growth, poverty rates, income support programs and consumer preferences in terms of heterogeneity.

2. Supply — side factors

It understands investment costs (fixed), distribution costs and other factors such as local tax systems or laws, crime levels, public transport, and even the image of retail itself.

Paper focuses on the use of demand — driven factors as they best and adequately define the nature of food deserts. From the point of view of available data, indicators of market size, consumer incomes and the structure of their expenditure (in our case, specific consumption expenditure) are used. Subsequently, when considering retail units, the market share should be taken into account [3], in addition to local potential customers. In economic theory, the cumulative gradient is understood as the realization of part of the expenditures of the retail population at a place other than the place of residence, and it is manifested as a sum of the positive and negative transfers of expenses — the balance of the purchase gradient [12].

We recognize the external trade gradient which means territorial transfers of the population's expenditures in retail trade between individual housing units and the internal purchase gradient which means transfers in retail spending to one settlement unit [3].

4.1 CHARAKTERSTICS OF CONSUMER IN SELECTED REGION

Presov region represents 18,3 % of whole territory of Slovakia and 15,1 % share of inhabitants. The total length of the road network is 3 161,207 km² which represents 3,906 km per thousand inhabitants of Presov region. Of the total length, the motorways and the highways are 8,264 km. This fact depicting inadequate equipment with a good road network. The relief of the region is extremely rugged. In addition to the extensive of top formations — the High Tatras, there are several large and small-scale natural protected areas.

In order to determine the properties of the consumer in the Presov region, the indicators of net incomes and net expenditures are used. The character of the development of the Presov region is reflected in a more detailed structure of consumer spending. According to our last research, consumers, mainly because of their low income, buy what they absolutely need — namely food, housing and related expenses and transport. It is important to note that, for this reason, the strong potential of the market within the Presov region is visible for the development and modernization of the food retailing.

The findings made on the basis of an analysis of the characteristics of the region and its inhabitants as potential customers of food retailing are indispensable for conclusions about the retail of food products.

Research till nowadays is offering two different conclusions. On the one hand, the data confirm the dominant position of the traditional food retail formats, compared to Slovakia, reaching a high level — up to 19 %. In other words, almost every fifth classic format of the grocery store is located in the Presov region. This means that food retail stores do not go beyond a perceived level of modernization. On the other hand, the food market still shows signs of an upcoming wave of modernization. It is seen in the high proportion of modern formats of sales such as department stores, shopping centers and hypermarkets. Their share (18 %) is beginning to approach the representation of traditional food sales formats in the Presov region [4; 5]. We can see a fairly comparable representation of both traditional and modern food store formats.

Summarizing the findings and conclusions regarding the state of the food retail within the territory of the Presov Region in the national definition as higher territorial units and in the international classifications as NUTS 3 paper can state the following assertions:

1. Road network for short-term shopping

The structure of transport equipment in the Presov region is currently ready to serve for transport for purchases to other parts, especially for a shorter distance. This is because the predominant paths of II and III. classes road that do not provide a rapid shift, as is the case for motorways or expressways. Here it is important to note that the area of completion or construction of roads for a more dynamic and safe transport is a long-term problem of (eastern) Slovakia. For this reason, this is also reflected in the Dynamics of the onset and expression of the modernization of food retail.

2. Optimal structure of net consumer monetary spending

The nature of net cash spending for consumers is in favor of purchasing mainly food and supplementary products. An external determinant for this state is the level of income and other characteristics of the population of higher territorial units. These have an impact on the structure of expenditure, and are currently in favor of the development of food retailing

3. Stable position of traditional formats

The Presov region represents territory with a stable status of traditional formats in the retail food market. Their strength is also helped by a strong position compared to the whole territory of the Slovak Republic.

4. Poor modernization rate

Confirmed weakness of modernization is reflected in different directions in defined regions. The Presov region as the territory with

the most defense-related intra-regional differences shows a different direction of modernization within its market. There is a stable position for classic retail food. On the other hand, however, the same proportion is represented by modern formats, especially the type of department stores, supermarkets or gradually growing shopping centers. This reflects the unevenly developing trend of modernization within the territory of the Presov region.

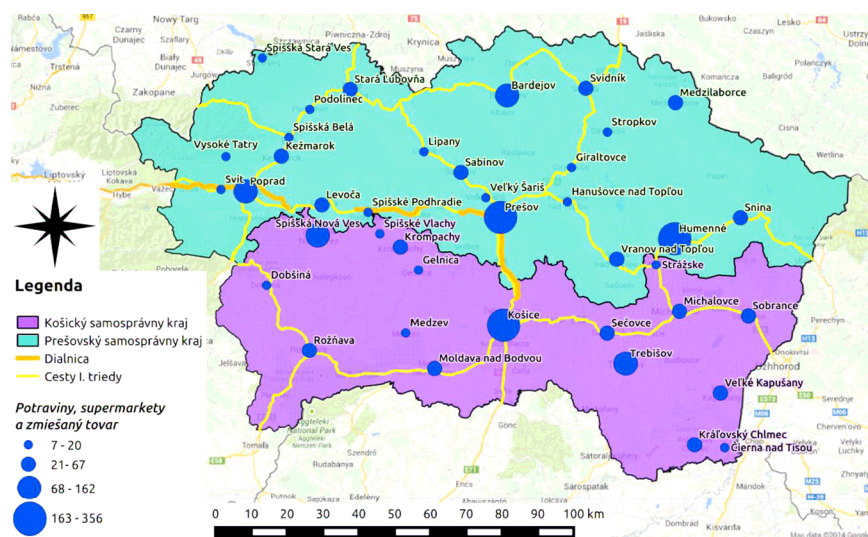


Figure 1: Results from GIS presenting food retail in Presov region

Source: own procession

Figure 1 illustrates situation of food retail in Presov region. As it can be seen, there are few shopping gradients which belong to bigger cities. Circles represent food retail stores. The larger the circle is, the more retail units are located in this area. Yellow and orange links mean road of I. classes and highways. Naturally, the most of retail units of Presov region are located in city of Presov and other bigger cities. Also, almost all of the stores are established in connection with built road of I. classes and highways.

4.2 URBAN FOOD SECURITY

The contribution uses food deserts as an indicator of urban food security. If a territory is characterized by the characteristics of the food desert, it is clear that its urban food security is not on high level

and action to optimize the availability of food is needed. Paper used the application of 3 availability rates — binary availability, metric availability and topological availability for the step of complex food desertification in analyzed regions. Their limits were identified according to our latest research [4; 5].

The binary, also called trivial availability represents the quantitative expression of the distance between the starting point and the target point. This availability is identified as the basis for further specified rates. Because of the scope and structure of the available data, this measure expresses the carriage distance. Various alternatives can be used to measure the distance. As many experts prefer the travel (transport) time — they consider it is more informative compared to the distance measurement (in km), paper has chosen this option. For these accessibility rates, paper has set criteria that limit identification of food deserts — 30 minutes.

Second rate — metric availability is a quantitative expression that collectively interprets the sums of times the consumer has to conquer to reach each point in the network. Paper defines it in the total set of retail stores as the sum of the minimum sequences from the point of consumption to all the other nodes of the set. This availability is negative, i.e., the lower is the value, the given target point (hypermarket, supermarket ...) is better accessible. For the needs of the analysis of food deserts, paper identified the limit as availability over 1500 minutes.

Topological availability is characterized as a quantitative expression of the sum of directions from the point of consumption (village) to all destination points (retail grocery stores). This availability is positive, t. j. the higher is the value, the better is the availability. Its limit in defining food deserts has been set at availability under 5 connecting routes (highway, roads of I. and II. classes). The connecting routes included those that directly connected the city with another center.

As districts of Presov region — which were at each point of analysis designated as food deserts paper characterizes Humenne, Kezmarok, Medzilaborce and Snina (Figure 2). It is important to note, therefore, that urban food security is not on a high level for these areas of the surveyed region.

These territories should be precisely created by retail managers, as well as by local government interventions, to create sustainable and especially efficient urban food systems. Even less developed regions need high availability of food for their residents, and it is essential for them to use their evolution and development to attract retail managers

to localize their food retail stores. Or to look for other options for securing urban food security.

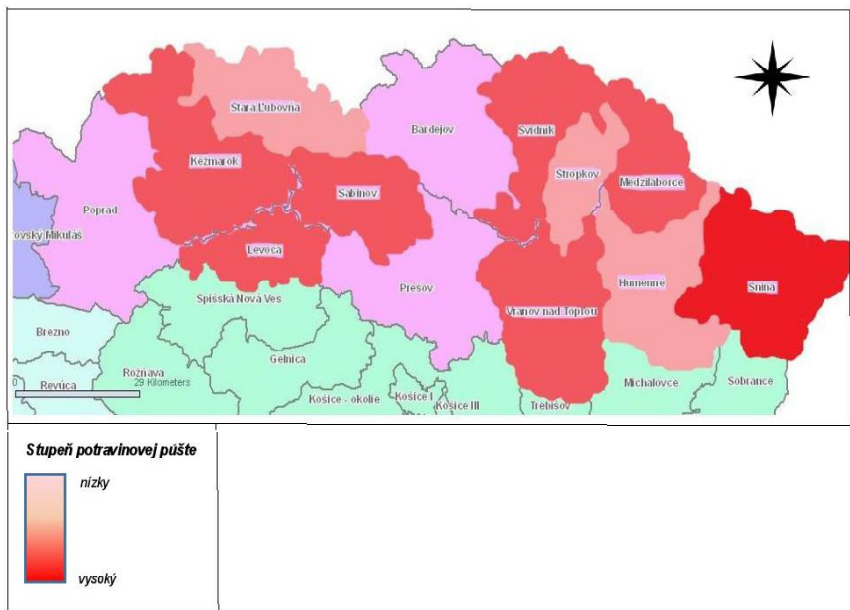


Figure 2: Urban food security by food deserts in Presov region

Source: own procession

5 SUGGESTIONS FOR URBAN FOOD SECURITY

From the point of view of the problem solved, it is worth pointing out that the radical change of the Slovak (or Czechoslovak) society through the influence of globalization has been taken into account with regard to the purchasing opportunities before 1989 and after that year [9]. These changes have become sufficiently plausible to start scientific discussion about this new social phenomenon. Appropriate consideration may be given to spatial relationships in relation to the deployment of human activities that adapt to new social conditions. It should be noted that time and space manifestations of changes in consumer behavior in post-socialist countries (including Slovakia) have been more intense and stronger in recent years than in countries

with a traditional market economy in Western Europe and the USA. The described changes in buying behavior were also justified by transformation on the part of retailers. Their primary role — to provide food for their customers, has turned into a role with a different foundation. The need for market share has grown in the hands of retailers, which, of course, should be reflected in an increase in sales or the expansion of their food. The retailer gradually turned his attention to converting his stores to a more purposeful, entertaining or relaxing center that is associated with shopping. It was less focused on the real demand for food and its distribution in space.

An analysis of the current food retailing environment will outline its direction for the future. We see the flexibility and the power of the consumer that will only be enhanced in the future. Heterogeneity in taste or individualization, a technically oriented lifestyle will be factors that will significantly affect the direction of retail in general. Not everything, however, is based on the power of the consumer. It will also be subject to the impact of the environment, in particular through developments and changes in demographics or revenue cuts. Such a forecast directs food retailers to accept challenges in the form of aging populations or the necessary personalization of their product offerings. In this way, the potential dimensions of innovation in the form of multi-channel integration, product design (private brands) are outlined, of course, all for online support. The above-mentioned challenges to food retailing may be reflected in stronger outsourcing and offshoring and stronger linkages through vertical integration of suppliers. By highlighting the most important areas to be adapted by the future retail provider, more importantly, areas linked to changes in population demographics (slowdown in population growth), technology (operational efficiency) and innovation (especially new forms of organization) [7].

In connection with the focus of the paper, the food security is a necessary factor determining the health and quality of life. In other words, it is about ensuring the availability of quality and safe food. The performance of the Slovak Republic in this sphere is mainly coordinated through the Common Agricultural Policy of the European Union. In particular, this is a strategy for reforms in the area of agricultural productivity growth. In particular, it refers to the quality initiative of our regions and activities to promote sales from the yard. The project «Quality from our regions» indirectly determines the area of food deserts in Slovakia. The way of communication, which focuses on the preference of Slovak products, is a way of solving the situation.

Through Figure 3 paper provides an overview of areas where home farmers are located from with a different assortment. It can be seen that this type of sale is concentrated in the territory of Kosice and Presov, which are defined as food deserts. Therefore, it considers that the natural efforts of these vendors to identify such sales outlets are identified here.

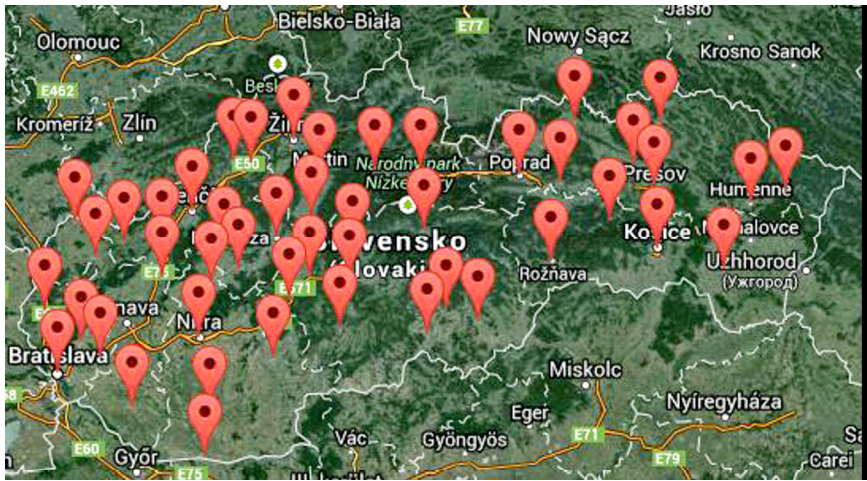


Figure 3: Map of home farmers in Slovakia (including the Presov region)

Source: <http://www.predajzdvoja.sk/mapa-zoznam-a-poloha-fariem/>

If we introduce a seller as home farmer, its field of application is the village of his or his neighbors. This means that the customer may not necessarily have a personal car or other means of transport to transport his purchases. Consequently, consumers are told that the food they buy is guaranteed to be of high quality, as in many cases it is his neighbor as a seller. This creates a form of loyalty and trust as factors influencing buying behavior. In many cases, such a seller does not need additional space to sell his products. In a few examples, sales of surplus products can not be consumed by the seller or his family. Here, we see another advantage for the use of the court sales department to minimize areas with poor or even zero food availability.

As an addition to providing urban food security, paper mentions the activity that covers the monitoring of food quality and safety within the territory of the Slovak Republic. It is an «Official Control Portal» operated by the State Veterinary and Food Administration of the Slovak

Republic. Its organs carry out official controls of foodstuffs on their production, trade, handling and marketing. The State Veterinary and Food Administration of the Slovak Republic collects in its information system which it manages information on operators, findings of official food control, completed administrative procedures based on the results of official food control. Thus, the consumer can use it to monitor the individual businesses selling food products. Through this application, you can verify whether the level of food is of the required quality and whether all the rules are also observed when storing, handling or selling products at a selected store.

6 CONCLUSION

The trend of replacing traditional grocery stores with larger formats such as hypermarkets — referred to the modernization of grocery retail and it has led to the formation of food deserts. The need to cover the entire population through food supply is currently an important point of interest. We live in conditions of ever-increasing pressure in the form of food crises or the necessity of achieving the highest quality of life. For this reason, the issue of urban food security in terms of food deserts is profiled as one of the potential threats to the development of the communities and thus it is imposing more and more attention.

In the future there is a plan to extend the application of the contribution for the whole area of Slovakia. This will mean practical implication for retail manager for their decisions making about localization of retail units. After defining food security in each territory of Slovakia is beneficial to report the status of the relationship of this area to the level of public health (health care expenditure as a proportion of total household expenditure, consumption of drugs, the number of occupied beds in hospitals, others.) By doing this, research could come with generalized view of the status of availability of healthy and quality food in Slovakia with a direct reference to the level of health of the affected area. In the follow-up future, there is a tendency to create «food access research monitor» for whole territory of Slovakia as the practical implication of approach of paper.

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