

**Retail Transformation and Changes in Consumer Behaviour  
in Slovakia since 1989**

Jana Mitříková, Martina Marchevská, Irina Kozárová

2021

This work was carried out as part of the research project titled “Spatial and functional aspects of retail transformation in Slovakia over the past 30 years and changes in consumer behaviour in the context of new trends” supported by GAMA under grant no. GAMA/20/4 and the research project “Relational marketing research – perception of e-commerce aspects and its impact on purchasing behaviour and consumer preferences” supported by VEGA under grant no. VEGA/1/0694/20.

## Retail Transformation and Changes in Consumer Behaviour in Slovakia Since 1989

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Publisher: VUZF Publishing House “St. Grigorii Bogoslov”  
Sofia, Bulgaria 2021

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**ISBN 978-619-7622-08-9**

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## INTRODUCTION

The Slovak retail sector has perhaps undergone a more radical transformation than any other segment of the Slovak economy since the end of socialism in 1989, and the pace and nature of this transformation can be directly connected to the changes in Slovak society and politics in this period as the country transitioned from a state-planned system into a market economy. The period has also seen a wide range of structural changes ranging from the processes of the restitution of property expropriated under the previous regime to their original owners and both small-scale and large-scale privatization programs to the impact of globalisation with the entry of multinational companies to the local market and the construction of large-scale retail outlets across the country.

In addition to changes in ownership and the entry of foreign capital to the domestic market, we can also observe a wide range of functional and spatial changes. The opening of retail network outlets in areas easily accessible by public and private transport and the dynamic growth of sales area in terms of the construction of large-area shopping facilities on greenfield sites are characteristic of these types of changes. It is also possible to observe changes in the spatial distribution of business activities in terms of differences between rural and urban areas. Consumer behaviour varies according to individual types of consumers, but it also constantly changes over time, with consumers increasingly seeing shopping centres less as places for shopping and more as places in which to spend their leisure time, or abandoning large-scale stores in favour of a return to the personal contact which smaller outlets can offer or the search for alternative food networks such as farmers' markets or box-scheme operations. A further change can be found in the rapid growth of online retail, with consumers moving away from personal contact with sellers to a more anonymous approach through the Internet, or in a shift in consumer behaviour to a focus on quality rather than quantity.

All of these trends will be addressed over the five chapters of this monograph. The first chapter will offer the theoretical and conceptual background of the analysed issues, while the second provides an overview of the specific stages of the retail transformation process as it has unfolded in Slovakia; from the internal transformation in the aftermath of the Velvet Revolution to the development of internationalization (in the sense of globalization) and the entry of multinational companies into the Slovak market. The development of Western-style shopping centres is one of the most visible manifestations of the impact of globalization on Slovak retail, and the third chapter offers an overview of the definitions and classifications of shopping centres and their historical development across the world. Consumer behaviour is the topic of the fourth chapter, in which the influencing factors, decision-making styles, consumer typologies and characteristics of generations of Slovak consumers are discussed in detail. The chapter also gives an overview of contemporary trends in shopping, the emergence of e-commerce and the ways in which consumer behaviour has been affected by the Covid-19 crisis as it developed in 2020. The results of our research are presented on the basis of a series of case studies in the final chapter which consists of five subchapters. In the first subchapter, a series of selected macroeconomic indicators of the retail network in Slovakia are analysed. In the second subchapter, the relationship between retail revenues in relation to regional GDP and employment in the retail network in relation to regional GDP were tested using a panel regression model. Airport shops are an attractive shopping opportunity for travellers and offer a wide range of international and domestic products at affordable prices. The third subchapter includes a case study aimed at identifying differences in the shopping behaviour of customers travelling on scheduled and charter flights at the duty-free store at Košice International Airport. The fourth subchapter focuses on the issue



of localization theories. Individual locations in urbanized areas now provide more shopping options, and thus the opportunity for consumers to pick and choose is growing. The Huff Model determines the proportion of shopping trips made by consumers from a particular site to all locations within a studied area. This share can be understood as the probability that a specific shop will be selected as a shopping destination by the residents of a given settlement, and this approach was employed in the research carried out in the cities of Prešov and Košice which is presented in this subchapter. Visits to shopping centres have become a popular way of spending free time not only for individuals but also for whole families or groups of teenagers. The final subchapter examines the connections between shopping and leisure in the cities of Vienna and Košice.

# 1 THEORETICAL AND CONCEPTUAL BACKGROUND OF RETAILING

## Trade – concept and definitions

According to Viestová (1995, 33), trade is understood as “the exchange of commodities between individuals which takes place either directly through natural exchange or indirectly using the medium of money.” Without the existence of trade, groups or individuals would be forced to satisfy their needs from their own resources.

Trade refers to a set of commercial obligations which arise primarily from contracts made in compliance with commercial codes (Strážovská et al. 2010; Britchenko 2012; Vazov 2019a).

Jurková (2008) states that trading success in a new competitive environment requires that retailers:

- strengthen the relationship of customers to their products over those of other competitors,
- strengthen their relationship with suppliers,
- improve the efficiency of their supply chains, offering quality services at a low price.

According to Viestová et al. (1984, 9), “trade” can be characterized from several perspectives: “from the territorial perspective, domestic and foreign; from the material perspective, food and non-food; and from the perspective of the forms of ownership, state, cooperative, and private”. Trade can be integrated into the national economic sector, the task of which is the transformation of forms of value.

Trade as a sector of the economy consists of two components: wholesale and retail. Both components involve the sale of any goods without subsequent transformation and the provision of services related to the sale of goods. Both wholesale and retail represent the final stage in the process of the distribution of goods to their end users. While wholesale represents the sale of new or used goods to retailers or other users, retail is the subsequent sale of such goods mainly to the general public through a retail network (Britchenko 1999; Križan and Bilková 2014; Bezpartochnyi et al. 2016a; Bezpartochnyi et al. 2016b;).

Retailing is the final stage of distribution systems. Retail activities are mainly located in places with high concentrations of potential consumers, most typically stable or mobile units or shops (Mitríková 2017 as cited by Viestová 1996; Britchenko 2010; Vazov 2018a).

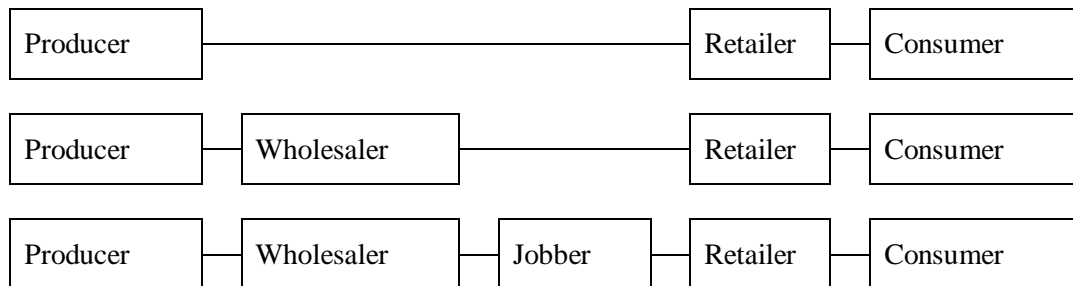
The levels of a distribution channel for the consumer market are as follows:

-one-level channel (manufacturer – retailer – consumer) – the shortest and fastest path of a product to a customer. Approximately one third of all goods in the consumer market are distributed in this way

-two-level channel (producer – wholesaler – retailer – consumer) – the majority of goods in the consumer market are distributed in this way

-three-level channel (producer – wholesaler – jobber – retailer – consumer) – a jobber is a type of wholesaler who places a stand with their goods on a rented area of a shop / wholesale shop and offers their goods there (Hekelová 2006).

**Figure 1 Distribution channels**



Source: Viestová 1995, Bowden and Mizraei (2021)

According to Kita et al. (2005, 287) retail forms “one of the most important elements of the distribution channel through which most products currently pass from a manufacturer to a consumer”.

According to Kotler and Keller (2016, 549), retailing “includes all the activities in selling goods and services directly to final consumers for personal, nonbusiness use”, and they define a retailer or retail store as “any business enterprise” with a sales volume which is derived primarily from retail activities (Kotler and Keller 2007).

Any business or company engaged in manufacturing, wholesaling or retailing carries out retail activities (Britchenko 2016; 2019a). According to Kotler and Keller (2007), services can be provided in any way (in person, by post, via a vending machine, or through the Internet) and anywhere (door-to-door sales, on the street, or in a store).

The term “retail” usually refers to retail stores, where customers satisfy their needs through decision-making (Etzel 2013).

Growth in the retail trade was enhanced by the development of the consumer market, the expansion of network forms in the organization of retail trade, the increase in final demand, the development of the system for providing consumer credits, the emergence of new formats in retail chains, etc. In other words, until recently the sphere of consumption has been growing in a "hypertrophied" way (Bragin, L. A et al. 2018).

Traditional forms of retailing offer customers a wide range of different services and work to determine prices of goods which allow retailers to ensure that their costs are covered. Such an approach also provides an opportunity for the emergence of new types of retail shops, such as low-price shops. Competition between individual types of retail is also increasing, for example between traditional “bricks and mortar” retail sale forms in shops and those conducted remotely, with all types competing for customers. The retail sector is located in a constantly changing environment, and it is likely that most retail businesses will be absorbed into larger retail companies in the future (Chmelíková 2002). The expansive development of retail sales can be seen in terms of an increasing number of shops, a change in the mindset of retailers; a change in retailers’ approach to consumers via the individualization of their requirements, and the constant emphasis on technology innovation. The basic goal and vision of retailers is to satisfy customers not only in terms of offering them favourable prices but also in terms of satisfying their desire for a wide range of goods and services. The intensive development of retailing in the Slovak Republic has also been accompanied by an increase in the living standards of the population, the regional migration of the rural population to cities, and the improved mobility of the population as a whole (Hes et al. 2008).

Retailing creates a sales range which is attractive in terms of product type, quantity,

quality and price. Retailers develop ready-to-sell sales inventories, provide information about the goods on sale, provide an appropriate and convenient sales method, and offer suppliers with marketing information (Cimler and Zadražilová 2007; Britchenko 2019b). The composition of the retail sector differs widely, but in general terms retail can be classified into food and non-food and, according to the offered range of products, into specialized and non-specialized (or universal). The specific activities of retailers can be also divided into two groups, namely store retail and non-store retail (Szczyrba 2006). The majority of retail takes place through a network of retail shops. The retail store thus represents a place where the end user most often buys products or goods to satisfy their requirements (Križan and Bilková 2014).

The activity of retail companies in the market is affected by changes brought about by the marketing environment. If retail businesses are to succeed in the market, they need to respond flexibly to the processes of Europeanisation, rising standards of living among their customers and the resultant increases in demand, and the improved mobility of the population. When planning and creating a marketing strategy, retailers should also take into account the expected directions of retail development. These include:

- the emergence of new forms of retail sales and the shortening of the life cycle of retail
- the continuing growth of non-“bricks and mortar” retail such as internet or telephone sales
- increasing competition between different types of retail shops,
- the market dominance of retail chains in the market and their decisive impact on suppliers (Kotler and Armstrong 2004; Bartáková et al. 2007).

Globalization and internationalization tendencies in retail are deepening as the organizational concentration of companies grows steadily. Customers are becoming more demanding, increasingly seeking out opportunities to shop for all kinds of product under one roof and retail spaces that can offer them experience-based shopping. Marketers are required to base their strategies on the precise identification of target groups which they can then target with tailor-made offers, loyalty schemes and differentiation. Nowadays, the use of modern information technologies in the management of companies is common. Only companies which can differentiate themselves from others and excel in specific areas stand a chance for the future (Boučková et al. 2003).

As the different types of retail unit will be referred to in the following chapters, it is necessary to briefly characterize them. The following terminology and definitions are based on the Statistical Yearbook of the Slovak Republic (2016).

A department store is a retail unit formed by combining a series of different sales departments into a single operation which is located in a single premises. Department stores offer a wide range of products, typically including, as a minimum, food, clothing and consumer goods, and often provide catering and supplementary services.

A convenience store is a retail unit typically offering the sale of at least three basic assortment of goods (for example, food, clothing, consumer goods) in at least two independent retail units in a single premises.

A hypermarket (hall-type self-service department store) is a large-scale self-service retail unit offering a wide assortment of food and non-food products. Hypermarkets are characterized by the use of a single payment point for all purchases; cash desks are situated near the exit and not in individual sales departments, as is in the case of department stores. Hypermarkets are typically located in one or two-floor halls, usually outside the city centre.

A supermarket is a large-scale food retail unit offering a wide range of assortment of food products supplemented with non-food products of everyday use. The most common format

is a self-service store with cash desks enclosing the sales space. Supermarkets can also offer specialized sales sections with service staff (such as delicatessens or bakeries).

A general store is a retail unit offering a wide assortment of food and non-food goods. The balance of food and non-food goods is approximately the same.

A grocery shop offers a wide assortment of food products, often supplemented with non-food goods of daily use although the share of non-food goods is smaller than 40% of the total turnover. The sale can be self-serviced, serviced or combined.

A non-food shop offers a wide range of assortments of non-food character. The proffered assortment depends on the location, the size of the premises, the operational concentration of shopping facilities and the scale of the unit. The sale can be self-serviced, serviced or combined (Statistical Yearbook of the Slovak Republic (2016).

This terminology does not include the category of a shopping centre, which is, of course, an important type of large-scale retail unit due to its multifunctionality. Chapter 3 will discuss the shopping centre in more detail and offer a more comprehensive definition of the category.

In addition to the above-mentioned categories of retail unit, it is also necessary to provide a definition of discount stores, particularly given the fact that in recent years they have experienced a boom in Europe and their popularity among customers has continued to grow steadily. A discount store is a medium-sized retail unit offering food, drugstore and other goods of everyday consumption, but often offers a narrower range of goods than standard supermarkets and is more functional in appearance, with many goods left on pallets in the sales area. This format is intended to attract customers with low prices, a strategy which ensures a rapid turnover of stock, higher liquidity and thus lower financial costs. The discount store is the fastest growing format in Europe and has recently begun to expand its portfolio with non-food products at highly attractive prices, a step which further strengthens its competitive position in relation to other retailers (Viestová 2001).

## **2 TRANSFORMATION OF RETAILING IN SLOVAKIA AFTER 1989**

All sectors of the Slovak economy have undergone radical transformations over the course of the last 30 years, (e.g. Cákoci et al. 2019; Horňák et al. 2019), and the retail sector is no exception (Križan et al. 2019). The pace and nature of the transformation of retailing can be related to the political and economic situation of the country as a whole. In general, it can be stated that the most significant changes in retailing took place in the years after 1989 following the transition to a market economy, although it is also important to note that globalization trends have also had a huge impact. In this context, changes have also occurred in the spatial distribution of business activities between the countryside and the city, or, more precisely, the number and character of business entities within the territory have undergone significant change. This chapter is devoted to an overview of the specific stages of the retail transformation within the context of the nature of the transformation itself. The retail sector in Slovakia has undergone significant changes over the last thirty years, ranging from the process of restitution, small and large privatization to internationalization with the arrival of multinational companies and the construction of large-scale retail stores. Also significant in this respect are the changes in the shopping behaviour of consumers; more recently, customers have begun to focus on traders with a more individual approach, seeking out alternative food networks, farmers' markets, or box-scheme operations (Križan and Bilková 2014).

The term “transformation” refers to the process of the transition from a planned to a market-based economy, more specifically the transformation of a centrally-controlled planning and decision-making system into a decentralized or atomized market system. Simultaneously, this process accompanied the change from one-party central rule to a pluralistic multi-party system. Hampl et al. (1999) distinguish two basic types of transformation in societies. The first type is referred to as the general transformation to a “post-industrial society”, while the second is understood as a more specific transformation which was undergone by post-totalitarian states in particular. In post-communist countries, we can discern a geographical differentiation of transformation processes. Blažek (1999) distinguishes between two basic groups of factors that influence regional development. He termed the first as internal factors, referring to political and institutional transformations (for example, the democratization of society, decentralization of the public sector, and replacement of a centrally planned economic system with a market economy). The real economic transformation consists of programs of restitution, privatization, and the opening up of domestic markets to foreign capital. Among the second group of factors, termed external factors, he primarily highlighted the liberalization of foreign trade.

Slovak retailing has undergone many changes over the course of its development (Očovský 1974, Mitříková 2008, Trembošová 2012, Križan and Lauko 2014). These changes can generally be termed as transformations as they constitute changes in the function of retailing in terms of its role in the country’s economy (its economic aspect) or also to changes in the function of retailing in terms of its role towards consumers. Retail can therefore be understood not only as the sector of the economy which ensures the distribution of goods to their final consumers but also other sectors such as localities in which tourism takes place (Timothy 2005, Mitříková et al. 2012). Another group of changes are those represented by changes in the form and methods of retail sales, which are in turn related to changes imparted to consumer behaviour (Kunc et al. 2013, Spilková 2012).

As Szczyrba has noted (2005), a fuller understanding of the processes which the Czech and Slovak retail sectors underwent in the years after 1989 requires an awareness of the broader context of these developments.

## **2.1 Pre-transformation structure of retailing in Slovakia**

The pre-transformation period, beginning in late 1989 and ending in 1990, can be considered as a period defined by the categorical socio-political transformation of the Czechoslovak state and the subsequent reorganization of the Slovak economy, and the transformation from a centrally planned system to a market economy.

The post-war period had initially been characterized by the fragmentation of the trade network with its predominance of individualistic ownership and was also marked by an uneven geographical distribution of trade. An important change came with the transformation of ownership relations after 1948 which overturned the hegemony of the private sector. After the nationalization of trade, state trade became the predominant form. While in 1948 the private sector owned 88% of shops, by 1949 this had fallen to almost 25%, then to only 9% by 1950, eventually disappearing entirely after 1960. In organisational terms, state trade took over the role of supplying cities, while consumer cooperatives, which were united under the brand name Jednota, were focused mainly on the countryside. Another important element in the development of retail was the introduction of uniform pricing, a system which effectively ended competition within the retail environment. A retail network gradually developed which was complemented by itinerant sellers and the revival of earlier traditions such as the organization of fairs in the countryside (Očovský 1974). The retail

environment in the cities was characterized by a significant concentration of retail trade in centrally located department stores. The retail network of approximately 17,000 shops which had developed by the 1960s remained almost unchanged for the next three decades (Križan and Bilková 2014). In summary, the period of 1948 to 1953 saw the gradual liquidation of the private sector and its nationalization in favour of state-owned enterprises which were established on the basis of the nationalized property and consumer cooperatives. According to Szczyrba (2006), the liquidation of private property in trade in Czechoslovakia reached around 100%, the largest of all of the socialist states in Eastern Europe.

At the end of the 1980s, the retail network had been reduced to a quarter of the pre-war level. Unlike in Western Europe, the reduction in the number of shops was not accompanied by a corresponding increase in the size of the network or by any change in its structure (i.e., the assortment and spatial organization of the retail network). In the socialist period, rationalization meant a reduction not only in the scope but also in the quality of the available retail capacity. From the end of the 1950s until the beginning of the 1970s, there were significant decreases in retail capacity, a phenomenon which was directly related to the targeted reconstruction of the network. On the one hand, this involved the closure of small, unproductive shops and the merger and the modernization of the surviving outlets. In the period of a centrally planned economy, the predominant business concepts in the Slovak market were those of the small self-service shop (a format which gradually began to appear from the mid-1950s) and the traditional over-the-counter or convenience grocery shop. From the mid-1960s, convenience centres and department stores also appeared offering a wide range of assortment and, in the case of specialized products, small specialist shops or convenience shops. By the end of the 1980s, 60% of retail sales of food products took place in the form of self-service shops (Mitríková 2008, Mitríková 2017a, Trembošová 2020).



### **Box 1 Tuzex and examples of department stores as the only large-scale format in the pre-transformation period**

**TUZEX** was a network of retail stores in the Czechoslovak Socialist Republic which offered various foreign goods, especially those that were otherwise unavailable, and, to a more limited extent, some domestic goods to the local population and foreigners. These goods were purchased using “Tuzex Foreign Trade Corporation Vouchers” (colloquially called “Tuzex bon”) which were issued in exchange for foreign hard currency.

In terms of large stores, only department stores were known on the Slovak market during this period, and these remain some of the longest-surviving large-area formats on the market. In Slovakia, the current direction and state of department stores as a form of retail offering a wide range of assortment lags around ten years behind the neighbouring developed markets. Department stores are hampered by the general inability of their owners to invest in their businesses, but the stores also face tough competition in the form of modern shopping and entertainment centres. The Na Příkopech department store in Prague, originally developed in 1859 from Jaroslav Brouk’s coffee and tea shop, can be considered the first department store in the territory of the former Czechoslovakia. From 1910 to 1911, the department store, then under the name Brouk and Babka, expanded its range of services into textile goods. Branches of Na Příkopech were later opened in many other cities, including the Dunaj department store in Bratislava. The trade union enterprises known as Obchodné Domy were established after World War II, with twenty registered branches and one associated enterprise, Domy Módného Odievania operating across the country. In 1950s the brand name of Prior was chosen for Czechoslovak department stores, and from the 1960s, a

series of new department stores under this brand name was built, with a total of 49 department stores with a total floor area of more than 80,000 m<sup>2</sup> in this period. From July 1965 to 30 June 1985, during the twenty years of Prior's existence, 33 department stores with a combined floor area of more than 160,000 m<sup>2</sup> were opened, 18 of which operated in the Czech Socialistic Republic and 15 in the Slovak Socialistic Republic (Mitríková 2008, Mitríková 2017).

In comparison with the market-oriented economies of Western Europe, retail trade in Czechoslovakia was severely underdeveloped, critically so in many respects. The retail network before 1989 was characterized by:

- Low capacity (between one third to one quarter of the Western average) – retail capacity (the size of sales area per 1,000 inhabitants) was very low in comparison to many countries in Western Europe (Krásný 1992, Križan and Bilková 2014). The delivery of goods to shops, especially non-food goods, was significantly limited. Maryáš (1990) has pointed out the shortcomings of capacity indicators for non-food goods in assessing the level of basic service regions and their centers.
- Low density of the retail network (indicated by the number of shops per 1,000 inhabitants), approximately half of the average in Western Europe. A particular issue in this respect was the very limited range of shops in larger cities.
- Inappropriate structure with a distinct lack of large-area units. Unfavourable conditions in retailing, determined by the values of density and the retail capacity, conditioned structural deficiencies which were manifested by the limited presence of shops with non-food products, the absence of modern large-scale stores, and also significant differences in the operation of retailing at the local and regional levels in terms of satisfying consumer demand (Krásný 1992 Križan and Bilková 2014).

Therefore, to summarise our initial evaluation of Czechoslovakia prior to the political-economic transformation which came about after 1989, we can see that retail and wholesale entities were mainly state or cooperative companies which were organized as geographical monopolies with little or no competition between institutions. The largest share of food retail was conducted in state-owned enterprises such as Zdroj, typically either general grocery shops or fresh fruit and vegetable shops. In addition to these state-owned enterprises, a significant part of food distribution took place through consumer cooperatives such as Jednota and state-owned department stores such as Prior. The retail sector consisted of a mixture of small-scale supermarkets and shops in urban areas and small shops and cooperatives in rural areas (Trembošová 2020).

## **2.2 Stages of the retail transformation in Slovakia**

The starting point for the transformation between 1989 and 1994 was the elimination of the subsidization of food prices in 1990, a step which led almost immediately to a 25 percent increase in food prices. By 1991, the liberalization of prices had been enacted in almost every sector of the market, and the liberalization of foreign trade began in the same year. All of these changes led to a decrease in real wages of 24% (Trembošová 2020).

Changes in ownership forms in retail manifested themselves through the restitution of assets to the original owners, the entry of new entities into the economy, and also the transfer of state assets to private entities. Property restitution was enabled between 1991 and 1992 through the adoption of Act No. 403/1990 Coll. on the Mitigation of the Consequences of Some Property Violations, also known as the Restitution Act. The privatization of state property was divided into small and large-scale privatisation. Small-scale privatisation,



regulated by Act No. 427/1990 Coll. on the Transfer of State Ownership of Certain Entities to Other Legal Entities and Physical Persons, was carried out from 1991 to 1993 and was aimed at supporting the formation and development of a competitive environment.

Large-scale privatisation was regulated by Act No. 92/1991 Coll. on the Conditions for the Transfer of State Property to Other Persons. The sale of state property was organised through district privatization commissions and was carried out through auctions, public tenders, direct sales or gratuitous property transfers. The development of retail was significantly affected by the two rounds of coupon privatization. In this form of privatisation, the state issued coupon books with investment points which allowed buyers to order shares of privatised companies. Considering the prevailing political and social conditions and the method of implementation, it is possible to argue that the privatisation and transformation of the retail sector did not occur in a standard manner (Križan and Bilková 2014).

As was mentioned above, the restitutions, transformations of cooperatives and the various stages of small and large privatisation between 1990 and 1994 brought about a radical change in the market position of the individual ownership systems. Even up to the present day, more than 90% of the turnover of Slovak trade is represented by various forms of private companies and the remaining share is occupied by consumer cooperatives which are already relatively stabilized. At the beginning of this transformation period, the cooperative trade system had existed as a largely separate trading system operating in tandem with the state system. In the transformative years after 1989, however, Slovak cooperatives underwent significant changes in order to return to international cooperative norms and to fully apply the traditional principles of cooperation and respect for the values of cooperation (Mitríková 2019; Trembošová 2020).

An assessment of the post-1989 transition shows clearly that the process of transformation to a market economy undergone by the retail sector was more rapid and intensive than in any other sector of the national economy. The object of this process in trade was primarily the establishment of an organizational structure, a system of work and management, and economic and legislative adjustments which could enable the functioning of a market economy. The transformation of the economy also brought about a fundamental change in the position of individual subjects of the consumer market. Producers of goods no longer held a monopoly in the market, and domestic and foreign competition was introduced, forcing existing companies to do everything possible in order to meet the wishes of their customers. Consumers stopped merely waiting for goods to become available, the typical arrangement in the socialist period, and became active customers. Nonetheless, the developments in the following years were also accompanied by considerable inconvenience and obstacles to trade; it is worth mentioning, for example, the flawed privatisation of the majority of state-owned enterprises, ongoing problems with the financing of business activities, and, last but not least, the unfavourable tax and legal environment. The truly dynamic nature of the transformation in this sector is also proven by the fact that while the share of the private sector in the retail turnover of Slovakia at the end of 1992 was 73.1%, in 1994, this share had increased to 88.5% after the completion of the small privatisation in trade and services in 1994 (in comparison to only 53.8% in the industrial sector). The transformation and de-nationalization of retail entities were carried out most rapidly in the first years of the transition to a market economy. The highest increases were recorded in 1992, the year which can be considered to have seen the greatest expansion of business entities in the field of trade and services. It should also be noted, however, that the smallest decrease in the number of business entities was also recorded at the beginning of the transformation process (Szczyrba 2005, Szczyrba 2006, Mitríková 2008, Trembošová 2012, Bilková and Križan 2013, Križan and Lauko, 2014, Križan, Bilková and Kita 2014).



## **Box 2 Coupon privatisation**

The basic idea of the coupon privatisation program launched in 1991 was the rapid transformation of state-owned enterprises into joint-stock companies, i.e. the transformation of state ownership into private ownership. 8.5 million people took part in the coupon privatisation in Czechoslovakia, 2.5 million of whom were Slovak. Every citizen over the age of 18 was entitled to a coupon book with checks for a thousand points for which they paid a symbolic price of CZK 1,000. The offer included shares of 1492 companies worth a total of SKK 300 billion, 504 of which were Slovak enterprises with assets of between SKK 80 to 90 billion. In the first wave of coupon privatisation introduced between 1991 and 1993, the assets of 678 companies worth more than SKK 169 billion were transferred into private ownership in Slovakia.

Source: Eprofit 2020

The transition from a centrally-controlled economy to a market economy triggered a revolution in the country's economy, and the shockwaves of this transformation were also felt in the retail sector. The transformation of Slovak retail involved a wide range of interrelated, overlapping and complementary changes which varied in intensity both in terms of time and geography, but by analysing these changes the developmental stages can be identified as follows (Szczyrba 2005a, Mitríková 2008, Trembošová 2010b, Trembošová 2012, Kunc et al. 2013, Križan and Bilková 2014; Britchenko et al. 2019 ):

- atomization of retail
- consolidation phase
- retail concentration (connected with internationalization and globalization)
- demassification – supplemented by Trembošová (2010b).

### **2. 2. 1 Atomization of the retail network**

The first phase of the development of the retail sector in the transformation period in its first phase, the atomisation of the retail network, was associated with a change in socio-economic conditions and political environment. This atomisation which emerged in the early 1990s was caused by a profusion of commercial trades emerging as a result of privatisation and restructuring, the liquidation of many large trade organizations and the slow progress in creating new branches of domestic companies. The phenomenon was spatially and organizationally characterized by the fragmentation of the retail structure with signs of decentralization and de-concentration of the structure of the retail network, which had become considerably fragmented. The increase in the number of organizations operating in the sphere of trade and services resulted in an increase in the retail workforce, a feature which in previous years had been typical only for countries with developed economies. The transformation of the retail network during the period of atomization took place almost entirely without the participation of foreign retail chains, and thus many of the typical features of the Western retail industry had a minimal impact on the ongoing changes in the structure of the retail network and the physical and functional spatial structure of Slovak cities. The development of retail trade was carried out solely by domestic private capital and was marked by the disintegration of state and cooperative internal trade organizations (Mitríková 2008, Križan and Bilková 2014). The atomization of retailing resulted in an increase in the number of shops and thus also a reduction in the number of shops per head of population, thereby expanding the spatial element of the sector, but this was also matched by a drop in the number of retail employees per head of population, thereby decreasing the standard of service. Atomization also took effect in the wholesale sector, where a rapid

increase in registered business entities can be observed; in 1990 there were 450 registered companies in wholesale in Slovakia, but by 1993 this number had increased to 19,500. At the end of 1992, more than two thirds of wholesale turnover came from companies with fewer than 25 employees (Drtina 1996, Szczyrba 2005b). Similarly, with the demise of retail as a state-run enterprise, retail fell almost entirely into the hands of the private sector; the public sector had accounted for 71% of retail sales in 1990, and by 1998 this share had plummeted to 3% (Križan, Bilková and Hencelová 2019). The process of transformation of state and cooperative business enterprises into private business entities occurred between 1995 and 1998 was a qualitative change, but it was more specifically a quantitative transformation. Although the so-called “small privatisation” had played a decisive role in the transformation of the retail trade, considerable space remained for the next stage of the transformation process, the so-called large-scale privatisation. This process saw the privatisation of all 83 of the remaining state-owned enterprises in trade and services in Slovakia. A series of new socio-economic and legal measures in the form of the *Trade Licensing Act* and the *Commercial Code* led to the broader formation of the business sphere, with the trade sector forming the largest share of legal business entities in the national economy.

According to Bednář (2005), the process of retail atomization was responsible for a number of significant changes in the Slovak environment:

- changes in the spatial structure of the city:

  - in the physical structure: both the deterioration and the improvement (or regeneration) of the physical condition of the urban fabric

  - in the functional structure: both changes and maintenance of the functional uses of land, areas, buildings, and premises for retail; for example, the abandonment of many sales outlets by their original users

- changes in the retail structure:

  - the search for new premises for retail business, the change or maintenance of the range of sales outlets, an increase in the number of sales outlets, an increase in floor area, an increase in the share of non-food shops in the total number of sales outlets, etc.

The period between 1994 and 1996 is considered to be a turning point between the periods of atomization and concentration. This phase was marked by a continuing predominance of small entrepreneurs (either self-employed with a family business or in the form of companies with a small number of employees) in Slovak trade, but also saw some evidence of the concentration and creation of retail chains in the Slovak economy such as the emergence of Spona, a free association of twelve business partners which brought together new law firms that began operating in the food market after the privatization of the Zdroj network, and the entry of the multinational company Tesco into the Slovak market (by buying department stores which had previously been acquired by K-Mart). In 1996, out of the total number of companies doing business in trade, 92% of all businesses engaged in trade in Slovakia employed fewer than 10 workers, 5% had from 11 to 24 employees, and less than 1% of food stores employed more than 100 people. In terms of the floorspace of retail units, small operations of up to 400 m<sup>2</sup> represented up to 97% of the total number of retail units. In 1996, the structural fragmentation of trade also had an impact on retail sales. From a total retail turnover of more than SKK 296 billion, almost 25% of this was accounted for the sale of food products, while more than half of the sales was made by sole traders. A situation persisted in which small shops were the key provider of food sales in Slovakia rather than the serving the supplementary role which such shops typically played in Western markets. During this period, former state or cooperative entities, such as Jednota or the newly-privatised Zdroje, still held the leading position on the market, while a large number of

newly-formed small independent operations also emerged simultaneously. It is therefore possible to state that, despite the achievement of certain positive results in the restructuring of business concepts, no significant qualitative changes had occurred in the composition of the sector by the end of 1998 (Szczyrba 2005a; Mitríková 2008). Nonetheless, the first alliances concentrating dependent as well as independent members emerged in this period, such as centralised purchasing and clearing bodies like Slovzdroj, Coop Slovakia, Coop Tatry and Coop Veľkonákuňa. The list of the top 50 market leaders in the sector was dominated by domestic private forms of ownership, a format which represented 50% of all market leaders in the list in 1995 and 52% in 1998. While this number included the operators of the privatized Zdroj network and privatized wholesaler stores, it also featured several newly formed distribution companies. The share of cooperatives in turnover decreased from 24% in 1995 to 22% in 1998, and the share of state-owned enterprises such as Zdroj Univer and Zdrojmarket fell from 6% to 2%. The process of atomization represents a specific transitional stage in the development of retailing from an isolated and centrally-controlled economy towards the dynamic features of globalising processes in the form of the internationalisation of the retail industry.

### **2.2.2 Consolidation stage**

The rapid growth of retail in the Slovak economy continued until the turn of the millennium, but the growth rate of sales and the entry of international corporations into the domestic market gradually began to slow down as the market consolidated (Križan and Bilková 2014). The consolidation stage of the Slovak retail sector developed over a relatively long period and was characterised by the minimal growth of stores and of floorspace (Trembošová and Tremboš 2009a, Trembošová 2020). The process was the result of the specific development of the Slovak economy, which, after a long period of weak growth, only experienced a significant boom in the period from 2004 to 2008. Of course, this was also reflected in revenue growth and the subsequent increased interest in this market on the part of foreign owners of large retail chains. Trembošová (2012) does not consider the process of retail concentration in Slovakia to be complete. Nevertheless, the departure of international companies from the market is the next phase of this stage of development. While this phase of retail consolidation dates back to 2006 in the Czech Republic (Kunc et al. 2013), the Slovak market is characterized by a time shift and the process of retail consolidation continues into the present day.

According to Križan and Bilková (2014), consolidation in various retail sectors takes place in different forms and internationalization and consolidation in retail can be observed concurrently. One example of this might be retail with sporting goods; the withdrawal of companies such as Alpha Pro Sport, Športpro, RM Športline or Gigasport occurred simultaneously with the subsequent expansion of others such as SportsDirect.com and Decathlon. According to these authors, consolidation is also manifested by mergers or the divestment of companies to other retailers on the market. They provide the example of the withdrawal of Carrefour Slovensko from Slovakia and its acquisition by Tesco Stores SR or the divestment by Ahold Retail Slovakia of its network of twenty Hypernova stores, four Albert stores, and six filling stations to Condrum, the operator of the Terno and Moja Samoška retail chains in Slovakia. This trend was mirrored in the electronics retail sector through the acquisition of Electro World by NAY in the Czech and Slovak markets (Križan and Bilková 2014).

### 2. 2. 3 Retail concentration (associated with internationalization and globalization)

The globalization of retailing in the Slovak Republic and the expansion of foreign chains in the domestic market began to appear gradually through the localization of large-scale stores in individual cities in Slovakia, with the share of foreign-owned companies in the top 50 firms in terms of turnover increasing from 20% in 1995 to 24% in 1998. The same period also saw the beginnings of a slight increase in the concentration of turnover with the top 50 largest retailers concentrating 14% of total retail turnover in 1998 in comparison with 11% in 1995. Increasing concentration in terms of the loss of shopping locations was also more pronounced from the late 1990s, when we can observe some early attempts to establish supermarkets with domestic capital.

Fertaľová (2006b), Mitříková (2011), Križan, Bilková and Hencelová (2019) documented the transformation of retailing in Slovak cities by reviewing retail food stores and non-food stores between 1994 and 2005, a period which preceded the construction of large-scale retail stores such as supermarkets and hypermarkets. In 1995, there was an average of 3.3 grocery shops per 1,000 inhabitants in Slovak cities, but this had increased to 3.7 shops by 2004. There were some regional variations to this trend, with East Slovakia showing the most significant increase in the number of shops per head of population between 1995 and 2004, while a decrease in the number of inhabitants per shop was actually recorded in the vicinities of populated towns. From a geographical perspective, the increase in the number of shops per head of population typically occurred in less populated cities or in areas far from important residential shopping centers. The development of the concentration of food retail in Slovak cities and the advent of large-scale operations such as supermarkets and hypermarkets resulted in a decrease in the number of food shops or only a slight increase in their number even within the context of increased consumption. An opposite trend can be observed in this period for non-food stores, where the average number of shops per 1,000 inhabitants of cities increased to 2.7, with 86% of cities recording an increase. In comparison to the situation with grocery shops, an increase in the number of food shops was recorded in 56% of cities in Slovakia.



#### **Box 3 Examples of the first domestically financed supermarkets in Slovakia**

One of the first supermarkets to be constructed in post-1989 Slovakia was the Verimex Supermarket, built in 1992 by VEREX, Ltd. in the Podbreziny housing estate in Liptovský Mikuláš. The store offered offered customers 14,000 kinds of goods, almost 75% of of which came from Slovak producers, on a sales floor area of 2,500 m<sup>2</sup>. FEST-TEMEX engineering, Ltd. Prešov opened the Hruška supermarket in Prešov on 1<sup>st</sup> December 1993, in which 9,000 items of fast-moving goods were offered on a sales floor area of 3,600 m<sup>2</sup>. The store was in operation until 4<sup>th</sup> June 1997, since when the premises have been leased to various companies (to MOUNTFIELD, Black Red White furniture and OKAY electrical appliances in 2016, and to ASTORE Home & Decor, Svět Podláh and HECHT in 2020).

Globalization and concentration also began to take on real dimensions on the Slovak market in this period. Concentration here refers to a decrease in the number of shopping locations, but the capacity of retail outlets remained unchanged or even increased in this period, which indicates that smaller companies were more likely to fail in this transformed retail environment.



#### **Box 4 Globalization**

There is no clear agreement on the precise meaning of the term globalization, with several concepts in use, all of which differ from, or even directly contradict, each other. However, since the 1950s, at least six different understandings of globalization have emerged in the study of social sciences (Kozárová 2013, 2017):

In an understanding which developed in the 1950s, globalization can be seen as the spread of phenomena across the entire world. In this sense, globalization refers to a specific act that transforms a phenomenon into a global phenomenon, with this action taking various forms. For example, Meadows referred to “the globalization of industrial aggression and panic” (Meadows, 1950, 2) in his work. This understanding of the concept of globalization appears widely in, for example, dictionaries of general language, journalism and also in sociology.

The idea of globalization as a process, a complex of processes, a trend or a tendency emerged in the 1970s and remains one of the most widespread understandings in the social sciences. However, many experts differ in their conceptions of the particular aspects of globalization in this sense, and there is considerable disagreement over the nature, origin and formation, manifestations, causes and consequences of globalization.

The following factors are considered to be essential features of globalization: the extension of activities across boundaries and their functional integration (Dicken 1998), an increase in interconnectedness (Robertson 1987, Hannerz 1992, Kaldor 1999, Held and McGrew 2002), an intensification of social relations (Giddens 2003), an increase of interdependence (Held and McGrew 2002, Kaldor 1999), integration into a single whole (Stiglitz 2003, Naím 2008) and the unification of humankind (Aron 1968, Falk 1972, Robertson 1987). The purposes of these processes can also differ widely; either for the purpose of cooperation, for the purpose of gaining individual benefit or for achieving domination.

The internal development of the process of globalization is understood either as a cyclical phenomenon (Cox 1992), a development with an innate tendency for acceleration (Harf and Trout, 1986) or as a gradual and steady process (Lafontaine and Müller 1999).

In relation to its controllability, globalization is understood either as controlled (Zinoviev 1995), as controllable to only a very limited extent, or as practically uncontrollable (Modelska, 1972, Tomlinson, 1991).

The direction of globalization is also perceived very differently. Experts, for example, hypothesise that globalization is heading towards either the unification of humankind (Aron 1968), the creation of a global social structure (Harf 1986), the free market (Cox 1992), the standardization of production, products, distribution, and actors (Levitt 1983), or to the concentration and internationalization of oligopolistic capitalism (Barnet and Müller 1974).

In relation to its origins and duration, globalization is understood either as a historical phenomenon that originated and took place in the past whose consequences are only now being manifested (Modelska 1972), as a phenomenon taking place entirely in the present (Aron 1968, Barnet and Müller 1974), as having historical roots which have not changed qualitatively from the beginning, or as a qualitatively new phenomenon (Naím 2008), which has formed and manifested itself only in the recent past (Albrow 1990). The beginnings of the emergence of globalization have been variously traced back to the prehistoric period (Steger 2003), the beginning of the 10<sup>th</sup> century (Modelska 1972), the 15<sup>th</sup> century (Harf and Trout 1986), or the 19<sup>th</sup> century (Cox 1992). At the same time, some authors (e.g. Kaldor 1999) claim that although globalization had begun earlier, it acquired a new quality in the 1980s and 1990s. Disagreements also exist over the periodizations of globalization

(compare, for example, Robertson 1992, Held et al. 1999, Therborn 2000, Hopkins 2002, Steger 2003, Pichanič 2004, Krejčí 2014, Kozárová 2017).

Globalization in this meaning can also be understood as a multidimensional phenomenon which manifests itself in all aspects of social life – in social being (the economy, technology, communications, etc.) and social consciousness (ideology, politics, law, morality, ethics, etc.) (Mattová 2003).

In the field of economics, globalization manifests itself through, for example, the increase in the interconnectedness and interdependence of national economies in different economic fields, and can be supported by deregulation and liberalization and accompanied by the emergence of new economic agents such as multinational companies, international institutions (IMF, WB, WTO, etc.) and communities (the EU, etc.), the expansion of production, distribution and markets across national borders, the emergence of a new international division of labour, the creation of a new competitive environment, and the development of a virtual economy.

In the field of politics, globalization can be perceived as the growth in interdependence between individual states, nations and regions, a process which is currently strengthened by the formation of supranational unions (for example, the EU), supranational institutions (for example, the UN) or regional international organizations (for example, ASEAN), international non-governmental organizations, the creation of an international legal system, the organization of summits, congresses and conferences to address global issues such as global warming, but also by the increase of the cooperation of political parties with a similar programme on the platform of transnational organizations (SI, CDI, and the like), etc.

In the field of culture, globalization manifests itself through the worldwide dissemination and mixing of elements of different cultures which has resulted in both homogenization (the emergence of a mass culture and consumer lifestyle or the use of English as a lingua franca) and also heterogenization (the protection of cultural diversity and one's own identity) (Mattová 2003).

There is also wide disagreement over the causes of globalization, with the phenomenon being attributed to the interaction of, among others, European expansion (Modelski 1972) or the expansion of the West (Harf and Trout 1986), the spread of capitalism (Harf and Trout 1986) or changes in its development (Scholte 2000), the development of science and technology (Harf and Trout 1986, Kaldor 1999, Scholte 2000), US liberal policy (Keohane 1995), the fall of the USSR (Keohane 1995, Kaldor 1999), the expansionary tendencies of political, military, economic, migration, cultural and ecological systems (Held et al. 1999), the spread of rationalism, the emergence of a specific regulatory framework, collective identity and solidarity, or neoliberal discourse (Scholte 2000).

Nonetheless, most authors agree that the consequences of globalization are characterized by contradictions. Globalization attains different levels of intensity and rates of acceleration in various territories and various social spheres and its effects have different consequences (Kozárová 2017). The understanding of globalization as a process, or as a complex of processes, trends or tendencies also appears in, for example, the writings of sociologists, economists, political scientists, theorists of international law or geographers.

The concept of globalization as a system rather than a process emerged in the 1990s. For example, Tomlinson (1991) understands globalization as a specific configuration of global power that replaced imperialism in the 1960s and which is characterized by the interconnectedness and interdependence of all parts of the world. Globalization in this sense also appears, for example, in the writings of sociologists.

The understanding of globalization as a strategy emerged in the 1990s. For example, Park and Park (1995, 105) define globalization as a strategy used by companies to maintain their

competitiveness in the market, arguing that this strategy is based on “mov[ing] production and product development offshore”. The understanding of globalization in this sense appears mainly in the writings of economists and managers.

A further concept which emerged in the 1990s was the understanding of globalization as an ideology. This approach is taken, for example, in the writings of Wallerstein (2000), who saw globalization as an ideology representing a set of views on addressing the differences between developed and less developed countries, primarily conceived as views that meet the interests of power elites. This understanding of globalization is also found in the writings of sociologists, political scientists and or political economists.

The stage of internationalization and globalization of retailing in Slovakia in the 1990s was reflected in the massive expansion of foreign business networks operating in the market. This period saw these firms importing know-how, technology, efficient methods of logistics and communication, and new types of retail concepts into the Slovak market.

In evaluating the impact of globalization on urban retailing, a distinction can be made between its temporal and spatial aspects (Križan et al. 2019). In general, we can identify three main trends in terms of time:

- a change in the number of retail outlets
- a change in the size of the retail sales area. The retail sales area increased in cities, but in the case of the sales area indicator per shop, only a local increase was observed
- a change in the structure of retail. For example, a decrease in the number of grocery shops and an increase in the number of clothes and shoe shops or pharmacies was observed.

**Table 1 Top 10 retail companies in Slovakia from 1996 to 2006**

1996				2006			
	Company	Turnover in billions of SKK"	Number of operations		Company	Turnover in billions of SKK"	Number of operations
1	Tesco Stores SR*	3.8	7	1	Tesco Stores SR*	24.5	48
2	Prima Zdroj Holding	3.3	46	2	Metro Cash & Carry Slovakia*	17.4	5
3	Zdroj Univers	1.3	56	3	Billa*	12.2	89
4	OD Prior Stred*	1.2	9	4	Kaufland SK*	9.8	28
5	ATVE	1.1	15	5	Ahold Retail Slovakia*	7.4	25
6	Pecom Group*	1.1	6	6	NAY*	5.0	18
7	Sintra	1.1	17	7	CBA SK	4.8	242
8	Adut	1.1	14	8	Carrefour Slovakia*	4.5	4
9	Kon-rad	1.0	1	9	Lidl SR*	4.0	75
10	DDK Slovakia*	1.0	1	10	Labaš	3.7	3

Key: \*foreign ownership participation, "conversion rate 1 EUR = 30.1260 SKK

Source: Fertal'ová (2006a), Mitríková (2008)



The degree of concentration of retailing, however, was still relatively low in Slovakia at the beginning of the 21<sup>st</sup> century. While about 70% of economic activity was formed by concentrated trade in developed economies, in Slovakia this figure was only around 30%. In comparison, the ten largest concerns generated up to 81% of retail turnover in Germany, 92% in Norway, and 57% in Austria. In recent years, however, the process of concentration has also become more dynamic in the Slovak Republic, with influential companies developing strong retail networks and thus driving independent traders from the marketplace. This stage of internationalization, concentration, and globalization of retailing has brought significant changes to the Slovak market, with networks of supermarkets, hypermarkets, discount stores, hobby shops and other specialized wholesalers gradually emerging (Szczyrba 2006). Retail outlets such as hobby shops and entertainment and shopping centres are being opened, and a significant concentration of the market is taking place in this period which is shown by the dramatic increase in the average sales area per shop and also by the concentration of small shops into larger shopping centres. According to Trembošová (2020), small retailers are often left with only three options: either cooperate with large chains (by, for example, relocating to galleries or promenade stores within larger shopping centres), specialize in a specific type of product, or merge into retail associations. If they fail to adopt any of these strategies, they will likely be forced into bankruptcy and liquidation. Liquidation is a particular problem for smaller shops operating in blocks of flats in housing estates.



#### **Box 5 Examples of the first foreign financed large-scale shops in Slovakia**

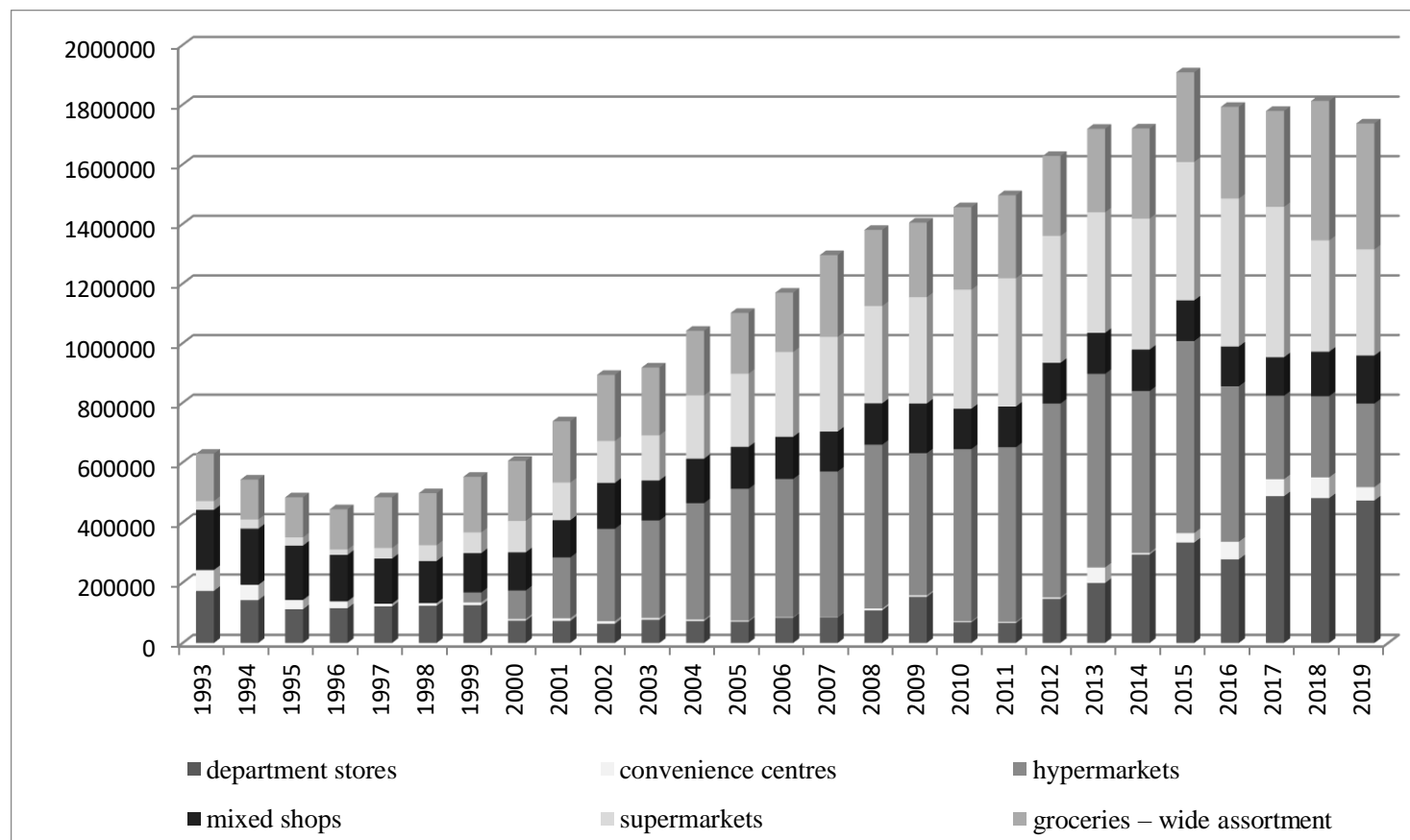
In Slovakia, the first Billa supermarket was opened in Trnava in 1993. The first Tesco hypermarket was opened in Nitra in 1999. The first large-scale shopping centre, OC Danubia, and the multifunctional shopping and entertainment centre, Polus City Center, were opened in Bratislava in 2000.

The structure of sales formats and their sales area has also gradually changed. The surveys of the Statistical Office of the Slovak Republic<sup>1</sup> reveal that the position of department stores and shopping centres has weakened significantly, while the sale floor area of hypermarkets and supermarkets is still increasing. The first Billa supermarket was opened in Trnava in 1993, and from that time until 2012 the sales floor area of supermarkets in Slovakia had seen a fifteen-fold increase, with the number of stores in operation rising to 601, mainly located in cities. According to Lauko et al. (2014), the number of supermarkets in rural municipalities is also increasing; while 11.9% of all supermarkets were located in the Slovak countryside in 2001, this share had increased to 28.1% by 2012. They also state that supermarkets are increasingly being opened in towns with smaller populations such as Gelnica, where a Tesco supermarket was opened in 2009 and a Fresh supermarket in 2015. Since the first Tesco Hypermarket was opened in Nitra in 1999, there has been an almost twenty-fold increase in the the sales floor area of hypermarkets in Slovakia.

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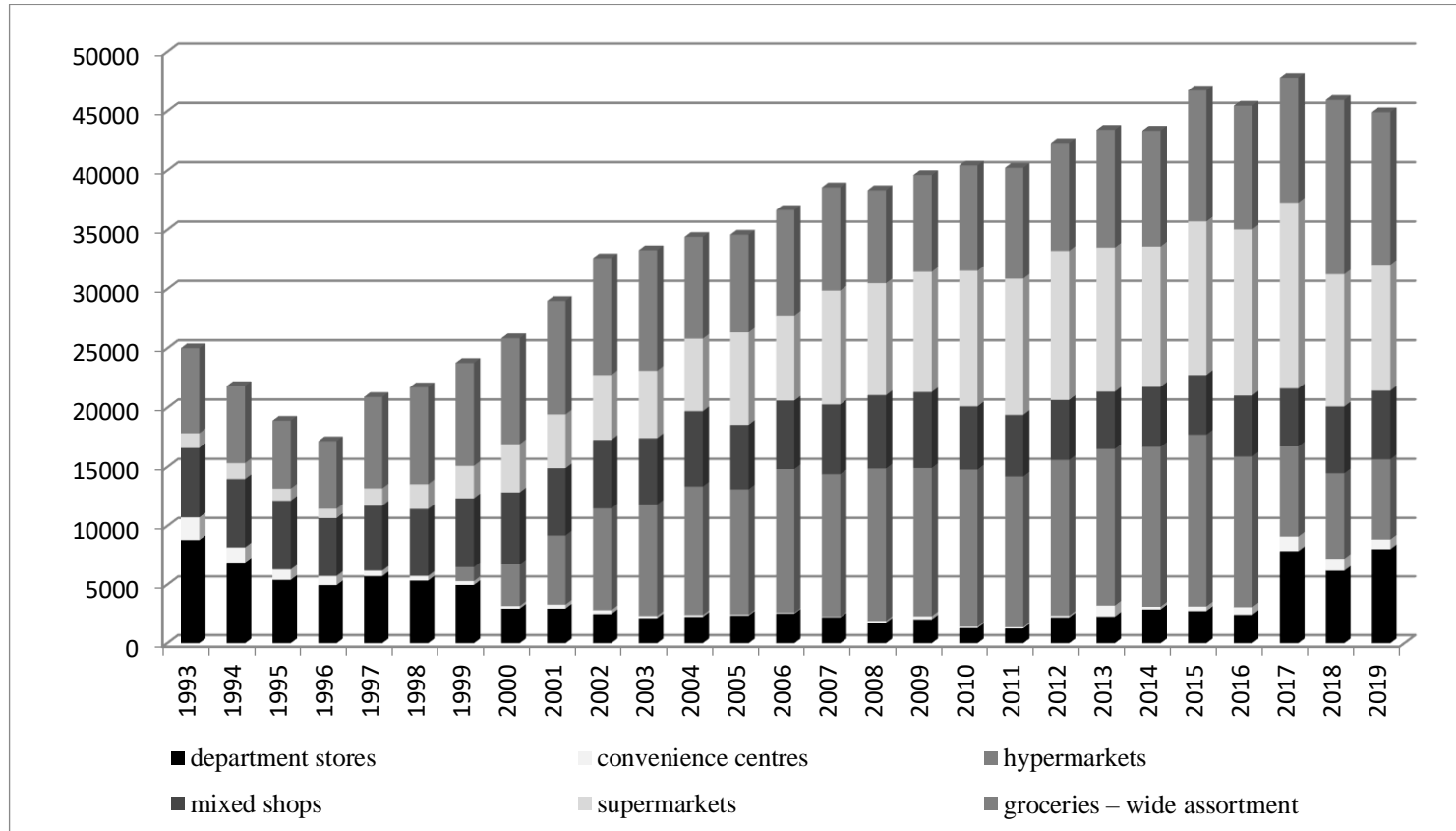
<sup>1</sup> Statistical Yearbooks of the Slovak Republic, 1994 – 2020. For the years 1993 and 1994, the Statistical Yearbooks did not state which companies (in terms of the number of employees) these data are gathered on. For the years 1995 and 1996, data was provided on retail organizations with 25 or more employees, and from 1997 to 2020, data on firms with 20 or more employees.

**Figure 2 Change in the size of the sales floor area of different retail formats in Slovakia from 1993 to 2019**



Source: Statistical Yearbooks of the Slovak Republic, 1994 – 2020

**Figure 3 Development of the registered number of employees in the retail network in organizations with more than 20 employees from 1993 to 2019**



Source: Statistical Yearbooks of the Slovak Republic, 1994 – 2020

Shopping centres with their own marketing concepts represent the most developed form in the concentration process in retail (Trembošová 2020; Guy 1998; Cimler 2005; Dawson 2017). Large-scale stores usually form a part of the large-format retail structure of shopping centres which are not only located in the peripheral localities of large cities but which are also beginning to emerge in their centres. At this stage, we can observe a notable spatial-organizational concentration which is initiated and deepened by multinational retail concerns. Local authorities appear to be unwilling to attempt to restrict or even regulate the expansion of multinational retail chains in any way, only daring to do so when proposed developments are in fundamental conflict with the urban development plan or within areas of compact urban build-up. In tune with consumer and regional differentiation and the development of consumer perceptions, behaviours and needs, the range of retail concepts, shopping zones, and multifunctional centres is expanding, with these qualitative developments being primarily accelerated by the penetration of multinational companies into the Slovak market.



#### **Box 6 Aupark Košice – a shopping centre located in the city centre**

Until the 19th century, the area to the south of the historic city centre of Košice known in modern times as Námestie Osloboditeľov (Liberators' Square) was used as a marketplace and made a major contribution to the specific atmosphere of the city. In addition to its primary economic dimension, the space also had a communicative role, as the square was a popular site for public entertainment and meetings. The developers of the Aupark shopping and entertainment centre which was opened on the site on 10 November 2011 wanted to continue in this tradition, and the shopping centre quickly became a cultural and social point, serving as a new city boulevard. The shopping centres' location within the city center is a significant benefit for Aupark. The centre enjoys excellent transport links through its proximity to the bus and train stations and public transport stops, but the proximity of the pedestrian zone also helps to increase its footfall. Aupark Košice contains more than 140 stores on three floors with a sales floor area of 34,000 m<sup>2</sup>.

According to Bednár (2005), the process of retail network concentration brought about the following changes:

#### **changes in the spatial structure of the city:**

- in the morphological structure: the construction of new morphological structures (large-scale retail outlets)
- in the functional structure: the emergence of new types of large monofunctional areas with public amenities; undeveloped land on the peripheries of a city's compact built-up areas were used for building shopping centres

#### **changes in the retail structure:**

- new forms of retail sales such as hobby shops, hypermarkets, supermarkets reduce the importance of department stores in the city centres.

If we evaluate the atomization of the retail network in the Czech and Slovak Republics in terms of time, a series of differences can be discerned between the two countries. Atomisation in the Czech Republic reached its peak in the mid-1990s and was followed immediately by the second stage of the concentration and internationalization of business activities. In Slovakia, however, the different economic and political situation slowed down the entry of foreign retail chains meaning that the atomization of the retail sector continued into the second half of the 1990s. As we stated during our evaluation of the development of the sales floor area for the years 1994 – 2019, the position of shopping centers weakened

and we can note a similar trend in the development of the registered number of retail employees in these formats. In contrast, the number of supermarket employees increased thirteen-fold in this period, from 1,240 employees in 1993 to 15,668 in 2017, although this figure did subsequently decrease. In the case of hypermarkets, the increase was eleven-fold, from 1,214 in 1999 to 14,599 in 2015, again subsequently falling off due to the exit of some hypermarket chains from the market and other factors. The sales floor area also saw dramatic increases in this period, with a twenty-fold increase for hypermarkets and a fifteen-fold increase for supermarkets. When evaluating the development of the retail concentration process in Slovakia, the following developmental stages can be identified (Bednář 2005; Szycyrbá 2005a; Fertal'ová 2005a; Fertal'ová and Szycyrbá 2006; Szycyrbá 2006; Mitri'ková 2008; Križan and Lauko, 2014):

- the dynamic development of the supermarket chains from 1996
- the dynamic development of hypermarkets from 1999
- the dynamic development of shopping centres from 2000
- the dynamic development of discount networks from 2004.

All of these stages share the characteristic of progress over time, with the numbers of each sales format growing from year to year.

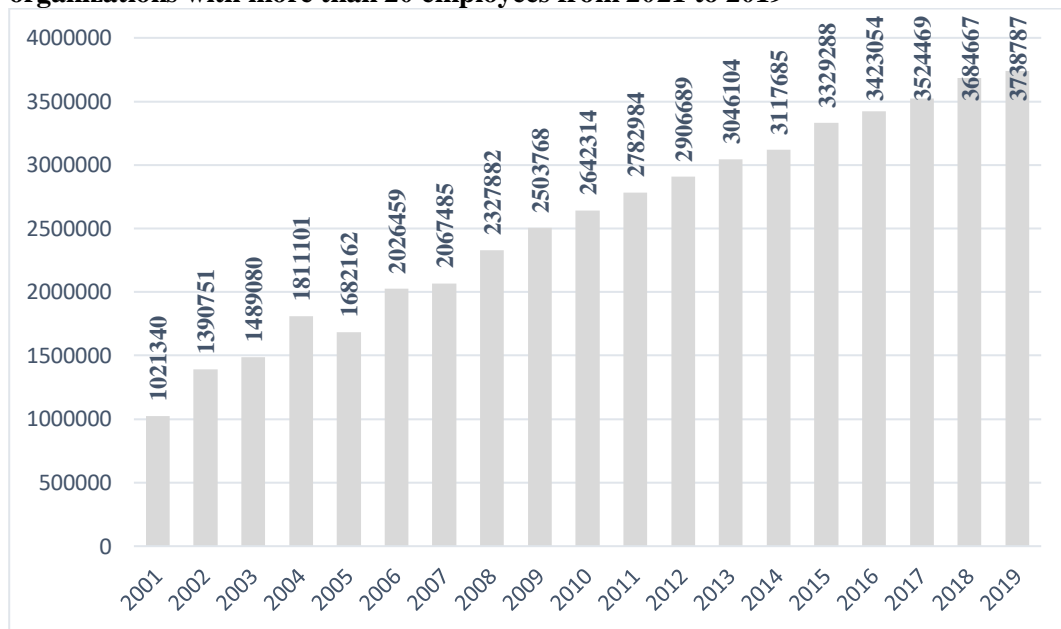
The stage of the dynamic development of supermarkets can be dated from 1996 when Tesco Stores SR entered the Slovak market by purchasing a series of department stores from K-Mart (Križan and Bilková 2014). In 2012, there were 601 supermarkets in Slovakia, mostly located in cities (Križan, Bilková and Hencelová 2019). Billa is one of the largest supermarket networks in Slovakia with more than 150 stores in operation by 2018. The increasing trend of operating supermarkets within shopping centres (a format which Billa in particular has adopted) has also facilitated the expansion of supermarkets in recent years. Another leading supermarket chain, COOP Jednota, operates more than 100 supermarket stores across Slovakia.

The dynamic development of hypermarkets began with the opening of the first hypermarket in Nitra in 1999 (the first hypermarket in the Czech Republic, Globus in Brno, opened in 1996, and it is therefore possible to state that there was a time discrepancy between the opening of different business formats and chains between the two republics). Within two years, 22 hypermarkets had opened in Slovakia, a number which would increase to 154 by 2012, a year-on-year increase of more than 10% (Szycyrbá 2005, Mitri'ková 2008, Križan and Bilková 2014). The intensive development of the hypermarket format is a result of the predominant popularity of hypermarkets, with more than a quarter of all purchases of fast-moving goods being made in these outlets (GfK Slovakia). The trend of hypermarkets moving into the suburban zones of larger cities continues, with the hypermarkets in rural areas accounting for 8.4% of the total number of outlets. According to Šveda and Križan (2012), a further factor driving the development of this format in the countryside is the construction of shopping zones that include a hypermarket in rural municipalities as part of a process of commercial suburbanization.

The stage of the dynamic development of shopping centres, one of the most popular retail formats in Europe can be characterized through the density of shopping centres, defined as the size of the gross leasable area (m<sup>2</sup>) per 1,000 inhabitants of the country. This ratio is above the European average in many post-communist countries, such as Slovenia, Croatia, Lithuania, Latvia, Estonia, but is also below average in others, including Romania, Bulgaria and Serbia. In future years, we can expect a substantial development of shopping centres in this second group of countries. Despite the delayed development of shopping centres in Eastern Europe (a trend which only truly gathered pace after 1995 or 2000) in comparison

with Western Europe, the current situation is evidence of the rapid adaptation of consumers to this shopping format, however the development of shopping centres has still not reached full maturity in terms of the retail life cycle (Križan, Bilková and Hencelová 2019; Kita et al. 2019; Križan and Bilková 2019).

**Figure 4 Development of sales floor area of the retail network in Slovakia (in m<sup>2</sup>) in organizations with more than 20 employees from 2021 to 2019**



Source: Statistical Yearbooks of the Slovak Republic, 2002 – 2020

The development of shopping centres in Slovakia lagged behind the development of such complexes in the Czech Republic (Szczyrba 2005a, Kunc et al. 2013). The first modern shopping centre in Slovakia, Polus City Center in Bratislava, was only opened in 2000 (Mitríková 2008). Križan et al. (2017) have identified three phases in the development of shopping centers in Slovakia. The first, initial phase was of relatively low intensity and is associated with the opening of the first shopping centres from 2000 to 2003; the new developments in this period only account for 13% of the total number of shopping centres currently operating in Slovakia. The second phase of development of shopping centres between 2003 and 2009 was more intensive, culminating in 2008 with a gradual decline until 2009. This period saw the construction of up to 28 shopping centres, representing 51% of all shopping centres currently operating in Slovakia. The third phase of development is characterised by a marked decrease in the construction of new shopping centres which Križan et al. (2017) have attributed to the delayed impact of the 2007 global economic crisis, the effects of which were mainly felt from 2011 onwards. Several projects were suspended, or their owner, size, or character changed, with the result that no new shopping centres were built in Slovakia between 2013 and 2016 (Kunc et al. 2013, Križan and Bilková 2014; Križan et al. 2017). However, this is not to say that no other large-scale retail outlets of different formats were constructed in this period throughout Slovakia. In more recent times, various different concepts of shopping centres and shopping promenades, such as OC Kocka, Big

Box and STOP SHOP, have undergone significant development, especially in less populated cities. 36% of all shopping centres currently operating in Slovakia were opened in this final phase of development leading up to the end of 2018 (Križan et al. 2019).

Nevertheless, the development of the construction of shopping centres can not be considered as stagnant or completed; for example, SC Eperia was opened in Prešov in 2017 and the second phase of its construction is planned to be completed in 2021.

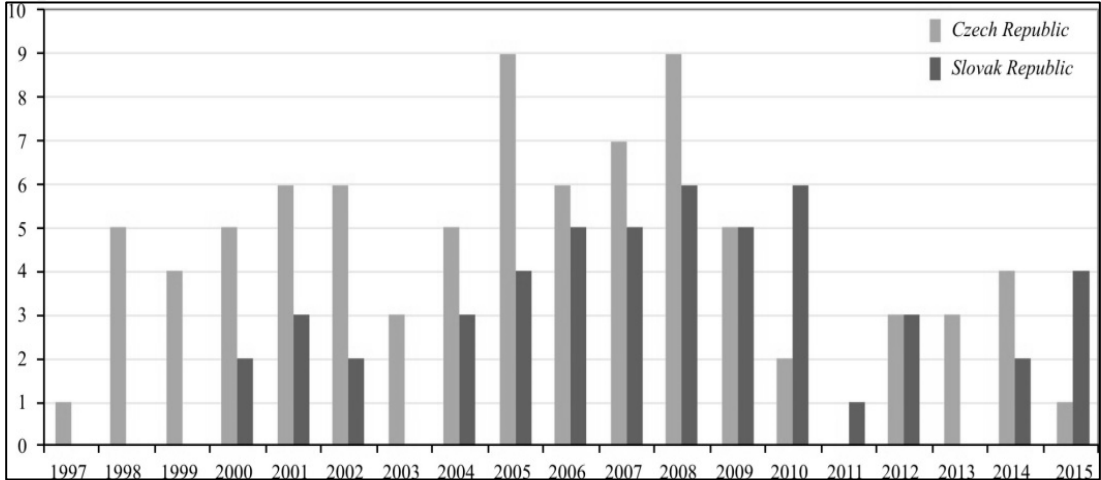
Within Slovakia, shopping centres are primarily concentrated in regional cities. The capital city of Bratislava, however, has a unique position in this respect, with the highest concentration of shopping centres in Slovakia and more than a quarter of all of the country’s centres being located within its boundaries (Kunc et al. 2013). The smallest concentration of shopping centres are found in the regions of Banská Bystrica, Prešov and Trenčín. The average floor area of a shopping centre in Slovakia is 21,000 m<sup>2</sup>, a relatively small value in comparison with shopping centres in neighbouring countries (Kunc et al. 2013). While Bratislava has the largest and most numerous shopping centres in the country, the capital city currently lags behind other cities in terms of sales floor area per capita, with only 816 m<sup>2</sup> in comparison to 1,135 m<sup>2</sup> in the city of Nitra and 1,015 m<sup>2</sup> in Žilina, although this is expected to change in the near future upon the completion of projects currently being planned for the capital (Bilková and Križan, 2014). There is an ongoing trend for the construction of the afore-mentioned smaller shopping centres with leasable areas of less than 5,000 m<sup>2</sup> in smaller district towns, such as Point in Brezno, Dituria in Levice, Váh in Hlohovec, Ardis in Fil’akovo and M-Market’s Kocka projects.

**Figure 5 Number of newly opened shopping centers in the Slovak Republic between 2000 and 2018**

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
2	3	2	0	3	4	5	5	6	5	6	1	3	0	3	3	0	3	1

Source: adapted by authors from Križan et al. 2019

**Figure 6 Newly opened shopping centres in the Czech Republic and the Slovak Republic between 1997 and 2015**

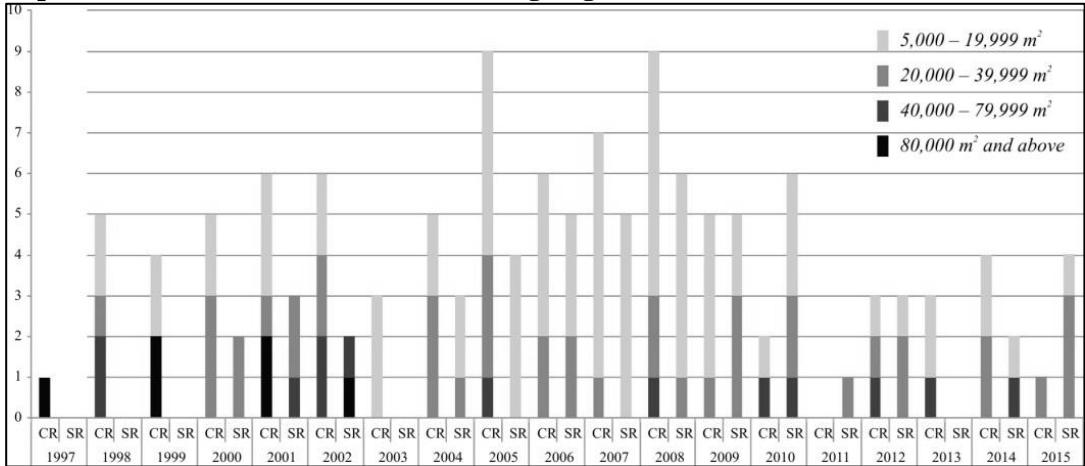


Source: Križan, Bilková, Kita et al. 2016

Shopping centres can be classified according to various criteria (Križan et al. 2017; Križan et al. 2019), including development location, size of leasable area. In terms of the location of shopping centre development in Slovakia, there is a general balance between construction on greenfield and brownfield sites, with the trend showing an increasing number of shopping centres being built on brownfield sites. Shopping centres are predominantly located at the edge of the city or in the suburbs, while complexes located in city centres form the least numerous group. While the earliest shopping centres in Slovakia had a large gross leasable area, recent years have seen a preference for centres with smaller floor areas, a trend which is reflected in the fact that small shopping centres now represent more than half of all shopping centres. While the average gross leasable area of a shopping centre in Slovakia is 21,300 m<sup>2</sup>, more than 90% of shopping centres have a gross leasable area of less than 40,000 m<sup>2</sup> with the majority of this group ranging from 10,000 to 20,000 m<sup>2</sup>. Together with shopping centres of less than 10,000 m<sup>2</sup>, these smaller complexes represent more than half (56.8%) of all shopping centres. Large-scale shopping centres are the exception rather than the rule in the Slovak retail environment.

When evaluating the location of shopping centres in the urban environment, three types of locations can be distinguished (Guy 1998): the city centre, the inner city and the suburbs. In Slovakia, shopping centres are predominantly found in the inner city (56.8%) but the average leasable area of these centrally-located sites is also smaller, with an average area of 19,714 m<sup>2</sup>. The centres located in the suburbs form the second largest group of shopping centres (29.5%). Edge-of-centre localities are typically situated within walking distance (around 200-300 m) from the main shopping zone, while out-of-centre localities are clearly separated from the town centre but still lie within the city boundaries. Out-of-town centres are typically built on greenfield sites or on land that is not clearly connected with the surrounding forest (Križan, Bilková, Kita et al. 2016).

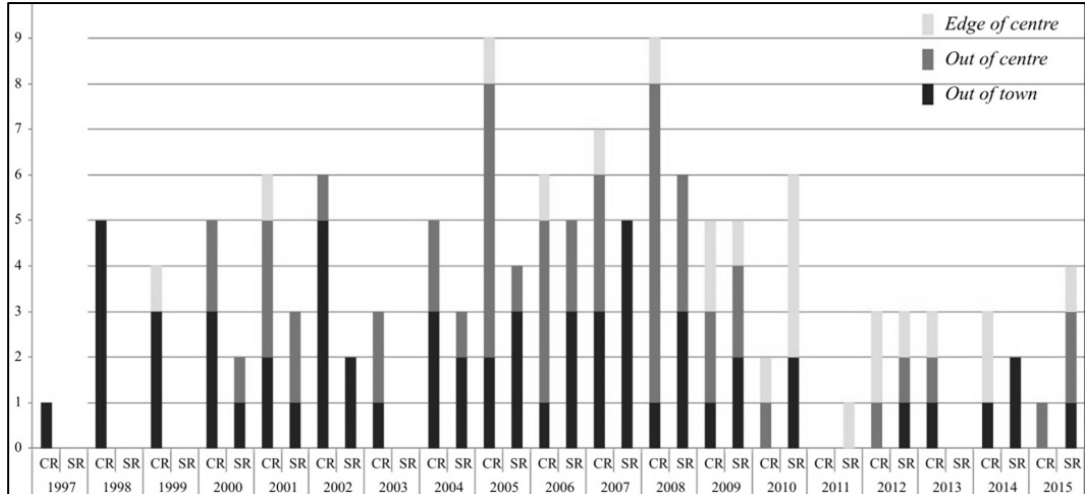
**Figure 7 Newly opened shopping centers in the Czech Republic and the Slovak Republic between 1997 and 2015 according to gross leasable area (GLA)**



Source: Križan, Bilková, Kita et al. 2016

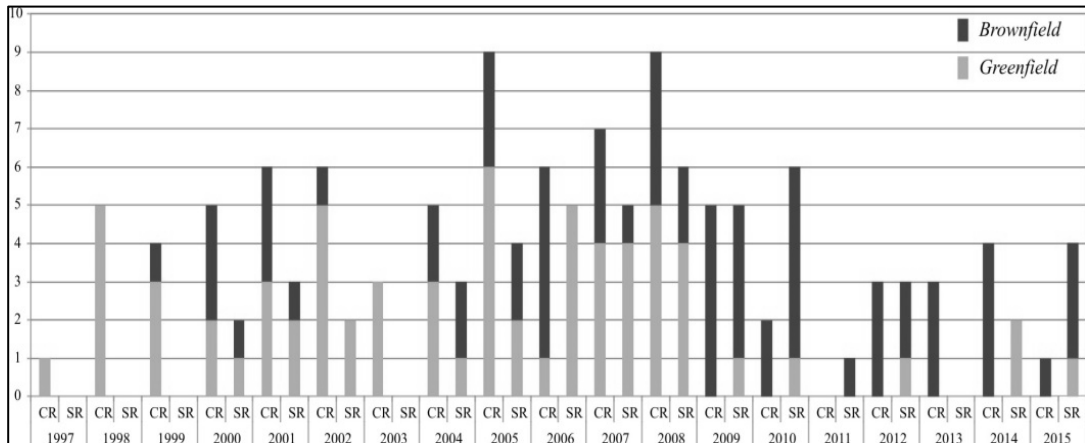


**Figure 8 Shopping centres in the Czech Republic and Slovak Republic according to location**



Source: Križan, Bilková, Kita et al. 2016

**Figure 9 Location of shopping centres in the Czech Republic and the Slovak Republic between 1997 and 2015**



Source: Križan, Bilková, Kita et al. 2016

All of the shopping centres located in Slovak city centres are built on brownfield sites, and this is also the case for the overwhelming majority of inner-city centres (84%). In contrast, shopping centres in suburban areas were predominantly built on greenfield sites (77%). From a national perspective, more than half of all shopping centres in Slovakia (54.5%) were built on greenfield sites (Kunc et al. 2013, Križan and Bilková 2014, Mitříková 2017).

The stage of the dynamic development of discount networks in Slovakia began with the significant expansion of the Lidl retail network across Slovakia from 2004 onwards. (in the Czech Republic from 2003), although the domestic Nitrazdroj network of discount stores had been operating on the Slovak market prior to this period. Lidl has subsequently established a significant position in the Slovak market and since 2005 it has consistently ranked among the top ten retailers offering wide assortments in Slovakia. Once again,

Slovakia lagged behind the Czech Republic in the development of this stage of retail transformation (Kunc et al. 2013). For a prolonged period, the dynamic development of discounts was under the influence of a limited group of companies, such as Lidl, Nitrazdroj and CBA, with other companies reluctant to enter the Slovak market, but this began to change in 2013, when a new non-food discount chain, Pepco, expanded into the country. While discount outlets were the preferred types of shops for only 6% of consumers in 2006, by 2018 the popularity of this format had increased to 16% of consumers (according to GfK surveys) (Križan, Bilková and Hencelová 2019).

The so-called retail Asianization is a characteristic phenomenon in the development of the retail network, especially in the post-socialist countries of Central and Eastern Europe (Szczyrba 2005). This trend refers to the robust penetration of primarily Vietnamese and Chinese sellers into the Slovak market. These retailers sell low cost goods of lower quality and are focused on less solvent consumers. As Kremský (2008) and Trembošová (2020) note, this retail development was assumed to be a temporary phenomenon with many analysts convinced that the opening of the first shopping centres would draw customers at the expense of Chinese stallholders by offering better products at only a slightly higher price, but this did not in fact happen. The process of retail Asianization occurred in two waves; the first was concentrated in the operation of open stalls in existing marketplaces such as the Košice Flea Market, while the second wave was concentrated in the occupation of vacant shop premises in the city centre, or in older premises (such as OD Dargov in Košice) that had become vacant after their former leaseholders had relocated to newly opened modern shopping centres (Mitríková 2017).

#### **2.2.4 Demassification stage**

Although the process of retail network concentration is far from complete, we can already observe some early signs of a further stage of development in the Slovak market which has been a feature of more developed economies for some time; the development of the information society and its consequences for the retail sector. The idea of the so-called third developmental wave of civilization, formulated by Toffler and Toffler (1995), may serve as a background for understanding this new transformation. This wave is characterized by several features, but the most significant of these in terms of the future development of retail is demassification. This process is characterized by the disintegration of the mass market into distinct segments due to the growing differentiation of consumers' needs and the emergence of new forms of trade such as catalogue retailing, home-based teleshopping, e-commerce, direct mailing and many other channels through which producers can distribute their goods to customers and create a demassified market. Advertising has typically served as the basis for large-scale retail promotion, either through in-store leaflets or advertising in the mass media, but it is gradually changing its focus and concentrating on smaller market segments with targeted or "tailored" promotional material which addresses the customer directly on the basis of their personal data. The availability of information systems of this type creates a presumption that sellers will be able to target potential buyers with even greater accuracy. The next stage in the development of retailing can therefore be termed as the demassification stage. It is characterized by a reduced or even eliminated demand for retail outlets, and therefore a fuller study of this phenomenon will require the use of other research methods such as, for example, questionnaire surveys investigating the opinion or behaviour of the population (Trembošová 2010b, Trembošová 2020).

### 3 SHOPPING CENTRES – DEFINITIONS, CLASSIFICATIONS AND HISTORY

In modern society, large shopping centres not only fulfil the traditional role of a retail centre as a place in which goods can be purchased, and the philosophy of their existence is based on multifunctionality. Their conceptualisation is based on creating spaces which can maximize the length of time which their visitors spend in the complex, an aim which is connected with the increase in average consumer spending on goods and services. At the same time, large shopping centres are also becoming locations in which customers can spend their leisure time.

#### 3.1 Overview of definitions and classifications of shopping centres

The International Council of Shopping Centers (ICSC 2012 as cited by Kunc et al. 2013) gives the following general definition of a shopping centre: “A shopping centre is a set of retail and other commercial facilities that is planned, built, owned and managed as a single unit, typically with parking possibilities. The most common configuration is a shopping gallery and a head tenant (a “magnet” tenant) in the form of a hypermarket or a larger supermarket. The lower limit of the minimum area of a shopping centre is set to 5000 m<sup>2</sup>.” According to Jindra (1998 as cited by Spilková 2012, 134), a shopping centre is “a complex of shops, catering facilities and service operations planned, arranged and managed by one owner, while tenants are the operators of business units”. Shopping centres represent the highest level in the hierarchy of types of retail units. According to Szczyrba (2005b), their development was gradual and took place in stages. The suburbanization process, in which shopping centres and residential development in urban peripheries became mutually omnipresent, also occurred in stages. Ptáček (2002) describes the gradual development of suburbanization using the example of the development of shopping centres in the federal states of Germany. He termed the first, initial phase between 1964 and 1971 as a diffuse phase in which the first shopping centres emerged on greenfield sites following the American model, but they differed from their American progenitors in their accessibility by public transport. The second phase from 1972 to 1974 saw a rapid growth in the construction of shopping centres, while the third phase from 1975 to the present day was characterized by the restriction and regulation of construction of shopping centres on greenfield sites. Recent legislation has restricted the construction of shopping centres to central areas or in areas designated for such purposes, forbidding their construction in zones designated for housing and civic facilities.

The International Council of Shopping Centers classifies shopping centres in terms of their spatial and technical configuration and their gross leasable floor area (ICSC 2012 as cited by Kunc et al. 2013). The traditional model of a shopping centre can be considered as a multi-purpose project conceptually situated in an open space designed as an enclosed building which can be further divided according to size. The location of shopping centres is an important aspect because it is often a controversial issue in urban development planning and any proposal for the construction of a shopping centre must be subject to regulations. Similarly, any proposal must take the environmental aspect into account and ensure that the environment is not impaired or disrupted through its construction.

The classification of retail formats is a popular topic in the field of retail geography, and location is particularly important from the perspective of space and urban development planning. In general, we can distinguish between three types of shopping centre locations (Guy 1998 as cited by Kunc et al. 2013 and as cited by Križan and Lauko 2014):

- edge-of-centre; shopping centres which are located within walking distance (200-300 m) of the main shopping zone
- out-of-centre; these localities are clearly separated from the town centre, but they remain within the city boundaries
- out-of-town; shopping centres are built on greenfield sites or on land that is not clearly connected with the surrounding forest.

Szczyrba (2005a) divides shopping centres into those that operate within the internal functional structure of a city and in which the factors of location, rent and input costs are reflected in the supply and price of the goods and services which they offer (inner-city shopping centres of a higher price level are typical for brownfield sites, i.e., former industrial areas or railway yards) and shopping centres in peripheral locations or close to cities, in which the relative abundance of space for the development of commercial and non-commercial areas, including those relevant to the operation of shopping centres (transport infrastructure, parking, etc.) is the main advantage of their location.

In his classifications of urban retail locations, Guy (1998 as cited by Križan and Lauko 2014) divides localities into the following groups:

- Town centre; historic town centres with pre-existing or modern retail zones
- Edge of the town centre; operations are located in non-retail zones but are within easy walking distance of the main shopping zones
- Other retail zones (unplanned); shops are located in suburban development zones
- Other urban zones; any urban zone with some form of existing commercial activities, usually industrial in nature
- New residential zones; shops are usually located at the edge of a town
- Edge-of town; rural locations or areas surrounded by rural land. Retail units are built on greenfield sites, often located outside the urban boundaries.

The Urban Land Institute also developed a classification system for shopping centres based on size (1999 as cited by Spilková 2012):

Regional shopping centres; retail operations and services which are unified architecturally with a hypermarket as its magnet. Regional shopping centres offer a wide assortment of goods and services and can serve 150,000 inhabitants within a radius of 30 minutes travel time of the centre.

Super-regional centres; complexes with a sales area not exceeding 100,000 m<sup>2</sup> and a catchment of 300,000 inhabitants. There may be some overlap with the areas of nearby centres. These centres can also have several retail units (magnets). and typically include sufficient parking areas, roads or pavements for pedestrian customers, elevators or escalators.

Community shopping centres (a category used mainly in the U.S. and the UK); a supermarket or discount shop. Their sales area is about 10,000 m<sup>2</sup> but they can also serve a larger area. They typically serve a population of from 50,000 to 100,000 inhabitants.

District shopping centres; these centres satisfy the basic shopping and everyday needs of the inhabitants of a specific district. A supermarket with an added pharmacy or drugstore supplemented by smaller shops usually act as the magnet. The sales area is around 5,000 m<sup>2</sup> and serves a catchment area for 3,000 to 30,000 inhabitants.

Convenience shopping centres; small-scale shopping centres. A mini market with food is the magnet, but the other tenants of the complex can include restaurants, snack bars, personal service providers such as dry-cleaners, beauty salons or hairdressers. The sales area of these shopping centres does not typically exceed 3,000 m<sup>2</sup>. These complexes focus on lower sales volumes and are also aimed at car-based customers who can buy fast-moving goods that they have forgotten to buy in a larger shopping centre.

The International Council of Shopping Centers uses the functional pan-European classification based on the size of the leasable area (Lambert 2006 as cited by Križan and Lauko 2014). As any system of definition will always be subjective in character, Lambert considers the process of classifying a shopping centre into relevant groups to be problematic. Table 2 shows an overview of the formats adopted by Križan and Lauko (2014) from Lambert (2006).

A traditional shopping centre is a multi-purpose enclosed or open-air building that can be further classified by size (see Table 2).

- A comparison-based centre brings together retailers usually specializing in segments such as clothing, footwear, home furnishings or electronics. They are often part of a larger retail area, such as city centres and often lack an anchor tenant (or magnet) in the form of a supermarket or hypermarket.

- A convenience-based centre is focused on the sale of common consumer goods for regular consumption, with an anchored retailer, either a supermarket or a hypermarket, forming their centre. Other retailers in the centre, such as flower shops, pet shops, chemists or shops selling household appliances or basic apparel are located around the main tenant. This type of shopping centre is typically located at the edge of a town or outside a town.

**Table 2 International standards for types of European shopping centres**

Format	Type of scheme		Gross leasable area in m <sup>2</sup>	
Traditional	Very large SC		80,000 and above	
	Large SC		40,000 – 79,999	
	Medium SC		20,000 – 39,999	
	Small SC	Comparison-Based		5,000 – 19,999
		Convenience-Based		5,000 – 19,999
Specialized	Retail Park	Large	20,000 and above	
		Medium	10,000 – 19,999	
		Small	5,000 – 9,999	
	Factory Outlet Centre		5,000 and above	
	Theme-Oriented Centre	Leisure-based		5,000 and above
		Non-leisure based		5,000 and above

Source: Lambert 2006 as cited by Križan and Lauko 2014

A specialized shopping centre includes specific purpose-built retail units that are typically built in the open air and can be classified by size.

- A retail park is a grouping of three or more retail units within one building and usually includes a shared parking lot operated by all tenants. A retail park operated by a single developer usually has a unified architectural style. These outlets typically sell less prestigious brands.
- A factory outlet centre groups separate retail units of sellers who offer goods at discounted prices, often focusing on the sale of surplus stocks or out-of-season collections. These centres typically have a larger catchment zone (Kunc et al. 2013).

A theme-oriented centre groups together several retail operations specializing in a specific retail category. They are classified into two groups:

- Leisure-based centres; shopping centres which often feature a multiplex cinema, restaurants and cafes in combination with other entertainment activities such as bowling or wellness services.

- Non-leisure-based centres; these complexes focus on specific market gaps in a given retail area (for example, fashion) or a specific type of consumer (for example, retail at airports).

According to Spilková (2012), recent years have seen the development of shopping centres in town centres as part of the revitalization of town centres and the expansion of commercial capacities. These centres usually include food and non-food shops with various specializations, catering facilities and various services. Many experts consider this format of shopping centres to be highly promising projects because they promote sustainable development, do not require the intensive use of cars and also naturally integrate shopping into the everyday activities of local people.

Within the town centre, Spilková also note the existence of so-called shopping streets which are not shopping centres in themselves but rather urban arrangements which naturally concentrate business functions and everyday services. They were not purposefully planned and are not operated by any single management entity; indeed, their arrangement is more ad hoc and chaotic, and it can be said that even walking between their constituent parts can be more complicated. Nonetheless, these concentrations of shops can create important synergies and attract customers not only for shopping but also for general entertainment and free-time activities. The best example of such an arrangement is the upper part of New York's Fifth Avenue, which was the most expensive shopping street in the world in 2014 with a record annual rent of € 29,822 per square meter. In recent years, the concentration of commercial activities such as fast food, supermarkets with fast-moving goods, drugstores and pharmacies at bus or railway stations and airports has also seen significant growth.

The issue of the construction and operation of shopping centres can be viewed from the perspectives of their developers, operators and tenants. The primary aim of developers is to secure suitable land in attractive locations, to prepare preliminary studies and, if necessary, to negotiate changes in the zoning plan, zoning decisions or the purchase of land. Once the developer has achieved this, the project is then taken over by an investor. An operator is usually also an investor who leases floor space in the centre to individual tenants and who is also responsible for ensuring the successful operation of the entire complex. Tenants then attempt to negotiate favourable rental conditions, reducing their initial outlays, and then create a competitive environment with other tenants and ensure the operation of their own units (Spilková 2002).

When planning the construction of a new shopping centre, all potential aspects of its impact on the surrounding area must be taken into consideration. The biggest conflicts arise over proposals for developments which are projected on agricultural land or directly in the urban or suburban cultural landscape which often face negative attitudes on the part of the population concerned. A balanced mix of tenants is a crucial requirement of the successful operation of shopping centres. In the past, the shops with fast-moving goods, such as everyday food and drugstore products, were the main attraction of shopping centres, but the development of decentralized shopping centres led to a new trend in which shopping centres began to be seen as entertainment and relaxation sites or as social zones where people could meet in their leisure time. Modern shopping centres offer a wide range of non-retail activities, such as multiplex cinemas, fitness centres, skating rinks or children's play areas. Developers refer to this format of shopping centre as third-generation shopping centres. Shopping centres not only exert a strong centripetal effect within their vicinity by generating a wide external and internal retail catchment area, but also they can result in increased tourism activity around their location due to the commercial and non-commercial attractions which they offer. By their very nature, modern shopping centres play a significant role in the development of new forms of urban tourism for the purpose of shopping and recreation

and are thereby causing a fundamental change in contemporary perspectives on urban tourism itself. Due to their commercial function, cities have always played the role of natural centres of shopping tourism, but until recent times this was performed mainly through central locations offering consumer tourists a wide range of specialized shops. In the post-industrial phase of urban development, however, such cities have undergone a spatial functional transformation and new urban centres have emerged (Szczyrba 2005a). Szczyrba (2005a) sees the new dimension of shopping centres as the cause of this transformation, changing the pre-existing concept of the monocentric functional arrangement of cities.

Szczyrba (2005a) develops this argument further, suggesting that “the purpose of shopping centres” is to make visitors spend as much time within the shopping centre as possible, and this is the main role of non-retail activities. Shopping tourism is thus not only becoming a modern form of urban tourism, but it is a key to operating shopping centres that can change the current perception of shopping and expand the dimensions of the retail experience (Mitriková, Tomčíková and Lukáčová 2012).

### 3.2 The history of shopping centres around the world

Many authors see the emergence of the department store in the nineteenth century as a revolutionary development in the retail industry and consider this format as the predecessor of the shopping centre. The oldest department store, Le Bon Marché, opened in Paris in 1838. The department store was open to customers of all social classes, with visitors left to shop at their own pace without the direct pressure to buy certain products. Discounts were also offered, goods could be returned in the event of customer dissatisfaction and home deliveries were also possible (Kunc et al. 2013).

**Figure 10 Interior of Le Bon Marché department store in Paris**



Source: Sacchelli 2013

The concept of the department store and the later evolution of the shopping centre became a driver of deeper social and economic changes which heralded a turn from shopping as a “necessity” to shopping as a form of entertainment. The increasing quality and reduced prices of industrially produced goods resulted in the consumerist way of life spreading not

only geographically to all corners of Europe and North America but also demographically to almost all social classes. Several additional factors contributed to this development, such as the abolition or restriction of child labour in the United States in 1840, later amended in 1938, the emancipation of women and the growing ranks of the wealthy. Indeed, it was the upper class that flaunted its wealth through the luxurious equipment of their houses and wardrobe. And so, according to Timothy (2005), the period of the consumerist way of life was ready to begin.

By the end of the 19<sup>th</sup> century, urban infrastructure was already at an advanced stage in much of the developed world, and therefore the construction of new shopping centres took place rapidly in cities such as New York, Chicago, London, Paris and Berlin. Wrigley (2003) sees Market Square in Chicago (1916) as to be one of the earliest shopping centres. Market Square was an unroofed area which was comprised of lines of shops standing side by side. The International Council of Shopping Centers considers Highland Park Shopping Village, built in Dallas in 1931 in a unique Mediterranean Spanish style, to be the first modern shopping centre. (Kunc et al. 2013).

The period after the First World War saw the growing wealth of the middle classes and also the first significant emancipation of women, and an increase in their active participation in activities which had previously been considered exclusively male domains. Fashion styles were also changing, and thus a more comfortable and dashing style spread across the department stores and shopping centres in Paris and gradually throughout the whole of Europe and North America. While Europe was forced to come to terms with post-war reparations and “rebuild industry and housing” for a long time after World War II, the USA remained unaffected by wartime damage and experienced rapid development almost immediately after the end of the war. This led to a further expansion of consumer behaviour connected with the migration of populations from crowded cities to satellite towns where shopping centres were also opened. In time, the new concept of the mega mall was created; mega malls were located on the edge of cities in connection with large urban agglomerations (Buttler 1991 as cited by Kunc et al. 2013). Northgate in Seattle in the USA is considered to be the first suburban shopping centre of this kind. When first opened in 1950, the mall was an unroofed shopping centre with 18 shops, parking areas and a theatre.

**Figure 11 Northgate in Seattle – the world’s first suburban shopping mall**



Source: Thomas 2010

During this period, the first covered shopping centres were opened starting with the self-styled “weather-protected” Valley Fair Shopping Center in Appleton in 1955, followed a year later by the first covered centre of regional importance, the Southdale Center in Edina. The Southdale Center was the first covered centre to use a thermostatic system that



maintained a constant temperature of 24 °C and included the organization of various events, concerts and balls among its many attractions (Coleman 2006 as cited by Kunc et al. 2013). As retail began to move to the edge of cities, city centres began to physically decay and gradually came to be seen as immigrant ghettos (Spilková 2012).

The first wave of modern shopping centres in Europe emerged in the 1960s. In the urban retail environment, new types of stores appeared, the characteristics of which can be summarized as follows (Coleman 2012 as cited by Križan and Lauko 2014, Križan et al. 2020):

- an increase in the size of existing types of operations
- the development and improvement of existing and hybrid formats
- the establishment of new types of operations.

While cities had previously been characterized by a central shopping area with a more pronounced concentration of retail activity than in other parts of the city and a radial orientation of catchment zones along main traffic routes (Warnes and Daniels 1980 as cited by Križan and Lauko 2014), new types of shopping centres emerged in connection with the growing level of competition in the market and the increased demands of consumers. Shopping centres were open to all social classes, and customers were free to peruse the goods on offer at their own pace (Kunc, Tonev, Szczyrba and Greplová 2012, 1-2).

**Figure 12 Bull Ring Centre in Birmingham in Great Britain (1968)**



Source: Bentley 2014

Shopping centres in Europe were not built on the same scale as American centres and they were also less likely to be built on greenfield sites, and thus European cities avoided the depopulation of city centres and large-scale developments which were more typical in the USA. The Bull Ring Centre in Birmingham (1964) and the Elephant and Castle Centre in London (1965) were among the first shopping centres to be built in Europe and were immediately popular among British consumers. They belong to the most visited shopping centres in Great Britain to this day (Dawson and Lord 2012 as cited by Kunc et al. 2013; Fukai 2006 as cited by Kunc et al. 2013). In the 1970s, the first generation of covered shopping centres located in city centres was established in Europe, with the second

generation of covered centres being constructed in the USA and Canada (Križan and Lauko 2014). Big box formats become popular in this period, while the conversion of horizontally planned shopping centres into vertical shopping centres was also introduced in city centre locations. Later, in the 1980s, a novel format, the retail park, emerged. More and more so-called super-regional shopping centres which integrated shopping and leisure activities were built in the USA in this period, and the modernization and expansion of existing shopping centres continued into the 1990s. Various retail formats were also expanding at the edges of European cities (Coleman 2012 as cited by Križan and Lauko 2014). The increasingly multipurpose nature of shopping centres continued to evolve, with many centres also integrating residential properties and office buildings into their existing range of shopping and leisure features.

In the past, shopping centres were designed without any long-term plan for their development, but today they are increasingly being established, or expected to be established, on the basis of a pre-planned intention (Kunc et al. 2013). The size of a shopping centre should correspond to the purchasing power in the catchment area and the range of goods offered should be wide enough to attract a substantial number of these customers. According to Kunc et al. (2013), about 90% of the capacity of shopping centres is located in Western Europe, with the remaining 10% found in Central and Eastern Europe, but we can expect that this situation will gradually become more balanced due to the shift of the construction boom from the West to the East.

#### **4 CONSUMER BEHAVIOUR**

The study of consumer behaviour is the study of the behaviour of individuals, groups or organizations and of all of the activities related to the purchase, use and sale of goods and services including the emotional, mental and behavioural reactions of consumers. The field emerged in the 1940s and 1950s as a crucial subdiscipline in the study of marketing and is essentially an interdisciplinary social science that combines elements from psychology, sociology, social anthropology, ethnography, marketing and economics, with a particular focus on behavioural economics to examine how emotions, attitudes and preferences can influence consumer behaviour. Formal consumer behaviour studies examine all possible characteristics of individual consumers, such as demographics and lifestyles and behavioural variables such as usage rates, use opportunities, brand loyalty and advocacy, willingness to make recommendations in an effort to understand people's needs and consumption. The study of consumer behaviour also examines the effects of factors such as family, friends, sports, reference groups and society in general on consumers' choices. (Kahle and Close 2011).

Gbuřová and Bačık (2013) define the term consumer behaviour as "the behaviour by which consumers express themselves when evaluating, searching for, buying and using the services and products from which they expect to satisfy their needs". Consumer behaviour examines the actions of both individuals and households in buying goods and services for personal consumption, thereby forming a collective consumer market (Gbuřová and Bačık 2013).

According to Solomon (2006 as cited by Štefko et al. 2012, 73), "consumer behaviour is the process by which individuals or groups select, purchase, use and dispose of goods, services, ideas or experiences to fulfil their needs and desires".

It is possible to suggest that an image of the individual and their social or cultural differences can be identified wherever the processes of consumption and purchasing take place. When buying goods or services, consumers do not always behave rationally and it is

not generally possible to identify fixed patterns in consumer behaviour. A wide variety of subjective factors such as the appearance of a shop, the manner of the staff or the range of goods displayed on the shelves can affect buyer behaviour. On the other hand, objective variables carry a greater weight in the consumer decision-making process, primarily those of price and accessibility. Consumer behaviour is often described as a mysterious process because it is often unpredictable and can sometimes appear illogical. Also important in this respect are the seemingly irrational seasonal fluctuations in sales over the course of the year. Advertising in particular has a significant influence on the consumer behaviour of customers and can be an immensely powerful tool for making an impression on consumers (Križan and Lauko, 2014). Although consumer behaviour can be influenced and changed through advertising, this remains a somewhat “fuzzy” phenomenon which cannot be simplified into a series of graphs and tables. (Križan, Barlík and Bilková 2017). In order to succeed in retail sales, it is necessary to develop a detailed knowledge of consumer behaviour, a process which has changed significantly in line with the developments in the retail industry and also in society as a whole. These changes have generally been the result of three distinct factors: demand, supply and the availability of resources, all of which are strongly influenced by the economic conditions of households. Consumer behaviour is manifested through a specific process in which consumers evaluate and compare the available alternatives and decide for some of these over others (Trembošová, Dubcová and Cíváň 2016 as cited by Mitříková 2017). Consumer shopping is not limited by location, and the choice of where to shop is influenced by many factors. If consumers are not satisfied with the goods or purchase in their locality, they can choose to make purchases someplace else (out-shopping, out-of-town shopping) in an attempt to satisfy their requirements. Cross-border shopping can be considered as a special subcategory of this type of purchases (Sullivan and Kang 1997; Križan and Zeman et al. 2017). Most current studies evaluating consumer behaviour focus on the behaviour of consumers in shopping centres. These locations represent a new form of sales that displaces traditional forms of shopping and reshapes the shopping habits of new generations of consumers. Shopping centres are not only a locus in which purchases are made but they have also gradually developed into sites for other services, cultural activities or other events in order to attract as many potential customers as possible. Although consumers under the age of 35 form the main group of visitors to shopping centres (Kunc, Tonev, Szczyrba and Frantál 2012; Spilková 2012), these new formats are also the bearers of changes for other generations of consumers, including the elderly. Križan and Lauko (2014) term this type of consumer behaviour as leisure shopping, with shopping increasingly seen as a way of unwinding and relaxing. For many families, shopping centres are popular places in which to spend their weekends, and it is possible to talk about so-called “fun shopping” or “experience shopping” in this context, an activity which directly emphasises shopping centres’ role as a space for the spending of free time, not just shopping (Spilková 2012). Shopping centres also function as a social space in which people can meet up and spend time together. The growth of such behaviour leads to the construction of new shopping centres, which over time change not only our surroundings but also our habits, leisure activities and our lives in general (Trembošová 2009). Therefore, in this context, shopping centres can be considered as “tourist destinations”; by offering attractions and services, they create a recreational potential for the development of modern urban tourism (Spilková 2012, Mitříková, Šenková and Antolíkova 2015). According to Kita (2005, 75), consumer behaviour represents “obvious and observable acts, such as purchase and consumption [...], mental and social processes that take place: 1. before purchase, 2. during purchase, 3. after purchase”.

## 4.1 Factors of consumer behaviour

According to Kotler and Armstrong (2004), the factors of consumer behaviour can be divided into the following groups:

- Cultural factors,
- Social factors,
- Personal factors,
- Psychological factors.

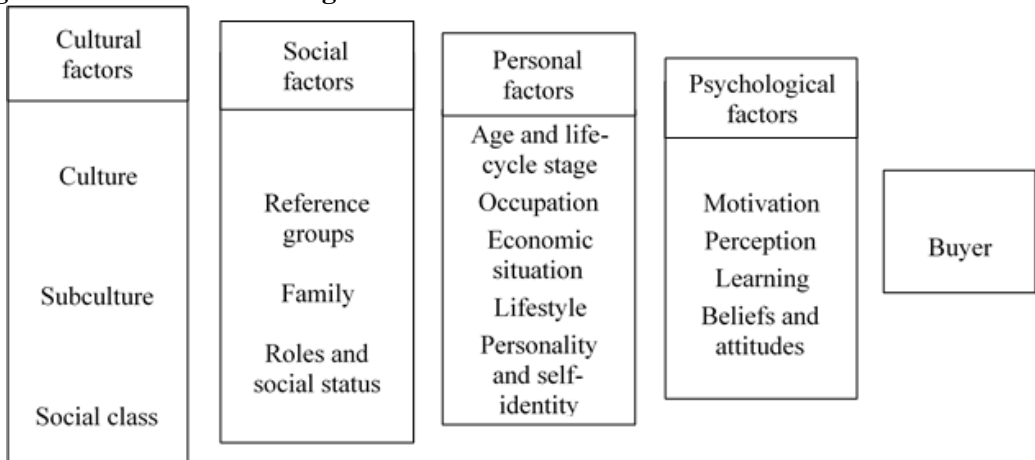
**Cultural factors.** From a marketing perspective, a salesperson should always try to understand the role that culture, subculture and social class play in people's behaviour. Culture is a set of basic values of societal perceptions, desires and behaviour that individuals absorb from their families and other social institutions. From the perspective of culture, people can be distinguished in terms of nationality, religion, race, the geographical area in which they live and other features. Therefore, marketing planning should always be performed with a full awareness of who the end customers are and what could affect them positively when buying.

**Social factors.** Another task of marketing is to identify the groups of target markets where the sale will take place. An understanding of this will allow retailers to get ahead of new patterns of consumer behaviour and lifestyles. In terms of the products that retailers offer, it is also important to determine the so-called opinion leaders and focus on them through marketing programmes and advertising.

**Personal factors.** Personal characteristics such as age, life-cycle stage, occupation, economic situation, lifestyle (as expressed in activities, interests and opinions), personality and self-identification can also affect consumer behaviour.

**Psychological factors.** Consumer behaviour is influenced by five main psychological factors: motivation, perception, learning, beliefs and attitudes. Armstrong et al. (2014) describe these factors as follows: 1. Motivation – a very strong need that individuals will attempt to satisfy. According to both Freud and Maslow, there is always a certain hierarchy of needs that we try to satisfy by buying goods or services, including physiological needs, learning needs and self-realization needs. 2. Perception – the process by which people select, sort and interpret information in order to create a meaningful picture of the world. These incentives may be perceived subjectively, so it is very important for marketers to take this into account when promoting products and services. 3. Learning – the changes in the behaviour of individuals when exposed to newly acquired knowledge. According to experts, human behaviour is largely the result of the learning process which is itself the result of the interaction of desires, incentives, impulses, reactions and rewards. 4. Beliefs – opinions held about specific facts or phenomena, in our case about goods and services, or the image of products and brands. Belief and opinion are deeply reflected in consumer behaviour and therefore many companies try to create a positive image of their products and brand identity. Even the negative impact of beliefs can be improved through appropriate marketing. 5. Attitudes – expressions of positive or negative evaluations and opinions of consumers on specific facts. Attitudes can generate either sympathy or aversion to a given product, service and or even to an entire company. It is difficult to influence people's attitudes, and it is therefore considered more effective to adapt products to existing attitudes.

**Figure 13 Factors influencing consumer behaviour**

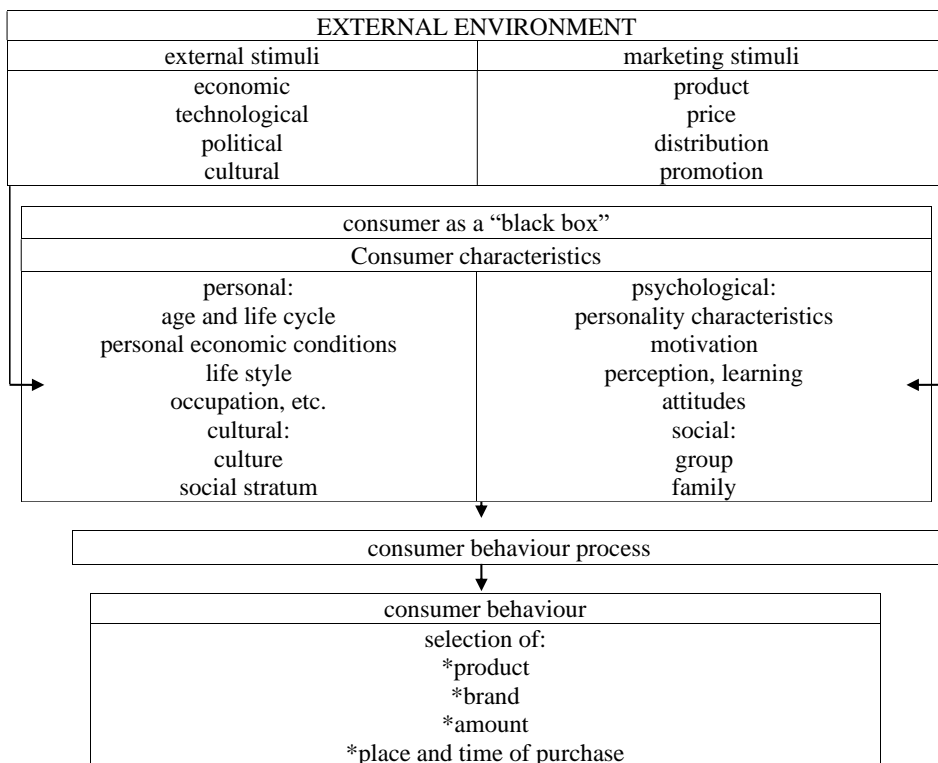


Source: adapted by the authors from Kotler and Armstrong 2004

#### 4.2 The buyer decision process and buyer decision-making styles

According to Bod’o (2006) consumers make several purchasing decisions every single day, and therefore marketers in retail companies and chains are need to find ways of attracting customers to buy their products taking into account the many factors that affect each consumer, ranging from the external environment to personality characteristics.

**Figure 14 Consumer behaviour model**



Source: Bod’o 2006

The modern period has seen enormous economic and political changes that have had a significant impact on consumers and their purchase decision-making. Consumer behaviour is affected by a number of factors and various impacts, and therefore every retail chain should be aware of which target group of customers it wants to address and focus on satisfying their needs so as to gain and retain as many consumers as possible (Gbuřová and Bačık 2013, 19-20). According to Kita et al. (2010), retail has also seen developments in how it communicates with customers. Customers are increasingly surrounded not only by various forms of direct marketing but also by technical innovations, such as electronic labels on shelves or scanning systems. Progressive technology is becoming the future of retail not only in business processes but also in how retailers communicate with their customers. The cultural, social, economic and political conditions of a given region play an important role in assessing consumer behaviour as they are generally considered to generate different types of consumer behaviour. In general, we can say that consumer behaviour has evolved over the years, but the authors recognize two basic types of consumer behaviour; pragmatic or rational and impulsive or emotional.

In contrast, Štefko et al. (2012) recognize four types of consumer behaviour:

- complex consumer behaviour; in cases where the purchase is of great importance for consumers, consumers discern differences between particular brands; these products are often characterized by a high price which is reflected in the infrequent purchase of the product.
- dissonance-reducing behaviour; consumers do not perceive differences between brands but they are highly interested in a purchase. They decide quickly, focus on a favourable price, which they see as a sign of a bargain. After the purchase, customers may feel dissatisfied if they discover the shortcomings of the product.
- habitual consumer behaviour; often involving repeated purchases with the reduced involvement of consumers; consumers obtain information about brands passively, for example, through advertisements, or buy brands they are familiar with.
- variety-seeking consumer behaviour; low consumer involvement with significant differences between brands, diversity of supply and desire for change encourage brand switching.

The family is the most important and influential group in terms of consumer behaviour. The influence of the family on consumer behaviour consists of three elements:

- the stage of the family life cycle; this is understood as the process of following the given stages through which the family undergoes. In this respect, the age of parents, the birth and age of the children and the occupational activity of parents is taken into account. These stages are associated with family finances.
- consumer socialization; this is the process through which individuals acquire the knowledge and skills needed to behave as consumers.
- the influence of special family members on purchasing decisions; this is the influence of a wife, husband or children on decisions depending on the category of purchased products or services (Kulčáková and Richterová 1997; Bartáková et al. 2007; Jakubíková 2012).

Based on their knowledge about the current requirements of consumers, the subject and volume of their purchases, motives and the amount of money spent on their purchase, we can also predict the emergence of new trends in consumer behaviour in the future (Cibáková and Bartáková 2007):

- consumers will be more demanding and their behaviour more difficult to understand
- the phenomenon of individuality will come to the fore
- consumers will buy both discount and premium goods at the same time

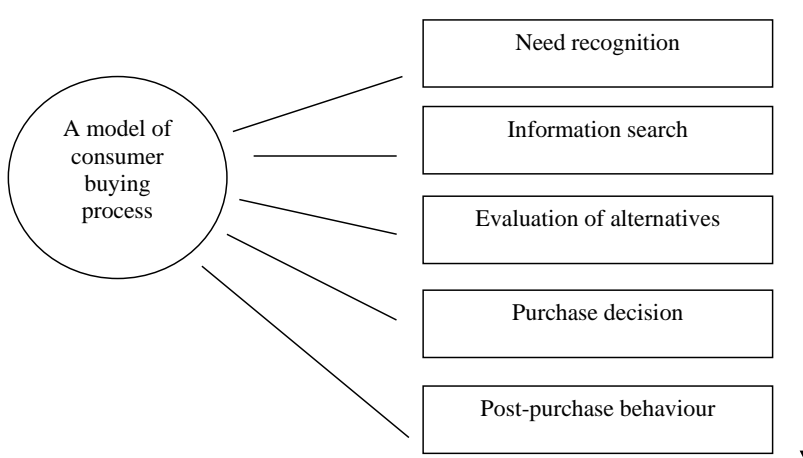
- consumers will demand good prices, higher added value and better services
- buying and decision-making will be faster and more emotional
- there will be intensified pressure at the level of the buying environment
- healthier lifestyles and non-traditional product concepts will come to the fore
- the factors of comfort, diversity and simplicity will become important.

When making decisions about purchases, consumers go through a buying process during which they evaluate and compare available alternatives and decide which product to buy. The influences to which consumers are exposed during their decision-making process can affect the purchase decision-making process with different intensities and strengths and also produce different results (Trembošová, Dubcová and Civiň 2016).

Marketing analysts (Štefko et al., 2012) not only need to be aware of the potential influences that can affect consumers, but they also have to understand how consumers make purchase decisions. However, it is necessary to have as much information as possible about what types of purchase decisions exist and what steps are involved in the buying process, and it is also necessary to identify specific purchase roles in the buying process. Consumer behaviour is primarily an issue of end consumers – individuals and households buying goods and services for their own personal use who collectively form the consumer market. Consumers in the global market differ in terms of their age, income, education and taste (Kotler and Armstrong 2004).

Consumer decision-making consists of several stages. The stages of the decision-making process are shown in Figure 15 and consist of need recognition, information search, the evaluation of alternatives, purchase decision and final post-purchase evaluation. The specific phases show that the buying process starts long before the actual purchase is made and does not end with the purchase itself. It is also important to examine consumers' behaviour after the purchase, including their reactions to the purchased goods and their satisfaction or dissatisfaction with the purchase, and it is also necessary to complement the purchase with the provision of consumer care after purchase (Dzurová et al. 2007). Given this wide scope of factors, it is crucial that marketing focuses on the entire decision-making process.

**Figure 15 Buyer decision process**



Source: Schiffman, Kanuk and Hansen 2008, 16

Sproles and Kendall (1986) developed the consumer style inventory (CSI) consisting of eight factors including price-sensitivity, quality-consciousness, brand-consciousness, novelty-seeking, fashion-consciousness and habit. The determination of these factors allowed the authors to create a typology of eight different decision-making styles:

- Quality consciousness; Quality consciousness is typical for consumers who seek out the highest quality products. These consumers are quality-conscious; they tend to shop systematically and make more comparisons in order to determine the level of quality and value.
- Brand-consciousness; the tendency to buy expensive, well-known brands. Those who achieve a high level of brand awareness tend to believe that higher prices are an indicator of quality and show a “sympathy” for department stores or luxurious retail stores.
- Recreation shopping; consumers engaged in the purchase process who consider shopping more as a form of recreation and relaxation than purely need fulfilment.
- Price-consciousness; consumers who are mainly focused on the price of a given product or service. Consumers who look for low prices tend to buy carefully, prefer lower prices or discounts and are motivated to get the best value for the lowest amount of money.
- Novelty or fashion-consciousness; the tendency to look for new and fashionable products and new experiences that represent an exciting shopping experience for consumers. They want to stay up-to-date with fashion trends.
- Impulsive shopping; impulsive consumers are somewhat careless when making purchase decisions; they shop recklessly and are not overly interested in the level of spending or of getting value for money. Those who can be considered highly impulsive tend not to deal with the object on a cognitive or emotional level.
- Confused purchase; consumers who are liable to be confused by the wide range of product choices, too many retailers or by an overload of product information, which results in the consumers suffering from information overload.
- Loyal shopping; the tendency for consumers to perform routine shopping patterns on every shopping trip. Consumers have favourite brands or shops and develop selection habits, and thus their purchase decisions do not involve too much evaluation or shopping around.

Current research on consumer behavior focuses on three basic components: the consumer, the product and the environment. The consumer is the central point of interest as it is ultimately the consumer who determines the success of supply-side market behaviour. The concept of the product not only includes its performance but also the packaging, the information that accompanies it and the connected services which it provides. The environment can be understood in an economic sense, including the development and state of the economy and competition; in terms of the natural environment that includes climatic conditions, natural resources and the ecological aspect; the social environment which represents not only the stratification of society but also the relationships between the strata; the normative environment which consists of a complex set of standards such as financial regulations, laws, technical standards; and the information environment, which is understood as the mutual participation of entities as well as the information received by a manufacturer or business enterprise and sent by a consumer (Pražská and Jindra et al. 1998).

The act of shopping has changed significantly in recent decades. After the limited shopping opportunities which were prevalent prior to 1989, the foreign chains and large retail stores who appeared on the market with a wide range of goods and services in the post-socialist period were received very positively by customers. In terms of more recent



developments, Spilková (2016) has examined the latest trends in shopping behaviour. The results of her work show that modern customers are starting to seek out greater personal contact with sellers; they are interested in the origin and quality of the goods and visit smaller shops or farmers' markets offering a more personal approach; they buy vegetables from farmers through box-schemes, and use various other alternative food networks. Customers are becoming increasingly interested in the environmental impact of food production, processing, packaging and distribution.

### 4.3 Consumer typologies

As was noted above, consumers make several purchase decisions every day. Large companies examine consumer purchase decisions in order to find out who buys what and why, how consumers obtain information, who influences their decisions, and when and where they make their purchases (Mitríková 2008).

In recent years, three basic groups of consumers shopping in food retail networks have been identified (Kunová 2011):

- a first group which consists of consumers who only take into account the prices of food and who buy mainly through special offers in inexpensive shops.
- a second group which includes consumers who have a taste for delicacies of all kinds with little regard for the price and the nutritional value of the food. This food may be expensive, but it is not always the case. These consumers are connoisseurs and enjoy talking about quality food.
- a third group of consumers who are only interested in the nutritional value and health benefits of food products or who purchase only organic food (Jarossová 2015).

Monroe and Gultinan (1975 as cited by Mitríková and Komárová 2010) identify the following personality types:

- In-store economical type; focuses on price, but this does not significantly affect their shopping habits. Sees shopping as a routine. This type of personality is more likely to compare prices and differences between stores.
- Apathetic or mechanic type; neither enjoys nor is not interested in shopping as an activity, buys only out of necessity.
- Traditional type; actively enjoys shopping, buys with pleasure but is also economically-minded and is not averse to using discount coupons.
- Economical-planner type; focuses on gathering information about prices, is economically-minded and actively seeks out discounts.
- Conventional type; interested in specific brands, does not buy in discount stores, rarely plans their shopping activities.
- Homemaker type; perceives a brand as a guarantee of quality, is loyal to a single retailer and is not interested in exploring different shops.

On the basis of the Shopper Typology & Media Behavior (2003) monitoring project carried out by the Incoma Research, s.r.o. and GfK Prague consulting companies in the Czech Republic, Trembošová (2009) lists the following types of shoppers:

- Influenceable; emotional in their shopping behaviour with a considerable amount of impulsive shopping. Can be influenced by advertising, buys special offer products even if they are not needed, makes a large number of purchases per day.
- Demanding; places high demands on the quality of goods and shopping comfort.
- Mobile (pragmatist); optimizes the ratio between price and value, prefers large-scale stores, regularly uses a car.
- Cautious (conservative); rational and conservative decision-making with a low

- amount of impulsive purchases. Distrustful of advertising, does not use a car.
- Money-saving; minimizes expenses, buys rationally, knows exactly what goods they need and ignores everything else, rarely uses a car.
- Loyal (often a pensioner or housewife); focused on the social side of shopping, often buys in smaller quantities, prefers smaller shops nearer to home, emphasises tradition and customer loyalty.
- Undemanding (phlegmatic); has no demands on the retailer and is indifferent about prices. Shops at the nearest retailer and is unwilling to travel for shopping (Trembošová, Dubcová, Kramáreková and Nagyová 2016).

Kita et al. (2010, 84) identify two types of manifestations of consumer behaviour:

- Macro-manifestations which include “propensity to consume or to save depending on the distribution of disposable income earmarked for consumption between the main items determining the nature of consumption”.
- Micro-manifestations which include “acquisition of characteristic products and services, purchase of given brands at a given price level with a certain repeatability, effective use of purchased products and services”.

The impact of institutions on consumer behaviour is viewed differently:

- Institutional economics views human economic behaviour as influenced by institutions that establish and regulate the interrelationships between economic agents and social groups on the basis of tradition, experience and legal rules.
- New institutional economics proposes to introduce the regulation of economics on the basis of long-term contracts between the state, large corporations and trade unions. In the perspective of this theory, consumer behaviour is not influenced directly, however, the possibilities of purchase itself are directed by the regulation of the economy (Lisý 2005, 19-31).

Kotler (2007 as cited by Bartáková et al. 2009) states that consumer behaviour is influenced not only by external marketing stimuli but also by external environmental stimuli such as economic, technological, cultural and political factors, considering economic indicators to be the most important of these. Consumers enter the market with the intention of buying goods and services in order to satisfy their needs and they aim to maximize the use value that the consumption of these goods can offer them. For this reason, demand is often defined as the ratio between the quantity of goods purchased and the financial “sacrifice” to be made when acquiring them. When deciding which goods to buy, consumers set these two values off against each other, and it is therefore somewhat simplistic to use financial means alone as tool for measuring consumer expenditure (Lisý et al. 2005).

#### **4.4 Characteristics of generations of Slovak consumers**

The issue of generations is one of the most important topics in the study of consumer behaviour. Smolka (2019) argues that if marketers want to reach their desired target market with existing or newly launched products, they must identify which generations they are dealing with. The issue of generations is relatively new; authors such as Hill (2002), Bergh and Behrer (2012) or Wallace et al. (2014) only started to publish their research into the topic at the beginning of this millennium. However, there is still considerable disagreement among theorists over the definition, time frames and the psychological profiles of individual generations. Nevertheless, the idea of dividing the population into individual generations has been generally adopted and this typology is currently recognized and often cited in research.

**Table 3 Selected classifications of generations**

Classification of generations	Name of Generation	Time frame
Basic classification of generations	Generation X	1966-1976
	Generation Y	1977-1995
	Generation Z	1996-2012
Transitional generations (intergenerations) according to Smolka (2019)	Generation “Baby Boomers”	1946-1965
	Generation “Husak’s children”	1974-1979
	Generation “Millennials”	1980-2000
	Generation “Snowflakes”	2001-
	Generation “Alpha”	2010-
Consumer generations according to Kita et al. 2020	Generation “Pre-boomers”	Born to 1946
	Generation “Baby boomers” or “Boomers”	1946-1964
	Generation X or “Baby busters”	1965-1977
	Generation Y or “Echo boomers” or “Millennium generation”	1978-1994
	Generation Z	Born after 1994, or 2000
	Generation Alpha, also called Generation A	Born after 2010

Source: Smolka (2019), Kita et al. (2020)

As Smolka (2019) notes, any attempt to determine the importance of the preferences and requirements of customers as members of individual generations presupposes that we can accurately characterize individual generations of consumers. This also requires the understanding that the development of customer preferences in individual countries is influenced not only by the year in which consumers were born but also by the political and economic development in the given country within the consumers’ lifetimes. Therefore, while an awareness of the standard Western typology of “Generations X, Y and Z” are useful, an analysis of generational differences in the Czechoslovak and Slovak environment also needs to take into consideration the phenomenon of intergenerations, which, as well as generations themselves, each exhibit their own characteristics and patterns of behaviour.

Generation “X”, which Hill (2002) determines as those born between 1966 and 1976 and Dunne et al. (2011 as cited by Kita et al. 2020) as those born between 1965 and 1977, is considered to be the first technological generation. A wide range of new technologies began to emerge throughout their lives, and this was reflected in their openness to both traditional and modern means of communication (Hill 2002). As Smolka (2019) notes, however, this generation is not easily influenced by advertising and considers their purchases in terms of modern trends and in terms of what the purchase of the product can offer them. Consumers of this generation prefer practical design and lower prices; they follow their own reasoning but can also be swayed by the personal experience of their peers (Wallace et al. 2014). They are also characterized by high brand loyalty and a willingness to pay more in this respect. They are an ideal target group for marketers because they can become lifelong customers. In contrast to the “yuppies” (“young urban professionals”) of the Baby Boomer generation, Generation X can be characterised by a new kind of “yawns” elite (“young and wealthy but

normal”) (Dunne et al. as cited by Kita et al. 2020).

There is again a lack of consensus on the time frame of Generation “Y”; some authors define it as comprising young people who were born in the 1980s, while others such as Hill (2002) suggest those born between 1977 and 1995. Alternatively, Schiffman et al. (2012) have suggested those born between 1978 and 1994. However, they are believed to have gained an optimistic outlook from their upbringing and are generally confident, sometimes excessively so. They use modern means of communication daily, they have access to a large amount of information which they are adept at selecting and evaluating, a trait which often makes them critical of advertising. They prefer investing in experiences rather than buying goods, interested in exploring and experimenting, and are patient with older generations who do not know how to use technology (Bergh and Behrer 2012, Smolko 2019). Given their age and socio-economic characteristics, these consumers can be considered as the main actors in the contemporary purchasing process. Individuals from this generation show an increased tendency towards individualistic behaviour, childless families, cohabitation and careerism, enjoying characteristically higher incomes and economic welfare in comparison with other generations of consumers, a fact which also affects their lifestyle and increases their consumption patterns. Generation Y consumers are often characterized as pragmatic, socially and environmentally aware and open to new experiences (Schiffman et al. 2012).

Generation “Z” are the first generation of 21<sup>st</sup> century consumers, born between 1996 and 2012 (Hill 2002) or after either 1994 or 2000 (Kita et al. 2021). They are often termed as “digital natives” or “the Internet generation” due to the fact that they spend much of their lives online (Kita et al. 2021). They differ from earlier generations in that they are primarily used to electronic communication, often displaying some difficulties with face-to-face contact. They are extremely self-confident, often bordering on arrogant; convinced that they know everything, and that they have seen and heard everything, yet lack basic skills and experience. They share their thoughts and opinions “with the whole world”. In the context of shopping, they are not yet strictly profiled; products that are not available on the Internet effectively do not exist for them (Smolka 2019).

Europe underwent drastic and specific changes in the post-war years that differed from those undergone by equivalent generations in the United States. The classical Western division of generations is not entirely applicable in the Central European context and therefore in-depth analysis has attempted to clarify intergenerational differences and also to determine features unique to individual countries on the European continent. According to Smolka (2019), in addition to basic classification of generations, several transitional generations or intergenerations can be identified in the Czechoslovak or Slovak context. One example of this difference would be that of the “Pre-boomers” generation which is the population that was born before 1946. These are current pensioners whose chronological age no longer necessarily matches up with their cognitive age (Schiffman et al. 2012).

The “Baby Boomers” generation is a large group of the population who were born immediately after World War II at a time of economic prosperity and growth and who had grown up in a period of dramatic changes. In Czechoslovakia, however, this was a generation that “built socialism” and only began to “discover” market relations and their functioning after 1989. As little research has been focused on this generation to date, any description of the consumer behaviour of this generation is usually generalized as if the specific features of their development had not occurred. Once members of this generation have established certain preferences, they are often loyal to “their” products and brands. They show a preference for domestic brands and products, often valuing their own experience over those of others, only trusting recommendations from their family and relatives. They are frugal and do not like to invest in the unknown (Smolka 2019). Currently, the market share of this

generation of consumers is growing in many countries and will continue to do so in the coming decades. Their consumption patterns are determined by comfort and safety or by the terms “healthy” or “affordable” (Solomon et al. 2016, 455-457).

The generation of “Husák’s children” are the product of a population boom which occurred in Czechoslovakia during the period of the so-called “Normalization” between 1974 and 1979, gaining its name from the head of state in this period, President Gustav Husák (Strategie 2015 as cited by Smolka 2019). Members of the generation of “Husák’s children” were raised to believe that their lives should have a certain, prescribed order; it was seen as necessary to finish school, get an education, find a job, start a family and get a house. Due to this upbringing, there is a sharp difference between the “Husák’s children” generation and the subsequent Generation “Y” or “Millennials” who are no longer so strictly guided and bound by these values (Smolka 2019). The “Husák’s children” generation is considered hardworking, adaptable and often a dynamic, continually reassessing what is possible or desirable and what is not. The importance of this generation for marketing purposes lies in their unrivalled position as the most solvent generation. They typically choose work over fun but like to buy products according to their own style with a marked preference for branded products, albeit price-consciously.

The “Millennial” generation is not an easy phenomenon to categorise because, again, it has not been clearly defined. The generation is mostly comprised of members of the “Y” generation and also, to a lesser extent, the “Z” generation. While they are generally considered as people born between 1980 and 1999, “Millennials” tend to deviate slightly from the classic characteristics of the “Y” and “Z” generations (WhatIs 2018 as cited by Smolka 2019). Millennials have an unflattering reputation among employers and companies, often seen as individualists who have issues with authority. They are often dissatisfied with their job and try to promote changes in the workplace, often in direct opposition to managerial policies. However, “Millennials” are a generation that have grown up with technology and who show a remarkable ability to adapt quickly to new technological developments. From the perspective of marketing and consumer behaviour, “Millennials” are comfortable with spending more for quality products and are often termed “brand-aware”. Online shopping is considered normal and they are knowledgeable in their evaluations of online retailers. They are often educated young people who may have difficulty finding work that would be suitable for them, mainly due to their high demands. They do not like to be tied down and often start families later than previous generations.

The “Millennial” generation is followed by the “Snowflake” generation, individuals who were born after 2001. The term “snowflake” can be used as a derogatory term to refer to mollycoddled children for whom nothing is good enough, but the name given to the generation in fact refers to their originality and individuality, as every snowflake is unique and unrepeatable. The representatives of this generation are described by some authors as overly sensitive and self-centred (Kroc and Přinosilová 2017 as cited by Smolka 2019); they are usually school-aged and their teachers describe them as impatient and unable to handle criticism. Other authors describe a generation of extremely demanding rebels who are dissatisfied with everything and who like to criticize everything. However, identifying the preferences of “Snowflakes” is highly important for companies, who are beginning to realize that this new generation may not desire what previous generations did and will have different preferences and needs.

The generation of people born after 2010 is referred to as the “Alpha” Generation, a group who have always lived in the wake of the technological boom that brought about computers, the Internet, game consoles, Wi-Fi, mobile phones and digital media. It is assumed that the “Alpha” generation will be fully immersed in the use of technology and will not be able to

imagine their lives without them. It is possible that it will merge with the generation of “Snowflakes” but also that it will have its own characteristics and patterns of behaviour (Smolka 2019). According to Nagy and Kölcsey (2017) The “Alpha” Generation is very similar to Generation Z in terms of their familiarity with technology, with both groups unaware of a world without the Internet, with most of them skilled in the use of smart devices from a very young age, while YouTube and Instagram have a greater influence on them than television. These generations also have different learning patterns which will require the development of new teaching methods with an increased focus on rapid information gathering and multitasking.

#### **4.5 Current shopping trends in Slovakia**

At the end of January 2018, research into the shopping behaviour of Slovak consumers was carried out by the Institute of Sociology of the Slovak Academy of Sciences in the form of personal surveys. The sample consisted of 1012 respondents representing the population of the Slovak Republic over the age of 18 in terms of gender, age, education, nationality, municipal category and region. The field data collection was carried out by the FOCUS agency. According to the survey, Slovak consumers primarily shop in large retail stores such as hypermarkets and shopping centres (42%) and supermarkets (34.2%); in total, more than three quarters (76.2%) of all consumers regularly shopping in these types of retail units. In this context, it should be noted that the history of Western companies has shown that large department stores and shopping malls have had a major influence on the emergence and expansion of consumer societies and consumer culture. These types of retail outlets offer sufficient possibilities of choice and range of goods, which is understood as a feature of consumer freedom typical of consumer culture. The number of respondents to the survey who reported shopping in smaller self-service shops is significantly smaller, with only around every sixth respondent shopping in them (14.3%). Even less popular are smaller over-the-counter shops, in which only 3.8% of consumers shop. Online stores (0.5%) and marketplaces (0.2%) had a completely marginal position in terms of purchasing food, drugstore articles and other everyday consumer goods in 2018. Approximately 5% of respondents do not buy in person, with others shopping for them. Hypermarkets and shopping centres tended to appeal to a younger clientele, with 64% of the 25-34 age group and 51% of the 35-44 age group reporting shopping in these locations, with the first age group in particular representing a generation of who have already been born into a society in which large shopping centres are a part of everyday life. This generational aspect is also important because it is the younger generation that is most often the carrier of social change, and it is therefore predictable that it was this generation that was the first to adopt an accelerated consumer culture. The majority of respondents with a university degree (58.9%) and respondents living in cities with more than 100,000 inhabitants (54%) and in the Bratislava Region (65%) also displayed a preference for shopping in large stores which can be expected to offer a wider range of goods. At the same time, this growing preference for shopping in large stores in Slovak society may indicate why the representatives of consumer cooperatives and small traders were among the first to call for a ban on Sunday sales at the beginning of the millennium (Búzik and Zeman 2020).

As for marketers, the geographical perspective is also highly important for psychologists or sociologists researching consumer shopping behaviour. Within the geography of Slovak retail and consumption, attention is often focused on consumer shopping behaviour in terms of location, either in the analysis of the urban environment (e.g. Križan et al. 2015, Mitríková 2017, Trembošová et al. 2016) or, more rarely, of the rural environment (Bilková et al. 2017).

One topic connected to this field of study is that of dual food quality, with politicians beginning to pay considerable attention in an effort to ensure that products sold in the European Union's retail market are standardised in terms of quality. In this context, the topic of cross-border shopping can be considered relevant, but this issue has not been widely discussed in Slovak geography to date (Civáň and Krogmann 2012), although the phenomenon of the more widespread development of cross-border shopping by Slovak consumers can be traced back more than a quarter of a century (Williams et al. 2001). At the same time, it can be stated that the problem of cross-border shopping of Slovak consumers has not gone unnoticed by experts from other scientific disciplines such as Baláž 2006, Baláž and Williams 2005, Williams and Baláž 2002, Williams et al. 2001). Studies seem to suggest that consumers from Slovakia spend a third more on purchases in Austria than on purchases in Slovakia, indicating that Slovak consumers have different shopping behaviour or preferences in the two countries. This to some extent refutes the findings of Kovács (2011) who analysed cross-border shopping in the Slovak-Hungarian border area but generally confirms the specific shopping behaviour of Slovak consumers in spending more money on purchases abroad than was the case for consumers from the other side of the border, thereby creating a negative balance of cross-border purchases for Slovak retail (cf. Civáň and Krogman 2012, Kovács 2011, Sikos and Kovács 2008, Tömöri 2010). A survey carried out by Jarossova (2015) shows that few consumers buy food from local producers, possibly due to relatively low share of Slovak products in some retail chains whose shelves are dominated by food from Poland, the Czech Republic, Hungary, Spain and other countries. Slovak consumers are more likely to buy food in retail chains (supermarkets or hypermarkets), and less likely to purchase from local producers or smaller private entrepreneurs.

#### **4.5.1 E-commerce and consumer behaviour in the online environment**

Retail shops have a long tradition all around the world, with specific traditions and customs developing since the earliest days of retail trade when the exchange business was still in a primitive form. Over time, the retail store has undergone continual improvement, and nowadays, retail stores are found all over the world. One major development, however, has been the emergence of online shopping which allows us to purchase goods from the comfort of our homes, saving time and offering the delivery of a wide range of assortment directly to our front door. Internet shopping originally focussed on the sale of goods such as clothing, books, electronics, but it has also recently expanded into food retail. As much research has confirmed, online social networks also have a significant impact on consumers' purchase decisions (Britchento 2001; Hasan 2019).

The concept of electronic commerce (e-commerce) is often identified with the concept of electronic business (e-business), but this is not entirely correct from a factual point of view.

- E-commerce usually refers to the purchase and sale of goods and services through the use of information technologies. This term often refers only to the very act of purchasing goods by customers, but it involves much more than the mere execution of transactions between companies and consumers. We define e-commerce as all monetary and non-monetary interactions performed between companies and all other parties involved in the buying process. According to this definition, transactions can thus be non-financial in nature and the provision of information to customers is also included in the concept (Hasan and Uhrín 2020).
- Electronic business is a complex interconnection of a company's business activities with customers, suppliers, partners and employees through information technologies. This means the use of the Internet for the purpose of ensuring all

aspects of a company's business activities (Chaffey 2007, 8 as cited by Hasan and Uhrín 2020). Electronic business is the innovative use of Internet technologies to increase the efficiency of business processes, minimizing costs and maximizing profits. The Internet allows companies to communicate with partners, sellers and customers in a simpler way (Hasan and Uhrín 2020).

According to Bystrická (2013), e-commerce is a subset of e-business. Electronic commerce can generally be spoken of when any information and communication technologies are used in order to carry out mutually beneficial transactions between a seller and a buyer (Bystrická 2013). The implementation of an information system into business processes or the creation of an information infrastructure does not mean that it is exclusively a question of electronic commerce. A company can only be included in this category when it communicates with customers mainly through information and communication technologies, which can also be used by the implemented information system (Laudon and Traver 2016, Horváth and Bačík 2020).

In a simplified way, e-commerce is defined as the purchase, sale or exchange of business information, money, goods or services through the Internet or through fixed or mobile networks. E-commerce can be carried out in two ways (Kristová 2006, 90 as cited by Hasan and Uhrín 2020):

- Indirect e-commerce which is understood as the use of information technologies to order goods and services that cannot be distributed to consumers in electronic form. This can include, for example, various consumer goods or travel agency products.
- Direct e-commerce in which all steps of the purchasing process are performed through the Internet. A consumer can order selected goods which will be delivered to them in electronic form after payment. There will be no physical contact between a seller and a customer. Direct e-commerce is typical for purchases of products such as, for example, software, music or e-books which can be provided entirely in electronic form.

Companies invest in information technologies and e-commerce in order to increase the efficiency of their operations and improve their services to customers. It is typical to prefix the names of activities which takes place through the Internet with the letter “e” (as electronic), coining phrases such as e-business (electronic business), a term which is usually understood as a broader concept than e-commerce (Blažková 2005). Electronic commerce (or e-commerce) is a business that is implemented in an online environment, with the Internet serving as the single platform that connects sellers and buyers (Tan 2013). According to Ullman (2013), e-commerce represents the entire range of possible commercial transactions which can be performed online, and also includes any website that is intended to generate revenue. Qin (2010) defines e-commerce as social and economic activities conducted between participants using computer equipment and the Internet, but the rapid spread of mobile devices and their use in commercial purposes has rendered this description obsolete in its original wording. Minculete (2013) states that e-commerce and e-business are losing the letter “e” because the use of e-commerce technologies is increasing in companies and these technologies are becoming a common part of marketing activities. The main tool used in e-commerce is an e-shop, a retail outlet which operates exclusively online (Beynon-Davies 2012 as cited by Kakalejčík 2015).

Online shopping has gone hand in hand with the rise of the Internet. In the early 1990s, companies began to use the Internet for promotional purposes and for making contact with customers, primarily in terms of conveying product presentations, company information, contacts and manuals. The first online shops as we know them today began to emerge in 1994 as companies slowly began to realize the potential of the Internet to connect with



millions of people around the world. Encryption technologies which ensured the transmission of credit card data was an essential component of the development of electronic shopping. Since then, server technologies have evolved, enabling the creation of e-shops which can offer several thousand products. The greater the range of products offered on the Internet, the higher the number of visitors to Internet portals (Tomek and Vávrová, 2011).

Williams et al. (2006) note that while consumers continue to shop in brick-and-mortar stores, they appreciate the convenience of shopping online because they do not have to visit large stores in person. They add that shopping online saves the time and energy of consumers when shopping for the commodities in which they are interested. In the case of online shopping, purchases can be made simply and securely from the comfort of home. Online shopping is an extremely useful means of satisfying the needs and desires of consumers, and a study by Brown et al. (2003 as cited by Oleárová 2020) confirms that the Internet allows consumers to make more sensible decisions in a way that is not possible in the traditional shopping experience.

The world is “currently experiencing a digital boom that is also manifesting itself in the field of commerce, where the shift of business to the Internet platform is evident. E-commerce [... includes] not only online shopping, but also several other processes such as creating appropriate promotions, buying and selling various goods, but also [carrying out] public relations” (Hasan 2019). E-commerce offers distinct advantages to vendors, allowing them to pursue business opportunities without requiring investment into a bricks-and-mortar shop, but it also benefits to customers by allowing direct contact between the seller and the buyer through electronic systems without the need for personal communication, and also ensures lower prices, more efficient shopping experience and access to a wider range of products (Hasan 2019).

Methods of payment are, of course, a crucial issue in e-commerce. As online shopping has become more popular, a large number of possible means of payment have been developed, including the digital use of credit cards and debit cards, smart cards, e-wallets or online bank transfers, all of which are becoming more widely used for e-commerce transactions. Online payments or e-payments are initiated, processed and received electronically through the Internet (Kunešová and Eger 2017).

Electronic commerce has brought about a revolution in business practices (Ohidujjaman et al. 2013). Khan and Mahapatra (2009) argue that the agricultural and industrial revolutions of the eighteenth and nineteenth centuries have been followed by a third revolutionary economic wave with the advent of the Internet, and that that information technologies can play an important role in the development and improvement of services across all business sectors. The e-commerce SWOT analysis performed by Awais and Samin (2012) highlights the ubiquity, low operating costs, improved customer interaction and time savings as unique strengths of e-commerce. The ubiquitous nature of the Internet has allowed e-commerce to overcome geographical boundaries and penetrate into different markets, moving on to generate demand for suburban and rural areas after successfully realizing its potential in metropolitan cities. In light of the growing number of websites offering similar goods and services, an increasing importance is being attached to internet marketing, which will not only promote e-commerce but also emerge as an important tool in promoting bricks-and-mortar shops (Gangeshwer 2013).

By 2019, 3.5 million Slovaks were regularly online, with people between the ages of 25 and 44 with a secondary education the most common users. Slovak men typically spend more time online than women by an average of one hour and sixteen minutes per day and also accessed 18% more web pages than women. Slovak customers spent €1.36 billion on domestic online stores in 2019, and the interannual growth of sales in e-shops increased by

20% in 2020. The Christmas season, which opens in mid-November with Black Friday sales, is typically the most intensive shopping season in traditional retail, but e-commerce reaches the highest numbers in the second week of December, when buyers usually have the last chance to make purchases with guaranteed delivery by Christmas Day (Heureka 2020). During this period, the traffic of Slovak websites was mostly generated directly from links from social networks, either organic or promoted posts on Facebook and Instagram (IAB Slovakia 2020).

Based on the survey in which 962 respondents belonging to Generation Y took part, Horváth and Bačík (2020) suggest that representatives of Generation Y buy goods and services online several times over the course of the year. Based on the average or median values, the items most frequently bought online were clothes and jewellery, services such as cinema tickets, holidays or tickets for cultural events, travel tickets or cosmetics and perfumes, while the least frequently purchased products included lottery tickets, automobile products, music, PCs and insurance. The lowest variability, i.e. the smallest difference within the specific answers, was recorded for automobile products, lottery and betting items, with the purchase of travel tickets, food and groceries, cosmetics and perfumes showing the highest variability.

### ***Social networks and e-commerce***

New trends in marketing communication which have emerged in recent years are directly connected with the Internet. The Internet age has given rise to new types of retailers who operate their business mainly online through websites and e-shops, without the need for the traditional presence in the market in the form of brick-and-mortar stores. More traditional retailers have become aware of this competitive struggle, and thus many brick-and-mortar companies have expanded their activities to include e-marketing, being termed hybrid companies within their field (Kotler and Keller 2007). Social networks and social media have now emerged as a significant phenomenon because they represent the possibility of mutual communication between retailer and customer and also between customers. Although they are not a place of purchase, communities on these networks interact with and influence each other, and their importance can be expected to grow further in the future (Vysekalová et al. 2012).

Marketers need to be where their customers and potential customers are, and in the modern day consumers are more likely to be found on the Internet and social networking sites. Sites like Facebook have hundreds of millions of active users from all continents and they spend a collective total of 2.6 billion minutes on Facebook every day. Social networks are emerging as a powerful and sophisticated new type of marketing channel which allows marketing approaches which are more precise, personal and social. Social networks give marketers new campaigning capabilities through exploiting users' profile information, engaging community members by drawing on social capital within groups of friends, and systematically refining marketing with personal recommendations across existing customer bases (Shih 2010). Social networks have become a phenomenon of our age to which many people are now addicted; an integral part of our lives, a topic that affects us every single day. A social network can be understood as a set of relationships at the social level which also operate between the individual elements, or users, of the network. Their potential marketing use is vast because they gather together a huge share of consumers or potential customers, which on the one hand offers marketers the possibility of direct marketing or brand building, but on the other hand, provides them with a large amount of information about their clientele (Scott 2010).

However, many retailers have struggled to adapt to the new environment of social media.

One serious mistake that retailers make is to use social media to talk about what they consider is important to them rather than talking about what is important to the customer. Retailers should provide content that is relevant to their customers and always remain aware of the necessity of customer feedback which contributes to the elimination of deficiencies on the side of the retailer (Hudson 2019 as cited by Nastišin 2020).

#### **4.5.2 Changes in consumer behaviour during the corona crisis**

Consumer behaviour is not fixed and ongoing, and it can undergo processes of transformation. These changes can be influenced by internal factors, such as age or income, or by external factors, such as an economic crisis or the opening of a new store. The COVID-19 pandemic has been one of the most significant external factors shaping consumer behaviour in recent years. The various consequences of the pandemic have changed the course of our society, with the familiar world to which we have become accustomed to being changed in virtually every respect, day by day and wave by wave. Retail outlets with the exception of groceries were closed, and the majority of services could only operate to a restricted degree, so it is unsurprising that this has had a significant impact on consumer behaviour (Križan et al. 2020).

The coronavirus pandemic has seriously disrupted and changed business conditions and the structure and volume of services around the world and e-commerce is no exception to this, although at first glance it might seem that it has been and will be less severely affected than some other areas. Many businesses in China, Europe or the USA have come to a complete halt, and while e-commerce continues to operate, its operation has been affected by the impact of the pandemic in other ways (Britchenko 2020; Sikandar 2020).

While uncertainty surrounding the continuing course of COVID-19 persists around the world, its impact is felt differently in each country. As a result, there are significant differences in how consumers have responded to the crisis and adapted to the “new normal” (McKinsey 2020).

According to Valassis (2020), a marketing company which conducted a survey with a sample of 1,000 adult consumers in the USA on 16 March 2020, half of the respondents stated that they had changed their behaviour concerning online shopping during the COVID-19 pandemic. The survey showed that 42% of consumers shopped more through the Internet, with only 8% of consumers shopping less online than before the pandemic. Among other things, the survey revealed that the pandemic has forced some consumers to increase their use of delivery services. 14% of respondents answered that they had used food ordering and home delivery for the first time due to the pandemic, and 13% of respondents answered that they had increased the frequency of their online food purchases. Almost a third of respondents had not yet used the alternative of food delivery to their home but were considering doing so. The company also examined the situation of delivering prepared meals from restaurants. According to the survey, 10% of respondents had used this service for the first time due to the pandemic and 14% of respondents ordered food more often through the Internet than before. As many as 27% of respondents had not used food delivery service but were considering doing so.

According to Taylor (2020) “while the surge in e-Commerce ordering drives more immediate revenue for retailers, it puts added pressure on the supply chain. Amazon has already had to ban the acceptance of non-essential items from retailers in its U.S. and UK headquarters to prioritize high-demand products and medical supplies, and there have been reports that some deliveries of Amazon Prime have been delayed by up to a month. Given that most other retailers don’t have the robust supply chain and fulfillment networks that Amazon does, it’s likely that many are feeling stretched thin with delays of their own.”

A report by Listrak (2020) even recorded a 40% jump in e-commerce sales during the pandemic period. According to MediaRadar (2020), e-commerce websites in the United States have responded to this fact by doubling their advertising spending in less than a month, from \$ 4.8 million in the week of February 17 to \$ 9.6 million in the week of March 9.

According to a March survey by the retail analysts First Insight (2020), most US consumers (66%) fear the spread of the disease and more than two-fifths (44%) of shoppers say these concerns have already influenced their purchasing decisions. Almost one third (30%) said they already shop less regularly in brick-and-mortar stores, and one fifth (21%) said they prefer e-commerce when shopping. Consumers are also seeking out modern retail solutions. In their increasing dependence on online shopping, they also use the “buy online, pick-up in store” method to mitigate the risks associated with in-person shopping. More than a quarter (29%) of respondents to the First Insight survey said that they used online shopping services to deliver products to their homes, while up to 18% of consumers said they preferred curbside pickup. This survey also revealed other interesting findings about how the pandemic situation had changed consumer behaviour. Nearly half (49%) of all respondents expressed concerns about receiving clothes or other products that had been produced in affected areas or from the initial source of the outbreak, China. If consumers are changing their online shopping behaviour due to the pandemic, the current period can be expected to make a significant contribution to the growth and development of e-commerce. Today more than ever, businesses are realizing the importance of a strong digital presence, and e-commerce habits tend to develop during periods of intense activity. The results published by various companies and research agencies and presented above have proactively mapped the current situation. However, the situation continues to change every week and therefore it will be interesting to monitor the global impact of the COVID-19 pandemic on e-commerce over time, or whether the intensity of the impact will be similar in individual countries (Oleárová 2020).

The EY Future Consumer Index (Rogers 2020) identifies four different customer segments in their examination of the impact of the pandemic on consumer spending. The “hibernate and spend” segment is deeply concerned about the impact of the pandemic but essentially maintains their pre-Covid shopping habits and continues to value brands. The “cut deep” category of consumers are mostly older than 45 and are thus in danger of losing their jobs. A great majority of them shops less frequently and only purchases essential supplies with little regard for brands. While the segment labelled “save and stockpile” has cut their spending on leisure and clothing, these stockpiling “hamsters” are concerned about their families and the long-term effects of the pandemic and go on grocery shopping sprees in order to ensure that they have enough essentials for the year to come. The “stay calm, carry on” segment tries to continue in their pre-Covid consumer behaviour and lead their lives unchanged. If “stay calm, carry on” consumers are worried about anything, then it is the stockpiling and unusual behaviours of others (Štrach 2020).

A more recent study by the same company entitled “EY Future Consumer Index: Five consumer segments will emerge beyond COVID-19” (Rogers examines five new customer segments which organizations will need to engage beyond COVID-19. Each segment reflects different ways in which people expect to live their lives, how they make decisions and what they really care about. Rogers (2020) state that “two of these segments highlight the way that many consumers will focus on living within their means and looking after their health, and the health of their families (“affordability first” and “health first”). Another two point to the way some consumers will make their environmental and social concerns central to their lives (“planet first” and “society first”). And the final one identifies the consumers

who will focus on living in the moment and getting the most from every experience (“Experience first”). “Affordability first” is the most numerous of the future segments; it represents 30% of consumers whose priority is to live within their means, who avoid buying things they do not really need and when they have to buy anything and who search for the best deals. “Health first” represents the second biggest segment, accounting for 26% of consumers worldwide. “Planet first” consists of 17% of consumers who are fully conscious of the impact of their consumption decisions on the world around them. “Society first” refers to 16% of consumers who believe that everyone should work together for the common good and who focus their attention on the social impact of what they buy and consume, buying from organizations that are honest and transparent about their activities (Rogers 2020).

McKinsey has also identified five trends in consumer behaviour: digital and online shopping; the evaporation of loyalty as many consumers switch brands at an unprecedented rate; a rise in health and safety concerns; a renewed interest in value for money; and the emergence of the homebody economy (McKinsey 2020).

Jucha and Čorejová (2020) examined secondary sources available on the internet and reported an increase in the number of customers shopping online or changes in the structure of sales and thus changes in demand in the e-commerce sector during the course of the Covid pandemic in some countries, especially in the USA, Italy, Spain and Germany. Among EU countries, their research focused on Italy and Spain because these were the countries most affected by the coronavirus pandemic in the EU in 2020, while Germany drew their attention due to its position as one of the largest e-commerce markets in the world.

The results of their research show that US food consumers started to buy meat and seafood online, with these products seeing an increase in online sales of up to 173% in comparison to the previous year. Other food products, such as dairy, cheese and eggs, saw smaller increases but their online sales still rose by 36%. This suggests that customers buy food with the longest shelf life online, meaning that they are less likely to buy regular food products with shorter shelf lives less often online. The increased online purchase of food was probably due to the fact that US inhabitants were less likely to visit brick-and-mortar shops during the coronavirus pandemic. Among other things, there was a significant increase in the purchase of air cleaners, with an increase of up to 74%. This is probably related to growing consumer concern about health issues in the shadow of the pandemic (Macdonald 2020 as cited by Jucha and Čorejová 2020).

In the case of both Italy and Spain, a significant change was noted in online sales of sports products. This had ranked fifth in the list of top product categories purchased through e-commerce in 2019, lagging behind clothes, electronics, books, cosmetics and furniture. However, sports goods saw the largest increase in online sales in both countries during the coronavirus pandemic in 2020, a 236% increase in Italy and a 191% increase in Spain. Both Spaniards and Italians are known for their active lifestyles and it seems likely that not even the pandemic could dampen their enthusiasm in this regard (Hoeijmans 2020, Jucha and Čorejová 2020).

The large increase in sales of toys and board games in Germany is an interesting trend which is probably the result of quarantine measures and changes in the ways in which families spend their leisure time. In comparison, toys were among the product categories least ordered through e-commerce in 2019 (E-commerce in Europe 2019).

Križan et al. (2020) compared surveys of panic shopping in food retail conducted by Hall et al. (2020) and Ben Hassen et al. (2020) and Jeżewska-Zychowicz et al. (2020), observing some countries did not record panic shopping behaviour or stockpiling of food or drugstore goods. In Slovakia, however, panic buying was a marked feature of the early stages of the Covid pandemic. According to Karel Týra, the CEO of Nielsen Slovakia in the Czech and

Slovak Republics, the first most significant turnaround in consumer behaviour occurred in Slovakia “in the 11<sup>th</sup> week of 2020 (i.e. from 9 to 15 March 2020), when sales of food and drugstore goods jumped upwards, by more than 30% compared to the previous year. That week was exceptional with its dramatic leap and record turnovers. For retailers, it was the second most successful week of the year after the pre-Christmas third week of December. Even sales in the 2019 or 2018 pre-Easter week, which tend to be the second strongest period without exception, did not reach the turnover of the 11<sup>th</sup> week of 2020. The market of Slovak hypermarkets and supermarkets recorded a 28% increase in turnover in that period. However, a much more dynamic pace of growth was observed in the networks of drugstores, which had managed to maintain a faster growth rate for a long period of time. During the pandemic, this overall trend of increasing in their importance was confirmed and in the 11<sup>th</sup> week of that year they managed to increase their turnover up to twice as fast as was the turnover of food chains, i.e. by 57% compared to last year” (FMCG & RETAIL 2020).

**Figure 16 Nielsen six consumer behaviour thresholds of COVID-19 concern**

#1 PROACTIVE HEALTH-MINDED BUYING	#2 REACTIVE HEALTH MANAGEMENT	#3 PANTRY PREPARATION
<b>CONSUMER BEHAVIOR SHIFTS</b>		
Interest rises in products that support overall maintenance of health and wellness.	Prioritize products essential to virus containment, health and public safety. E.g. face masks	Pantry stockpiling of shelf-stable foods and a broader assortment of health-safety products; spike in store visits; growing basket sizes.
<b>COMMON COVID-19 EVENT MARKERS</b>		
Minimal localized cases of COVID-19 generally linked to an arrival from another infected country.	Government launches health and safety campaign. Local transmission and / or first COVID-19 related death(s).	Small quarantines begin; borders close more broadly. Often represented by accelerating cases of COVID-19, but not necessarily by deaths.
#4 QUARANTINED LIVING PREPARATION	#5 RESTRICTED LIVING	#6 LIVING A NEW NORMAL
<b>CONSUMER BEHAVIOR SHIFTS</b>		
Increased online shopping, a decline in store visits, rising out-of-stocks, strains on the supply chain.	Severely restricted shopping trips, online fulfillment is limited, price concerns rise as limited stock availability impacts pricing in some cases.	People return to daily routines (work, school, etc.) but operate with a renewed cautiousness about health. Permanent shifts in supply chain, the use of e-commerce and hygiene practices.
<b>COMMON COVID-19 EVENT MARKERS</b>		
Localized COVID-19 emergency actions. Restrictions against large gatherings; schools and public places close down. Percentage of people diagnosed continues to increase.	Mass cases of COVID-19. Communities ordered into lockdown. Restaurant closures, restrictions on small gatherings.	COVID-19 quarantines lift beyond region/country's most-affected hotspots and life starts to return to normal.

NOTE: These represent TYPICAL markers of these stages but are not always consistent, especially with number of cases or deaths

Source: CPG, FMCG and RETAIL (2020)

If we compare sales for the three weeks from the beginning of the shopping spree, i.e. from the 9<sup>th</sup> to 11<sup>th</sup> week of 2020, the fastest-growing categories include hand disinfectants, the sales of which increased by almost 560%, laundry disinfectants with a sales increase of more than 530%, and wet wipes with a sales increase of 443% compared to the same three-week period in 2019. The turnover of household disinfectants increased by 335%, liquid soaps by 255% and standard toilet soaps by 175%. Slovaks also bought baking ingredients in much higher quantities (an increase in turnover of 233%) and empty shelves of toilet paper were a regular sight as these products rapidly sold out. Turnover of toilet paper doubled in this period, with toilet paper standing out as one of the best-selling goods during those three weeks (FMCG & RETAIL 2020).

Nielsen defined six key threshold levels of consumer behaviour that are directly related to the new COVID-19 pandemic concerns – from the first stages, when the first information about Covid-19 trickled out leading to a stockpiling of medicines, to the later stages of the return to the normal pre-pandemic life. Their findings showed that Slovakia was in the fourth stage by March 2020, that in which consumers had already made their initial purchases of supplies and had started to shop online to a greater extent (FMCG & RETAIL 2020).

In the spring of 2020 people filled their shopping baskets with long-life food. Sales of rice increased by 220%, pulses by 186%, flour by 172%, granulated sugar by 158% and pasta by 150%. The entire group of non-alcoholic beverages, which recorded an overall year-on-year growth by 16% during the abovementioned three-week period, were also the focus of consumers. However, Slovaks were reluctant to supply alcoholic beverages, the turnover of which increased by only a moderate 5%, a growth rate much slower than that of their Czech neighbours, whose spending on alcohol increased by 14% in comparison with the previous year. Slovaks also spent a fifth more on fresh food and around a tenth more on sweets. They also stockpiled for their pets, spending 17% more on dog and cat food than the previous year. Although online food sales have played a less important role in Slovakia, consumers are more interested in the possibility of e-commerce and also have more opportunities to buy through the e-shops than in the past. Even those who were not enthusiastic about technology before the pandemic are now less likely perceive barriers when trying to use new online shopping possibilities (FMCG and RETAIL 2020). In general, after an initial sharp increase in expenditure in retail (as frontloading or panic buying took hold), there was a general decrease in expenditure in retail trade and services (Baker et al. 2020 as cited by Križan et al. 2020a). Grashuis et al. (2020 as cited by Križan 2020) concluded that the COVID-19 pandemic has brought about significant differences in food purchase preferences. When the virus is spreading, consumers are generally less willing to shop in grocery stores but also change their preferences towards food; we see a general move towards healthier diets, an increase in the consumption of local products due to food safety concerns, and changes in the way food is obtained, such as the increase in online food shopping for food. While online shopping in Slovakia during the COVID-19 pandemic has risen in general, online purchases from domestic retailers saw the greatest increase, while the turnover of foreign retailers decreased over the same period (Križan et al. 2020).

## **5 CASE STUDIES OF RETAIL IN SELECTED REGIONS OF SLOVAKIA BASED ON RESEARCH AND FIELD WORK**

This subchapter focuses on an analysis of selected macroeconomic indicators and their interaction on the networks of large-scale retail companies (defined as firms with twenty or more employees) in Slovakia and in selected regions. Various metrics are investigated in order to define the size of sales areas in the Slovak retail sector and their capacities.

## 5.1 Analysis of selected macroeconomic indicators in the Slovak retail network

### Service parameter.

The service parameter determines the number of inhabitants per retail employee, and the figures on this metric for different regions of Slovakia between 2009 and 2019 are shown in Table 4. The results show that the service parameter in Bratislava region is markedly different than in other regions of Slovakia, with 7.8 times more inhabitants per retail employee on average than in Bratislava region in 2009 and 9.1 times more in 2019. The east Slovak regions of Košice and Prešov showed the highest service parameters in 2009, followed in third place by Nitra, with 8 to 12 times more inhabitants per retail employee than in Bratislava region. The remaining four regions displayed from 5 to 7 times more inhabitants per retail employee than in Bratislava region. 2012 appeared to be a year of stagnation for Trnava region, with a 94.28% decrease in increase rate, while the highest increase rate in comparison with other regions in this year was recorded for Bratislava region, with a value of 7.71%.

The table shows that almost none of the regions recorded a year-on-year increase in the increase rate exceeding 10%. Of the exceptions, Trenčín region showed a significant increase in the increase rate of 13.77% in 2013. The highest year-on-year increase in the increase rate was noted for Prešov region, with a 25.02% increase in 2019. In this year, Banská Bystrica region saw a 38.70% decrease and Košice a 24.26% decrease, with both regions remaining furthest from Bratislava in terms of increase rate. In absolute numbers, the regions of Košice, Trenčín and Banská Bystrica region recorded the greatest differences from the service parameter in Bratislava region. Trnava region recorded the second lowest service parameter in 2019 with a value of 89.2%, but it nonetheless remained six times higher than the service parameter in Bratislava region.

The greatest relative changes over the course of the decade were recorded for Trenčín region with increases of 34.12%, followed by Nitra region at 33.92% and Prešov region at 30.12%. As can be seen from the data, all regions diverge significantly from Bratislava region in terms of this metric.

**Table 4 Service parameters in individual regions of Slovakia**

YEAR / REGION		BA	TT	TN	NR	ZA	BB	PO	KE
2019	SP-	14.7	89.2	148.4	125.4	93.5	136.7	115.7	230.5
	Increase rate in %	-2.86	1.21	-2.40	0.46	2.28	-38.70	25.02	-24.26
2018	SP	14.3	90.3	144.9	126.0	95.7	98.5	154.3	185.5
	Increase rate in %	-0.20	10.14	-2.88	10.23	2.10	0.11	-20.02	6.35
	Ratio (region / region with the lowest SP)	1	6.3	10.1	8.8	6.7	6.9	10.8	12.9
2017	SP	14.3	100.4	140.9	140.4	97.8	98.6	128.6	198.1
	Increase rate in %	5.22	-0.06	6.61	-0.40	4.74	9.39	3.69	13.10
	Ratio (region / region with the lowest SP)	1	7.0	9.9	9.8	6.8	6.9	9.0	13.9
2016	SP	15.1	100.4	150.8	139.8	102.6	108.9	133.5	227.9
	Increase rate in %	0.95	5.87	6.47	5.64	3.79	1.88	0.51	6.45



	Ratio (region / region with the lowest SP)	1	6.7	10.0	9.3	6.8	7.2	8.8	15.1
2015	SP	15.2	106.6	161.3	148.2	106.7	110.9	134.2	243.7
	Increase rate in %	9.16	1.43	3.25	3.50	8.94	2.54	6.43	-8.90
	Ratio (region / region with the lowest SP)	1	7.0	10.6	9.7	7.0	7.3	8.8	16.0
2014	SP	16.8	108.2	166.7	143.2	117.2	113.8	143.4	223.7
	Increase rate in %	-1.59	8.70	10.47	-6.71	5.68	4.52	3.27	11.49
	Ratio (region / region with the lowest SP)	1	6.5	9.9	8.5	7.0	6.8	8.6	13.3
2013	SP	16.5	118.5	186.2	134.2	124.2	119.2	148.3	252.8
	Increase rate in %	2.89	1.32	13.77	11.03	-0.38	0.52	6.59	-8.67
	Ratio (region / region with the lowest SP)	1	7.2	11.3	8.1	7.5	7.2	9.0	15.3
2012	SP	17.0	120.1	215.9	150.8	123.7	119.8	158.7	232.6
	Increase rate in %	7.71	1.83	-94.28	6.42	-4.95	-5.94	1.88	-7.83
	Ratio (region / region with the lowest SP)	1	7.1	12.7	8.9	7.3	7.1	9.3	13.7
2011	SP	18.4	122.3	111.1	161.1	117.9	113.1	161.8	215.7
	Growth rate in %	x	x	9.77	13.94	1.67	-3.98	6.60	9.34
	Ratio (region / region with the lowest SP)	1	6.6	6.0	8.7	6.4	6.1	8.8	11.7
2010	SP	x	x	123.2	187.2	119.9	108.8	173.2	238.0
	Increase rate in %	x	x	9.77	13.94	1.67	-3.98	6.60	9.34
	SP	19.8	135.3	116.8	189.8	112.4	107.0	165.6	255.4
2009	Ratio (region / region with the lowest)	1	6.8	5.9	9.6	5.7	5.4	8.4	12.9
	Increase rate in % (for the last 10 years)	25.65	34.12	-27.04	33.92	16.75	-27.69	30.12	9.72

Source: author's own calculations using data provided by the Statistical Office of the Slovak Republic; Key: SP – service parameter; BA – Bratislava region, TT – Trnava region, TN – Trenčín region, NR – Nitra region, ZA – Žilina region, BB – Banská Bystrica region, PO – Prešov region, KE – Košice region

### Area parameter.

The area parameter refers to the retail floor area per thousand inhabitants, or per capita. Table 5 outlines the figures for this metric for each set of thousand inhabitants in the regions of Slovakia between 2009 and 2019. The data shows that only Bratislava region recorded the highest value, with 2,295.2 m<sup>2</sup> per thousand inhabitants, while from the other regions only Trenčín region exceeded the area parameter of 373.5 m<sup>2</sup> per thousand inhabitants in 2009, with three regions, Košice, Nitra and Trnava, failing to reach the level of 200 m<sup>2</sup> per thousand inhabitants. These differences are even more apparent when compared to the

exceptionally high area parameter in Bratislava, with Prešov region only reaching 9.3% and Košice region only 5.7% of the level in Bratislava. In 2010, Trnava region broke through the 250 m<sup>2</sup> per thousand inhabitants area with an increase of 29.24%, but Žilina region recorded a 7.21% decrease in this year. A significant change can also be observed for Trenčín region in 2012, namely a decrease of almost 60% compared to the previous year, but the region saw a minor recovery of 15% in the following year. Prešov region also recorded a significant improvement in 2013 with a growth of 22.59%.

On the basis of the data collected during the course of the decade, we can state that all regions in Slovakia recorded progress, though with less significant increases in comparison with Bratislava region; however, all of the other regions remained below the level of 500 m<sup>2</sup> per thousand inhabitants, and Košice region even failed to exceed the level of 200 m<sup>2</sup> per thousand inhabitants for the entirety of the period. In contrast, Bratislava region had reached the level of 3,376,2 m<sup>2</sup> per thousand inhabitants by 2019, an increase of 47% since 2009. Trenčín region saw the largest decrease in area per thousand inhabitants across the decade, falling by more than 47%, but Trnava region recorded the largest increase of 135%, followed by Prešov region with 109.99%. As can be seen from the data, Bratislava region diverged very significantly from all other regions of Slovakia.

**Table 5 Area parameter per 1000 inhabitants in individual regions of Slovakia**

YEAR/ REGION		BA	TT	TN	NR	ZA	BB	PO	KE
2019	AP	3376.2	457.10	197.46	235.02	462.42	248.73	447.79	161.44
	Ratio (region /region with the highest AP)	1	0.14	0.06	0.07	0.14	0.07	0.13	0.05
2018	AP	3340.6	456.8	205.0	219.7	408.4	325.6	438.5	161.5
	Increase rate in %	2.16	10.24	0.96	8.20	14.74	6.86	0.42	-2.18
	Ratio (region /region with the highest AP)	1	0.14	0.06	0.07	0.12	0.10	0.13	0.05
2017	AP	3270.0	414.3	203.0	203.0	355.9	304.7	436.7	165.1
	Increase rate in %	-0.80	6.01	1.73	4.17	5.21	1.54	20.01	-4.62
	Ratio (region /region with the highest AP)	1	0.13	0.06	0.06	0.11	0.09	0.13	0.05
2016	AP	3296.3	390.8	199.6	194.9	338.3	300.0	363.9	173.1
	Increase rate in %	-0.93	4.82	0.64	6.57	1.15	12.22	12.42	8.63
	Ratio (region /region with the highest AP)	1	0.12	0.06	0.06	0.10	0.09	0.11	0.05
2015	AP	3327.4	372.9	198.3	182.9	334.4	267.4	323.7	159.4
	Increase rate in %	6.89	12.55	8.55	3.35	-4.48	3.08	3.28	15.65
	Ratio (region /region with the highest AP)	1	0.11	0.06	0.05	0.10	0.08	0.10	0.05
2014	AP	3112.9	331.3	182.7	176.9	350.1	259.4	313.4	137.8
	Increase rate in %	0.01	5.66	-0.51	2.12	18.29	2.08	-0.98	3.16
	Ratio (region /region with the highest AP)	1	0.11	0.06	0.06	0.11	0.08	0.10	0.04

2013	AP	3112.6	313.5	183.6	173.3	296.0	254.1	316.5	133.6
	Increase rate in %	2.14	3.11	15.96	-1.86	4.13	2.54	22.59	2.40
	Ratio (region /region with the highest AP)	1	0.10	0.06	0.06	0.10	0.08	0.10	0.04
2012	AP	3047.3	304.1	158.3	176.5	284.2	247.8	258.2	130.5
	Increase rate in %	13.03	1.87	-60.22	7.38	1.20	-3.30	12.39	2.67
	Ratio (region /region with the highest AP)	1	0.10	0.05	0.06	0.09	0.08	0.08	0.04
2011	AP	2696.0	298.5	398.0	164.4	280.9	256.2	229.7	127.1
	Increase rate in %	10.49	18.77	11.97	5.31	9.41	-6.02	3.40	-3.33
	Ratio (region /region with the highest AP)	1	0.11	0.15	0.06	0.10	0.10	0.09	0.05
2010	AP	2440.6	251.3	355.5	156.1	256.7	272.6	222.2	131.4
	Increase rate in %	6.31	29.24	-4.83	1.88	-7.21	-2.02	4.18	0.52
	Ratio (region /region with the highest AP)	1.00	0.10	0.15	0.06	0.11	0.11	0.09	0.05
2009	AP	2295.2	194.5	373.5	153.2	276.7	278.3	213.2	130.8
	Increase rate in %	10.13	9.10	-4.79	1.03	2.97	-2.53	27.79	-3.94
	Ratio (region /region with the highest AP)	1	0.08	0.16	0.07	0.12	0.12	0.09	0.06
	Increase rate in % (for the last 10 years)	47.10	135.03	-47.13	53.37	67.13	-10.61	109.99	23.46

Source: author's own calculations using data provided by the Statistical Office of the Slovak Republic; Key: AP – area parameter; BA – Bratislava region, TT – Trnava region, TN – Trenčín region, NR – Nitra region, ZA – Žilina region, BB – Banská Bystrica region, PO – Prešov region, KE – Košice region

### **Retail network density.**

The density of the retail network refers to the number of stores within a 100 km<sup>2</sup>, with this metric allowing us to determine the concentration and accessibility of retail units in a specific region. Table 6 presents the changes in the density of the Slovak retail sector in different regions between 2010 and 2019. As in the previous metrics, Bratislava region entered the period with an overwhelming advantage over the other regions, but it also experienced the highest decrease in density in 2010 with a fall of more than 17%. In comparison, the second and third largest decreases were considerably less substantial, 4.05% in Žilina region and 1.47% in Banská Bystrica region, while the remaining regions experienced an increase in density of between 2% and 16%.

In 2013, all regions with the exception of Trnava region recorded an increase in density, with Žilina region recording the most significant growth of 15.65%. 2015 witnessed an increase of 68.47% in Banská Bystrica region, the largest year-on-year increase recorded for any region in the decade. In comparison, the other regions either stagnated or even recorded declines in this year. Banská Bystrica region recorded another significant increase in 2016

with more than 51% growth, with no other region increasing by more than 10% in the same year. Despite these substantial year-on-year increases, however, the increase in Banská Bystrica region over the course of the decade was only 50%, lagging far behind Košice region increase of 87%, the highest recorded growth for the entire period. Only Trenčín and Nitra regions recorded decreases in density between 2010 and 2019.

**Table 6 Retail network density in individual regions of Slovakia**

YEAR / REGION		BA	TT	TN	NR	ZA	BB	PO	KE
2019	RND	300.4	22.1	13.9	14.0	15.0	17.8	22.6	8.5
	Ratio (region / highest density region)	1.00	0.07	0.05	0.05	0.05	0.06	0.08	0.03
2018	RND	296.9	23.0	14.3	12.9	18.1	21.0	23.9	8.7
	Increase rate in %	3.38	12.63	-0.92	5.96	-1.04	0.81	18.11	1.74
2017	RND	287.2	20.4	14.5	12.2	18.3	20.9	20.2	8.5
	Increase rate in %	4.24	8.87	0.46	-9.07	18.88	-29.96	4.79	7.88
2016	RND	275.5	18.8	14.4	13.4	15.4	29.8	19.3	7.9
	Increase rate in %	1.02	7.46	8.53	5.20	-1.78	51.05	0.29	6.60
2015	RND	272.7	17.5	13.3	12.7	15.7	19.7	19.3	7.4
	Increase rate in %	1.41	1.97	-7.43	-1.34	-5.74	68.47	1.41	10.87
2014	RND	268.9	17.1	14.3	12.9	16.6	11.7	19.0	6.7
	Increase rate in %	-3.43	8.89	-1.97	-3.99	0.18	0.00	-2.35	7.38
2013	RND	278.5	15.7	14.6	13.4	16.6	11.7	19.5	6.2
	Increase rate in %	9.99	-1.66	15.61	3.65	15.65	0.64	0.81	6.87
2012	RND	253.2	16.0	12.7	13.0	14.4	11.6	19.3	5.8
	Increase rate in %	7.87	0.77	-18.92	5.79	-6.14	2.42	-2.03	11.02
2011	RND	234.7	15.9	15.6	12.2	15.3	11.4	19.7	5.2
	Increase rate in %	-17.17	x	6.68	10.53	-4.05	-1.47	2.56	16.07
2010	RND	283.4	x	14.6	11.1	16.0	11.5	19.2	4.5
	Increase rate in %	62.28	x	-7.44	0.43	-2.60	-2.85	6.82	-0.64
	Ratio (region / highest density region)	1.00	0.00	0.05	0.04	0.06	0.04	0.07	0.02
	Increase rate in % (for the last 9 years)	72.04	53.10	-12.07	27.00	-8.34	50.36	25.42	87.97

Source: author's own calculations using data provided by the Statistical Office of the Slovak Republic; Key: RND –retail network density; BA – Bratislava region, TT – Trnava region, TN – Trenčín region, NR – Nitra region, ZA – Žilina region, BB – Banská Bystrica region, PO – Prešov region, KE – Košice region

### Sales per unit area.

Sales per unit area is measured in terms of the volume of revenue per square metre of the retail floor area, and Table 7 lists the values in Euros for each region of Slovakia between 2009 and 2019. Again, Bratislava region had the best starting position at the beginning of the period, with sales per unit area rate of more than € 4,600. After the first year, only five regions recorded an increase; Trenčín with 7.99%, Nitra with 7.99%, Žilina with 2.41%, Banská Bystrica with 13.50% and Prešov with 2.63%. Other regions record a fall, most evidently Košice region with a decline of 20.94%. In 2011, Nitra region displayed the highest increase with an increase of 45.02% followed by Košice region with an increase of 31.71%. In 2012, decreases were recorded for all regions except Banská Bystrica with a particularly marked decline noted for Košice region at 18.38%. The most significant decline in 2013 was noted for Prešov region, a slump which pushes the region well below the production-possibility frontier. In the remainder of the period, only Žilina region underwent significant changes with an increase of 20.36% in 2015.

In the period as a whole, only two regions stood out, Nitra and Bratislava, with the two spending six and four years as the leading region, respectively. By comparing the relative changes, we can note that none of the regions were able to sustain a continuous year-on-year increase, and the entire period is marked by fluctuations in square-metre productivity. The most significant regression over the period as a whole was the fall of 13.83% suffered by Prešov region, with Banská Bystrica region recording the most significant progress with an increase of 78.17%.

**Table 7 Sales per unit area in individual regions of Slovakia**

YEAR / REGION		BA	TT	TN	NR	ZA	BB	PO	KE
2019	SUA	6072.3	4166.6	5640.5	5227.9	3600.4	4921.0	2872.0	5519.4
	Increase rate in %	3.77	4.50	10.39	-11.72	-2.58	6.28	0.86	3.42
	Ratio (region/highest rated region)	1.0	0.8	0.9	0.8	0.7	0.6	0.7	1.1
2018	SUA	5851.5	3987.1	5109.5	5921.6	3696.0	4630.2	2847.4	5336.7
	Increase rate in %	1.99	-1.98	0.59	6.17	-7.27	8.06	9.19	9.73
2017	SUA	5737.4	4067.8	5079.4	5577.7	3985.8	4284.9	2607.7	4863.5
	Increase rate in %	6.69	-1.91	4.58	-3.00	10.64	10.33	-13.16	11.00
2016	SUA	5377.7	4147.0	4857.2	5750.4	3602.3	3883.9	3002.9	4381.5
	Increase rate in %	8.51	7.50	17.93	6.41	4.26	-10.01	-0.76	-2.74
2015	SUA	4956.1	3857.7	4118.6	5404.0	3455.1	4316.1	3025.8	4504.7
	Increase rate in %	-3.75	-1.07	1.80	0.04	20.36	19.30	1.76	3.21
2014	SUA	5149.3	3899.5	4045.7	5401.7	2870.6	3617.7	2973.4	4364.8

	Increase rate in %	5.27	13.18	-0.35	1.75	-6.91	3.83	8.75	3.75
2013	SUA	4891.4	3445.4	4059.9	5309.0	3083.7	3484.2	2734.2	4207.1
	Increase rate in %	-3.26	3.72	-3.29	9.56	-2.86	3.30	-13.02	-4.67
2012	SUA	5056.2	3321.8	4197.8	4845.7	3174.6	3373.0	3143.4	4413.4
	Increase rate in %	-1.55	-2.87	-14.16	-18.00	-4.78	1.15	-11.20	-18.38
2011	SUA	5136.0	3419.9	4890.1	5909.5	3334.0	3334.7	3539.8	5407.2
	Increase rate in %	x	1.76	8.74	45.02	-2.27	6.38	3.49	31.71
2010	SUA	x	3360.7	4496.9	4074.8	3411.4	3134.8	3420.5	4105.4
	Increase rate in %	x	-13.67	7.99	7.99	2.41	13.50	2.63	-20.94
2009	SUA	4635.2	3892.8	4164.1	3773.2	3331.3	2762.0	3333.0	5192.7
	Increase rate in %	-20.94	-17.92	1.33	-16.69	-8.14	-8.62	-27.54	1.06
	Ratio (region/highest rated region)	1.0	0.8	0.9	0.8	0.7	0.6	0.7	1.1
	Increase rate in % (for the last 10 years)	31.00	7.03	35.45	38.55	8.08	78.17	-13.83	6.29

Source: author's own calculations using data provided by the Statistical Office of the Slovak Republic; Key: SUA – sales per unit area; BA – Bratislava region, TT – Trnava region, TN – Trenčín region, NR – Nitra region, ZA – Žilina region, BB – Banská Bystrica region, PO – Prešov region, KE – Košice region

### Measuring retail network distribution – an analysis of the export base

The analysis of the export base is based on the demand side of the national economy. In the export base, all industries in the region can be classified into two groups (Klamár 2010): basic industries, non-basic industries). Location analysis indicators such as localization index (LI) and location quotient (LQ) are used to evaluate spatial relationships in individual regions and selected sectors of the national economy.

#### Calculation of localization index

Localization index (LI) measures the ratio of the registered number of employees in the networks of large-scale retail companies with twenty or more employees in Slovakia to population size. The calculated LI values provided in Table 8 show that retail was not proportionally represented in terms of the indicator for the Slovak Republic as a whole in any of the regions at the beginning of the period. The values in Bratislava region in 2009

show above-average levels of representation, with the localization index reaching the value of 4.25. The representation of retail sector was below proportionate levels in the remaining regions, with closer levels recorded for Banská Bystrica region at a value of 0.79, Žilina region at a value of 0.75, and Trenčín region at a value of 0.72. In the following year, the most significant increase was recorded in Bratislava region, which only confirmed its dominance in this indicator. None of the other regions recorded increases exceeding 10%. In 2012, Bratislava region reached the value of 4.73, while no other region exceeded 0.67. The trend of Bratislava region's dominance in this metric is confirmed in later years, with only Trnava and Žilina regions maintaining the level of 0.67%, while Bratislava region reached the value of 4.66. Only three of the remaining seven regions were below 0.65 in 2017, and this was also the case for 2018. Prešov region saw a slight increase in 2017 to 0.51, but this change proved to be only a small fluctuation as the value fell again to 0.42 in 2018. Trnava region reached the value of 0.72 in 2017 and Nitra region rose from 0.46 in 2016 to 0.52 in 2017. On the basis of the values of this indicator it can be concluded that in Slovakia there is a single region in which the retail sector has an above proportional level of representation and seven regions with a below proportional representation of the retail sector. The divergence of all but one region from proportional representation and the increasing differences between Bratislava region and the rest of the country can also be observed.

#### **Calculation of location quotient**

Localization quotient (LQ) expresses the degree of concentration of an economic sector in comparison with the national economy as a whole. The values in Table 9 show that retail trade was not represented proportionally to the national economy in any region at the beginning of the decade. In Bratislava region, the retail sector behaved as a basic sector with an LQ value of 3.74, which means that it is an exporting sector, with regional production exceeding regional consumption. Žilina, Trenčín and Banská Bystrica regions also recorded smaller LQ values, but for the remaining regions the quotient is below 1, which means that retail behaves as a non-basic sector; i.e. the share of employment in the retail sectors of these regions is lower than in the country as a whole. Only three regions were able to improve the position of retail in 2012, namely Bratislava region with an LQ value of 4.25, Nitra region of 1.41 and Prešov region of 0.83, although the latter region failed to exceed the limit which would recategorize retail as a basic sector. 2014 saw a slight decrease of the indicator in several regions, namely Bratislava region with an LQ value of 4.19, Nitra region of 1.15, Trnava region of 0.85, while other units recorded a slight increase. In 2016, only Trenčín, Nitra and Banská Bystrica regions maintained their values from the previous year, other regions improved their quotients with the exception for Bratislava region at 4.19, Žilina region at 1.39 and Prešov region at 0.86. Retail remained a basic sector only in Bratislava, Nitra and Žilina regions in this year. 2018 saw increases in the cases of Trnava region at 0.17, Nitra region at 1.16 and Košice region at 0.84. Over the period as a whole, Trnava region and the Košice region moved furthest away from values which indicate that retail would become a basic sector; indeed, Košice region did not exceed the limit of 0.18 throughout the period. The gradual strengthening of the basic position of retail was recorded in Bratislava region (LQ = 4.10), Žilina region (LQ = 1.36), Nitra region (LQ = 1.18) and, last but not least, Prešov region (LQ = 1.24). These regions exceeded the quotient of 1 by a significant degree, while in other regions the LQ value only fluctuated around the values measured at the beginning of the period.

**Table 8 Localization index (LI)**

YEAR / REGION	BA	TT	TN	NR	ZA	BB	PO	KE
2019	4.45	0.74	0.44	0.52	0.70	0.48	0.57	0.28
2018	4.54	0.72	0.45	0.52	0.68	0.66	0.42	0.35
2017	4.55	0.65	0.46	0.46	0.66	0.66	0.51	0.33
2016	4.57	0.69	0.46	0.49	0.67	0.63	0.52	0.30
2015	4.66	0.67	0.44	0.48	0.67	0.64	0.53	0.29
2014	4.53	0.70	0.46	0.53	0.65	0.67	0.53	0.34
2013	4.69	0.65	0.42	0.58	0.62	0.65	0.52	0.31
2012	4.73	0.67	0.37	0.53	0.65	0.67	0.51	0.35
2011	4.36	0.66	0.72	0.50	0.68	0.71	0.50	0.37
2010*	4.30	0.64	0.68	0.45	0.70	0.77	0.49	0.35
2009	4.25	0.62	0.72	0.44	0.75	0.79	0.51	0.33

Source: author's own calculations using data provided by the Statistical Office of the Slovak Republic; Key: BA – Bratislava region, TT – Trnava region, TN – Trenčín region, NR – Nitra region, ZA – Žilina region, BB – Banská Bystrica region, PO – Prešov region, KE – Košice region

**Table 9 Location quotient (LQ)**

YEAR / REGION	BA	TT	TN	NR	ZA	BB	PO	KE
2019	4.10	0.18	0.61	1.18	1.36	0.67	1.24	0.52
2018	4.16	0.17	0.62	1.16	1.34	0.95	0.68	0.84
2017	4.21	0.15	0.74	1.00	1.48	0.95	0.81	0.68
2016	4.19	0.15	0.72	1.07	1.39	0.92	0.86	0.62
2015	4.36	0.14	0.72	1.07	1.42	0.92	0.89	0.56
2014	4.19	0.16	0.70	1.15	1.26	0.98	0.85	0.66
2013	4.29	0.14	0.70	1.36	1.11	0.98	0.87	0.60
2012	4.25	0.15	0.60	1.41	1.26	0.98	0.83	0.68
2011	3.90	0.16	1.18	0.69	1.40	1.00	0.76	0.75
2010	0.00	x	x	0.66	1.62	1.06	0.65	0.75
2009	3.74	0.15	1.27	0.61	1.75	1.03	0.66	0.67

Source: author's own calculations using data provided by the Statistical Office of the Slovak Republic; Key: BA – Bratislava region, TT – Trnava region, TN – Trenčín region, NR – Nitra region, ZA – Žilina region, BB – Banská Bystrica region, PO – Prešov region, KE – Košice region

## 5.2 An analysis of the Slovak retail sector using a panel regression model

The aim of the subchapter is to evaluate the revenues from retail activities in Slovakia in relation to regional GDP during the period of the country's integration into the structures of the European Union.

### 5.2.1. Case study of retail revenues in relation to regional GDP

This focused case study is intended to address a gap in research concerning the performance of the Slovak retail sector in the period of 2000 and 2010, during which time the country acceded to the European Union and adopted the Euro currency. The analysis is based on data for different regions of the Slovak Republic according to the NUTS III



classification and is presented as panel data in which the dimensions consist of regions and time in years. Between 72 and 80 observations are recorded for each variable. In cases in which developments or changes are verified, the number of variables is between 64 and 72. The data used in the study was obtained from official figures issued by the Statistical Office of the Slovak Republic and was processed and evaluated using PASW Statistics 18 statistical software (former SPSS Statistics). Standard deviations (t-statistics, p-values) were estimated using a Driscoll-Kraay estimator and the Ordinary Least Squares Method. The statistical findings of the analysis are expressed using Stata statistical software. As previous studies have noted, the instability of variables in the time series is a major problem from a methodological perspective (Kotulič, Marcheuská 2020).

Many researchers in economics and econometrics focus their attention on time series in individual fields. Within the context of Slovak economics, Benčík (1999) has examined consumer prices and nominal wages in Slovakia in terms of time series research, while other studies, such as that published by Ostrihoň and Ivaničová (2015) investigate the production homogeneity of various regions and municipalities of Slovakia and household consumption (Haluška 2011; Adamišin and Tej, 2012; Buleca et al. 2017).

Measurements were performed in two basic phases in order to test the hypotheses presented a). and b).

#### **Phase one (I)**

According to Rimarčík (2006), regression analysis is the starting point for inferring results and expressing other analyses of measurements, and thus regression statistics were implemented to determine the most appropriate model from the selected options. Individual regression analyses based on the linear, power, exponential and logarithmic models were recorded in Microsoft Excel. Selection is based on maximum index of the determination of  $R^2$ , quantiles of Student's t-distribution and Fisher distribution with degrees of freedom.

#### **Phase two (II)**

After evaluating the results of first phase of the analysis, the presented hypotheses were verified using panel regression models. Individual analyses of the examined regression were recorded in Stata statistical software. The properties of the time series were examined and then applied to a panel test. In order to determine how the variables had performed in the panel test, the unit-root test described by Harris and Tzavalis (1999) was used. This test is designed to:

- verify the null hypothesis that there is at least one nonstationary time series in a panel (e.g. GDP for all regions) as opposed to the alternative hypothesis that the all-time series is stationary
- ensure that the test counts with a single common auto regression coefficient for the all-time series, an approach which is more suitable than other tests for similar small panels
- to take into account the fact that the strength of the tests is relatively low for small sample sets. If the null hypothesis is rejected despite the presence of this disadvantage, it would be considered to be a strong signal that the time series is stationary. Therefore, this level-variable test will be used initially, taking the possible presence of a deterministic trend into account.

Stationarity is the key feature of a time series of (macro)economic indicators and the modelling of a time series is an integral element of the analysis. A time series is generally considered to be stationary if its stochastic properties are invariant to time; i.e. its diameter, variance and covariance are not dependent on time. Time series testing for stationarity is essential in regression analysis in order to avoid a common problem in time series analysis; if the time series is neither stationary nor cointegrated (for more details on this issue, see

Hatrák 2007), erroneous results can appear in the subsequent regression analysis. In fact, the non-stationarity of a time series can lead to the issue of so-called apparent or spurious regression which can invalidate the results of the analysis (Haluška 2011).

If two variables display a trend over a given time interval, a strong relation between variables can be found in the analysis, even though there may be no relation between them. This phenomenon is often accompanied by the fact that a high coefficient of determination can be obtained in the regression analysis when the residues from the regression model are simultaneously auto correlated to a significant degree. If the results of the analysis are stationary, there is a tendency to trust the regression model. If they are not stationary, our confidence in the validity of the results obtained can be called into question.

Table 10 presents the results of the examination of the time series and shows the verification of (non)stationarity of the level variables.

**Table 10 Verification of (non)stationarity of level variables**

	N	Trend?	Harris and Tzavalis (1999)	
			Z statistics	p – value
GDP per capita adjusted by price index	72	Yes	-1.186	0.118
Revenue in retail trade adjusted for price index	80	Yes	-2.221	0.013

Source: authors' own calculations using Stata statistical software

This analysis shows that the following variable is stationary (either taking into account or not taking into account the deterministic trend):

- revenues (adjusted for price index and trend taking).

If only this variable is entered into the regression analysis, the results (if trends are found to be present) will not be considered misleading. If at least one non-stationary variable enters the analysis, the “confidence” of the results will be decided by verifying that residual autocorrelation is present in the regression models. The Harris and Tzsavalis (1999) panel-data unit-root test is also used for changing variables and can be used to determine the existence of a dynamic relationship between variables. At the same time, these variables are stationary as a rule, and this test will only verify this property. Changes are expressed from the original variables using the following relation:

$$((\text{variable in time } t) - (\text{variable in time } t - 1)) / (\text{variable in time } t - 1).$$

The symbol  $\Delta$  is used to depict development variables. In the case of changes, the null-hypothesis of the non-stationarity of variables was rejected by the Harris and Tzavalis (1999) unit-root test in each case. Therefore, if variables expressing changes are used in the subsequent analysis, the results can be considered trustworthy in a statistical sense would not appear to be erroneous.

**Table 11 Verification of (non) stationarity of variable changes**

	N	Trend?	Harris - Tzavalis (1999)	
			Z statistics	p – value
GDP per capita adjusted by price index	64	No	-5.725	0.00
Revenue in retail trade adjusted for price index	72	No	-10.653	0.00

Source: authors' own calculations using Stata statistical software

Panel regression was used to verify all hypotheses taking all fixed effects into consideration (for example, regions are not selected randomly, and it is therefore necessary to prefer models with so-called fixed effects as models with random effects). The following assumptions are made for each of the models:

- residual Heteroscedasticity (according to the Wald test)
- panel Dependence of Residues (according to the Pesaran Test)
- residue auto-correlation (according to the LM test).

### Survey results

The objective of the research is to evaluate the revenues from retail activities in Slovakia in relation to regional GDP based on the verification of stationarity or otherwise of level or changing variables and panel regression. Two research topics and two hypotheses are stated in order to investigate this relationship.

Question a). Is there a statistical correlation between retail sector revenues and regional GDP per capita within the regions of Slovakia?

Question b). Is there a statistical link between the development of changes in revenue in the retail sector and regional GDP changes per capita within the regions of Slovakia?

Price indices are adjusted for both regional GDP and retail revenues, but this should not affect the results because the adjustments are applied to both variables. The following two hypotheses will also be tested.

Hypothesis a). We assume that there is no statistically significant linear relationship between revenues from retail activities (adjusted according to price index) and regional GDP (also adjusted according to price index).

Hypothesis b). We assume that there is no statistically significant linear relationship between the development of changes in revenues from retail activities (adjusted according to price index ) and the development of changes in regional GDP per capita (also adjusted according to price index ).

The results from these tests are presented in the tables below and refer to the standard fixed effect panel model. If some assumptions are invalidated, then panel regressions are estimated using a method in which the breach of these assumptions is taken into account. The exact procedure depends on the specific results obtained through testing these assumptions and the data on which these regressions are performed. Therefore, a specific procedure is presented for each of the tests.

**Table 12 Results of regression statistics and its statistical testing for hypothesis a).**

	Linear	Exponential	Power	Logarithmic
Reliability Value R	0.88493	0.760279	0.70253	0.78363
Corrected coefficient of determination	0.883286	0.756855	0.698219	0.780494
t calculated	23.20186	14.89988	12.76543	15.80816
F calculated	538.3262	222.0065	162.9562	249.898
t table value (quantile of Student's distribution)	2.647905	2.647905	2.648977	2.648977
F table value (critical value)	7.011399	7.011399	7.017078	7.017078
Number of comparisons	72	72	72	72

Source: authors' own calculations using Stata statistical software

**Table 13 Results of regression statistics and its statistical testing for hypothesis b).**

	Linear	Quadratic
Reliability Value R	0.048883	0.057862
Corrected coefficient of determination	0.033542	0.026972
t calculated	1.785074	0.931491
F calculated	3.186488	1.873179
t table value (quantile of Student's distribution)	2.657479	2.658857
F table value (critical value)	7.062192	4.971015
Number of comparisons	64	64

Source: authors' own calculations using Stata statistical software

Tables 12 and 13 show the results of these measurements. Therefore, other correlation analyses are based on a linear model.

The results show that hypothesis a) is verified using panel regression models. The shape of the regression model in verifying the hypothesis a) is as follows:

$$gdpadj_{i,t} = \alpha_i + \beta_1 revenuesadj_{i,t} + \beta_2 year_t + u_{it}$$

The estimation of this model is based on the assumption that the variable *revenuesadj* (revenue from retail activities adjusted for HIPC price index) is considered as stationary and variable *gdpadj* (GDP per capita adjusted for HIPC price index) as non-stationary. Therefore, in a similar manner as was discussed above, the results of the residual autocorrelation test will also determine whether this hypothesis can be validated statistically.

The results suggest that auto-correlation is present in the residues. Therefore, this hypothesis cannot be solved meaningfully. For full disclosure, the panel regression results are shown in the table below.

**Table 14 Results from hypothesis a) testing in panel regression**

N	72		Groups	8
	Coefficient	Std.Error	T- stat.	p-value
Revenues in retail trade adjusted for HICP price index (revenuesadj <sub>i,t</sub> )	1.79	0.29	6.19	0.00
Year (year <sub>t</sub> )	345.99	56.26	6.15	0.00
Constant	-687057.6	112438.4	-6.11	0.00
R <sup>2</sup> modified (from the OLS assumption)	97.22%			
Wald test	0.000			
Pesaran test	0.407			
LM test	0.001			

Source: authors' own calculations using Stata statistical software

Hypothesis b). with respect to the interrelationship of the changes of both variables. Hypothesis b) was input into panel regression:

$$\Delta gdpadj_{i,t} = \alpha_i + \beta_1 \Delta revenuesadj_{i,t} + u_{it}$$

**Table 15 Results from hypothesis b) testing in panel regression**

N	72		Groups	8
	Coefficient	Std.Error	T- stat.	p-value
Revenues in retail trade adjusted for HICP price index ( $\Delta revenuesadj_{i,t}$ )	0.05	0.03	1.63	0.11
Constant	0.03	0.01	3.95	0.00
R <sup>2</sup> modified (from the OLS assumption)	-4.93%			
Wald test	0.526			
Pesaran test	0.620			
LM test	0.091			

Source: authors' own calculations using Stata statistical software

Both variables are stationary, so any relationship that is found or not found in this regression can be considered relevant to this analysis. All assumptions that are verified are considered to be met (all p-values are greater than 0.05). However, no relationship between the revenue and GDP variables (both adjusted for price indices) was found (p-value is 0.11). For this reason, hypothesis b) is not rejected and the following statement can be said to be

valid:

There is no significant linear relation between the development of changes in revenue for retail activities in Slovakia (adjusted for price indices) and the development of changes in regional GDP per capita (adjusted for price indices).

### 5.2.2. Case study of employment in the retail sector in relation to regional GDP

The main objective of this subchapter is to verify the existence of a statistical significance between the registered number of employees in the retail sector and its impact on the regional development and to evaluate the results obtained through the verification of the model. In order to fulfil the main objectives, we set the sub-objectives:

- to analyse employment in the retail sector and its relation to the regional GDP per capita in regions of Slovakia
- analyse the share of employment in the retail sector in relation to the total employment and regional GDP per capita
- to analyse the statistical significance of the relationship by implementing the panel regression model; this approach is followed by a conclusion and recommendations for the examined sector.

The impact of employment on the chosen macroeconomic indicator has been evaluated by several indicators such as the registered number of employees and regional GDP (Mura, Marchevska and Dubravska 2018).

If a time series which is neither stationary nor cointegrated is used as an input for regression analysis, the results may be false. If both variables show a trend over the determined time interval, we can identify the existence of a strong relationship between the variables and we can analyse the results of the time series. If the variables are stationary, we can trust the regression models, but if they are non-stationary, the validity of the results may be open to question. In order to determine the applicability of the variables, the data was tested using the unit-root test described by Harris and Tzavalis (1999). The results of this test are presented in Table 16.

**Table 16 Verification of (non) stationary level variables**

	N	trend?	Harris-Tzavalis	
			Z statistics	p-value
Recorded number of employees	80	Yes	-2.767	0.003
The ratio of employment in retail trade	80	No	-1.437	0.075
GDP adjusted to price index	72	Yes	-1.186	0.118

Sources: authors' own calculations on data from the Statistical Office of the Slovak Republic (2017)

The results of the analysis show that the following variables are stationary (either related or unrelated to the deterministic trend):

- the recorded number of employees in the retail sector (related to the trend)
- the employment ratio of the retail sector in relation to the total employment in the region (unrelated to the trend) (Hatrák, 2007).

Panel data regression analysis was used to verify the hypotheses, while the influence of fixed effects was also taken into consideration (no random selection of regions was applied). The following assumptions were verified:

1. Heteroskedasticity of residues (according to the Wald test)
2. Dependence of residues between the panels (according to the Pesaran test)
3. Autocorrelation of residues (according to the LM test) (Brüggemann,

Lütkepohl and Saikkonen, 2006).

The variables of the recorded number of employees in the retail sector and the ratio of employment in the retail sector to the total employment in the region were used to evaluate the hypotheses, and this analysis will allow us gain information about the importance of the retail sector in the country and determine whether employment growth in the retail sector results in an increase in the total economic production. However, it should be borne in mind that even if the employment rate rises, the total number of employees in the retail sector may decrease. Originally, changes in GDP per capita on a regional basis would have been used in the analysis, but nominal increases in GDP could occur due to price increases rather than through production growth. In such a situation, it is not possible to assume the existence of growth, and, therefore, in order to obtain a more accurate interpretation of changes in GDP, the applied data was adjusted according to the consumer price index (EUROSTAT database).

Two main hypotheses were formulated for validation through the analysis:

Hypothesis I: There is no statistically significant linear relationship between the recorded number of employees in retail and regional GDP per capita (adjusted according to price index).

Hypothesis II: There is no statistically significant linear relationship between the share of employment in a retail network to the total employment and the regional GDP per capita (adjusted according to price index).

On the basis of the results of the regression analysis and the statistical testing of hypotheses presented in Tables 16 and 17, we decided to continue in the linear relationship to check the statistical significance in the case of hypotheses I and II.

**Table 17 Results of regression analysis and its statistical testing for Hypothesis I**

	Linear	Exponential	Power	Logarithmic
Confidence value R	0.882278	0.738105	0.654575	0.756828
Corrected coefficient of determinant	0.880572	0.734309	0.649569	0.753304
T calculated	22.74045	13.94504	11.43477	14.6536
F calculated	517.1281	194.4643	130.7539	214.7502
T table (quantum of Student's t-Distribution)	2.648977	2.648977	2.648977	2.648977
F table (critical value)	7.017078	7.017078	7.017078	7.017078
Number of comparisons	71	71	71	71

Sources: authors' results

**Table 18 Results of regression analysis and statistical testing for Hypothesis II**

	Linear	Exponential	Power	Logarithmic
Confidence value R	0.847718	0.723887	0.57668	0.651731
Corrected coefficient of determinant	0.845543	0.719885	0.570545	0.646683
T calculated	19.74016	13.44981	9.695226	11.36321
F calculated	389.674	180.8973	93.99741	129.1226
T table (quantum of Student Distribution)	2.648977	2.648977	2.648977	2.648977
F table (critical value)	7.017078	7.017078	7.017078	7.017078
Number of comparisons	71	71	71	71

Sources: authors' calculations

The results of the regression analysis for hypothesis I show that the confidence value R is 71 and is thus the most important value from the point of view of testing and also explains why linear values will be obtained for the following methods. The results of the regression

analysis and the statistical test results for hypothesis II are presented in Table 18.

Hypotheses I and II were verified using the following panel regression model:

$$hdpadj_{i,t} = \alpha_i + \beta_1 zam_{i,t} + \beta_2 pz_{i,t} + \beta_3 rok + u_{it}$$

where the variables *zam* referring to the recorded number of employees and *pz* referring to the ratio of employment in the retail sector to the total employment in the region) are considered to be stationary, while variable *hdpadj* referring to GDP per capita adjusted according to price index is non-stationary.

The results of the evaluation of hypotheses I and II and information about the testing methods is provided in Table 19. The presence of the autocorrelation of residues is verified by the LM test. The p-value at 0.296 means that hypothesis 0 cannot be rejected because of the absence of first-order correlation. It can be assumed, that there is no autocorrelation in the residues and thus the results of this model will be considered as valid.

The assumptions about the homoskedasticity of the residuals and the spatial irregularity of residuals was not proven to be correct. Therefore, the statistical deviations (t-statistics and p-value) in the regression analysis were estimated by applying the Driscoll – Kraay estimator and the Ordinary Least Squares method.

**Table 19 Results of hypotheses I and II testing in panel regression**

I and II				
N	72	group	8	
	coefficient	Stand, error	T statistics	p-value
Recorded number of employees in the retail sector	0.83	0.09	9.11	0.00
Ratio of employment in retail sector to total employment	-128233.3	24601.75	-5.21	0.00
Year	362.99	49.28	7.37	0.00
Constant	-718860.7	98404.03	-7.31	0.00
R2 edited (by OLS estimation)	98.45%			
Wald test	0.00			
Pesaran test	0.00			
LM test	0.296			

Sources: authors' results

All of the variables in Table 19 can be considered to be statistically significant as is clear from low p-values in the relevant columns. Hypothesis 0 may be rejected in favour of the alternative hypothesis. The validation of hypothesis 0 means that the regression coefficient is statistically equal to zero. In the case of the alternative hypothesis, the value would be statistically different from zero. If the regression coefficient equals to zero, there is no correlation between the variables. If the coefficient does not equal zero, there is a correlation between the variables. The model verification detected the statistical significance of the parameters referring to the recorded number of employees in the retail sector (p-value of 0.00) and that referring to the ratio of employment in the retail sector to the total employment (p-value of 0.00). On the basis of these results, hypotheses I and II can be rejected. It is important to bear in mind that both of these hypotheses were verified using a single regression. If there was a correlation between employment and GDP per capita, the ratio of employment would be taken into account. If there was a correlation between the ratio of employment and GDP per capita, employment would be taken into account.

The results of the analysis be summarized as follows:

Hypothesis I. A statistically significant linear relationship exists between the recorded number of employees in the retail sector and regional GDP per capita (adjusted according to

price index). This relationship is direct; if there is an increase in employment in the retail sector, GDP per capita also increases.

Hypothesis II. A statistically significant linear relationship exists between the ratio of employment in the retail sector and regional GDP per capita (adjusted according to price index). This relationship is an indirect one. If there is an increase in employment in the retail sector, GDP per capita decreases.

An increase in employment in the retail sector does not result in an increase in GDP per capita when the employment figure has increased at the detriment of employment in other sectors. Hicks and Wilburn (2001) examined the retail sector in 55 regions of West Virginia between 1989 and 1998, using a recursive model to evaluate the impact of the entry of Wal-Mart into the county and outlying regions. The research also examined the endogeneity of Wal-Mart's entry into the more developed regions of the state and employed spatial analysis to estimate the impact of Wal-Mart's entry into these regions. The results show a net growth in employment and a moderate increase of companies in the retail sector. Addison et al. (2009) examined the impact of the minimum wage on the revenues and employment in selected sectors of the US retail sector between 1990 and 2005 by examining employment data at the regional level. They focused on subsectors that can be characterized by extremely low wages. Their results show the positive effect of the introduction of a minimum wage on employment.

Babecký et al. (2010) evaluated the importance of structural factors and institutions by explaining common models and the main differences in the recent expansion of employment services in OECD countries. He emphasises that GDP per capita, the size of the public sector and the extent of urbanization are positively connected with labour market share. The legal background, institutions and regulations concerning the markets in several countries resulted in the development of a more coordinated wage system. Schivardi & Viviano (2011) focused on the reform of the Italian retail sector in 1998 through a study of the restriction of the entry of large-scale retail stores into the market. They concluded that the introduction of entry barriers by regional authorities were connected with increased profit margins and lower productivity among incumbent firms. Market liberalization has had a positive impact on investment into information technology in the retail sector, and this development has increased employment and lowered labour costs in big stores. In regions with stricter regulations, lower productivity combined with higher profit margins has resulted in higher consumer price.

One challenge that researchers in this field will have to face in the future is the forecasted re-categorization of retail outlets. The increasing number of shopping centres allow retailers to keep track of market trends and forecast consumer preferences more effectively. The reason why shopping centres are so successful is their maximum utilization of sales premises in ensuring increased productivity and higher numbers of customers (Križan et al., 2015). Shopping centres have become one of the key players of the transformation of the retail sector in urban areas that influence the development of the region as a whole.

The research results detected statistically significant values in the case of both hypotheses, so it was possible to reject Hypothesis 0 in favour of the alternative hypothesis. Hypothesis I shows a correlation between the recorded number of employees in retail and the regional GDP per capita (adjusted according to price index). Indeed, the growth in the number of shopping centres in Slovakia has been mirrored in increased employment in many regions of Slovakia and also in regional GDP per capita. The development of this format of retail unit has resulted in economic growth, while increasing consumption reflects the effect of rising standards of living in the country.

Hypothesis II shows the correlation between the ratio of employment in the retail sector



to total employment and regional GDP per capita (adjusted according to price index). An increase in employment in the retail sector will result in a decrease in employment in other sectors and will in turn lead to a decline in GDP per capita. Not only the tertiary sector requires further development, but there is also a need for this type of support in the secondary and primary sectors. The analysis of macroeconomic correlation determined the existence of a direct relationship between the number of employees in the retail sector and regional GDP. Local authorities such as municipal or regional bodies, support the employment of regional residents in the newly opened retail chains and promote educational and training programs for this purpose. An approach of this nature would foster the development of a qualified and trained local workforce for the retail sector.

### **5.3 Shopping behaviour of visitors to Košice International Airport**

Duty-free shops in airports are a unique retail format which offer their travelling customers a number of advantages; a wide range of quality goods from well-known brands at reasonable prices, convenience when shopping and, last but not least, the services of knowledgeable and language-skilled staff. Despite the abolition of duty-free sales for passengers travelling within the European Union in 1999, the prices of goods in airport duty-free shops remain more attractive than in regular stores, and so the stores are still popular with travellers.

The main aim of this subchapter is examine the shopping behaviour of customers at the Travel Value & Duty Free shop located at the Košice International Airport and to identify and compare the differences between the behaviour of passengers on scheduled flights with that of passengers on charter flights.

#### **5.3.1 Shopping at the airport**

Airports are a highly specific retail location which offer their visitors a wide range of stimuli and experiences, both familiar and exotic, which cannot be found elsewhere. They stand as a contrast between daily routine and transitory presence. Within this unique context, airport shops are a highly attractive choice for passengers. They offer a wide range of international and domestic products at competitive prices. Buyers often have more confidence in the quality of goods from certified international brands sold at airports than in those sold in local shops. Duty-free shops allow their customers the opportunity to buy groceries, gifts or other personal and travel-related items at any time (Vitus 1999).

The most common motive for shopping at airports is the impact of the overall surrounding atmosphere on the travelling potential customers (Turley and Milliman 2000), with many studies confirming that atmosphere is a decisive factor in the purchase of a product (Križan and Lauko 2014, Spilková 2012, Timothy 2005, Trembošová 2012). In addition, shopping and walking around the airport can become a symbolic act in advanced consumer societies, a ritual that expresses consumers' own self-identification, and many people connected with such activities may visit the airport to participate in the cosmopolitan atmosphere of the location.

Finally, the product assortment and offers at airport shops appear to be focused on impulse buying, further evidence of the influence of the surrounding atmosphere on consumer behaviour (Turley and Milliman 2000). Social effects can also have an impact here, such as meeting and interacting with other passengers, especially with those who share similar interests. For some people, travelling evokes feelings of insecurity, fear or trepidation which can lead them to seek out reassuring and encouraging behaviours by shopping directly at the airport (Dube and Menon 2000, Sulastini et al. 2018; Mazanec et al. 2018).

The motives for shopping in traditional retail outlets are different from those for shopping

at airports, locations which are devoted exclusively to travel. By traveling, potential customers of duty-free shops have not only freed themselves from their domestic environment, but they have also escaped their daily routine, although it should be noted that these motives are more related to travel in general and can be considered to be initiated at the moment an individual sets off on their journey. Nevertheless, other more specific travel-related factors and incentives can be expected; an important element, for example, might be the significant difference between the time spent in traditional retail outlets and that spent in the airport environment. Another motivation is that passengers returning home from a country may buy more sporadically in order to use up their unspent foreign currency. They buy unique products, travel sets, special product designs in duty-free shops, or use the opportunity to obtain additional gifts with purchases or buy special “travel retail exclusive” limited editions of products. In addition, the habit of buying souvenirs and gifts also motivates passengers to shop in the airport (Vitus 1999).

The unique advantage of duty-free shops in airports, seaports and transportation hubs around the world is the opportunity for passengers to purchase and transport goods across borders without paying local and national taxes. The history of taxes dates back to ancient Greece or Rome, when customs duties were collected on a large number of goods as it was a simple and effective way of generating income for these early states. In the Middle Ages, feudal lords imposed taxes on goods that either passed through or were exported from their country, with this tradition giving rise to the development of toll gates as well as customs houses (Duty Free 2015). By 1300, the words “costom” and “custume” have taken on the meaning of a rent, fee or tax owed to a feudal lord or other local authority.

The word “duty”, which means to be “due” something, dates back to the end of the 13th century, while the designation “tax” was first recorded at the end of the 15th century. Although the word “duty-free” first appears in the late 16th century in reference to a tax authority that has agreed to waive the normal fee, the concept of exempting certain goods from import / export taxes as routine is a relatively recent innovation. The dramatic increase in international civilian transport, especially in terms of air transport after World War II, played a key role in this. In 1947, the developer of Shannon Airport in Ireland, Brendan O’Regan, persuaded the Irish government to pass a law that created a transit section of the airport, arguing that if a passenger passes passport control with a valid travel document, they were no longer technically on Irish territory Ireland and therefore any purchases made there should not be subject to any taxes. The Customs-Free Airport Act was enacted on March 18, 1947, making Shannon Airport the first duty-free zone in the world.

Although sales at Shannon Airport were initially limited to the Irish market, the company and O’Regan realized that if they wanted to increase sales and expand their assortment range with international products, they had to attract new lucrative brands and major brands such as Dior, Chanel, Hummel, Minox and Waterford were part of the retail strategy almost from the beginning. Other duty-free shops gradually followed, including those established by the American company Duty Free Shoppers (DFS) in Hong Kong in 1960 and in Hawaii in 1962, with the latter being the first duty-free shop in the USA.

Duties are not only imposed by exporting countries but can also be levied on goods which passengers carry into countries. The United States impose customs duties on a wide range of goods, although there are exceptions depending on where the goods were bought or received, the length of the traveller’s stay in the other country, the visitor’s residence status and the value of the goods themselves. Specific types of products, such as alcohol or tobacco, are granted exemptions from taxation. For example, American travellers who return from Europe with one litre of alcohol and a carton of cigarettes containing 200 cigarettes can bring the goods without paying duties to United States Customs. One important condition in this

respect is that the duty exemption applies only to goods purchased for personal consumption, not for resale. If travellers attempt to bring more goods into the country than is permitted and this is discovered during customs control, customs officers will follow the applicable law of that country (Duty Free 2015).

Some countries offer tax-free shopping options in which travellers can claim back sales taxes on their foreign purchases using a VAT refund system undertaken by specialist financial service providers such as Global Blue or Planet In many states and in some international institutions, the right to purchase duty-free goods is granted to diplomatic and military personnel located outside their home country. Some jurisdictions, for example in countries outside the European Union, Australia, the Middle East and Latin America, even offer passengers the opportunity to purchase duty-free goods on arrival at the destination airport within the given territory. In these places, duty-free shopping has become an even more important source of revenue for airports (Duty Free World Council 2018).

The term “travel retail” referring to the sale of products in a travel environment where taxes and duties continue to be due for payment though customers may be travelling abroad, has been used in some territories. This is applicable especially in the European Union, which abolished the sale of duty-free goods to customers travelling within its borders in 1999 (Duty Free World Council 2018). Some special territories of EU member states, such as Åland, Livigno and the Canary Islands, are located within the European Union but are not part of the EU Taxation and Customs Union and therefore continue to offer duty-free sales to all travellers. Duty-free shops, now renamed as Travel Value & Duty Free shops (Duty Free World Council 2017), continue to generate important revenues for countries’ tourism. Retail sales are the largest contributor to revenue at airports around the world, and airports rely heavily on this commercial income to finance the development of their infrastructure and to keep landing fees for airlines as low as possible.

### **5.3.2 Case study of shopping behaviour in the Travel Value & Duty Free shop at Košice International Airport**

Košice International Airport is the second largest international airport in Slovakia in terms of passenger numbers and also in scheduled air connection. Since 2004 the airport has been operated by Letisko Košice – Airport Kosice, a.s. which entered into a strategic partnership with Vienna International Airport in 2006, with the Austrian operator owning a 66% holding of the company’s shares. The remaining 34% of the company are still fully owned by the Slovak Republic represented by the Ministry of Transport, Construction and Regional Development. The company is managed by a Board of Directors, whose current chairman and chief executive officer is Michael Tmej (Košice International Airport 2018a).

At the beginning of 2018, Košice International Airport operated 9 scheduled flights; connections to Bratislava (Czech Airlines), Doncaster – Sheffield (Wizz Air), Istanbul – Ataturk (Turkish Airlines), Kolín (Wizz Air), London Luton (Wizz Air), Prague (Czech Airlines), Tel Aviv – Ben Gurion (Wizz Air), Warsaw (LOT Polish Airlines), Vienna (Austrian Airlines).

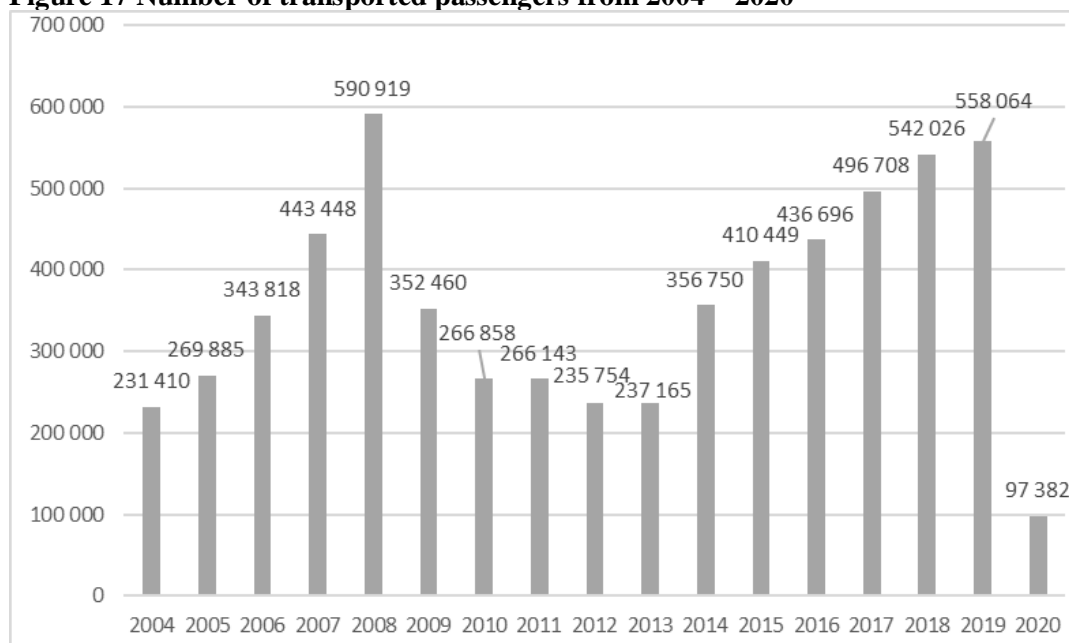
The Košice – Bratislava and Košice – Prague routes were operated by ČSA. The airline flew to Bratislava eight times weekly (weekdays only) and to Prague 18 times weekly including weekends. The Košice – Vienna route is operated by the Austrian carrier Austrian Airlines with 12 flights per week. Flights on the Košice – Warsaw route started on March 30, 2016, with LOT Polish Airlines operating 8 times per week. A connection to Istanbul was introduced by Turkish Airlines on 15 May 2016 with a regular rotation 4 times a week. The Hungarian low-cost airline Wizz Air operated a number of routes from Košice, offering daily flights to London and less regular flights to Milan, Bristol, Doncaster, Cologne and Tel

Aviv. These less regular flights proved unsuccessful and had all by 2018 when Wizz Air cancelled its base in Košice (Košice International Airport 2018b), with only the London route remaining in operation.

Due to the impact of the COVID-19 pandemic on the travel industry, Košice Airport is operating a greatly reduced number of scheduled flights as of 1 March 2021 and charter flights are completely suspended (Košice International Airport 2021a). A twice weekly Austrian Airlines connection to Vienna operates on Mondays and Fridays, while the Wizz Air route to London runs on Tuesdays and Sundays.

Figure 17 shows the number of passengers travelling through Košice International Airport from 2004 to 2020 (Košice International Airport 2021b). The increase in passengers observed between 2004 and 2008 was due to the entry to the market of the short-lived Slovak low-cost carrier Sky Europe Airlines, which carried up to 70% of all passengers flying from Košice. In 2009 the number of passengers dropped by 40% as Sky Europe was declared bankrupt and liquidated, a result of the global economic crisis which affected the travel industry as much as many other economic sectors. From 2013 the number of passengers began to increase again due to the entry of the new low-cost carrier Wizz Air, and Košice airport was the only profitable airport in Slovakia at this time. However, the figures for 2020 show an 82.5% decrease in passenger numbers compared to 2019, a direct consequence of the COVID-19 pandemic. A total of 97,382 passengers passed through the airport gates during the year, 460,681 fewer than in 2019. Of these limited numbers, 93,603 passengers were transported on scheduled flights, with charter flights accounting for 2,712 passengers and general aviation flights for 1,067 passengers.

**Figure 17 Number of transported passengers from 2004 – 2020**



Source: Košice International Airport 2020

Gebr. Heinemann Travel Value & Duty Free is a retail and wholesale company in the duty-free industry. With its two retail and wholesale business units, the trading company is the market leader in Europe and is the only family-owned company in this sector in the world. The company began to engage in duty-free trade with tobacco products and spirits in

1879 focusing on shipping suppliers and shipping companies. Heinemann also distributed their goods to ferry companies in Scandinavia from 1950. In the same year, the company decided to expand its range of products with perfumes and cosmetics, followed by accessories, confectionery and gifts. The first retail concession for exemption from duties at the airport was granted to Gebr. Heinemann at the Cologne – Bonn Airport in 1969 (Langenscheidt 2010).

When the EU abolished the sale of duty-free goods to customers travelling within the EU on 1 July 1999, Gebr. Heinemann renamed its stores as Travel Value & Duty Free and were able to increase their market share in Europe. Since 2008 the company has also operated some stores under the name Heinemann Duty Free. In the 1990s, the company's growth exceeded the storage capacity of its original premises in Speicherstadt, so the company opened a modern logistics centre in Hamburg in 2003. The company distributes goods from this centre to its shops in airports, seagoing ships, border crossings and to its subsidiaries. Heinemann company is run by the fourth generation of the family, currently represented by the cousins Claus Heinemann and Gunnar Heinemann. The Heinemann Group employs approximately 6,000 people in over 300 Travel Value & Duty Free shops at 78 international airports in 28 countries with a turnover in 2016 of € 2.9 billion (Langenscheidt 2010).

The Travel Value & Duty Free shop at the Košice International Airport was opened in September 2012 and is located directly behind security control in the departure terminal. For the company, the period between 2012 – 2013 was not very favourable in terms of its economic and social situation; there were few flight connections from Košice in this period, mainly short routes to Prague and Vienna. The shop too faced specific issues such as passengers' lack of experience with the newly opened shop, a limited product assortment and the weak promotion of the shop itself. However, the sales of the shop gradually began to increase from 2013 with the introduction of the daily Wizz Air flight to London. The sales of the shop continued to improve with the growing numbers of flight connections from Košice airport and as the result of a new marketing strategy, an extension of the product range, and the development of both regular and new customers.

The main aim of our survey was to identify the differences in the shopping behaviour of passengers on scheduled flights and passengers on charter flights at the Travel Value & Duty Free shop at the Košice International Airport in Košice. The survey sample consisted of 200 customers of the Travel Value & Duty Free shop: 100 customers travelling on charter flights in the holiday season and 100 regular passengers on scheduled flights from Košice airport. The questionnaire survey was conducted in person between June and September 2017; questionnaires were prepared in two language versions – Slovak and English. The questionnaires were distributed in printed form to the customers of the Travel Value & Duty Free shop, although the researchers offered assistance to respondents to ensure that completion of the survey took less time and that respondents were not discouraged by the scope of the questionnaire.

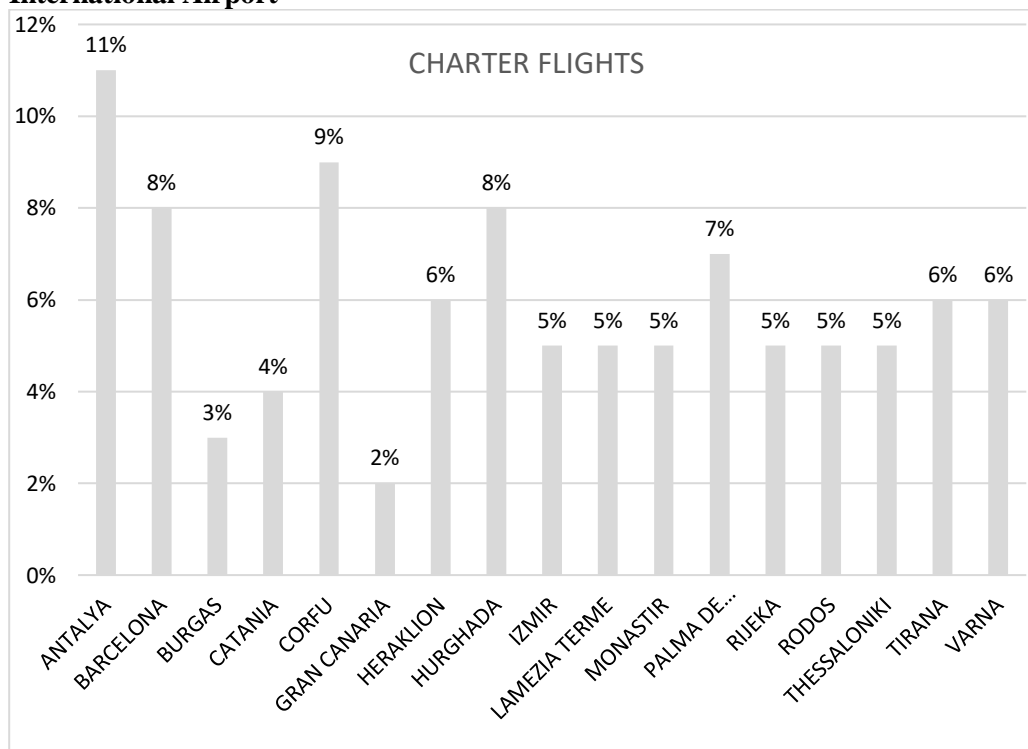
Respondents were initially asked about their target or transfer destination, and Figure 18 shows the numbers of charter flight passengers travelling to holiday destinations from Košice International Airport.

Figure 19 shows the numbers of respondents on scheduled flights travelling to destinations from Košice International Airport. The airports of Prague, Vienna, Warsaw and Istanbul are the most popular destinations for passengers on scheduled flights from Kosice, and these airports typically serve as hubs or transfer points for further flights to target destinations.

### Frequency of travel from Košice International Airport

Respondents were asked the question, “How many times a year do you depart from Košice Airport?”, and the responses are shown in Figure 20. Respondents on charter flights were more likely to state that they depart from Košice Airport 1-2 times a year (37% of respondents). 21% of respondents answered “charter flights only”, indicating that they only use the services of the airport during the charter season. More than 18% of respondents answered that they were departing from Košice International Airport for the first time. Passengers who answered “more often” (7% of respondents) departed from Košice airport more than 5 times per year.

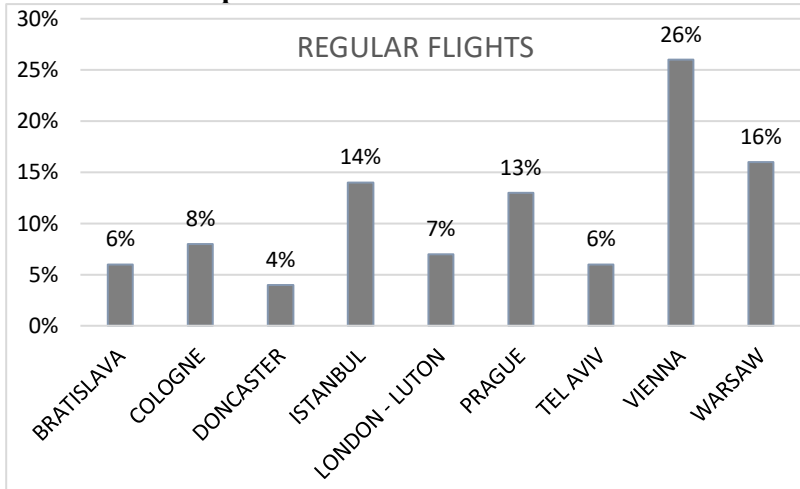
**Figure 18 Respondents travelling to destinations on charter flights from Košice International Airport**



Source: authors' own research

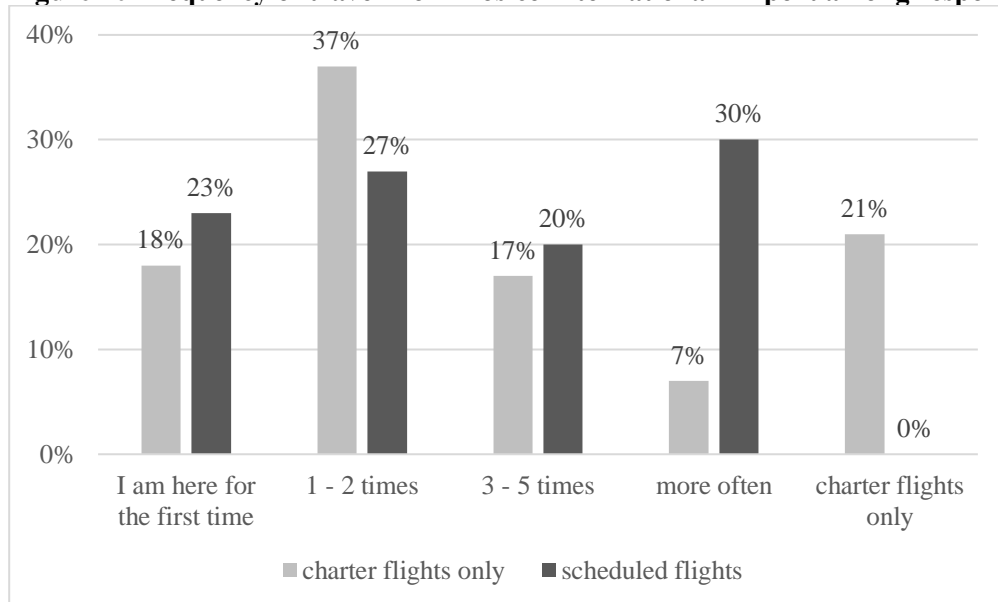
The results of respondents on scheduled flights also show that most passengers (30% of respondents) use the services of Košice airport more often, i.e. more than 5 times per year, mostly for business purposes. Passengers who answered “1 – 2 times” (27% of respondents) and “3 – 5 times” (20% of respondents) use Košice airport mainly for regular journeys. 23% of respondents answered that they were at the airport for the first time. The most frequently given reasons for choosing to fly from the airport were advantageous ticket prices, the proximity of the airport to the destination and the opening of new scheduled flights.

**Figure 19 Respondents travelling to destinations on scheduled flights from Košice International Airport**



Source: authors' own research

**Figure 20 Frequency of travel from Košice International Airport among respondents**



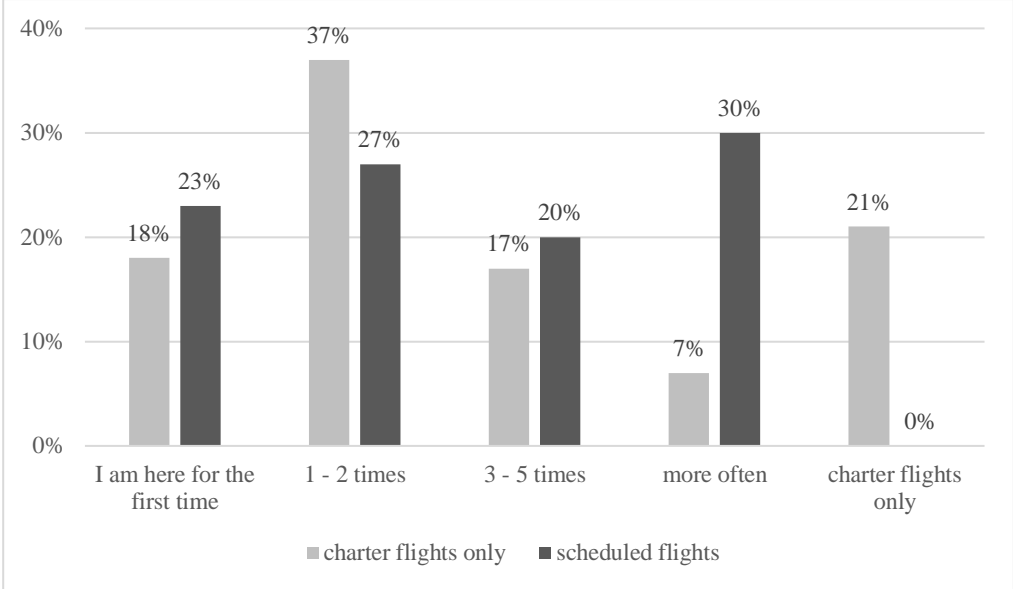
Source: authors' own research

**Reasons for visiting the Travel Value & Duty Free shop at Košice International Airport**

Respondents were asked the question “Why did you visit the Travel Value & Duty Free Shop at Košice International Airport”, and the responses are shown in Figure 21. For both passengers on charter flights (36% of respondents) and scheduled flights (38% of respondents), the main reason for visiting the Travel Value & Duty Free shop was to kill time while waiting for their flights to depart. 27% of charter passengers and 36% of scheduled passengers answered that they had visited the shop in order to purchase specific

goods, a relatively significant number. A larger number of charter passengers (17% of respondents) visited the shop during the charter season to compare prices in the shop at the airport with prices in the shops in the city, but 9% of respondents on scheduled flights did not consider price to be the decisive factor in their eventual purchase. The category “obtaining information about goods” is similar to the category “to shorten free time”. 19% of passengers travelling by charter and 16% of those travelling by scheduled flights visit the shop to get information about news, limited editions and the goods that they are interested in.

**Figure 21 Reasons for visiting the Travel Value & Duty Free shop**



Source: authors’ own research

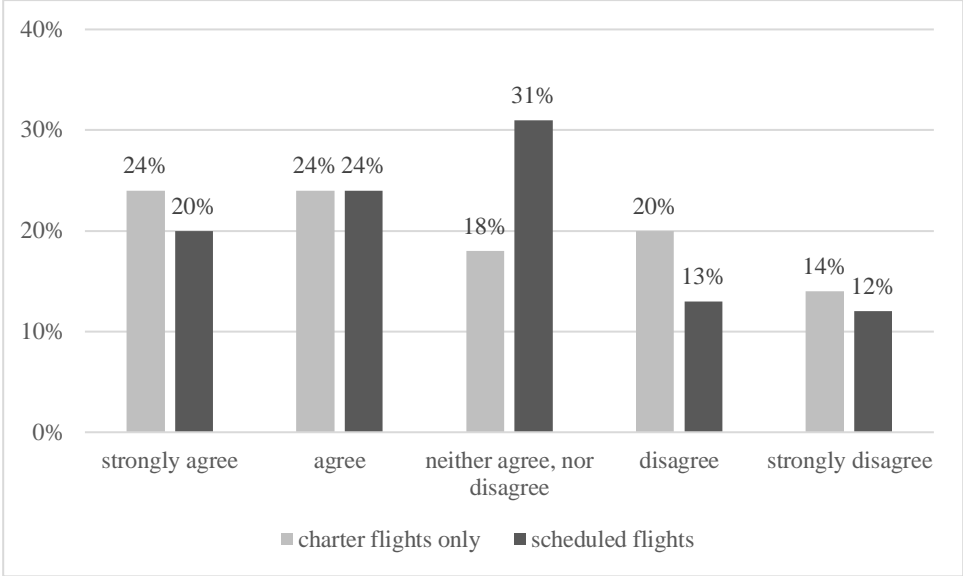
**Advertising as an influence on purchasing decisions**

Respondents were asked the question, “Do you perceive advertising as an important factor in purchasing decisions?”, and the responses are shown in Figure 22. Passengers on charter flights answered positively, with 24% of respondents agreeing and a further 24% strongly agreeing. As many studies have shown, advertising is one of the most important elements of the communication mix and is therefore considered a factor that helps customers make purchase decisions (Štefko et al. 2012). 18% of respondents opted for the neutral answer of “Neither agree, nor disagree”.

Passengers on scheduled flights also voiced their agreement with the importance of advertising, with 24% of respondents agreeing and 20% of respondents strongly agreeing. In total, around half of all respondents agreed that advertising influences consumer decisions.



**Figure 22 The impact of advertising on customers of the Travel Value & Duty Free shop**

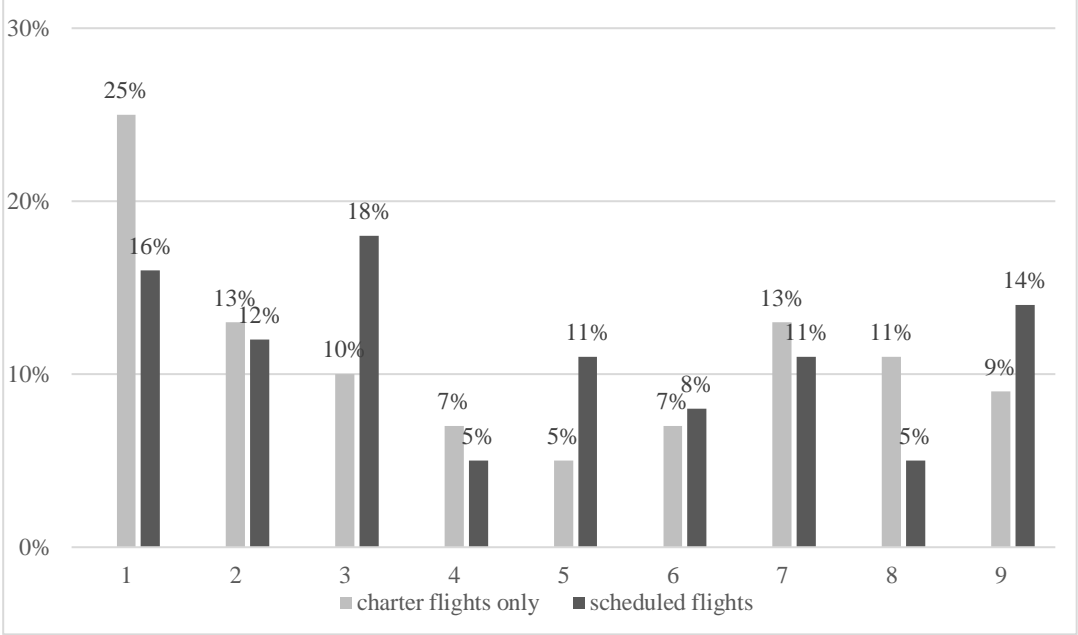


Source: authors' own research

**Influences on shopping behaviour**

Respondents were also asked to choose from a list of factors that influenced them while shopping, and the responses are shown in Figure 23.

**Figure 23 Reasons for shopping in the Travel Value & Duty Free shop**



Source: authors' own research

The survey results revealed a marked difference between the responses of passengers on charter flights and passengers on scheduled flights on shopping behaviour. Charter passengers are most likely to be affected by the price of the product (25%), while scheduled passengers favour the brand (18%) of the product. The second most common response for charter passengers was the joint factors of discounts and emotional shopping (both responses recorded shares of 13%) and price (16%) for passengers on scheduled flights. Recommendations, either from staff or friends and acquaintances, were the third most common response among charter passengers (11%) and the quality of the product (14%) for passengers on scheduled flights. The fourth and fifth most common responses were the brand of the product (10%) and the quality of the product (9%) in the case of charter passengers and discounts (12%) and a joint fifth answer of design and emotional shopping (both 11%) in the case of scheduled passengers. Among other factors influencing consumer behaviour of charter passengers were advertising (7%), current trends (7%) and design (5%), while passengers on scheduled flights also mentioned current trends (8%), advertising (5%) and recommendations (5%).

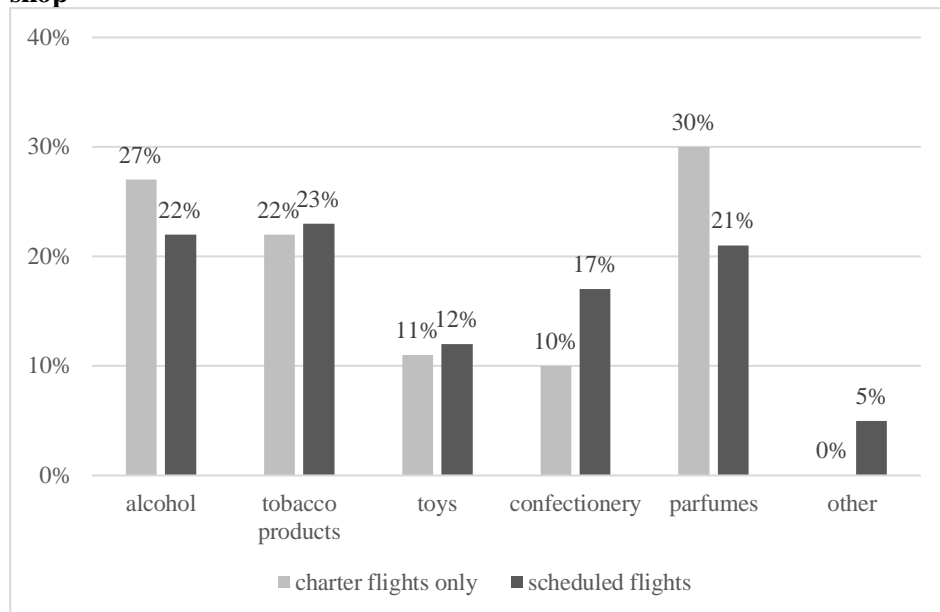
### **Purchases of specific products**

Respondents were asked to select a category to describe their purchases at the Travel Value & Duty Free shop, and the responses are shown in Figure 24. Perfumes were the main purchase for charter passengers, with 30% of respondents selecting this option. The prices of perfumes in the shop are lower in comparison with those found in other retail outlets and charter passengers flying regularly every year might be expected to make use of this advantage. Buying alcohol is the second most common reason for visiting the shop among charter passengers, with 27% of respondents selecting this option. While the shop offers a wide assortment of spirits and wines, but it does not stock Slovak products, a fact which may be a distinct disadvantage. Unlike other retail stores, the airport shop offers various limited editions which can only be purchased only in Travel Value & Duty Free shops. The category of tobacco products was also popular (22% of charter passengers) as passengers travelling outside the EU because they do not have to pay excise duty or VAT. The shop also offers a wide range of toys, a category selected by 11% of charter passengers, and confectionery, chosen by 10% of the same group of respondents.

Tobacco products were the main purpose of purchase for 23% of scheduled passengers, as these products are still cheaper at Košice airport than in, for example, Austria. Alcohol and perfumes are also popular categories for scheduled travellers, with 22% of them visiting the shop to buy the former and 21% to buy the latter. Customers often saw the Travel Value & Duty Free shop as a place where they can buy gifts; 12% of travellers on scheduled flights visited the shop to buy toys and 17% to buy sweets.

We can conclude that although passengers on both charter and scheduled flights primarily visited the Travel Value & Duty Free shop to kill time while waiting for their flights to depart, there were some differences between the groups. Charter passengers mainly visited the shop to buy perfumes, alcohol or tobacco products. When shopping, they were affected by the price of the product and they behaved more impulsively. Passengers on scheduled flights mostly bought tobacco products, alcohol, perfumes or sweets. When shopping, they were mostly affected by the brand, price and quality of the product.

**Figure 24 Types of purchases made by respondents at the Travel Value & Duty Free shop**



Source: authors' own research

Shopping at the airport offers travellers several functional motivations to make purchases on site, such as good prices, convenience, a wide range of quality products and a quality shopping experience. Even today, prices remain cheaper than in regular stores. The mere presence of shops at airports is very beneficial for passengers, as it allows them to buy food, gifts or other personal and travelling goods while waiting for their departures. Airport shops offer a wide range of international and domestic products from recognised brands; the quality of the products is thus guaranteed, and consumers have more confidence in such products than in unbranded products offered in some local stores. However, the research also shows that shopping at airports is also characterized by impulse purchases, which indicate to the impact of the surrounding atmosphere, especially in the case of charter passengers.

#### 5.4 Location theories

Location theories describe and explain economic activities within the context of their location. Due to the interdisciplinary nature of this approach, location theories have become an integral part of economic geography, spatial economics and regional studies. In this subchapter, we will present a brief theoretical introduction to the topic issue and examine the application of two commonly used tools in the quantitative analysis of spatial interaction theories, central place theory and Huff's Model of probability, also addressing the advantages and disadvantages of using each of these two approaches.

Brown (1992) distinguishes between the practical and theoretical schools of location research; the practical approach developed immediately after the Second World War addressed the practical location issues of individual retail companies and also the topic of the government planning of retail facilities within the British context, while the theoretical school dealt more with the spatial structure and functioning of the retail system and its individual subsystems. While the practical school was based mainly on inductive approaches, the theoretical methodology placed a contrasting focus on deductive

approaches. The study of the location of retail activities attracted specialists from many fields, ranging from economists, marketing experts, psychologists and planners, but the most important contributions to the study have been made by geographers (Spilková 2012).

As was stated by Križan and Lauko (2014), the current state and spatial distribution of retail is the result of long-term development trends including societal trends and their impacts, such as industrialization and urbanization, which have resulted in the concentration of the retail sector in cities. In the pre-transformation period, cities in Slovakia represented concentric zones of trade (Očovský 1974), but this situation is gradually changing and decentralization trends can be observed in the background of some Western European, North American and also Slovak cities, with a shift in activity from the centre to suburban zones (Šveda and Križan 2012). An even distribution of the retail network is understood as a balance between supply and demand, or, more specifically, the balance between potential consumer purchasing power and the sales capacity of traders.

As Szczyrba (2005) has noted, a number of long-term development trends can be identified in the retail network: spatial concentration, operational concentration and assortment concentration. Spatial concentration is determined by the increase in the capacity of the retail network in locations of concentrated demand and high population density. The agglomeration of clothing and footwear stores in the Old Town of Bratislava between 1967 and 2010 can be given as an example of the spatial concentration of retailing. The concentrated demand related to the increase in the purchasing power of consumers and also the development of tourism in this part of the city are related to the increase in the number of specialized outlets which are concentrated in the city centre (Križan, Bilková and Henclová 2019, Križan et al. 2020). Operational concentration is understood as the increase in the average size of sales units, while assortment concentration and specialization describe the provision of an aggregated range of assortment offered by large-area units.

In retail, location is of the utmost importance because the decision to open a retail store in an unsuitable location will usually lead to serious business problems and, possibly, the subsequent collapse of the operation (Spilková 2012). It might, therefore, be useful to mention some of the most frequently used methods for locality selection and market area determination.

Some of the earliest “purely” geographical works to be written were devoted to the problem of location decisions (Spilková 2012). These studies were primarily focused on various so-called location theories, which are also considered as precursors to modern theories of regional development. The best known of these variants is von Thünen’s Model of Agricultural Land Use from 1826 which traced the distribution of different types of agricultural production at different distances from the settlement. Alfred Weber’s Theory of Industrial Location from 1928 was the first to define specific location factors such as deposits of raw materials, the cost of labour and transport costs. Another significant contribution was made by Hotelling’s Law of 1929 which emphasised the role of decisions taken by other companies in other companies’ location decisions. The Central Place Theory (or die Zentrale Orte Theorie in German) developed by Christaller in 1933 represents the culmination of this phase of development of location theories. Christaller’s theory attempted to explain the spatial arrangement and functioning of the service sphere and the settlement system. His approach was further developed and extended by Lösch in his 1944 Theory of Hierarchical Trading Areas. Wolpert’s theory (1964), which was explicitly based on a behavioral approach, addressed perception factors in decisions on location (Spilková 2012, Michaeli, Matlovič, Ištók et al. 2010).

The issue of retail location can be examined from different perspectives and through different theoretical approaches (Spilková 2002, Spilková 2012). From the geographical

perspective, the level of scale at which the decision over the retail location is taken is also important. According to Spilková (2012), in the classical understanding this can be:

- at the macro-level, when developers select the country or specific region towards which they will direct their expansion and construction of new retail units
- at the meso-level, when a decision is made about the specific area of the region in which the operation will be built
- at the micro-level, when a decision is made about the specific site of construction.

However, as Brown points out (1992 as cited by Spilková 2012), individual developers or analysts may perceive these scales differently. The micro-level can, for example, be understood as a specific area of a retail outlet or shopping centre and decisions at this level may focus on the location and mix of units within a large-area retail store. Given the broad nature of this field, the following comments will be restricted to the Central Place Theory and the Huff Model of probability.

As was mentioned above, Christaller's 1933 Central Place Theory is one of the oldest and most commonly used models of evaluating retail location. The importance of a central location was noted in the past mainly due to the effect of high transport costs, with customers choosing a shopping place which allows them to spend as little time and cost on transportation to retail and service providers as possible.

Central place theory suggested that the significance of the settlement is derived from the value of the services located within it, such as higher standard facilities and provision of services or a higher level in the hierarchical arrangement of the settlement. This approach was built on the basis of certain assumptions about the market, primarily the presupposition of the economic rationality of buyers with comparable incomes who are evenly distributed across a locality in which there are no significant physical barriers. In such an idealised environment, the issue of distance becomes one of the main conditions in making a purchase, or possibly the only distinguishing criterion.

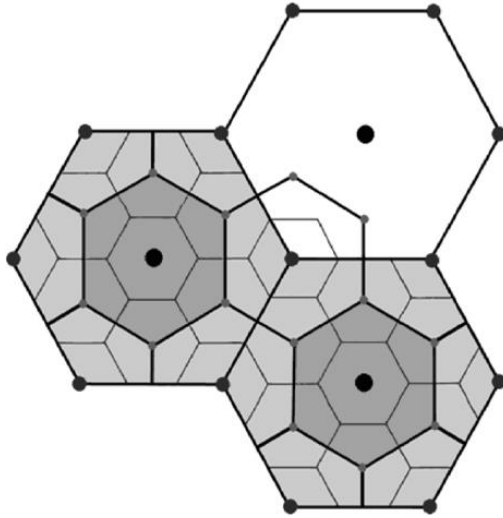
On the supply side, the theory presupposes a limited number of trading entities with fixed market thresholds (the minimum market size required for the entity to survive) and also a fixed network of customers. The resulting model then represents a network of shops, each with a different market threshold, that can be sorted from the smallest (offering basic goods and services) to the hierarchically highest (such as a theatre or specialized outlets) threshold. For a small self-service shop, 250 customers may be sufficient; however, for a large shopping centre, the threshold may be as high as 100,000 customers. If demand falls below a certain market threshold, the trader runs at a loss and can expect greater problems in the upcoming period. However, if demand exceeds the minimum, the trader's profits increase, and they may be subject to increased competition from other traders. Equally important in this respect is the frequency at which goods or services are purchased or used.

Market threshold tends to be quantified in terms of the numbers of customers or the size of their income, and this limited approach has gradually lost its significance in the modern retail environment. Much has changed in retail since Christaller formulated his theory in the 1930s; shopping is now a very different activity, with more mobile consumers willing to visit several locations, compare the goods and services on offer and patronise a wider range of retail units. Consumers tend to shop less often than in the past, as appliances such as fridges and freezers and new goods such as ready meals allow them to store food for longer.

Furthermore, Spilková (2012) draws attention to the need to take into account the breakdown of the traditional hierarchy of services on which central place theory is based. Stores with a similar range of offers are grouped together in an effort to satisfy customers

and offer them the opportunity to compare goods and prices. Shops with a smaller market threshold may exist alongside large trading formats serving a larger market area, while some hierarchically higher services which aim to attract specific groups of customers may also exist in smaller settlements.

**Figure 25 Hierarchy of settlements (of retail outlets) according to Christaller's Central Place Theory**



Source: adapted from Christaller (1933)

The theory also suffers from an overreliance on the connection between shopping locations and residential locations. This bond has been broken since Christaller's day, with people spending more time at work, a location which acts, in effect, as a temporary residence. Thus, while consumers continue to shop in the vicinity of their homes, the act of shopping is increasingly connected with their commute to and from their place of work.

Spilková (2012) has also pointed out that central place theory has also become outdated in its application to the supply side, i.e. retailers. Retailers typically make decisions on the basis of the market potential in a location, its logistical connections and the transport conditions, but they are also influenced by the moves of their competitors in terms of location. Some chains want to be located close to other firms offering a similar product mix, while others try to enter the market first and take advantage of their novelty value before their competitors appear there. It should also be noted here that the traditional hierarchy has been disrupted by non-traditional methods of shopping such as catalogue sales, teleshopping and online shopping.

The gravitation model in the function of the interaction model is a commonly used tool in geographical studies for the quantitative analysis of spatial interaction (Mitríková 2008). Reilly's law of retail gravitation (Reilly 1929, 1931) is the best-known gravitational model; it expresses the fact that two larger centres divide the demand of a site located between them in a ratio directly proportional to a specific power of the proportion of the population of both localities and inversely proportional to the specific power of the proportion of the distances of both localities from an intermediate place. However, there are some limitations to the use of this model. The model may distort the actual situation because it considers the sphere of influence of the centres to be closed and mutually exclusive; more recent research, however, has shown the existence of transitional areas from which residents typically go shopping to

two or more centres. This model also fails to take into account other aspects that can affect the distribution of spending among inhabitants of a smaller settlement located between centres such as transport connections, population density or the social and income differentiation of consumers. In urbanized areas, individual settlements have more shopping options at their disposal, and thus the possibility of choice is much wider. For these conditions, the classical form of the model of the mutual interaction of two settlements was modified by Huff (Huff 1962, 1963, 1964).

Huff's Model of probability takes into account the size of the outlet, a factor which is given by the sales area and its availability. The model determines the proportion of customer journeys for purchases from a specific location to all centres of the studied area. This proportion can be understood as the probability that a certain outlet will be selected as a purchase destination by the residents of a given settlement. Huff's Model of probability has been used widely in many practical applications and has been the most commonly used model since its initial adoption in the mid-1970s.

Detailed studies of trading areas incorporating various survey techniques have revealed the validity of a number of important empirical constants:

1. The proportion of consumers patronizing a given shopping area varies with distance from the shopping area.
2. The proportion of consumers patronizing various shopping areas varies with the breadth and depth of merchandise offered by each shopping area.
3. The distances that consumers travel to various shopping areas vary depending on the types of product purchases.
4. The "pull" of any given shopping area is influenced by the proximity of competing shopping areas.

The mathematical formula of the Huff Model is as follows:

$$P_{ij} = \frac{S_j}{\sum_{j=1}^n \frac{S_j}{T_{ij}^a}}$$

where:

$P_{ij}$  – probability expressing the customer's willingness to travel from point  $i$  (residence) to point  $j$  (retail shop) for goods or services

$S_j$  – size of the retail outlet  $j$  (indicated by the sales area in  $m^2$ )

$T_{ij}$  – time or distance availability from the place of residence to the place of purchase  $j$

$n$  – number of all possible shopping places around place  $i$

$a$  – parameter expressing the customer's willingness to travel a certain distance

The Huff Model provides a general, theoretical picture of the probability of a purchase being made in a given shop. However, when applying the model into practice, we must also take into account other factors that can influence the preference of consumers for a particular shop, including social, cultural and demographic aspects (age structure of the residents of the settlement), economic aspects such as the income differentiation of consumers, the quality and quantity of goods and services provided, or the atmosphere of the shop and its cleanliness. Each shop has distinctive features, and the general assumptions and findings may not apply precisely. Research (Mitríková et al. 2015) has also proved the existence of transitional areas from where residents are willing to travel to shop at two or more centres;

daily commutes to work to another locoregion, or even to another city or district, play an important role in this respect. Therefore, the results of our research correspond to the observation made by Walmsley and Lewis (1984) that if a modern large shopping centre is built in a specific locality of the city offering high-level services and a wide range of goods at acceptable prices, not all of the people in the vicinity will shop there and, conversely, customers from relatively remote locations will also visit the centre. This indicates that shopping is a relatively complex social phenomenon which is influenced by a number of temporally and spatially variable factors. Gravitation models are constantly being modified and verified on the basis of examples from practice. For example, Cadwallader (1975) replaced size with the attractiveness of trade, formulating four indicators to determine this factor. He also added the so-called information variable – the amount of information that the customer has access to about the shop. A major difference in his work was the insistence that all monitored aspects of the retail environment should be evaluated according to the perception of the customers themselves.

#### **5.4.1 Case study of the application of the Huff Model in the city of Prešov (Slovakia)**

The main aim of our research was to determine the validity of the use of the Huff model by comparing the results of calculations using this theoretical model with data obtained from a questionnaire survey. The research was carried out in the third largest city in the Slovak Republic, the city of Prešov, in individual locoregions, a term which was used to describe intra-urban regions in the context of Prešov by Matlovič (1998)).

The subject of this research, the Slovak city of Prešov, lies in the central part of the country, on the eastern edge of Šariš uplands and on the northern edge of the Košice basin. The precise location of the city is given the coordinates  $49^{\circ}$  n. w. w and  $21^{\circ} 15'$  e. w. l, with the altitude of the historical centre at about 255 meters above sea level. After Bratislava and Košice, Prešov is considered to be the third largest city in Slovakia in terms of population, and on 31st December 2020, the city recorded a population of 84,858 inhabitants (eGovernment town Prešov 2021). Prešov has historically been an important meeting point of roads, and the city remains an important transportation hub today. The town lies on an east-west road which stretches from the Czech Republic via Žilina and which continues to the Ukrainian border at Vyšné Nemecké, and on a north-south road from the Polish border near Vyšný Komárnik via Svidník which continues to Košice, crossing into Hungary at Milhost'. Prešov is also a strategic point on the north-southern rail corridor, connecting the Republics of Poland and Hungary (Matlovič 1998, Hochmuth, Madziková, Matlovič 1994).

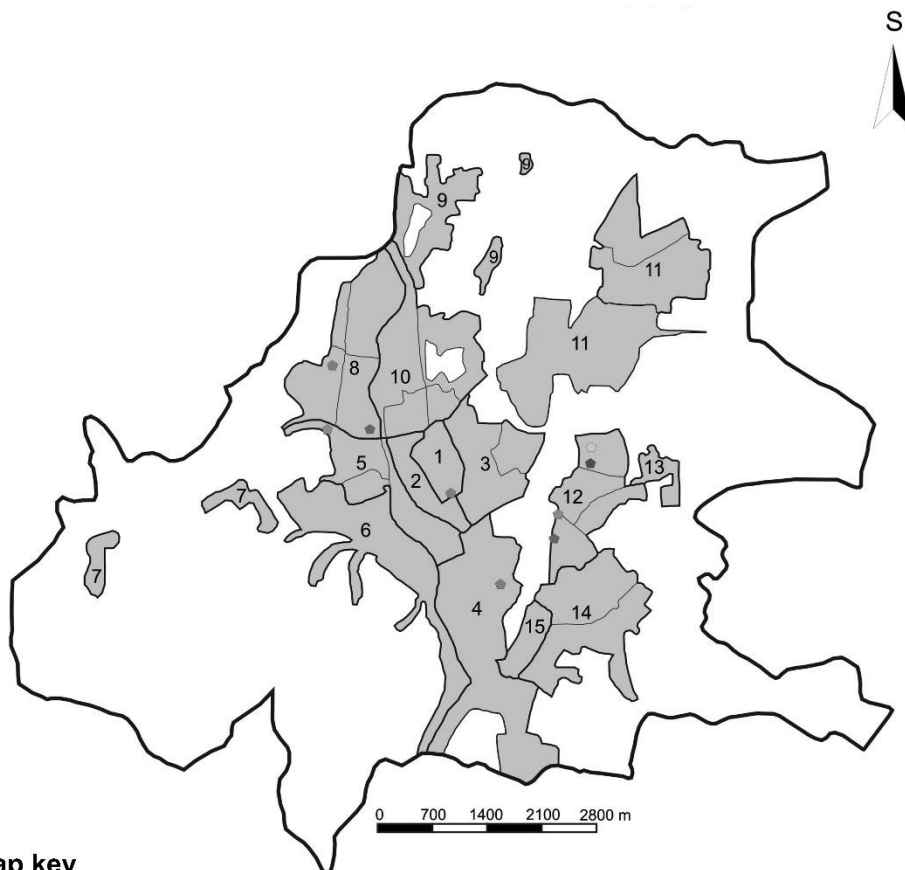
For the purposes of this study, Prešov was divided into 15 locoregions (as delimited by Matlovič (1998)) which were developed on the basis of an observational unit analysis of the socio-demographic structure of Prešov performed by Matlovič (1998) and which includes the localization of 9 large-scale retail stores (in operation as of 2014). The locoregions are shown in (Map 1) and some of these geographical units are identical to those used in the observational unit analysis (Historical Centre, Mlynský Náhon, Prešov-South, Calvary, Šalgovík and Šváby), while others were created by merging several observational units into one locoregion; for example the Sekčov locoregion was created by combining the observational units of Sekčov I, Sekčov II, Sekčov III and Sekčov IV, and the Sídliisko III locoregion was created by merging the observational units of Rúrky, Družba, Pod Bikošom and Mladost'.

The merging of several observational units into one locoregion was based partly on the spatial and morphological proximity of the units but mainly on the similarity of parameter values required for calculations. The 15 locoregions each include a parameter  $i$  as the site where the calculation of availability was measured; in this case, this means the distance to



selected shops  $j$ . In order to determine the distance, we measured the shortest distance by road from the city centre  $j$  to the geometrical centre of gravity of each locoregion  $i$ , thereby giving the distance value  $T_{ij}$ . This data was determined using the routefinding feature in Google Maps which determines the shortest path between two given points.

**Map 1 Localization of large-scale retail stores within the area of Prešov**



**Map key**

- 1- Historical center
- 2- Mlynský náhon
- 3- Táborisko + Nemocnica
- 4- Prešov- south
- 5- Ul. 17. novembra + Sídliisko II. + Kolmanka
- 6- Calvary
- 7- Vydumanec + Cemjata
- 8- Rúrky + Družba + Pod Bikošom + Mladosť
- 9- Šidlovec + Kúty + Surdok
- 10- Nová Dúbrava + Mier + Pri jazdiarni + Pri ihrisku
- 11- Nižná Šebastová + Ľubotice
- 12- Sekčov
- 13- Šalgovík
- 14- Solivar + Soľná Baňa
- 15- Šváby

- district border
- locoregion border
- border of the observed area - Prešov
- ◆ Supermarket Billa
- Retail Stores Tesco
- Hypermarket Kaufland SR
- ▲ Discount store Lidl
- ⬠ Shopping centre MAX

□ - outside of built-up areas

Source: authors' own research

**Table 20 Distances of locoregions i from selected large-scale stores j (km)**

retail store – j  locoregion – i		Tesco			Lidl		Kaufland		Billa	ZOC MAX
		Nám. Legionár.	Košická	Vukov	Rusínska	Levočská	Sekčov	Levočská		
1	Historical Centre	0.55	2.5	2.8	2.9	2.2	3.3	1.4	3.6	4.1
2	Mlynský Náhon	0.55	1.9	2.7	2.3	2.1	2.8	1.3	3.1	3.6
3	Táborisko, Nemocnica	1.0	2.2	4.1	2.0	3.5	2.5	2.7	2.7	3.3
4	Prešov-South	2.5	1.4	4.9	2.9	4.2	3.2	3.4	3.8	4.3
5	St. 17. novembra, Sídliisko II., Kolmanka	1.5	3.0	2.1	3.3	1.4	3.8	1.1	4.1	4.6
6	Kalvária	2.5	2.9	3.0	3.8	2.3	4.3	2.1	4.5	5.1
7	Vydumanec Cemjata	5.0	6.6	3.3	6.8	2.6	7.3	3.5	7.6	8.1
8	Sídliisko III.	3.7	5.1	0.45	5.4	1.3	5.9	2.1	6.2	6.7
9	Šidlovec, Kúty, Surdok	5.4	6.6	3.9	6.4	5.1	6.9	4.3	7.2	7.7
10	Nová Dúbrava, Mier, Pri Jazdiarni, Pri Ihrisku	2.6	3.8	1.7	3.6	2.4	4.1	1.9	4.4	4.9
11	Nižná Šebastová Ľubotice	5.3	6.5	6.1	4.4	5.4	4.5	5.2	3.6	3.3
12	Sekčov	2.5	2.8	5.6	0.75	4.9	0.85	4.2	1.4	1.9
13	Šalgovík	4.0	4.1	6.9	2	6.3	2.1	5.5	2.7	3.2
14	Solivar, Sol'ná Baňa	3.5	2.1	6.5	2	5.8	1.9	5.1	2.5	3.0
15	Šváby	3.5	2.7	6.6	3	5.9	2.5	5.1	3.7	4.2

Source: Google Maps 2021

Key:

Value highlighted in dark grey colour – indicates the greatest distance (in km) from the geometric centre of locoregion “i” to store “j” (this information is given for each large-scale store).

Value highlighted in light grey colour – indicates the shortest distance (in km) from the geometric centre of the locoregion “i” to store “j” (this information is given for each large-scale store)

Other data that were necessary for the calculation of probability include the attractiveness of individual stores, a value which is determined by their retail space. Parameter  $a$  represents customers' willingness to travel beyond a certain distance. This value is empirically determined and varies according to the hierarchical level of the centre. Given the similarity of stores with a comparable range of goods and a presumably similar level of attraction for the customer, each store was assigned the parameter 1. In the calculations, the denominator was the sum of the retail space size and the distance to the locoregions, taking into account all potential shopping locations within the area of Prešov (two Lidl SR discount stores, one Billa supermarket, a Tesco Stores SR department store and two hypermarkets, two Kaufland SR hypermarkets and the MAX shopping centre). By entering the obtained results into the formula, we determined the choice probability for every target retail store in relation to the population of each of the fifteen locoregions in Prešov.

The results of calculations are shown in Table 21. The results of the Huff model application were then used to create maps of the probability of choices made by car-owning store customers, using a single map key so that they could be compared mutually and also with the maps drawn on the basis of the results of the questionnaire research. The theoretical probability was calculated for nine large-scale retail outlets in fifteen locoregions as defined by Matlovič (1998). These results were compared with the results of a questionnaire survey conducted on a sample of 1096 respondents between November 2013 to March 2014. Respondents were first asked for their place of residence and then prompted to state their preferences for individual large-scale stores. The results of the Huff model calculation and the results obtained from the questionnaire survey were plotted onto the above-mentioned cartographic outputs in order to determine whether the findings were in general agreement or whether there were significant differences. The methodology of the questionnaire survey performed in the research was formulated in line with the work of Kunc et al. (2013), in which the questionnaire survey is considered the most commonly used method of obtaining data on purchasing levels at selected large-scale retail units, namely by interviewing respondents directly in hypermarkets and shopping centers or in their immediate vicinity (for example, in parking lots), where they are asked questions to determine, for example, the level and frequency of their purchases, or their preferences for shopping locations. (such research was carried by Szczyrba, 2005a, 2005b; Mitríková 2008; Mitríková, Menyhértová 2008; Trembošová, 2012; Mitríková, Tomčíková, Lukáčová, 2012; Kunc et al., 2012a, 1012b, 2013; Trembošová, Dubcová 2013; Cíváň et al., 2014; Maryáš et al., 2014 and others).

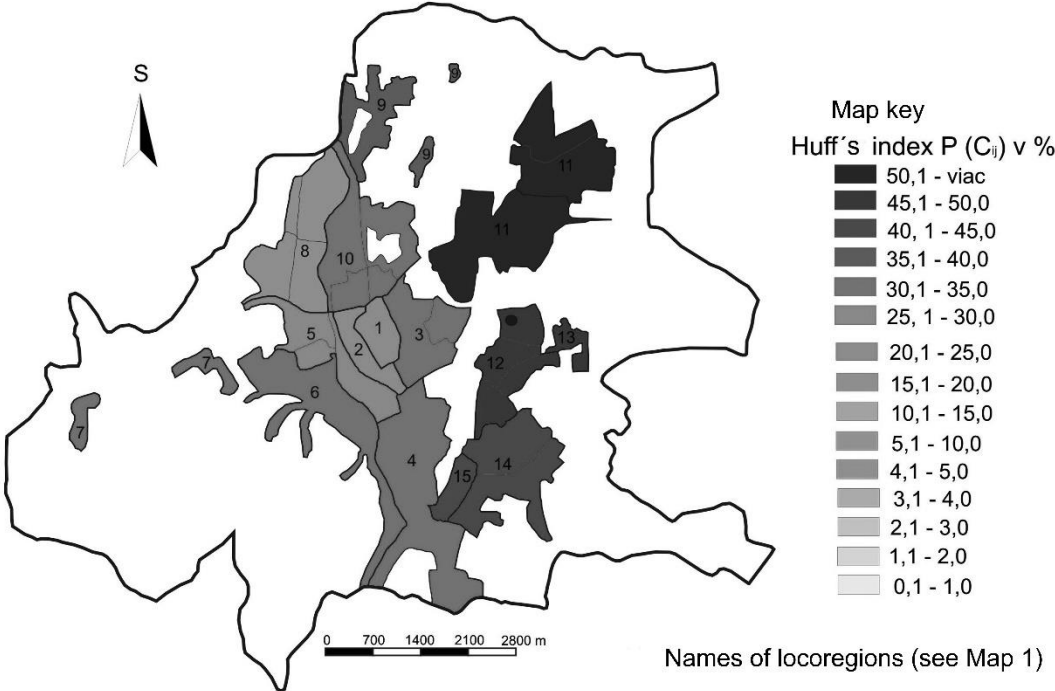
More detailed analyses of the results of the calculations and comparisons of the results of the questionnaire surveys in tables and maps were performed for the large-scale retail stores which provided the most interesting or unexpected results. Particular focus was placed on the outlet with the largest floor space, the MAX shopping centre, the store with the smallest area, a Billa supermarket located in close proximity to the MAX centre, and also the Tesco department store, an outlet with a unique location in the historical centre.

**MAX Shopping Centre.** Located on the outskirts of the Sekčov housing estate (the largest residential area in Prešov with a population of about 27,000), the MAX shopping centre boasts a floor area 19,950 m<sup>2</sup>. The mall has 115 shops including a Hypernova hypermarket and features a five-screen multiplex cinema with a capacity of 860 viewers and a food court.

The Huff Model calculations show that of all of the large-scale retail stores the Max shopping centre has the highest probability of being chosen by customers, coming top in eleven of the fifteen locoregions (Table 21). In examining the practical results of this probability model for the MAX shopping centre (Table 21 and Map 2), we can see that the MAX shopping centre has had the highest level of probability among customers

travelling from locoregions closest to the centre, while the lowest levels of possibility were found for locoregions that are further away from the centre. However, it is interesting to note that the highest probability of shopping at MAX was not recorded for the locoregion of Sekčov in which the shopping centre is located (0.466, or approximately 47%), including the shopping centre MAX, but instead for the locoregions of Nižná Šebastová and Ľubotice (0.575, or approximately 57.5%). This finding emphasises the fact that the accessibility of a good shopping centre is not the only parameter in the calculation of shopping probability, but that the choice is also affected by the relative locations of other stores in Prešov, their proximity to the Sekčov locoregion and their attractiveness in terms of the area size. The finding also reveals the effect of other shops in the Sekčov locoregion such as the Billa supermarket, the Kaufland hypermarket and the Lidl discount store which may make the MAX shopping centre less attractive.

**Map 2 Selection probability for MAX shopping centre among car-owning customers**



Source: authors' own research

**Table 21 Choice probability for retail store j among car-owning customers in locoregion i**

retail store – j		Tesco			Lidl		Kaufland		Billa	ZOC MAX
		Nám. Legion.	Vukov	Košická	Rusínska	Levočská	Sekčov	Levočská		
locoregion – i										
1	Historical Centre	0.314	0.143	0.055	0.021	0.028	0.054	0.125	0.012	0.248
2	Mlynský Náhon	0.318	0.161	0.048	0.023	0.025	0.055	0.115	0.012	0.243
3	Táborisko, Nemocnica	0.224	0.178	0.041	0.034	0.019	0.078	0.071	0.017	0.338
4	Prešov- South	0.108	0.336	0.041	0.028	0.019	0.073	0.068	0.015	0.312
5	St. 17. novembra, Sídliisko II., Kolmanka	0.164	0.144	0.088	0.022	0.053	0.057	0.192	0.012	0.268
6	Kalvária	0.129	0.194	0.081	0.026	0.042	0.065	0.132	0.015	0.316
7	Vydumanec, Cemjata	0.107	0.142	0.122	0.024	0.062	0.065	0.132	0.015	0.331
8	Sídliisko III.	0.069	0.088	0.428	0.014	0.059	0.038	0.104	0.009	0.191
9	Šidlovec, Kúty, Surdok	0.105	0.151	0.110	0.027	0.034	0.073	0.114	0.017	0.369
10	Nová Dúbrava, Mier, Pri Jazdiarni, Pri Ihrisku	0.120	0.143	0.137	0.026	0.038	0.066	0.139	0.015	0.316
11	Nižná Šebastová, Ľubotice	0.071	0.102	0.046	0.026	0.021	0.074	0.063	0.022	0.575
12	Sekčov	0.071	0.111	0.024	0.071	0.011	0.183	0.036	0.027	0.466
13	Šalgovík	0.078	0.134	0.034	0.047	0.015	0.131	0.049	0.024	0.488
14	Solivar, Soľná Baňa	0.075	0.219	0.030	0.039	0.014	0.121	0.044	0.022	0.436
15	Šváby	0.096	0.219	0.038	0.034	0.017	0.118	0.057	0.019	0.402

Source: authors' own calculations using the Huff Model of Probability Model

Key: Values highlighted in dark grey colour – the highest probability value calculated for the locoregion,

Values highlighted in light grey colour – the lowest probability value calculated for the locoregion.

Interestingly, the districts of Nižná Šebastová and Ľubotice lack any large-scale retail stores, and therefore the MAX shopping centre is the closest and most attractive large-scale store in this part of the town. For the same reason, the proximity of the Tesco department store to the districts of Historical Centre and Mlynský Náhon reduces the probability of

customers from these locations visiting MAX in comparison to the surrounding districts (0.248 and 0.243, respectively; approximately 25% for both districts).

**Table 22 Percentages of surveyed customers living in specific local districts who prefer a single large-scale retail store**

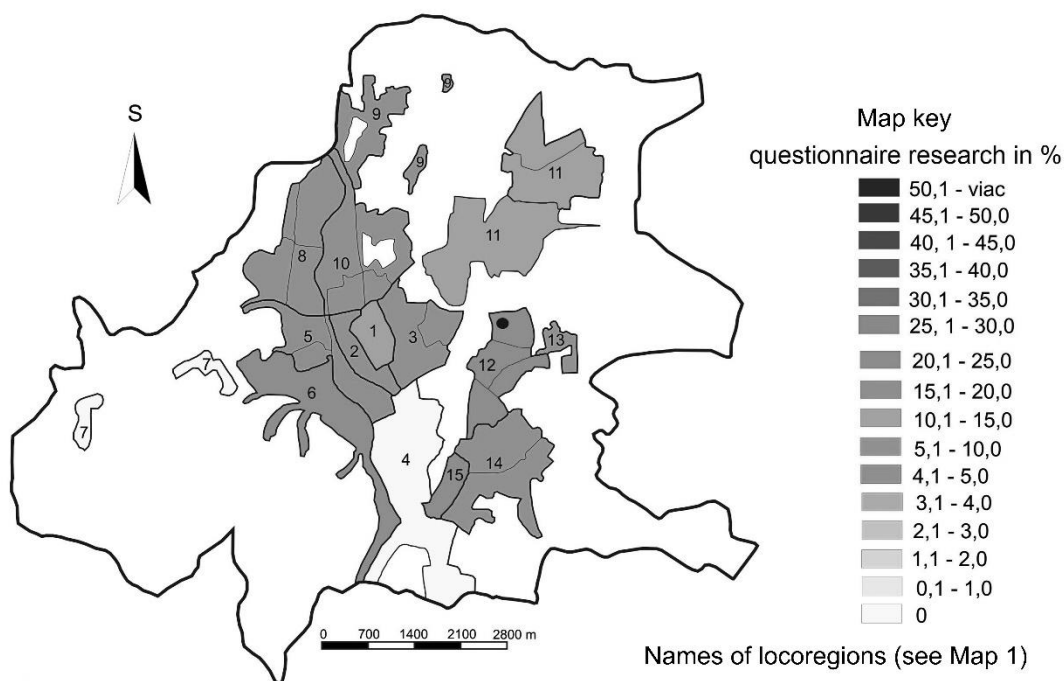
retail store – j locregion – i		Tesco			Lidl		Kaufland		Billa	ZOC MAX
		Nám. Legion.	Košická	Vukov	Rusínska	Levočská	Sekčov	Levočská		
1	Historical Centre	11.1	0.0	0.0	11.1	11.1	33.3	22.2	0.0	11.1
2	Mlynský Náhon	21.1	0.0	15.8	0	21.1	0	36.8	0.0	5.3
3	Táborisko, Nemocnica	33.3	16.7	8.3	8.3	8.3	8.3	8.3	0.0	8.3
4	Prešov-South	25.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	St. 17. Novembra, Sídliisko II., Kolmanka	9.9	8.6	7.4	3.7	30.9	2.5	28.4	3.7	4.9
6	Kalvária	30.8	15.4	7.7	0.0	15.4	0.0	15.4	0.0	15.4
7	Vydumanec, Cemjata	23.1	7.7	15.4	0.0	30.8	0.0	23.1	0.0	0.0
8	Sídliisko III.	9.7	0.8	34.3	0.8	21.4	3.2	19.4	5.2	5.2
9	Šidlovec, Kúty, Surdok	20.7	6.9	37.9	3.4	0.0	3.4	20.7	0.0	6.9
10	Nová Dúbrava, Mier, Pri Jazdiarni, Pri Ihrisku	9.3	8.0	17.3	4.0	12.0	1.3	25.3	17.3	5.3
11	Nížná Šebastová, Lobotice	18.8	33.3	2.1	4.2	8.3	10.4	4.2	8.3	10.4
12	Sekčov	7.3	8.3	2.3	14.3	1.0	21.6	1.5	24.9	18.8
13	Šalgovík	5.7	20.0	5.7	22.9	0.0	25.7	2.9	8.6	8.6
14	Solivar, Sol'ná Baňa	4.8	21.4	2.4	33.3	2.4	11.9	4.8	9.5	9.5
15	Šváby	4.8	21.4	9.5	21.4	0.0	14.3	2.4	9.5	16.7

Source: questionnaire survey conducted from November 2013 to March 2014 in and around the following large stores: Tesco department store, Tesco hypermarket, Tesco supermarket on Vukov, Lidl discount stores on Levočská, Rusínska Streets, MAX shopping centre, Billa supermarket, and Kaufland hypermarkets on Levočská and Arm. gen. L. Svoboda in Prešov. Key: Values highlighted in light grey colour – the lowest percentage of the total number of inhabitants in each locregion preferring a particular store as the destination for their regular purchases.

Values highlighted in dark grey colour – the highest percentage of the total number of inhabitants in each locregion preferring a particular store as the destination of their regular purchases.

The lowest probability for visiting the MAX shopping centre was recorded for the Sídliisko III locoregion (0.191, less than one-fifth share of the local district), which is not only one of the furthest locations from MAX but also an area with several other supermarkets and hypermarkets either in the district itself or in its close vicinity. The actual preferences of consumers for shopping and visiting the MAX shopping centre were determined through a questionnaire survey of 1,096 inhabitants of different locoregions of Prešov and the results are listed in Table 22 and Map 3. In comparison with the theoretical model (Table 21), the preference values of the MAX shopping centre (Table 22) did not show a considerably increase over those of other large-scale outlets.

**Map 3 Frequency of visits to the MAX shopping centre in Prešov by customers residing in Prešov**



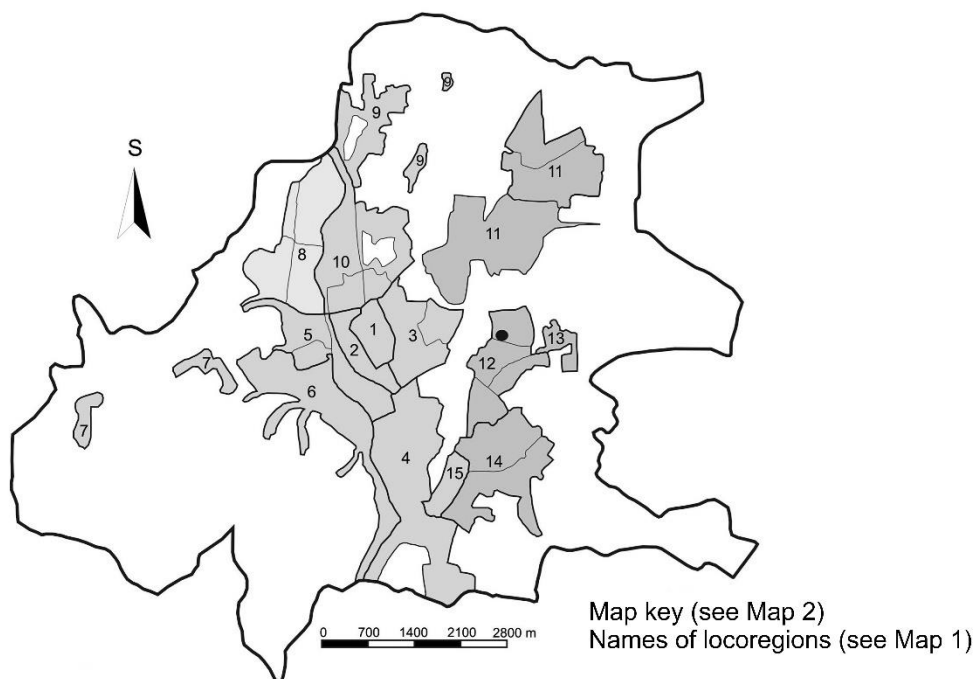
Source: authors' questionnaire survey

The highest proportion of customers who favour the MAX shopping centre was recorded among customers from the locoregion of Sekčov, with 18.8% of the total number of inhabitants from this locoregion choosing MAX over other outlets, followed the Šváby (16.7%) and Kalvária (15.4%) locoregions. None of the respondents from the locoregions of Prešov-South and Vydumanec – Cemjata stated a preference for the MAX shopping centre and distance may be a limiting factor for these locoregions as they are located 8.1 km from the MAX shopping centre (Table 20); indeed, this is the furthest large-scale retail store from all of the nine stores included in the study. Table 20 shows clearly that the Vydumanec – Cemjata locoregion has the worst accessibility to most stores. The nearest shop is a Lidl discount store on Levočska which is also the preferred choice of the majority of the population (Table 22), although the theoretical results using the Huff Model suggest that customers in this locoregion should choose the MAX shopping centre (Table 21).

The findings of the comparative analysis show that customers do not automatically prefer large-scale retail stores with a wide range of goods (MAX has an area of 7,000 m<sup>2</sup> compared to Lidl's 1,200 m<sup>2</sup>), but often prefer stores with easier accessibility in relation to their place of residence (MAX is 8.0 km from Vydumanec - Cemjata compared to the nearer Lidl which is only 2.6 km distant).

A Billa supermarket with an area of 847 m<sup>2</sup> is situated on the edge of the Sekčov housing estate in close proximity to the MAX shopping centre. As is shown in Table 21, this store has the lowest selection probability according to the results of the Huff Model calculations. These calculated values are very low and are fairly uniform across all locoregions, and this may be attributed to the fact that its floor area of 847 m<sup>2</sup> makes it the smallest large-scale store in Prešov and that it is in the vicinity of other larger stores in the surrounding area such as the MAX shopping centre, a Lidl discount store and a Kaufland hypermarket.

#### Map 4 Selection probability for the Billa retail store on Čergovská in Prešov among car-owning customers



Source: authors' own research

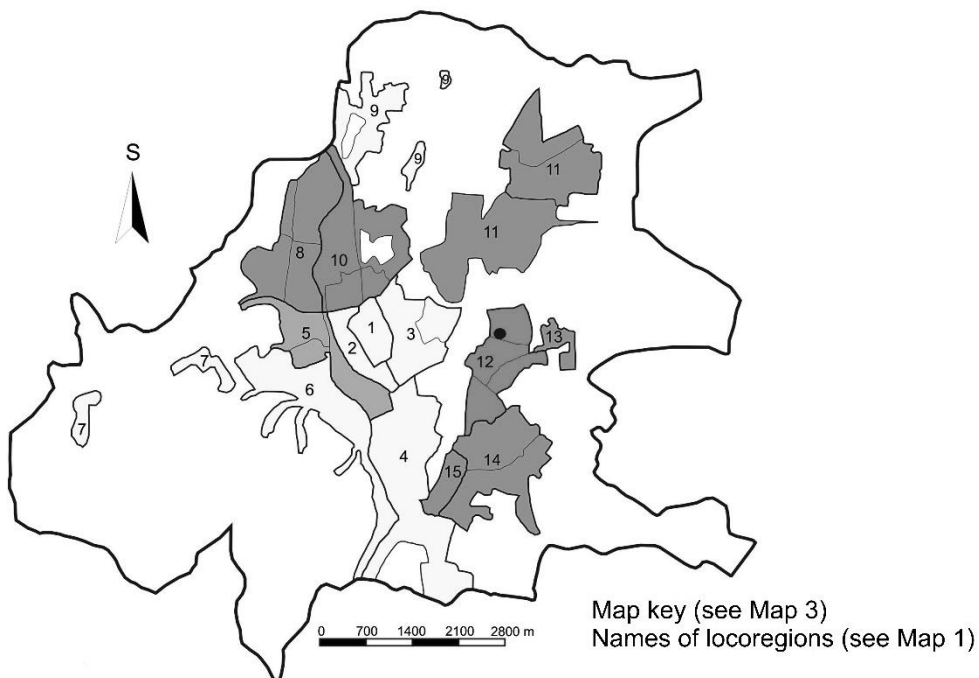
The highest preference value for the Billa store is recorded for locoregions in the immediate proximity of the store (Table 21 and Map 4), for example the locoregion of Sekčov in which the store is located. The actual preferences for the Billa supermarket as determined by the questionnaire survey (Table 22 and Map 5) are very low in comparison to the preferences for other stores with the exception for the locoregion of region Sekčov, which showed a significantly higher value of 24.9% and also, partially, the locoregion encompassing Nová Dubrava, Mier, Pri Jazdiarni and Pri Ihrisko with 17.3%. The respondents living in the Sekčov locoregion in which the Billa store is located who chose to shop at the Billa store often justified their choice by stating, for example, "we were in Max,



so we went here as well”, which indicates that the close proximity of two stores (they are only about 10 meters apart) could actually cause the increase in the number of customers in the supermarket. The inhabitants of seven locoregions replied that they did not shop in Billa at all.

Therefore, if we compare the results of the Huff Model calculations and the actual results obtained by the questionnaire survey, it can be concluded that there was a significant variance between the low value of the theoretical model calculations and the high values from the summary of the survey data (especially for the locoregions, Sekčov, Nová Dúbrava, Mier, Pri jazdiarni and Pri ihrisku), with the latter finding likely to be the result of the draw factor of the MAX shopping centre rather than the appeal of the Billa supermarket itself, a factor which the Huff Model considers to be negative rather than positive in regard to the preference of customers for the Billa supermarket.

**Map 5 Frequency of visits to the Billa retail store on Čergovská in Prešov by customers residing in Prešov**

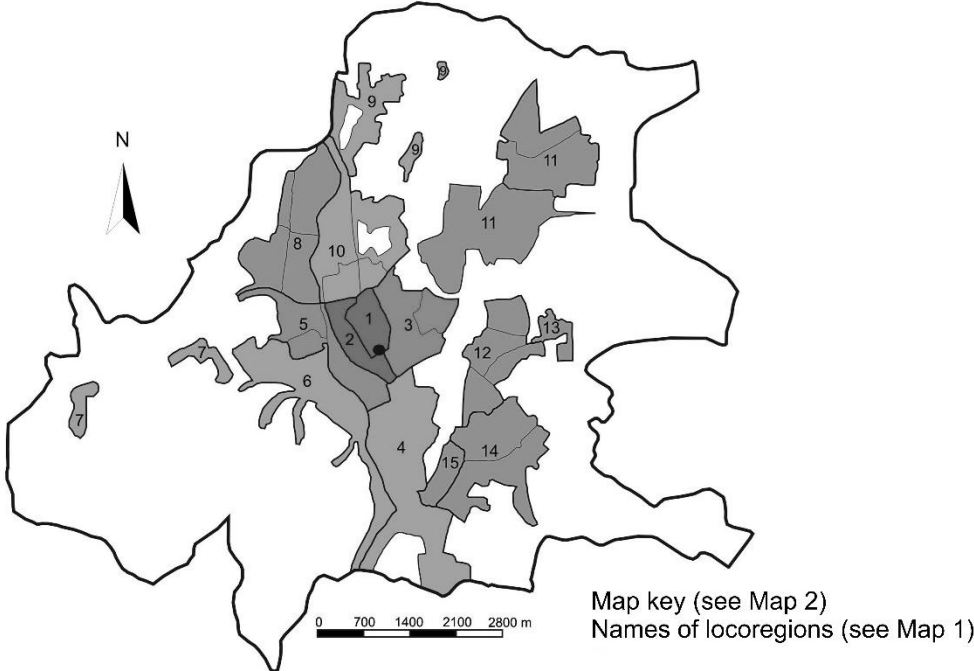


Source: authors' questionnaire survey

At the time at which the research was conducted, a Tesco department store with a floor area of 4,000 m<sup>2</sup> was located at the edge of the historical centre of Prešov (Map 1). Its location already indicates that it will be one of the key factors determining customer preferences for the store, as the city centre is a source of many potential customers, either working or studying in Prešov with some also travelling from surrounding areas, and also potential customers residing in nearby locoregions. The Tesco department store was closed in 2017 and the premises demolished, with the completely new NOVUM shopping centre being opened on the site in October 2020. The new centre has a floor area of more than 30,000 m<sup>2</sup> and an underground car park with a capacity of almost 500 cars.

However, the findings of the Huff Model calculations indicate that the Tesco department store was most likely to be chosen as a purchase location due to its position in the Historical Centre locoregion and its proximity to the neighboring locoregion of Mlynský Náhon. These locoregions showed selection probability values of 0.314 and 0.318, respectively, a probability of more than 30%. In contrast, the nearby locoregions of Táborisko and Nemocnica showed lower probability values of 25.1% and 30%, respectively, although this may be a result of their relative proximity to the MAX shopping centre. The lowest probability values for shopping at the Tesco department store were recorded for the locoregions which are furthest from the store, including Sídliisko III, Rúrky, Družba, Pod Bikošom, and Mladost', Nižná Šebastová and Ľubotice, Sekčov, Šalgovík, Solivar and Soľná Baňa, and also, partly, Šváby (Table 21 and Map 6). The survey revealed that the most important factor influencing the selection of the Tesco department store as a shopping destination was its downtown location. The highest selection values in the survey results were recorded for the locoregions of Táborisko and Nemocnica, with 33.3% of the total number of respondents in these locoregions choosing the Tesco department store, and Calvary with 30.8%, but high preferences were also reported for many respondents (not included in the results presented) living in the Prešov region rather than the city itself who commute to the city daily for work or study. Since the Tesco department store only offered paid parking, this store was more favoured by customers who use public transport or a suburban bus, with car-owning customers showing a preference for the Tesco hypermarket on Košická Street which provides free parking.

**Map 6 Selection probability for the Tesco department store (Námestie Legionárov) in Prešov among car-owning customers**



Source: authors' own research

Finally, few of the other large-scale stores included in the calculations using the Huff Model achieved either minimum or maximum probability values compared to other shops. Among the exceptions here are the minimum probability value recorded for the Lidl discount store on Levočská Street in a number of locoregions which are spatially farthest from the store (marked in grey in Table 21), a result which was corroborated by the results of the questionnaire survey. The Huff Model calculations indicated that the Tesco store on Vukov has the highest probability value for the locoregion of Sídliisko III (43%) due to its location, and this too was confirmed by the findings of the questionnaire survey, with 34% of the total respondents in the locoregion choosing the Tesco store on Vukov for their regular purchases). Both the theoretical model calculations (with a value of 33.6%) and the results of the questionnaire survey (75%) confirmed that the Tesco store on Košická showed a maximum preference value in the Prešov-South locoregion in which it is located.

Shopping behaviour and its associated spatial mobility result from the interaction of the personality characteristics of buyers and the specific environmental conditions in which they live. People living in one place may behave differently than those of another place under same conditions for various reasons, including individual needs and motivational factors, differing levels of information regarding the environmental conditions (such as the quantity and quality of goods or services on offer), but also factors in the form of barriers which include mainly financial limitations, spatial accessibility and many others.

In summary, our application of the Huff model to the preferences for nine large-scale stores across fifteen locoregions of the city of Prešov and its corroboration with the results of the questionnaire research suggest that the Model cannot be regarded as a suitable methodology for ensuring objective results in identifying consumer preferences towards large stores within an urbanized area.

In conclusion, we can see that the the Huff Model has obvious limitations in determining the relationship between location and shopping preferences, with the findings of the study proving that rational consumer behaviour is not the norm in practice. The results question the previously held view that individuals generally prefer only minimal travel for shopping purposes and that shoppers always behaves on economic motives alone. In contrast, it appears that a considerable segment of consumers choose their shopping location based on other factors such as the availability of a wider variety of goods and services, the quality of services, or the size and atmosphere of stores.

#### **5.4.2 Case study of the application of the Huff Model in the city of Košice (Slovakia)**

Košice is Slovakia's second largest city, with a population of over 239,000 inhabitants. The city is located in the east of the country, with the coordinates of 48 ° 43 'north latitude and 21 ° 15' east longitude. The northernmost point lies in the district of Sever (48 ° 82 'with SG., 21 ° 15' VGD), the southernmost point in the town of Šaca (48 ° 57 'with SG., 21 ° 22' VGD), the westernmost point in the district of Sever (48 ° 76 'W sg., 21 ° 12' VGD) and the easternmost point in the suburb of Krásna (48 ° 64 'W sg., 21 ° 36' VGD). The highest point of the city is at an altitude of 851 metres above sea level, and the lowest point is at 184 m, while the city centre is located at 208 m.

The city is divided into four administrative districts in line with Act No. 221/1996 Coll. of July 24, 1996, and is further divided into twenty-two wards. These wards formed the basis for the application of the Huff Model of probability to examine the shopping preferences of city residents for specific large-scale retail stores. The model was applied to determine the probability of consumers from different wards, represented by parameter *i*, to travel to various retail stores, represented by parameter *j*. For the purposes of the model, the distance in km was taken to be the shortest route by road from the geometric centre of each ward,

parameter  $i$  to the relevant store, parameter  $j$ , as given by the routefinding application on Google Maps. The data obtained is the value  $T_{ij}$  - the distance between ward  $i$  and store  $j$ . Additional data which is required in order to calculate the probability of choice include the attractiveness of stores, primarily determined by their retail floor area. Parameter  $a$ , which expresses the willingness of a customer to travel beyond a specific distance to visit a store, is determined empirically and varies with the hierarchical level of the retail store.

Given the similarity of stores with a comparable range of goods and a presumably similar level of attraction for the customer, each store was assigned the parameter of 1. In the calculations, the denominator was the sum of the retail floor area and the distance to the wards, taking into account all possible shopping options within the research area of Košice. The Huff Model of probability was calculated for five selected large-scale stores; the Atrium Optima shopping centre, the Galéria shopping centre, the Kaufland hypermarket on Popradská, the Tesco hypermarket in Nad Jazerom and Tesco Extra store on Trolejbusová.

As can be seen in Table 23, the results of the Huff Model calculations indicate that the highest probability of visiting the Atrium Optima shopping centre came from residents of the Luník IX ward, with over 40% (or two out of every five) inhabitants of this area choosing to shop in Optima. While this can partly be explained by the attraction of the Optima centre's extensive floor area, the largest in Košice, it is more likely a result of the centre's easy accessibility for the residents of Luník IX as this is the closest ward to the shopping centre, with a distance of only 2.3 km separating the two locations. In contrast, only 7% of inhabitants of the Džungla ward would choose to shop primarily in Optima, the lowest rate of all of the wards. Again, this is largely an issue of distance, as the two locations are relatively far apart (8.2 km), but is also a reflection of the other shopping options which are more accessible to the residents of Džungla, for example the Tesco Extra store which is located directly in the ward.

Despite the fact that the Atrium Optima centre and the Kaufland hypermarket on Popradská are relatively close to each other (about 500 meters apart), the results of the calculations show differences in their probability values (Table 23). The highest shopping probability values for both of these large-scale stores was recorded among residents of the Luník IX ward, but the difference in scale was significant; as noted above, a 40% probability for Optima, but only 4% for the Kaufland hypermarket. The reason was less dependent on the accessibility of these shops, as they are both close to Luník IX, but primarily the difference in retail floor area between the two locations, with the larger Optima centre being a more attractive shopping option.

The results of the Huff model calculation for the Galéria shopping centre show that the highest probability values were recorded for the Západ ward in which the centre is located with a value of almost 57%, followed by the KVP ward with almost 23%. This suburban area is only 2.3 km distant from the Galéria centre, and the accessibility options are excellent. The lowest probability was predicted for the Sever ward with just over 11%, but this ward is located 6.6 km from the centre and possesses other large-scale retail stores.

According to the calculations of the probability theory, the Tesco Extra hypermarket would be the biggest attraction for the Džungla ward in which the hypermarket is located, with a probability value of 23.48% (Table 24). This store also had a profound impact on the residents of the neighbouring ward of Dargovských hrdinov, with a probability value 13.11%. followed by the Ťahanovce ward, with 9.99% of its inhabitants likely to shop in the Tesco Extra hypermarket.

**Table 23 Huff Model calculation results for the Atrium Optima shopping centre, the Kaufland hypermarket on Popradská and the Galéria shopping centre**

Košice –Urban area	stores			Košice – Urban area	stores		
	O	K	G		O	K	G
Barca	26.59	2.62	12.72	Nad Jazerom	25.70	2.32	12.24
Dargovských hrdinov	13.97	1.33	12.21	Pereš	34.33	3.57	13.75
Džungľa	<b>7.58</b>	<b>0.96</b>	12.25	Poľov	31.02	3.29	13.23
Juh	18.45	2.33	16.88	Sever	14.85	1.60	16.77
Kavečany	19.14	2.19	15.76	Sídliisko Ťahanovce	9.34	1.18	<b>11.35</b>
Košická Nová Ves	13.40	1.49	12.41	Staré mesto	11.75	1.47	15.43
Krásna	22.43	2.33	13.40	Šaca	23.77	2.58	13.17
KVP	17.86	2.28	22.88	Šebastovce	24.95	2.57	13.37
Lorinčík	28.20	2.99	16.05	Ťahanovce	13.04	1.58	14.66
Luník IX	<b>40.83</b>	<b>3.88</b>	15.52	Vyšné Opátske	11.99	1.28	13.13
Myslava	26.48	3.12	22.30	Západ	20.34	2.89	<b>57.52</b>

Source: authors' own research; Key: store O –Atrium Optima, K –Kaufland, G –Galéria

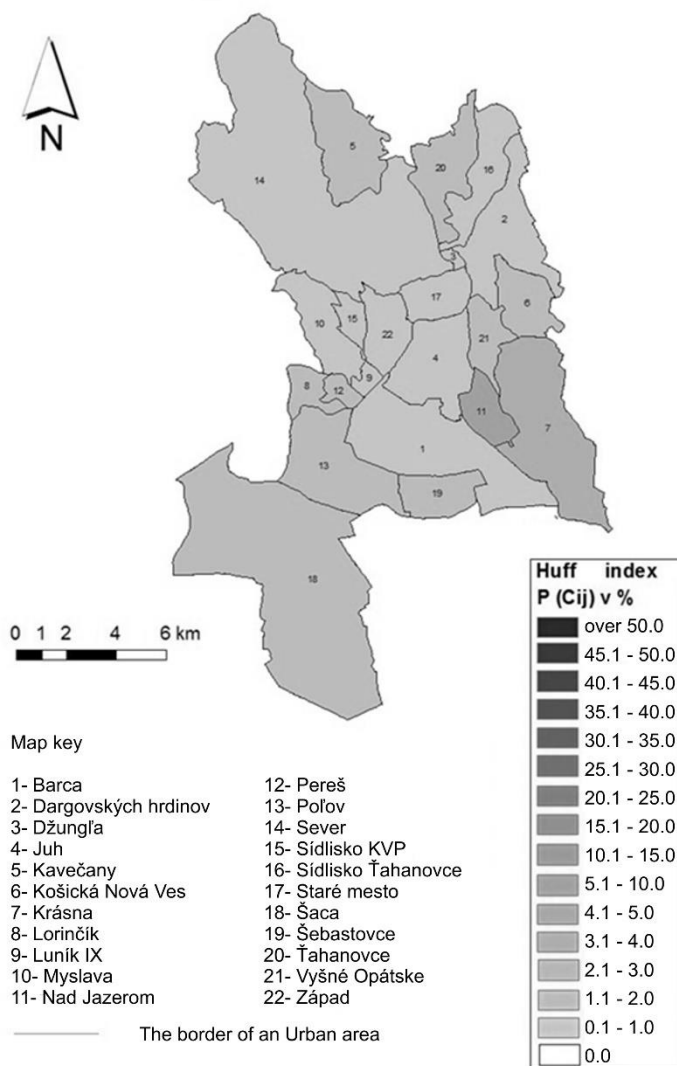
**Table 24 Huff Model calculation results for the Tesco Extra hypermarket on Trolejbusová and the Tesco hypermarket in Nad Jazerom**

Košice –Urban area	stores		Košice – Urban area	stores	
	TE	T		TE	T
Barca	2.84	0.97	Nad Jazerom	3.07	<b>6.31</b>
Dargovských hrdinov	13.11	0.84	Pereš	2.71	1.05
Džungľa	<b>23.48</b>	0.77	Poľov	2.98	1.08
Juh	2.58	0.79	Sever	8.02	0.66
Kavečany	6.62	1.03	Sídliisko Ťahanovce	9.99	0.84
Košická Nová Ves	6.42	1.08	Staré mesto	2.57	0.45
Krásna	3.63	3.31	Šaca	3.24	1.17
KVP	2.70	0.66	Šebastovce	3.24	1.81
Lorinčík	3.48	1.28	Ťahanovce	12.71	1.06
Luník IX	2.06	0.88	Vyšné Opátske	5.25	1.42
Myslava	2.67	0.82	Západ	<b>1.45</b>	<b>0.35</b>

Source: : authors' own research; Key: store TE –Tesco Extra, T –Tesco Nad Jazerom

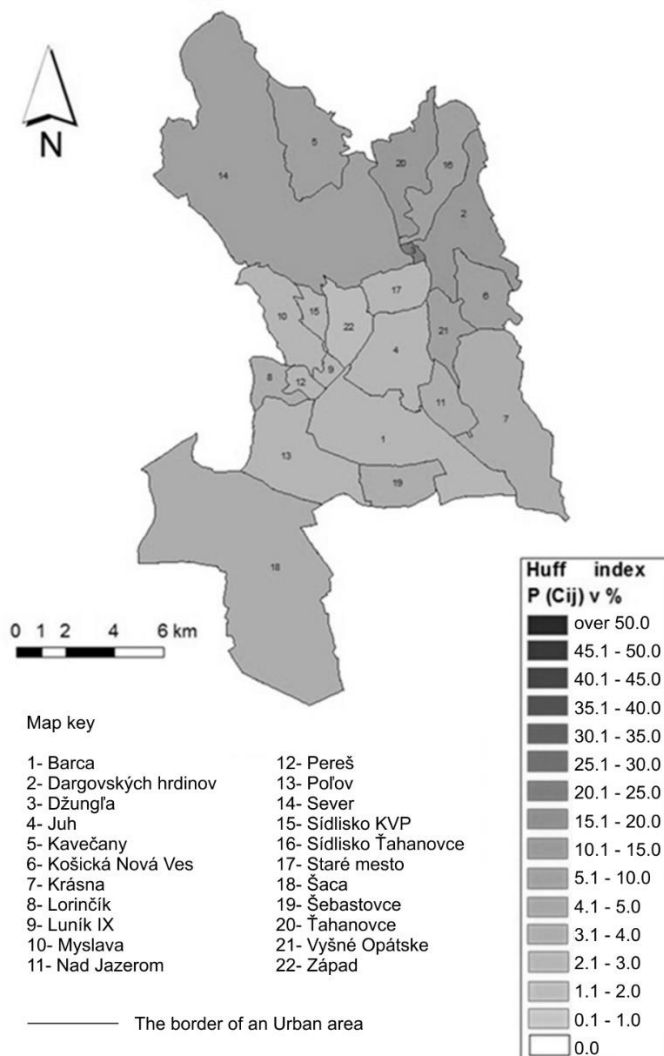
Although the accessibility of the Tesco Extra store is excellent, there are a number of other large-scale retail stores in the vicinity which can draw the attention of customers away from the store (Map 8). The lowest probability of visiting the Tesco Extra store was predicted for the residents of the Západ ward (1.45%), where the Galéria shopping centre is the dominant element. A second large-scale Tesco retail store is located in the ward of Nad Jazerom (Map 7) and the calculations suggest the high probability of visits from residents of this ward, with a value of 6.31%. This store also has a profound impact on the population of the neighbouring area of Krásna, with a probability value of 3.48%. Values of between 1.0 and 2.0% were also predicted for this store among the residents of Kavečany, Pereš, Ťahanovce Village, Poľov, Košická Nová Ves, Šaca, Lorinčík, Vyšné Opátske and Šebastovce, in ascending order. Values of between 0.0 and 1.0% were also predicted for this store among the residents of Západ, Old Town, KVP, Sever, Džungľa, Juh, Dargovských hrdinov, Luník IX and Barca, in ascending order.

**Map 7 Mapping of the Huff Model calculation results for the Tesco hypermarket in Nad Jazerom**



Source: authors' research

## Map 8 Mapping of the Huff Model calculation results for the Tesco Extra hypermarket on Trolejbusová



Source: authors' research

The Huff Model can be used to provide a general theoretical picture of the likelihood of purchases being made in retail stores located in individual zones of an overlapping and developed trading area, but other factors that can affect the findings of the theoretical concept should also be taken into consideration.

As was noted above, the highest probability of visiting the Atrium Optima shopping centre was predicted for the residents of the Luník IX ward, but the relevance of this finding may be called into doubt due to the fact that Luník IX is the most economically disadvantaged area of the city and the residents of this zone are likely to lack sufficient income to allow them to choose one shopping centre over another. However, more complicated factors such as this cannot be easily incorporated into any theoretical model, since each store is unique and general assumptions and findings cannot be said to be universally applicable. These factors may include the quality and quantity of goods and

services offered, the atmosphere and cleanliness of the store but also social, cultural or demographic aspects (such as the age structure of the population), economic aspects (such as the income differentiation of consumers), and many other factors, all of which can have an impact on customer preferences for a particular store.

### **5.5 Spending leisure time in shopping centres**

In his study which classified the various types of retail stores and shopping centres, Guy (1998) notes that different locations are associated with particular purposes of shopping activity. Convenience shopping or basic purchases are typically performed in centres with large grocery stores and supermarkets, while household shopping is often carried out in large shopping centres. Personal or fashion shopping is connected with shopping arcades and shopping areas in city centres. Leisure shopping is another important category which is typically linked to attractive shopping centres or factory outlet centres. Random or incidental shopping is often performed by travellers and visitors and typically connected to retail units in transportation terminals but also with small shops (Spilková 2012).

Shopping centres have revolutionised traditional forms of shopping and consumer habits, especially among younger new generations, with individuals under the age of 35 forming the largest group of visitors to shopping centres. Shopping centres also offer other cultural attractions and offer a wide range of ancillary services in their efforts to attract as many consumers as possible. The emergence of this form of leisure shopping has transformed shopping centres into locations in which people of all generations can choose to spend their leisure time (Guy 1998; Tremošová 2012; Tremošová, Civiň, Dubcová and Kramáreková 2016).

Studies of shopping behaviour examine the complicated sociological phenomena of the reasons why specific people buy specific products and services, in particular places and times and the means by which they do so. While distinct patterns can be identified, individuals and groups can behave differently when making purchases, and many studies have shown that education, age, income and gender play an important role in determining consumer behaviour. Differences can be identified not only in terms of the type and means of the purchase, but also in how individuals choose one product over another; for example, women often base their purchasing decisions on information obtained from magazines, while men tend to favour other sources (Vilečková and Sabo 2014).

Consumer behaviour in shopping is affected by various processes, most importantly by economic, social and demographic trends (Dunne and Lusch 2008). Demographic or population trends are related to consumer characteristics such as gender, age or population growth, and there is a direct proportion between the level of consumption and population size; in essence, the greater the number of consumers, the higher the level of consumption. Every age category has specific requirements when making purchases and choosing services. Trends in consumption can be determined by specific dominant age categories of consumers. Young consumers can form separate groups such as “yuppies” (Jones, Simmons 1990), “tweeners” (Dunne, Lusch 2008) or “mall junkies” (Spilková 2012). Gender is another important factor in terms of demographic trends, with women playing a key role in household shopping habits and forming a key group of consumers in specific retail sectors such as clothing or jewellery.

Social trends are also a significant factor in consumer behaviour, with, for example, increasing levels of education among the population leading to a growth in sophisticated shopping such as e-retail or telephone shopping (Bačík, Szabo and Fedorko 2014). Other social factors such as the marital status of consumers can also have an impact on purchase behaviour (Dunne and Lusch 2008).



Household income is perhaps the most important economic factor determining consumer behaviour, as the level of retail spending, whether on, for example, food, footwear, clothing or entertainment, is heavily dependent on consumers' income. However, a related factor here is the use of incentives for customers to make purchases, for example, the use of credit cards and various loan programs which allow consumers to obtain products that they cannot afford outright but which run the risk of exposing individuals to indebtedness and the various social problems associated with this (Križan a Lauko 2014).

Shopping tourism is a term which has been defined differently by a number of authors. Timothy (2005) considers bricks-and-mortar shops, primarily shopping centres, to be places of tourism activity, arguing that large-scale stores are not only shopping destinations but also sites where people can enjoy free time activities and entertainment. Kompasová (2010) states that shopping tourism can be both domestic and international, mainly in areas with a high concentration of permanent retail outlets such as shopping centres, but also in temporary sites such as markets or exhibitions. Shopping tourism has also been defined as an element of adventure tourism in which participants are motivated to experience positive feelings from buying specific items in special locations. Civiň and Krogmann (2012, 2) see shopping tourism as a modern form of tourism in which the need for individuals to spend their leisure time is met, in this case through shopping. Shopping acts as both a primary and secondary motivation for the realization of their needs.

A series of studies in the Czech and Slovak contexts have examined the ways in which shopping centres are becoming increasing popular sites for entertainment and weekend leisure activities. Research by Szczyrba (2006) focused on Olomouc, Mitríková, Tomčíková and Lukáčová (2012) on Košice, Zeman (2011), Križan Tolmáči (2011) and Križan, et al. (2015) on Bratislava, Kunc et al. (2012a, 2012b, 2013) on Brno, Trembošová (2010a, 2012), Trembošová, Dubcová and Kramáreková (2016) on Nitra, and Trembošová, Dubcová and Civiň (2016) on Trnava.

Mitríková, Tomčíková and Lukáčová (2012) examined the issue in the city of Košice. Their findings revealed that the trend of individuals spending their free time in shopping centres, regardless of the weather, was also being observed in Košice, with families often choosing to spend their Saturdays or Sundays at one of the city's complexes, either shopping or visiting the cinema, a restaurant or crèche, or meeting friends in a café. The trend was found to be increasing, not only in terms of the amount of money spent in a shopping centre but also in terms of the length of time which people spend in the centres. Shopping centres strive to ensure positive experiences for visitors in order to ensure that they will return in the future.

A case study of teenagers in Czech malls (Spilková and Radová, 2011) focused on teenagers aged 14–17 who spend their free time “hanging out” in shopping centres in several of the largest Czech cities. The data for the study was gathered through collected by participant observations and interviews, and the goal of the article was “to reveal how such teenagers use the micro-space of the shopping mall, how they socialise, and how their social identities may be produced through different practices in the mall space”.

Križan, Barlík and Bilková (2016) analyzed the frequency of shopping activities performed by younger consumers in comparison to that of all categories of consumers in the city of Bratislava. The study found that people under the age of 25 are a unique group of consumers who can adopt new trends very quickly and easily, a quality which makes them a focus of interest not only of geographers, but also of economists, sociologists and marketers. The results listed the similarities and differences in the frequency of shopping activities between younger consumers and consumers in general.

### **5.5.1. Case study of shopping behaviour in selected shopping centres in the city of Vienna (Austria)**

The main objective of this subchapter is to evaluate customer shopping behaviour and the time spent in leisure activities in the Donau Zentrum and Millennium City shopping centres in Vienna, the capital of Austria.

As one of Europe's largest cities, Vienna features not only a wide range of shopping zones and small shops, but also several large shopping centres such as HUMA Vienna, Wiener Gasometer, Shopping City Süd (SCS), Shopping Centre Nord, Donau Zentrum and Millennium City. Additionally, the Pandorf shopping centre area is located outside of the city and features several designer outlet stores which offer branded products at reduced prices (Civáň, Krogmann 2012, Civáň, Krogmann, Midler et al. 2015, Bilková, Barlík, Križan, Kita and Zeman 2017).

In Austria, the development of shopping centres and other large-scale stores is regulated by European Union legislation (Florián, Schwarz and Zsilincsar 2005). Proposed stores in Vienna must be built in an industrial, mixed or inhabited area and are not permitted to exceed a maximum retail floor area of 2500 m<sup>2</sup>. Prior to approval, the impact of a new complex on other nearby centres and their supply and the local population structure, and its accessibility by transport is also assessed (Spilková 2012). It is important to note that all shopping centres are closed on Sundays and public holidays in Vienna.

Altogether, there are 11 shopping centres including various department stores and 32 large-scale retail units in Vienna, a figure which is relatively low in comparison to the neighbouring capital cities of Prague or Budapest. The total retail floor area of Vienna shopping centres is 818,950 m<sup>2</sup> (Sikos 2013) and the complexes are primarily located at the outskirts of the city.

In this study, we carried out a survey which was primarily intended to analyse the shopping behaviour of customers at the Donauzentrum and Millennium City shopping centres in Vienna.

In order to achieve this primary goal, we set two hypotheses:

Hypothesis 1: We predict the gender of respondents to be independent of the time spent in the shopping centre.

Hypothesis 2: We predict the age of respondents to be independent of opinions on opening shopping centres on Sundays.

These hypotheses were tested on the basis of a questionnaire survey conducted from July 2016 to January 2017 in two selected shopping centres in Vienna, Donau Zentrum and Millennium City. The questionnaire consisted of 14 questions of which 12 were closed and 2 opened. In order to achieve the goal of the survey, we used primary resources, more specifically visitors to the two shopping centres. Our survey sample consisted of 160 respondents equally split between the two shopping centres. The questionnaire was translated into German language, as Austria is a German-speaking country. During the survey, there was a marked reluctance among respondents to participate in the survey, a fact which is reflected in the final number of the respondents.

Marketing, psychological, pedagogical research addresses qualitative features or variables such as gender, nationality, eye colour or place of residence. When investigating dependencies (contingencies or associations), it requires a connection between two variables of this type. If both variables have two variants of values (dichotomic, or so-called alternative variables), we can state that an association exists. If one variable has at least three variants of values, we can state that a contingency exists.

The independence of two variables can be verified using the familiar and straightforward Chi-squared Independence Test. Dependency is verified between two quantitative variables

or through a combination of qualitative and quantitative variables. The idea of the test is similar to that of the Pearson chi-squared conformity test; empirical frequencies are compared in which the zero hypothesis of theoretical frequencies must apply (Jurečková, Molnárová 2005).

The essence of testing the proportions of the two fundamental variables is the approximation of the binomial distribution by normal division. Large data sets are required for this type of approximation. If we have random selections with large ranges  $n_1$ ,  $n_2$ , we can calculate the  $P_1$ ,  $P_2$  selections and then test a zero hypothesis:  $H_0: \pi_1 = \pi_2$ .

In the following section, we will evaluate the questionnaire survey performed at both shopping centres using the two-variable association and contingency using the Chi-squared Independence Test and testing the shares of the two base files with a hypothesis test in order to match the two file shares.

Two groups of 80 respondents participated in the questionnaire survey, one group comprised of visitors to the Donau Zentrum shopping centre and the second of visitors to the Millenium City shopping centre. In terms of gender, women are typically considered to be the main protagonists in shopping activities (Szczyrba 2005), and therefore we were interested in determining whether there was a difference in the proportion of women shopping in the shopping centres. In the Donau Zentrum group, 52 (65%) of the respondents were women and 28 (35%) men, while in the Millenium City group, 46 (57.5%) were women and 34 (42.5%) men. We tested the hypothesis of a share match of the basic group,  $H_0: \pi_1 = \pi_2$  to the alternative hypothesis  $H_1: \pi_1 > \pi_2$ , at the level of significance  $\alpha = 0.05$ .

$$\pi_1 = 52/80$$

$$\pi_2 = 46/80$$

$$Z = \frac{P_1 - P_2}{\sqrt{\frac{P_1(1-P_1)}{n_1} + \frac{P_2(1-P_2)}{n_2}}}$$

$$\text{TCH: } 0.976546$$

$$\text{Quantile: } 1.644854$$

Since it is not valid that  $0.976546 > 1.644854$ , this means that we cannot reject  $H_0$ , which means that there was not a statistically significant difference in the proportion of women shopping at the investigated shopping centres.

The next question concerned the place of residence of respondents. Respondents could select from 23 districts in Vienna or instead merely state that they resided in Vienna. In order to evaluate the results, these districts were classified into the four following groups:

1<sup>st</sup> group: 21. Floridsdorf and 22. Donaustadt

2<sup>nd</sup> group: 1. Innere Stadt, 2. Leopoldstadt, 3. Landstraße, 4. Wieden, 5. Margareten, 6. Mariahilf, 7. Neubau, 8. Josefstadt, 9. Alsergrund and 20. Brigittenau

3<sup>rd</sup> group: 10. Favoriten, 11. Simmering, 12. Meidling, 15. Rudolfsheim-Fünfhaus, 16. Ottakring, 17. Hernals, 18. Währing and 19. Döbling

4<sup>th</sup> group: 13. Hietzing, 14. Penzing, 23. Liesing and Vienna surrounding.

Based on this distribution, the highest number of respondents and visitors to the Donau Zentrum shopping centre came from the 3<sup>rd</sup> groups, more precisely 31.25% of the respondents. The second most frequent group, 27.50% of respondents, were those from the districts we had assigned to the 2<sup>nd</sup> group. 23.75% of respondents had travelled to Donau

Zentrum from 1<sup>st</sup> group districts, while the lowest number of respondents, 17.50%, had come from 4<sup>th</sup> group districts.

From the Millenium City group, the highest number of respondents had travelled from the 2<sup>nd</sup> group of districts, a total of 35% of the respondents in the Millennium City shopping centre. This was the highest share from either of the groups and reflects the location of the Millenium City centre within the the 2<sup>nd</sup> group of districts, more specifically 20<sup>th</sup> district of Brigittenau. The same number of 27.50% of respondents was recorded for respondents travelling from the districts of the 1<sup>st</sup> and 3<sup>rd</sup> groups. The lowest number respondents had visited Millenium City from the districts of the 4<sup>th</sup>group, only 10% of the respondents.

Based on the Chi-squared test, we wanted to find out if there was a relationship between the respondents' gender and the time spent shopping in the centres. In the case of the Donau Zentrum shopping centre, the zero hypotheses is: there is no dependence between the gender of respondents and the time spent in the Donau Zentrum shopping centre.

**Table 25 Empirical frequencies between the respondents' gender and the time spent at the Donau Zentrum shopping centre**

Gender/ Time	Up to 30 minutes	31-60 minutes	61-90 minutes	91-120 minutes	121-180 minutes	More than 180 minutes	Σ
Man	4	12	6	2	4	0	28
Woman	2	14	25	7	2	2	52
Σ	6	26	31	9	6	2	80

Source: authors' own research

**Table 26 Theoretical frequencies between the respondents' gender and the time spent at the Donau Zentrum shopping centre**

Gender/ Time	Up to 30 minutes	31-60 minutes	61-90 minutes	91-120 minutes	121-180 minutes	More than 180 minutes	Σ
Man	2.1	9.1	10.85	3.15	2.1	0.7	28
Woman	3.9	16.9	20.15	5.85	3.9	1.3	52
Σ	6	26	31	9	6	2	80

Source: authors' own research

The data obtained from the Donau Zentrum group of respondents was processed into tables of empirical and theoretical numerical values and the observed and theoretical values were compared using the Chi-squared test. The resulting p-value for the data from Donau Zentrum is 0.03809, which means that at the level of significance  $\alpha = 0.05$  we reject the zero hypothesis, so it can be said that there is a dependency between the gender of the respondents and the time spent at the Donau Zentrum shopping centre.

The same testing was performed for the data obtained from the respondents from the Millennium City group. The zero hypotheses assume an independence between the gender of respondents and the time spent at the Millennium City shopping centre. The data was entered into tables of empirical and theoretical frequencies.

**Table 27 Empirical frequencies between the respondents' gender and the time spent at the Millennium City shopping centre**

Gender/ Time	Up to 30 minutes	31-60 minutes	61-90 minutes	91-120 minutes	121-180 minutes	More than 180 minutes	Σ
Man	2	12	9	9	1	1	34
Woman	0	8	16	18	3	1	46
Σ	2	20	25	27	4	2	80

Source: authors' own research

**Table 28 Theoretical frequencies between the respondents' gender and the time spent at the Millennium City shopping centre**

Gender/ Time	Up to 30 minutes	31-60 minutes	61-90 minutes	91-120 minutes	121-180 minutes	More than 180 minutes	Σ
Man	0.85	8.5	10.625	11.475	1.7	0.85	34
Woman	1.15	11.5	14.375	15.525	2.3	1.15	46
Σ	2	20	25	27	4	2	80

Source: authors' own research

The observed and theoretical values were compared using the Chi-squared test to give the p-value as 0.21185, which suggests that at the level of significance  $\alpha = 0.05$  we do not reject the zero hypothesis, so there is no dependence between the gender of the respondents and the time spent at the Millennium City shopping centre.

Based on the results of the Chi-squared test, we also wanted to find out whether there is a relationship between the age of the respondents and opinions on the issue of opening shopping centres on Sundays. In the case of the Donau Zentrum shopping centre, we determined a zero hypothesis: there is no relationship between the age of the respondents from the Donau Zentrum shopping centre and the opinion on opening the shopping centre on Sundays. Using the data obtained from the respondents at the Donau Zentrum shopping centre, tables of empirical and theoretical frequency were created.

**Table 29 Empirical frequencies between the age of respondents from the Donau Zentrum shopping centre and opinions on opening the shopping centre on Sundays**

Age	Yes	No	Σ
Up to 35 years	16	25	41
36-50 years	6	16	22
51-65 years	2	5	7
66 years and more	1	9	10
Σ	25	55	80

Source: authors' own research

**Table 30 Theoretical frequencies between the age of respondents from the Donau Zentrum shopping centre and opinions on opening the shopping centre on Sundays**

Age	Yes	No	$\Sigma$
Up to 35 years	12.81	28.1875	41
36-50 years	6.875	15.125	22
51-65 years	2.188	4.8125	7
66 years and more	3.125	6.875	10
$\Sigma$	25	55	80

Source: authors' own research

The empirical and theoretical values were compared using the Chi-squared test, giving the p-value of 0.328546212. At the level of significance  $\alpha = 0.05$  we have no reason to reject the zero hypothesis that there is no dependence between the age of respondents and opinions on opening the shopping centre on Sundays among the Donau Zentrum group of respondents.

In the case of the Millenium City shopping centre, we determined a zero hypothesis: there is no relationship between the age of the respondents from the Millenium City shopping centre and the opinion on opening the shopping centre on Sundays. A similar process as in the case of the Donau Zentrum shopping centre was undertaken for the data obtained from the repondents from the Millenium City group.

**Table 31 Empirical frequencies between the age of respondents from the Millennium City shopping centre and opinions on opening the shopping centre on Sundays**

Age	Yes	No	$\Sigma$
Up to 35 years	20	17	37
36-50 years	3	17	20
51-65 years	2	14	16
66 years and more	0	7	7
$\Sigma$	25	55	80

Source: authors' own research

**Table 32 Theoretical frequencies of Millennium City shopping centre between the age of respondents from the Millennium City shopping centre and opinions on opening the shopping centre on Sundays**

Age	Yes	No	$\Sigma$
Up to 35 years	11.56	25.4375	37
36-50 years	6.25	13.75	20
51-65 years	5	11	16
66 years and more	2.188	4.8125	7
$\Sigma$	25	55	80

Source: authors' own research

The empirical and theoretical values were compared using the Chi-squared test, giving a p-value of 0.000638623. At the level of significance  $\alpha = 0.05$  we reject the zero hypothesis that there is no dependence between the age of the respondents and opinions on this issue. It can therefore be said that there is dependence between the age of respondents from the Millennium City shopping centre and opinions on opening the shopping centre on Sundays.

The largest age group of respondents in both shopping centres was that composed of individuals under the age of 35. Based on the Chi-squared Independence Test, there is no dependence between the age of respondents in the Donau Zentrum shopping centre and those from Millennium City. The shares match test showed that respondents under the age of 35 made up 50% of the total number of respondents.

When asked about the reason for visiting the shopping centres, the most frequently recorded response given by visitors to the Donau Zentrum shopping centre was to buy food and drugstore products, while in the Millennium City shopping centre the most common reason was to buy clothing and footwear. In terms of visit frequency, visitors to Donau Zentrum were more likely to visit the centre multiple times per month, while in Millennium City the most common frequency was once a week.

Visitors to Millennium City spent a relatively long time in the centre, with average visits of 91-120 minutes. In contrast, visitors to Donau Zentrum spent an average of 61-90 minutes in the centre. The longer visits to Millennium City are possibly a result of the wide range of shops and services which the centre offers such as Ocean Park with bowling lanes, video games and other forms of entertainment, the A-Club Disco, or the Holmes Place Club fitness centre. This also reflects the fact that shopping centres nowadays no longer only fulfil the role of shopping destination but have also developed a multifunctionality which creates the possibility for increasing the length of leisure time spent by visitors in shopping centres, a change which is also associated with the potential of customers increasing their expenditure in the centres.

Respondents from both shopping centres typically travelled to the locations by car or by public transport. Vienna has an extensive local transport network consisting of suburban trains, subways, trams and buses. Respondents from the Donau Zentrum shopping centre considered the range of products and services on offer as the most important factor when shopping, while respondents at Millennium City saw quality and price as the most influential. According to the responses to the survey, Donau Zentrum visitors spent an average of € 51-70 during their visits, with visitors to Millennium City spending slightly more, with an average expenditure of 71-100 € per visit.

Respondents were also given the opportunity to answer open questions examining what they considered to be the biggest advantage of a particular shopping centre and what they felt was missing from the centre. In both of the shopping centres, respondents considered the biggest advantage to be the fact that everything is under one roof. Other benefits mentioned included escalators, the large numbers of shopping carts, the possibility of buying gift vouchers, the long opening hours, the size of the parking facilities, Wifi access, and the wide range of restaurants and fast food outlets in the food courts. A majority of respondents at the Donau Zentrum shopping centre stated that they did not feel that any kind of shop was missing in the centre. However, several individual respondents answered that the centre lacked, among others, a restaurant offering healthy food, a disco, a pet shop, an antiquarian book shop, a fishing equipment shop or a relaxation centre. In the Millennium City shopping centre, respondents noted the absence of activities directed at seniors, an outdoor cinema, a quality tea shop, more fresh fish in the grocery store and a Michael Kors brand store. Overall, however, respondents were generally satisfied with the range of goods and services on offer in these shopping centres and had positive perceptions of the centres in terms of increasing the length of leisure time they would spend there.

### 5.5.2 Case study of leisure time spent by teenagers in the Aupark Košice shopping centre in Košice (Slovakia)

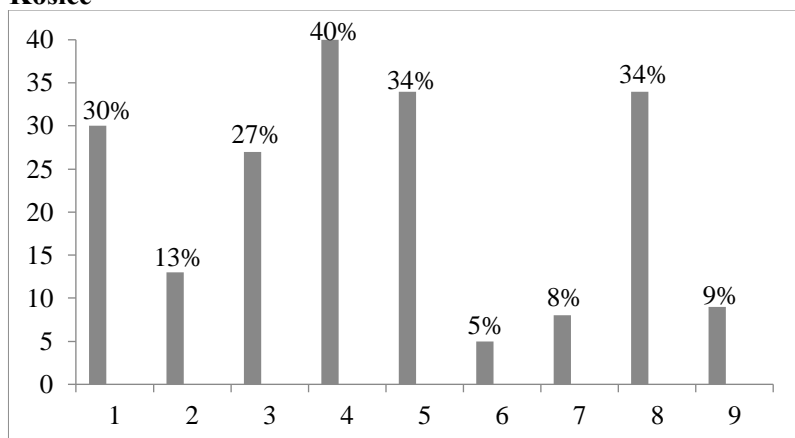
In this subchapter, we analyze the leisure time spent by consumers in the teenage age bracket at the Aupark Košice shopping centre in Košice city centre and selected aspects of their shopping behaviour and preferences. For the survey, 100 visitors to the Aupark shopping centre between the ages of 12 and 19 were asked to complete a questionnaire consisting of twelve questions focused on their leisure activities in the centre. The study intended to determine whether behavioural trends reported for teenage consumers elsewhere were also valid for teenagers visiting the Aupark shopping centre in Košice.

The questionnaire opened with several questions about the respondents' gender, age and place of residence. The age distribution of the respondents was as follows:

- 11% of respondents were between the ages of 13
- 26% of respondents were between the ages of 14 and 15
- 41% of respondents were between the ages of 16 and 17
- 22% of respondents were between the ages of 18 and 19.

Respondent were then asked to select up to two options from a list of reasons explaining the purpose of their visit to the shopping centre. The most frequently given responses for visiting the shopping centre among respondents are shown in Figure 26:

**Figure 26 Most frequently given reasons for visiting the Aupark Shopping Centre in Košice**



Source: authors' own research

#### **Key:**

- 1 - leisure-time shopping
- 2 - use of services (e.g., bank, hairdresser, cosmetician or others)
- 3 - visiting the Golem fitness centre
- 4 - meeting with friends in a café or restaurant
- 5 - meeting with friends in the shopping centre
- 6 - meeting with parents in the shopping centre
- 7 - attending events held in Aupark (e.g., exhibitions and other events)
- 8 - walking around the shopping centre, window shopping
- 9 - waiting for public transport.



In order to investigate the consumer behaviour of the studied test group, three hypotheses were formulated:

Hypothesis 1: We assume that there is a statistically significant difference in the time spent by teenagers in the Aupark shopping centre in Košice in terms of gender.

Hypothesis 2: We assume that there is a statistically significant difference between the time spent in Aupark shopping centre in Košice between teenagers aged between 13 to 15 and that by teenagers aged between 16 and 19 years.

Hypothesis 3: We assume that there is a statistically significant difference between the preferred days of the week or weekend on which teenagers either living in Kosice or outside Kosice spend their leisure time at the Aupark Shopping Centre in Košice.

In order to test and evaluate the statistical hypotheses, a Chi-squared or good match test was used. This methodology is a statistical non-parametric approach, and thus it can be used even in cases where the data set does not have a uniform, so-called “Gaussian distribution”, and there is no requirement to show if the correct use of the variables is an average or a standard deviation. It can also be used to determine whether there is a prominent or distinct relationship between the two variables and to compare and evaluate two sets of data, each of which can be further subdivided into two or more sub-files. These comparisons are also found in this subchapter. If we compare subgroups with one possessing a range that expresses the trend, we used the Chi-squared test to determine the trend. The significance level was set at 95%, which means that calculated probability p values of less than 0.05 indicate a statistical significance of the differences between the compared groups with a probability of 95%. Calculated probability p values of more than 0.05 indicate statistically insignificant differences between the two variables.

**Hypothesis 1: The assumption that there is a statistically significant difference in the time spent by teenagers in the Aupark shopping centre in Košice in terms of gender**

The hypothesis was verified by examining the frequency of specific responses to Question 6 (“How long does your visit to this shopping centre last?”) and Question 1 (“Gender”).

The responses were encoded by assigning numeric values to individual verbal responses. From these encoded responses, the program created a frequency table which serves as a table of possibilities – how many times did male respondents answer one of the four questions and how many times female respondents answered one of the four questions. The probability value p was then calculated from the data in the frequency table.

The Chi-squared calculation gave a value of  $p = 0.0166$ . This value was less than 0.05 which means that the differences are statistically significant, and therefore we consider Hypothesis 1 to be confirmed.

As Figure 28 shows, boys were considerably more likely to spend less than 30 minutes in the centre in comparison to the longer visits of more than 120 minutes which were recorded for girls. There was no considerable difference between the proportion of boys and girls spending between 31 to 120 minutes in the shopping centre, and therefore the statistical significance of the differences between genders over the entire data set are due to the significant differences recorded answers A and D.

**Figure 27 Testing the frequency of specific responses to Question 6 (“How long does your visit to this shopping centre last?”) and Question 1 (“Gender”)**  
**Chi-squared test**

Classification X	otázka_6				
Classification Y	otázka_1				
otázka_1	otázka_6				
	1	2	3	4	
1	9 18,8% RT 75,0% CT 9,0% GT	14 29,2% RT 50,0% CT 14,0% GT	22 45,8% RT 46,8% CT 22,0% GT	3 6,2% RT 23,1% CT 3,0% GT	48 (48,0%)
2	3 5,8% RT 25,0% CT 3,0% GT	14 26,9% RT 50,0% CT 14,0% GT	25 48,1% RT 53,2% CT 25,0% GT	10 19,2% RT 76,9% CT 10,0% GT	52 (52,0%)
	12 (12,0%)	28 (28,0%)	47 (47,0%)	13 (13,0%)	100

RT: % of Row Total; CT: % of Column Total; GT: % of Grand Total

Show all percentages

**Chi-squared test**

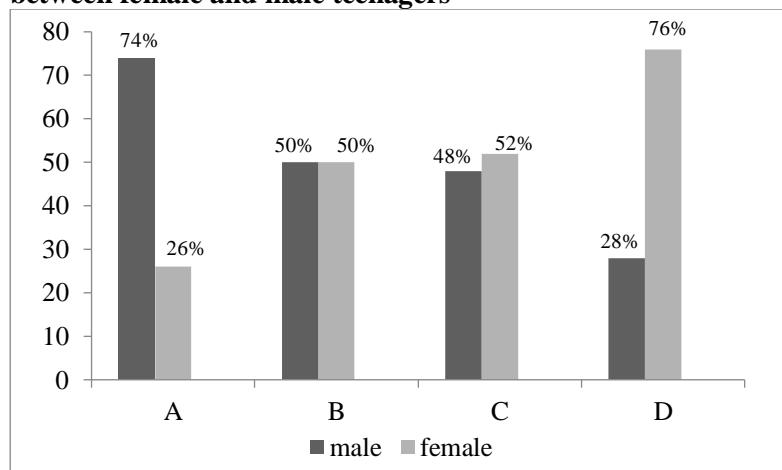
Chi-squared	6,812
DF	3
Significance level	P = 0,0782

**Chi-squared test for trend**

Chi-squared (trend)	5,738
DE	1
Significance level	P = 0,0166

Source: authors' own research

**Figure 28 Differences in leisure time spent at the Aupark shopping centre in Košice between female and male teenagers**



Source: authors' own research

**Key:** A – less than 30 minutes  
 B – from 31 to 60 minutes  
 C – from 61 to 120 minutes  
 D – more than 120 minutes

**Hypothesis 2: The assumption that there is a statistically significant difference between the time spent in Aupark shopping centre in Košice between teenagers aged between 13 and 15 and that by teenagers aged between 16 and 19.**

The hypothesis was verified by testing the frequency of specific responses to Question 6 (“How long does your visit to this shopping centre last?”) and Question 2 (“Age”).

**Figure 29 Testing the frequency of specific responses to Question 6 (“How long does your visit to this shopping centre last?”) and Question 2 (“Age”)**

**Chi-squared test**

Classification X	otázka_6				
Classification Y	otázka_2_binárne				
	otázka_6				
otázka_2_binárne	1	2	3	4	
1	7 18,0% RT 58,3% CT 7,0% GT	13 35,1% RT 46,4% CT 13,0% GT	15 40,5% RT 31,9% CT 15,0% GT	2 5,4% RT 15,4% CT 2,0% GT	37 (37,0%)
2	5 7,9% RT 41,7% CT 5,0% GT	15 23,8% RT 53,6% CT 15,0% GT	32 50,8% RT 68,1% CT 32,0% GT	11 17,5% RT 84,6% CT 11,0% GT	63 (63,0%)
	12 (12,0%)	28 (28,0%)	47 (47,0%)	13 (13,0%)	100

RT: % of Row Total; CT: % of Column Total; GT: % of Grand Total

Show all percentages

**Chi-squared test**

Chi-squared	6,538
DF	3
Significance level	P = 0,0882

**Chi-squared test for trend**

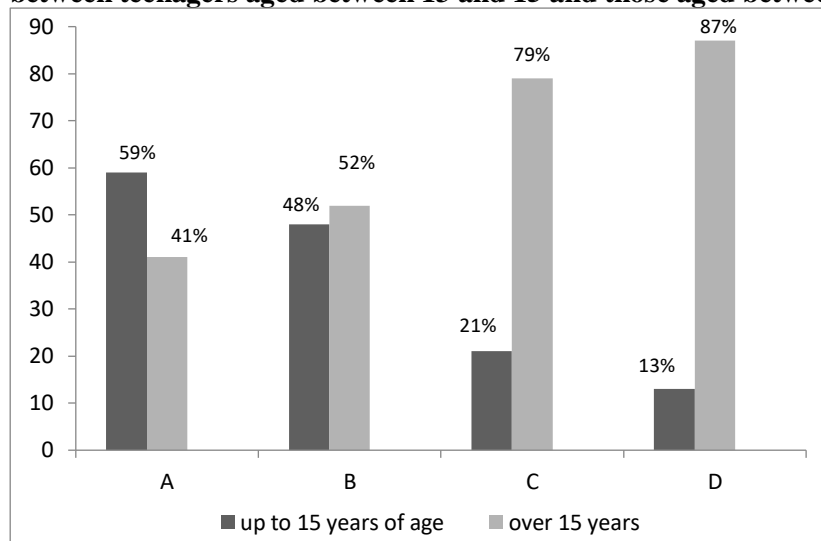
Chi-squared (trend)	6,405
DE	1
Significance level	P = 0,0108

Source: authors’ own research

As Figure 30 shows, respondents under the age of 15 reported completely different visit durations to those of respondents over the age of 15, with the older age category spending considerably more time in the shopping centre.

The Chi-squared calculation gave a value p of 0.0108. This value was less than 0.05 which means that the differences are statistically significant, and we therefore consider Hypothesis 2 to be confirmed.

**Figure 30 Differences in leisure time spent in Aupark Shopping Centre in Košice between teenagers aged between 13 and 15 and those aged between 16 and 19**



Source: authors' own research

**Key:** A – less than 30 minutes  
 B – from 31 to 60 minutes  
 C – from 61 to 120 minutes  
 D – more than 120 minutes

**Hypothesis 3: The assumption that there is a statistically significant difference between the preferred days of the week or weekend on which teenagers either living in Kosice or outside Kosice spend their leisure time at the Aupark Shopping Centre in Košice.**

The hypothesis was verified by testing the frequency of specific answers to Question 10 (“Do you visit the shopping centre more often during the week or at weekends?”) and Question 3 (“Residence”).

The Chi-squared calculation gave a value of  $p = 0.0004$ . This value is less than 0.05 which means that the differences are statistically significant and we therefore consider Hypothesis 3 to be confirmed.

The results of the survey revealed that respondents residing in Košice visited the shopping centre more frequently than respondents living outside of Košice.

Shopping centres have become an integral part of the retail space in many post-communist countries as a result of the globalization trends prevalent in the early 1990s (Križan et al. 2016). Nowadays, shopping centres offer various cultural or sporting events in addition to their more traditional role as sites with a wide range of shops and services, and as a result they have become a popular location not only for shopping, but also for visitors to spend their free time.

The aim of this subchapter was to analyze the leisure time spent by teenagers in the Aupark shopping centre in Košice and selected aspects of their shopping behaviour and preferences. The results of the research reveal that teenagers not only visit the Aupark Košice shopping centre for shopping but chose to spend their free time visiting the location. Based on the responses to the questionnaire survey, the most common purpose for teenagers' visits to the shopping centre were to spend time in cafés or restaurants with friends, with the most common time period spent in the centre being from 61 to 120 minutes.

**Figure 31 Testing the frequency of specific answers to Question 10 (“Do you visit the shopping centre more often during the week or at weekends?”) and Question 3 (“Residence”)**

**Chi-squared test**

Classification X	otázka_3_binárne		
Classification Y	otázka_10		
	otázka_3_binárne		
otázka_10	1	2	
1	40 88,9% RT 56,3% CT 40,0% GT	5 11,1% RT 17,2% CT 5,0% GT	45 (45,0%)
2	31 56,4% RT 43,7% CT 31,0% GT	24 43,6% RT 82,8% CT 24,0% GT	55 (55,0%)
	71 (71,0%)	29 (29,0%)	100

RT: % of Row Total; CT: % of Column Total; GT: % of Grand Total

Show all percentages

**Chi-squared test**

Chi-squared	12,589
DF	1
Significance level	P = 0,0004
Contingency coefficient	0,334

Source: authors' own research

Teenagers were more likely to have travelled to the shopping centre by public transport, which may explain why the most commonly recorded place of residence among the respondents was the Old Town district of Košice, the area in which the shopping centre is located. Respondents also stated that they were more likely to visit the shopping centre at the weekend more than at weekends.

The study also tested three statistical hypotheses on the basis of the data collected in the survey which examined the statistical significance of differences between time spent in the Aupark Košice shopping centre in Košice among teenagers by gender, and by age category, and also the difference between the preferred days on which teenagers living in Košice and outside Košice chose to spend time at the centre. The hypotheses were processed into frequency tables that allowed the use of Chi-squared tests to confirm the statistical significance, with the results of the calculations confirming the validity of all of the hypotheses. The results of our survey also found that teenagers spent time in the Aupark shopping centre in both an active manner, by shopping and making purchases in the centre, and a passive manner, by simply spending their leisure time on the premises. While the survey offers valuable information about the consumer behaviour of the survey respondents, the analysis cannot be applied in the geomarketing and in the marketing strategies of shopping centres focused on their teenage age bracket in general but are valid only for the studied sample of respondents.

## CONCLUSION

In this monograph, we have examined the development of retailing in Slovakia and the transformation processes which the sector has undergone since 1989. While all of the stages of this development have been discussed, a special focus has been placed on globalization processes in terms of the entry of multinational companies into the Slovak market, their presence in the retail sector both in terms of location and time, and the impact of globalization tendencies on consumer behaviour. In addition to a theoretical overview of the researched issues, we have also offered an overview of our own research based on both primary and secondary data. Understanding the buying and shopping behaviour of current and potential consumers is essential in formulating a successful marketing strategy. It is no longer sufficient for companies to merely produce goods or provide services; companies must know who their consumers are, why they buy, when, where and at what price they buy, and what benefits they expect to gain from the purchase. Companies also need to identify how far consumers are willing to travel to make their purchases and whether the size of the sales area plays a significant role in their preferences. With shopping centres now transforming themselves from retail locations into entertainment and social spaces, retailers must also determine how consumers want to spend their leisure time and whether they use shopping centres for relaxation, meeting friends or spending their free time.

The introductory chapter is devoted to the theoretical and conceptual background of the retail sector and its development. The second chapter opens with an examination of retailing in the centrally controlled economy of socialist Czechoslovakia, the so-called pre-transformation stage, before moving on to investigate the further development of retailing as it emerged under the influence of the market economy and the various manifestations of retail globalization. Individual subchapters address the main chronological developments in this field: the atomisation of the retail network, the consolidation stage, the concentration of retail associated with the processes of internationalization and globalization, and the demassification stage. Atomization is characterized in a spatial and organisational sense by the fragmentation of the increasingly decentralised and de-concentrated retail sector. The increase in the number of organizations operating in the sphere of trade and services resulted in an increase in the retail workforce, a feature which previously had been typical only for countries with developed economies. The transformation of the retail sector during the period of atomization took place almost entirely without the participation of foreign retail chains, and thus many of the typical features of the modern Western retail industry had a minimal impact on the ongoing changes in the structure of the retail network and, as a result, on the physical and functional spatial structure of Slovak cities. The so-called “small” and “large” privatisations of the 1990s had a decisive impact on the retail transformation. After the rapid growth of retail which continued until the turn of the millennium, the growth rate of sales and also the entry of international companies gradually slowed down, and the market consolidated. The stage of internationalization and globalization of retailing in Slovakia in the 1990s was reflected in the massive expansion of foreign retail chains operating in the market. This period saw these firms importing know-how, technology, efficient methods of logistics and communication, and new types of retail concepts such as supermarkets, hypermarkets, discount shops, hobby stores and other specialized retail formats into the Slovak market. A concurrent development in this period was the emergence of shopping centres, the highest form of the concentration process in the structure of retail units.

Indeed, shopping centres and their development in the Slovak context are the focus of the third chapter of the monograph. We identify a shopping centre in the context of its most general definition by the International Council of Shopping Centres. The current state

of the share of individual types of shopping centres in Slovakia is balanced; there is a general balance between construction on greenfield and brownfield sites, with the trend showing an increasing tendency for brownfield developments. Shopping centres in Slovakia are predominantly located at the edge of cities or in the suburbs, while complexes located in city centres form the least numerous group. While the earliest shopping centres in Slovakia had a large gross leasable area, recent years have seen a preference for centres with smaller floor areas, a trend which is reflected in the fact that small shopping centres, those with a gross leasable floor area of between 10,000 and 20,000 m<sup>2</sup>, now represent more than half of all shopping centres in the country. Large-scale shopping centres are the exception rather than the rule in the Slovak retail environment, but such centres not only fulfil the traditional role of a retail centre as a place in which goods can be purchased but have also integrated the concept of multifunctionality. This approach is based on maximizing the length of time which visitors spend in the complex, an aim which is connected with the increase in average consumer spending on goods and services. Large shopping centres are also becoming locations in which customers can spend their leisure time.

The fourth chapter analyses consumer behaviour by examining various influencing factors, decision-making styles, consumer typology and the characteristics of various generations of Slovak consumers. The chapter also provides an overview of modern trends in retail such as e-commerce and changes in consumer behaviour during the COVID-19 pandemic.

In the fifth chapter, we presented our own research over five subchapters. The first subchapter presents an analysis of a series of selected macroeconomic indicators of the retail sector in Slovakia. In the second subchapter, the relationship between retail sales in relation to regional GDP in Slovakia and employment in the retail network in relation to regional GDP is tested using a panel regression model. The third subchapter includes a case study aimed at identifying differences in the shopping behaviour of customers travelling on scheduled and charter flights at the duty-free store at Košice International Airport. The fourth subchapter focuses on the issue of location theories, and tests the accuracy of Huff Model predictions in terms of the probability that a specific shop will be selected as a shopping destination by the residents of a given area. The method was tested on the basis of research into consumer behaviour carried out in the cities of Prešov and Košice. The final subchapter examines the connections between shopping and leisure in the cities of Vienna and Košice.

In conclusion, it can be stated that the most significant changes in the retail sector in Slovakia took place after 1989 and the transition to a market economy. The processes of internationalization and globalization have had and continue to have a significant impact on the development of retail and can be considered as one of the most important factors influencing retail in Slovakia. Globalization processes are primarily manifested in the establishment of multinational retail companies, the dominance of large retail chains, the creation of purchasing alliances, the increase in concentration and cooperation as a starting point in the struggle with strong capital-owning rivals, and the subsequent consolidation stage.

Despite the current consolidated expansion of large-scale business units on the Slovak retail market, there still appears to be a bright future for small and medium-sized retail businesses. While less than a decade ago, the traditional style of shopping in urban settlements (everyday shopping in a small self-service shop) was replaced by weekly shopping in a large-scale store such as a discount store, supermarket, hypermarket or shopping centre, small self-service shops are again playing an increasingly important role in the purchase of fast-moving goods. Many of these companies operate within walking distance of consumers in municipalities and in centrifugally located housing estates and they

conveniently fill a gap in the retail market in these locations, offering specialized assortments and services that make them almost irreplaceable in the local environment. Small and medium-sized businesses can also benefit from the lucrative and modern opportunities offered by leasing space in large multifunctional shopping and entertainment centres.

It is obvious that changes in consumption, lifestyle or culture are also the result of the qualitative impact of trade, and these factors thus also play a role in influencing consumer behaviour. All these changes have led to an increase in the availability of goods on the market, improvements in terms of price, quality and assortment, an increase in consumer culture despite the temporary reduction in the typical patterns of purchase and consumption which the impact of the COVID-19 pandemic has caused. Taking all of these transformations into account, we can say that Slovak consumers have left behind the traditional shopping habits of the past and are now largely guided by their feelings or impulses.

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## **APPENDIX 1**

### **Trade in the statistical sectoral classification of economic activities in Slovakia**

The Statistical Office of the Slovak Republic prepares regular statistical surveys according to the Sectoral Classification of Economic Activities – SKNACE, which entered into force on January 1st 2008 (detailed information on the codes is given in Notice No. 306/2007 Coll.).

Notice No. 306/2007 Coll. states as follows:

“Under section 19, paragraph 2 of Act No. 540/2001 Coll. on State Statistics, the Statistical Office of the Slovak Republic provides:

§ 1 Statistical Classification of Economic Activities SK NACE Rev. 2 is issued. [...]  
§ 3 This Notice shall enter into force on 1 January 2008.”

### **Sectoral Classification according to SK NACE Rev. 2**

#### **(G.) Wholesale and retail trade, repair of motor vehicles and motorcycles**

47 Wholesale trade with the exception of motor vehicles and motorcycles

47.1 Other retail sales in non-specialised stores

47.2 Retail sales of food, beverages and tobacco in specialised stores

47.3 Retail sales of automotive fuel in specialised stores

47.4 Retail sales of information and communication equipment

47.5 Retail sales of other household equipment in specialised stores

47.6 Retail sales of cultural and recreation goods in specialised stores

47.7 Retail sales of other goods in specialised stores

47.8 Retail sales via stalls and markets

47.9 Retail trade not in stores, stalls or markets

47.91 Retail sales via mail order houses or via Internet

Source: Aspi 2020

## APPENDIX 2

### Overview of leading retail companies in the Slovak market (2019)

Company	Sales	Profit	Chain (number of own stores at the end of 2018)	Tax due
TESCO STORES SR, a.s.	€1,432,126,000	€73,233,000	Tesco Hypermarket, Supermarket, Express, Extra, OD, ČS (150)	€8,914,00
Lidl Slovenská republika, v.o.s.	€1,368,521,000	€113,388,000	Lidl (135)	-
Kaufland Slovenská republika v.o.s.	€1,193,659,919	€53,086,640	Kaufland (67)	-
BILLA s.r.o.	€657,001,000	€2,384,000	Billa (150)	€2,944,00
SHELL Slovakia, s.r.o.	€443,009,000	€10,210,000		€3,265,00
NAY a.s.	€343,879,070	€6,678,909	Nay, Electroworld (55)	€2,027,35
dm drogerie markt, s.r.o.	€206,472,657	€3,242,476	dm (142)	€1,484,56
MERKURY SHOP s.r.o.	€204,729,716	€9,904,507	Merkury Market (21)	€4,721,05
Caprice s.r.o. (cancelled)	€198,317,926	€181,654	-	€60,169
C & A Mode s.r.o.	€188,518,261	€378,179	C&A (15)	€641,069
OBI Slovakia s.r.o.	€146,652,373	€4,378,986	OBI (10)	€1,529,62
TERNO real estate, s.r.o.	€139,283,521	€-10,495,444	Moja Samoška, Terno Plus, Terno, Kraj (81)	€16,844
MILK-AGRO, spol. s r.o.	€119,130,847	€1,075,613	retail, wholesale (226)	€385,410
STAVMAT STAVEBNINY, s.r.o.	€116,084,148	€4,227,219	Stavmat stavebné centrum (34)	€1,176,58
IKEA Bratislava, s.r.o.	€114,738,632	€10,124,811	IKEA (1)	€2,750,36
Domäsko, s.r.o.	€114,210,365	€98,180	Domäsko (95)	€92,129
COOP Jednota Nové Zámky, consumer cooperative	€109,983,504	€1,590,046	Coop Jednota Supermarket, Tempo, Coop Jednota Potraviny (111)	€396,881
COOP Jednota Krupina, consumer cooperative	€109,921,466	€1,523,941	Coop Jednota Supermarket, Coop Jednota Potraviny (161)	€374,362
HORNBACH - Baumarkt SK, spol. s r.o.	€109,641,848	€3,213,482	Hornbach (4)	€1,031,76
FAST PLUS, spol. s r.o.	€104,276,823	€1,727,565		€601,704

Source: Finstat 2020

## APPENDIX 3

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Publisher: VUZF Publishing House “St. Grigorii Bogoslov”  
Sofia, Bulgaria 2021

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Edition: first  
Number of pages: 155  
Number of characters: 452 113  
Publisher: VUZF Publishing House “St. Grigorii Bogoslov”  
Sofia, Bulgaria 2021

**ISBN 978-619-7622-08-9**