

The Competition Between Discount Stores and COOP in Northern Hungary: A Case Study

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Received: August 14, 2022 | Revised: November 23, 2022 | Accepted: November 25, 2022

doi: 10.5937/gp26-39642

Abstract

In the past decades, the expansion policy of hard discounters is receiving increasing scientific attention. One of the main reasons of their success is location choices, which needs geographical thinking and knowledge of socio-economic environment. Although it has key importance to gain high purchase power territories in this competition, each company have to implement their own geo-strategy. While discount stores are operating in the town, national franchise small stores have an extensive network in the rural area. This paper is a case study which deals with competition of hard discounters and Coop in Northern Hungary.

Keywords: discount chains; retail; Aldi; Lidl; small store; Coop; territorial competition

Introduction

The fast expansion of discounters all over the world significantly shifted market power structures, and in the span of a few years, changed the entire structure of the small retailer business sector. This is the most notable reason for how discounters became more of a focus of professional interest in recent years (e.g. Skordili, 2013; Jürgens, 2014; Hajdú, 2017; Chenarides et al., 2021). In Visegrád countries, notable market share acquisition was achieved by the discounters in recent decades. Market shares within small retailer business markets owned by discounters was 37% in Poland, 30% in Hungary, 26% in the Czech Republic, and 19% in Slovakia in 2020. The increase of 9 percentage points in Hungary, and 7 percentage points in Poland between 2017 and 2020 achieved by discounters also counts as a regional record (Zsubori, 2021).

The number of studies conducted on the analysis of retail networks at regional or local level is relatively few in East-Central Europe, but there has been a revival of interest in this research field in recent times

(e.g. Sikos, 2018; Križan et al., 2022; Trembošová et al., 2022). The territorial analysis of retail store networks is particularly important in the current crisis period, as food security has become one of the most important sustainability challenges of our time. Grocery retail chains are play an essential role in this topic area (Sikos, 2019). Our research aims to fill this gap and to study supply chain issues at regional level. This study analyses the retail store network and market power structure related to foreign discounter expansion in the Northern Hungary region. The data used in the study came from internet data collection, official statistical databases, literature sources, and scientific works. Further data was collected from widely acclaimed internet business news portals. Among the hard discounters, Aldi, Lidl and Penny Market operate in the region. These chains were compared with the Coop chain in this study. The reason our choice fell on the Coop retailers' cooperative chain is that this is the cooperative system that has the most ex-

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pansive chain of retail stores, ran by the biggest employee fleet both in Hungary, and the Northern Hungary region (Sikos, 2022). Northern Hungary offered a sufficient sampling area because the hierarchy of settlements includes almost all the existing variations of settlements, in a rather large sample size within this region. Another important perspective during the choice of sampling area was that the size of settlements in most of the region don't reach the limit of economising regarding size which make the operations of modern discounting forms sustainable. Discounters always aim to maximise cost efficiency in any elements of enterprise operation, therefore, they can offer the lowest prices on the market to their consumers. In practice, the backbone of their competitive strategy is made up of low prices (Azeem & Sharma, 2012). Hungarian business chains that mostly have small retailers, and smaller-scale supermarkets only have a chance of staying in competition, and keeping their consumer base on niche markets, in a price-sensitive consumer market like Hungary. The research study of Publicis Groupe shows the current economic crisis has made consumers even more price-sensitive, which has affected Hungarian retailers the most in the Visegrád Group (Piac & Profit, 2022).

However, when looking at the entirety of Europe, another general tendency is that discounters are focusing on elements which weren't a part of the discounting model before more and more recently. There are a multitude of good examples for this, like open-view bakeries in stores (Footit, 2014), expanding the product palette (Paul, 2016) or the expanding towards online foodstuffs purchase (Borland, 2019). The COVID-19 pandemic also made discounters feel the necessity to move, which made discounters increase their pace in developing online delivery services (Toua, 2020). Aldi and Lidl discounters can be considered even more flexible, as if needed, they are even willing to deviate from the discounter form as well. The Aldi Local in London, while the Lidl Express in Arlington (USA) offered localised aid for the problems of urban expansion. These discounters are only half the size of their normal discount store sizes, however, the choice of products is almost double that of a hard discounter. Though official communication deems this a one-time solution, and not the tendency of moving towards the comfort stores, they can be considered a precedent regardless (Tisza, 2019).

The other factor of their successes is the great marketing strategy, which includes the efficient market and competition strategy positioned for the discounter's own characteristics following Porter's typology (1985), where division strategies used by enterprises can be sorted into three distinct categories. An enterprise may be doing a cost leadership (no frills) strategy,

a differentiation (unique products and services-based) strategy, or a focus (specialised products and services) strategy. While the two former strategies can be followed for separate segments at the same time, the point of the focus strategy is to select a specific target area of the market (usually a niche) to compete in. However, segmentation doesn't necessarily happen based on the types of consumers, it may also be for example a specific geographic location. In their title "Marketing war", Ries and Trout (1986) discuss the enterprises' competitive strategies based on their specific positions on the market. They differentiate between those that dominate the market, that increase market share, that aim for profitable survival, and that aim for survival. These can conduct defensive strategy, offensive strategy, flanking, or guerrilla warfare. In their book "Blue Ocean Strategy", Kim and Mauborgne (2005) argue that there are two types of markets in general, which are saturated markets, where only extreme competition may bring success to an enterprise (red oceans), and new, untouched areas of market competition (blue oceans), where due to the lack of rivals, quick and easy growth is possible for enterprises.

The literature sources specifically dealing with market strategy of small retailer business is extremely rich in material (Walters & Knee, 1989; Kent & Omar, 2003; Seth & Randall, 2005; Morschett et al., 2006; Klemz et al., 2008; Watson, 2011; Yang et al., 2017 etc.). This is understandable, as enterprise strategy's importance is something that's ever-present, especially in small retailer business, since the business chains have to conduct extreme market competition for the customers on the developed countries' saturated markets. We may want to highlight some of the works at hand on the topic, relating to our specific area of research. The study of Colla (2003), which deals with the expansion of discounters and the market competition strategies used. Schmid et al. (2018) introduce the expansion strategies of the discounters Aldi and Lidl. Hökelekli et al. (2017) and Knudson and Vu (2017) research the market defence possibilities successfully applicable to traditional small retailer business actors in their studies. Another notable source is Cleeren et al. (2009)'s research results, who concluded that competition within groups made up of the specific forms of stores is more intense than the competition between stores operating in different forms. Gonzáles-Benito (2003) researched the competition between different forms of stores. The results of empirical research showed that in an urban environment, the presence of discounters had a greater effect on hypermarkets than other small retailer business forms. However, most of the stores in retailers' cooperative can be found in rural areas, where these

modern store forms can't operate in financial efficiency. As such, this size level of settlement may offer a niche market for Coop stores (Sikos, 2019).

Following the Regime Change, the East-Central Europe region was easily conquerable for foreign discounters, and was considered a desirable market for them. Though consumer purchase power in the countries of the region was weaker than in countries that have better income levels, discounters used their advantage in strength to quickly obtain an advantageous market position, thereby obtaining a larger market share. These markets lacked modern chain stores that have a national network, which were mostly present in Western Europe at the time. This is one of the reasons why the market concentration in the countries of East-Central Europe was much lower post-Regime Change, than in most Western Europe countries. Even today, market concentration doesn't reach the levels considered normal for Western Europe's countries (Pénczes & Pólya, 2018). The economic performance of chain stores operating in the discounter form is supported by efficient enterprise headquarters, organised management, logistics and sales even in these countries.

The disadvantage of Hungarian chains comes from their lack of geographic cohesion, the differing value systems of owner circles, and that the oversized or-

ganisation determining the strategy of chains comes from differing interests. In the case of domestic cooperative chains, though we can consider them extensive based on number of stores, the notable majority of members only have individual small retailers even today. The development of the store chain wasn't done based on a strategy of specified choice of establishment location, but it was fundamentally a spontaneous result. Furthermore, significant hardships and competition disadvantages come from how cooperation doesn't expand to the entirety of the cooperative, but only for certain partial areas. This results in an extremely de-centralised enterprise management different for each store, which makes building a coherent cooperative strategy very hard. Hungarian store chains working in franchise systems (Coop, CBA, Reál) can't compete with larger international chains either in prices or in product palette (Mayer & Bakshandey, 2015). This is one of the reasons the market concentration shows a gradually increasing trend in Hungary. However, despite all hardships, the fact that Hungarian chains could survive and remained an important part in the Hungarian foodstuffs sector as opposed to several other countries of the region should be considered a tale of success (Kopcsay, 2014).

State of discounters on the Hungarian market

We continued our research by going over the most notable stops of multi-national discounters and the analysis of their current market positions. Penny Market was the first hard discounter in the Hungarian market during its entry in 1997, which also offered a significant market position. Competitors Lidl and Aldi opened their first Hungarian stores in 2004 and 2008 respectively. Soft discounters (Plus, Profi and Jééé) counted as competitors within the segment until the

early 2010s. Nowadays, however, none of the latter are present in the domestic foodstuffs retail trade, their stores were bought out by rivals.

In Hungary, food and foodstuffs mixed store forms produced 55% of the small retail business trade in 2021. Total annual balance was 18,2 billion Euros¹ (HCSO, 2021).

Below is a comprehensive figure showing changes in processes based on distribution channel (Figure 1).

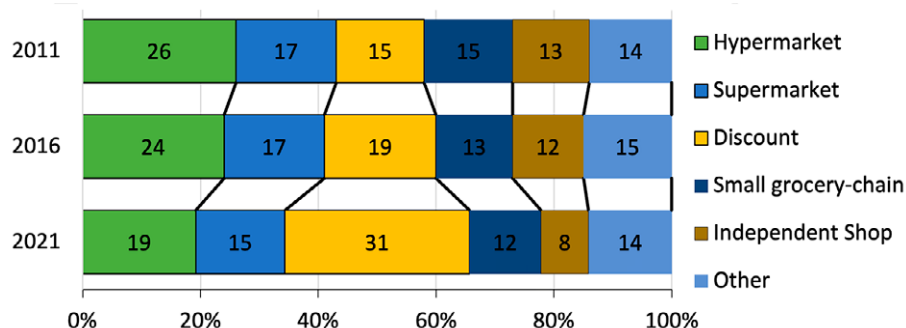


Figure 1. Distribution of sales channels in Hungary, 2011-2021

Source: self-made, based on GfK Hungária (household panel) data

¹ The average of the minimum and maximum values of the 2021 median price value of the National Bank of Hungary (1 Euro = 358,5 HUF) was used as a basis. According to the HCSO's data report, the food and foodstuffs mixed category produced 6532 billion HUF in 2021.

Table 1. The most important features of food supply chains in FMCG sector, 2020

| CHAIN | FORM | No. of stores | Gross income (million EUR) | Average gross income per store (million EUR) | FMCG rank |
|--------------|-------------------------|---------------|----------------------------|--|-----------|
| Tesco | Hypermarket | 201 | 2043 | 10,2 | 2. |
| Spar | Supermarket | 588 | 2024 | 3,4 | 3. |
| Lidl | Discounter | 186 | 2282 | 12,3 | 1. |
| Aldi | | 147 | 978 | 6,7 | 9. |
| Penny Market | | 226 | 1021 | 4,5 | 8. |
| Reál | Small retailer business | 1189 | 1172 | 1 | 6. |
| CBA | | 1987 | 1484 | 0,7 | 5. |
| Coop | | 4063 | 1791 | 0,4 | 4. |

Source: Self-made, based on Trade Magazin FMCG Toplists

In the main timeframe of hard discounter expansion, the last ten years brought significant structural changes in the foodstuffs small retailer business sector (Figure 2). The share of the hypermarket channel, leading in 2011 showed a decrease, and lost its leading position by today. Small chains also lost out in this timeframe, decreasing their market share from 15% to 12% by 2021. At the same time, the discounter channel achieved significant growth, partly by opening new stores, and in many cases, by buying out rivalling store chains. The state of independent small retailer stores is the least advantageous out of all the competitors, as they're threatened by being totally crippled within the sector. They don't have enough competitive edge compared to chain stores. A part of the small retailer store owners joined a cooperative during the timeframe in question, while another part of them had to terminate business completely. These processes are shown in the drastic, 13% drop in independent small retailers' market share.

Though recent decades showed a tendency of distribution channels increasingly blending together in the case of chain stores, we can still identify some larger actors behind the various forms of retailer business, who were capable of controlling the changes in the market structure. Therefore, enterprises' competitive positions which have a chain in the Northern Hungary region are also worthy of a short overview. During the analysis, we compared Tesco hypermarket-chain, Spar supermarket-chain, three German-owned discounters (Lidl, Aldi, Penny Market) and Hungarian retailers' cooperative chains (Coop, CBA, Reál) (Table 1).

The domestic FMCG sector is highly concentrated, the three biggest chains produced almost half (44,4%) of the ten biggest FMCG chains' total income in 2020. Based on the total gross income, the biggest actor in the Hungarian market is Lidl (2282 million EUR), which is followed by Tesco (2043 million EUR) and Spar (2024 million EUR). None of the small retailer businesses even come close to these values. The

efficiency of the discounter model is supported by the differing values of income on average for one store by retailed form as well. Using the 2020 data of the Trade Magazine, we can conclude the following: average gross income annually was 12,3 million EUR for Lidl, 6,7 million EUR for Aldi, and 4,5 million EUR for Penny Market. On the contrary, the efficiency of domestic chains is significantly lower. Reál, CBA and COOP only had between 0,4 and 1 million EUR income on average per store. Data clearly shows that from the perspective of efficiency, Lidl is the best in the FMCG sector, which can produce up to 30 times the income of the Hungarian chains in a year.

Discount chains achieved their extreme business values with merely 559 store units, while Hungarian small retailer chains produced their much more modest gross annual income average with 4447 store units. We could say that while discount chains collect the Pounds, domestic chains are vying for the Pennies. One reason for this is the centralised enterprise management and more efficient operations already mentioned, while other is the larger store form, which has an overall better income production capacity. It is similarly important to note that this is exactly the reason discounter chains and supermarkets generally aim for the higher ranks of settlement hierarchy, in towns. Foreign store chains draw in customers from neighbouring settlements that have a larger population and better purchasing strength. Small settlements with low consumer purchasing strength are generally not notable enough to have a larger store present. These have been gradually left behind, due to the domestic store chains having their store networks all over the place, and their stores operating much less efficiently. In spite of this, even their profitability by unit could increase in the last five years (ie. the Trade Magazine's FMCG Toplists). Partially due to the advantageous economic position, and partly due to the rationalisation of the number of stores.

Despite their alleged profitable operations, Hungarian small retailer chains had to face a significant

loss in market share compared to discounters. Nowadays, they only have a chance at competing on niche markets where discounters can't establish a presence, mainly due to their size and operational model. Hun-

garian chains should expect further reduction in their market shares still, but they still have decent chances of winning their battle for survival with their coherent business policy.

Discounter chains in Northern Hungary

Location and catchment area of foodstuffs retailers

The number of stores belonging to hard discounter chains (Aldi, Lidl, Penny Market) have been increasing steadily in recent years. During the year 2020, Northern Hungary already had 46 foodstuffs discounters in operation, which were all established in towns (Table 2). Discounter presence by county is highly differentiated, which is related to the economic development of the various counties, and their income generation capability. Penny Market owns 52.2% of the region's discounter stores, followed by 37% owned by Lidl, and 10.9% owned by Aldi, which is the smallest segment of the market. The shares by county also show significant differences. For example, in Borsod-Abaúj-Zemplén County, 54,2% of the discounters are Penny Markets, followed by Lidl and Aldi. The increase in strength and rapid expansion of foodstuffs discounters within the foodstuffs small retailer business sector in Northern Hungary are inhibited by two factors. One is the location of logistics centres outside the region (the closest one for Aldi is in Biatorbágy, Szigetszentmiklós for Lidl, and Karcag for Penny Market), whereas the problem of optimal operations of a store, which we could describe by saying the region's purchasing power index is extremely low.

Table 2. Distribution of discounter stores by county, 2022

| County | Aldi | Lidl | Penny Market | Total |
|----------------------|------|------|--------------|-------|
| Borsod-Abaúj-Zemplén | 4 | 9 | 13 | 26 |
| Heves | 1 | 5 | 6 | 12 |
| Nógrád | 0 | 3 | 5 | 8 |
| Total | 5 | 17 | 24 | 46 |

Source: webpages of the discounters

Though we can assess the return of a store annually for each actor on the market based on market information we possess, which, in turn, can be used to assess the actors' efficiency, we can't use these to estimate returns for each individual store. However, we consider it important to estimate the returns of various stores, or at least, their generation of consumer interest. However, there are no public business data available to support this. Therefore, we decided that we would try and approach the interest in various

stores indirectly. To achieve this, we used the number of Google evaluations for stores in various settlements. We understand that this estimation will not give a precise understanding, but we may be able to better establish our estimation of the stores' efficiency, likeability and consumer interest (Figure 2). We obtained the evaluation score of the stores by collecting the last quarter's evaluations from Google's system for the specific store units, and aimed to categorise the discounter stores using this. Based on our results obtained, we conclude that in towns, where the Lidl chain is present, it is the most liked one as well. It's much more liked than the second placer Penny Market. Aldi's likeability in the Northern Hungary region is hard to measure, as there are only four stores in the specific region (Hatvan, Miskolc, Kazincbarcika and Sátoraljaújhely). Note that the strategy of choosing locations for stores that Aldi uses is uncommon, as they focus on Budapest, and follow their competitors, meaning they have a habit of placing new stores near other chains' hypermarkets or supermarkets, or discounters, in order to drain some of their customers.

Discounters can be found in either county seats or towns. However, we can also observe significant differences between settlements on the same level of the settlement hierarchy. While Hatvan, Eger, Kazincbarcika and Sátoraljaújhely all house three discounters, Miskolc has eight, while the rest of the locations are in mid- and small towns. Among the counties of the Northern Hungary region, and within their specific partial locations' areal borders, there are very notable inequalities in the structure of the chain store systems. About two-thirds of Borsod-Abaúj-Zemplén county has a lack of discounters, and the situation isn't much better in Nógrád county either, as they also need to deal with both the small number of stores, and similarly to Borsod-Abaúj-Zemplén county, areas with a complete lack of stores. Of the 610 settlements of the region, only 22 has discounters, and Penny Market's share is the largest in the area. The majority of the discounters are located near main travel routes, and most of the consumer purchasing strength is concentrated here as well. Therefore, it's no surprise that the discounter stores are found in more populated towns and near main roads (M3 motorway: Hatvan, Gyöngyös, Miskolc; near the main road 37: Miskolc, Szerencs, Sárospatak; near the main

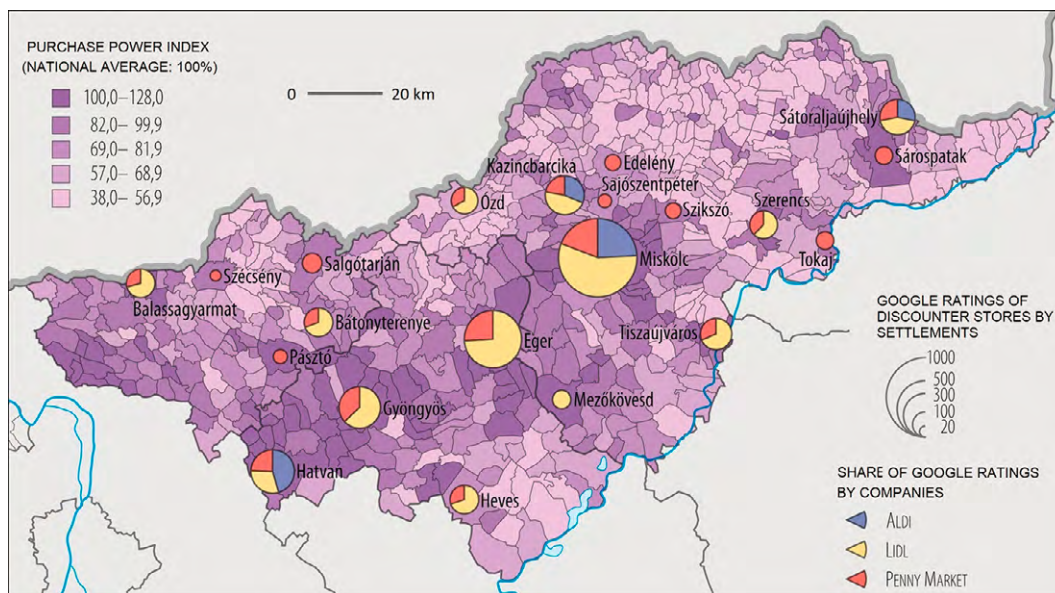


Figure 2. Discounter stores by number of Google ratings (Q3 2019*) and Purchase Power Index (2019)

Source: own research, drawn by Fanni Koczó

* Penny Market in Füzesabony and Lidl in Salgótarján were not included in the survey, because they opened their stores in these cities after 2019. The size of the pie chart increases with the total number of Google reviews among discounter retail companies. Pie charts represent the proportion of ratings given by the customers in each city in the third quarter of 2019 as well

road 21: Hatvan, Pásztó, Bátorlyterenye, Salgótarján; near the main road 25: Eger; near the main road 26: Miskolc, Sajószentpéter, Kazincbarcika, Ózd). In order to operate discounter stores optimally, a population of about fifteen- to twenty-thousand is necessary, or a settlement of lower population that reaches this

criterion with the addition of agglomeration population. The optimal size of business can be reached by discounters at their units established near the main roads. During the choice of location to establish new stores, areas with lower consumer purchase strength are automatically ignored.

Approachability of discounters

The choice of locations to establish new stores is a highly complex issue, which only considers consumer purchase strength index and its analysis by location one of the necessary factors, whereas there are several similarly important factors, like the location of competitors, the reachability of settlements, local legal environment, and other such factors increasing the consumer interest in said stores. Most of the consumers will choose the shortest route to reach a discounter, if there are no stores in the near proximity. According to our research, the average approachability of discounter stores is somewhere between twenty-five and thirty minutes. Naturally, even from areas further away, these stores are frequented, however, beyond the thirty-minute threshold, the frequency of visits decreases significantly, unless the travel to the town is paired with going to work (Figure 3). Discounters mainly focus on towns, and their ten-kilometre agglomerations

cover their catchment areas fundamentally, which is why a significant share of the rural areas rarely ever obtain their products. The Central Cserhát Area of the Northern Hungary region, and the small villages that make up the Borsod-Abaúj-Zemplén county's so-called "waning moon"² area have the most notable lack of stores. A significant share of settlements remained without support, which made the connection of these areas to the labour market weaken, further reducing the income production capability of these areas sink into uncertainty. This all resulted in the tightening of the bottleneck of basic supply and transport options in the area. These areas were heavily impacted during earlier decades – "active" age people moved away, while elderly didn't have sufficient reserves. We can also observe an increase in population in these areas, mainly due to the decrepit and devalued real estate, which caused the poor – most notably gypsies

² In the northern belt of the Borsod-Abaúj-Zemplén county, near the national border, from the southern border of the Ózd district, from Borsodnádásd to Hegyköz, until Sátoraljaújhely's townscape border, a coherent area of hamlets 20-35km wide, disadvantaged and bad natural attributes, disadvantageous traffic situation, quickly degrading and impacted by frantic migration issues bordering on hysterical escape (Beluszky, 2019).

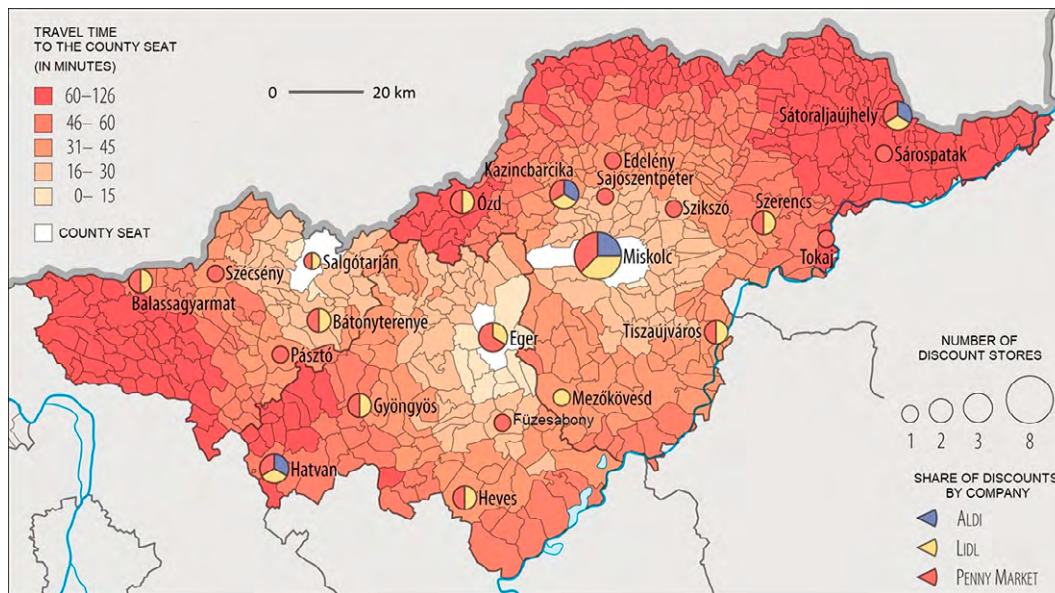


Figure 3. Accessibility and distribution of discount stores, 2022

Source: own research, drawn by Fanni Koczó

– moving into the area. Based on the above, we can understand why discounters avoid these areas, as there’s insufficient purchasing strength for their safe operations. However, from areas like this, even accessing discounts near is questionable (Figure 3).

Discounters can only be accessed within one to two hours of travel from 32,7% of the region’s hamlets (193 settlements), and from forty-five minutes to up to one hour of travel from 23,9% (141 settlements). This time is significantly increased due to the frequency of mass transport lines. Nowadays, during the times of the COVID-19 pandemic, leaving these settlements becomes even more of an issue, since a notable number of people living in these areas who used to have work in towns or other settlements in the near region became unemployed. This also means that the bottle-

neck of employment and mobility for these areas become even tighter, at the same time as the availability of a higher level of trade supply becomes less prevalent. In these villages carrying the burden of “poor-ness”, people are often less afraid of the pandemic, and more afraid of starvation. Only the Miskolc Campus joined the programme dubbed “Universities Fighting World Hunger”³ among Hungarian campuses. This is an initiative formed by the Auburn University in the United States in 2004, working together with the UN’s World Food Programme. Data also shows that in highly disadvantaged areas, discounters are no longer present, as neither their operations can be sustained with sufficient economic security, nor reaching them from hamlets became any easier. This may open a niche for Coop ABC and Coop Mini stores.

Niches next to discounters

The legislation dubbed “stopping malls” fundamentally exists to improve the competitiveness of domestic store chains, as the “law on stopping malls” is basically equivalent to a “discounter stop”, seeing how large investment projects to build trading centres basically froze during the 2009 financial and economic depression (f.e. Origo City, Neo Center, Mundo, Wedding Plaza etc.). Only projects which were impossible to freeze were completed (f.e. Corvin Plaza, KÖKI Terminál, Árkád2 etc.). These projects mainly concentrated in Budapest. At the same time, the “stopping

malls” legislation stabilised the state of hypermarkets compared to discounters. German hard discounters on the foodstuffs small retailer business sector were hampered shortly in their dynamic growth due to the “stopping malls” legislation, this timeframe opened an opportunity for the development of domestic chains. This is how the opportunity of rethinking business opened up for Coop, and by changing their business strategy, they could find a niche, thereby impacting small stores (Table 3).

³ The fundamental goal of UFWH is to work out and initiate an action plan for students and professors, which offer incentive for the community of the University to actively fight against starvation. The UFWH group of the Miskolc University works together with the Red Cross of Borsod-Abaúj-Zemplén county by collecting long-expiring foodstuffs for locals who starve, and need help from others. The enterprises in the foodstuffs small retailer business sector are also partners.

Table 3. Distribution of Coop stores by county, 2022

| County | Coop Mini | Coop ABC | Coop Szuper | Total |
|----------------------|-----------|----------|-------------|-------|
| Borsod-Abaúj-Zemplén | 136 | 86 | 48 | 270 |
| Heves | 33 | 63 | 28 | 124 |
| Nógrád | 42 | 25 | 9 | 76 |
| Total | 211 | 174 | 85 | 470 |

Source: self-made, based on Coop webpage

In this new situation, Coop stores were the most successful in holding on in the categories for small villages and hamlets, via their Coop ABC and Coop Mini stores. These store forms make up 82% of Coop stores in the Northern Hungary region. The aim of the Coop ABC and Coop Mini stores operating in the ten-kilometre catchment area of discounts is to drain their customers, and increase their return (Figure 4). In some areas of the Northern Hungary region, Coop stores became market leaders: these are the Karacs Valley, the lower Bükk, the Bódva Valley, and the Bodrogköz. As these areas don't have a high consumer purchase power, discounter chains can't penetrate these markets while assuring sustainable economic activities. Nearly a quarter of the region's settlements were left completely unattended, and even independent small stores have trouble with surviving here. Supply in these areas has a scarce product palette, via the roaming store network, the village administrator system, and the movement of these areas' population via automobile traffic.

In the current study, we calculated the so-called penetration index (PEX) indicator for discounters (Aldi, Lidl, Penny Market) and Coop (Coop ABC, Coop Mini) in order to prove which level of the settlement hierarchy they can establish a presence in.

Small retailer business research experiences until now showed that PEX analyses may offer assistance in identification of similarities and differences between store chains. The usage of the method helps with the identification of how many percentages of the sample consisting of different size category settlements have the presence of at least one small retailer business unit (Tiner, 2010). The analysis for penetration level was based on the similar analysis of Tibor Tiner (2019), conducted for seven settlement categories. Data summarized can be seen in Table 4.

We can see the following facts from the PEX value table:

- For settlements that have a population of over 10.000, all stores' PEX values are above 0.500 except Aldi. Penny Market has an especially pronounced presence even among these, which has a store in every one of them. Coop ABC and Lidl are not far behind. In this settlement category, Aldi is present with a relatively low value of 0.286. The reason for this is the scarce amount of shops. The population of the category's fourteen settlements, which makes up 2,3% of the total settlement amount, is 430.746.
- In settlements with a population of between five and ten thousand, Penny Market's dominance is still un-

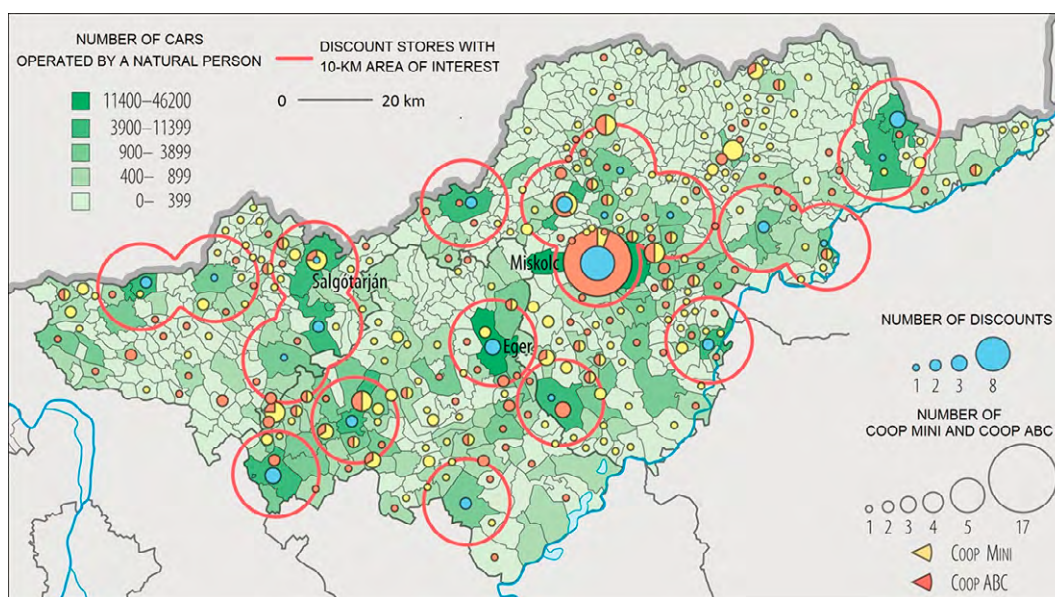


Figure 4. Distribution of discounters, Coop stores and car supply, 2020

Source: own research, drawn by Fanni Koczó

Table 4. Penetration Index of discounters and Coop stores by settlement size category, 2021

| Population | Number of settlements | Aldi | Lidl | Penny Market | Coop ABC | Coop Mini |
|------------|-----------------------|-------|-------|--------------|----------|-----------|
| >10000 | 14 | 0,286 | 0,786 | 1,000 | 0,857 | 0,643 |
| 5000-10000 | 13 | 0,000 | 0,154 | 0,538 | 0,462 | 0,231 |
| 2000-5000 | 78 | 0,000 | 0,000 | 0,013 | 0,564 | 0,346 |
| 1000-2000 | 141 | 0,000 | 0,000 | 0,000 | 0,404 | 0,355 |
| 500-1000 | 153 | 0,000 | 0,000 | 0,000 | 0,111 | 0,366 |
| 200-500 | 140 | 0,000 | 0,000 | 0,000 | 0,007 | 0,264 |
| 200> | 71 | 0,000 | 0,000 | 0,000 | 0,000 | 0,056 |

Source: self-made, based on the chains' webpages

questionable, with its 0.538 PEX value. They are followed by Coop ABC, with a PEX value of 0.462, further followed by Coop Mini with a PEX value of 0.154. Coop Mini, however, is significantly behind Coop ABC, as we can see. This category of settlements makes up 2,1% of the total in the region with 13 settlements, that have a population of 90.370.

- Settlements with two to five thousand population are ruled by Coop ABC with 0.564 PEX value, and Coop Mini with 0.346 value. Penny Market is also present with 0.013 PEX value, but their presence is negligible. The category is made up of 78 settlements, which amounts to 12.8% of the total, and has a population of 221.409.
- Discounters couldn't establish a presence in settlements with a one to two thousand population, only Coop ABC with a PEX value of 0.404, and Coop Mini with a PEX of 0.355 are on the market here. Note that in our study, we don't include the CBA stores⁴ as their role on the market is negligible. The category consists of 141 settlements, making up 23.1% of the total. Coop ABC is present in 57 settlements, while Coop Mini is present in 50 settlements. A total of 117 small retailer business units operate in these settlements, which have a combined population of 204.189.
- In hamlets with 500 to 1000 population, Coop Mini is the dominant with a PEX value of 0.366. In this category, not even Coop ABC has a significant presence anymore. Note that Coop is the only chain which has a store in almost every second village. The category has 153 settlements, making up 25,1% of the total. The Coop stores supply a combined population of 112.411.

- In the category of settlements with a population of 200 to 500, Coop Mini's 0.276 PEX value once again offers it market leadership, while Coop ABC and its 0.007 PEX value is more symbolic. The latter only has a single store in the category consisting of 140 settlements, which amounts to 23% of the total. The combined population is 45.779.
- In settlements below 200 population, only Coop Mini can establish a meagre presence. Coop Mini stores have a PEX value of 0.056 here, which suggests that one out of every seventeen to eighteen settlements are capable of sustaining a store. The significant majority of the category doesn't have any foodstuffs small retailer business. The population of the category is 7.359, shared across 71 settlements, which makes up 11.6% of the total.

We can derive notable conclusions from the summary of PEX index values conducted for the various store chains (Figure 5).

Based on Figure 5, we can conclude that Coop ABC and Coop Mini stores have a significant role in the entirety of the foodstuff's small retailer business network, and a similarly significant presence in all categories of the Northern Hungary region's settlement hierarchy. They also have a dominant role in the category of population below 5000. The Coop store chain has an important role in supplying hamlets, but in the settlements that have less than 200 population, their presence and importance basically shrinks to the level of the locals, as the profits of the store are scarce compared to their stores established in mid-sized or larger settlements.

⁴ Based on CBA's webpage, the total number of stores in 2022: four in Nógrád, two in Heves, and none in Borsod-Abaúj-Zemplén counties respectively.

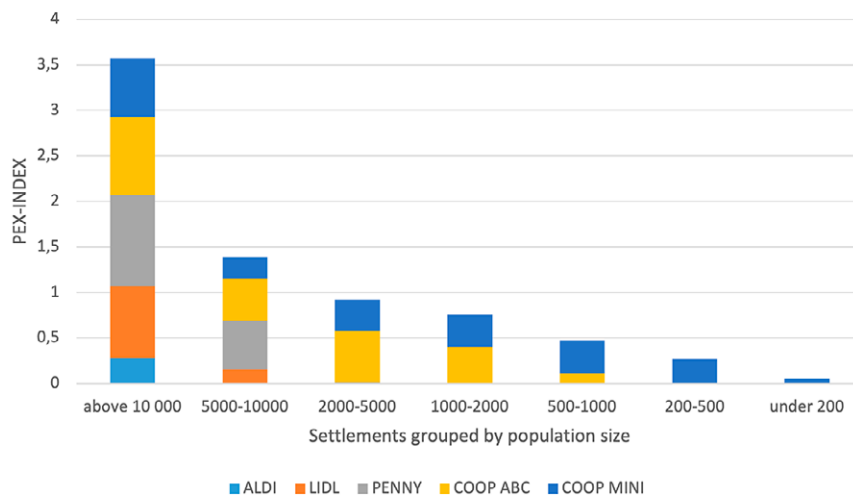


Figure 5. Penetration Index of FMCG Companies by settlement size category, 2019

Source: own research

Conclusion

Discounters have become a key element of the regional food supply chains with their low product prices and relatively wide product range. Despite their extensive network of discounters, they don't have a catchment area the all levels of municipalities. The size of the settlement and the purchasing power constraints were evident in the model region under study. Obstacles to entry caused by the size of the settlement and the purchasing power is also well documented in our study region. These market access barriers increase the importance of co-operative retail stores at lower territorial levels in a sustainable shop network. It is not economically feasible to operate a shop in the smallest settlements, therefore public assistance is needed in these areas.

Features of the retail store network and territorial obstacles were identified in the model region that hinder the development of a sustainable retail network at local level. The short summary of our research is as follows:

- Discounters dominate in the settlements of 10.000 population or above in the Northern Hungary region, their expansion wasn't significantly hampered by the "stopping malls" legislation. Retailers' cooperatives cannot compete with discounters in terms of prices and product selection. Although, increasing the proportion of local foods in the product mix could be an effective competitive strategy for them.
- Out of all discounter chains, Penny Market has the most significant network of stores, their role is most definitive in Borsod-Abaúj-Zemplén county.
- The most dynamic enterprise among the targets of the analysis, and the most profitable one as well was Lidl, their return on average for a store is over 12.3 million EUR.

- Coop stores are present in almost all segments of the settlement structure, but in the category with a population below 200, they are more about helping sustain the local society than realising profits. Coop's profits are produced in larger settlements.
- Most of the member of retailers' cooperatives are located in rural areas where discounters cannot operate economically, and so this level of settlement is a potential niche market for them.
- Cooperation of Coop members does not cover the whole organisation, but only parts of it. It results in highly decentralised corporate management systems, which varies from business to business. These features make difficult for retailers' cooperatives to develop a coherent cooperative geo-strategy.
- Law on "stopping malls" helped reposition the Coop network, and changing their business structure, which necessitated a paradigm shift in the thought process of the management.
- The supply of settlements belonging to the "waning moon" of Borsod-Abaúj-Zemplén is scarce. In this category, even Coop stores have hardships with survival. The fundamental supply of small villages is almost entirely inexistent, village stores can somewhat help here, but due to low purchasing power, even sustaining these is questionable.
- Mobile stores help sustain these small villages, but their presence may impact still operational stores even more.

However, this research has only covered a small slice of the role of retail networks in food safety. Further research is needed to understand the recent issue in more detail. Future research directions could focus on how retail networks contribute to social innova-

tion, security of supply or environmental sustainability at local level. An other important research question

is the role of discounts in the UN AGENDA 2030 sustainability goals.

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