

COMPARING SHOPPING COMMUNITIES BY STATISTICAL METHODS

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Abstract

The shopping community is a widely popular form of shopping in Hungary in the second decade of the 21st century. While the literature identifies the shopping community as an element of the short supply chain, shopping communities present themselves as a "link", a form of shopping, a tool for local economic development, among other things.

Based on the number of products offered in the shopping communities by product group, the shopping communities with webshops were compared using Kendall's concordance coefficient. My aim was to visualise the relative offerings of the shopping communities. The shopping community with the highest number of products ranked by product group was given the highest ranking. Using the various rankings, the ranking of the overall offerings of the shopping communities was determined by applying Kendall's concordance coefficient.

Keywords: short supply chain, shopping community, ranking

Introduction

Short-term care schemes in their current sense emerged in France, Italy and England in the 1980s, but have been enjoying a renaissance since the late 2000s (Kujáni 2015). The reason is that the global economic crisis across Europe has highlighted the vulnerability of economic systems thinking in terms of global solutions and the importance of self-sufficiency and short supply chains (Rapkay et al

2013). The importance of short supply chains is reflected in the European Union's rural development programme. In the Hungarian practice, the development of short supply chains is included as a sub-programme of the Rural Development Programme (Kujáni, 2015). It is evident that the role of short supply chains has clearly been valorised in Hungary in the last decade (Szabó 2016, Kujáni, 2015, Rural Strategy, 2012). Nowadays, in addition to retail stores and shopping centres, which have a leading position in food retailing, alternative systems based on personal relationships and trust are also emerging.

A relatively large number of country-specific studies of short supply chains are available (Galli et al 2015, Schupp 2016, Sylla 2017, Todorovic et al 2018, Zhang et al 2019). The authors Goszczyński and Wróblewski (2020), who analysed short supply chain actors in Poland, mention that the communication and objectives of short supply chain actors typically support rural, family farms, while the idea of sustainability and environmental protection is rarely mentioned. In contrast, a study in Spain found that healthy lifestyles, sustainability and environmental protection were the most important issues for consumers of local products in Spain (González-Azcárate et al 2021).

The role of endogenous resources in economic development has also increased in Hungary in the last two decades (Káposzta, 2007), which has had a positive impact on the marketing of local products. Local products, an important component of the short supply chain, have played a prominent role in the life of the Hungarian countryside since 2010. The specificity of local products is that they can be sold both in the place where they are produced and far from it. It is also an empirical fact that community alliances offering more local products are more effective than individual actions (Kápolnai, 2017).

The definition of shopping community has been formulated in a number of ways (G.Fekete, 2009, Czene-Ricz 2010, Handlerné et al 2012, Kápolnai 2017, Ritter -Nagy-Tóth 2012, Local Product Handbook, 2015). What is certain is that shopping communities are closely linked to the functioning of the short supply chain.

When interpreting shopping communities, we can start from a variety of scientific perspectives; for example, agricultural economics, geography, economics, sociology, human ecology, etc. Different scientific actors define shopping communities differently. Practitioners apply scientific approaches in their own way, 'rewriting' them.

A shopping community is an organisation which uses marketing and communication tools to connect producers and consumers, to display the offer and to operate a sales channel (webshop, farmers' market and shop) (Figure 1.)

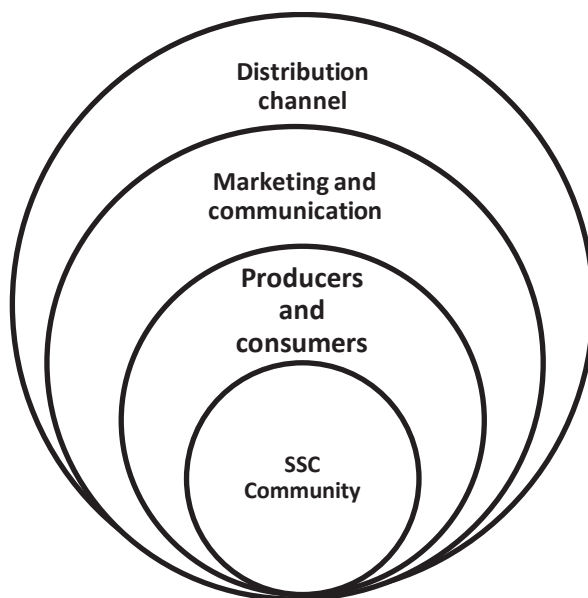


Figure 1. Defining the responsibilities of the shopping community

Source: own collection

Material and method

Official statistics on shopping communities are not yet collected in Hungary. Obviously, due to the lack of statistical collection, this was also a challenge. Due to lack of information, governmental bodies dealing with rural development and agricultural economy use a database created by an NGO, the Association of Conscious Shoppers. I used this database as a starting point and developed it further. The subject of this study are the shopping communities I have identified in Hungary. I was able to identify 41 shopping communities.

Online content analysis

Shopping communities in Hungarian cities were analysed using online content analysis. I analysed the functioning of the shopping communities based on the existence of factors based on the self-defined definitions of the shopping communities in Hungary. I collected the existence of these factors using online content analysis methods.

During the study, I created a ranking of the offerings of the shopping communities with webshops by product group. The determination of the closeness of the relationship between indicators and data can be done by calculating correlation, which aims to describe the strength of the relationship with a single indicator (Nemes Nagy 2005).

An ordinal scale is a measurement scale where the order of the variables matters, the difference between them does not. The closeness of the relationship between the criteria can be calculated from the differences between the rank scores. In my research, I used Kendall's coefficient of concordance, where multiple rankings are examined, a so-called global agreement test. In the global agreement test, we are looking for an answer to the question of how consistent the rankings are.

Method of calculating the Kendall concordance coefficient:

d = sum of squares of the variances

R_j = rank sum of the i -th individual

$\bar{R}$ = mean of the rank sums

m = number of raters

n = number of scoring factors

W = the Kendall concordance coefficient

$$d = \sum (R_j - \bar{R})^2$$

$$d_{max} = \frac{m^2(n^3 - n)}{12}$$

$$W = \frac{d}{d_{max}}$$

The indicator can take a value between 0 and 1. 0 = "disagree", 1 = strongly agree (Szűcs, 2010).

Kendall's concordance coefficient is mainly used in various marketing researches, e.g. for ranking products. The indicator was calculated using SPSS software, for which I consulted the SPSS manual by Sajtos -Mitev (2007).

Results

The smallest shopping community in terms of product range was the Vértesszőlő Chamber of Commerce, where 139 products were offered for sale. It can be concluded that the minimum number of products for which the pre-ordering interface of the shopping communities can be operational ranges between 130 and 140 products. However, larger shopping communities sell up to 1400 products. In addition to the organisation, the size of the shopping community's customer base - or more precisely the population of the communities themselves - also plays a role in the size of the range. Generally speaking, the shopping communities in the smallest municipalities cannot compete with those in the capital of a county in terms of the size of their offer. The average number of products offered by shopping communities is 381, with 12 below average and 10 above average.

The comparison of shopping communities was statistically analysed by looking at the agreement between the rankings of the shopping community on the basis of different indicators, in this case product groups. After ranking, I assigned scores to each ranking number. Thus, for example, if a shopping community was ranked first among the shopping communities for a given product group, it was given 20 points. This procedure is analogous to when evaluators score products (e.g. cars) according to given criteria. The coefficient was calculated using the SPSS statistical software package. The data used for the study were collected from the producer data of the shopping community webshops. The indicators included in the study were those that characterise the offer of the shopping communities as a whole, which were as follows:

Meat products, Vegetables, Dairy products, Fruit, Bakery products, Beverages, Spices and other food, Detergents other non-food products.

In Table 1, the scores based on the ranking numbers are listed in alphabetical order next to the names of the shopping communities. The higher the ranking of a given shopping community on a given indicator, the higher its ranking. Important point: Two shopping communities cannot have the same ranking number (maximum ranking number: 20, minimum ranking number:1).

Based on the study, the experience is that the Nyíregyházi Basket community dominates in most product groups, but this dominance is not exclusive. There are several exceptions, where the shopping communities with the widest range of products do not provide the largest selection within a given product category. These include the Köröskosár in Békéscsaba for vegetables, the Én Kosaram in Órbottyán for meat products, the Somogyi Kosar and the Forrás Shopping Community in Tata for cleaning products and other handicraft products.

Table 1. Rankings by product group in the shopping communities

(rank 1 = 20, rank 20 = 1)

Name	Meat products	Vegetables	Dairy products	Fruit	Bakery products	Beverages	Spices, other food	Cleaning agents, other non-food
Shopping Basket Community	11	18	2	15	10	10	1	5
Budafok Basket Shopping Community	3	7	4	10	9	12	8	8
Dombvidék Basket Shopping Community	5	5	5	7	8	3	2	12
My basket Órbottyán Shopping Community	18	12	14	4	17	7	14	10
Fehérvári Éléstár Shopping Community	12	9	11	11	13	15	15	3

Name	Meat products	Vegetables	Dairy products	Fruit	Bakery products	Beverages	Spices, other food	Cleaning agents, other non-food
Kisalföld Basket Shopping Community	7	2	12	12	2	14	12	6
Kiskosár Shopping Community	16	11	16	14	18	11	9	7
Small market Dunakeszi	20	19	19	19	20	20	20	13
Miskolc Green Basket	17	14	18	3	14	19	17	16
Nyíregyházi Basket Community	19	20	20	20	15	16	19	18
Shopping Community of Pápa	10	8	7	9	1	8	11	19
Pécs Basket Shopping Community	4	15	9	8	7	5	10	2
Somogyi Basket Kaposvár	6	16	6	17	5	13	6	20
Szatyor Shopping Community	15	17	17	13	12	18	18	15

Name	Meat products	Vegetables	Dairy products	Fruit	Bakery products	Beverages	Spices, other food	Cleaning agents, other non-food
Sziget Basket Shopping Community	14	1	10	5	3	2	3	9
Szolnok Basket Shopping Community	1	13	3	6	11	1	7	14
Tatai Forrás Shopping Community	8	4	15	18	19	6	16	17
Vas County Green Basket Shopping Community	9	3	8	1	4	4	5	11
Vértes Chamber Shopping Community	2	10	13	2	6	9	4	1
Zugló Bread Shopping Community	13	6	1	16	16	17	13	4

Source: own collection

The resulting coefficient is above 0.5, indicating a medium relationship. This high value of the coefficient (W) indicates a medium degree of similarity between the responses, i.e. there are differences in the rankings of the different indicators. This is typically striking for the last shopping community in the order of average rankings.

The ranking is closed by the shopping communities established in 2020 and 2021, respectively, with the export of the previously established Chamber of Commerce of the Vértess. Seven of the last eight shopping communities in the ranking are new. The Vasi Green Basket ranked last in the comparison with an average rank of 5.63, but this value shows that it is not an outstanding last place - it would have been ranked around 1. Even for those with a smaller range, there are product groups or producers that can offer a wide variety of products (dozens).

Table 2 shows the average rankings. The top three or four communities (Dunakeszi Kispiac, Nyíregyházi Kosárközösség, Szatyor, Miskolc Green Basket) are not particularly surprising. However, the fifth place of the Tatai Forrás shopping community, which uses an excel spreadsheet instead of a webshop, is all the more interesting. The "good performance" of Tatai also shows that technical equipment is no substitute for embedded local connections in this case.

Table 2. Ranking of shopping communities by the number of types of products offered, based on average rankings

Name of the shopping community	Average rank
Small market Dunakeszi	18,75
Nyíregyházi Basket Community	18,38
Szatyor Shopping Community	15,63
Miskolc Green Basket	14,75
Tatai Forrás Shopping community	12,88
Kiskosár Shopping Community	12,75
My basket Őrbottyán Shopping Community	12
Fehérvári Éléstár Shopping Community	11,13
Somogyi Basket Kaposvár	11,13
Zugló Bread Shopping Community	10,75
Shopping Community of Pápa	9,13
Békéscsaba Köröskosár Shopping Basket Community	9
Kisalföld Basket Shopping Community	8,38

Name of the shopping community	Average rank
Budafok Basket Shopping Community	7,63
Pécs Basket Shopping Community	7,5
Szolnok Basket Shopping Community	7
Dombvidék Basket Shopping Community	5,88
Sziget Basket Shopping Community	5,88
Vértesszőlő Chamber Shopping Community	5,88
Vas County Green Basket Shopping Community	5,63

Source: own collection

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