Theses of PhD dissertation

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Gödöllő
2020
CONSUMER SURVEY OF LOCAL PRODUCTS SUPPORTING RURAL DEVELOPMENT

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2020
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1. Objective, research questions

In response to consumer demand for local products, different types of local production systems evolved over time and space, depending on local social, economic and environmental conditions. Local production systems and local products have become more and more appreciated by consumers in both urban and rural areas and are now becoming an increasingly important source of alternative food supply to the global food trade. In my dissertation I examined the economic and social changes that have influenced the formation and development of local food and food systems in the rural development policy of the European Union and after Hungary's accession to the EU. I examined the factors influencing consumer demand for local products in Hungary from the 1980s to the present.

The results of consumer surveys in Hungary over the last 15 years show that respondents lack knowledge about basic food safety and food quality. They make their purchasing decisions primarily for emotional and economic reasons. However, the surveys did not address what the concept of local product means for consumers. Research has focused on consumer perception and acceptance of domestic and imported products.

I set the following objectives:

1. Discovering the attitudes and opinions of Hungarian consumers regarding local products.
2. Identify consumer groups based on their thoughts on local products and their purchasing habits.
3. Comparison of the results of consumer survey with experts’ experiences.
4. Make recommendations for future decisions on rural development based on the results of the consumer survey and the expert opinions and good practices presented in the dissertation.

2. Material and method

In the empirical part of my doctoral research, I wanted to survey the factors influencing consumers' food purchases through a large-scale survey based on a personal interview methodology. The survey sought answers for questions such as what is considered to be “local product” in Hungary, and what is the Hungarian consumers’ opinion on it at the time of the food purchase
decision The large sample (n = 1000) consumer survey was conducted in December 2016 with personal interviews. The self-reported answers were recorded by the interviewers in the questionnaires. The questionnaire based quantitative consumer survey (n=1000) with personal interviews was conducted in December 2016. The sample was representative to age, sex, and geographical regions (pro rata in regard of the country’s seven planning statistical NUTS2 regions).

The aim of the group of questions in the first half of the survey was to find out the extent to which consumers are rejecting or accepting factors related to food safety and quality. Moreover, other elements to be measured were their knowledge on food and how they obtain it.

The second group of questions can be divided into three subgroups:
- General characteristics related to the quality and safety of purchased food,
- Claims suggesting consumer awareness and commitment,
- Claims expressing the usefulness of food.

Most of the applied questions were close ended, measured on 1-5 Likert scale. The respondents rated their opinion on certain claims and aspects. The error-filtered data was analysed with the IBM SPSS Statistics 23.0 software package. Apart from descriptive statistical tools, cluster analysis was carried out to separate segments of consumers with different characteristics. Consumer segmentation with cluster analysis based on their perceptions of local foods had been previously applied by other research groups.

These studies served as inspiration for conducting our analysis. Ward’s method, according to the Euclidean distance was used. Hierarchical techniques have long been the popular clustering methods (Hair et al., 2014). Out of the initial sample size of 1000 persons, 898 respondents answered all necessary questions for the cluster analysis and were added to the clusters.

The differences between certain segments were analysed based on the following two aspects:
- How consumers evaluate the characteristic of local products among foodstuffs,
- The conditions under which food is considered to be a local product.
The respondents were categorized based on the responses given to these questions:

- How much do local products differ in the category of foodstuffs?
- How important aspect is the local origin of a product when purchasing food?
- Do you buy vegetables/cheese/jam/syrup directly from the producer?

3. Theses

3.1 Consumer survey 2016

3.1.1 Evaluating Demographic Data

The large number (n = 1000) of the survey on aspects influencing consumers' food purchasing habits is representative according to age and gender in the 2011 census and the distribution of the population by region.

3.1.2 Food safety and -quality aspects of food shopping

The questionnaire survey included 13 questions on the importance of food safety and quality factors for consumers, the food knowledge of respondents and where to obtain it. Based on the mean values of the five-point Likert scale, the following results were obtained.

The most important aspect for respondents is to look at the shelf life of the products (4.39), which is very important and reassuring from the point of view of food safety. Respondents are very interested in healthy nutrition (4.2). This is followed by a conscious choice: the country of origin of the product (4.0), the manufacturer or brand (4.0) and the stores considered to be reliable (3.9). Respondents obtain basic knowledge about food safety and quality from parents and grandparents (3.8). The claim that small-scale foods are safer than the products of larger manufacturers is more likely to be true (3.6).

3.1.3 Demographic examination of food safety and quality aspects

Responses to food safety and quality claims indicate that women attach greater importance to the factors listed. We measured very different preferences for each age group. According to the answers, as the age goes on, consumers are becoming more and more conscious, and they are increasingly conscious of their
choice of shop or brand. There is a significant difference between respondents under the age of 39 and those over the age of 60 whether they are constantly informed about food safety and quality. For people under 39, this is far less relevant (mean: 2.7) than for people over sixty (mean: 3.4). There is no significant difference in the perception of small food products among the age groups, the respondents think it is safe (3.4-3.8). Depending on the size of the household, there is no appreciable difference in the assessment of food safety and quality claims. Food safety claims and quality claims were, in some cases, judged differently by respondents with different income levels. When evaluating the results, we considered the distribution of survey participants by income level. Those with the lowest incomes, who represented only 2.6% of the survey respondents, are the least likely to be the brand and manufacturer of the food (3.7, survey average: 4.0). In contrast, the origin of the product is the most important to them. They were the ones who rated food knowledge from their parents and grandparents the most (4.3, survey mean: 3.8). Compared to average incomes, those with high incomes (only 1.2% of respondents) do not consider organic products safer than traditional foods (2.5, survey average: 3.3). But they read the labels the most (4.1, survey average 3.6), and are most interested in lifestyle science questions (4.5, survey average 3.0).

Almost all food safety and quality issues are treated equally when the respondent is responsible for the food and when performing this task jointly or in a division of labour with someone else. Making judgments about individual claims is less important if someone is "food responsible." This is especially true when it comes to continuous orientation (2.6, survey average: 3.0), product origin (3.8, survey average 4.1), and careful reading of labels (3.1, survey average: 3.6) for relevant answers.

Examining claims regarding food safety and quality from the point of view of educational attainment, we found that respondents with differing levels of education only differ in their opinions. Respondents with up to primary education are most likely to think that small food (4.2, survey average: 3.6) and organic products (3.8, survey average: 3.3) are safer than traditional foods. Of those graduating from college or university, those with a science degree may be more aware of their answers. More important to them is continuous learning in this area, making more informed food choices, looking more closely at product labels, and being more interested in lifestyle science. However, small-scale foods are considered less safe than non-scientific respondents. In terms of
economic status, the answers do not show a significant difference of opinion between the categories. Food safety and quality issues are not affected by the presence of children under the age of 15 in the family.

3.1.4 Consideration when purchasing food

Based on 19 questions, we sought answers to what aspects are considered when purchasing food. The questions are grouped into three sub-categories based on the aspects that may be considered when purchasing the products

1. Food safety and quality aspects of food purchasing
   – Good Quality
   – Safety
   – Free from additives/E number
   – Free from GMO (genetic modified raw material)
   – Bio product

2. Consumer awareness and commitment statements
   – Environment friendly
   – Local product
   – Hungarian origin
   – Readable labelling
   – Detailed labelling
   – Include brand name, producer name
   – Recommendation of others
   – Healthy diet
   – Brand

3. Usefulness of the products
   – Low price
   – Practical packaging
- Aesthetic packaging
- Interesting advertising
- Conventional product

Based on the answers we can say that quality (4.6) and safety (4.5) are the most important aspects when buying food. Consumers have a strong demand for readable (4.2), detailed labels (4.1) on products. Consistent with previous consumer surveys in the literature, the results show that Hungarian consumers continue to reject GMO-containing foods (4.1: non-GMO). Awareness and commitment are included in the survey with lower but still significant average values. Brand and the producer (4.0) are important information when making a purchase decision. In addition to being fit into a healthy diet (3.9), the focus is on additive-free food (3.9). In the case of utility aspects, average values were usually obtained. The low price (3.4), the practical and aesthetic packaging (3.1) and the recommendation of others (3.1) belong to this aspect. The "Interesting Advertising" (2.2) was extremely low. According to the answer, it is not a matter of importance, but the result should be treated with caution.

3.1.5 Demographic evaluation of the aspects taken into account when purchasing food

The results of the survey show that women considered all aspects surveyed more important than men. Differences between means vary between 0.1 and 0.3. In two respects, the difference between the opinions of women and men is more significant. The "Additive / E Number-Free Criterion for Women received a mean of 4.1, while for men it was a less important aspect, as shown by the 3.7 average score. The GMO-free criterion was the same (difference in means: 0.4) is more important for women.

There are two basic considerations when it comes to assessing age-related purchasing considerations. Some aspects of the surveyed perceptions are the same for all ages. This includes ensuring that the product is of high quality, safe and cheap. Others' recommendations (3.1) do not affect all ages, while interesting advertising (2.2) does not affect all ages. For the other half of the surveyed aspects, as the age progresses, certain aspects become more important. The most appreciated aspect is that the product is of Hungarian origin (0.8
points higher average value), environmentally friendly and local product. Aspects related to the growth of health awareness to ensure that the product can be incorporated into a healthy diet, does not contain additives and is GMO free. The most valuable aspects are the practical packaging and the legibility of the information on the labels. The following categories (with a mean of 0.5-0.4 points higher) include aesthetic packaging, branding, organic food and detailed label information and brand names. Depending on the size of the household, there is no appreciable difference in the judgment of each statement. Examining the purchasing aspects based on the level of household income, the answers can be divided into three groups. The first is a group of statements that yield similar results for all income respondents. They include good quality, practical packaging, incorporation into a healthy diet and trademark. For the next group, we found outliers relative to the mean of the survey for some income-level respondents. For low- and high-income respondents, it is more important than average that the product is local. The motivation behind the answers should be quite different for respondents with different income levels. The third group includes those aspects in which the importance of the given aspect increases as the income level decreases. The largest discrepancy between the perceptions of individual income earners is in the case of the "Low priced" statement. The average value of respondents with high incomes is 2.1, while the average value of those with the lowest incomes is 4.5, which is a very important factor.

You will get the same or similar judgment when buying a product when the responder is responsible for the food and when doing this task jointly or sharing work with someone else. Making judgments about individual claims is less important when someone is "food responsible." This is especially true in the case of a local product (3.2, survey average: 3.5) or a Hungarian product (3.5, survey average: 3.9).

Analysing the factors influencing the purchasing decision according to the level of education, the results of those having a vocational school or elementary school education were different from the average of the survey. It is more important for respondents in these two educational categories to have low-priced, practical and aesthetic packaging. For graduates from college or university, a high-quality product is a more important consideration (4.8 / 4.6). For them, the aesthetic packaging (2.7 / 3.0), the recommendation of others (2.9 / 3.1) and the fact that the food is organic (2.8 / 3.1) are not important.

Examining the purchase aspects according to the economic status of the
respondents, we found outstanding differences between the average values of the survey and the average values of each category for pensioners (27.7% of the survey) and students (12.4% of the survey). Of the respondents, the most important aspect for retired respondents is that the product should be of Hungarian origin (4.2, survey average: 3.9). In the case of students, except for the "good quality" aspect, all other aspects were rated lower than the survey average.

Respondents' perceptions of our purchasing behaviour are not influenced by whether there is a child under the age of 15 in the family, or whether their past or present job is related to food production or the grocery trade.

3.1.6 Investigation of food distribution channels and frequency of purchases

With regard to consumer preferences for food distribution channels, we asked separately where respondents purchased their vegetables, cheeses and cheese preparations, and where to buy jams and syrups. It can be said for each of the three product types examined that the purchase of these products on the Internet is not typical (1.1-1.2) in Hungary yet. Supermarket grocery purchases have higher average values than online shopping, but compared to other sales channels, consumers rarely buy the three types of products tested (vegetables, fruit - 2.0; cheese, cheese - 2.5 jam, syrup - 2.6). Of the three product types, respondents are most likely to buy vegetables and fruits (4.0), followed by cheese and cheese preparations (3.8). Rarely, almost occasionally, is jam and syrup purchased (2.4). 40% of the respondents bought food within a week from the local producer market or directly from the producer.

3.1.6.1 Demographic study of food distribution channels and frequency of purchases

Demographically, there was a gender and age difference between respondents. For all three products, female respondents gave higher scores on whether they buy vegetables, cheese, cheese and jam and syrup directly from the producer. In the case of vegetables, the average female respondent is 3.7, which suggests that it is not just casual shopping. For the other two product groups, values below 3 mean that they typically do not seek to buy these products directly from the producer. It is more likely that only occasionally, e.g. fairs,
events, excursions, and if you can meet the producer in person, buy products from local manufacturers.

Examining the propensity to buy local produce by age group, we found that for each of the three products, the older the respondent, the greater the propensity to purchase directly from the producer. Demand for the three products differs significantly. For vegetables over the age of 40, buying directly from the farmer is typical, but most respondents over 60 buy vegetables directly from the farmer.

The average for cheeses, jams and syrups is below the 3.0 average for either age group. This indicates that it is not typical to buy products directly from the producer. For these products too, the older the respondent is, the more likely they are to look for an opportunity to buy from the producer.

3.1.6.2 Consumer aspects of local product

Another highlight of the research on local products was the mapping of consumers' expectations and knowledge of local products. Respondents were asked to rate local produce within food based on five statements. Each of the five criteria listed had to be evaluated in terms of the content of the local product term for respondents (Figure 1). The degree of agreement with a given content shows the extent to which these aspects influence the way certain foods are 'local produce'.

3.1.6.3 Cluster analysis

Respondents were grouped by cluster analysis into their perception and acceptance of local products based on their answers to the following questions:

1. How much do local products differ in the category of foodstuffs? (5 variables)
2. How important aspect is the local origin of a product when purchasing food? (1 variable)
3. Do you buy vegetables, cheese and jam/syrups directly from the producers? (3 variables)

Based on the answers given to the questions, the respondents could be divided into 5 distinct groups (Table 1). Each group was analyzed in detail based on their responses to the other questions in the survey. For statistical analysis, the responses of 898 respondents could be evaluated by cluster analysis.
Table 1: Proportion of individual consumer groups within respondents

<table>
<thead>
<tr>
<th>Name of the group</th>
<th>Number of groups (person)</th>
<th>Proportion of group within respondents (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fan</td>
<td>134</td>
<td>14,9</td>
</tr>
<tr>
<td>Marketgrover</td>
<td>138</td>
<td>15,4</td>
</tr>
<tr>
<td>Indecisive</td>
<td>354</td>
<td>39,4</td>
</tr>
<tr>
<td>Theoretical fan</td>
<td>213</td>
<td>23,7</td>
</tr>
<tr>
<td>Rejective</td>
<td>59</td>
<td>6,6</td>
</tr>
<tr>
<td>Sum</td>
<td>898</td>
<td>100,0</td>
</tr>
</tbody>
</table>

Source: Own edits

The first four of the 5 groups are generally more receptive to local products (Figure 2). They represent more than 90% of the respondents. The demographic analysis of each group showed significant results based on gender, age, region of residence, and economic status. I also considered it important and appropriate to carry out the analysis of each group based on the aspects where the results did not show significance.
2. ábra: Preferences of the consumer groups
Source: Own edits
By clustering the respondents by cluster analysis, it was possible to form a comprehensive picture of the groups of Hungarian consumers on the basis of their opinion, knowledge and expectations regarding the local product. The five groups were differentiated according to several aspects. Where there is a greater proportion of men, there is a tendency to have no opinion or opinion about local products.

The largest number of clusters is the Indefinite "average" customer group, which gave members of the group an average triple point for local product questions in most evenings. In their opinion, the characteristics of local products (3-4 points) tend to be greener, safer, more nutritious, natural and tastier. A less important consideration when making a purchasing decision is to buy a local product. For the other three groups that are more positive about the local product (3-5 points) - Fan, Marketgoer, Theoretical fan - there is a significant difference in purchase frequency. Further, more detailed studies are needed to understand the reasons for this: economic, social, limited product availability, and more.

According to the survey, the local product group had the smallest number of rejectors, only 6.6% of the respondents. The opinions and expectations they represent require further detailed examination. I consider it important to examine the reasons for the lack of trust in local products. To what extent does a lack of knowledge, lack of knowledge, or lack of interest in certain attributes of food affect your willingness to buy food, including local produce?

### 3.2 Novel scientific results

- The novelty of my questionnaire survey means that the questions in the questionnaire address the food safety knowledge and expectations of the respondents from several angles. During the research, I surveyed the respondents' knowledge of food and where they acquired it, as well as the relationship between product attributes and characteristics (origin, origin, production method) and food safety.
A new approach to questionnaire surveys is to examine how many respondents agree on the importance of continuing to learn and learn about nutrition, lifestyle, and knowledge.

A new outcome of the survey, which has not been included in consumer surveys to date, is the role of educational institutions and family habits and traditions in acquiring consumer knowledge and shaping consumer awareness. In my research, I have concluded that the development of conscious consumer behaviour can be clearly traced back to the knowledge acquired in childhood, family and school.

In consumer research, I have taken a new approach to defining 'local product'. The research I did was to find out what the consumers think of the local product, and what aspects they make or decide to buy. The structure of the questions I created allowed the respondents to pay more attention to the issues related to the characteristics of local products.

The novelty of my consumer research is that I have clustered the respondents by cluster analysis based on the perception and acceptance of local products. During the study I distinguished five consumer groups. Based on the preference surveys of the groups, I have come to the conclusions that may serve as a theoretical basis for measures to increase consumer confidence in local products.

I applied a new research approach when investigating the possibility of applying technological and non-technological innovations in the short supply chain in addition to consumer surveys.

Based on the lectures and consultations held for small farmers in the program series, I have identified the need for innovative, hands-on training to enable producers to produce marketable products, thereby enabling them to carry out reliable, profitable activities.

4. Conclusion and recommendations

Knowledge of consumer perceptions and expectations of local products is important information when developing strategies for developing local production systems. My research confirms that the producer of a product must properly position his product, that is, to determine which product characteristics
or attributes of the product he produces are the most relevant to the consumers of the local character of the product. The results of the 2016 Consumer Survey support this as follows.

**The first objective of my research** was to map the opinions and attitudes of the domestic adult population regarding the consumption of local products. The results of the Consumer Survey show that three groups of factors that influence the purchasing aspects of food - quality and safety, awareness and commitment, utility - influence respondents to varying degrees. For the consumer, the most important aspect of a local product is the geographical location - settlement, region - to which the product is linked. For respondents, the most common feature of local produce is that the product is produced and marketed in the same geographical area. This aspect essentially defines local produce and clearly distinguishes it from the mass of food sold in global trade.

The Consumer Survey shows that local food products have a higher than average consumer perception. For most respondents, local produce has a positive distinctive character within food, tastier, more natural and more environmentally friendly. It is also an important aspect when making a purchasing decision, as the most important aspect of most respondents when buying local products is their knowledge of local tastes (68.2%). For consumers, the local product not only serves their own needs, but also sees the producers behind its product, as support for local workplaces (63.5%) is also an important consideration.

**The second objective of my research** was to identify, beyond general consumer attitudes and opinions in the country, consumer groups that are already open to local products and potential customers. By clustering the respondents by cluster analysis, I have formed 5 distinct groups: Fan, Marketgoer, Indecisive, Theoretical fan, and Rejective.

Significant results were obtained in the cluster analysis for the analysis of gender, age, region of residence and economic status. Examining the gender of each cluster shows that the characteristics of local products are more positively perceived by groups where women are in the majority. Where there is a greater proportion of men, there is a tendency to have no opinion or opinion about local products. The availability of local products varies greatly between municipalities and regions. The localities where the local markets operate have a higher awareness and acceptance of local products.
The third objective of my research was to compare the results of consumer surveys with those of other experts. Szakály (2010)\(^1\) distinguished five groups that surveyed the consumer habits of traditional Hungarian products. In his research he sought to find out what the expectations of certain target groups are for traditional Hungarian foods and what are the factors determining the quality according to the consumers. The examination of the local products I carry out considers traditional foods as a subset of local products. Based on my results, I have come to the conclusion that, for consumers, local produce is not just about traditional foods. Traditional character can increase demand for a local product but gaining consumer confidence in a local product is determined by a number of product-related characteristics.

According to the research of Csíkné Mácsai (2014)\(^2\), direct purchase from producers has two motivating factors, based on which two consumer groups can be distinguished. The first group says that farmer products are fresher, more reliable than commercially available food. The other consumer group is motivated by the social responsibility towards producers. Based on my examinations I got similar results. However, based on the analysis of the clusters I have identified, I conclude that Hungarian consumers do not decide based on quality or environmental considerations when purchasing a local product. Product-specific criteria such as food safety, quality, palatability, traditional character, environmental impact, etc. they count to varying degrees depending on gender, age, economic status and educational attainment.

The fourth objective of the dissertation was to formulate recommendations for the relevant decision-makers in rural development at the local (municipal), county and national level based on the results of the consumer survey and the expert opinions and good practices presented in the dissertation. Studies by manufacturers of HÍR-products show that the biggest challenge is to establish and maintain a direct relationship between producer and consumer, one of the reasons being that producers lack of enough marketing and commercial knowledge.

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\(^2\) Csíkné Mácsai É. (2014): Közvetlen értékesítés a mezőgazdasági termékek piacán, Doktori (Ph. D.) értekezés Szent István Egyetem
SUGGESTIONS

S1: Based on the results of the Consumer Survey, I propose that theoretical and practical activities involving food preparation and nutrition should be available to young children (kindergarten). With the involvement of the producers of local products in the educational process, the "learning by experience" method can be used to lay the foundations for the development of consumer attitudes towards the environment, for the love and maintenance of the wildlife.

S2: I recommend encouraging and supporting the creation of information channels, where different producers, producers and organizations can be reached based on different search parameters. Such parameters may be, for example, product, geographical area (settlement, region), mode of production, mode of sale (market, economy, internet, etc.), other services (hospitality, accommodation, etc.).

S3: I recommend the development of training programs based on personal appearance and distance learning, which also include group practical training. Group hands-on training can provide an opportunity for producers / producers to share their experiences.

S4: I suggest that, in order to increase confidence in small producers, certificates of professional development training should be made available to training and / or educational institutions, subject to personal data protection regulations.

S5: I recommend the development of a support system that allows several producers to make joint investments and carry out improvements.

S6: I recommend that programs be developed whereby representatives of local communities can learn about good practices in other areas and receive professional help to adapt them to their own capabilities and facilities.

S7: I recommend facilitating the opening of producer markets, providing farmers with food and technology advisory services.

S8: I recommend that the activities of the producers of the HÍR-product should be continued and the involvement of other producers in the HÍR-program.
5. Publications of author

Scientific articles:

Conference proceedings, full papers:

International conferences:


Part of Book: