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Selected Aspects of Regional Organic Food Market – Price Analysis

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Abstract: *The paper deal with problems of price of organic food compared to the price of their conventional equivalents and the price differences between specialty shops and retail chains' stores in the context of the consumers' willingness to pay a premium for organic food and their perception of value for money. Most of the respondents are willing to pay a premium of not more than 10% or 20% for organic food. The average acceptable premium for organic food is about 18 %. The research of prices has been undertaken for seven groups of organic food: Legumes, cereals, dairy products, meat, eggs, beverages, sweet and sweeteners and vegetables. The price of more than 80% of sorts of organic food and of almost 75% of items included in the research exceeded the level that is acceptable for most respondents. Relatively lowest premium was discovered in the groups of milk and dairy products, sugar and alternative sweeteners and cereals. Contrariwise, the highest premium was found in groups of vegetables and meat and eggs.*

Key words: Organic food · Price · Pricing · Consumer attitudes

JEL Classification: M31 · Q13 · D40

1 Introduction

Organic food is viewed differently among both expert and professionals and non-professionals. Many studies prove basically similar nutritional characteristics to the conventional food. Other studies confirmed significantly lower levels of pesticides or higher level of certain nutrients (Crinnion, 2010) or a generally natural character (Dussault and Desaulniers, 2014). Likewise, a part of consumers do not trust to the specific character of organic food. However, a permanently increasing number of consumers is confident of both sensory and health aspect of organic food. The less perceived aspect in consumer attitudes is the environmental-friendly influence of organic farming and support to the employment in less favoured areas from the point of view of the labour demand. Those non-commodity outputs are also meaningful and the sustainability and sustainable regional and rural development could be considered by consumers.

Organic food is generally more expensive compared to the conventional food. That price difference could have several reasons. One reason issues from the higher farmers' price – organic food production is linked with additional costs. First to be cited is certification of the compliance with the standards: "For the grower, certification entails considerable paperwork, including the farm plan. In addition, he or she pays various dues, fees, and assessments in accordance with the pricing structure of the certifier and again, growers receive much more surveillance than they do as conventional growers" (Guthman, 2004). The necessity to forego synthetic fertilizers makes organic farmers subject to lower yields – then the unit price increases. The crop rotation is more complex than the rotation used in the conventional system (Pimentel et al., 2005). Organic crops and meat are generally produced in lower quantities: economy of scale is lower than in case of conventional farming. Organic food production as well as the transport should be separated from the conventional ones: another source of increased costs (Hamplová, 2008).

With regards to the different way of production and processing, it is possible to expect a different level of quality organic food, compared to the alternative conventionally produced food (Cooper and Leifert 2007; Zagata and Lošťák, 2012). Even if there is certain amount of criticism in supporting the concept of being natural to characterize organic food (e.g. Trewavas 2001), this concept plays a role here (Verhoog et al. 2003; Murdoch, Marsden and Banks 2000). Generally speaking, it can even be declared that the quality of food is closely linked to the nature and locally embedded supply. This is a supporting argument for organic food and products.

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According to Lockie, Lyons, Lawrence & Mummery (2002); principle factors limiting the consumption of organic foods (where organic foods were considered desirable) are price/cost, convenience and availability. The consumers' willingness to pay more for organic products is mainly affected by food quality and security, trust in the certification, and, for some products, brand name (Krystallis, and Chryssohoidis, 2005). Consumers with convenience and price orientation in their food choices less incline to buy organic products (Zakowska-Biemans, 2011). Price is generally seen as the most important barrier to organic food choice (e.g. Padel and Midmore, 2005; Hughner et al., 2007; Aertsens et al., 2009; O'Doherty Jensen, Denver, and Zanoli, 2011; Aschemann-Witzel, Zielke, & Thøgersen, 2014).

Conventional food retailers, including traditional supermarkets have significantly increased their organic market share (Hsieh, & Stiegert, 2011).

Organic food consumption in the Czech Republic

The survey by Median agency shows the number of Czech consumers purchasing organic food has increased. The part of households purchasing food increased from 37% in 2010 to 41% in 2014 (Jordán, 2014). The agency STEM/Mark in 2010 concluded its survey: consumers are aware of organic food and understand well the meaning of it; 40% of households buy organic food; one third of households buy it regularly; the main barrier for bigger consumption of organic food is the price (Singr, 2011).

Many retailers offer organic food, the complex purchase should be done, however, only in specialized shops. Retailers with a wider variety of organic food products in 2007 were Interspar, Albert Hypermarket, Billa, Albert Supermarket, Kaufland and Tesco. A purchase of regularly purchased food costed 80% more for organic food than for conventional food (Valeška, 2012). According to the web portal Kupi.cz (price monitoring in retail), the biggest differences among prices for organic and conventional food are in case of eggs (250%) or chicken meat (up to 300%), the smallest difference is in case of yoghurts: the price of white yoghurts is similar (Tomková, 2013).

The aim of the article is to analyse the pricing in case of organic products, more precisely to assess the consumers' attitude to and the willingness to pay a premium for organic food, to quantify differences among price of organic food and organic food and to compare price strategy of specialized shops and retail chains.

2 Methods

2.1 Data collection

The questionnaire survey took place in 2013 and 2014 and lasted eight months. 1100 questionnaires were collected. The price research survey was done in 2015 in 80 stores of retail chains and 33 specialized shops in the South Bohemian region, in 13 towns.

2.2 Data analysis

The analysis of consumer survey was done only by means of arithmetic mean and frequency analysis. The aim of the survey was to discover the current attitude of Czech consumers to the organic food, and to identify main motives as well as the barriers to the purchase of the organic food.

The analysis of prices employed following analytical methods and technics: arithmetic mean, weighted arithmetic mean, range and coefficient of variation. The aim was to compare the prices of organic food products and the equivalent conventional food products. Another comparison was done between specialized shops and in retail chains' stores: prices of organic food in those two groups of food shops were compared. Additionally, the prices in particular retail chains were mutually compared.

The surveys were undertaken with financial support of the project GAJU 019/2013/S. They are part of a broad research of the regional (South Bohemian) organic food market. This research includes surveys in organic farms, in retail stores (various formats) that sell organic food and consumer surveys.

3 Research results

3.1 Consumers and organic food

The article summarizes the parts of the research with a narrow link to the problems of price and pricing. The analysed data set of the surveyed consumers included 425 respondents – those who purchase organic food.

- *Satisfaction with the quality of particular organic food and the perception of the price adequacy (n=425)*

Respondents were invited to assess quality and price adequacy of 19 groups of organic food products by means of a 5-point scale (1=very high quality and 5=very bad quality; 1=price absolutely adequate and 5=price absolutely inadequate). The best ***perceived quality*** is in case of fruit, vegetables, and milk and dairy products. On the other hand, a relatively lower satisfaction was identified in case of organic sweets, wine and coffee. The range of 2.24-2.95 indicates there are no extreme differences. We are sorry to conclude that the general perceived quality is rather average than excellent in case of all researched groups of organic food products. Mainly the ***price*** of organic meat and meat products is considered to be disproportionately high. Price of the organic milk and dairy products as well as legumes is perceived as more adequate with regard to the quality. In general, the organic food price is seen as rather inadequate compared to the perceived quality (the average grade =3.06).

- *Maximum acceptable value of the premium price (n=425)*

Respondents had 6 options to choose as for their willingness to pay a premium price for organic food – extra payment of 10%, 20%, 30%, 40%, 50% or more than 50%.

39% of respondents are willing to pay a premium price of 110% and an equal group would accept 120%. 19% would pay extra 30% of basic price. Only very few respondents are willing to pay 140% (2%) or 150% (1%). No respondent is willing to accept an increase of more than % of the price. The average acceptable value of the "organic premium price" is about 18 %

3.2 Consumers and the price of organic food

The objective of the research in retail store formats (specialized shops, retail chains with supermarket, hypermarkets or discount stores) was to assess the range of offered products in particular store formats and the price variability including the comparison with the price of relevant conventional products. Additionally, the prices were compared between retail chains and specialized shops (SS) and among the stores of particular retail chains (RC) as well.

The research of prices has been undertaken for seven groups of organic food: Legumes, cereals, dairy products, meat, eggs, beverages, sweet and sweeteners and vegetables.

As the extent of the article is quite limited, we further only summarize our findings in case of particular groups of organic food.

A Legumes

Surveyed kinds: *yellow split pea, green split pea, red lentil, green lentil, white beans, mung beans, chick-pea*

- Analyzed items and availability: 260 legumes items (118 in SS and 142 in RC). The most available was red lentil. The least available was green split pea.
- Price of organic x conventional product: the smallest difference of price between organic and conventional item was in case of chick-pea and mung beans (40%), the biggest difference was in case of green split pea (200%).
- Organic food price variability: the lowest variability was in case of green split pea – range (R): 4, coefficient of variation (CV): 2.58). The highest variability was in case of mung beans (R=73, CV=26.46)
- Organic food price SS x RC: The price level of legumes is mostly lower in specialized shops (except for green lentil). The price difference was maximum 15% (the smaller difference was for red lentil: 2%, the biggest difference for white beans: 15%).
- Organic food in retail chains: There are quite important differences in the range of goods among particular RC. The widest range is in Globus, Tesco and COOP. The lowest price of legumes was in Albert.

B Cereals

Surveyed kinds: *buckwheat, rice, millet grains*

- Analyzed items and availability: 183 cereals items (66 in SS and 117 in RC). The most available was red buckwheat. The least available (among the surveyed items) were millet grains.
- Price of organic x conventional product: the smallest difference of price between organic and conventional item was in case of buckwheat (30%), the biggest difference was in case of rice (120%).
- Organic food price variability: the lowest variability was in case of buckwheat : R=32; CV=15.2. The highest variability was in case of millet grain (R=55.7) and rice (CV=27.7)
- Organic food price SS x RC: The price level of cereals is lower in specialized shops. The price difference was maximum 19% (the smaller difference was for millet grains: 9%, the biggest difference for rice: 19%).

- Organic food in retail chains: There are quite important differences in the range of goods among particular RC. The widest range of organic cereals is in Albert supermarket, Albert hypermarket, Globus, Tesco and COOP, dm drogerie markt and Billa. The lowest price of legumes was in COOP.

C Milk and Dairy Products

Surveyed kinds: *cow milk, Edam cheese, white yoghurt, goat yoghurt, goat milk, goat cheese*

- Analyzed items and availability: 172 dairy products items (50 in SS and 122 in RC). The most available organic milk product was white yoghurt. The least available (among the surveyed items) was goat yoghurt.
- Price of organic x conventional product: the smallest difference of price between organic and conventional item was in case of goat cheese and cow milk (10%), the biggest difference was in case of Edam cheese (60%).
- Organic food price variability: the lowest variability was in case of Edam cheese: R=5; CV=4.8. The highest variability was in case of goat milk: R=43; CV=32.2)
- Organic food price SS x RC: The price level of dairy products is mostly lower in specialized shops (except for goat yoghurt). The price difference was maximum 15% (the smaller difference was for white yoghurt: 4%, the biggest difference for cow milk: 15%).
- Organic food in retail chains: There are quite important differences in the range of goods among particular RC. The widest range of organic dairy products is in Albert hypermarket and Billa. The lowest price of legumes was in Albert hypermarket.

D Meat and eggs

Surveyed kinds: *eggs, chicken, chicken legs, chicken breast fillet, fore beef, lamb meat, pork leg, rib eye, hind beef, beef shoulder, beef foreshank, beef liver.*

- Analyzed items and availability: 41 products items (19 in SS and 22 in RC). The most available organic product in this group was egg. The least available (among the surveyed items) were chicken legs and fore beef.
- Price of organic x conventional product: the smallest difference of price between organic and conventional item was in case of fore beef (10%), the biggest difference was in case of chicken legs and chicken breast fillet (180%).
- Organic food price variability: the lowest variability was in case of rib eye and porc leg: R=0; CV=0. The highest variability was in case of lamb meat: R=300; CV=42.86)
- Organic food price SS x RC: The price level of meat and eggs is mostly lower in specialized shops (except for chicken breast fillet and fore beef). The price difference was maximum 49% (the smaller difference was for eggs: 11%, the biggest difference for fore beef: 49%).
- Organic food in retail chains: There are quite important differences in the range of goods among particular RC. The widest range of organic meat and eggs is in Albert hypermarket. The lowest price of eggs was in Tesco. The comparison of the prices is difficult to be done because of a very low appearance in the stores of retail chains.

E Beverages

Surveyed kinds: *cereal coffee, coffee, cocoa, tea, fresh juice (apple), almond milk*

- Analyzed items and availability: 275 beverages items (128 in SS and 147 in RC). The most available organic beverage was cocoa. The least available (among the surveyed items) was coffee.
- Price of organic x conventional product: the smallest difference of price between organic and conventional item was in case of cocoa (10%), the biggest difference was in case of fresh fruit juice (130%).
- Organic food price variability: the lowest variability was in case of cocoa: R=90.76 and cereal coffee: CV=19.1. The highest variability was in case of fresh juice: R=395.1; CV=91)
- Organic food price SS x RC: The price level of beverages is mostly lower in specialized shops (except for cereal coffee). The price difference was maximum 63% (the smaller difference was for cereal coffee: 2%, the biggest difference for fresh juice: 63%).
- Organic food in retail chains: There are quite important differences in the range of goods among particular RC. The widest range of beverages is in dm drogerie markt and Globus. The lowest price of beverages was in Billa.

F Sugar and Alternative Sweeteners

Surveyed kinds: *cane sugar, vanilla sugar, agave syrup, honey*

- Analyzed items and availability: 180 product items (78 in SS and 102 in RC). The most available organic product in this group was cane sugar. The least available (among the surveyed items) was honey.

- Price of organic x conventional product: the smallest difference of price between organic and conventional item was in case of agave syrup (2%), the biggest difference was in case of vanilla sugar (100%).
- Organic food price variability: the lowest variability was in case of honey: R=4.28; CV=4.1. The highest variability was in case of cane sugar: R=67.1 and vanilla sugar: CV=70.4
- Organic food price SS x RC: The price level of sugar and sweeteners is mostly lower in specialized shops (except for agave syrup). The price difference was maximum 59% (the smaller difference was for agave syrup: 1%, the biggest difference for vanilla sugar: 59%).
- Organic food in retail chains: There are quite important differences in the range of goods among particular RC. The widest range of beverages is in dm drogerie markt and Globus. The lowest price of beverages was in COOP.

G Vegetables

Surveyed kinds: *onion, garlic, tomatoes, carrot, potatoes, cucumber, beet, Hokkaido pumpkin, wild cabbage (kale)*

- Analyzed items and availability: 75 product items (30 in SS and 45 in RC). The most available organic product in this group was carrot. The least available (among the surveyed items) was wild cabbage.
- Price of organic x conventional product: the smallest difference of price between organic and conventional item was in case of potatoes (70%), the biggest difference was in case of beet (220%).
- Organic food price variability: the lowest variability was in case of potatoes: R=4.28 and garlic: CV=17.2. The highest variability was in case of beet: R=175.5 and vanilla sugar: CV=70.4.
- Organic food price SS x RC: The price level of vegetables is generally lower in specialized shops (except for carrot, cucumber and beet). The price difference was maximum 183% (the smaller difference was for garlic: 5%, the biggest difference for vanilla sugar: 183%).
- Organic food in retail chains: There are quite important differences in the range of goods among particular RC. The widest range of vegetables is in Billa. The lowest price of vegetables was again in Billa.

4 Conclusions

There is a relatively small group of consumers in the Czech Republic who are actively interested in organic food (10%). More important is the group with ambivalent attitude to organic food: the degree of interest = 3 or 4 on a 5-point scale (63%). Consumers perceive particularly the lack of basic information. Situation of the organic food market could be significantly improved by for instance the exogenous support (by government) in manner of many developed European countries where organic food found their place in schools or health-care facilities. The Czech organic market without such a support runs the risk of persisting low demand. The stimulus for organic production remains subsidizing of the organic farming (Doležalová et al. 2014)

Price is the important barrier discouraging the purchase of organic food. The survey among consumers confirmed their willingness to pay a premium price most often if that price is maximum 10% or 20% higher than the price of an adequate conventional product (78% of respondents). Within the researched seven groups of organic (38 sorts of organic food; 1,042 items), only few items were priced with such a low value of the premium price:

a) if the consumer accept the premium of 10%, he could choose from 6 sorts of organic food (15.8 of surveyed sorts, 197 items = 18.9 of surveyed items);

b) if the consumer accept the premium of 20%, he could choose from 7 sorts of organic food (18.4 of surveyed sorts, 265 items = 25.4 of surveyed items);

Basically, more than 80% of sorts of organic food and almost 75% of items included in the research had a price above the level that is acceptable for most respondents. Relatively lowest premium was discovered in the groups of milk and dairy products, sugar and alternative sweeteners and cereals. Contrariwise, the highest premium was found in groups of vegetables and meat and eggs.

When comparing prices in specialized shops and retail chain stores, 15 kinds of researched organic food (47% of all compared kinds) are sold for lower price in retail chains. In all other cases, the price of organic food is lower in specialized shops. More precisely, lower price in retail chains was in case of milk and dairy products (except for goat milk products), sugar and sweeteners (except for agave) and beverages (except for cereal coffee).

Organic food prices are higher. They usually overpass the limit of acceptability from the side of consumers. The approach of the price policy is not significantly different in case of specialized shops and retail chains. Organic food prices are often higher in retail chains despite the expected pressure of retail chains on lower suppliers' prices and the expected positive effect of the bigger traded volumes of organic products on the price amount.

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