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PRICE DEVELOPMENT OF DAIRY PRODUCTS IN RETAIL OUTLETS IN OLSZTYN
Part 2: Price positioning of retailers

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Key words: price differences, distribution channels, price positioning.

Abstract

The paper presents the results of research in the terms of dairy products price development in retail trade network in Olsztyn. The price registration of chosen goods was carried out in November 2005 in 194 retail outlets representing traditional and modern forms of retail sales. Undertaken analyses indicate that there is direct relation between retail channels used and the level of prices offered. It also confirms notable price advantage of modern trade as compared to traditional one and that had a direct impact on attractiveness of purchasing baskets of dairy products in modern forms of retail sales.

KSZTAŁTOWANIE SIĘ CEN PRODUKTÓW MLECZARSKICH W OLSZTYŃSKIEJ SIECI HANDLU DETALICZNEGO
Część 2: Pozycjonowanie cenowe podmiotów handlowych

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Słowa kluczowe: różnice cenowe, kanały dystrybucji, pozycjonowanie cenowe.

Abstrakt

W opracowaniu przedstawiono rezultaty badań nad poziomem cen produktów mleczarskich w sieci handlowej Olsztyna. Rejestrację cen wytypowanych do badań towarów przeprowadzono w listopadzie 2004 r. w grupie 194 podmiotów handlowych reprezentujących nowoczesne i tradycyjne systemy dystrybucji. Wyniki badań wskazują na istotny związek, jaki istnieje między poszczególnymi kategoriami podmiotów handlowych a wysokością cen oferowanych produktów. Badania potwierdzają również przewagę konkurencyjną handlu nowoczesnego nad handlem konwencjonalnym, wyrażającą się niższymi cenami, co ma swoje bezpośrednie odzwierciedlenie w mniejszych wydatkach nabywców na zakup produktów mleczarskich w wielkopowierzchniowych podmiotach handlowych.

Introduction

Appearance of modern trade outlets in the market represented by hyper and supermarkets, discount shops and shopping centers is one of the best visible consequences of evolution in retail trade. The dynamic development of large area retailers leads not only to the increase of their importance and bargaining power in the marketing chain but also in expanding the service and product offer of the entire trade sector coupled at the same time with larger differences in prices of products sold between the traditional and modern forms of retail outlets, which leads to development of the price and service image of trade entities (KOZŁOWSKI 2005, SZUMILAK 2003, GRZESIUK 2003, KŁOSIEWICZ-GÓRECKA 2002, *Sposoby na ceny*. 2000, *Cenne strategie*. 1999). Studies by Szumilak on development of FMCG – fast moving consumer goods – on the retail network of Kraków indicate a significant relation between individual categories of retail outlets and the level of prices for products offered. That relation manifests in the situation where FMCG prices in modern forms of retail outlets are significantly lower than the average market prices and prices offered by traditional outlets indicating the significant competitive advantage of that first group in the market (SZUMILAK 2003).

Price attractiveness of "new retailers" is a consequence of their active and frequently aggressive pricing policy. It involves implementation of the low prices strategy that has its background in using the sales volume effect, recovery of marketing costs, achieving favorable terms and conditions of goods purchase and use of modern trade and marketing techniques. As a consequence of economic and marketing conditions trade outlets representing traditional forms of sales cannot implement low price strategies and most frequently adjust the prices of products offered to the average level of market prices or sell the products at much higher prices (DOMAŃSKI 2001, PINDAKIEWICZ 2001. *Sposoby na ceny* 2000).

Methodological assumptions of the studies

This paper presents results of own studies concerning determination of the relation existing between the price level of products offered and the distribution channels used in selling them as well as assessment of the price offer to buyers in the variety of retail outlets in Olsztyn. The studies aimed at verification of the following research theses:

1. Modern distribution channels enjoy competitive advantage over the traditional channels manifesting through lower prices.

2. The value of the baskets of goods purchased in modern distribution channels is more attractive for the buyers.

The studies of price development covered 11 selected dairy products representing the major segments of the dairy products market. Recording of prices for those products and their close substitutes was carried out at the representative group of 194 retail outlets.[1] In the empirical analysis of recorded prices the double-sided significance test for averages (test t) was applied. Also, the values of hypothetical purchase baskets were assessed and compared.

Significance of price differences was measured by comparing prices for covered products offered by identified categories of retail outlets and the average prices of those products calculated for the entire Olsztyn city market. The results of calculated statistics according to *t*-Student distribution allowed concluding which products are offered by which categories of retailers at prices significantly lower or significantly higher than the average market price. Analyzing the distribution of average prices for products offered in Olsztyn market the significance of the differences in prices were assessed between pairs of outlets immediately neighboring one another on the map of their price positioning. That assessment allowed showing whether a given category of retail outlets applies product prices significantly differing from the price offered in the same market by other outlet categories.

During assessment of price attractiveness of shopping in Olsztyn retail network the values of purchases baskets consisting of covered products and the values of baskets consisting of their close substitutes were assessed and compared. The assessment of monetary value of the baskets was based on average prices, lowest and highest prices recorded in November 2004 as well as the published data on consumption of dairy products converted to "purchase units" in the employee households. As a consequence of lack of data on the level of consumption for all the identified categories of products included, the studied baskets consist of 8 products (tab. 1). At the same time, to obtain the full picture of the baskets available in the retail networks to buyers and to allow comparisons, the values of the baskets were calculated for those categories of retail outlets that offered the full range of products covered and their substitutes i.e. hypermarkets and supermarkets, grocery shops, kiosks at markets and freestanding kiosks.

[1] The methodology of studies as concerns selection of dairy products and retail outlets for the study is presented in the paper: *Price development of dairy products in retail outlets in Olsztyn* Part 1: *Price differentiation on the dairy products market*.

Table 1

Estimated consumption level of dairy products per purchase (purchase volume)

Product category	Average monthly consumption per capita in employee household in 2003		Average monthly purchase per capita in employee household in 2003	
	Volume	Unit	Volume	Purchase unit
Milk	3.62	liter	3.62	Cardboard pack
Yogurt	0.41	liter	2.73	cup
Kefir	0.23	liter	0.58	cup
Cream	0.34	liter	1.70	cup
Cottage cheese	0.46	kg	0.46	kg
Ripening cheese	0.30	kg	0.30	kg
Blue cheese	0.01	kg	0.08	package
Butter	0.32	kg	1.60	cube

Source: Own calculations based on: own studies and *Popyt na żywność...* 2004. *Statistical yearbook.* 2004.

Results of studies

Relation between the category of trade entities and the price level of products offered

The initial comparison of product price levels offered by the identified categories of retailers indicates different price positioning concepts that could be assigned to them. They are the result of adjustment of retailers to price sensitivity on one hand and they are determined by the level and spread of prices in competitive retail outlets on the other. The numbers given in table 2 indicate that hypermarkets are the most attractive in price for the buyers (with the exception of a narrow range of dairy products available from the discount shops), which definitely differentiates their offer from the offers by other outlets and offers the source of competitive advantage. Higher average prices of products at super than hypermarkets are, as can be assumed, by the range and higher quality of service provided and they become the reference for prices offered by the grocery shops and freestanding kiosks.

The supermarkets network in Olsztyn is five times denser than the network of hypermarkets but its density is lower than that of grocery shops and as a consequence supermarkets offer a better alternative for shopping location as a consequence of additional costs of getting to price and product attractive offers of hypermarkets and discount shops. Low prices are also offered by kiosks located at markets, which could be explained by closeness of the competitor offer supportive for maintaining low price levels to attract the

Table 2

Average prices of studied dairy products in Olsztyn retail network (PLN/unit)

Product studied	Unit	City market	Categories of retail outlets						
			H	S	D*	SB	SP	KS	KT
"Łaciate" milk	1 liter	2.51	2.11	2.42	–	2.37	2.56	2.55	2.35
"Jogobella" yogurt	150 ml	1.09	1.01	1.04	–	1.09	1.10	1.10	1.06
"Sokólski" kefir	450 ml	1.50	1.56	1.51	–	1.45	1.49	1.51	1.40
"Piątnica" cream	200 g	1.44	1.33	1.37	–	-	1.45	1.47	1.36
"Bakuś" homogenized cheese	100 g	1.15	0.99	1.15	0.99	1.60	1.17	1.17	1.13
"Rama Creme Bonjour"	200 g	3.53	3.08	3.39	2.99	–	3.58	3.63	3.47
"Łukta" cottage cheese	1 kg	10.13	10.27	9.39	–	–	10.43	10.44	9.72
"Gouda" ripening cheese	1 kg	17.01	16.86	15.36	15.99	–	17.01	17.79	17.03
"Hochland" processed cheese	150 g	3.18	2.78	3.07	2.49	3.18	3.25	3.21	3.02
"Turek" blue cheese	120 g	3.60	3.12	3.64	–		3.67	3.60	3.34
"Masmak" butter	200 g	3.09	2.85	3.00	–	–	3.11	3.13	2.89

* Majority of products in discount networks is offered under own brands.
Source: own studies.

largest numbers of buyers possible (prices were studied at three small markets where a number of kiosks was available at each location). Grocery shops and freestanding kiosks set their prices at slightly higher levels, however, in case of the majority of products covered close to the accepted reference prices for the entire city market.

As could be assumed, in the same way as in the market of Kraków (SZUMILAK 2004), also in Olsztyn market convenience of shopping at traditional outlets resulting from their best location relative to the place of residence of the buyers favors implementation of pricing policies aiming at maximization of own profits through selling products at higher prices. Although it requires empirical confirmation, it also seems that price control level by suppliers of products is an important factor influencing the price level in this case. They often use their stronger position versus smaller merchants to maintain their sale prices at the levels satisfying for them.

The formulated general conclusions concerning different price positioning concepts of retail outlets find confirmation in the results of tests of significance of the differences in offered prices of products between categories of retail outlets and average prices of products for the entire retail network. The values of critical probability levels presented in table 3 indicate that among 11 products covered 8 products were offered at significantly lower prices in hyper and supermarkets and kiosks at markets, 4 in discount shops (all available) and one at filling station s ("Łaciate" milk). Above the average were the prices of four products offered by freestanding kiosks (“Piątnica” cream, “Rama Creme Bonjour” cream cheese, “Gouda” ripening cheese and “Masmak” butter), 2 in grocery shops (“Łaciate” milk, “Hochland” processed cheese) and the price of “Bakuś” homogenized cheese sold at filling stations. The majority of dairy products available at grocery shops and freestanding kiosks are offered at prices corresponding to the average market prices, as the tested price differences in those cases were statistically insignificant.

Table 3

Critical probability level for statistical calculations in *t*-Student distribution for double sided test

Products studied	City market VERSUS						
	H	S	D	SP	KWS	KT	SB
“Łaciate” milk	*1.3E-06	*2.6E-05	–	*0.0065	0.0567	*5.9E-06	*0.0038
“Jogobella” yogurt	*0.0017	*0.0197	–	0.1732	0.1294	*0.0008	0.9777
“Sokólski” kefir	0.1405	0.4670	–	0.6222	0.1212	*1.5E-05	0.5625
“Piątnica” cream	*0.0066	*0.0003	–	0.2470	*0.0039	*9.6E-05	–
“Bakuś” homogenized cheese	*0.0045	0.9929	*0.0034	0.4998	0.4561	0.4653	*8.2E-06
“Rama Creme Bonjour”	*0.0010	*1.2E-08	*0.0001	0.2498	*0.0309	0.1554	–
“Łukta” cottage cheese	0.8318	*0.0012	-	0.2850	0.3425	*0.0071	–
“Gouda” ripening cheese	0.8674	*8.3E-05	*7.4E-11	0.9952	*0.0069	0.9740	–
“Hochland” processed cheese	*0.0015	*0.0121	*4.5E-97	*0.0056	0.3369	*1.5E-05	0.9580
“Turek” blue cheese	*0.0003	0.3159	–	0.0766	0.9087	*1.1E-05	–
“Masmak” butter	*0.0078	*0.0020	–	0.3133	*0.0379	*1.2E-07	–

* product price differing significantly from the average market price at the significance level of $\alpha \leq 0.5$
Source: Own studies.

The full picture of prices in Olsztyn market is completed by significance measurement of price differences between pairs of retail outlets immediately neighboring with one another at the “map of price differences”. In that map illustrating the ranking of retail outlets according to prices of products offered from the lowest to the highest the outlet category symbol with subscript “i” informs about statistical significance and subscript “n” about insignificance of the difference between the average price of products offered by that category of outlets and the average price that is positioned closest to the right as a price higher from it (Fig. 1).

Goods	lower prices					AVERAGE PRICE	higher prices		
mŁ		H-15.8% (i)	KT-6.4% (n)	SB-5.7% (n)	S-3.7% (i)	2.51	KS+1.4% (n)	SP+1.8%	
jJ		H-7.8% (n)	S-4.8% (n)	KT-2.8% (i)	SB-0.1% (n)	1.09	SP+0.6% (n)	KWS+1.3%	
kS			KT-6.7% (i)	SB-3.1% (n)	SP-0.4% (n)	1.50	S+1% (n)	KS+1.2% (n)	H+4.5%
śP			H-8% (n)	KT-5.4% (n)	S-4.9% (i)	1.44	SP+0.8% (n)	KS+1.9%	
sB		D-14.2% (n)	H-13.9% (i)	KT-2.5% (n)	S-0% (n)	1.15	SP+1.1% (n)	KS+1% (i)	SB+38.7%
RCB		D-15.4% (n)	H-12.9% (i)	S-4.2% (i)	KT-1.8% (i)	3.53	SP+1.2% (n)	KS+2.7% (n)	
tŁ				S-7.3% (i)	KT-4.1% (n)	10.13	H-1.4% (n)	SP+2.9% (n)	KS+3.0%
sżG		S-9.7% (n)	D-6.0% (n)	H-0.9% (n)	SP-0.01% (n)	17.01	KT+0.1% (n)	KS+4.6% (n)	
stH	D-21.7% (n)	H-12.7% (i)	KT-5.1% (n)	S-3.3% (n)	SB-0.2% (n)	3.18	KS+1.0% (n)	SP+2.1%	
spT				H-13.3% (n)	KT-7% (i)	3.60	KS+0.2% (n)	S+1.2% (n)	SP+1.9%
mM			H-7.7% (n)	KT-6.3% (i)	S-2.6% (i)	3.09	SP+0.7% (n)	KS-+1.4%	

Goods: mŁ – "Łaciate" milk, jJ – "Jogobella" yogurt, kS – "Sokólski" kefir, śP – "Piątnica" cream, sB – "Bakuś" cheese, RCB – "Rama Creme Bonjour", tŁ – "Łukta" cottage cheese, sżG – "Gouda" ripening cheese, stH – "Hochland" processed cheese, spT – "Turek" blue cheese, mM – "Masmak" butter; Gray shading means that product price offered by the outlet differs significantly from the average market price used as reference. ...–/+ ...% percent difference between product price offered by a given outlet and the average market price used as reference (– price lower; + price higher).

Fig. 1. Map of average price differences significance
Source: own studies.

Table 4

Distribution of studied dairy products prices offered by individual categories of outlets

Products studied	Princes				
	Lowest	Low	Average	High	Highest
"Łaciate" milk	H	KT, SB, S	KWS	SP	
"Jogobella" yogurt		H, S, KT	SB, SP, KWS		
"Sokólski" kefir		KT	SB, SP, S, KWS, H		
"Piątnica" cream		H, KT, S	SP	KWS	
"Bakuś" homogenized cheese		H, D	KT, S, SP	KWS	SB
"Rama Creme Bonjour"	D, H	S, KT	SP	KWS	
"Łukta" cottage cheese	S	KT	H, SP, KWS		
"Gouda" ripening cheese.		S, D	H, SP, KT	KWS	
"Hochland" processed cheese	D, H	KT, S	SB, KWS	SP	
"Turek" blue cheese		H, KT	KWS, S, SP		
"Masmak" butter	H, KT	S	SP	KWS	

Source: Own studies.

The overall presentation of results from both significance tests gives the grounds for classification of retail outlets according to the level of prices offered to 5 categories proposed by Szumilak (SZUMILAK 2004) i.e.: offering the given product at a lowest price (e.g.: "Łaciate" milk – hypermarkets), low (e.g.: "Sokólski" kefir – kiosks at markets), average (e.g.: "Masmak" butter – grocery shops), high (e.g.: "Rama Creme Bonjour" cream cheese – freestanding kiosks) or the highest price (e.g.: "Bakuś" homogenized cheese – filling stations). The system of market prices prepared in that way reflects the pricing space that depends on the dairy product offered and the type of retail outlet. The narrowest scope for possible price alternatives occurs in case of "Jogobella" yogurt, "Sokólski" kefir and "Turek" blue cheese. Those products are sold in the retail network at average market prices or prices lower than average (Tab. 4).

Attractiveness of trade outlets as concerns the purchase value of products' basket

The observed covered products price level differences between retail outlet categories are reflected directly in the value of purchased "baskets of products". The synthetic image of the price offer in Olsztyn retail network was presented by determining and comparing the values of baskets of purchases made in individual retail outlets (Tab. 5, Fig. 2). Comparing the values of baskets appraised according to the highest and the lowest prices of products covered and their substitutes for individual retail outlets to the average value of the basket of covered products for the entire city market it was established that the extreme values of baskets composed of covered products were 85% (hypermarkets) and 116% (grocery shops and freestanding kiosks) while in case of baskets consisting of substitutes 63% (hypermarkets) and 151% (hypermarkets). That means that in November 2004 the buyer of the most expensive basket of dairy products paid almost PLN 10 more and in case of substitutes PLN 27 more than for the corresponding cheapest baskets of such products.

In 2004, the cheapest purchase baskets composed of covered products were calculated according to average prices offered by hyper and supermarkets. If the buyers made purchases at hypermarkets those baskets would be cheaper than the most expensive basket purchased in a freestanding kiosk by PLN 2.90 (10%), and in case of supermarkets by PLN 2.20 (almost 8%). It is interesting that the highest spread in monetary value of baskets is characteristic in case of grocery shops and freestanding kiosks. In grocery shops the basket calculated according to the maximum prices was more expensive by 32% and in case of freestanding kiosks by 29% than the cheapest baskets made in those outlets. The buyers searching for the cheap substitutes of covered products would also buy them at hypermarkets and those baskets would by cheaper by 43%

Table 5

Baskets of products studied and their substitutes purchased from Olsztyn retail outlets

Purchase baskets	Purchase basket value (PLN)						Differences between purchase baskets and city market basket assessed according to average prices				
	City market	H	S	SP	KS	KT	H	S	SP	KS	KT
Studied products (average price)	30.4	28.2	28.8	30.8	31.0	29.0	-2.2	-1.5	0.4	0.7	-1.4
Cheapest studied products	25.1	25.7	27.0	26.7	27.4	27.4	-4.7	-3.4	-3.7	-3.0	-3.0
Most expensive studied products	35.4	29.8	31.2	35.2	35.2	30.7	-0.6	0.8	4.8	4.8	0.3
Cheapest substitutes	26.0	19.3	22.5	26.9	27.7	25.1	-11.1	-7.9	-3.5	-2.7	-5.2
Most expensive substitutes	32.9	45.9	34.5	33.0	32.1	31.3	15.6	4.1	2.7	1.7	0.9

Source: Own calculations based on: own studies and *Popyt na żywność...* 2004. *Statistical yearbook* 2004.

(PLN 8.50) than the most expensive basket available form freestanding kiosks. Those willing to purchase more expensive substitutes would make their purchases cheap at markets and there they would pay PLN 14.60 les (47%) than in the hypermarket offering the most expensive substitutes for the covered products.

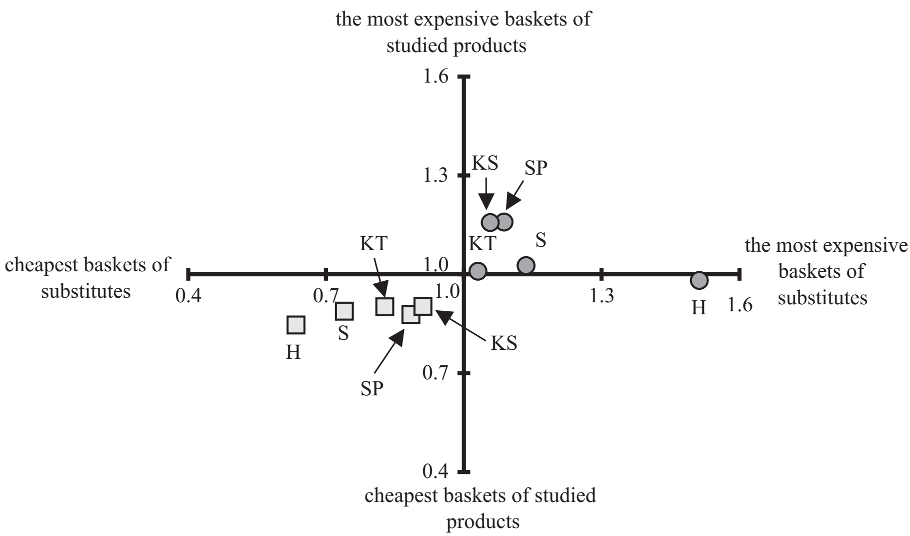

Fig. 2. Map of retail outlets positioning
Source: Own studies.

Position of hypermarkets in the right lower quarter of the "price positioning map" indicates that the most expensive covered products offered by them (baskets) do not exceed the average market prices while the substitutes are sold at the highest prices both as compared to the entire market and other categories of retail outlets. On the other hand position of hypermarkets furthest in the left lower quarter means that selling products at the lowest prices they assume the prices set by supermarkets and kiosks at markets for their reference base. Particular attention should be paid to the "cheapest" baskets purchased in freestanding kiosks and grocery shops and the closeness of the "expensive" baskets offered by those outlets. Positioning of those outlets the highest in the right upper quarter (the highest prices of substitutes and covered products) means that those outlets determine the pricing ceiling, which results from their convenient location for the buyers and implementation of the maximum profit strategy by applying high prices.

Conclusion

The results of studies presented in the paper confirm the influence of category of the retail outlet used for sales of dairy products on price level. They prove that each category of retail outlets applies a characteristic concept of price positioning in the market. The modern forms of retail outlets enjoy significant price advantage over the traditional outlets and as a consequence the baskets of products purchased there are the most "cost" attractive for buyers.

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