

Possibilities to Adjust the Supply to the Demand for Food in Poland in the Post-crisis Period

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Abstract: In the conditions of crisis the dependency between of the food market has increased as a result of high level of saturation of food needs in Poland and of a limited ability to generate domestic and external demand. The aim of this article is to present the trends in adjustments of food supply to the reported demand in the post-crisis period. The conducted research shows that the processes of adjustment of supply to market demand include: changes in the production profile of the enterprises, rationalisation of behaviour in the sphere of production and resource management. Two branches have been selected for research: fat and dairy products, which are diverse in terms of supply and demand. The analysis covered the years 2008-2012, which is the period of the global crisis and the post-crisis situation. The study used a rich empirical material based on both the author's own research and the secondary sources.

Key words: Poland; food market; adjustment of supply

JEL code: D1

1. Introduction

In conditions of limited capacity to generate domestic and external demand, caused by global economic crisis of 2008-2009, there are questions about the possibilities and directions for the entrepreneurs to undertake adjustments activities in the food market.

The aim of this article is to present the trends in adjustment of food manufacturers to the reported consumer demand in the post-crisis period in Poland.

Analysis covers two branches: fat and dairy products. This selection of branches for the analysis is based on the fact that are characterised by different concentration of production and capital as well as by varied pressure of demand for the products they offer.

The analysis covered the years 2008-2012, that is the period of the global crisis and the post-crisis situation.

2. Status of the Research

Research achievements related to the food market are rich. Noteworthy, the studies on the conditions and mechanisms of consumption (Kos, 1975, 1991; Zielińska, 1979, 1989; Żelazna, Kowalczyk, Mikuta, 2002). Important contribution to the study concerning the direction of development of food demand was made by

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Gulbicka, Zielińska, Kwasek and Szwacka-Mokrzycka (formerly Szwacka-Salmonowicz). The papers of these authors focused on the analysis of changes in the Polish food needs in the Polish households, development of models of the food consumption, level of satisfaction of the food needs (based on the results of the econometric analysis and surveys). We should mention here (Gulbicka, 2000; Zielińska, 1978; Szwacka-Salmonowicz, Zielińska, 1996; Gulbicka, Kwasek, 2000; Kwasek, 2012, Kos, Szwacka-Salmonowicz, 1997; Szwacka-Mokrzycka, 2013). Studies on the food industry are mainly focused on the adjustment process of the food industry in Poland to other EU countries, on integration and consolidation processes (Szwacka-Mokrzycka 2009; Urban R., 2008; Urban R., Mroczek, 2011). The following authors discuss the downward trend in demand in the EU market and the lowering competitive advantage of Poland in the foreign trade (Pawlak, Poczta, 2011).

3. Methodology

The study is an attempt to answer the following questions:

- What are the trends and sources of the development of the food industry in Poland?
- What are the main factors, which shape the demand for food in Poland, compared to other EU countries?
- What is the level of satisfaction of food needs in Poland?
- What are the trends in adjustment of supply to the reported demand for food?

Level of satisfaction of the food needs was determined based on the results of the income elasticity in food consumption in terms of households. These studies were based mainly on the household budget data provided by the Central Statistical Office (GUS). The analysis covered the years 2001-2009, which allowed the authors to capture the dynamics of changes in the structure of the food needs of the Polish households. A comparative analysis of food needs in 2009 against the background of the food needs formed in 2001 was done. In addition, an assessment of the level of satisfaction of food needs (in relation to selected categories of the market: dairy products and the fat market) and an assessment of the consumer purchasing behaviours, based on raw data (single-source-TGI) provided by the SMG/KRC Market Research Institute, were made (SMG/KRC, 2013; Szwacka-Mokrzycka, 2013).

An analysis of the investment attractiveness of the sectors selected for the research, that is, of fat and dairy products, was done. The ranking of the Investment attractiveness was based on the so-called profitability index, which reflects the dynamics of expected operating profit without depreciation, which was generated in the analyzed sectors. The omission of depreciation, which is a non-cash expense, allows for approximation of the growth rate of the cash flows of companies in a particular industry.

The average growth rate of cash flows in the sector in the coming quarters allows evaluating the profitability in the given industry. Each industry received a profitability grade from 1 to 5, reflecting its profitability in comparison to other sectors. The higher it is, the higher is the projected profitability. Future volatility of the profitability index measured with the standard deviation of the forecast represents the risk specific for the given industry. Each sector received also a risk level from 1 to 5 representing their risk level compared to other sectors. In this case the higher rate indicates a relatively lower risk for the sector. The industry is characterized by two parameters: future profitability and risk. This forms a basis for a short-term investment attractiveness. It reflects the preferences of the investors seeking to maximise the profitability and minimise the risk. Changes in attractiveness may result from changes in the components of attractiveness: profitability or risk. Final attractive was assigned a value from 1 to 5, where the higher the value, the higher attractiveness. A higher value means a

more favourable “investment weather”, that is, higher profitability and lower risk. Then the location of the fat and dairy industry was shown along with risk and profitability values (Figure 2).

4. Directions of Development of Export of Agro-food Products in Poland

Polish accession to the EU has contributed to a significant development of the food industry over the years 2003-2010 average growth rate of food production (expressed in fixed prices) stood at 5.2% per annum, which was almost three times higher than in the period from 1998 to 2002 (Urban, Mroczek, 2011). It is important to note the presence of a large similarity in the structure of the agricultural and food processing industry and the structure of food enterprises operating in Poland and in other EU countries. Starting from 2004, the integration measures have been taken to encourage the concentration of the food industry in Poland. As a result of the action taken, the position of large enterprises has been strengthened, while position of medium and small enterprises has been undermined. This has resulted in an increase in the proportion of large businesses, with a simultaneous decline of small businesses in food production in Poland. Similar trends have appeared throughout the EU market.

The export has played an important role in stimulating the development of the food industry. In the period from 2003 to 2010, the share of export in the income of the food industry increased by approximately 25% compared to 10% in the previous decade. In 2012 total export of food grew by nearly 39.8%, whereas total export of beverages grew by 22.2% compared to 2010 (Table 1).

Table 1 Export of the Polish Foodstuff by Country Groups in the Years 2010-2012 (million zł)

Item	2010	2011	2012	2012/2010	2012EU Countries	2012CIS Countries
Agro-food products	40117.6	47758.2	56067.2	139.8	43391.3	5108.8
Beverages	1637.0	1764.6	2001.2	122.2	1472.6	696.0

Source: Statistical Yearbook of the industry. GUS, Warsaw 2013.

The data in Table 1 show that Polish food ranks high in the international markets Export development potential is still there, as its share in total agro-food industry in Poland is lower than in Germany, France, Denmark and the Netherlands. It should be noted that the share of food exports to the EU countries is significant and is still a high position in the structure of exports by groups of countries. In 2012 total export of food grew by nearly 40% compared to 2010 (Table 1). However, recently there are some signs of shrinking demand in the EU market and of declining competitive advantage of Poland in foreign trade, especially with regard to the products of the food and dairy industry (Pawlak, Poczta, 2011).

5. Determinants of Demand for Food in Poland

In Poland level and structure of consumption of food is still determined by income and prices, however over the years 2009-2011 a stabilisation of the share of consumer spending on food in total household expenditures at the level of 25% (Table 2) should be noted. It should be noted that in general terms the spending by households does not reflect the difference visible in the in cross-section of different types of households as well the cross-section of groups with different income. In light of the studies conducted in this area it was noted that in 2009 in the households in Poland the average monthly income of 20% people receiving the highest income was by 6.3 times higher than the corresponding income of 20% people with the lowest income (Kwasek, 2012). In contrast, the differences in the level of average monthly expenditures on consumer goods and services were

significantly lower (more than 2.5 times). This situation is a reproduction of the assessment from previous years, when in the analyses of this topic a significant stratification of the Polish population had been already signalled (Szwacka-Salmonowicz, 2003). The increase in expenses in the reported period was associated with inflation and did not mean any improvement in the financial situation of the Polish households. This is evidenced by the data in Table 2, showing share of food expenses in total expenditures in the households.

Table 2 Average Monthly Household Expenditures in the Polish Households in the Years 2010-2012 (per 1 individual in zł)

Type of household	2010	2011	2012
Overall expenses	991.44	1020.87	1050.78
Expenditures on consumer goods and services	945.80	976.44	1005.19
Expenditures on food and non-alcoholic beverages	246.14	255.69	263.85
The share of food in total expenses (%)	24.8%	25.0%	25.0%

Source: Author's elaboration based on: Household Budgets, 2013.

The data in Table 2 allow you to compare the growth of expenditures in the surveyed type of households in the years 2010-2012.

The next economic factor (besides the income), which determines changes in the level and structure of consumption, is the price. It determines the real value of income and the purchasing power in any socio-economic condition. A visible expression of the impact of prices on the level and structure of consumption are two values: the retail prices of consumer goods and services and the cost of living.

Table 3 Cost of Living by Groups of Households between 2010 and 2012

Values for various types of households	2010	2011	2012		
			Previous Year = 100	2000 = 100	2005 = 100
Households of employees:	102.5	104.1	103.6	139.8	122.6
including: food and non-alcoholic beverages	102.7	105.3	104.3	146.9	131.1
Households of farmers:	102.4	104.8	103.8	139.2	122.9
including: food and non-alcoholic beverages	102.2	106.7	104.4	150.3	132.9
Households of the self-employed	102.5	103.9	103.5	136.9	120.8
including: food and non-alcoholic beverages	102.8	105.0	104.5	146.7	130.8
households of retirees and disability pensioners:	102.8	104.8	104.0	148.4	127.8
including: food and non-alcoholic beverages	102.9	105.7	104.3	148.3	132.1
households of people with unearned sources of income:	102.5	104.2	103.7	144.5	125.1
including: food and non-alcoholic beverages	102.8	105.6	104.0	147.8	132.0

Source: Author's elaboration based on Household Budgets, 2013.

When analysing the cost of living indices by groups of households in 2010-2012, it should be underlined that in the analysed period there was a slight increase in the overall households (from 3.5% — households of the self-employed, to 4.4% — households of farmers of retirees and disability pensioners. Whereas in the period of twelve years (in 2012 compared to 2000) the increase in cost of living in the households ranged from 36.9% — households of the self-employed to 48.4% — households of farmers of retirees and disability pensioners (Table 3). It should be emphasized that the cost of living indices for the “food” group in these years were higher than the general rates due to the relatively high increase in the food prices. Equally characteristic is the fact that all tested

types of households are equally responsive to food prices and strive to maintain the level of food on the level reached so far.

Table 4 Total Average Expenditures* per 1 Individual in the Households (EU-27) in the Years 1999-2009

Item	1999	2004	2009	2004/1999	2009/2004
Belgium	11300	13100	14500	1.159	1.106
Bulgaria	3600	5300	6300	1.472	1.188
Czech Republic	6800	8400	10300	1.235	1.226
Denmark	11300	12900	13400	1.141	1.038
Germany	12000	14100	15200	1.175	1.078
Estonia	4700	7400	7800	1.574	1.054
Ireland	10600	13400	15800	1.264	1.179
Greece	12100	14900	16800	1.231	1.127
Spain	10800	13200	15200	1.222	1.151
France	11200	13300	14500	1.187	1.090
Italy	12700	13700	14500	1.078	1.058
Cyprus	12600	14800	18600	1.174	1.256
Latvia	3900	6100	8700	1.564	1.426
Lithuania	4600	7200	9400	1.565	1.305
Luxembourg	19800	24300	25600	1.227	1.053
Hungary	5500	7500	8700	1.363	1.160
Malta	11600	12800	12800	1.103	1.000
Netherlands	11600	13500	13800	1.163	1.022
Austria	13000	15300	16600	1.176	1.084
Poland	5500	7000	8700	1.272	1.242
Portugal	9000	10500	11900	1.166	1.133
Romania	3300	5000	6800	1.515	1.360
Slovenia	8500	10600	12000	1.247	1.132
Slovakia	5000	7000	10100	1.400	1.442
Finland	9900	12400	13600	1.252	1.096
Sweden	10700	12700	13600	1.186	1.070
Great Britain	13000	16400	17000	1.261	1.036

Note: * Expenses in Euros

Source: Author's calculations based on data from the "Eurostat yearbook 2011".

The data on the evolution of household consumption and prices of consumer goods and services in the European Union (Table 4) provide a valuable insight for comparative studies. The data presented in Table 4 shows that between 1999 and 2009 a significant increase in household expenditure on consumer goods and services took place, with big differences of this growth in the individual Member States. Relatively the highest increase in the consumer spending in the analysed period was reported in Estonia, Latvia (more than 50%), Slovakia and Hungary (about 40%) in 2004 compared to 1999. In contrast, the relatively smallest increase in consumer spending took place in countries with high level of the economic development, that is: in Italy, Belgium, Denmark, Germany, France, the Netherlands, Austria and Sweden (Table 4). In the subsequent period (2009/2004) a significantly lower growth in consumer spending was seen than in 2004/1999, although there were big differences in specific countries. As already mentioned, it is associated with the level of economic development and prosperity of the inhabitants. In comparison to other EU countries it can be assumed that that the increase in spending on consumer goods and

services in Poland was moderate (they increased in 2004 compared to 1999 by 27% and a slight 3% decrease in the subsequent period covered by the survey). There is considerable variation in the prices of consumer goods and services, which still shows the price differences within the European Union. In general, the trend of faster growth of prices in the new member countries and of slower growth in other countries (of the “old” EU). It is associated with a strong dependence of the prices of consumer goods and services in the given country on level of economic development and the purchasing power of the population (Eurostat Yearbook 2011).

6. Level of Satisfaction of Food Needs in Poland

Despite of the fact that In Poland level and structure of consumption of food is still determined by income and prices, over the years 2007-2012 it is worth noting a significant decrease in share of consumer spending on food in total household expenditures from 32% in 2007 down to 25% in 2012 (Budżetygospodarstwowymowych, 2013). During this period the goods were generally available in the market, the prices were competitive and the supply was very attractive, which resulted in great opportunities of substitution between products and within product groups.

The analysis of changes in the Polish food needs of households conducted over the years 2001-2009 on the basis of the results of the econometric analysis showed a continuing trend, which is indicated by the author’s previous research (Szwacka-Salmonowicz, Zielińska, 1996, Szwacka-Salmonowicz, 2003). In the analysed period there was a clearly higher level of changes in terms of growth of level of saturation of the food needs, quality improvement and substitution processes (Szwacka-Mokrzycka, 2013).

Over the last decade progressive changes in consumption behaviours of the Polish population. These changes relate to a higher level to satisfaction of food needs and greater rationalisation of the consumption. Despite of the positive changes in the structure of food consumption (increased consumption of meat, fish, eggs, with the downward trend in the consumption of animal fats, cereals and potatoes), the consumption of fruits, fishes and milk in Poland is still lower than in other EU countries (Urban R., Mroczek, 2011). Despite of the fact that the consumption behaviours in Poland slowly get more and more similar to those in other EU member states, they are still big differences.

7. Trends in Adjustment of Supply to the Reported Demand for Food

Prospects for the development of the food industry in Poland should be combined with changes in consumer demand and the possibilities of adjustment of the supply following these changes against the transformations in the macro-environment (Szwacka-Mokrzycka, 2013). The results of the performed analysis show that the food producers have privileged position compared to other sectors of the industry. We should consider the following conclusions, which pinpoint the direction of the adaptation of food manufacturers to the post-crisis economic situation in Poland. Firstly, it should be noted that industrial production in Poland in recent years developed rapidly to the crisis in the years 2008-2009, when the entrepreneurs were forced to revise their policy in terms of cost and business models. The analysis shows that in 2010 there was a slight improvement in the economic situation, but it was not a permanent trend. It turned out that the year 2013 was the one of the most difficult years in the post-crisis reality. At the same time, comparing to the analysis carried out for the whole industry, it can be concluded that food manufacturers are more optimistic about their situation in terms of development than sectors of the industry. The industrial sector assesses the current and expected economic situation negatively due to

reduced consumption. In contrast to the general industrial enterprises, food producers assess the current and expected market conditions as moderately favourable. This is due to the difficulty in reducing the consumption of basic goods, which also include food, see: Figure 1.

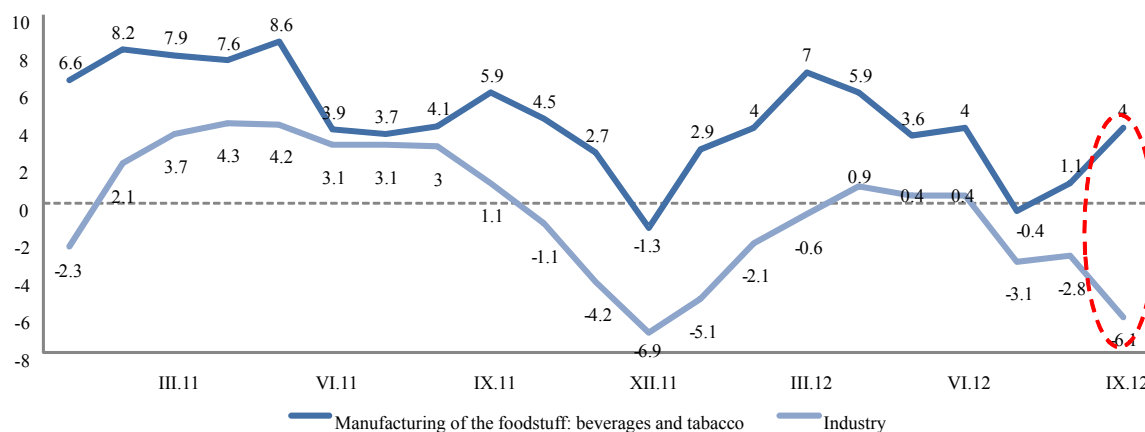


Figure 1 Indices of the General Business Climate

Source: Author's elaboration based on study by GUS entitled "Economic conditions in industry, construction, trade and services", February 2013, http://www.stat.gov.pl/cps/rde/xbcd/gus/KON_w_przem_budo_han_i_uslug_2m_2013.pdf.

From the performed analyses it can be concluded that food manufacturers do not expect the reduction of the food consumption. Only the structure of consumption may change. It should also be noted that in times of economic downturn, mainly resulting from weak domestic demand, the food industry will also be forced to change business scenarios, adapting them to changes in the macro-environment as well as the potential of consumer demand and potential for development of enterprises.

Diagnosis on the directions of development of the food industry (development scenarios) was based on the example of two sectors, that is: the fat and dairy industry.

The starting point for the formulation of development scenarios is consumer demand for food. The studies conducted by the author show that the upward trend in demand is related to the product with a high degree of processing, offered in the form increasing its usefulness. By this we mean generating demand for "new generation" food products, characterized by a much lower market saturation level than the traditional products. In the light of the obtained research results it can be concluded that over the first decade of the twenty-first century the level of satisfaction of food needs in Poland has significantly increased. The inference is based on the results of both the income elasticity of demand and consumer research conducted in each product category (Szwacka-Mokrzycka, 2013). The econometric analysis also shows that the qualitative changes, which are taking place, are largely a result of the intensification of the processes of substitution between food groups and within these groups. The results of consumer research (TGI) confirm the trends outlined in this respect.

As it was said before, the changes in the demand for food must be taken into account in the supply scenarios. Processes of adjustment of supply to the reported market demand cover different areas of operation. They relate to changes in the profile of production of the companies, rationalisation of behaviours observable in the sphere of production and management of resources. For the discussed topic right interpretation of changes in consumer behaviours (in line with observed market trends) is of particular importance. A response to these changes should be profiling the offers in accordance with the expectations of the purchasers of food. This issue is particularly

important in the conditions of a shrinking domestic demand and the limited possibilities to stimulate it across the broadly meant market of the European Union and the countries of Eastern Europe. The downward trend in the demand for food in the coming years will force both the manufacturers of fats and dairy products to rationalise their behaviours in terms of inventory management and production decisions (reducing inventory and production levels).

For manufacturers of fats, which have increasing production capacity, from the financial perspective it will be important to appropriately manage the cost side.

For dairy producers, who have less and less production capacity, it will be important to monitor the market and to correctly interpret the demand in order to adjust capacity. The demand for these products in the EU market and in the Eastern European countries is perceived as an opportunity for the development of sales of products manufactured by the analyzed sectors. Due to the nature of the goods produced the expected increase in demand from EU countries and Russia will refer only to the medium and highly processed articles (e.g., preserved solid fats and durable dairy products like cheese and milk powder). Pawlak and Poczta presented similar opinions on the subject, pointing to the Polish pro-export capacity to EU markets declining in time. This is due to the shrinking demand in the EU market and falling Polish competitive advantages in foreign trade, especially with regard to dairy and fat products (Pawlak, Poczta, 2011).

The conducted analysis of the fat industry shows that the development potential of the industry is limited. This is evidenced by falling industry's revenues. As the analysis shows, fat industry has been shrinking at a rate of nearly 4% per year for several years and there is no indication that the situation will change. It is estimated that the shrinking of the industry will proceed and in the long term it will come close to 6%.

The conducted analysis of prospects for the development of dairy branch shows a moderate possibility of growth of its revenues. Production of dairy products is increasing at a rate of more than 8% per year which indicates a significant potential for increasing sales. It is estimated that in the long term this rate will decrease and will amount to more than 3%. The fat branch is characterised by relatively high concentration ratio. Several major manufacturers fight for spheres of influence in the analysed market.

Due to the weak relative position of the suppliers and the customers related to fat manufacturers, the companies in the industry are forced to strongly compete in the conditions of limited demand (despite of the fact that they dictate the prices to the consumers and the suppliers).

The analysis of the attractiveness shows that fat industry is characterised by low attractiveness to investors compared to other sectors of food production (in each investment horizon), mainly due to the weak prospects for profitability and increased risk in the short-term investment horizon (1-2 years) (Szwacka-Mokrzycka, 2013).

The investment attractiveness of the dairy industry is low, also due to the level of expected profitability, with an acceptable level of investment risk (which is low in each investment horizon), see: Figure 2.

We can distinguish the following ways of doing business in this situation:

- largest companies should review their cost and debt policies, avoiding excessive debt;
- small businesses must necessarily seek niches to survive in the market (the "question marks", that is small companies with high potential, are prepared this way. Development opportunities for fat manufacturers are dependent on market demand potential and the possibility of emergence of and support to new market niches. In the present situation the greatest risk is associated with the largest companies that may be exposed to increasing difficulties in conducting business.

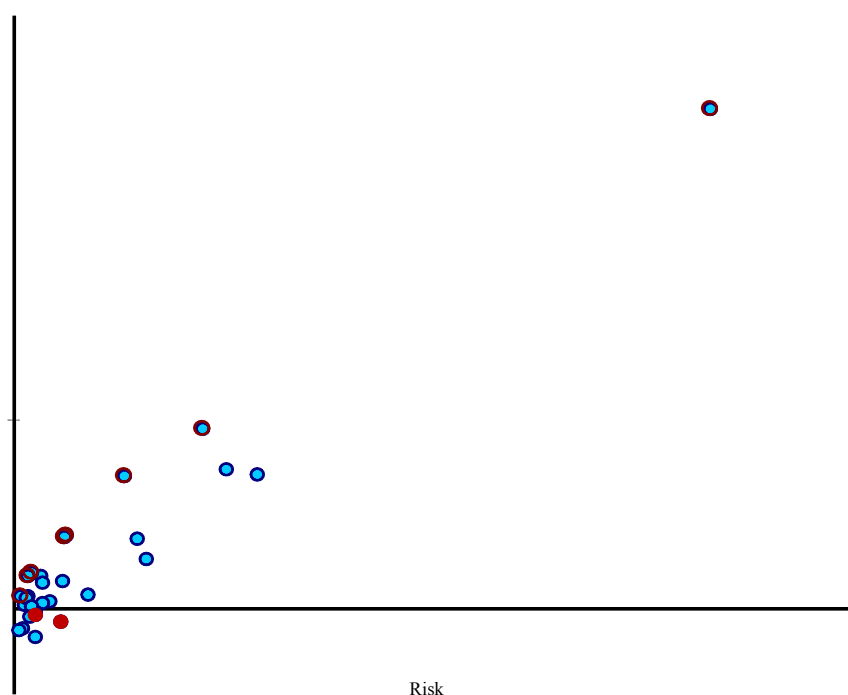


Figure 2 Risk & Profitability Map Fat and Dairy Sectors Compared to Other Food Production Sectors¹

Source: Author's elaboration

Relatively low concentration, presence of many manufacturers and the moderate development of competition is characteristic for the dairy industry. Thus it should be concluded that the situation and the development opportunities for dairy manufacturers are different from the ones of fat manufacturers. Considering the increasing bargaining power of the suppliers (farmers and producers of feed) and the purchasers (large retailers) dairy manufacturers are “trapped” in the value chain without the possibility of backward or forward horizontal integration due to lack of the necessary resources and competencies.

When linking analysis of the operating market to the profitability of the fat industry, the deteriorating profitability of the industry (equity, assets and sales) should be pointed out; deteriorating liquidity, longer efficiency cycle, increased debts, lower work efficiency as well as increased workload and energy consumption reveal a worsening financial situation in the sector, which is also reflected in the low investment attractiveness. Compared to other food production sectors, fat industry is characterised by low attractiveness, mainly due to the weak prospects for profitability and increased risk in the short-term investment horizon (1-2 years). The conducted analysis of the profitability of dairy industry indicates an increase in profitability (equity, assets and sales), increased liquidity (including high liquidity, decreased debts, increased work efficiency and capital to employment ratio; it shows an overall improvement in the condition of the sector, nonetheless the overall growth rate of revenues and their volatility still means low investment attractiveness for the investors, mainly in the short term). The investment attractiveness is low, also due to the level of expected profitability with an acceptable level of investment risk.

¹ The data contained in Figure 2 represent graphically location of fat and dairy industry divided into sub-sectors (product categories). Branches with a dashed border are the so-called most effective branches (which means that the highest profitability is achieved at the lowest risk). Profitability is represented by the ratio of operating profit to revenue and the risk is defined as the level of volatility of profitability. Investment attractiveness is defined as the distance of particular sectors from the most effective ones.

8. Conclusions

Processes of adjustment of supply to the reported market demand cover different areas of operation. They relate to changes in the profile of production of the companies, rationalisation of behaviours observable in the sphere of production and management of resources. The downward trend in the demand for food in the coming years will force both the manufacturers of fats and dairy products to rationalise their behaviours in terms of inventory management and production decisions (reducing inventory and production levels). The conducted analysis of prospects for the development of dairy branch shows a moderate possibility of growth of its revenues. Development opportunities for fat manufacturers are dependent on market demand potential and the possibility of emergence of and support to new market niches. In contrast, the dairy branch is characterised by relatively low level of concentration, presence of many manufacturers and the moderate development of competition.

References:

- Publishing Central Statistical Office (2013). *Household Budgets*, Warsaw. (in Polish)
- Eurostat Yearbook (2011). *Europe in Figures*.
- Gulbicka B. (2000). *Board of Polish Society in the Last Decade of the Twentieth Century, IERiGŻ, the series "Studies and Monographs"*, No. 96, Warsaw. (in Polish)
- Gulbicka B. and Kwasek M. (2000). "Diversification of food consumption in Poland in the context of household budget surveys", *IERGŻ*, Warsaw. (in Polish)
- "Economic conditions in industry, construction, trade and services", February 2013, available online at: http://www.stat.gov.pl/cps/rde/xber/gus/KON_w_przem_budo_han_i_uslug_2m_2013.pdf. (in Polish)
- Kos Cz. (1975). "Recommendations nutrition science as a premise consumption patterns by 2000", in: Cz. Kos (Ed.), *Consumption and Food Economy: Review and Prospects*, PWN, Warsaw.
- Kos Cz. (1991). *Changes in Food Consumption in Households in Poland*, IRWiR PAN, Warsaw. (in Polish)
- Kos Cz. and Szwacka-Salmonowicz J. (1997). *Marketing of Food Products*, PWRiL, Warsaw. (in Polish)
- Kwasek M. (2012). "Patterns of food consumption in Poland: Studies and monographs", *IERiGŻ*, Warsaw. (in Polish)
- Pawlak K. and Poczta W. (2011). *International Agricultural Trade: Theories of Competitive Developed Scenarios*, PWE, Warsaw. (in Polish)
- Publishing Central Statistical Office (2013). *Statistical Yearbook of Industry*, Warsaw. (in Polish)
- SMG/KRC (2013). A Millward Brown Company, Warsaw. (in Polish)
- Szwacka-Salmonowicz J. and Zielińska Z. (1996). *Hierarchy of Food Needs in 1993 against 1986 Years*, IRWiR PAN, Warsaw. (in Polish)
- Szwacka-Salmonowicz J. (2003). *Changes in the Behaviour of Buyers as A Determinant Shaping the Segmentation Strategy of Food Industry Companies in Poland*, Publishing WULS, Warsaw. (in Polish)
- Szwacka-Mokrzycka J. (2009). *Food Market in Poland: Current State and Trends — In the Framework of: "Creativity, Innovation and Management"*, Published by the University of Primorska, Faculty of Management Koper, 1st chapter of the monograph, pp. 1300-1310.
- Szwacka-Mokrzycka J. (2013). *Trends in Demand and Supply of Food in Poland*, Publishing WULS, Warsaw. (in Polish)
- Urban R. (2008). "Food industry in Poland in 2008", *Report IERiGŻ*, Warsaw. (in Polish)
- Urban R. and Mroczek R. (2011). "Progress of European integration in the food sector", *IERiGŻ*, Warsaw. (in Polish)
- Zielińska Z. (1978). "The income elasticity coefficients as measures of changes in the structure and food consumption in Poland", *Domestic Trade*, No. 5, Warsaw. (in Polish)
- Zielińska Z. (1979). "Long-term changes in food consumption against income growth", *IHWiU*, Warsaw. (in Polish)
- Zielińska Z. (1989). "Development processes of consumption", in: Z. Zielińska, *Household as a Component of General Social Management Processes: Selected Issues*, IHWiU, Warsaw. (in Polish)
- Żelazna K., Kowalczyk I. and Mikuta B. (2002). *Economics Consumption: Elements of the Theory*, Publishing WULS, Warsaw. (in Polish)